Collaborative Testing Services, Inc.

Containerboard Interlaboratory Testing Program

Participant Summary Report #600 (K) - September 2019

Introduction to the Containerboard Program

Explanation of Tables and Definitions of Terms

Analysis	Sample	Analysis Name
201	BX13	Box Compression Strength, Corrugated Boxes
202	EC12	Edgewise Compressive Strength, Wax (T811), Corrugated Board
203	EC12	Edgewise Compressive Strength by Clamp (T839), Corrugated Board
205	42F1	Mullen Burst of Linerboard, 42 lb Linerboard
206	56A2	Mullen Burst of Linerboard, 56 lb Linerboard
215	42F1	Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard
216	56A2	Ring Crush of Linerboard, Rigid Platen Type, 56 lb Linerboard
223	42F1	STFI of Linerboard, 42 lb Linerboard
224	56A2	STFI of Linerboard, 56 lb Linerboard
228	42F	Roughness - Stylus Method, 42 lb Linerboard
229	42F1	Roughness - Sheffield Method, 42 lb Linerboard
231	42D	Internal Bond Strength, Linerboard, 42 lb Linerboard
234	42F	Coefficient of Static Friction - Inclined Plane, 42 lb Linerboard
237	42D	Air Resistance - Gurley Method, Linerboard, 42 lb Linerboard
240	CM11	Flat Crush Strength (CMT) of Medium, 26 lb Corrugating Medium
250	CM11	Fluted Crush of Medium, 26 lb Corrugating Medium
255	CM11	Ring Crush of Medium, 26 lb Corrugating Medium
261	CM11	STFI of Medium, 26 lb Corrugating Medium

Collaborative Testing Services, Inc.
CONTAINERBOARD INTERLABORATORY TESTING PROGRAM

INTRODUCTION

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

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

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

USE OF AVERAGE MEAN AS A COLLABORATIVE REFERENCE VALUE

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

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

ABOUT CTS

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

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EXPLANATION OF TABLES

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

Definitions of Terms Used

Weekly Results

Laboratory Data

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

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

Consensus Data

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

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

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

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

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

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

Monthly Results

Laboratory Data

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

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

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

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

Consensus Data

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

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

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

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

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

Cumulative Results

Laboratory Data

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

Consensus Data

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

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

Flag	Explanation

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

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

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

Flags assigned to Weekly Means:

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

Flags assigned to Monthly SD Wks and Cumulative SD Wks:

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

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
6HMXPB	840.0	-0.47	90.68	777.0	-1.23	147.89 H	4	EX
AT9X2N	862.7	0.01	39.70	880.0	0.53	39.53	4	TE
BN94MJ	886.4	0.52	71.55	872.4	0.40	25.43	4	ER
FHBZNM	948.8	1.85	26.20	952.3	1.76	18.31	4	ER
GHQGGV	904.4	0.90	46.27	900.0	0.87	20.72	4	EX
HXW66F	859.4	-0.06	38.96	867.3	0.31	24.32	4	LS
JJUYQB	888.1	0.56	28.83	861.5	0.21	37.28	4	ER
KQ7AJ3	945.7	1.78	78.05	1,001.9	2.60 *	37.64	4	LG
LHPA8X	700.1	-3.45 X	48.98	750.7	-1.68	45.34	4	ET
LWW7KX	831.0	-0.66	49.04	783.9	-1.11	70.97	4	TB
M4LBPJ	790.6	-1.52	41.55	785.8	-1.08	20.34	4	LL
NHN3BN	928.5	1.42	41.37	868.7	0.33	66.01	4	ER
NQ9MYT	863.1	0.02	90.22	847.7	-0.02	17.43	4	LS
NRB22T	832.4	-0.63	97.03	779.4	-1.19	45.38	4	LS
PEVM3Y	837.7	-0.52	31.40	850.1	0.02	34.26	4	LG
TFKXKW	893.4	0.67	24.90	890.6	0.71	5.71 L	4	LM
UYLKBT	815.6	-0.99	28.13	842.9	-0.11	38.55	2	LS
V99UK8	842.8	-0.41	14.31	850.0	0.01	68.02	4	ES
VYLT6X	881.8	0.42	62.71	879.6	0.52	2.01 L	4	LG
W4BW8Z	748.4	-2.42 *	73.39	750.3	-1.69	53.04	4	LS
X7C9FL	823.2	-0.83	30.55	846.4	-0.05	25.51	4	LS
XB4BMR	897.8	0.76	94.06	873.8	0.42	42.70	4	EX
YH6ZNW	836.4	-0.55	37.71	875.9	0.46	33.19	4	LS
YX2D6D	852.8	-0.20	42.22	810.2	-0.66	48.17	4	LM
Z9UX3V	878.7	0.35	47.20	830.5	-0.32	38.25	4	LL

Consensus (All Labs) Results

Month Mean	862.07	Grand Mean	849.14
Avg SD	56.54	Avg SD Months	48.98
SD btwn Labs	46.93	SD btwn Labs	58.66
Labs Incld	24	Labs Incld	25

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	855.34	40.74	6.73	9
Clip sealing	866.11	51.22	4.04	15

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

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
JJUYQB	30.9	-1.11	4.13	H	33.5	-0.57	2.61	3	EN
LUJQWY	32.7	-0.66	1.91		33.0	-0.73	1.56	3	XX
M2CK83	37.1	0.39	0.74	L	36.6	0.30	0.71	2	TF
NQ9MYT	34.4	-0.26	1.31		35.8	0.06	1.16	3	LD
NRB22T	38.5	0.72	1.34		38.3	0.78	0.16 L	3	LC
PP2BCP	27.7	-1.85 *	2.10		31.1	-1.27	3.65	3	TX
TXFMLR	36.6	0.27	1.56		33.8	-0.50	3.39	3	XX
VYLT6X	38.7	0.78	2.03		39.3	1.07	0.74	3	LE
W4BW8Z	31.7	-0.90	3.70		30.6	-1.41	0.97	3	EM
WB9GFN	41.2	1.37	2.11		41.0	1.56	0.51	3	LC
WNJWLT	34.8	-0.16	3.65		32.9	-0.76	2.21	3	LD
XB4BMR	34.5	-0.23	2.94		35.3	-0.07	1.04	3	LC
Z9UX3V	42.4	1.65	1.01	L	41.0	1.55	1.30	3	XX

Consensus (All Labs) Results

Month Mean	35.49	Grand Mean	35.56
Avg SD	2.43	Avg SD Months	1.87
SD btwn Labs	4.19	SD btwn Labs	3.51
Labs Incld	13	Labs Incld	13

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	EN	Emerson 2200
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LE	L&W Crush Tester 840	TF	TMI Digital Crush Tester, Model 17-19
TX	TMI (model not specified)	XX	Instrument make/model not specified by lab

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2FNHUP	39.1	0.01	2.04		38.7	-0.21	0.39	3	EM
6HMXPB	37.7	-0.78	1.55		38.1	-0.62	0.58	2	CT
7XYV8G	37.8	-0.70	2.11		37.8	-0.80	0.00	1	EM
AT9X2N	40.3	0.65	1.23		40.1	0.70	1.59	3	LD
BN94MJ	39.9	0.44	1.52		39.0	-0.03	1.12	3	LD
CFV8JX	39.4	0.15	1.26		39.2	0.15	1.65	3	LD
FHBZNM	39.3	0.10	1.57		39.2	0.08	0.65	3	EM
HEJHPA	40.6	0.82	1.40		39.9	0.61	0.57	3	TD
HXW66F	36.4	-1.51	2.37		36.9	-1.44	0.43	3	LD
JJUYQB	36.9	-1.22	2.74		35.8	-2.19 *	1.11	3	EN
KC9K3V	38.7	-0.22	1.34		40.2	0.79	2.14	2	LD
KQ7AJ3	38.9	-0.12	2.41		39.9	0.57	1.47	3	EM
LHPA8X	38.0	-0.62	1.01		38.0	-0.69	1.05	3	TD
LUJQWY	38.6	-0.27	1.61		38.4	-0.39	0.27	3	IM
LWW7KX	42.2	1.70	0.37 L		42.0	1.97 *	0.63	3	LD
M2CK83	40.1	0.56	0.99		39.3	0.18	1.13	2	TD
M4LBPJ	36.3	-1.55	2.01		37.4	-1.07	0.98	3	LC
NHN3BN	41.0	1.06	2.08		40.5	0.99	0.51	3	LD
NQ9MYT	41.3	1.22	1.39		41.4	1.61	0.16 L	3	LD
NRB22T	40.6	0.83	1.96		41.1	1.36	0.42	3	LC
PEVM3Y	40.9	1.02	1.17		39.5	0.29	1.62	3	TJ
PN6XQH	37.9	-0.69	2.29		38.5	-0.38	0.85	2	LC
PP2BCP	37.7	-0.79	0.86		31.4	-5.10 X	10.54 H	3	TX
RYG6FG	40.0	0.49	2.11		39.3	0.21	0.59	3	TD
TFKXKW	38.0	-0.61	1.49		38.3	-0.48	0.27	3	EM
TGCUAP	34.4	-2.63 *	3.69 H		36.5	-1.67	2.35	3	TD
V99UK8	40.5	0.78	0.96		39.9	0.59	1.57	3	LD
VX4XAP	39.1	0.00	1.05		40.3	0.82	1.00	3	LC
VYLT6X	40.2	0.61	1.52		41.1	1.37	0.85	3	LY
W4BW8Z	38.9	-0.10	0.85		38.5	-0.38	0.42	3	EM
W8DQAC	39.9	0.45	1.21		37.6	-0.97	3.30	2	TK
WB9GFN	43.1	2.20 *	1.47		41.4	1.56	1.47	3	LC
WNJWLT	37.5	-0.88	1.25		37.0	-1.34	1.06	3	LD
X3WPM6	37.3	-1.00	1.92		37.4	-1.08	0.13 L	3	LD
XB4BMR	39.5	0.22	2.37		37.9	-0.74	1.45	3	LC
YCWNJJ	40.1	0.57	1.96		40.7	1.13	1.11	3	LD
YDY3LJ	40.0	0.51	1.66		40.2	0.79	0.26	3	TG
YH6ZNW	35.9	-1.77	0.99		37.7	-0.89	1.80	3	TB
YX2D6D	41.0	1.07	1.37		38.4	-0.41	2.68 H	3	TG

Consensus (All Labs) Results

Month Mean	39.09	Grand Mean	39.03
Avg SD	1.73	Avg SD Months	1.29
SD btwn Labs	1.80	SD btwn Labs	1.49
Labs Incld	39	Labs Incld	38

Key to Instrument Codes Reported by Participants

CT	Con-Ten	EM	Emerson 1200 Series
EN	Emerson 2200	IM	Instron 5500 Series
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LY	L&W 830	TB	TMI Monitor/Compression Tester, Model 17-70
TD	TMI Digital Crush Tester, Model 17-09	TG	TMI Digital Crush Tester, 17-76
TJ	TLS Compression Tester, Model CDM-5	TK	TLS Compression Tester, Model 5184
TX	TMI (model not specified)		

	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
2N7U4A	109.5	107.0 L	110.6	108.8	109.0	-0.46	4.4	1.5	108.3	-0.68	5.1	1.9	16	LA
6HMXPB	120.1 *	116.3	114.1	117.4	117.0	1.96 *	9.4	2.5	115.7	1.36	9.4	3.2	16	XX
6YWQBT	108.8	109.2	108.4	107.7	108.5	-0.60	6.8	0.6	109.1	-0.48	6.5	0.9 L	16	AH
7ATCWH	108.1	105.8	111.5	111.4	109.2	-0.40	11.3	2.8	110.3	-0.13	9.9	3.8	16	LC
7VPN33	112.5	109.9	111.3	113.1	111.7	0.36	6.3	1.4	110.9	0.03	8.6	1.9	16	LA
7ZM998	111.0	115.1	111.8	116.2	113.5	0.92	7.9	2.5	113.4	0.72	9.9	3.6	12	LA
89AQXZ	108.7	112.5	112.7	108.3	110.5	0.01	9.7	2.3	107.6	-0.88	8.9	3.5	16	LA
8WECZN	109.9	106.1	110.0	110.3	109.1	-0.43	10.2	2.0	110.2	-0.16	9.8	3.9	16	LC
A6KVE4	112.1	105.6	105.5	108.5	107.9	-0.78	9.1	3.1	106.9	-1.08	9.5	2.9	16	LA
A7H9YB	106.3 L	109.3	103.9 L	108.3	106.9	-1.08	7.7	2.4	105.1	-1.57	7.8	4.6	16	AH
A9M2QP	122.6 X	118.4 *H	114.6	107.5	115.8	1.59	11.8	6.4 H	113.3	0.71	10.5	4.8	16	AX
BBLU3Y	111.4	111.1	111.9	113.4	112.0	0.44	8.0	1.0	112.5	0.47	9.0	2.1	16	LC
BC3N6U	111.9	112.7	110.7	112.2	111.9	0.42	9.5	0.9	112.1	0.36	10.0	1.5	12	LZ
BFEV2R	103.2	107.9	106.1	106.9	106.0	-1.36	8.2	2.0	105.8	-1.38	9.9	3.8	16	LC
BN94MJ	107.4	105.6	110.1	112.8	109.0	-0.46	8.8	3.1	113.3	0.69	8.1	3.5	16	AH
C84UFR	105.5	107.5	115.5	116.5	111.3	0.23	9.6	5.6 H	112.7	0.53	10.0	4.3	16	AH
DTVGCC	109.3	112.6	109.9	105.1	109.2	-0.38	8.9	3.1	107.7	-0.86	9.2	3.3	16	LC
ECMVJA	114.0	113.0	104.1 H	114.9	111.5	0.31	11.8	5.0	117.5	1.86	9.5	7.1 H	12	LC
GDTZ3F	108.1	106.5	109.6	109.0	108.3	-0.67	7.3	1.4	109.5	-0.36	7.8	2.1	16	LA
GHQGGV	106.0	109.2	110.2	102.4 *	107.0	-1.07	9.2	3.5	108.0	-0.77	8.6	2.8	16	AH
GPLMBW	115.0	114.5 L	113.7	144.1 XH	121.8	3.43 X	46.8	14.9 H	116.9	1.71	27.5	8.6 H	12	LC
J8GYUG	108.1	114.9	113.1	113.3	112.3	0.56	8.6	3.0	109.8	-0.27	12.3	3.7	16	LC
JKJGD4	102.5 *	100.9 *	105.2	101.5 *	102.5	-2.41 *	7.0	1.9	103.3	-2.09 *	8.3	2.0	12	LA
K4DCPR	116.8 L	114.8	115.6	114.4	115.4	1.48	4.5	1.1	113.1	0.63	5.9	2.0	16	RE
K8CUWK	108.6	107.6	111.9 L	110.7	109.7	-0.23	6.5	1.9	110.9	0.04	8.3	2.5	12	LA
KC9K3V	111.2	114.0	112.9	113.1	112.8	0.70	7.7	1.2	115.5	1.30	8.2	4.0	12	LC
KJRNAX	114.1	111.6	118.5 *	117.2	115.4	1.47	10.2	3.1	115.1	1.21	10.0	2.7	16	LC
L3VTBC	117.3	117.6	120.3 *	119.7 *	118.7	2.49 *	9.5	1.5	118.1	2.03 *	11.8	2.0	16	LZ
LPAD8D	111.1	105.5	103.9	106.8 L	106.8	-1.11	6.3	3.1	107.6	-0.88	8.3	3.1	15	LC
LX6JZE	112.0	109.5	110.6	106.5	109.6	-0.26	9.1	2.3	108.6	-0.62	9.4	4.2	16	LC
M2CK83	112.7	110.8	109.1	110.2	110.7	0.06	10.0	1.5	111.8	0.29	10.7	1.8	12	XX
NHN3BN	105.2	110.5	108.9	109.9	108.6	-0.57	10.3	2.4	108.3	-0.69	9.3	2.2	16	LZ
NQ9MYT	102.7 *	109.7	105.8	108.7	106.7	-1.14	8.6	3.2	105.6	-1.44	8.7	2.7	16	LA
NRB22T	110.9	105.4	103.7	109.2	107.3	-0.97	7.9	3.3	109.5	-0.35	8.6	3.2	16	AH
PN6XQH	116.4	110.1	113.4	116.5	114.1	1.09	9.3	3.1	114.0	0.88	8.7	2.9	12	LA

Containerboard Interlaboratory Testing Program

Analysis 205

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

TAPPI Official Test Method T807

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
RNVZ7W	108.1	104.1	106.0	106.7	106.2	-1.29	10.1	1.7	108.0	-0.78	9.1	2.6	16	LC
RWP6ZX	125.8 X	123.0 X	125.4 X	115.6	122.5	3.62 X	11.1	4.7	120.5	2.70	*10.5	3.5	16	TB
TCH6K7	110.0 L	113.3	112.4	117.4	113.3	0.84	6.8	3.1	111.4	0.16	9.0	3.3	16	LC
TF2ED4	114.2	110.9	110.8 H	110.2	111.5	0.31	12.1	1.8	112.8	0.55	10.9	5.4	16	LA
TLM8RN	107.9	105.4	109.7	105.6	107.1	-1.01	10.5	2.0	107.9	-0.81	9.5	3.8	9	LJ
TW8J2F	113.7	106.4	113.2	110.1	110.9	0.11	11.0	3.4	108.6	-0.61	11.8	2.8	16	LC
UZ6E4F	110.7	110.8	110.8	110.6	110.7	0.06	5.1	0.1 L	110.6	-0.05	5.3	0.2 L	16	LJ
V38HPB	96.8 XH	No Data	No Data	No Data	96.8	-4.15 X	30.8	0.0	111.1	0.10	12.2	5.9	13	AH
V8GV8A	104.2	110.4	110.2	108.7	108.4	-0.64	9.4	2.9	107.1	-1.03	8.7	3.4	16	LC
V99UK8	109.8	107.8 H	114.6	107.4	109.9	-0.18	11.1	3.3	109.6	-0.32	9.4	2.8	16	LA
VMU9N8	112.6	111.5	109.9	111.8	111.5	0.29	9.7	1.1	112.9	0.58	8.1	3.9	16	TB
VYLT6X	118.8 *	118.7 *	114.1	118.3	117.5	2.11 *	6.4	2.3	116.4	1.54	7.2	3.0	16	AH
WNJWLT	108.6	104.5	100.7 *L	107.6	105.3	-1.56	6.2	3.6	106.3	-1.25	6.8	2.8	16	LA
X3WPM6	108.6	108.2	111.6	107.6	109.0	-0.45	7.8	1.8	107.3	-0.96	9.2	3.1	16	LC
X6MQTT	116.0	107.6	111.8	104.2	109.9	-0.19	9.4	5.1	107.8	-0.84	9.2	3.9	16	LB
Y2HKKZ	107.8	111.1	108.3	110.2	109.4	-0.35	6.7	1.6	109.4	-0.39	6.7	1.5	16	TP
YCWNJJ	113.9	114.9	114.6	114.8	114.6	1.23	7.6	0.5 L	113.5	0.75	6.9	1.2	16	LA
Z44JKG	111.3 L	109.3	112.7 L	113.1 L	111.6	0.33	3.8	1.7	112.7	0.54	4.9	2.7	15	XX
ZJXB3W	112.6	111.9	112.7	113.4	112.7	0.66	11.3	0.6	110.6	-0.05	13.0	4.1	16	TB

Consensus (All Labs) Results

Wk Mean	110.53	110.11	110.63	110.80	Month Mean	110.49	Grand Mean	110.79
Avg SDr	8.73	9.22	8.59	8.37	Avg SD	8.78	Avg SD	9.78
SD btwn Labs	3.99	3.90	3.85	4.18	SD btwn Labs	3.30	SD btwn Labs	3.60
Labs Incld	51	52	52	52	SD btwn Wks	2.71	SD btwn Wks	3.51
Labs Excld	3	1	1	1	Labs Incld	51	Labs Incld	54
Labs not Rcvd	0	1	1	1				

Analysis Notes

GPLMBW - Data for week 4 appear to contain a data entry error.

V38HPB - Data for week 1 appear to contain a data entry error.

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
2N7U4A	120.6 L	121.9 L	123.2 *L	120.6 L	121.6	1.86	2.8	1.2	120.5	2.40 *	3.0	1.6	12	LA
6HMXPB	114.5	116.2	115.6	119.7	116.5	0.81	11.6	2.2	112.5	0.06	11.6	5.0	12	XX
6YWQBT	112.4	113.9	112.7	111.8	112.7	0.02	7.4	0.9	112.6	0.10	6.8	0.6 L	12	AH
7ATCWH	110.0	109.7	121.2 *	113.4	113.6	0.20	12.1	5.4	111.7	-0.17	11.0	4.5	12	LC
7VPN33	112.9	114.4	112.8	113.7	113.5	0.18	11.0	0.8	112.7	0.11	11.1	2.2	12	LA
7ZM998	124.8 *	116.9	115.1	116.1	118.2	1.17	8.9	4.4	117.1	1.42	10.1	4.5	8	LA
89AQXZ	114.5 L	111.6	108.8	104.1	109.7	-0.59	10.6	4.4	107.6	-1.37	10.0	4.8	12	LA
8WECZN	112.5	109.9	113.4	112.5	112.1	-0.11	12.9	1.5	112.4	0.02	13.2	3.3	8	LC
A6KVE4	113.0	113.5	108.9	112.5	112.0	-0.13	8.9	2.1	111.4	-0.27	10.5	5.4	12	LA
A7H9YB	110.3	109.2	106.0	100.9 *	106.6	-1.24	10.0	4.2	107.9	-1.29	9.7	4.0	12	AH
A9M2QP	120.2	119.7 H	111.1	114.6	116.4	0.79	14.2	4.4	116.1	1.12	11.2	4.1	12	AX
BBLU3Y	116.3	117.3	115.7	118.5	116.9	0.90	9.2	1.2	114.8	0.74	9.1	4.5	12	LJ
BC3N6U	115.7	119.4	114.1	113.7	115.7	0.65	11.2	2.6	114.0	0.51	11.4	4.0	12	LZ
BFEV2R	101.0 *	105.6	104.6	100.2 *	102.8	-2.01 *	12.5	2.7	108.5	-1.12	9.8	6.6	12	LC
BN94MJ	106.7	108.1	112.7	114.4	110.5	-0.44	9.4	3.7	114.2	0.56	9.9	5.3	12	AH
C84UFR	119.3	109.9	112.6 H	113.8	113.9	0.27	14.4	4.0	113.9	0.47	13.0	2.8	8	AH
DTVGCC	109.9	99.2 *	105.6	108.9	105.9	-1.38	11.3	4.8	108.8	-1.04	10.7	4.0	12	XX
ECMVJA	113.0	109.8	109.3	109.6	110.4	-0.45	13.7	1.7	109.1	-0.95	11.5	2.2	8	LC
GDTZ3F	117.7	115.3	114.3 L	116.5	115.9	0.69	5.4	1.5	116.1	1.12	7.5	1.4	12	LA
GHQGGV	108.4	103.6	113.6	109.8	108.9	-0.77	8.5	4.1	109.8	-0.75	9.6	3.0	12	AH
J8GYUG	117.2	113.2	108.3	113.2	113.0	0.08	11.7	3.7	109.4	-0.85	11.8	5.1	12	LC
JKJGD4	99.0 *	105.8	108.0	105.1 L	104.5	-1.68	10.5	3.9	108.6	-1.10	10.0	5.5	8	LA
K4DCPR	113.4	114.4	114.2	114.4	114.1	0.31	7.6	0.5 L	113.1	0.23	7.1	1.7	12	RE
K8CUWK	110.8	111.9	112.7	118.4	113.4	0.18	8.9	3.4	112.2	-0.03	9.8	3.3	12	LA
KC9K3V	123.2	119.5	114.0	111.3	117.0	0.91	9.0	5.4	117.3	1.46	8.7	4.2	12	LC
KJRNAX	116.3	112.8	117.1	108.8	113.8	0.24	10.9	3.8	117.5	1.53	11.5	5.3	12	LC
L3VTBC	121.4	116.9	134.7 X	114.1	121.8	1.90	10.6	9.1 H	122.6	3.02 X	11.7	5.7	12	LZ
LPAD8D	111.8	113.9 H	110.1	110.1	111.5	-0.23	13.4	1.8	111.9	-0.13	11.5	2.4	12	LA
LX6JZE	105.4 H	111.1	101.5 *	116.4	108.6	-0.82	12.9	6.5	107.9	-1.28	13.4	5.3	12	XX
M2CK83	111.4	107.8	110.4	108.1	109.4	-0.65	11.0	1.8	110.9	-0.41	13.4	2.4	8	XX
NHN3BN	112.8	103.7	105.5	112.8	108.7	-0.80	9.2	4.8	109.3	-0.89	9.6	3.5	12	LZ
NQ9MYT	104.4	107.9	109.8	107.4	107.4	-1.08	9.8	2.3	106.7	-1.63	10.3	2.2	12	LA
NRB22T	104.0	107.0	97.3 X	107.6	104.0	-1.78	10.2	4.7	108.6	-1.09	9.8	5.0	12	AH
PN6XQH	113.9 L	118.5	119.1	115.3	116.7	0.85	9.9	2.5	114.1	0.53	10.9	3.9	12	LA
RNVZ7W	102.3	103.4	106.4	102.8	103.7	-1.83	11.4	1.8	108.1	-1.23	10.6	4.5	12	LC

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
RWP6ZX	125.6 *	127.9 X	126.7 X	118.7	124.7	2.50 *	11.6	4.1	123.6	3.31 X	11.6	4.3	8	TB
TCH6K7	121.1 L	120.7	122.0 *	116.7 H	120.1	1.56	12.1	2.3	116.5	1.24	11.5	5.5	12	LC
TF2ED4	110.3	110.7	106.8	116.6	111.1	-0.30	12.3	4.1	114.8	0.73	10.5	5.7	12	LA
TLM8RN	107.5	112.9	109.9	99.3 *H	107.4	-1.07	11.6	5.8	109.1	-0.95	12.4	4.7	7	LJ
TW8J2F	114.7	106.2	110.3 H	111.1	110.6	-0.42	13.5	3.5	108.9	-1.01	12.6	3.9	12	LC
UZ6E4F	113.1	113.9	113.2	113.6	113.5	0.18	6.8	0.4 L	113.6	0.37	6.9	0.3 L	12	LJ
V38HPB	113.6	No Data	No Data	No Data	113.6	0.21	10.4	0.0	114.5	0.66	8.5	4.2	9	AH
V8GV8A	109.5	107.3	111.8	107.9	109.1	-0.72	12.1	2.0	109.7	-0.76	11.6	2.5	8	LC
V99UK8	106.2	111.1	105.8	112.8	109.0	-0.75	12.0	3.5	112.1	-0.08	11.0	3.5	12	LA
VMU9N8	119.5	118.7	111.9	118.1	117.0	0.92	10.4	3.5	116.3	1.16	12.1	3.4	12	TB
VYLT6X	116.9 L	116.7	115.3	120.6 L	117.4	0.99	6.3	2.3	117.2	1.43	7.8	2.6	12	AH
WNJWLT	108.8	104.5	115.3	109.5	109.5	-0.63	8.2	4.4	110.1	-0.65	9.3	3.6	12	LA
X3WPM6	116.5	109.8	112.5	105.4	111.1	-0.32	12.3	4.7	109.3	-0.88	11.2	3.7	12	LC
X6MQTT	111.8	104.0	117.7	108.9	110.6	-0.42	11.1	5.7	109.8	-0.73	9.9	3.8	12	LB
Y2HKKZ	111.4	112.8	110.1	112.9	111.8	-0.16	7.0	1.3	112.2	-0.02	7.8	1.2	12	TP
YCWNJJ	115.6	115.3	114.3	115.5 L	115.2	0.53	5.6	0.6 L	114.9	0.75	6.5	0.5 L	12	LA
Z44JKG	122.9 L	119.0 L	120.0 L	124.6 *	121.6	1.87	4.8	2.6	120.1	2.30 *	6.7	2.2	11	XX
ZJXB3W	111.6	116.3	110.4	111.9	112.5	-0.01	12.5	2.6	111.2	-0.33	10.8	2.3	12	TB

Consensus (All Labs) Results

Wk Mean	113.16	112.01	112.16	112.21	Month Mean	112.59	Grand Mean	112.31
Avg SDr	10.50	10.78	10.90	9.93	Avg SD	10.56	Avg SD	10.32
SD btwn Labs	5.91	5.31	4.64	5.39	SD btwn Labs	4.84	SD btwn Labs	3.41
Labs Incld	53	51	49	52	SD btwn Wks	3.65	SD btwn Wks	3.85
Labs Excld	0	1	3	0	Labs Incld	53	Labs Incld	51
Labs not Rcvd	0	1	1	1				

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 215

Ring Crush, 42 lb Linerboard - 42F1

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2FNHUP	91.6	90.3	90.1	92.2	91.0	0.17	2.3	1.0	90.6	0.13	2.9	1.0	16	EM
2LEVMQ	91.1	91.7	90.8	85.7	89.8	-0.15	3.1	2.8	88.5	-0.42	2.9	2.4	16	LC
2M6DAJ	93.4	93.1	94.4	92.9	93.5	0.82	3.2	0.7	92.8	0.68	3.4	1.3	12	TH
2N7U4A	86.6	84.3	83.5 L	82.7	84.3	-1.64	1.5	1.7	77.9	-3.12 X	2.2	6.8 H	16	TU
3YYXJN	91.8	91.2	91.5	91.7	91.5	0.31	1.8	0.3 L	94.9	1.22	3.2	2.6	16	TU
6EGN48	89.0	90.9 H	90.6	92.6	90.8	0.10	4.5	1.5	88.1	-0.50	3.7	2.9	16	LD
7ATCWH	92.0	90.6	82.1 H	93.4	89.5	-0.24	4.8	5.1 H	89.0	-0.28	3.7	3.4	16	LD
7ZM998	91.7	93.1	94.9	95.0	93.7	0.88	2.9	1.6	93.7	0.91	4.1	6.8 H	12	LD
89AQXZ	85.2	88.8	85.7	85.8	86.4	-1.08	3.5	1.6	87.6	-0.63	3.9	2.9	16	LZ
8JNUWH	93.5	89.5	90.1	91.4	91.1	0.19	2.6	1.8	90.1	-0.01	2.9	3.4	16	LZ
8WECZN	86.0	86.6	85.6	86.1	86.1	-1.16	2.8	0.4	87.0	-0.79	2.9	2.5	16	LD
A6KVE4	98.7 *	99.4 X	96.5	98.1	98.1	2.08 *	2.9	1.2	99.4	2.37 *	3.2	2.3	16	LD
A7H9YB	89.8 H	91.8	98.7	96.9	94.3	1.05	4.2	4.2	94.1	1.02	4.1	4.8	16	LZ
A9M2QP	76.9 X	77.2 XH	79.3 *	79.5 *	78.2	-3.27 X	4.9	1.4	82.2	-2.01 *	4.4	4.3	16	LC
AT9X2N	92.7 L	93.8	93.1	93.2	93.2	0.76	1.6	0.5	93.3	0.80	1.8	0.6 L	16	LD
B4N3U6	78.2 XH	78.5 X	77.2 *H	82.3	79.1	-3.04 X	4.6	2.2	76.3	-3.53 X	4.0	2.4	16	LC
BBLU3Y	93.3	92.4	94.9	96.0	94.1	1.00	2.6	1.6	92.6	0.63	2.3	2.1	16	LD
BFEV2R	92.8	90.9	95.4 H	91.2	92.6	0.59	4.1	2.1	92.8	0.70	3.7	2.5	16	LD
BN94MJ	84.3	87.0	88.1	89.8	87.3	-0.83	2.2	2.3	84.1	-1.52	2.4	6.0	16	LD
CQH7B3	86.5 H	91.3	93.6	94.2	91.4	0.27	3.7	3.5	90.2	0.02	5.7	4.4	15	MB
DTVGCC	86.3	86.6	88.1	85.3	86.6	-1.02	3.3	1.2	89.4	-0.19	3.4	2.4	16	LD
F4NKTB	84.5	86.1	86.2	85.8	85.6	-1.28	1.9	0.8	83.3	-1.74	1.7	1.7	16	RS
GDTZ3F	84.3	83.9	83.5	87.0	84.7	-1.54	2.5	1.6	87.0	-0.80	3.0	2.7	16	LD
J8GYUG	95.3	93.7	94.0	90.9	93.5	0.83	2.3	1.9	93.0	0.74	2.6	1.4	16	LC
JJUYQB	83.3	83.6 *	83.5	83.8	83.6	-1.84	2.7	0.2 L	83.6	-1.66	2.5	1.5	16	EN
K4DCPR	85.5	87.1	86.6	86.4	86.4	-1.08	2.0	0.7	85.3	-1.24	2.6	4.7	16	LZ
KC9K3V	89.2	91.8	90.3	90.5	90.4	0.01	2.6	1.1	93.6	0.89	2.6	2.8	12	LD
KLHPFL	88.0	88.1	89.3	85.4	87.7	-0.73	3.7	1.6	86.0	-1.05	3.4	2.3	16	EX
L3VTBC	90.9	89.6	92.9	90.7	91.0	0.17	2.6	1.4	89.8	-0.08	2.7	1.6	16	LC
LPAD8D	88.5	88.1	88.3	87.0	88.0	-0.66	2.4	0.7	89.6	-0.12	2.7	1.3	16	LD
LUJQWY	83.7	83.9	83.8	87.0	84.6	-1.55	4.0	1.6	83.3	-1.73	4.8	2.2	12	MB
NHN3BN	93.3	91.7	92.1	91.4	92.1	0.46	2.7	0.9	90.6	0.13	4.5	3.4	16	LD
NQ9MYT	91.2	90.8	91.1	90.2	90.8	0.11	2.7	0.4	91.6	0.39	2.9	1.4	16	LD
NRB22T	90.5	89.5	93.6 L	92.7	91.6	0.31	2.0	1.9	90.9	0.21	2.8	1.2	16	LC
PN6XQH	84.3	87.5	86.4	80.9 *	84.8	-1.51	3.3	2.9	86.6	-0.91	4.7	4.4	12	LC

Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42F1

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
Q3LAFW	92.5	89.5	89.0	90.6	90.4	-0.01	3.7	1.6	90.0	-0.02	4.6	1.8	12	TH
RNVZ7W	103.2 X	103.3 X	103.8 *	103.2 X	103.4	3.49 X	3.1	0.3 L	97.3	1.84	6.0	4.4	16	LC
RWP6ZX	95.4	103.8 X	100.3	100.1 *	99.9	2.56 *	3.3	3.4	100.7	2.70 *	3.4	2.7	16	LX
TCH6K7	86.1	88.3	91.6	88.7	88.7	-0.46	2.7	2.2	89.2	-0.24	3.4	1.9	16	LD
TF2ED4	97.0	96.9 *	96.8	99.9 *	97.6	1.95 *	2.5	1.5	96.2	1.54	2.9	2.2	16	LZ
TFBF8P	89.9 H	108.9 XH	95.1	95.6	97.4	1.87	4.2	8.1 H	94.4	1.11	4.5	11.6 H	15	MB
TGCUAP	90.7	90.7	89.7	91.0	90.5	0.03	2.2	0.6	90.3	0.04	2.6	2.4	16	TD
TLM8RN	91.3	89.0 H	95.3	89.9	91.4	0.26	4.2	2.8	92.1	0.51	3.5	2.3	9	LD
TW8J2F	90.2	91.2	93.5	93.5	92.1	0.45	2.8	1.7	90.0	-0.03	2.7	2.0	16	LD
UZ6E4F	91.3	91.7	91.2	91.5	91.4	0.28	2.8	0.2 L	90.8	0.18	2.8	0.6 L	16	LD
VMU9N8	No Data	No Data	No Data	90.6	90.6	0.05	2.8	0.0	87.0	-0.80	3.4	2.0	6	LD
VYLT6X	91.0	90.9	88.7	90.5	90.3	-0.03	2.0	1.1	89.8	-0.08	2.5	1.3	16	LG
W8DQAC	85.1	84.4	88.7	89.0	86.8	-0.97	1.7	2.4	88.1	-0.52	2.4	1.6	16	MB
WB9GFN	89.0	87.3	87.4	88.7	88.1	-0.62	2.5	0.9	87.7	-0.61	2.6	0.8 L	16	LC
WNJWLT	88.1	89.4	88.2	88.5	88.5	-0.50	2.8	0.6	88.0	-0.53	2.6	1.5	16	LD
X3WPM6	90.1	93.1	89.7	88.2	90.3	-0.03	3.3	2.0	88.6	-0.39	3.3	1.9	16	LD
X6MQTT	96.5	94.6	96.8	92.5	95.1	1.27	3.7	2.0	90.3	0.04	3.3	4.2	16	LC
Y2HKKZ	90.9	90.9	90.3	91.5	90.9	0.14	3.5	0.5	90.1	-0.01	3.2	1.2	16	TJ
YCWNJJ	92.3	91.3	92.2	92.2	92.0	0.43	3.7	0.5	92.0	0.49	3.4	0.7 L	16	LD
YDY3LJ	94.7	92.5 H	94.8	93.7	93.9	0.95	3.9	1.1	94.2	1.05	3.0	1.2	16	TH
Z44JKG	83.6	82.5 *	82.5	91.7	85.1	-1.43	3.4	4.4	84.5	-1.42	3.1	3.9	15	LD

Consensus (All Labs) Results

Wk Mean	89.89	89.65	90.39	90.24	Month Mean	90.40	Grand Mean	90.11
Avg SDr	3.29	3.12	2.98	2.93	Avg SD	3.06	Avg SD	3.39
SD btwn Labs	3.81	3.15	5.13	4.37	SD btwn Labs	3.72	SD btwn Labs	3.93
Labs Incld	52	49	55	55	SD btwn Wks	2.23	SD btwn Wks	3.21
Labs Excld	3	6	0	1	Labs Incld	53	Labs Incld	54
Labs not Rcvd	1	1	1	0				

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
EX	Emerson (model not specified)	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LG	L&W 753
LX	L&W 506	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	RS	Regmed Digital Crush Tester CT-2000
TD	TMI Digital Crush Tester, Model 17-09	TH	TMI Compression Tester, Model 17-76
TJ	TLS Compression Tester, Model CDM-5	TU	TMI Universal Crush Tester (TMI K440)

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2FNHUP	137.6	133.8	135.7	139.0	136.5	-0.62	4.6	2.2	136.3	-0.57	4.5	1.9	12	EM
2LEVMQ	142.9	142.6	139.5	133.1	139.5	-0.20	4.9	4.6	136.1	-0.62	4.9	4.7	12	LC
2M6DAJ	144.8	148.0	146.9	148.7	147.1	0.87	5.6	1.7	146.5	1.07	5.2	1.3 L	8	TH
2N7U4A	137.5 L	134.9	130.0 L	127.4 *	132.4	-1.20	2.4	4.6	124.4	-2.50 *	2.3	9.4	12	TU
3YYXJN	140.9	142.0	143.0	144.1	142.5	0.22	3.6	1.4	148.9	1.46	5.2	5.3	12	MB
6EGN48	140.2	143.9	142.7	143.7	142.6	0.24	6.0	1.7	136.8	-0.50	6.1	5.4	12	LD
7ATCWH	141.0	139.3	139.7	139.3	139.8	-0.16	4.1	0.8	138.8	-0.18	4.2	2.3	12	LD
7ZM998	150.3 *	148.0	151.6	154.0	151.0	1.42	5.4	2.5	146.2	1.01	8.9	14.4 H	8	LC
89AQXZ	136.5	137.2	134.2	136.3	136.1	-0.69	6.3	1.3	141.5	0.26	6.1	5.0	12	LZ
8JNUWH	144.8	142.1	140.5	143.8	142.8	0.27	3.9	1.9	142.7	0.46	3.9	4.1	8	LZ
8WECZN	137.2	134.7	135.4	135.5	135.7	-0.73	3.9	1.1	136.7	-0.51	4.2	2.4	8	LD
A6KVE4	162.5 X	157.5 *	155.8 *	156.8 *	158.2	2.43 *	4.9	3.0	159.0	3.09 X	6.0	2.7	12	LD
A7H9YB	148.1	148.7	154.8 *	152.4	151.0	1.42	5.8	3.2	148.8	1.44	5.7	7.4	12	LZ
A9M2QP	117.7XH	127.7	131.2	129.5	126.5	-2.03 *	6.9	6.0	129.5	-1.68	6.1	9.9	12	LC
AT9X2N	140.0	143.1 L	138.4	139.1	140.2	-0.11	2.5	2.1	143.4	0.57	2.6	2.7	12	LD
B4N3U6	134.5	130.6	126.2 *	125.7 *	129.2	-1.65	5.5	4.2	128.9	-1.77	4.9	4.8	12	LC
BBLU3Y	145.7	144.5	147.2	145.4	145.7	0.67	5.6	1.2	144.7	0.78	4.6	1.6 L	12	LD
BFEV2R	151.3 *	146.2	150.0	149.7	149.3	1.18	6.2	2.2	150.3	1.68	7.7	5.5	12	LD
BN94MJ	127.3 *	129.6	132.3	139.5	132.2	-1.23	5.2	5.3	135.1	-0.77	4.5	3.8	12	LD
CQH7B3	137.9 H	149.3	146.9	148.3 H	145.6	0.66	8.9	5.2	143.4	0.56	8.9	6.7	12	MB
DTVGCC	136.5	134.7	139.6	135.8	136.6	-0.61	4.3	2.1	141.3	0.23	4.3	3.9	12	LD
F4NKTB	134.6 L	136.2 L	136.0 L	136.9 L	135.9	-0.70	1.8	1.0	134.8	-0.82	2.3	1.3 L	12	TJ
GDTZ3F	132.3	134.0	133.7	134.4	133.6	-1.04	4.5	0.9	135.9	-0.65	4.8	3.0	12	LD
J8GYUG	141.9	143.8	140.8	142.6	142.3	0.19	3.3	1.3	130.2	-1.56	7.3	18.6 H	12	LC
JJUYQB	126.7 *	130.1	125.2 *	129.4	127.9	-1.85	3.6	2.3	128.6	-1.82	4.1	2.2	12	EN
K4DCPR	138.8	139.5	137.9	137.9	138.5	-0.34	4.2	0.8	134.5	-0.87	3.7	5.7	12	LZ
KC9K3V	136.7	137.7	134.5	134.9	136.0	-0.70	4.4	1.5	141.0	0.18	4.3	4.8	12	LD
KLHPFL	141.3	142.5	139.5	143.3	141.7	0.10	6.2	1.6	141.1	0.20	5.9	3.0	12	EX
L3VTBC	140.1	136.7	143.6	134.9	138.8	-0.29	5.9	3.8	138.3	-0.25	5.5	2.8	12	LC
LPAD8D	139.0	139.1	137.9	139.7	138.9	-0.28	3.8	0.8	138.3	-0.26	4.1	1.3 L	12	LD
LUJQWY	136.1	133.6	135.8	133.6	134.8	-0.87	5.0	1.4	134.7	-0.84	6.1	1.5 L	8	MB
NHN3BN	141.4	148.5	147.8	141.7	144.9	0.55	4.3	3.8	140.3	0.06	6.4	6.6	12	LD
NQ9MYT	137.4 L	138.3	138.5	140.3	138.6	-0.32	3.5	1.2	139.5	-0.07	5.2	3.1	12	LD
NRB22T	141.8	143.4	144.3	144.5	143.5	0.36	4.0	1.2	142.3	0.40	4.2	2.4	12	LC
PN6XQH	134.2	139.6	135.3	131.8	135.2	-0.80	5.7	3.3	144.0	0.66	7.4	7.9	12	LC

Containerboard Interlaboratory Testing Program

Analysis 216

Ring Crush, 56 lb Linerboard - 56A2

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
Q3LAFW	138.0 H	139.6	141.4	144.3	140.8	-0.01	6.8	2.7	141.1	0.20	6.6	3.2	12	TH
RNVZ7W	156.7 X	154.7 *	156.9 *	156.2 *	156.1	2.14 *	5.2	1.0	155.3	2.48 *	9.8	3.7	12	LC
RWP6ZX	159.5 X	157.3 *	158.6 *	159.3 *	158.7	2.51 *	5.8	1.0	160.9	3.39 X	5.3	2.7	8	LY
TCH6K7	132.8	138.7	139.3	138.3	137.3	-0.52	5.9	3.0	136.6	-0.53	4.9	2.2	12	LD
TF2ED4	144.7	145.1	141.7	147.0	144.7	0.53	4.0	2.2	146.5	1.06	4.1	3.7	12	LZ
TFBF8P	145.9	191.2 X	152.4	146.1	158.9	2.53 *	5.8	21.7 H	152.7	2.07 *	8.6	20.0 H	12	MB
TGCUAP	139.3	140.7 H	139.7	139.5	139.8	-0.16	6.3	0.6 L	145.3	0.88	5.7	6.5	12	TD
TLM8RN	142.7	134.0	139.5	142.8	139.7	-0.17	4.3	4.1	141.9	0.32	5.3	4.2	7	LD
TW8J2F	145.0	143.5	141.8	273.9 XH	176.0	4.95 X	205.7	65.3 H	152.5	2.04 *	118.8	38.3 H	12	LD
UZ6E4F	141.1	141.3	141.5	141.1	141.2	0.05	3.4	0.2 L	140.7	0.13	3.7	0.4 L	12	LD
VMU9N8	No Data	No Data	No Data	144.9	144.9	0.56	4.4	0.0	138.7	-0.19	5.3	3.7	5	LD
VYLT6X	138.6	135.7	140.9	141.7	139.2	-0.24	3.5	2.7	137.9	-0.32	3.8	2.6	12	LY
W8DQAC	131.6 L	131.1 L	139.6	140.5 L	135.7	-0.74	2.0	5.0	137.4	-0.41	3.5	3.9	12	MZ
WB9GFN	137.6	138.3	139.2	138.0	138.3	-0.38	4.0	0.7 L	138.6	-0.20	3.6	1.5 L	12	LC
WNJWLT	137.8	139.0	137.7	138.8	138.3	-0.37	3.7	0.7 L	138.6	-0.20	3.4	3.1	12	LD
X3WPM6	140.8	138.7	138.8	135.6	138.5	-0.34	3.7	2.1	136.4	-0.57	4.0	2.6	12	LD
X6MQTT	146.8	147.0	146.0	148.9	147.2	0.88	5.0	1.2	143.7	0.62	4.9	4.4	12	LC
Y2HKKZ	140.6	140.1	140.8	139.3	140.2	-0.10	5.3	0.7 L	139.9	0.00	5.1	1.6	12	TJ
YCWNJJ	143.0	143.5	144.0	142.8	143.3	0.34	3.3	0.5 L	142.6	0.45	3.3	0.7 L	12	LD
YDY3LJ	142.6	143.5	144.4	145.0	143.9	0.41	5.4	1.1	146.5	1.07	4.6	3.9	12	TH
Z44JKG	131.4	122.4 *	132.1	147.5	133.4	-1.07	4.8	10.4 H	129.4	-1.70	5.4	7.3	11	LD

Consensus (All Labs) Results

Wk Mean	139.56	140.28	140.88	141.28
Avg SDr	4.82	4.77	4.76	5.01
SD btwn Labs	5.15	6.96	7.09	7.15
Labs Incld	51	54	55	55
Labs Excld	4	1	0	1
Labs not Rcvd	1	1	1	0

Month Mean	140.93
Avg SD	4.89
SD btwn Labs	7.09
SD btwn Wks	4.16
Labs Incld	55

Grand Mean	139.88
Avg SD	5.37
SD btwn Labs	6.20
SD btwn Wks	6.04
Labs Incld	53

Analysis Notes

TW8J2F - Data for week 4 appear to contain a data entry error.

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	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	TJ	TLS Compression Tester, Model CDM-5
TU	TMI Universal Crush Tester (TMI K440)		

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2LEVMQ	23.2	23.2	22.3	22.7	22.9	-0.57	1.2	0.4	23.0	-0.41	1.3	0.8	16	LA
2M6DAJ	20.3 *	21.0 *	20.3 *	21.4	20.8	-2.45 *	1.3	0.5	21.0	-2.25 *	1.6	0.6	12	LH
3UM2NL	25.0	24.8	24.1	24.9	24.7	1.10	1.6	0.4	25.6	1.85	1.6	0.7	16	LH
3UR8FH	18.1 X	13.9 X	19.7 XL	19.5 XL	17.8	-5.10 X	1.3	2.7 H	19.0	-3.98 X	1.6	1.5	16	LH
3YYXJN	23.9 L	25.8 L	25.7 L	25.0 L	25.1	1.44	0.4	0.9	24.4	0.81	1.6	0.8	16	LA
44QF7E	25.1	24.2	24.6	23.4	24.3	0.76	1.6	0.7	25.0	1.35	1.6	0.8	16	LH
6EGN48	22.3 L	22.9	22.8	22.7	22.7	-0.72	1.4	0.3	22.1	-1.25	1.4	0.9	16	LH
6YWQBT	23.3 L	22.8 L	23.6	23.5 L	23.3	-0.16	1.0	0.4	23.4	-0.10	1.2	0.3 L	16	TT
7ATCWH	23.4	23.3	22.4	22.2	22.8	-0.59	1.6	0.6	23.0	-0.39	1.6	0.6	16	LA
7VPN33	23.4	23.4	23.2	23.0	23.2	-0.22	1.7	0.2	23.0	-0.39	1.7	0.4	16	LY
89AQXZ	21.6	22.0	20.8 *	21.5	21.5	-1.80	1.7	0.5	22.6	-0.76	1.6	1.0	16	LA
8JNUWH	22.7	23.2	22.6	23.3	23.0	-0.47	1.8	0.4	22.9	-0.50	1.8	0.8	16	LA
A9M2QP	24.1	24.0	24.2 H	22.3	23.6	0.14	2.3	0.9	21.7	-1.63	1.9	1.9	16	LZ
AT9X2N	24.1	23.3	23.9	24.0	23.8	0.30	1.9	0.4	23.8	0.25	1.8	0.4	16	LY
BBLU3Y	22.5	24.1	23.0	22.6	23.1	-0.38	1.8	0.7	23.0	-0.42	1.7	0.5	16	LA
BC3N6U	23.6	24.5 H	26.0 *	25.4 H	24.9	1.25	2.3	1.1	25.3	1.64	2.1	1.0	12	LZ
BFEV2R	25.2 H	26.1 *H	23.8	25.0 H	25.0	1.39	2.5	1.0	25.1	1.41	2.1	0.9	16	LA
BN94MJ	24.3	24.8	25.0 H	24.9 H	24.7	1.13	2.1	0.3	24.4	0.81	2.1	0.6	16	LU
C84UFR	24.8	23.8	24.4	24.1	24.3	0.70	1.5	0.4	24.6	1.00	1.7	0.6	16	LU
CQH7B3	23.0	23.8	24.3	23.9	23.7	0.22	1.8	0.6	23.7	0.14	1.8	1.9	15	LA
ECMVJA	20.3 *	24.1	23.6	22.2	22.5	-0.85	1.6	1.7 H	22.9	-0.51	1.7	1.0	12	LA
FJMH4M	24.5	No Data	23.9	22.8	23.8	0.24	1.5	0.8	23.5	-0.01	1.6	0.9	12	LY
FYF94P	25.3	25.6	25.0 L	25.0	25.2	1.57	1.6	0.3	25.1	1.47	1.8	0.5	12	XX
GDTZ3F	24.0	24.4	23.8	24.1	24.1	0.53	1.9	0.2	23.3	-0.13	1.9	0.8	16	LA
GPLMBW	26.8 *H	27.1 X	25.4 H	24.0	25.8	2.10 *	2.3	1.4	24.9	1.24	2.2	1.4	12	LA
J8GYUG	21.9	22.8	22.9	21.5	22.3	-1.09	1.7	0.7	22.4	-0.97	1.6	0.8	16	LA
JJUYQB	22.7	22.1	21.7	22.5	22.2	-1.11	1.9	0.5	22.1	-1.21	1.6	0.5	16	LY
JKJGD4	26.5 *	23.5	22.1	24.7	24.2	0.66	1.6	1.9 H	23.9	0.33	1.9	1.2	12	LH
K8CUWK	25.0	24.7	23.7 L	23.7	24.3	0.69	1.8	0.7	24.6	0.97	1.8	0.6	12	LU
KC9K3V	22.7	23.6	21.9	22.9	22.8	-0.64	1.3	0.7	23.1	-0.38	1.6	0.6	12	LA
KJRNAX	24.4	24.2	23.4	23.2	23.8	0.27	1.8	0.6	24.0	0.44	1.7	0.5	16	LA
KLHPFL	23.4 L	24.7 L	24.7 L	23.5 L	24.1	0.53	0.0	0.7	24.6	0.99	0.0	1.2	16	TT
L3VTBC	24.9	24.2	25.0	24.9	24.7	1.13	1.6	0.4	24.4	0.77	1.7	0.6	16	LW
LH7LP3	22.7	21.7	22.0	22.4	22.2	-1.15	1.4	0.5	22.9	-0.55	1.9	1.4	16	XX
LPAD8D	22.7	22.3	22.1	22.4	22.4	-0.99	1.6	0.2	22.6	-0.78	1.7	0.4	16	LA

Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42F1

TAPPI Official Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
NHN3BN	24.4	22.9	23.9	23.5	23.7	0.17	1.8	0.6	23.5	-0.01	1.8	0.6	16	LY
NQ9MYT	22.5	21.9	22.0	22.7	22.3	-1.08	2.1	0.4	23.9	0.37	1.9	1.3	16	LZ
NRB22T	23.2	22.9	24.0	23.4	23.4	-0.11	1.7	0.5	23.4	-0.07	1.7	0.4	16	LU
PN6XQH	25.3	25.6	25.0 L	25.0	25.2	1.57	1.6	0.3	25.1	1.47	1.8	0.5	12	LU
RNVZ7W	24.6	25.7	25.1	24.9	25.1	1.43	1.7	0.5	26.4	2.59 *	2.0	1.1	16	LA
TCH6K7	22.2	22.8	22.8	18.9 X	21.6	-1.65	1.5	1.8 H	22.2	-1.16	1.5	1.1	16	LZ
TF2ED4	23.3	23.7	22.3	22.7	23.0	-0.43	1.8	0.6	22.9	-0.52	1.8	0.5	16	LW
TFBF8P	24.4	40.9 XH	23.7	25.3	28.6	4.56 X	3.1	8.2 H	31.0	6.66 X	2.7	9.0 H	15	LA
TGCUAP	31.7 X	29.5 X	29.7 X	30.3 X	30.3	6.10 X	1.7	1.0	30.7	6.44 X	1.5	0.9	16	XX
TLM8RN	22.8	23.3	23.3	21.9	22.8	-0.58	1.9	0.7	23.0	-0.42	1.7	0.5	9	LY
TW8J2F	23.6	2.4 X	23.6	24.3	18.5	-4.52 X	1.6	10.7 H	22.6	-0.81	1.8	5.4 H	16	LA
V38HPB	22.6	22.9	No Data	No Data	22.7	-0.68	1.5	0.2	21.9	-1.43	1.9	1.0	13	LH
V8GV8A	25.6 H	25.0	24.3	24.5	24.8	1.22	2.2	0.6	24.5	0.92	1.8	0.7	16	LA
VMU9N8	23.9	24.5	24.3	24.6	24.3	0.74	1.7	0.3	23.9	0.39	1.8	0.5	16	LW
VYLT6X	23.8	22.7	23.3	23.4	23.3	-0.17	1.7	0.4	23.0	-0.44	1.6	0.5	16	LU
WNJWLT	21.3	21.9	22.5	21.2	21.8	-1.55	1.4	0.6	21.8	-1.52	1.2	0.5	16	BK
X3WPM6	22.4	22.9	23.0	23.1	22.8	-0.58	1.7	0.3	22.9	-0.53	1.5	0.4	16	LA
X6MQTT	24.1	24.2	25.1	23.9	24.3	0.76	2.0	0.6	24.2	0.66	1.8	0.7	16	LW
Y2HKKZ	23.3	23.2	23.7	23.5	23.4	-0.05	1.4	0.2	23.3	-0.19	1.3	0.3 L	16	TT
YCWNJJ	23.0	23.2	23.0	23.1	23.1	-0.36	1.7	0.1 L	23.2	-0.25	1.6	0.2 L	16	LA
Z9WNBY	23.7 H	22.2	22.5	21.8	22.5	-0.85	1.9	0.8	22.5	-0.84	1.7	0.6	16	LW
ZJXB3W	22.3	22.6	22.9	22.8	22.6	-0.76	1.8	0.3	22.3	-1.03	1.7	0.3	16	LZ

Consensus (All Labs) Results

Wk Mean	23.56	23.58	23.49	23.42	Month Mean	23.48	Grand Mean	23.49
Avg SDr	1.80	1.78	1.71	1.64	Avg SD	1.73	Avg SD	1.73
SD btwn Labs	1.34	1.16	1.21	1.12	SD btwn Labs	1.11	SD btwn Labs	1.12
Labs Incld	55	51	54	53	SD btwn Wks	0.71	SD btwn Wks	1.11
Labs Excld	2	5	2	3	Labs Incld	53	Labs Incld	54
Labs not Rcvd	0	1	1	1				

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 224

STFI, 56 lb Linerboard - 56A2

TAPPI Official Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2LEVMQ	32.6	35.3	33.5	35.6	34.3	-0.36	2.5	1.4	33.6	-0.73	2.0	1.6	12	LA
2M6DAJ	29.1 *	30.7 *	29.9 *	31.0 *L	30.2	-2.48 *	1.9	0.9	31.0	-2.02 *	2.1	1.2	8	LU
3UM2NL	37.8	39.8 *	37.5	39.0 *	38.5	1.86	3.0	1.1	39.1	2.03 *	3.0	1.4	12	LH
3UR8FH	26.5 X	22.3 X	28.5 X	28.2 XL	26.4	-4.46 X	1.8	2.8 H	28.6	-3.18 X	2.2	2.5	12	LH
3YYXJN	36.4 L	36.6 L	37.5 L	35.5 L	36.5	0.81	1.0	0.8	36.6	0.77	3.0	0.9	12	BK
44QF7E	37.1	37.1	36.0	34.8	36.3	0.68	2.5	1.1	36.8	0.89	2.5	1.0	12	LH
6EGN48	33.5	32.8	35.0	34.8	34.0	-0.48	2.6	1.0	32.9	-1.07	2.4	1.2	12	LH
6YWQBT	34.9 L	34.2 L	34.5 L	35.0 L	34.7	-0.15	1.3	0.3	34.5	-0.24	1.4	0.3 L	12	TT
7ATCWH	36.0	35.6	33.8	33.5 L	34.7	-0.12	2.7	1.3	34.2	-0.39	2.7	0.9	12	LU
7VPN33	34.4	33.1	35.7	35.2	34.6	-0.18	2.9	1.2	34.7	-0.14	2.8	0.8	12	LU
89AQXZ	32.7 L	32.4	32.5	32.9	32.6	-1.22	2.1	0.2	34.0	-0.51	2.2	1.2	12	LA
8JNUWH	34.2 L	34.1	34.1	33.7	34.0	-0.49	2.6	0.2	34.8	-0.12	2.6	1.6	12	LA
A9M2QP	35.0	33.5	33.7	33.6	34.0	-0.51	2.5	0.7	33.8	-0.62	3.8	1.4	12	XX
AT9X2N	34.5	34.6	34.2	34.6	34.5	-0.25	2.8	0.2 L	34.6	-0.20	2.5	0.4 L	12	LY
BBLU3Y	34.7	35.9	34.4	33.4	34.6	-0.18	2.9	1.0	34.6	-0.21	2.6	0.7 L	12	LU
BC3N6U	36.4	40.1 *	37.8	38.3 H	38.1	1.66	3.4	1.5	37.9	1.45	3.1	1.1	12	LZ
BFEV2R	34.8	34.2	36.5	36.9	35.6	0.33	2.7	1.3	36.1	0.54	2.9	1.6	12	LA
BN94MJ	36.0	34.9	36.4	36.7	36.0	0.55	3.0	0.8	35.5	0.26	3.6	1.0	12	LU
C84UFR	38.0	35.7	36.7	36.5	36.7	0.92	3.1	0.9	37.2	1.10	3.2	1.1	8	LU
CQH7B3	35.6	35.2	35.7	36.3	35.7	0.39	2.8	0.4	35.8	0.39	2.9	1.0	12	LA
ECMVJA	30.8	33.7	33.9	31.4	32.4	-1.31	2.9	1.6	33.3	-0.88	2.9	1.6	8	LA
FJMH4M	34.4	No Data	34.5 H	33.9	34.3	-0.35	3.2	0.3	34.2	-0.39	2.6	1.0	11	LY
FYF94P	38.9	39.8 *L	41.9 X	37.9	39.6	2.41 *	2.7	1.7	39.2	2.07 *	3.1	1.3	12	LU
GDTZ3F	35.2	34.3	35.7	35.5	35.2	0.12	3.0	0.6	34.7	-0.15	2.7	0.7 L	12	LA
GPLMBW	39.6 *	38.5 H	37.7	37.1	38.3	1.72	3.7	1.1	37.4	1.19	3.3	1.8	12	LA
J8GYUG	34.1 H	37.0	32.4	32.3	33.9	-0.53	3.3	2.2	33.2	-0.93	3.1	1.4	12	LA
JJUYQB	32.8	32.2	33.1	31.9	32.5	-1.28	2.5	0.5	32.3	-1.36	2.6	0.7 L	12	LY
JKJGD4	38.7	34.1	34.4	35.6	35.7	0.39	3.1	2.1	35.7	0.33	3.2	1.6	8	LH
K8CUWK	37.2	39.9 *	36.5	37.5	37.8	1.46	3.2	1.5	37.6	1.30	3.3	1.3	12	LU
KC9K3V	34.1	33.1	32.6	34.0	33.5	-0.78	2.8	0.7	33.5	-0.76	2.9	0.8	12	LA
KJRNAX	37.5	36.3	37.0	35.4	36.5	0.83	3.0	0.9	36.1	0.56	3.2	0.9	12	LA
KLHPFL	35.9 L	35.8 L	38.4 *L	37.0 L	36.8	0.96	0.0	1.2	37.2	1.06	0.0	1.4	12	LZ
L3VTBC	36.4	37.0	36.1	36.3	36.5	0.78	3.1	0.4	35.7	0.33	2.9	1.5	12	LW
LH7LP3	30.0 *L	32.4	33.9	35.0	32.8	-1.12	1.8	2.2	33.5	-0.77	2.7	2.2	12	XX
LPAD8D	33.4	35.0	32.3	34.0	33.7	-0.67	3.0	1.1	33.9	-0.57	2.6	0.9	12	LW

Containerboard Interlaboratory Testing Program

Analysis 224

STFI, 56 lb Linerboard - 56A2

TAPPI Official Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
NHN3BN	35.9	36.5	36.1	34.9	35.8	0.46	2.9	0.7	35.1	0.04	2.6	0.9	12	LZ
NQ9MYT	31.4 H	33.2	35.1	33.2	33.2	-0.90	3.2	1.5	36.4	0.70	3.1	2.8	12	LZ
NRB22T	33.8	34.0	33.4	35.0	34.0	-0.49	2.5	0.7	34.6	-0.22	2.6	0.9	12	LU
PN6XQH	38.9	39.8 *L	41.9 X	37.9	39.6	2.41 *	2.7	1.7	39.2	2.07 *	3.1	1.3	12	LU
RNVZ7W	36.1	35.8	35.5	35.9	35.8	0.46	3.2	0.2	37.7	1.33	2.9	2.5	12	LA
TCH6K7	33.8	35.1	33.7 L	29.0 X	32.9	-1.06	2.7	2.7 H	32.8	-1.09	2.8	1.6	12	LZ
TF2ED4	33.0	34.5	34.2	33.6	33.8	-0.58	2.7	0.7	34.4	-0.31	2.8	1.3	12	LW
TFBF8P	6.9 XL	9.5 XL	6.0 XL	6.9 XL	7.3	-14.36 X	0.5	1.5	29.9	-2.54 *	2.7	17.7 H	12	XX
TGCUAP	44.0 X	44.2 X	43.6 X	44.1 X	44.0	4.69 X	2.6	0.3	39.2	2.11 *	2.3	5.8 H	12	XX
TLM8RN	36.1	34.2	33.8	34.3	34.6	-0.19	3.1	1.0	34.4	-0.29	2.9	0.9	7	XX
TW8J2F	34.5	35.6	36.3	35.1	35.4	0.21	2.5	0.8	35.2	0.07	2.5	1.2	12	LA
V38HPB	33.1	34.2	No Data	No Data	33.6	-0.68	2.4	0.7	33.0	-0.99	2.8	1.8	10	LY
V8GV8A	37.3	37.6	33.9	36.8	36.4	0.76	3.1	1.7	36.6	0.78	3.0	1.6	8	LA
VMU9N8	37.1	35.8	37.2	37.6	36.9	1.04	2.8	0.8	35.9	0.42	2.9	1.1	12	LW
VYLT6X	35.3 L	33.2 L	33.4	33.2	33.8	-0.61	1.8	1.0	33.9	-0.56	2.2	0.7 L	12	LU
WNJWLT	34.6	33.5 L	31.1 *L	31.9	32.8	-1.13	2.1	1.6	32.8	-1.09	2.0	1.1	12	BK
X3WPM6	34.9	34.2	33.5	34.1	34.2	-0.40	2.3	0.6	34.3	-0.35	2.5	0.9	12	LA
X6MQTT	34.5	35.7	34.9	34.7	34.9	0.00	2.6	0.6	35.4	0.18	2.9	0.6 L	12	ID
Y2HKKZ	34.4 L	34.2 L	34.9 L	34.4 L	34.5	-0.24	1.3	0.3	34.6	-0.23	1.3	0.3 L	12	TT
YCWNJJ	35.1	34.9	35.2	35.0	35.0	0.04	3.0	0.1 L	34.8	-0.09	2.8	0.2 L	12	LA
Z9WNBY	32.3	30.8 H	31.8	32.2	31.8	-1.64	3.4	0.7	32.3	-1.35	3.0	1.0	12	LW
ZJXB3W	33.5	32.9	34.1	32.8	33.3	-0.85	2.7	0.6	33.5	-0.78	3.0	1.5	12	LZ

Consensus (All Labs) Results

Wk Mean	34.96	35.10	34.74	34.90	Month Mean	34.95	Grand Mean	35.02
Avg SDr	2.72	2.71	2.74	2.81	Avg SD	2.74	Avg SD	2.78
SD btwn Labs	2.20	2.21	1.83	1.86	SD btwn Labs	1.92	SD btwn Labs	2.01
Labs Incld	54	53	51	52	SD btwn Wks	1.13	SD btwn Wks	2.80
Labs Excld	3	3	5	4	Labs Incld	54	Labs Incld	56
Labs not Rcvd	0	1	1	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

Containerboard Interlaboratory Testing Program

Analysis 228

Roughness - Stylus Method, 42 lb Linerboard - 42F

TAPPI Official Test Method T575

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV		SD	Mean	CPV		SD Months	Months	Inst
3YYXJN	246.1	2.39	*	27.15	218.5	2.18	*	39.11	2	LA
7ATCWH	234.1	2.08	*	30.37	180.9	0.87		75.18	2	LA
89AQXZ	123.6	-0.81		14.80	133.2	-0.79		13.58	2	EV
A6KVE4	182.0	0.71		68.92 H	172.7	0.59		13.22	2	EV
BC3N6U	281.6	3.32	X	32.36	281.6	4.38	X	0.00	1	XX
BFEV2R	121.1	-0.88		5.90 L	128.3	-0.96		10.18	2	LA
BN94MJ	149.9	-0.13		13.80	154.2	-0.06		6.01	2	EV
CQH7B3	134.7	-0.53		21.18	136.3	-0.68		2.29	2	LA
ECMVJA	149.1	-0.15		6.67 L	155.7	-0.01		9.30	2	LA
EHWWXQ	146.9	-0.21		18.62	141.4	-0.50		7.78	2	LS
J8GYUG	158.3	0.09		31.40	158.5	0.09		0.32	2	LA
JJUYQB	150.1	-0.12		11.33	149.6	-0.22		0.71	2	EV
JKJGD4	103.5	-1.34		9.44 L	118.0	-1.32		20.51	2	EV
K8CUWK	243.8	2.33	*	9.89	230.1	2.59	*	19.29	2	EV
KJRNAX	120.2	-0.90		13.01	130.7	-0.87		14.85	2	LA
L3VTBC	148.4	-0.17		7.99 L	149.4	-0.22		1.41	2	XX
LPAD8D	154.1	-0.02		21.87	146.2	-0.34		11.22	2	LA
NHN3BN	154.7	0.00		13.30	155.9	0.00		1.67	2	EV
PN6XQH	208.4	1.40		18.12	212.0	1.96	*	5.09	2	EV
QC6NGE	127.5	-0.71		12.37	137.3	-0.65		13.89	2	EV
RNVZ7W	152.4	-0.06		14.87	157.9	0.07		7.71	2	EV
TCH6K7	119.9	-0.91		10.40	181.5	0.89		87.07	2	LA
TF2ED4	146.4	-0.22		10.46	139.5	-0.57		9.75	2	EV
V8GV8A	127.5	-0.71		24.06	173.6	0.62		65.12	2	LA
X3WPM6	124.5	-0.79		19.24	125.0	-1.07		0.71	2	LS
YCWNJJ	152.8	-0.05		15.83	152.4	-0.12		0.64	2	XX
ZJXB3W	143.8	-0.29		12.35	138.7	-0.60		7.18	2	LA

Consensus (All Labs) Results

Month Mean	154.76	Grand Mean	155.83
Avg SD	21.62	Avg SD Months	23.36
SD btwn Labs	38.22	SD btwn Labs	28.72
Labs Incld	26	Labs Incld	25

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 229

Roughness - Sheffield Method, 42 lb Linerboard - 42F1

TAPPI Official Test Method T538

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
A7H9YB	350.0	-1.19	5.83		348.6	-1.39	4.85	4	XX
ECMVJA	353.4	-0.74	3.72		353.1	-0.68	1.08	3	LA
EHWWXQ	352.9	-0.80	4.15		354.6	-0.44	1.65	4	LA
GDTZ3F	354.7	-0.56	4.57		356.1	-0.21	1.39	4	LA
GPLMBW	360.3	0.19	6.78		359.9	0.40	3.22	3	XX
JKJGD4	158.5	-26.92 X	9.70		292.9	-10.19 X	116.42 H	3	LA
KC9K3V	369.5	1.43	12.89	H	361.3	0.62	7.43 H	3	XX
LX6JZE	363.5	0.63	4.51		352.9	-0.71	7.20	4	LA
NQ9MYT	357.9	-0.13	12.62	H	359.7	0.36	1.73	4	XX
NRB22T	364.6	0.77	8.92		362.3	0.78	2.03	4	XX
TLM8RN	372.4	1.82	4.14		371.8	2.27 *	0.92	2	PP
TW8J2F	358.1	-0.10	11.19		358.6	0.19	1.86	4	LA
X3WPM6	349.2	-1.30	4.05		349.9	-1.19	1.82	4	LA

Consensus (All Labs) Results

Month Mean	358.87	Grand Mean	357.40
Avg SD	7.73	Avg SD Months	3.67
SD btwn Labs	7.44	SD btwn Labs	6.33
Labs Incld	12	Labs Incld	12

Key to Instrument Codes Reported by Participants

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

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2LEVMQ	92.8	-0.66	6.76		99.7	-0.36	5.51	4	TM
7ATCWH	96.8	-0.40	6.61		101.0	-0.25	4.64	4	TM
7HLKG9	121.0	1.14	8.46		97.1	-0.58	18.80 H	4	TM
89AQXZ	105.6	0.16	6.47		107.2	0.28	7.38	4	TM
8WECZN	100.3	-0.18	7.96		98.6	-0.45	1.49	3	SC
A6KVE4	106.4	0.21	4.16		115.6	1.00	9.65	4	HY
A9M2QP	80.2	-1.45	4.51		80.4	-2.00 *	3.60	4	SC
BBLU3Y	102.8	-0.02	5.89		102.0	-0.16	0.94 L	4	HZ
BC3N6U	107.8	0.30	4.76		113.3	0.80	10.64	3	TM
BN94MJ	90.0	-0.83	6.44		91.8	-1.03	1.47	4	TM
EHWWXQ	107.8	0.30	11.63		107.2	0.28	2.33	4	XX
EM7D7E	118.0	0.95	11.81		115.6	1.00	4.39	4	SC
GDTZ3F	92.6	-0.67	7.66		90.5	-1.14	7.02	4	SC
GPLMBW	90.0	-0.83	4.93		89.6	-1.21	0.41 L	3	SC
J8GYUG	127.0	1.52	15.65 H		120.7	1.43	6.03	4	SC
K8CUWK	64.0	-2.49 *	1.87 L		62.8	-3.50 X	1.35	3	TM
KC9K3V	100.2	-0.18	4.76		98.3	-0.48	2.25	3	TM
LPAD8D	139.0	2.28 *	8.00		125.2	1.82	10.11	4	HY
NHN3BN	101.6	-0.10	1.47 L		100.0	-0.34	6.03	4	XX
NRB22T	112.0	0.56	9.01		112.7	0.75	2.45	4	HY
PN6XQH	89.0	-0.90	12.25		89.9	-1.19	3.69	3	TM
RNVZ7W	113.0	0.63	7.58		118.0	1.20	5.00	3	SC
TLM8RN	116.2	0.83	6.53		117.1	1.13	1.27	2	HY
TW8J2F	50.1	-3.37 X	1.73 L		49.1	-4.66 X	0.77 L	4	LZ
X3WPM6	100.3	-0.18	13.61		98.1	-0.49	8.96	4	TM

Consensus (All Labs) Results

Month Mean	103.10	Grand Mean	103.89
Avg SD	8.20	Avg SD Months	6.80
SD btwn Labs	15.72	SD btwn Labs	11.74
Labs Incld	24	Labs Incld	23

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	101.19	15.12	1.91	19
Modified Scott Bond Mechanics	125.48	19.12	22.38	2

Analysis Notes

TW8J2F - 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
6EGN48	28.7	0.74	4.04		29.2	0.98	0.71	2
7ATCWH	27.2	0.27	2.17		26.3	-0.13	1.27	2
7ZM998	27.0	0.21	2.74		27.7	0.41	0.99	2
89AQXZ	32.4	1.91	2.70		32.0	2.05 *	0.57	2
BC3N6U	24.4	-0.61	1.14		24.4	-0.85	0.00	1
BN94MJ	28.2	0.59	0.84		29.9	1.25	2.40	2
DTVGCC	26.0	-0.10	6.44	H	26.9	0.10	1.27	2
ECMVJA	28.4	0.65	2.07		29.1	0.94	0.99	2
EM7D7E	21.0	-1.68	3.74		26.3	-0.13	7.50	2
FYF94P	24.0	-0.73	1.73		23.9	-1.04	0.14	2
GPLMBW	28.0	0.52	1.00		28.0	0.52	0.00	1
J8GYUG	36.2	3.09 X	2.33		34.9	3.15 X	1.81	2
JJUYQB	25.1	-0.38	0.74		24.7	-0.75	0.65	2
JKJGD4	29.2	0.90	1.10		28.4	0.67	1.13	2
K8CUWK	24.4	-0.61	1.52		25.1	-0.59	0.99	2
KC9K3V	27.1	0.25	1.79		27.1	0.19	0.00	1
KJRNAX	31.4	1.58	0.52	L	29.9	1.23	2.14	2
L3VTBC	27.6	0.40	5.18		27.2	0.22	0.57	2
LPAD8D	26.8	0.15	2.17		28.3	0.63	2.12	2
NHN3BN	19.0	-2.30 *	2.55		21.4	-2.00 *	3.39	2
NQ9MYT	28.0	0.52	3.45		30.4	1.42	3.32	2
NRB22T	23.7	-0.83	4.56		25.9	-0.27	3.18	2
PN6XQH	22.0	-1.36	2.74		24.5	-0.81	3.54	2
RNVZ7W	20.8	-1.74	1.30		20.9	-2.19 *	0.14	2
TF2ED4	23.8	-0.80	3.90		23.0	-1.39	1.13	2
TLM8RN	26.5	0.05	2.29		26.0	-0.24	0.71	2
TW8J2F	31.2	1.53	1.30		28.2	0.58	4.31	2
VMU9N8	30.4	1.28	1.52		28.8	0.83	2.26	2
X3WPM6	26.5	0.05	3.20		26.4	-0.11	0.21	2
YCWNJJ	25.8	-0.17	1.10		25.3	-0.51	0.71	2
ZJXB3W	25.4	-0.29	0.55	L	24.0	-1.00	1.98	2

Consensus (All Labs) Results

Month Mean	26.33	Grand Mean	26.64
Avg SD	2.74	Avg SD Months	2.40
SD btwn Labs	3.18	SD btwn Labs	2.62
Labs Incld	30	Labs Incld	30

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
3PVFA7	20.7	1.42	1.88		20.8	2.36 *	0.27	4	GA
3YYXJN	21.1	1.72	1.53		21.8	3.30 X	1.35	4	LA
7ATCWH	21.1	1.71	1.68		20.3	1.88	0.55	4	LA
89AQXZ	18.8	0.16	1.25		18.6	0.26	0.40	4	LP
AT9X2N	19.5	0.64	0.71	L	19.7	1.23	0.13 L	4	LP
BC3N6U	18.4	-0.09	2.83		17.4	-0.93	1.17	3	TD
BFEV2R	19.2	0.42	1.48		18.2	-0.16	0.82	4	LA
DTVGCC	17.4	-0.75	1.34		17.6	-0.72	1.19	4	LA
ECMVJA	15.6	-1.93 *	2.16		16.7	-1.60	1.18	3	LA
EHWWXQ	18.8	0.16	1.08		18.4	0.07	0.59	4	LP
FYF94P	18.3	-0.12	1.20		18.2	-0.17	0.41	3	LA
GDTZ3F	20.2	1.10	2.34		18.8	0.46	1.08	4	LA
J8GYUG	18.4	-0.11	1.94		18.5	0.12	0.74	4	LA
JKJGD4	18.5	0.00	1.07		18.2	-0.11	0.38	3	LP
K8CUWK	18.4	-0.11	1.95		18.7	0.36	0.33	3	LA
KC9K3V	17.1	-0.95	0.92		17.6	-0.71	0.49	3	LA
LPAD8D	18.6	0.04	0.97		19.8	1.35	1.47	4	LP
NHN3BN	17.4	-0.74	1.09		23.8	5.21 X	11.34 H	4	LP
NQ9MYT	20.7	1.45	2.13		19.6	1.17	1.26	4	GA
NRB22T	18.6	0.01	2.98	H	18.2	-0.15	0.87	4	TP
PN6XQH	21.3	1.82	0.90		19.9	1.48	1.29	3	LA
RNVZ7W	16.3	-1.49	2.06		16.4	-1.86	0.46	4	LA
TF2ED4	16.2	-1.58	2.33		17.5	-0.85	1.26	4	XX
TLM8RN	17.1	-0.99	1.72		17.0	-1.28	0.04	2	TP
TW8J2F	41.0	14.95 X	63.84	H	25.4	6.72 X	10.43 H	4	LA
UJCP4C	17.3	-0.83	1.40		17.5	-0.83	0.75	4	LP
VMU9N8	18.2	-0.22	1.32		17.8	-0.52	0.57	4	LP
X3WPM6	18.5	-0.05	2.07		18.8	0.41	0.74	4	LA
Y7E7FA	15.9	-1.77	0.76	L	17.3	-0.98	2.06	2	LA
YB6GQ8	18.9	0.26	1.45		18.3	-0.07	0.55	4	LP
YCWNJJ	18.3	-0.13	1.30		18.5	0.12	0.21	4	LA
Z44JKG	19.4	0.57	4.17	H	18.1	-0.30	1.19	4	GG
ZJXB3W	19.1	0.39	1.58		18.3	-0.03	0.54	4	LP

Containerboard Interlaboratory Testing Program

Analysis 237

Air Resistance, 42 lb Linerboard - 42D

TAPPI Official Test Method T460

Consensus (All Labs) Results

Month Mean	18.54	Grand Mean	18.37
Avg SD	1.82	Avg SD Months	0.89
SD btwn Labs	1.50	SD btwn Labs	1.05
Labs Incld	32	Labs Incld	30

Analysis Notes

TW8J2F - Data appear to contain a data entry error.

Key to Instrument Codes Reported by Participants

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

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2LEVMQ	58.6	61.5	57.5	59.9	59.4	0.50	3.3	1.7	60.7	1.25	3.7	2.2	16	LC
2M6DAJ	55.1	55.3	57.1	56.3	55.9	-0.82	3.9	0.9	56.7	-0.42	3.1	0.8	12	TH
2N7U4A	63.4	62.9 L	61.5	61.0	62.2	1.59	2.1	1.1	53.8	-1.62	2.3	12.6 H	16	TU
3UM2NL	52.4	54.7	54.8	52.4 *	53.6	-1.74	2.9	1.3	54.2	-1.43	2.9	1.2	16	LD
3YYXJN	56.2	56.7	50.5 *	55.2	54.7	-1.30	4.4	2.8	54.5	-1.34	6.1	2.8	16	TU
44QF7E	58.9	62.1	60.5	62.0	60.9	1.08	3.8	1.5	60.8	1.29	4.3	1.5	16	LD
6EGN48	59.2	57.2	57.3	57.4	57.8	-0.12	3.6	0.9	55.9	-0.75	3.2	1.5	16	LD
6YWQBT	59.3	59.1	58.5	58.6	58.9	0.31	4.7	0.4	58.4	0.30	4.7	0.5 L	16	TG
7ATCWH	67.7 XH	63.8 *H	60.4	64.6 *H	64.1	2.33 *	6.7	3.0	59.1	0.62	4.7	3.7	16	LD
7VPN33	60.9	56.5	57.4	58.5	58.3	0.10	4.5	1.9	58.7	0.43	4.3	1.5	16	LD
7W6AEP	56.8	57.4	57.8	57.0	57.3	-0.31	3.2	0.4	57.5	-0.08	3.1	0.5 L	16	LC
9VJBDW	65.8 *L	65.6 *	64.5 *	64.6 *	65.1	2.71 *	2.7	0.7	63.8	2.57 *	4.1	4.1	16	LC
A9M2QP	59.2	55.4	54.7	57.8	56.8	-0.49	3.7	2.1	56.4	-0.54	3.5	2.2	16	LC
BBLU3Y	56.0	55.6	56.5	54.9	55.7	-0.90	3.8	0.7	55.5	-0.92	3.7	1.8	16	LD
BN94MJ	56.7	57.5	60.0	57.8	58.0	-0.02	3.5	1.4	56.3	-0.59	3.5	1.7	16	LD
CQH7B3	55.7	53.0	53.4	57.9	55.0	-1.19	3.7	2.3	54.3	-1.43	3.6	3.3	15	MB
ECMVJA	60.4	55.2	54.5	56.0	56.5	-0.59	3.6	2.7	58.1	0.18	4.4	2.8	12	LD
EHWWXQ	No Data	No Data	No Data	57.0	57.0	-0.42	3.5	0.0	56.0	-0.70	2.9	0.9	3	XX
EM7D7E	53.2	56.9	55.7 L	56.9	55.7	-0.92	3.5	1.7	55.8	-0.78	3.9	2.0	16	LZ
FJMH4M	52.2	No Data	58.3	57.7	56.0	-0.78	4.3	3.3	57.3	-0.16	3.7	2.0	12	LD
J399TW	59.8	56.1	54.2 H	64.8 *	58.7	0.25	7.7	4.7 H	59.4	0.72	5.3	2.3	16	LC
JJUYQB	60.4 L	59.3	57.9	58.3	59.0	0.34	2.7	1.1	57.2	-0.18	3.0	1.5	16	EN
K8CUWK	52.8	56.1	55.9	52.1 *	54.2	-1.48	3.7	2.1	54.4	-1.35	3.9	2.1	11	XX
KGHJWA	57.6	57.9	56.9	57.3	57.4	-0.25	2.8	0.4	57.5	-0.05	3.1	0.5 L	16	LD
KLHPFL	57.0	55.5	55.6	56.4	56.1	-0.75	3.4	0.7	54.2	-1.46	3.8	2.2	16	EM
LB77ZV	57.2	57.4	58.0	57.2	57.5	-0.23	3.4	0.4	56.3	-0.57	3.2	1.4	16	TH
LH7LP3	64.0 *	62.9	57.8 H	62.1	61.7	1.40	5.2	2.7	61.4	1.55	4.7	2.3	16	LD
LPAD8D	53.7	57.3	58.5	56.8	56.6	-0.57	3.3	2.1	56.0	-0.69	3.6	1.6	16	LD
LVQ2T3	59.6	60.0	60.0	59.4	59.7	0.64	2.8	0.3	60.2	1.07	2.4	0.5 L	16	LD
MFFREK	58.1 L	58.2 L	58.2 L	58.6	58.3	0.08	1.4	0.2 L	58.1	0.18	1.3	0.3 L	16	LD
NHN3BN	58.5	57.8	59.0	56.5	58.0	-0.04	4.0	1.1	58.5	0.33	4.1	1.4	16	LZ
NQ9MYT	56.5	56.5	57.4	56.9	56.8	-0.48	3.2	0.4	56.9	-0.32	3.0	1.4	16	LZ
NRB22T	59.5	58.1 L	61.0	61.1	59.9	0.72	3.0	1.4	59.9	0.94	3.6	1.7	16	LC
PN6XQH	52.8	56.1	55.9	52.1 *	54.2	-1.48	3.7	2.1	54.5	-1.34	4.1	2.0	12	LC
QPXBMA	59.1	59.7	58.4	59.8	59.3	0.45	2.5	0.6	59.1	0.60	2.7	0.6 L	16	EM

Containerboard Interlaboratory Testing Program

Analysis 240

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

TAPPI Official Test Method T809

Report #600 (K)
September 2019

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
RWP6ZX	59.1	57.9	58.6	58.9	58.6	0.22	3.6	0.5	57.8	0.06	3.3	2.0	12	LD
TCH6K7	53.2	56.4	53.2	55.9	54.7	-1.30	4.4	1.7	55.4	-0.97	3.8	1.7	16	LD
TFBF8P	57.6	35.2 X	50.0 *	54.3	49.3	-3.38 X	3.8	9.9 H	45.3	-5.20 X	6.3	10.8 H	15	MB
TGCUAP	59.8 L	60.9	63.3 *	60.8	61.2	1.20	3.1	1.5	61.7	1.68	2.9	2.8	16	TD
TLM8RN	53.2	55.9	55.1	55.8	55.0	-1.18	4.1	1.2	56.2	-0.63	4.2	1.8	9	LD
TW8J2F	55.1	52.3 *	54.0	61.5	55.7	-0.90	3.3	4.0 H	53.0	-1.97 *	3.5	2.6	16	LD
UJCP4C	58.0	56.5	57.8	56.6	57.2	-0.33	3.2	0.8	57.9	0.09	3.4	1.6	16	LD
UYUDHG	63.6	63.0	68.1 X	61.5	64.0	2.30 *	4.3	2.8	62.0	1.83	4.8	2.5	16	EM
UZ6E4F	60.1	60.3	60.3	60.7	60.4	0.88	3.8	0.2 L	60.5	1.19	3.4	0.2 L	16	LD
VMU9N8	60.3	61.1	58.4	60.0	59.9	0.72	4.1	1.1	60.8	1.29	3.5	1.0	16	LD
VYLT6X	60.5	60.5	59.5	59.0	59.9	0.69	3.4	0.7	58.1	0.19	3.5	1.7	16	LZ
W8DQAC	60.1	58.9	59.0 L	58.9	59.2	0.44	1.8	0.6	59.3	0.70	3.3	1.8	16	MB
X6MQTT	57.6	59.2	59.6	60.7	59.3	0.46	3.1	1.3	59.9	0.92	3.0	1.7	16	LD
XP9HUA	47.8 X	46.7 X	45.7 X	47.7 X	47.0	-4.26 X	3.6	1.0	45.2	-5.21 X	4.3	5.1	16	TC
Y2HKKZ	59.5	60.9	60.3	59.1 H	59.9	0.72	4.3	0.8	59.2	0.63	3.9	1.4	16	TJ
Y7E7FA	53.0	57.0	52.0	56.8	54.7	-1.31	3.3	2.6	56.8	-0.37	4.0	3.5	8	LD
YB6GQ8	56.2	60.3	57.5	57.2	57.8	-0.11	2.9	1.8	57.5	-0.08	3.4	1.6	16	LD
YCWNJJ	58.3	58.8 L	58.8	58.7	58.7	0.22	1.8	0.2 L	58.4	0.32	2.0	0.4 L	16	LD
ZJXB3W	58.5	56.2	55.5	58.6	57.2	-0.33	3.1	1.6	57.3	-0.16	3.7	2.3	16	LZ

Consensus (All Labs) Results

Wk Mean	57.84	58.23	57.42	58.26	Month Mean	58.07	Grand Mean	57.67
Avg SDr	3.65	3.52	4.02	3.58	Avg SD	3.72	Avg SD	3.69
SD btwn Labs	3.13	2.79	2.89	2.82	SD btwn Labs	2.60	SD btwn Labs	2.39
Labs Incld	51	50	51	53	SD btwn Wks	1.78	SD btwn Wks	2.61
Labs Excld	2	2	2	1	Labs Incld	52	Labs Incld	52
Labs not Rcvd	1	2	1	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
TJ	TLS Compression Tester, Model CDM-5	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 - CM11

TAPPI Official Test Method T843

Report #600 (K)
September 2019

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
7ATCWH	64.5 *	62.4 *	66.4	63.9 *	64.3	-1.75	3.6	1.6	63.0	-2.35 *	3.9	1.6	16	LD
7W6AEP	68.8	67.4	68.0	68.2	68.1	-0.05	3.2	0.6	68.0	-0.15	3.6	0.5	16	LD
LPAD8D	70.7	74.1 *	72.7	72.5	72.5	1.91 *	3.4	1.4	73.1	2.08 *	3.1	1.5	16	LD
MFFREK	67.9	68.6	68.4 L	69.0 L	68.5	0.12	1.4	0.5	68.4	0.00	1.5	0.3 L	16	LD
NRB22T	71.7	68.0	65.7	71.3	69.2	0.43	3.8	2.8	70.2	0.81	3.5	2.0	16	LC
PN6XQH	68.8	69.1	68.7	69.2	69.0	0.33	3.0	0.2 L	69.8	0.65	4.0	2.2	12	XX
Q3LAFW	67.6	61.2 *	61.5 *	64.7	63.8	-1.98 *	3.8	3.0	65.2	-1.40	3.6	3.1	12	TH
TGCUAP	69.9 L	70.6	70.8	71.4	70.7	1.10	1.9	0.6	69.0	0.27	3.1	2.6	16	TD
TLM8RN	70.0	68.0	68.4	70.4	69.2	0.43	3.3	1.2	69.4	0.44	3.5	0.9	8	LD
TW8J2F	68.5	68.3	66.8	67.8	67.9	-0.16	3.6	0.7	68.4	0.03	3.9	2.2	16	LD
UJCP4C	72.6 *H	70.3	70.3	68.7	70.5	1.01	4.2	1.6	70.4	0.89	3.7	1.9	16	LD
VMU9N8	68.1	70.2	70.9	71.8	70.2	0.90	4.0	1.6	70.2	0.80	3.9	1.6	16	LD
VYLT6X	69.8	70.3	69.6	70.3	70.0	0.79	2.8	0.3	70.1	0.77	2.9	1.5	16	LZ
W8DQAC	65.4	65.4	64.7 L	66.4	65.5	-1.21	1.7	0.7	65.7	-1.15	2.2	1.3	16	MB
WNJWLT	66.6	69.6	59.7 *H	69.7	66.4	-0.81	4.8	4.7 H	66.4	-0.86	4.1	2.5	16	LD
X6MQTT	66.1	67.7	67.7	68.3	67.4	-0.34	2.6	1.0	67.7	-0.31	2.3	1.2	16	LD
YB6GQ8	67.0	65.7	65.6	66.2	66.1	-0.93	3.7	0.7	66.7	-0.73	3.4	1.1	16	LD
YCWNJJ	68.6	68.7	68.7 L	69.3	68.8	0.27	1.7	0.3	68.9	0.24	2.0	0.4 L	16	LD
ZJXB3W	67.4	69.6	67.4	68.1	68.1	-0.05	3.9	1.0	68.3	-0.03	4.1	1.6	16	LZ

Consensus (All Labs) Results

Wk Mean	68.42	68.16	67.47	68.81	Month Mean	68.22	Grand Mean	68.36
Avg SDr	3.38	3.21	3.27	3.37	Avg SD	3.31	Avg SD	3.37
SD btwn Labs	2.07	2.94	3.17	2.31	SD btwn Labs	2.25	SD btwn Labs	2.27
Labs Incld	19	19	19	19	SD btwn Wks	1.70	SD btwn Wks	1.75
Labs Excld	0	0	0	0	Labs Incld	19	Labs Incld	19
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	TH	TMI Compression Tester, Model 17-76
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
2N7U4A	41.7	42.2 L	41.0	39.7	41.1	-0.34	1.5	1.1	37.2	-1.25	2.2	4.1	16	TU
8JNUWH	45.7	42.2	43.1	44.9	44.0	0.48	3.7	1.6	43.0	0.36	3.2	1.9	16	LZ
9VJBDW	34.9 *	33.3 *	34.1 *	34.2	34.1	-2.35 *	3.0	0.7	32.5	-2.56 *	2.9	2.1	16	XX
BBLU3Y	43.0	41.8	44.3	43.0	43.0	0.20	3.1	1.0	43.3	0.45	3.1	1.1	16	LD
E4TPQ9	39.9	38.7	42.1	33.7	38.6	-1.06	2.6	3.5 H	39.4	-0.64	2.5	2.7	12	LZ
HXW66F	45.2	47.4	45.1	46.2	46.0	1.04	3.8	1.1	44.7	0.83	3.1	1.7	16	LD
J399TW	47.7	47.0	44.1	49.8	47.1	1.37	3.3	2.4	44.1	0.68	3.9	3.1	16	LC
KLHPFL	40.4	39.2	40.3	41.7	40.4	-0.55	2.7	1.0	39.3	-0.66	3.1	1.9	16	EM
LB77ZV	35.9 L	35.6	35.5 *	33.5 *L	35.1	-2.06 *	1.9	1.1	35.2	-1.80	2.2	1.1	16	TH
LVQ2T3	41.4	41.1	41.2	41.0	41.2	-0.34	2.4	0.1 L	42.1	0.13	2.4	1.1	16	LD
NQ9MYT	40.8	41.8	41.3	44.7	42.1	-0.05	2.9	1.7	43.3	0.46	2.9	1.8	16	LD
NRB22T	45.5	42.1	43.3	45.8	44.2	0.53	2.8	1.8	43.6	0.52	3.1	1.3	16	LC
QPXBMA	42.0	42.1	42.2	41.8	42.0	-0.09	1.8	0.2 L	41.8	0.03	1.9	0.6 L	16	LC
RWP6ZX	48.2	46.6 H	47.1 H	49.8	47.9	1.60	4.8	1.4	46.5	1.34	4.1	2.0	12	LZ
TCH6K7	40.0	43.5	40.6	41.1	41.3	-0.30	3.8	1.5	40.6	-0.29	3.6	1.8	16	LD
TFBF8P	46.3	39.8	47.6	48.7	45.6	0.93	3.3	4.0 H	44.8	0.88	3.5	7.9 H	15	MB
TLM8RN	44.6	44.3	45.5	45.4	45.0	0.75	3.2	0.6	44.7	0.85	3.3	0.5 L	8	LD
TW8J2F	43.3	47.0	47.0	45.1	45.6	0.93	3.4	1.8	43.5	0.49	2.9	2.1	16	LD
UJCP4C	43.7	42.9	44.5	42.2	43.3	0.28	2.7	1.0	43.3	0.44	2.9	1.4	16	LD
UXVCA4	44.0	45.3	44.4	40.5	43.5	0.35	4.4	2.1	43.5	0.50	4.5	1.5	16	XX
UYUDHG	41.2	40.5	40.2	43.1	41.2	-0.31	3.9	1.3	41.9	0.06	4.1	2.7	16	EM
UZ6E4F	45.8	45.9	45.8	45.1	45.7	0.95	2.7	0.4	45.5	1.06	2.8	0.3 L	16	LD
VBG73A	40.3	40.8 H	39.8 H	39.1 H	40.0	-0.66	5.1	0.7	35.5	-1.72	6.5	2.8	16	TX
W8DQAC	39.0	40.2 L	41.1 L	38.2 L	39.6	-0.78	1.4	1.3	39.4	-0.63	2.1	1.4	16	MB
XP9HUA	33.8 *H	37.0	36.5 H	34.8 H	35.5	-1.95 *	5.8	1.5	35.9	-1.62	5.7	1.2	16	TC
Y7E7FA	45.5	47.9	45.3	49.2	47.0	1.33	3.5	1.9	47.1	1.50	4.1	1.7	8	LD
YB6GQ8	41.5	42.1	40.4	40.3	41.1	-0.36	3.4	0.8	41.5	-0.05	3.2	1.1	16	LD
YCWNJJ	42.4	43.0	43.2	43.1	42.9	0.17	2.9	0.4	42.0	0.08	2.7	0.8	16	LD
YDY3LJ	43.8	43.1	42.5	44.0	43.4	0.29	3.0	0.7	43.7	0.55	2.5	0.9	16	TH

Consensus (All Labs) Results

Wk Mean	42.32	42.21	42.38	42.40	Month Mean	42.33	Grand Mean	41.69
Avg SDr	3.41	3.32	3.29	3.34	Avg SD	3.34	Avg SD	3.42
SD btwn Labs	3.54	3.50	3.30	4.59	SD btwn Labs	3.49	SD btwn Labs	3.58
Labs Incld	29	29	29	29	SD btwn Wks	1.59	SD btwn Wks	2.34
Labs Excld	0	0	0	0	Labs Incld	29	Labs Incld	29
Labs not Rcvd	0	0	0	0				

Key to Instrument Codes Reported by Participants			
EM	Emerson 1200 Series	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	TC	TMI Monitor/Compression Tester, 17-37
TH	TMI Compression Tester, Model 17-76	TU	TMI Universal Crush Tester (TMI K440)
TX	TMI Digital Crush Tester (model not specified)	XX	Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program

Analysis 261

STFI, 26 lb Corrugating Medium - CM11

TAPPI Official Test Method T826

Report #600 (K)
September 2019

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2M6DAJ	12.6	12.5	13.4 H	13.0	12.9	-1.16	1.1	0.4	13.0	-1.30	0.9	0.3	12	LH
3YYXJN	15.2 *L	14.0 L	14.9 L	13.8 L	14.5	1.90 *	0.2	0.7	13.6	0.40	0.6	0.8	16	LA
6EGN48	13.1	13.8	13.5	14.4	13.7	0.39	0.9	0.5	13.2	-0.72	1.1	0.6	16	LH
7ATCWH	13.6	14.1	13.9	13.9	13.9	0.73	1.0	0.2	13.5	0.22	1.0	0.4	16	LA
7W6AEP	13.8	13.4	13.0	13.0	13.3	-0.34	0.8	0.4	13.2	-0.68	0.8	0.4	16	LB
8JNUWH	14.9 *	13.5 H	13.6	12.8	13.7	0.38	1.1	0.9	13.4	-0.22	1.1	0.7	16	LA
BN94MJ	13.9	14.1	14.4	14.4	14.2	1.36	1.1	0.3	14.0	1.72	1.2	0.3	16	LU
CQH7B3	13.1	13.2	46.0 XH	13.5	21.4	15.23 X	2.4	16.4 H	20.2	20.92 X	1.7	12.8 H	15	LA
ECMVJA	13.2	12.8	11.8 *	13.8	12.9	-1.10	0.9	0.8	13.2	-0.72	1.1	0.6	12	LA
KGHJWA	13.8	12.9	13.8	13.2	13.4	-0.07	0.9	0.4	13.4	-0.10	0.9	0.4	16	LB
MFFREK	13.3 L	13.7 L	13.6 L	13.8	13.6	0.21	0.6	0.2	13.4	-0.03	0.5	0.2	16	LA
NHN3BN	13.8	13.6	14.1	13.4	13.7	0.45	1.1	0.3	13.7	0.72	1.0	0.4	16	LB
NQ9MYT	13.0	12.6	13.3	13.2	13.0	-0.88	1.1	0.3	13.6	0.62	1.0	0.5	16	LZ
NRB22T	13.4	13.5	13.1	13.9	13.5	-0.03	1.0	0.3	13.7	0.71	1.0	0.4	16	LU
QPXBMA	13.7 H	13.9	14.0	13.8	13.8	0.69	1.1	0.1	13.3	-0.46	1.1	0.5	16	LB
TCH6K7	13.0	13.4	12.9	11.2 X	12.6	-1.66	1.0	1.0	12.9	-1.82	0.9	0.6	16	LZ
TFBF8P	14.4	23.0 XH	15.2 *	14.6 *H	16.8	6.42 X	1.2	4.1 H	16.7	10.19 X	1.4	3.7 H	14	LA
TGCUAP	18.6 X	17.8 X	18.2 X	18.1 X	18.2	8.93 X	1.1	0.3	18.4	15.48 X	1.3	0.9 H	16	XX
TLM8RN	13.5	13.7 H	13.3	13.3	13.5	-0.05	1.2	0.2	13.5	0.29	1.1	0.3	9	LB
TW8J2F	13.6	14.6	14.3	14.1	14.1	1.20	1.1	0.4	13.8	1.06	1.0	0.5	16	LA
VBG73A	12.7	12.1 *	12.0 *	12.3 *	12.3	-2.29 *	0.9	0.3	12.3	-3.60 X	1.0	0.2	16	TT
X3WPM6	13.5	13.0	13.7	13.0	13.3	-0.32	0.9	0.4	13.5	0.07	1.0	0.3	16	LA
XP9HUA	13.3	13.0	13.1	13.5	13.2	-0.47	1.0	0.2	12.9	-1.77	1.1	0.4	16	TS
Y2HKKZ	13.3	13.0	13.3	14.0	13.4	-0.22	0.8	0.4	13.5	0.21	0.9	0.4	16	TT
Y7E7FA	14.9 *	14.5	14.2	13.0	14.2	1.32	1.0	0.8	14.2	2.25 *	1.1	0.7	8	LA
YCWNJJ	13.4	13.3	13.6	13.5	13.5	-0.04	0.7	0.1	13.3	-0.46	0.8	0.2	16	LB

Consensus (All Labs) Results

Wk Mean	13.60	13.43	13.59	13.55	Month Mean	13.48	Grand Mean	13.44
Avg SDr	0.95	0.96	1.01	0.98	Avg SD	0.97	Avg SD	0.98
SD btwn Labs	0.67	0.61	0.78	0.55	SD btwn Labs	0.52	SD btwn Labs	0.32
Labs Incld	25	24	24	24	SD btwn Wks	0.49	SD btwn Wks	0.47
Labs Excld	1	2	2	2	Labs Incld	23	Labs Incld	22
Labs not Rcvd	0	0	0	0				

Key to Instrument Codes Reported by Participants

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

End of Report