Collaborative Testing Services, Inc.

Containerboard Interlaboratory Testing Program

Participant Summary Report #608 (E) - May 2020

Introduction to the Containerboard Program

Explanation of Tables and Definitions of Terms

Analysis	Sample	Analysis Name
201	BX14	Top to Bottom Box Compression Strength, Corrugated Boxes
202	EC12	Edgewise Compressive Strength, by T811, Corrugated Board
203	EC12	Edgewise Compressive Strength by T839, Corrugated Board
205	42F2	Bursting Strength (Mullen), 42 lb Linerboard
206	56G1	Bursting Strength (Mullen), 56 lb Linerboard
215	42F2	Ring Crush, 42 lb Linerboard
216	56G1	Ring Crush, 56 lb Linerboard
223	42F2	STFI, 42 lb Linerboard
224	56G1	STFI, 56 lb Linerboard
228	42F2	Roughness - Stylus Method, 42 lb Linerboard
229	42F2	Roughness - Sheffield Method, 42 lb Linerboard
231	42F	Internal Bond, 42 lb Linerboard
234	42F	COF Inclined Plane (Slide Angle), 42 lb Linerboard
237	42F2	Air Resistance, 42 lb Linerboard
240	CM11	Flat Crush Strength (CMT), 26 lb Corrugating Medium
250	CM11	Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium
255	CM11	Ring Crush (RCT), 26 lb Corrugating Medium
261	CM11	STFI, 26 lb Corrugating Medium

Collaborative Testing Services, Inc.
CONTAINERBOARD INTERLABORATORY TESTING PROGRAM

INTRODUCTION

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

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

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

USE OF AVERAGE MEAN AS A COLLABORATIVE REFERENCE VALUE

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

Material	Lot Code	Dates in Use
26 lb Corrugating Medium	CM11	April 2019-Current
	CM92	January 2019-March 2019
35 lb Linerboard	35E1	February 2019-Current
42 lb Linerboard	42F2	February 2020-Current
	42F1	January 2019-January 2020
56 lb Linerboard	56G1	January 2020-Current
	56A2	January 2019-November 2019

ABOUT CTS

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

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EXPLANATION OF TABLES

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

Definitions of Terms Used

Weekly Results

Laboratory Data

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

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

Consensus Data

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

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

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

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

Labs Excld - The number of laboratory Means reported but excluded from the Wk Mean for that week because of outlying results ('X' following Mean).

Labs not rcvd - The number of laboratories failing to report for that week.

Monthly Results

Laboratory Data

Mean - For each laboratory, the average of all the weekly Means reported for this month.

CPV - Comparative Performance Value, an indication of how well a laboratory's Mean agrees with the other participants. The CPV is a ratio indicating the number of standard deviations from the consensus mean (Monthly Mean). The closer a laboratory's CPV is to zero, the more consistent its results are with the other participants' data.

SD - For each laboratory, the average of the weekly within-lab standard deviations (SD's) for all reported Weekly Means this month.

SD Wk - The standard deviation among the laboratory's weekly Means, including those Means flagged with an 'X'. The SD Wks is an indication of that laboratory's ability to obtain constant results from week to week.

Consensus Data

Month Mean - The average of the Means for all the participants, excluding those laboratories flagged with an 'X,' reporting data for this month.

Avg SD - For the current month, the average of the within-laboratory standard deviations (SD's) for all the participants, excluding those laboratories flagged with an 'X'.

SD btwn Labs - For the current month, the standard deviation of the laboratory Means about the Month Mean, excluding those laboratories flagged with an 'X'.

SD btwn Group - For the current month, the standard deviation of the laboratory Means within the group about the Month Mean, excluding those laboratories flagged with an 'X'.

SD btwn Wks - For the current month, the average of the laboratory between week standard deviations (SD Wks') for all the participants, excluding those laboratories flagged with an 'X'.

Cumulative Results

Laboratory Data

Mean	-	For each lab, the average of all the monthly Means reported for the weeks shown.
CPV	-	Comparative Performance Value, an indication of how well a laboratory's cumulative mean agrees with the other participants. The CPV is a ratio indicating the number of standard deviations from the consensus mean (Monthly Mean).
SDr	-	For each laboratory, the average of the weekly within-lab standard deviations (SD's) for the weeks shown.
SD Wk	-	The standard deviation among the laboratory's weekly Means for the weeks shown, including those Means flagged with an 'X'. The SD Wks is an indication of that laboratory's ability to obtain constant results from week to week.
Wks	-	The number of weeks included in the cumulative period.
Inst	-	The two letter instrument code. Codes are summarized at the bottom of the last analysis page.

Consensus Data

Grand Mean	-	The average of the Means for all the participants, excluding those laboratories flagged with an 'X,' reporting data for the number of weeks included in the cumulative period.
Avg SD	-	For the cumulative period, the average of the within-laboratory standard deviations (SD's) for all the participants, excluding those laboratories flagged with an 'X'.
SD btwn Labs	-	For the cumulative period, the standard deviation of the laboratory Means about the Month Mean, excluding those laboratories flagged with an 'X'.
SD btwn Wks	-	For the cumulative period, the average of the laboratory between week standard deviations for all the participants, excluding those laboratories flagged with an 'X'.
Labs Incld	-	The number of laboratory Means included in the Grand Mean.

Any laboratory that receives a 'flag' following a mean or standard deviation should refer to the chart below for an explanation of the data flag symbol:

Flag	Explanation

Data Flags " X " and " * " indicate a laboratory's performance on an average value differed from the consensus.
Data Flags " H " and " L " indicate a laboratory's performance on a standard deviation differed from the consensus.

Flags assigned to Weekly Means, Monthly Mean and Cumulative Mean:

X	Excluded from the weekly means, monthly means and/or the cumulative mean. Immediate review of data and/or testing procedure is recommended.
*	Included in the weekly means, monthly means and/or the cumulative mean; however, lab should review testing procedure and monitor future results.

Flags assigned to Weekly Means:

H	Indicates high within-laboratory standard deviation. The laboratory SD for each week is not shown, but laboratory average SD and consensus average SD values are shown.
L	Indicates low within-laboratory standard deviation. The laboratory SD for each week is not shown, but laboratory monthly average SD and consensus average SD values are shown.

Flags assigned to Monthly SD Wks and Cumulative SD Wks:

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

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2NJZX4	552.8	-0.81	47.88	606.0	0.11	35.58	4	ET
2RWDLB	579.8	-0.37	22.38	565.3	-0.70	10.75	4	ER
3W4QW2	666.8	1.04	81.11	631.8	0.62	38.40	4	LG
69BFN2	647.8	0.73	25.04	627.2	0.53	20.78	4	ER
6NKWG3	581.6	-0.34	21.37	583.8	-0.33	7.20	4	LM
8CJFXX	583.4	-0.31	33.89	566.5	-0.68	12.01	4	LS
AAACZR	660.5	0.94	36.92	667.0	1.32	17.46	4	LG
ADT6BU	547.8	-0.89	31.85	567.9	-0.65	27.18	3	EX
C6QADZ	547.6	-0.89	58.69	548.2	-1.04	15.56	4	ER
CBW38V	669.8	1.09	53.46	639.2	0.77	26.01	4	LO
CFLAHW	538.7	-1.04	41.30	588.2	-0.25	53.60	4	LS
EJV823	685.8	1.35	45.48	694.7	1.87	11.60	4	EM
FMCUCM	634.1	0.51	55.10	616.5	0.32	58.05	4	TB
GEGBBJ	754.6	2.46 *	35.73	702.7	2.03 *	62.21 H	4	LS
MMDW6E	627.7	0.41	44.23	620.5	0.40	11.73	3	TE
Q9LAMB	590.0	-0.21	44.79	597.5	-0.06	10.74	4	LS
RGP3UA	606.2	0.06	33.81	597.5	-0.06	54.89	4	LL
TD79RG	604.6	0.03	79.85	591.2	-0.19	16.28	4	EX
TG7JMG	594.3	-0.14	80.51	585.7	-0.29	24.27	4	ER
VJYRTF	565.2	-0.61	16.50	598.7	-0.04	31.17	4	ES
XY8TV4	536.0	-1.08	19.62	533.2	-1.34	12.97	3	LS
YV4GC9	483.6	-1.93 *	12.44	481.9	-2.36 *	1.61 L	4	LL

Consensus (All Labs) Results

Month Mean	602.67	Grand Mean	600.49
Avg SD	46.29	Avg SD Months	30.86
SD btwn Labs	61.66	SD btwn Labs	50.32
Labs Incld	22	Labs Incld	22

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	609.78	52.28	7.11	7
Water based adhesive sealing	685.80	0.00	83.13	1
Clip sealing	593.18	64.99	9.49	14

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Key to Instrument Codes Reported by Participants

EM	Emerson 1200	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
LO	Lansmont 152-30k	LS	Lansmont Squeezer
TB	TMI Monitor/Compression Tester, Model 17-70	TE	Testometric M500 - 25 KN

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Containerboard Interlaboratory Testing Program

Analysis 202

Edgewise Compressive Strength, by T811, Corrugated Board - EC12

TAPPI Official Test Method T811

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
6XDFBX	41.1	1.00	1.72		40.9	1.03	1.21	4	LC
7EAUV2	35.9	-0.07	2.19		34.1	-0.23	2.00	4	LD
8CJFXX	34.9	-0.29	2.43		34.6	-0.13	0.52	4	LD
ADT6BU	36.2	-0.01	1.04		35.7	0.06	1.25	3	LC
CFLAHW	39.0	0.57	0.59	L	39.4	0.75	0.76	4	LC
NKF4KE	35.9	-0.08	0.74		32.6	-0.50	2.58	4	TF
QXERPD	38.6	0.48	1.01		37.9	0.47	0.97	2	XX
WZK39A	45.1	1.81	1.61		45.1	1.80	2.43	4	XX
XY8TV4	26.6	-2.00 *	1.65		25.2	-1.87 *	1.92	3	EM
XYNANB	33.6	-0.54	1.66		30.3	-0.92	2.88	3	TX
YEF7P7	32.0	-0.88	2.07		32.8	-0.46	1.12	2	XX

Consensus (All Labs) Results

Month Mean	36.27	Grand Mean	35.34
Avg SD	1.62	Avg SD Months	1.77
SD btwn Labs	4.84	SD btwn Labs	5.43
Labs Incld	11	Labs Incld	11

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	TF	TMI Digital Crush Tester, Model 17-19
TX	TMI (model not specified)	XX	Instrument make/model not specified by lab

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	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2NJZX4	41.8	0.91	1.30		42.5	1.31	1.85	4	TD
2RWDLB	39.0	-0.36	2.23		40.9	0.60	1.27	4	LD
3W4QW2	39.5	-0.14	1.29		40.3	0.33	1.20	4	TJ
69BFN2	39.6	-0.09	1.55		38.8	-0.30	0.52	4	EM
6NKWG3	39.9	0.04	1.25		39.9	0.15	0.57	4	EM
6XDFBX	41.8	0.90	1.57		40.7	0.52	0.97	4	LC
7EAUV2	37.5	-1.07	2.12		37.9	-0.73	0.94	4	LD
8CJFXX	42.5	1.24	0.93		41.5	0.89	0.99	4	LD
9TMCU3	37.8	-0.91	1.72		37.4	-0.94	0.70	4	XX
AAACZR	41.9	0.96	0.92		41.5	0.88	0.55	4	EM
ADT6BU	38.0	-0.83	1.25		38.2	-0.60	0.64	3	LC
AHKELT	39.4	-0.19	1.38		39.4	-0.06	0.00	1	TL
B3MMDW	33.1	-3.07 X	2.23		37.0	-1.14	3.59 H	3	IX
BPGTJY	39.3	-0.24	1.10		38.5	-0.47	0.82	4	TK
CBW38V	38.0	-0.82	0.97		39.1	-0.18	0.75	4	LD
CFLAHW	40.0	0.09	2.31		41.1	0.70	0.80	4	LC
EJV823	38.5	-0.62	2.24		38.6	-0.42	0.13 L	3	TH
F6WKCL	37.9	-0.89	1.52		39.8	0.13	1.74	3	EM
FMCUCM	40.1	0.12	0.42 L		41.2	0.75	1.00	4	LD
GEGBBJ	42.0	1.01	1.56		42.8	1.44	0.90	4	TB
JJ86LP	42.2	1.08	1.58		42.6	1.34	0.59	4	LD
JL97LM	35.9	-1.81	0.92		35.7	-1.68	4.71 H	4	LC
MMDW6E	42.0	1.02	0.86		40.7	0.52	1.15	3	LD
NKF4KE	37.3	-1.15	0.67 L		36.6	-1.31	0.53	4	TD
PBU23J	39.6	-0.07	1.40		37.9	-0.71	1.35	4	EM
QMHNKK	31.7	-3.70 X	2.95 H		34.1	-2.40 *	2.28	4	XX
RGP3UA	40.3	0.22	1.25		41.5	0.88	1.73	4	BU
TD79RG	42.6	1.29	0.82		39.9	0.16	2.43	4	LD
TG7JMG	42.0	1.01	1.95		39.1	-0.20	2.50	4	LD
V4PBZF	35.4	-2.04 *	1.87		37.3	-1.00	1.54	4	LC
VJYRTF	39.8	-0.02	2.08		41.4	0.82	1.39	4	LD
WPRLJ9	42.4	1.18	2.90 H		42.4	1.26	1.34	4	TD
WZK39A	43.8	1.84	1.24		44.8	2.35 *	2.96	4	XX
XY8TV4	38.6	-0.57	1.10		39.0	-0.23	0.48	3	EM
XYNANB	41.4	0.71	1.40		38.1	-0.62	3.11	3	TX
YEF7P7	42.0	1.00	1.49		40.4	0.37	2.28	2	IM
YV4GC9	38.2	-0.74	1.58		37.6	-0.84	0.97	4	LC
ZCMWTA	35.3	-2.06 *	3.14 H		36.0	-1.56	0.99	4	TD

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Consensus (All Labs) Results

Month Mean	39.80	Grand Mean	39.52
Avg SD	1.61	Avg SD Months	1.72
SD btwn Labs	2.18	SD btwn Labs	2.25
Labs Incld	36	Labs Incld	38

Key to Instrument Codes Reported by Participants

BU	Buchel Digital Crush Tester	EM	Emerson 1200 Series
IM	Instron 5500 Series	IX	Instron (model not specified)
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
TB	TMI Monitor/Compression Tester, Model 17-70	TD	TMI Digital Crush Tester, Model 17-09
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
TX	TMI (model not specified)	XX	Instrument make/model not specified by lab

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	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
2RWDLB	109.2	109.6	115.8	111.3	111.5	0.42	7.4	3.0	111.0	0.23	8.7	3.8	16	AH
6K7326_AL	109.9	112.1	109.8	113.6	111.4	0.39	9.6	1.8	110.3	-0.01	8.9	2.8	8	AL
769846_AL	111.6	107.9	105.9	107.6	108.3	-0.61	7.9	2.4	107.1	-1.06	9.2	1.8	16	AL
7EAUV2	104.2	102.9 L	107.8	111.9	106.7	-1.10	7.5	4.0	107.4	-0.98	7.4	2.4	16	LA
7LUK94	109.9	108.1	109.5	108.6	109.0	-0.36	4.4	0.8	109.7	-0.22	4.1	1.2	16	LA
7YZE32	109.5	113.6	115.5	114.1	113.2	0.96	8.2	2.6	110.9	0.18	9.3	3.0	16	LZ
8CJFXX	108.6	105.0	104.4	106.2	106.1	-1.30	8.3	1.8	104.8	-1.82	8.8	2.1	16	LA
99WTM3	107.0	103.9	105.4	101.5 *	104.5	-1.81	9.0	2.4	104.8	-1.84	9.0	3.7	12	LC
AH3KHX	106.8 H	111.0	110.2	114.6	110.7	0.16	11.4	3.2	111.7	0.44	10.2	2.8	16	LZ
AH3KHX_AL	89.9 XL	88.5 X	86.7 X	87.3 X	88.1	-7.01 X	3.8	1.4	87.5	-7.55 X	7.0	7.6 H	16	AL
CFLAHW	103.0 *	102.1	104.9	104.6	103.7	-2.07 *	8.1	1.3	106.0	-1.43	8.9	3.4	16	AH
CVMLEV	117.3 *	114.8	109.5	107.7	112.3	0.69	8.7	4.4	114.2	1.29	9.2	3.7	16	LA
CXQGXX	108.6	108.9	108.4	109.0	108.7	-0.46	8.2	0.3 L	108.8	-0.50	7.3	0.6 L	12	LJ
DPQGXV	108.6	110.8 L	No Data	No Data	109.7	-0.15	3.7	1.6	109.9	-0.14	3.6	1.3	10	XX
DVGR8U	104.6	107.6	112.0	101.4 *	106.4	-1.19	8.1	4.5	108.6	-0.58	8.0	3.9	8	AH
DVGR8U_AL	111.9	No Data	No Data	No Data	111.9	0.55	5.2	0.0	111.9	0.52	5.2	0.0	1	AL
DVVQCW	108.2	104.8 H	106.4 H	104.3	105.9	-1.34	12.3	1.7	106.2	-1.38	9.2	1.3	16	LC
FACTZL	107.3	108.3	113.3	109.1	109.5	-0.21	5.6	2.6	110.2	-0.03	6.6	2.0	16	TP
GK4Y7P	108.9	110.1	110.9	108.7 L	109.7	-0.16	5.1	1.0	109.8	-0.17	4.7	0.9 L	16	LA
HCNEMP_AL	107.5	105.9	111.4	111.0	108.9	-0.39	5.9	2.6	110.2	-0.05	7.1	2.2	16	AL
HHV9GK	107.4	104.3	102.3	109.4	105.9	-1.37	7.5	3.2	103.9	-2.11 *	9.6	4.5	16	LA
HYZFVM	114.6	114.5	114.6	113.4	114.3	1.31	5.9	0.6	113.9	1.17	6.6	0.7 L	16	LA
JJ86LP_AL	121.7 X	114.9	116.2	114.7	116.9	2.13 *	5.5	3.3	117.1	2.25 *	6.3	2.0	16	AK
JL97LM_AL	112.2	109.9	111.7	112.2	111.5	0.43	7.3	1.1	113.5	1.06	9.3	2.5	16	AL
JYGLEQ	111.6	110.8	110.0	108.2	110.1	-0.01	8.9	1.5	111.8	0.47	12.3	3.6	16	TB
K7CBPM	109.2	111.8	104.4	105.5	107.7	-0.78	8.8	3.4	107.7	-0.88	10.6	2.6	16	LA
K8MDBL_AL	113.6	108.8	111.6	111.5	111.4	0.38	7.1	2.0	110.3	-0.01	8.2	3.2	16	AL
KLLRHM	113.2	105.8	112.8	109.9	110.4	0.09	7.6	3.4	108.9	-0.46	8.8	3.5	16	LZ
LCFAKP_AL	108.5	106.1	109.0	109.8	108.3	-0.58	6.7	1.6	110.1	-0.08	6.7	2.8	16	AL
LMWT4L	110.7	112.5	108.3	109.3	110.2	0.01	8.0	1.8	109.9	-0.13	8.9	2.3	16	LA
MUPLPK_AL	107.9	103.1	102.6	102.4 *	104.0	-1.95 *	9.0	2.6	106.3	-1.35	8.0	4.0	12	AL
NKF4KE	111.8 H	108.9 H	106.0	110.5	109.3	-0.27	12.5	2.5	113.4	1.01	10.0	3.0	16	XX
NYXV9L	109.3	114.9	113.3	112.8	112.6	0.76	8.4	2.4	112.8	0.82	8.7	1.7	16	LC
PQ4HVK	115.2	111.5	107.4	107.9	110.5	0.10	9.1	3.6	107.8	-0.83	9.9	4.0	16	LC
Q3R4EK	115.2	117.6	115.2	115.0	115.8	1.78	11.5	1.2	115.1	1.58	10.1	3.5	16	AH

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Containerboard Interlaboratory Testing Program

Analysis 205

Bursting Strength (Mullen), 42 lb Linerboard - 42F2

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
QAWBAA	109.7	110.0	108.1	109.3	109.3	-0.28	6.3	0.8	109.9	-0.14	6.8	0.9 L	16	AH
RD9BQE	104.7	105.5	109.2	111.3	107.7	-0.80	9.2	3.1	108.1	-0.74	10.3	12.3 H	16	LB
RXXUWE_AI	109.5	109.4	109.3	109.3	109.4	-0.25	6.1	0.1 L	109.1	-0.41	8.0	2.5	7	AL
TD79RG	111.8	106.4	113.0	113.6	111.2	0.33	9.7	3.3	111.5	0.39	9.0	3.7	16	AH
TG7JMG	106.9	106.5	110.0	112.7	109.0	-0.37	9.3	2.9	107.8	-0.85	11.8	3.9	16	LZ
TTFPKG	115.0	112.0	105.1	114.6	111.7	0.48	9.6	4.6	112.9	0.85	10.2	3.9	16	LA
U28U8B	114.4	117.1	No Data	No Data	115.8	1.78	10.0	1.9	112.2	0.60	10.2	4.4	4	LC
UC4ZZ9_AL	107.1	116.2	110.9	115.6	112.4	0.73	9.1	4.3	112.6	0.76	8.3	4.2	12	AK
UKFNLF	107.5	106.0	105.8	106.2	106.4	-1.20	6.2	0.8	105.5	-1.59	7.9	2.7	16	LC
UQQAME_AI	116.9	110.5	106.4 H	111.9	111.4	0.40	10.6	4.3	112.7	0.80	12.7	4.3	16	AL
VJYRTF	112.5	104.2	101.3 *	110.8	107.2	-0.94	9.1	5.3	107.0	-1.10	8.7	3.6	16	LA
WB4ARC_AL	118.0 *	117.7	118.2 *	116.1	117.5	2.33 *	7.6	0.9	113.8	1.13	8.7	3.9	16	AL
WKT9X6_AL	No Data	No Data	120.8 *	118.4 *	119.6	3.00 X	12.4	1.7	115.7	1.79	10.6	3.9	8	AL
WZK39A	113.6 L	115.4 L	116.0 L	116.4 L	115.3	1.65	2.5	1.2	114.7	1.44	4.9	1.2	16	LC
YEXPGB	112.2	111.3	108.6	108.1	110.1	-0.03	10.1	2.0	109.2	-0.38	9.1	1.6	16	LA
YUENMC	111.5	108.7	110.2	112.1 L	110.6	0.15	5.1	1.5	111.7	0.45	7.8	2.3	16	LA
YUENMC_AI	113.0	110.6	112.8	111.8	112.0	0.60	7.1	1.1	112.8	0.81	6.9	2.2	16	AL
Z4VEE2	113.0	111.6	110.3	109.6	111.1	0.31	8.3	1.5	110.8	0.14	8.9	3.7	14	LC
Z4VEE2_AL	115.1	117.4	113.3	108.5 H	113.6	1.09	11.0	3.8	113.7	1.12	10.2	3.7	8	AL

Consensus (All Labs) Results

Wk Mean	110.49	109.79	109.91	110.28	Month Mean	110.16	Grand Mean	110.33
Avg SDr	8.41	8.38	8.35	8.34	Avg SD	8.26	Avg SD	8.70
SD btwn Labs	3.49	4.17	4.20	3.80	SD btwn Labs	3.15	SD btwn Labs	3.03
Labs Incld	51	51	50	50	SD btwn Wks	2.66	SD btwn Wks	3.43
Labs Excld	2	1	1	1	Labs Incld	52	Labs Incld	53
Labs not Rcvd	1	2	3	3				

Key to Instrument Codes Reported by Participants

AH	Perkins Model AH	AK	L & W Autoline 300
AL	L & W Autoline 400	LA	L&W Bursting Strength Tester
LB	L&W Burst-O-Matic	LC	L&W Autoline (205 Enrollment)
LJ	L&W Bursting Strength Tester J-Type	LZ	L&W (model not specified)
TB	TMI Monitor/Burst 1000	TP	Technidyne PROFILE/Plus
XX	Instrument make/model not specified by lab		

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	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
2RWDLB	112.8	117.1	117.0	111.2	114.5	-0.09	9.9	3.0	113.7	-0.32	9.1	4.2	12	AH
6K7326_AL	118.1	114.3	117.6	109.2	114.8	-0.01	11.0	4.1	114.6	0.04	10.4	3.6	8	AL
769846_AL	115.2 H	114.1	114.8	116.1	115.1	0.08	11.1	0.8	115.3	0.33	10.3	2.2	8	XX
7EAUV2	116.3	103.5 *L	115.8	111.5	111.8	-0.94	6.8	5.9	111.5	-1.20	9.0	3.4	12	LA
7LUK94	123.7 *L	121.3 L	122.8 *L	123.7 *L	122.9	2.49 *	3.3	1.1	122.8	3.31 X	3.6	1.1	12	LA
7YZE32	117.3	114.6	111.8	110.5	113.5	-0.39	11.4	3.0	114.0	-0.19	10.9	3.0	12	LZ
8CJFXX	109.3	114.4	113.1	111.6	112.1	-0.83	9.9	2.2	112.7	-0.69	10.7	2.2	12	LA
99WTM3	109.3	107.4	112.8	98.8 X	107.1	-2.39 *	9.4	6.0	110.0	-1.77	10.3	4.5	12	LC
AH3KHX	113.0	116.4	113.2	116.8	114.9	0.01	10.4	2.0	113.7	-0.32	10.3	2.7	12	AH
AH3KHX_AL	93.0 X	98.5 XL	89.4 X	89.8 X	92.7	-6.84 X	7.0	4.2	90.0	-9.79 X	8.3	8.2 H	12	AL
CFLAHW	108.1	105.1 *	107.9 *	106.9 *	107.0	-2.41 *	9.3	1.4	109.0	-2.19 *	9.6	2.7	12	AH
CVMLEV	116.7	117.7	121.6	113.7	117.4	0.81	11.0	3.3	117.7	1.30	11.5	4.8	12	LA
CXQGXX	112.7	112.8 L	112.5	112.3	112.6	-0.69	7.7	0.3 L	112.6	-0.74	7.7	0.2 L	8	LJ
DPQGXV	124.2 *	125.4 *	No Data	No Data	124.8	3.09 X	4.6	0.8	122.4	3.17 X	4.5	2.1	10	XX
DVGR8U	116.6	106.4	119.5	117.6	115.0	0.07	10.0	5.9	115.0	0.22	10.0	5.9	4	AH
DVGR8U_AL	115.4	No Data	No Data	No Data	115.4	0.18	10.6	0.0	115.4	0.37	10.6	0.0	1	AL
DVVQCW	111.0	114.3	112.8	116.6	113.7	-0.35	9.7	2.4	112.5	-0.80	10.7	2.9	12	LC
FACTZL	111.2	112.0	115.3	115.0	113.4	-0.44	8.5	2.1	112.8	-0.66	7.6	1.7	12	TP
GK4Y7P	115.0	114.3 L	114.5 L	114.1	114.5	-0.10	4.3	0.4 L	113.3	-0.46	4.8	1.7	12	LA
HCNEMP_AL	116.0	113.2	116.0	115.5	115.2	0.11	7.7	1.3	114.0	-0.18	8.9	1.8	12	AL
HHV9GK	109.7	112.7	107.5 *	111.4	110.3	-1.39	9.3	2.2	109.1	-2.17 *	8.5	3.6	12	LA
HYZFVM	116.5	116.7	115.9 L	116.9 L	116.5	0.52	4.9	0.4 L	116.3	0.73	6.0	0.6 L	12	LA
JJ86LP_AL	123.6 *	122.9	117.0	122.4	121.5	2.06 *	9.3	3.0	120.1	2.26 *	9.9	3.3	12	AL
JL97LM_AL	113.5	117.0	121.3	113.1 H	116.2	0.43	19.8	3.8	116.6	0.84	16.1	3.7	8	AL
JYGLEQ	118.1	119.7	118.0	118.4	118.6	1.16	9.7	0.8	116.4	0.78	9.8	3.0	12	TB
K7CBPM	107.6	111.4	110.7	112.6	110.6	-1.31	8.3	2.1	111.2	-1.30	11.5	1.7	8	LA
K8MDBL_AL	119.7	110.8	119.5	115.2	116.3	0.46	8.5	4.2	114.4	-0.01	15.2	4.6	8	AL
KLLRHM	113.0	110.0	113.2	119.7	114.0	-0.26	12.4	4.1	116.7	0.87	11.1	3.8	12	LZ
LCFAKP_AL	115.1	115.7	117.5	113.2	115.4	0.17	7.6	1.8	115.0	0.23	7.5	2.6	12	AL
LMWT4L	116.2	113.0	113.0	117.4	114.9	0.03	13.3	2.2	114.8	0.14	12.0	2.1	12	LA
MUPLPK_AL	113.1	113.5	109.7	111.1	111.8	-0.92	8.4	1.8	112.8	-0.68	7.8	1.6	8	AL
NKF4KE	118.5	116.3	116.1	118.5	117.4	0.79	8.5	1.3	116.4	0.78	11.9	2.1	12	XX
NYXV9L	113.2	113.8	118.6	123.5 *	117.3	0.77	9.6	4.8	116.5	0.80	9.3	3.3	12	LC
PQ4HVK	117.4	109.8	110.9	108.6	111.7	-0.96	10.3	3.9	110.8	-1.45	10.7	3.6	12	LC
Q3R4EK	119.4	122.0	121.6	121.2	121.1	1.93	9.2	1.1	119.7	2.09 *	9.1	3.0	12	AH

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Containerboard Interlaboratory Testing Program

Analysis 206

Bursting Strength (Mullen), 56 lb Linerboard - 56G1

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
QAWBAA	112.2	111.5	114.9	114.5	113.3	-0.47	7.0	1.7	112.9	-0.63	6.8	1.3	12	AH
RD9BQE	103.9 *	107.4	118.6	118.6	112.1	-0.83	10.1	7.6 H	112.2	-0.92	9.5	6.8	12	LB
RXXUWE_AI	114.4	114.5	116.2	120.6	116.4	0.50	10.3	2.9	116.4	0.78	10.3	2.9	4	AL
TD79RG	111.8	115.0	116.2	113.4	114.1	-0.22	10.2	1.9	113.1	-0.56	9.4	2.8	12	AH
TG7JMG	111.7	113.4	117.1	115.7	114.5	-0.10	11.2	2.4	111.5	-1.20	11.5	2.8	12	LZ
TTFPKG	117.9	115.6	114.4	118.0	116.5	0.52	12.4	1.7	115.6	0.43	11.8	4.9	12	LA
U28U8B	124.5 *	118.9	No Data	No Data	121.7	2.13 *	12.9	4.0	118.6	1.65	11.6	6.1	3	XX
UC4ZZ9_AL	104.8 *	119.1	109.3	127.3 X	115.1	0.10	10.4	10.1 H	115.4	0.39	10.7	7.5 H	8	AK
UKFNLF	108.2	107.9	113.8	109.9	110.0	-1.50	8.6	2.7	111.8	-1.09	9.0	2.5	12	LA
UQQAME_AI	114.5	105.2 *H	115.3	114.4	112.4	-0.76	17.9	4.8	116.9	0.96	13.0	4.8	12	AL
VJYRTF	109.7	114.2	116.7	109.3	112.5	-0.72	10.1	3.6	113.6	-0.34	10.2	3.5	12	LA
WB4ARC_AL	115.0	118.7	120.4	119.0	118.3	1.08	6.6	2.3	117.8	1.32	8.3	2.4	12	AL
WKT9X6_AL	117.4	No Data	112.6	112.1	114.0	-0.24	12.3	2.9	115.5	0.40	12.4	3.3	7	AL
YEXPGB	116.3	114.0	110.4	112.9	113.4	-0.43	10.1	2.5	114.1	-0.15	9.2	2.3	12	LA
YUENMC	116.0	115.0	122.1	113.4	116.6	0.56	7.3	3.8	114.5	0.02	9.1	4.7	12	LA
YUENMC_AI	113.7	117.3	117.5	118.8	116.8	0.63	6.6	2.2	116.6	0.84	6.9	2.9	8	AL
Z4VEE2	116.7	120.0	116.7	116.5	117.5	0.82	11.7	1.7	116.8	0.93	11.7	3.2	10	LC
Z4VEE2_AL	117.8	115.6	112.6 H	117.6	115.9	0.33	13.3	2.4	115.9	0.56	13.3	2.4	4	AL

Consensus (All Labs) Results

Wk Mean	114.67	114.26	115.40	115.11	Month Mean	114.81	Grand Mean	114.48
Avg SDr	9.74	10.42	9.91	10.38	Avg SD	10.20	Avg SD	10.29
SD btwn Labs	4.49	4.63	3.70	3.98	SD btwn Labs	3.23	SD btwn Labs	2.50
Labs Incld	52	50	49	47	SD btwn Wks	3.43	SD btwn Wks	3.52
Labs Excld	1	1	1	3	Labs Incld	51	Labs Incld	50
Labs not Rcvd	0	2	3	3				

Key to Instrument Codes Reported by Participants

AH	Perkins Model AH	AK	L & W Autoline 300
AL	L & W Autoline 400	LA	L&W Bursting Strength Tester
LB	L&W Burst-O-Matic	LC	L&W Autoline (206 Enrollment)
LJ	L&W Bursting Strength Tester J-Type	LZ	L&W (model not specified)
TB	TMI Monitor/Burst 1000	TP	Technidyne PROFILE/Plus
XX	Instrument make/model not specified by lab		

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Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42F2

TAPPI Official Test Method T822

Report #608 (E)
May 2020

	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
2RWDLB	89.3 L	89.7	89.7	91.0 L	89.9	-0.12	2.4	0.7	88.1	-0.59	2.6	1.7	16	LD
3FJZX2	84.3	84.3	84.3	83.9	84.2	-1.38	1.9	0.2 L	92.2	0.53	2.6	5.5 H	16	LZ
42X8MZ	90.7	92.7	93.0	92.0	92.1	0.35	3.6	1.0	91.0	0.19	2.8	4.1	16	RS
6K7326	95.6	93.7	96.0	96.2	95.4	1.07	2.6	1.1	95.4	1.39	2.6	1.1	4	LC
6PYQA4	81.3 *H	No Data	No Data	78.1 *H	79.7	-2.37 *	7.5	2.3	85.1	-1.41	8.2	6.2 H	13	MB
6XDFBX	88.1	86.1	89.2	89.3	88.2	-0.50	3.1	1.5	87.9	-0.64	2.9	1.1	16	LC
769846	89.3	86.3	88.8	87.6	88.0	-0.54	2.6	1.3	88.2	-0.57	3.0	0.9	16	LD
7EAUV2	89.0	91.4	89.1	89.1	89.7	-0.18	2.5	1.2	89.2	-0.28	2.4	1.6	16	LD
7LUK94	83.8 L	82.3	82.7	83.3	83.0	-1.63	1.9	0.7	83.5	-1.86	1.8	1.2	16	TU
7PDFBV	91.5	91.4	85.9	87.0	88.9	-0.34	2.3	2.9	90.3	-0.01	3.2	2.4	16	EN
8CJFXX	90.0	90.1	91.5	88.6	90.1	-0.09	2.4	1.2	90.7	0.10	2.4	1.6	16	LD
99WTM3	94.5 H	95.1	89.5	94.0	93.3	0.61	3.9	2.6	92.5	0.59	3.5	2.5	12	LD
B2ACZQ	87.3	85.2	86.6	84.7	85.9	-1.00	3.8	1.2	85.7	-1.25	3.7	1.1	16	LD
BBKELQ	90.0	91.6	91.5	92.5	91.4	0.20	2.8	1.0	93.8	0.97	2.3	1.8	16	LZ
BPGTJY	86.7	88.5	87.7	86.8 L	87.4	-0.66	1.5	0.9	86.1	-1.13	1.3	1.3	16	MB
C6QADZ	82.5	82.9	85.2	84.7	83.8	-1.46	2.5	1.3	84.6	-1.55	2.4	1.3	16	EN
CDZXQY	88.2	84.3	86.4	87.4	86.6	-0.85	2.5	1.7	88.6	-0.46	3.6	2.1	16	LD
CFLAHW	87.6	92.0	89.4	90.0	89.7	-0.16	2.7	1.8	89.6	-0.19	2.6	1.3	16	LC
CRGT7U	98.3	99.0	97.8	94.7	97.4	1.52	3.6	1.9	96.4	1.65	5.0	4.4	16	TU
CVMLEV	95.3	93.3	98.8	95.6	95.7	1.15	3.3	2.3	96.5	1.69	3.1	1.5	16	LD
CXQGXX	93.2	93.7	93.5	93.2	93.4	0.64	2.7	0.2 L	92.9	0.71	2.7	0.9	12	LD
DPQGXV	83.4	82.3	No Data	No Data	82.9	-1.67	2.7	0.8	84.2	-1.65	2.7	4.0	9	LD
DVVQCW	88.0	89.5	87.1	86.5	87.8	-0.59	2.6	1.3	87.4	-0.79	2.9	1.5	16	LD
FACTZL	92.8	92.0	91.6	90.4	91.7	0.26	3.7	1.0	90.5	0.05	3.6	1.4	16	TJ
GK4Y7P	91.9	91.4	93.8	91.7	92.2	0.38	2.2	1.1	91.9	0.43	2.0	1.5	16	LZ
HCNEMP	96.0	87.1	87.3 H	84.6 H	88.8	-0.37	5.0	5.0 H	90.8	0.13	3.9	3.2	16	LZ
HYZFVM	92.1	91.9	92.6	93.6	92.6	0.46	3.3	0.8	92.5	0.60	3.4	0.8	16	LD
J23VFX	94.3 L	93.9	96.6	95.5	95.1	1.00	1.8	1.2	91.4	0.29	2.0	3.4	12	LD
JJ86LP	95.3	96.2	95.8	95.2	95.6	1.12	2.4	0.5	94.3	1.10	2.4	2.0	14	LD
JL97LM	88.2	90.0	89.8	87.7	88.9	-0.34	2.8	1.1	81.9	-2.28 *	3.9	6.6 H	16	LC
JNGH4N	85.0	83.1	86.3	84.5	84.7	-1.26	3.3	1.3	86.9	-0.91	3.6	2.2	16	EX
JYGLEQ	No Data	93.3	91.8	90.8	92.0	0.33	3.6	1.3	92.4	0.57	4.0	2.4	11	LD
K7CBPM	103.2 X	103.5 *	101.9 *	102.1 *	102.6	2.67 *	3.1	0.8	101.3	2.99 X	3.0	1.8	16	LD
KLLRHM	90.1	93.4	92.3	87.7	90.9	0.09	2.8	2.5	89.5	-0.20	3.0	2.0	16	LC
LMWT4L	91.7	86.1	85.1	83.9	86.7	-0.83	3.1	3.5	87.0	-0.90	2.8	2.7	16	LC

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Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42F2

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
MMDW6E	92.2 L	93.4 L	92.9	93.4	93.0	0.55	1.7	0.6	93.3	0.83	1.5	0.6 L	12	LD
MUPLPK	92.3 H	100.3 *H	99.6 H	101.2 *	98.4	1.73	5.7	4.1 H	94.7	1.20	7.7	6.0 H	16	LC
NYXV9L	93.3	91.8	94.0	91.9	92.7	0.50	3.3	1.0	93.3	0.81	2.7	1.5	16	LD
P26E8G	84.8 H	83.4 H	86.5	86.5	85.3	-1.14	5.1	1.5	85.3	-1.37	5.1	1.5	4	LD
RD9BQE	99.6 *	96.5	94.4	96.5	96.8	1.38	3.3	2.2	95.0	1.28	3.1	3.0	16	LC
TG7JMG	89.5	90.3	90.6	90.0	90.1	-0.08	2.8	0.4	90.8	0.14	2.6	2.1	16	LD
TTFPKG	93.3	95.9 L	98.1	98.3	96.4	1.30	2.2	2.3	95.7	1.48	2.8	1.5	16	LZ
U28U8B	100.0 *	94.7	98.7	89.6	95.8	1.16	3.3	4.7 H	95.9	1.52	3.2	3.9	6	MB
UKFNLF	89.2	88.1	88.7	91.0	89.2	-0.27	2.4	1.2	90.2	-0.02	2.5	1.5	16	LD
WDA3YC	70.8 X	72.0 X	72.1 X	71.4 X	71.6	-4.15 X	2.7	0.6	73.1	-4.68 X	3.4	2.3	16	EM
WKT9X6	90.0	89.8	94.7	92.2	91.7	0.27	2.3	2.3	92.5	0.59	2.8	2.5	16	LD
YEF7P7	88.5	91.7	89.3	88.2	89.4	-0.23	2.3	1.6	88.1	-0.61	2.2	2.0	8	MB
YUENMC	88.6 L	86.6	84.8	89.1	87.3	-0.70	2.9	2.0	88.5	-0.50	3.1	1.8	16	LD
Z4VEE2	89.7	91.1	89.7	91.9	90.6	0.03	2.7	1.1	91.5	0.32	2.8	1.4	16	LD

Consensus (All Labs) Results

Wk Mean	90.35	90.65	91.09	90.28	Month Mean	90.47	Grand Mean	90.29
Avg SDr	3.23	3.13	3.18	2.93	Avg SD	3.19	Avg SD	3.37
SD btwn Labs	4.27	4.78	4.59	4.79	SD btwn Labs	4.56	SD btwn Labs	3.67
Labs Incld	46	47	46	47	SD btwn Wks	1.89	SD btwn Wks	2.72
Labs Excld	2	1	1	1	Labs Incld	48	Labs Incld	47
Labs not Rcvd	1	1	2	1				

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
EX	Emerson (model not specified)	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	RS	Regmed Digital Crush Tester CT-2000
TJ	TLS Compression Tester, Model CDM-5	TU	TMI Universal Crush Tester (TMI K440)

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	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
2RWDLB	126.2	128.0	131.4	129.2	128.7	-0.98	4.2	2.2	129.8	-0.83	4.1	1.6	12	LD
3FJZX2	127.0	127.5	127.6	127.7	127.4	-1.19	2.4	0.3 L	138.3	0.64	3.9	8.5 H	12	LZ
42X8MZ	137.7	138.3	138.9	139.1 L	138.5	0.66	2.2	0.6	136.0	0.24	2.0	3.0	12	RS
6K7326	141.9	142.6	141.6	134.7	140.2	0.94	4.4	3.7	140.2	0.97	4.4	3.7	4	LC
6PYQA4	122.5 *H	No Data	No Data	126.4 H	124.4	-1.69	12.6	2.8	130.2	-0.75	9.2	9.1 H	10	MB
6XDFBX	130.5	133.3 L	133.2	136.2	133.3	-0.21	3.0	2.3	132.3	-0.40	3.2	1.6	12	LC
769846	133.2	132.9	132.6	133.5	133.0	-0.25	4.2	0.4 L	129.8	-0.82	4.2	3.4	8	LD
7EAUV2	133.7	135.7	134.6	135.1	134.8	0.04	3.1	0.8	134.4	-0.03	3.2	1.8	12	LD
7LUK94	125.0 L	120.9 *	121.8 *	123.7	122.9	-1.95 *	2.2	1.9	126.1	-1.47	2.7	3.2	12	TU
7PDFBV	138.5	135.5	133.2	131.8	134.8	0.03	3.3	2.9	134.9	0.06	3.6	1.9	12	EN
8CJFXX	136.5	134.1	134.2	132.6	134.3	-0.03	4.0	1.6	133.8	-0.13	3.6	1.4	12	LD
99WTM3	135.4	143.5	141.6	144.3	141.2	1.11	4.1	4.0	139.5	0.85	5.7	3.3	12	LD
B2ACZQ	131.0	127.7	132.4	129.1	130.0	-0.75	4.7	2.1	129.6	-0.86	5.5	1.8	12	LD
BBKELQ	133.4	133.2	133.0	131.7	132.8	-0.29	2.7	0.8	136.0	0.25	2.4	2.6	12	LZ
BPGTJY	132.9 L	132.3 L	133.2 L	132.0 L	132.6	-0.33	1.4	0.5	134.4	-0.03	1.2	2.0	8	MB
C6QADZ	122.8 L	122.7	124.1	122.6 *	123.0	-1.92	2.9	0.7	122.6	-2.08 *	3.5	2.3	12	EN
CDZXQY	133.8	127.6	124.7	130.3 L	129.1	-0.91	2.5	3.9	131.3	-0.57	4.1	3.6	12	LD
CFLAHW	133.3	135.3	134.3	134.0	134.2	-0.05	3.1	0.8	133.5	-0.18	3.1	2.3	12	LC
CRGT7U	138.8	138.9	133.2	133.0	136.0	0.24	4.6	3.3	135.1	0.08	9.5	8.3 H	12	TU
CVMLEV	138.0	138.7	142.1	140.0	139.7	0.86	3.6	1.8	141.8	1.24	4.3	2.6	12	LD
CXQGXX	141.5	141.0	141.2	141.1	141.2	1.11	4.7	0.2 L	141.3	1.16	3.9	0.3 L	8	LD
DPQGXV	126.7	120.3 *	No Data	No Data	123.5	-1.84	4.2	4.5	122.8	-2.04 *	4.4	2.5	9	LD
DVVQCW	128.9	131.0	129.5	126.5	129.0	-0.93	3.9	1.9	129.9	-0.80	3.6	2.0	12	LD
FACTZL	137.6	135.0	134.4 H	133.0	135.0	0.08	5.0	1.9	138.7	0.71	4.9	3.3	12	TJ
GK4Y7P	138.7	136.2	141.2	139.5	138.9	0.73	2.7	2.1	137.6	0.52	3.9	2.6	12	LZ
HCNEMP	139.4	141.8	143.8 H	139.2 H	141.0	1.09	6.4	2.2	137.8	0.56	4.8	3.6	12	LZ
HYZFVM	142.1	142.6	143.6	144.1	143.1	1.43	3.7	0.9	143.2	1.49	3.6	0.7 L	12	LD
J23VFX	140.9	140.5	143.9	142.0	141.8	1.22	3.0	1.5	136.5	0.34	3.7	6.0	8	LD
JJ86LP	137.7 L	137.0	137.3 L	137.5	137.4	0.47	2.5	0.3 L	135.6	0.17	3.1	2.3	10	LD
JL97LM	123.3	126.6	135.8	134.7	130.1	-0.74	3.7	6.1 H	119.1	-2.69 *	7.2	9.6 H	12	LC
JNGH4N	131.6	132.0	129.3	131.7	131.2	-0.57	4.9	1.2	134.6	0.00	5.4	3.0	12	EX
JYGLEQ	No Data	144.6	136.9	140.1	140.5	1.00	4.5	3.9	138.7	0.71	4.1	3.4	7	LD
K7CBPM	150.2 *	150.5 *	147.5 *	148.7 *	149.2	2.45 *	5.1	1.4	148.9	2.47 *	4.8	1.1	8	LD
KLLRHM	127.9	135.5	129.9	130.8	131.0	-0.59	5.0	3.2	129.7	-0.85	4.3	2.6	12	LC
LMWT4L	133.0	127.1	127.6	125.8	128.4	-1.03	4.8	3.2	130.0	-0.79	4.1	4.5	12	LC

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	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
MMDW6E	135.3 L	136.1	136.8	135.5	135.9	0.23	2.4	0.7	136.4	0.32	2.7	0.7 L	12	LD
MUPLPK	147.8 *	144.6	145.4	146.6 *	146.1	1.93 *	5.0	1.4	142.2	1.32	8.5	4.2	12	LC
NYXV9L	133.5	134.7	134.6	138.4	135.3	0.13	4.2	2.1	136.7	0.37	4.1	1.8	12	LD
RD9BQE	145.1	142.8	137.7	142.5	142.0	1.25	5.0	3.1	141.0	1.11	4.4	3.6	12	LC
TG7JMG	135.0	134.7	133.5	131.7	133.7	-0.14	4.3	1.5	134.9	0.05	4.4	2.5	12	LD
TTFPKG	136.2	135.8	140.5	140.4	138.2	0.61	4.9	2.6	137.2	0.46	4.6	1.7	12	LZ
U28U8B	140.7	133.1	145.6	135.7	138.8	0.70	4.0	5.5 H	140.9	1.10	5.4	4.3	10	MB
UKFNLF	132.5	133.4	132.1	128.9	131.7	-0.47	3.5	1.9	132.5	-0.35	3.4	1.8	12	LD
WDA3YC	109.3 X	111.6 X	111.2 X	114.7 X	111.7	-3.81 X	4.9	2.2	112.3	-3.85 X	4.7	1.5	12	EM
WKT9X6	137.1	136.2	136.2	134.7	136.1	0.25	3.8	1.0	136.9	0.41	4.2	2.3	12	LD
YEF7P7	127.8	129.6	127.9	127.3	128.2	-1.06	3.2	1.0	125.3	-1.61	3.2	3.2	8	MB
YUENMC	133.1	131.2	128.9	131.6	131.2	-0.56	3.6	1.7	131.6	-0.51	3.7	2.3	12	LD
Z4VEE2	135.0	134.7	130.8	135.4	134.0	-0.10	3.4	2.2	135.6	0.17	4.0	3.3	12	LD

Consensus (All Labs) Results

Wk Mean	134.58	134.73	135.10	134.57	Month Mean	134.54	Grand Mean	134.58
Avg SDr	4.46	4.00	3.78	4.10	Avg SD	4.28	Avg SD	4.58
SD btwn Labs	6.27	6.39	6.11	6.02	SD btwn Labs	5.99	SD btwn Labs	5.78
Labs Incld	46	46	45	46	SD btwn Wks	2.46	SD btwn Wks	3.74
Labs Excld	1	1	1	1	Labs Incld	47	Labs Incld	47
Labs not Rcvd	1	1	2	1				

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
EX	Emerson (model not specified)	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	RS	Regmed Digital Crush Tester CT-2000
TJ	TLS Compression Tester, Model CDM-5	TU	TMI Universal Crush Tester (TMI K440)

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Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42F2

TAPPI Official Test Method T826

Report #608 (E)
May 2020

	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
2RWDLB	22.3	22.7	23.0	22.5	22.6	-0.72	1.8	0.3	23.4	-0.09	1.9	1.0	16	LU
3FJZX2	22.6	22.4	23.2	20.7 *L	22.2	-1.05	1.6	1.1	22.7	-0.79	1.7	0.8	16	LA
6PYQA4	23.8	No Data	No Data	22.6	23.2	-0.24	1.2	0.8	23.3	-0.16	1.7	0.6	13	LA
769846_AL	24.2	23.0	24.3	23.3	23.7	0.22	1.6	0.7	23.4	-0.13	1.5	0.8	16	AL
7EAUV2	24.1	24.3 L	23.5	23.1	23.8	0.28	1.2	0.5	23.4	-0.05	1.3	0.6	16	BK
7PDFBV	21.5	21.8	20.7 *	20.4 *	21.1	-2.04 *	1.5	0.7	21.4	-1.95 *	2.0	0.8	16	LH
7YZE32	21.9 L	21.6 L	21.8 L	21.7 L	21.7	-1.49	0.5	0.1	23.0	-0.43	2.0	1.2	16	LZ
8CJFXX	22.5	22.4	22.7	23.2	22.7	-0.65	1.8	0.4	22.7	-0.70	1.6	0.5	16	LZ
99WTM3	25.4	23.8 H	24.1	24.6 L	24.5	0.91	2.6	0.7	24.0	0.51	2.1	1.0	12	LA
AH3KHX	24.6	24.5	23.9	24.7	24.4	0.87	1.9	0.3	24.1	0.56	2.0	0.7	16	LZ
AH3KHX_AL	25.1	24.7	22.3	23.3	23.9	0.37	1.9	1.3	36.1	11.74 X	3.4	8.5 H	16	AL
B2ACZQ	21.2	22.1	21.9	23.1	22.1	-1.18	1.7	0.8	22.1	-1.34	1.6	0.5	16	LH
BBKELQ	28.0 X	27.5 X	26.9 X	28.0 XH	27.6	3.65 X	2.2	0.5	27.6	3.83 X	2.2	0.5	4	XX
C6QADZ	21.2	21.2	21.8	21.5	21.4	-1.76	1.7	0.3	21.7	-1.67	1.6	0.5	16	LY
CFLAHW	22.6	23.7	23.8	23.5	23.4	-0.03	1.8	0.5	23.2	-0.24	1.6	0.4 L	16	LU
CRGT7U	24.7	25.3	25.3	24.0	24.8	1.19	1.5	0.6	24.5	0.93	3.9	1.5	16	LA
DVGR8U	22.8 L	22.4	23.9	22.6	22.9	-0.46	1.8	0.7	23.1	-0.33	1.8	0.6	8	LH
DVGR8U_AL	25.7	No Data	No Data	No Data	25.7	1.94 *	1.9	0.0	25.7	2.01 *	1.9	0.0	1	AL
DVVQCW_AI	22.0	22.4	22.6	22.7	22.4	-0.88	1.5	0.3	22.3	-1.07	1.5	0.7	16	AK
EJV823	22.6	22.3	22.6	23.3	22.7	-0.65	1.9	0.4	23.3	-0.17	1.8	1.0	16	TT
FACTZL	23.2	22.7	23.0	22.4	22.8	-0.56	1.1	0.3	23.4	-0.08	1.2	0.4 L	16	TT
HCNEMP_AL	22.7	24.4	20.7 *	22.1	22.5	-0.82	1.6	1.5 H	26.1	2.44 *	1.7	5.8 H	16	AL
HHV9GK	25.0	24.9	25.4	24.9	25.0	1.41	2.0	0.2	24.6	1.05	2.0	0.8	16	LH
HYZFVM	22.8	23.6	23.9	23.0	23.3	-0.12	1.7	0.5	23.5	-0.02	1.8	0.3 L	16	LA
JJ86LP_AL	24.0	23.8	23.8	23.5	23.8	0.30	1.4	0.2	27.4	3.63 X	1.9	7.2 H	16	AK
JL97LM	24.2 H	25.3	24.8	25.7 *H	25.0	1.35	2.4	0.6	24.0	0.46	2.0	1.4	16	LU
JNGH4N	22.6	22.6	23.3	24.9	23.3	-0.08	2.0	1.1	23.4	-0.08	2.0	1.1	16	TT
JYGLEQ	24.5	24.5	23.3	23.7	24.0	0.49	1.9	0.6	24.2	0.67	1.9	0.4 L	16	LW
K8MDBL	21.6	25.1	24.5	39.7 X	27.7	3.75 X	2.2	8.1 H	24.4	0.87	1.8	4.3 H	16	LU
KLLRHM	25.1	25.4	25.5	24.7	25.1	1.50	2.0	0.3	24.3	0.79	1.8	0.9	16	LW
LCFAKP_AL	22.3 L	22.3	22.2	22.4	22.3	-1.00	1.3	0.1 L	21.0	-2.30 *	1.5	5.0 H	16	AL
LMWT4L	26.0	22.7	22.4	23.2 L	23.6	0.12	1.3	1.7 H	22.9	-0.60	1.4	1.5	16	LA
MMDW6E	22.8	22.8	22.7	23.1	22.9	-0.49	1.5	0.2	23.1	-0.41	1.6	0.2 L	12	LY
MUPLPK_AL	24.5 H	24.4	24.6	25.1	24.7	1.06	2.0	0.3	28.7	4.82 X	1.7	6.7 H	12	AL
NYXV9L	22.5	22.8	22.5	22.5	22.6	-0.75	1.7	0.1	23.5	0.03	1.6	0.8	16	LA

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Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42F2

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
Q3R4EK	24.3	25.4	24.7	24.8 H	24.8	1.19	2.2	0.5	24.8	1.20	2.0	0.5	16	LU
Q88C3K	22.9	22.7	22.3	22.9	22.7	-0.66	1.4	0.3	22.6	-0.84	1.5	0.5	16	LW
QAWBAA	23.3 L	23.0 L	22.6	23.6	23.1	-0.26	1.1	0.4	22.1	-1.33	1.1	5.1 H	16	TT
QMHNKK	23.1	22.6	22.8	22.9	22.8	-0.52	1.7	0.2	23.4	-0.05	1.8	0.9	16	XX
RD9BQE	25.6	24.3	23.9	24.6	24.6	1.00	1.8	0.7	24.1	0.55	2.0	0.8	16	LW
TD79RG	25.2	27.9 X	25.6	25.5	26.0	2.29 *	1.7	1.2	26.2	2.51 *	2.8	2.8	16	XX
TG7JMG	22.9	23.4	22.9	22.7	23.0	-0.41	1.8	0.3	22.8	-0.69	1.7	0.7	16	LY
TTFPKG	23.5	22.8	22.2	23.1	22.9	-0.47	1.5	0.5	23.0	-0.44	1.7	0.4 L	16	LW
U28U8B	24.3	No Data	24.3	22.8 L	23.8	0.33	1.5	0.9	24.1	0.58	1.4	1.1	5	LA
UC4ZZ9_AL	24.6	22.7	23.4	23.2	23.5	0.03	1.6	0.8	23.5	-0.03	1.9	0.8	12	AK
UKFNLF	22.5	23.1	22.5	23.0	22.8	-0.57	1.6	0.3	22.6	-0.84	1.6	0.4 L	16	LA
UQQAME_AI	23.1	24.1	24.0	23.3	23.6	0.16	1.8	0.5	23.5	0.04	1.7	0.4 L	16	AL
WB4ARC_AL	22.5	21.7	23.5 H	22.9 H	22.7	-0.68	2.6	0.7	31.3	7.31 X	2.4	8.2 H	16	AL
WKT9X6_AL	No Data	No Data	40.0 XL	40.6 XL	40.3	14.76 X	0.0	0.4	40.7	16.08 X	1.9	1.1	8	AL
WQZVAK	22.9	22.9	23.0	22.5	22.8	-0.53	1.5	0.2	22.9	-0.53	1.6	0.5	16	LH
WZK39A	25.9	26.1 *	25.5	25.3	25.7	1.99 *	1.5	0.4	24.9	1.32	1.6	1.3	16	LA
YEXPGB	22.7	23.1	24.3	23.5	23.4	-0.05	1.6	0.7	23.4	-0.06	1.7	0.6	16	LY
YPJUPB	23.7	23.0	22.2	21.1	22.5	-0.83	1.6	1.1	23.1	-0.34	1.6	0.9	10	LY
YUENMC_AI	21.3	23.0	23.5	22.0	22.5	-0.86	1.5	1.0	31.7	7.64 X	2.5	8.5 H	16	AL
Z4VEE2	22.7	23.9	22.6	22.3	22.9	-0.46	1.4	0.7	23.1	-0.35	1.7	0.5	16	LA
Z4VEE2_AL	23.8	23.1	23.2	23.1	23.3	-0.10	1.7	0.4	23.3	-0.19	1.7	0.3 L	8	AL
ZEETH4	26.3 *	26.3 *	25.8 *	26.2 *	26.1	2.36 *	1.7	0.3	25.4	1.74	1.7	0.7	12	LH

Consensus (All Labs) Results

Wk Mean	23.49	23.43	23.37	23.27	Month Mean	23.43	Grand Mean	23.50
Avg SDr	1.74	1.74	1.70	1.69	Avg SD	1.71	Avg SD	1.81
SD btwn Labs	1.32	1.21	1.18	1.23	SD btwn Labs	1.14	SD btwn Labs	1.07
Labs Incld	55	51	53	53	SD btwn Wks	0.68	SD btwn Wks	1.69
Labs Excld	1	2	2	3	Labs Incld	54	Labs Incld	50
Labs not Rcvd	1	4	2	1				

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Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
BK	Buchel Strip Compression Tester BK-155	LA	L&W Autoline (223 Enrollment)
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		

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Containerboard Interlaboratory Testing Program

Analysis 224

STFI, 56 lb Linerboard - 56G1

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
2RWDLB	33.0	34.1	32.8	33.3	33.3	-0.92	2.7	0.6	34.5	-0.41	2.9	1.5	12	LU
3FJZX2	32.8 L	33.5 L	34.8	34.6	33.9	-0.44	2.0	0.9	34.0	-0.72	2.1	0.9	12	LA
6PYQA4	34.1	No Data	No Data	34.7	34.4	-0.11	2.2	0.4	34.0	-0.71	2.1	1.0	10	LA
769846_AL	36.5	35.3	34.9 L	36.4 H	35.8	0.95	4.3	0.8	35.1	-0.08	3.5	1.0	8	XX
7EAUV2	34.1	35.2 L	33.5	33.2 L	34.0	-0.40	1.6	0.9	34.1	-0.66	1.6	0.7	12	BK
7PDFBV	30.5 *	30.5 *	28.5 X	28.2 X	29.4	-3.82 X	2.5	1.2	29.5	-3.55 X	2.5	2.8	12	LH
7YZE32	33.6 L	31.9 L	32.7 L	31.1 *L	32.4	-1.63	0.9	1.1	34.1	-0.67	1.6	1.5	12	LZ
8CJFXX	34.1	34.1	34.1	34.7	34.2	-0.22	2.2	0.3	34.1	-0.65	2.5	0.7	12	LZ
99WTM3	36.0	35.1 H	37.0	35.9	36.0	1.11	3.0	0.8	36.4	0.76	2.6	1.3	12	LA
AH3KHX	36.3	35.7	33.9	34.4	35.1	0.39	2.5	1.1	35.6	0.26	3.1	1.2	12	LZ
AH3KHX_AL	34.7	35.3	32.9 L	34.7	34.4	-0.10	2.1	1.0	40.2	3.19 X	3.0	5.5 H	12	AL
B2ACZQ	32.8	32.9	33.1	35.0	33.4	-0.82	2.2	1.0	32.9	-1.41	2.4	0.8	12	LH
BBKELQ	27.5 X	29.3 *	30.4 *H	29.3 X	29.1	-4.04 X	3.2	1.2	29.1	-3.81 X	3.2	1.2	4	XX
C6QADZ	31.3 L	32.5	32.6	32.6	32.3	-1.70	2.1	0.7	32.5	-1.66	2.4	0.6	12	LY
CFLAHW	34.6	34.0	34.0	35.2	34.4	-0.06	2.5	0.6	34.4	-0.47	2.3	0.5 L	12	LU
CRGT7U	34.7 L	36.0 L	35.2 L	35.6 L	35.4	0.62	0.9	0.6	36.5	0.86	10.1	2.0	12	LA
DVGR8U	32.1	32.7	35.9	34.7	33.9	-0.49	2.1	1.7	33.9	-0.82	2.1	1.7	4	LH
DVGR8U_AL	39.4 *	No Data	No Data	No Data	39.4	3.62 X	1.8	0.0	39.4	2.64 *	1.8	0.0	1	AL
DVVQCW_AI	32.7	32.6	33.5	33.0	32.9	-1.21	2.1	0.4	33.4	-1.13	1.9	1.0	12	AK
EJV823	33.5	34.6	33.6	32.5	33.6	-0.72	2.5	0.9	36.1	0.56	2.4	3.9 H	12	TT
FACTZL	35.4 L	34.7 L	35.0 L	35.1 L	35.1	0.39	1.2	0.3	34.7	-0.29	1.3	0.4 L	12	TT
HCNEMP_AL	35.5	37.8 L	31.0 *	32.8	34.2	-0.21	1.8	3.0 H	36.7	0.95	2.2	3.8 H	12	AL
HHV9GK	36.3	36.9	35.7	36.7	36.4	1.41	2.6	0.5	36.4	0.78	2.8	1.1	12	LH
HYZFVM	34.1	35.3	34.3 H	34.8	34.6	0.07	3.2	0.6	34.6	-0.33	3.0	0.3 L	12	LA
JJ86LP_AL	34.2	34.3	34.5	34.9	34.5	-0.04	2.3	0.3	36.8	1.02	2.6	3.7 H	12	XX
JL97LM	36.1	35.2 H	36.6	35.5	35.9	0.99	3.0	0.6	36.2	0.65	2.7	1.3	12	LU
JNGH4N	35.3	33.1	36.5 H	33.8	34.6	0.08	3.4	1.5	35.3	0.09	3.4	1.4	12	TT
JYGLEQ	35.6	34.7 L	34.6	36.2	35.3	0.56	2.0	0.8	35.6	0.26	2.3	0.8	12	LW
K8MDBL	32.1	35.6	36.2	41.4 X	36.3	1.33	2.7	3.8 H	35.7	0.36	2.5	2.4	12	LU
KLLRHM	37.5	36.5	36.9	36.7	36.9	1.76	2.7	0.4	36.6	0.88	2.5	0.6	12	LW
LCFAKP_AL	34.0	33.4	32.7	33.9	33.5	-0.78	2.3	0.6	33.8	-0.86	2.2	0.9	12	AL
LMWT4L	38.7 *	32.7 L	32.5	33.2	34.3	-0.19	2.3	3.0 H	33.8	-0.88	1.8	2.4	12	LA
MMDW6E	34.4	35.0	34.4	34.6	34.6	0.04	2.2	0.3	34.7	-0.27	2.2	0.2 L	12	LY
MUPLPK_AL	34.0 L	36.6	35.8	36.6	35.8	0.91	2.4	1.2	39.5	2.69 *	3.2	4.0 H	8	AL
NYXV9L	33.0	33.2	33.7	32.9	33.2	-1.00	2.3	0.4	34.0	-0.73	2.3	0.9	12	LU

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Containerboard Interlaboratory Testing Program

Analysis 224

STFI, 56 lb Linerboard - 56G1

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
Q3R4EK	37.0	35.6	36.5	36.3	36.4	1.37	2.5	0.6	36.0	0.49	3.2	1.3	12	LU
Q88C3K	33.9	32.6 L	32.3 L	33.0 L	33.0	-1.17	1.7	0.7	33.2	-1.22	2.2	0.7	12	LW
QAWBAA	35.0 L	34.9 L	34.7 L	35.0 L	34.9	0.25	1.3	0.2 L	34.9	-0.19	1.3	0.2 L	12	TT
QMHNKK	35.3	33.0	33.2	32.9	33.6	-0.70	2.5	1.1	34.0	-0.73	2.4	1.1	12	XX
RD9BQE	36.5	34.9	34.7	35.5	35.4	0.65	2.5	0.8	35.7	0.30	2.5	0.8	12	ID
TD79RG	38.2	38.8 *	38.1 *H	36.4	37.8	2.48 *	2.8	1.0	37.1	1.19	2.1	2.8	12	XX
TG7JMG	33.5	34.5	33.6	34.8	34.1	-0.33	2.5	0.6	34.1	-0.68	2.5	0.7	12	LZ
TTFPKG	32.7	34.3	33.4	33.6	33.5	-0.77	2.9	0.6	33.4	-1.14	2.7	1.3	12	LW
U28U8B	36.8	No Data	36.0	35.9	36.2	1.27	3.0	0.5	35.0	-0.13	2.5	1.7	9	LA
UC4ZZ9_AL	35.7	36.7	34.4 L	33.9	35.2	0.47	2.3	1.3	34.9	-0.17	2.2	0.9	8	AK
UKFNLF	32.9	33.1	33.2	33.1	33.1	-1.08	2.3	0.2 L	33.2	-1.25	2.4	0.7	12	LW
UQQAME_AI	34.0 H	36.4	35.7	35.6	35.4	0.66	2.8	1.0	35.0	-0.12	2.5	0.9	12	AL
WB4ARC_AL	32.3	30.7 *	32.5	31.4 *	31.7	-2.10 *	2.7	0.8	38.1	1.86	2.7	4.9 H	12	AL
WKT9X6_AL	43.8 XL	No Data	41.6 XL	41.4 XL	42.2	5.77 X	0.0	1.3	42.4	4.52 X	0.0	1.1	7	AL
WQZVAK	34.0	33.7	34.0	34.1	34.0	-0.43	1.9	0.2 L	34.2	-0.65	2.2	0.4 L	12	LH
WZK39A	39.4 *	38.6 *	38.2 *	37.9 *	38.5	2.99 X	2.7	0.7	37.8	1.66	2.6	1.5	12	LA
YEXPGB	35.5	35.1	34.6	35.3	35.1	0.44	2.7	0.4	34.8	-0.26	2.5	0.7	12	LU
YPJUPB	32.9	33.9	31.7 H	32.8	32.9	-1.25	3.2	0.9	33.9	-0.83	2.7	1.0	12	LY
YUENMC_AI	33.2	33.9	33.6	33.6	33.6	-0.72	2.2	0.3	37.8	1.66	2.6	4.6 H	8	AL
Z4VEE2	34.2	33.3	33.1	34.1	33.7	-0.64	2.0	0.5	34.3	-0.54	2.2	0.6	12	LA
Z4VEE2_AL	33.8	33.3	34.5	34.3	34.0	-0.41	1.9	0.6	34.0	-0.76	1.9	0.6	4	AL
ZEETH4	36.9	37.5	37.9 *	38.7 *	37.8	2.42 *	2.6	0.7	37.5	1.48	2.4	0.6	12	LH

Consensus (All Labs) Results

Wk Mean	34.66	34.43	34.36	34.56	Month Mean	34.53	Grand Mean	35.18
Avg SDr	2.42	2.41	2.36	2.60	Avg SD	2.44	Avg SD	2.78
SD btwn Labs	1.93	1.89	1.72	1.53	SD btwn Labs	1.34	SD btwn Labs	1.59
Labs Incld	55	53	53	52	SD btwn Wks	1.09	SD btwn Wks	1.80
Labs Excld	2	0	2	4	Labs Incld	52	Labs Incld	53
Labs not Rcvd	0	4	2	1				

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Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
BK	Buchel Strip Compression Tester BK-155	ID	IDM Compression Tester
LA	L&W Autoline (224 Enrollment)	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

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	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2RWDLB	155.5	0.87	9.44		152.4	0.14	6.50	4	EV
6PYQA4	136.2	-0.44	18.80		139.1	-0.53	4.44 L	4	LA
7YZE32	155.9	0.89	17.78		142.3	-0.37	19.61	4	XX
99WTM3	131.6	-0.75	12.94		133.1	-0.84	5.02 L	3	LA
AH3KHX_AL	129.4	-0.90	16.09		126.9	-1.16	7.81	3	AL
C6QADZ	148.5	0.39	16.37		147.3	-0.12	3.84 L	4	EV
CRGT7U	173.5	2.09 *	22.43		167.6	0.91	22.80	4	LA
DVGR8U_AL	122.8	-1.34	11.70		122.8	-1.36	0.00	1	AL
HCNEMP_AL	146.5	0.26	17.06		143.0	-0.34	4.21 L	4	XX
HHV9GK	121.2	-1.45	8.40 L		136.8	-0.65	19.96	4	EV
HYZFVM	150.1	0.50	12.29		149.3	-0.02	2.94 L	4	XX
JJ86LP	139.6	-0.21	36.53 H		176.4	1.36	79.59 H	4	EV
JL97LM	148.9	0.42	12.52		189.4	2.02 *	36.99	4	EV
JYGLEQ	133.4	-0.62	13.84		123.3	-1.34	7.13	4	XX
K7CBPM	175.9	2.25 *	57.60 H		173.5	1.21	3.93 L	4	EV
K8MDBL	279.3	9.23 X	34.73 H		194.9	2.30 *	56.76	4	EV
KLLRHM	138.1	-0.31	14.12		139.1	-0.54	9.09	4	LS
LCFAKP_AL	133.5	-0.62	12.77		138.0	-0.59	5.36	4	AL
LMWT4L	66.8	-5.13 X	44.97 H		34.4	-5.86 X	29.07	4	EV
MUPLPK_AL	135.4	-0.49	24.91		130.4	-0.98	4.61 L	3	AL
Q7UDYH	136.7	-0.40	14.00		138.2	-0.58	6.82	4	LS
TG7JMG	163.6	1.42	22.99		154.0	0.22	6.58	4	EV
TTFPKG	147.4	0.32	10.36		144.4	-0.27	4.03 L	4	EV
U28U8B	158.4	1.07	9.42		142.2	-0.38	14.18	3	LA
UC4ZZ9_AL	120.5	-1.50	19.38		163.7	0.71	64.69 H	3	AK
UKFNLF	157.6	1.01	14.04		144.1	-0.28	10.69	4	LA
UQQAME_AL	124.2	-1.25	8.50 L		155.7	0.31	59.66	4	AL
WB4ARC_AL	150.4	0.52	27.72		164.5	0.75	23.34	4	AL
WKT9X6_AL	138.8	-0.26	18.23		189.0	2.00 *	71.01	2	AL
YUENMC_AL	359.3	14.64 X	7.79 L		359.3	10.66 X	0.00	1	XX
Z4VEE2	135.8	-0.46	20.16		130.9	-0.96	6.88	4	LA
Z4VEE2_AL	127.8	-1.00	13.34		137.4	-0.63	13.51	2	AL

Consensus (All Labs) Results

Month Mean	142.66	Grand Mean	149.64
Avg SD	20.21	Avg SD Months	30.29
SD btwn Labs	14.80	SD btwn Labs	19.67
Labs Incld	29	Labs Incld	30

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Key to Instrument Codes Reported by Participants			
AK	L & W Autoline 300	AL	L & W Autoline 400
EV	Emveco Microgage Model 210-R	LA	L&W Autoline (228 Enrollment)
LS	L&W 263	XX	Instrument make/model not specified by lab

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Containerboard Interlaboratory Testing Program

Analysis 229

Roughness - Sheffield Method, 42 lb Linerboard - 42F2

TAPPI Official Test Method T538

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
769846_AL	361.1	0.33	9.78	360.7	0.28	3.94	4	AL
8CJFXX	360.3	0.12	9.92	365.7	1.21	11.51	4	XX
CFLAHW	364.5	1.26	7.89	363.2	0.74	2.85	4	XX
DVGR8U_AL	359.8	-0.03	6.61	359.8	0.11	0.00	1	AL
JJ86LP_AL	354.1	-1.59	11.27	355.5	-0.68	1.56	4	AK
UC4ZZ9_AL	339.8	-5.50 X	5.57	347.8	-2.12 *	10.56	3	AK
UQQAME_AL	355.8	-1.12	9.75	357.8	-0.26	5.52	4	AL
WDA3YC	391.1	8.54 X	8.56	393.2	6.35 X	1.77	4	TS
WKT9X6_AL	364.2	1.18	5.18	298.2	-11.36 X	128.76 H	3	AL
WZK39A	363.7	1.04	5.64	364.3	0.95	2.68	4	XX
YUENMC_AL	359.3	-0.17	7.79	362.3	0.57	6.05	4	AL
Z4VEE2_AL	356.2	-1.01	10.22	354.9	-0.80	1.84	2	AL

Consensus (All Labs) Results

Month Mean	359.90	Grand Mean	359.19
Avg SD	8.64	Avg SD Months	6.22
SD btwn Labs	3.66	SD btwn Labs	5.37
Labs Incld	10	Labs Incld	10

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
TS	TMI Monitor/Smoothness	XX	Instrument make/model not specified by lab

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	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2RWDLB	88.8	-0.78	6.10		85.1	-0.97	6.39	4	TM
769846	41.3	-5.44 X	1.05 L		43.0	-5.17 X	1.28	4	LZ
7LUK94	104.0	0.71	3.94		96.6	0.18	13.83 H	4	TM
7YZE32	88.0	-0.86	5.24		88.0	-0.68	0.00	1	TM
CFLAHW	107.7	1.08	7.46		106.0	1.11	1.25	4	HY
DVVQCW	98.1	0.13	2.15		100.2	0.54	3.57	4	TM
HCNEMP	98.0	0.13	6.28		95.2	0.03	2.19	4	TM
HHV9GK	110.0	1.30	3.81		149.0	5.40 X	55.15	2	SC
JJ86LP	80.8	-1.56	1.10 L		83.0	-1.19	3.19	4	TM
JL97LM	86.2	-1.03	4.92		84.2	-1.07	2.56	4	TM
K7CBPM	118.0	2.09 *	4.85		112.3	1.74	5.00	3	HY
K8MDBL	76.0	-2.03 *	6.28		70.9	-2.39 *	11.15	4	TM
LMWT4L	93.6	-0.31	5.46		89.9	-0.49	2.58	4	TM
MUPLPK	99.0	0.22	8.94		106.5	1.16	7.59	4	SC
NYXV9L	101.6	0.48	3.71		101.8	0.69	0.30 L	4	HZ
Q7UDYH	94.0	-0.27	1.22		96.5	0.16	2.42	4	HY
TG7JMG	93.5	-0.32	4.82		89.6	-0.52	4.95	4	XX
UC4ZZ9	91.0	-0.56	2.45		93.6	-0.13	5.59	3	SC
UC6VJE	102.0	0.52	3.32		104.7	0.98	4.34	4	TM
UKFNLF	113.6	1.66	5.18		112.4	1.75	9.05	4	HY
WB4ARC	88.0	-0.86	5.70		94.6	-0.03	4.94	4	SC
WZK39A	92.0	-0.46	2.24		92.5	-0.23	0.77 L	4	SC
YUENMC	103.4	0.65	4.35		89.4	-0.54	9.51	4	SC
Z4VEE2	97.4	0.07	1.14		94.0	-0.08	5.07	4	TM

Consensus (All Labs) Results

Month Mean	96.72	Grand Mean	94.85
Avg SD	4.81	Avg SD Months	6.11
SD btwn Labs	10.19	SD btwn Labs	10.03
Labs Incld	23	Labs Incld	22

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	95.67	10.07	1.05	19
Modified Scott Bond Mechanics	110.64	4.19	13.92	2

Analysis Notes

769846 - Method used not covered in this test. Data excluded from consensus calculation.

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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

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	Monthly Results				Cumulative Results			
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months
2RWDLB	30.4	0.85	1.34		30.2	0.98	2.36	3
769846	27.6	-0.12	0.89		29.4	0.70	3.14	4
7YZE32	25.8	-0.74	0.45	L	25.0	-0.97	0.87	4
8CJFXX	34.9	2.40 *	1.52		33.0	2.05 *	1.49	4
B2ACZQ	29.4	0.50	1.95		30.1	0.97	1.28	4
C6QADZ	28.5	0.20	1.83		28.7	0.42	0.59	4
CFLAHW	25.6	-0.81	3.43		26.3	-0.45	1.50	4
CVMLEV	28.8	0.29	2.77		30.6	1.15	3.88 H	4
DVVQCW	28.6	0.22	3.96		25.1	-0.94	2.59	4
HCNEMP	28.6	0.22	3.78		26.6	-0.37	1.59	4
HHV9GK	28.0	0.02	1.58		28.6	0.38	1.28	4
HYZFVM	25.6	-0.81	1.34		25.6	-0.73	0.43	4
J2JLFM	26.4	-0.53	1.52		24.5	-1.14	1.47	4
JJ86LP	28.2	0.09	2.56		28.0	0.15	0.35	4
JL97LM	26.2	-0.60	0.84		28.0	0.15	1.23	4
JYGLEQ	28.2	0.09	3.90		30.5	1.09	1.53	4
K8MDBL	29.6	0.57	2.30		28.3	0.29	1.70	4
KLLRHM	27.8	-0.05	4.38		28.1	0.19	1.65	4
LCFAKP	23.8	-1.43	0.45	L	23.2	-1.65	0.44	4
MUPLPK	27.2	-0.26	0.84		23.0	-1.70	3.43	4
QYTQTF	24.0	-1.36	2.55		24.7	-1.07	1.09	4
RXXUWE	31.2	1.12	2.17		27.0	-0.22	3.21	4
TG7JMG	26.2	-0.60	2.77		27.7	0.06	1.17	4
TTFPKG	30.4	0.85	0.89		28.1	0.21	2.16	4
U28U8B	21.1	-2.36 *	0.65		21.9	-2.13 *	2.73	3
UC4ZZ9	32.5	1.56	3.43		30.8	1.21	1.43	4
UKFNLF	24.8	-1.09	2.68		27.5	-0.04	3.19	4
UQQAME	29.8	0.65	1.83		29.4	0.71	1.27	4
WB4ARC	33.0	1.74	0.71		30.9	1.27	1.48	4
WZK39A	29.2	0.43	0.84		29.0	0.55	0.28 L	4
Z4VEE2	25.0	-1.02	2.83		24.7	-1.09	0.93	4

Consensus (All Labs) Results

Month Mean	27.95	Grand Mean	27.55
Avg SD	2.33	Avg SD Months	1.92
SD btwn Labs	2.90	SD btwn Labs	2.67
Labs Incld	31	Labs Incld	31

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Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

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	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2RWDLB	21.7	-0.48	2.59		24.2	1.27	2.79	4	GA
769846_AL	23.2	0.56	0.69	L	19.1	-1.85	8.81 H	4	AL
7YZE32	23.1	0.49	2.40		23.0	0.51	1.73	4	TD
8CJFXX	22.0	-0.31	2.65		23.4	0.76	0.95	4	GA
99WTM3	22.6	0.08	1.63		22.7	0.35	0.13 L	3	LA
AH3KHX_AL	22.7	0.19	1.16		22.2	0.05	0.54	4	AL
CFLAHW	22.6	0.14	2.82		22.8	0.41	1.44	4	TP
CRGT7U	26.3	2.65 *	1.46		26.0	2.36 *	0.64	4	LA
DL7PLT	23.0	0.42	2.21		23.0	0.55	0.67	4	LP
DPQGXV	21.6	-0.57	1.96		23.1	0.59	1.30	3	GG
DVGR8U_AL	23.7	0.85	1.43		23.7	0.93	0.00	1	AL
GK4Y7P	21.8	-0.43	1.87		21.6	-0.33	0.29 L	4	XX
HCNEMP_AL	24.3	1.30	2.32		23.6	0.92	0.68	4	XX
HHV9GK	23.7	0.85	1.77		22.8	0.41	0.70	4	LP
HYZFVM	21.1	-0.94	1.47		21.5	-0.41	0.28 L	4	LA
J23VFX	22.9	0.35	1.64		21.1	-0.65	1.74	3	XX
JJ86LP_AL	23.1	0.48	3.24	H	22.3	0.12	0.68	4	AK
JL97LM_AL	21.6	-0.56	1.12		23.0	0.54	1.70	4	AL
JYGLEQ	22.8	0.26	2.74		22.8	0.38	0.33	4	LP
K8MDBL_AL	23.9	0.99	1.70		23.1	0.56	0.62	4	AL
LCFAKP_AL	22.8	0.28	1.11		22.3	0.09	1.06	4	AL
MKLZFK	20.6	-1.28	0.89		20.8	-0.78	0.20 L	4	LP
MMDW6E	20.3	-1.47	1.25		22.2	0.05	1.73	3	LP
MUPLPK_AL	16.2	-4.31 X	2.82		19.8	-1.39	3.15	3	AL
Q7UDYH	22.2	-0.13	0.78	L	22.2	0.05	0.46	4	LP
RXXUWE_AI	22.7	0.19	2.34		21.9	-0.15	0.62	4	XX
TG7JMG	23.5	0.76	2.29		22.9	0.47	0.47	4	LP
TTFPKG	19.4	-2.10 *	1.39		19.1	-1.84	0.86	4	XX
U28U8B	21.3	-0.81	1.35		21.2	-0.55	0.45	3	LA
UC4ZZ9_AL	19.4	-2.08 *	2.03		19.4	-1.63	0.17 L	3	AK
UKFNLF	21.9	-0.37	2.18		22.2	0.05	0.54	4	LP
UQQAME_AI	20.1	-1.61	3.06	H	19.3	-1.73	0.60	4	AL
WB4ARC_AL	22.2	-0.13	1.35		22.3	0.08	0.99	4	AL
WKT9X6_AL	22.0	-0.29	1.23		22.0	-0.07	0.00	1	AL
WTJHTD	15.7	-4.64 X	1.53		18.0	-2.48 *	1.75	4	GA
YUENMC_AL	22.3	-0.08	1.31		22.0	-0.07	0.63	4	AL
Z4VEE2	24.6	1.47	1.39		24.2	1.25	0.68	4	LA
Z4VEE2_AL	24.3	1.33	1.49		24.1	1.20	0.35	2	AL

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Containerboard Interlaboratory Testing Program

Analysis 237

Air Resistance, 42 lb Linerboard - 42F2

TAPPI Official Test Method T460

Consensus (All Labs) Results

Month Mean	22.43	Grand Mean	22.12
Avg SD	1.90	Avg SD Months	1.85
SD btwn Labs	1.44	SD btwn Labs	1.64
Labs Incld	36	Labs Incld	38

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
GA	Gurley Precision #4340 Automatic Densometer	GG	Gurley Precision #4320 Densometer
LA	L&W Autoline (237 Enrollment)	LP	L&W Air Permeance Tester SE 166
TD	TMI Gurley Densometer	TP	Technidyne Profile/ plus Roughness & Porosity
XX	Instrument make/model not specified by lab		

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	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
6EFRQ7	58.7	57.2	57.9	58.3	58.0	0.18	3.9	0.6	57.9	0.05	3.4	0.6	16	LD
6PYQA4	51.4 X	No Data	No Data	52.2 *	51.8	-2.35 *	3.9	0.6	54.8	-1.17	4.2	2.3	13	MB
769846	57.6 L	55.2	57.7	54.3	56.2	-0.56	3.1	1.7	55.7	-0.84	3.4	1.3	16	LD
7LUK94	61.5	60.5	61.5	61.5	61.2	1.48	2.4	0.5	61.2	1.42	2.2	0.4 L	16	TU
7PDFBV	57.4	56.6	49.2 X	50.2 *	53.3	-1.73	3.0	4.2 H	54.9	-1.14	3.3	3.0	16	EN
8CJFXX	58.0	60.6	57.7	58.4	58.7	0.44	2.9	1.3	57.9	0.08	3.4	1.6	16	LZ
B2ACZQ	59.0	55.4	58.0	58.9	57.9	0.10	3.4	1.7	56.4	-0.55	3.6	1.4	16	LD
BPGTJY	57.0 L	57.9	56.9 L	57.3 L	57.2	-0.14	1.4	0.4	59.0	0.53	1.7	1.9	16	MB
BQ9P9T	60.8	60.8	60.8	60.7	60.8	1.29	2.6	0.0 L	60.5	1.14	2.1	0.3 L	16	LD
C6QADZ	61.2	58.2	56.0	57.8	58.3	0.28	4.1	2.2	55.8	-0.78	3.4	2.2	16	EN
CBW38V	61.3	62.4 H	57.8	59.9	60.3	1.12	5.4	2.0	59.3	0.62	4.2	1.8	16	LD
CC8DDU	66.2 X	65.4 *	65.3 *	66.3 X	65.8	3.33 X	3.7	0.5	65.2	3.03 X	4.6	1.8	16	LC
CFLAHW	58.8	57.4	54.5	58.9	57.4	-0.07	3.4	2.0	58.0	0.10	4.0	2.0	16	LC
CRGT7U	59.2	59.1	58.4	57.1	58.4	0.35	3.8	1.0	56.8	-0.38	4.6	1.9	16	TU
CXQGXX	58.7	58.7	58.6	58.5	58.6	0.42	2.8	0.1 L	59.5	0.73	4.1	1.4	12	LD
D6ZXQW	57.8	57.2	56.9	56.9	57.2	-0.16	3.1	0.4	57.4	-0.13	3.1	0.5 L	16	LD
DL7PLT	55.8	57.6	55.4	56.2	56.3	-0.53	2.5	1.0	57.5	-0.10	3.1	1.6	16	LD
FACTZL	59.2	58.8	58.3	58.5	58.7	0.46	3.7	0.4	58.8	0.44	3.8	0.8	16	TJ
HYZFVM	57.8	58.7	58.4	58.4	58.3	0.30	2.0	0.4	58.1	0.13	2.5	0.6	16	LD
JL97LM	58.1	59.0	63.3	59.2	59.9	0.94	3.5	2.3	60.1	0.95	3.8	5.0 H	16	LC
JNGH4N	56.0	57.5	57.2	59.1	57.5	-0.06	2.3	1.3	56.9	-0.35	3.6	1.1	16	EM
JYGLEQ	59.7	60.5 L	60.5	56.2	59.2	0.66	3.1	2.0	59.4	0.69	3.8	1.3	16	LD
LCFAKP	62.5 *H	60.6	59.2	61.4	60.9	1.35	5.0	1.4	60.3	1.04	4.4	1.9	16	LZ
LMWT4L	55.6	56.7	55.2	55.8	55.8	-0.72	2.8	0.6	56.9	-0.35	3.4	2.0	16	LC
MKLZFK	60.6 H	60.7	63.1	60.5	61.2	1.48	4.4	1.2	60.7	1.20	3.8	1.1	16	LD
NYXV9L	56.7	53.8	52.1 *	56.4	54.7	-1.16	3.4	2.2	55.5	-0.90	2.9	1.8	16	LD
PRXV9J	57.5	58.7	57.7	59.7	58.4	0.33	2.9	1.0	55.8	-0.79	2.6	4.5 H	16	LC
Q7UDYH	56.4	No Data	56.7	No Data	56.5	-0.44	2.2	0.2	56.9	-0.32	2.3	1.2	5	LD
QAWBAA	56.8	57.4	56.3	56.5	56.7	-0.35	4.6	0.5	57.4	-0.15	4.8	0.6	16	TG
QMHNKK	60.1 L	59.3 L	59.7 L	60.2	59.8	0.91	1.2	0.4	63.4	2.29 *	1.0	4.3 H	16	XX
QYTQTF	58.0	55.2	56.7	55.1	56.2	-0.55	3.9	1.3	54.8	-1.18	3.9	1.6	16	LZ
RD9BQE	59.5	59.7	58.3	57.8 L	58.8	0.49	2.5	0.9	58.1	0.14	2.9	1.5	16	LD
TG7JMG	56.0	57.6	58.8	58.2	57.6	0.02	3.1	1.2	57.9	0.08	3.6	1.7	16	LZ
U28U8B	57.5	No Data	52.2 *	56.9	55.5	-0.84	4.1	2.9	55.4	-0.96	4.0	2.1	5	MB
UC4ZZ9	49.0 X	53.0	59.6	53.8	53.9	-1.52	3.9	4.4 H	53.2	-1.84	4.0	2.5	16	LD

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Containerboard Interlaboratory Testing Program

Analysis 240

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

TAPPI Official Test Method T809

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
UKFNLF	55.1	55.2	54.9	56.4	55.4	-0.88	4.0	0.7	57.8	0.01	3.5	1.7	16	LD
V2JHRF	57.6	58.6	58.1	59.1	58.4	0.31	3.9	0.6	58.0	0.12	3.3	0.7	16	LC
V2LFGC	58.1 L	58.1	57.9 L	57.9 L	58.0	0.15	1.4	0.1 L	57.8	0.04	1.4	0.3 L	16	LD
VLA3YE	62.7 *H	64.4 *	60.0	62.8 H	62.5	1.98 *	5.3	1.9	64.2	2.62 *	5.5	3.8	16	EM
WKT9X6	56.1	52.0 *	57.5	57.5	55.8	-0.74	3.2	2.6	56.9	-0.35	3.7	2.6	16	LD
WQZVAK	59.2	60.6	59.9	59.8	59.9	0.93	2.6	0.6	59.3	0.64	2.7	0.5 L	16	EN
WTJHTD	57.9	61.7	59.9	58.5	59.5	0.77	3.7	1.7	60.7	1.20	4.0	1.8	16	LD
YEXPGB	59.3	59.4	57.5	58.8	58.8	0.47	4.1	0.9	58.1	0.16	3.9	1.3	16	LD
YPJUPB	50.0 X	54.2	54.5	50.3 *	52.3	-2.17 *	3.0	2.4	52.9	-1.98 *	3.0	1.7	10	LD
Z4VEE2	58.1	55.4	64.1 *	60.0	59.4	0.73	4.4	3.7 H	59.6	0.75	4.4	3.0	16	LD
ZEETH4	51.5 X	51.8 *	52.1 *	53.0	52.1	-2.23 *	2.9	0.6	52.0	-2.32 *	3.1	1.0	12	LD
ZM9YB6	54.8	55.3	58.1	54.6	55.7	-0.77	3.3	1.6	56.2	-0.62	3.6	1.6	16	TH

Consensus (All Labs) Results

Wk Mean	58.32	58.05	58.02	57.55	Month Mean	57.59	Grand Mean	57.73
Avg SDr	3.47	3.47	3.37	3.40	Avg SD	3.44	Avg SD	3.52
SD btwn Labs	1.93	2.93	2.85	2.73	SD btwn Labs	2.46	SD btwn Labs	2.47
Labs Incld	42	44	45	45	SD btwn Wks	1.69	SD btwn Wks	2.03
Labs Excld	5	0	1	1	Labs Incld	46	Labs Incld	46
Labs not Rcvd	0	3	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
TG	TMI Compression Tester, Model 17-10	TH	TMI Compression Tester, Model 17-76
TJ	TLS Compression Tester, Model CDM-5	TU	TMI Universal Crush Tester (TMI K440)
XX	Instrument make/model not specified by lab		

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Containerboard Interlaboratory Testing Program

Analysis 250

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

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
769846	69.5	67.8	66.2	68.3	68.0	-0.23	2.5	1.3	65.2	-1.00	3.5	6.2 H	16	LD
7EAUV2	67.1	65.7 H	67.1	71.1	67.7	-0.31	5.0	2.3	67.1	-0.33	4.1	1.9	16	LD
BPGTJY	65.1	65.4	65.5	64.3	65.1	-1.35	1.7	0.6	64.4	-1.31	1.4	1.4	16	MB
C6QADZ	64.6 H	60.0 X	65.3	64.5	63.6	-1.94 *	3.5	2.4	63.3	-1.71	3.3	1.7	16	EN
CFLAHW	68.7	70.5	69.0	68.2	69.1	0.22	3.8	1.0	69.2	0.43	3.3	1.4	16	LC
DL7PLT	66.7	69.6	68.5	65.5	67.6	-0.38	2.9	1.8	66.8	-0.42	3.0	1.9	16	LD
GK4Y7P	68.1	67.1	68.0	68.0	67.8	-0.28	2.4	0.5	67.7	-0.09	2.1	0.6 L	16	LZ
HYZFVM	68.3	69.0	68.1	68.2	68.4	-0.05	2.8	0.4	68.6	0.21	3.0	0.6 L	16	LD
JL97LM	72.8	72.6	74.3 *	60.4 *H	70.0	0.59	5.4	6.5 H	66.0	-0.72	6.5	7.0 H	16	XX
JYGLEQ	71.3	72.8	70.5	70.0 H	71.2	1.03	4.5	1.2	71.9	1.41	4.2	1.2	16	LD
LCFAKP	66.9 H	69.4	66.6	68.8	67.9	-0.24	3.8	1.4	68.3	0.13	3.6	1.2	16	LZ
MKLZFK	69.1	71.6	69.9	70.9	70.4	0.72	3.0	1.1	70.7	0.98	3.6	1.6	16	LD
Q7UDYH	63.4	No Data	64.5	No Data	63.9	-1.79	3.1	0.7	63.4	-1.66	3.4	2.4	5	LD
QMHNKK	71.9 L	68.5 L	70.5 L	69.9 L	70.2	0.66	1.0	1.4	69.8	0.65	1.0	2.1	16	XX
RD9BQE	67.4	68.8	65.5	68.0	67.4	-0.44	2.5	1.4	67.7	-0.12	2.8	1.6	16	LD
UC4ZZ9	73.6	69.9	71.1	74.3	72.2	1.45	2.9	2.1	72.1	1.51	3.3	1.6	12	LD
UKFNLF	75.0 *	73.5	73.1	75.3 *	74.2	2.24 *	3.6	1.1	73.4	1.97 *	4.0	1.6	16	LD
V2JHRF	68.5	68.8	67.8	67.3	68.1	-0.17	3.2	0.7	68.1	0.04	3.7	0.6 L	16	LD
V2LFGC	68.8	68.6	68.8	68.7 L	68.7	0.07	2.1	0.1 L	68.4	0.13	1.9	0.3 L	16	LD
Z4VEE2	68.5	71.2	68.2	68.2	69.0	0.19	4.3	1.4	67.7	-0.09	3.9	1.5	16	LD

Consensus (All Labs) Results

Wk Mean	68.75	69.50	68.43	68.40	Month Mean	68.53	Grand Mean	67.99
Avg SDr	3.08	3.79	3.08	3.56	Avg SD	3.37	Avg SD	3.47
SD btwn Labs	2.98	2.27	2.60	3.39	SD btwn Labs	2.55	SD btwn Labs	2.76
Labs Incld	20	18	20	19	SD btwn Wks	1.96	SD btwn Wks	2.54
Labs Excld	0	1	0	0	Labs Incld	20	Labs Incld	20
Labs not Rcvd	0	1	0	1				

Key to Instrument Codes Reported by Participants

EN	Emerson 2200 Series	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	XX	Instrument make/model not specified by lab

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Containerboard Interlaboratory Testing Program

Analysis 255

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

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
3FJZX2	38.8	39.6	39.6	39.4	39.4	-0.88	2.1	0.4	44.2	0.41	3.3	3.1	16	LZ
3T4F22	47.0	42.0	39.0	39.0	41.8	-0.20	3.5	3.8 H	41.8	-0.25	3.5	2.3	16	LZ
769846	42.9	42.5	40.2	41.4	41.7	-0.21	3.0	1.2	41.2	-0.42	3.2	1.5	16	LD
7LUK94	40.5 L	41.1 L	40.4	41.1	40.8	-0.48	1.6	0.4	40.6	-0.59	1.6	0.7	16	TU
8CJFXX	44.1	44.2	44.3	42.8	43.8	0.38	2.9	0.7	43.4	0.18	2.7	1.1	16	LD
AL3VEX	36.4 H	41.0 H	40.5 H	38.8	39.2	-0.94	5.6	2.1	35.7	-1.95 *	6.8	2.4	16	TX
BPGTJY	38.4 L	40.1	39.7 L	40.3	39.6	-0.80	1.4	0.8	39.8	-0.81	1.4	1.1	16	MB
BQ9P9T	44.5	44.7	44.6	43.8	44.4	0.54	2.4	0.4	44.4	0.46	2.1	0.3 L	16	LD
CBW38V	43.1	44.0	44.8	45.4	44.3	0.52	2.8	1.0	44.9	0.61	3.4	1.3	16	LD
CC8DDU	35.4	34.6 X	33.5 *	32.4 *	34.0	-2.40 *	3.6	1.3	35.1	-2.12 *	3.2	1.1	16	XX
CFLAHW	43.8	41.2	42.5 H	44.3	42.9	0.13	4.5	1.4	43.1	0.12	3.8	1.0	16	LC
CXQGXX	44.3	44.9	44.9	44.8	44.7	0.63	2.4	0.3	44.8	0.59	3.0	0.6	12	LD
D6ZXQW	43.4	43.5	42.2	43.4	43.1	0.18	2.3	0.6	43.0	0.07	2.1	0.7	16	LC
DL7PLT	40.3	41.0	39.9	39.4	40.2	-0.65	3.4	0.7	41.5	-0.35	3.4	1.4	16	LD
HYZFVM	44.7	43.5	44.6	42.5	43.8	0.38	2.9	1.0	43.8	0.29	3.0	0.7	16	LD
JNGH4N	39.6	40.9	40.2	38.2	39.8	-0.77	3.1	1.1	40.7	-0.57	3.3	1.5	16	EM
MKLZFK	48.2	45.2	45.1 H	47.6	46.5	1.13	4.0	1.6	46.2	0.97	3.7	1.0	16	LD
NYXV9L	46.5	44.9	41.0	45.4	44.4	0.55	3.8	2.4	44.4	0.47	3.5	1.8	16	LD
PRXV9J	49.6	49.2 *	48.5	48.3	48.9	1.81	3.4	0.6	51.1	2.32 *	4.6	5.9 H	16	LC
U28U8B	47.1	47.0 H	49.4 *	44.7	47.1	1.29	3.8	1.9	46.8	1.14	3.4	1.7	6	MB
UKFNLF	43.3	46.1	43.1	44.4	44.2	0.49	3.5	1.4	44.3	0.43	4.6	1.7	16	XX
VLA3YE	36.6	42.2	40.7	41.8	40.3	-0.60	3.5	2.6	42.1	-0.17	3.5	2.1	16	EM
WKT9X6	46.2	45.6	43.4	42.9	44.5	0.57	3.5	1.6	44.8	0.58	3.4	1.9	16	LD
WTJHTD	45.8	48.7 *	44.4	45.2	46.0	1.00	4.1	1.9	44.0	0.36	4.3	3.2	16	LD
YHEHL7	43.7	45.8	43.7	46.0	44.8	0.65	3.2	1.3	44.5	0.50	3.1	1.0	12	LZ
ZM9YB6	34.0 *L	33.3 X	36.1	33.5 *	34.2	-2.33 *	2.1	1.3	34.7	-2.24 *	2.4	1.6	16	TH

Consensus (All Labs) Results

Wk Mean	42.62	43.70	42.17	42.19	Month Mean	42.48	Grand Mean	42.72
Avg SDr	3.52	3.19	3.32	3.07	Avg SD	3.29	Avg SD	3.48
SD btwn Labs	4.13	2.63	3.45	3.84	SD btwn Labs	3.55	SD btwn Labs	3.60
Labs Incld	26	24	26	26	SD btwn Wks	1.52	SD btwn Wks	1.98
Labs Excld	0	2	0	0	Labs Incld	26	Labs Incld	26
Labs not Rcvd	0	0	0	0				

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Key to Instrument Codes Reported by Participants

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

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Containerboard Interlaboratory Testing Program

Analysis 261

STFI, 26 lb Corrugating Medium - CM11

TAPPI Official Test Method T826

Report #608 (E)
May 2020

	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
2RWDLB	13.8	13.7	13.1	13.2	13.5	-0.25	1.3	0.4	13.9	0.94	1.2	0.7	16	LU
3FJZX2	13.2 L	13.6	12.6	13.2	13.2	-0.81	0.8	0.4	13.5	-0.88	0.9	0.4	16	LA
6EFRQ7	14.2	13.5	13.2	13.9	13.7	0.23	0.9	0.4	13.6	-0.50	0.9	0.4	16	LB
6PYQA4	13.2	No Data	No Data	12.8	13.0	-1.11	1.1	0.3	13.5	-0.83	1.1	0.8	13	LA
769846	15.5 X	14.6 *	15.2 *	14.6	15.0	2.56 *	0.9	0.5	14.4	3.31 X	1.1	0.5	16	LA
7PDFBV	12.7	12.9	12.3	12.9	12.7	-1.65	1.1	0.3	12.6	-5.09 X	1.2	0.3	16	LH
8CJFXX	13.9	13.6	13.5	13.9	13.7	0.23	1.1	0.2	13.6	-0.59	1.1	0.3	16	LZ
AL3VEX	12.7 *	12.7 *	12.4	12.4 *	12.5	-1.97 *	1.1	0.2	12.4	-6.19 X	1.0	0.2	16	TT
B2ACZQ	13.3	13.5	13.8	14.4	13.8	0.34	0.9	0.5	13.5	-1.01	0.9	0.3	16	LH
CFLAHW	13.4	14.0	14.5	13.7	13.9	0.57	1.1	0.5	13.8	0.58	1.2	0.3	16	LU
CRGT7U	13.9	14.3 H	13.3	14.1	13.9	0.57	1.2	0.4	13.9	0.91	1.6	1.0	16	LA
DVVQCW	13.4	13.0	13.4	13.3	13.3	-0.60	1.0	0.2	13.3	-2.05 *	1.0	0.5	16	LA
DZR3ZN	22.5 XH	23.1 X	21.7 XH	21.8 XH	22.3	16.20 X	1.6	0.6	22.6	42.07 X	1.7	0.6	12	TX
FACTZL	13.6	13.6	14.3	14.0	13.9	0.51	0.9	0.3	13.5	-0.71	0.8	0.3	16	TT
HYZFVM	13.6 H	13.3	13.6	13.1	13.4	-0.32	1.3	0.2	13.5	-0.77	1.1	0.2	16	LB
QMHNKK	13.4	13.5	13.4	13.1	13.4	-0.42	0.9	0.2	13.8	0.47	1.0	0.6	16	XX
U28U8B	12.9 H	No Data	14.3	13.9 L	13.7	0.19	1.1	0.7	13.6	-0.28	1.0	0.6	5	LA
UC4ZZ9	14.1	14.4	14.5 H	14.8	14.4	1.61	1.2	0.3	14.0	1.53	1.0	0.4	16	LA
V2JHRF	14.1	13.9	13.3	13.0	13.6	-0.03	0.9	0.5	13.6	-0.40	0.9	0.4	16	LB
V2LFGC	13.6 L	13.8 L	13.6 L	13.7 L	13.7	0.16	0.4	0.1	13.6	-0.23	0.5	0.2	16	LA
WKT9X6	11.7 X	13.1	13.2	13.1 L	12.8	-1.51	1.0	0.7	16.8	14.90 X	1.4	4.6 H	16	LZ
WQZVAK	14.3	14.0	14.1	14.0	14.1	0.96	0.9	0.1	14.1	1.80	1.0	0.3	16	LH
WTJHTD	13.2	13.8	13.4 H	15.0 *	13.8	0.45	1.2	0.8	14.0	1.40	1.1	0.9	15	LA
YHEHL7	14.1	13.4	13.5	13.8	13.7	0.19	1.2	0.3	13.7	-0.12	1.1	0.5	12	LA
Z4VEE2	13.8	13.9 H	13.4	13.5	13.6	0.10	1.2	0.2	13.8	0.73	1.1	0.3	16	LA

Consensus (All Labs) Results

Wk Mean	13.55	13.64	13.55	13.64	Month Mean	13.58	Grand Mean	13.69
Avg SDr	1.07	1.08	1.03	0.99	Avg SD	1.04	Avg SD	1.04
SD btwn Labs	0.47	0.47	0.69	0.65	SD btwn Labs	0.54	SD btwn Labs	0.21
Labs Incld	22	22	23	24	SD btwn Wks	0.41	SD btwn Wks	0.52
Labs Excld	3	1	1	1	Labs Incld	24	Labs Incld	20
Labs not Rcvd	0	2	1	0				

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Key to Instrument Codes Reported by Participants

LA	L&W Autoline	LB	L&W Model 152
LH	L&W 282	LU	L&W 52 without moisture correction (was 53)
LZ	L&W (model not specified)	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

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