Collaborative Testing Services, Inc.

Containerboard Interlaboratory Testing Program

Participant Summary Report #581 (B) - February 2018

Introduction to the Containerboard Program

Explanation of Tables and Definitions of Terms

Analysis	Sample	Analysis Name
201	BX12	Box Compression Strength, Corrugated Boxes
202	EC10	Edgewise Compressive Strength, Wax (T811), Corrugated Board
203	EC10	Edgewise Compressive Strength by Clamp (T839), Corrugated Board
205	42D3	Mullen Burst of Linerboard, 42 lb Linerboard
207	35E1	Mullen Burst of Linerboard, 35 lb Linerboard
215	42D3	Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard
217	35E1	Ring Crush of Linerboard, Rigid Platen Type, 35 lb Linerboard
223	42D3	STFI of Linerboard, 42 lb Linerboard
225	35E1	STFI of Linerboard, 35 lb Linerboard
228	56A	Roughness - Stylus Method, 56 lb Linerboard
229	42D3	Roughness - Sheffield Method, 42 lb Linerboard
231	42D	Internal Bond Strength, Linerboard, 42 lb Linerboard
234	56A	Coefficient of Static Friction - Inclined Plane, 56 lb Linerboard
237	42D	Air Resistance - Gurley Method, Linerboard, 42 lb Linerboard
240	CM92	Flat Crush Strength (CMT) of Medium, 26 lb Corrugating Medium
250	CM92	Fluted Crush of Medium, 26 lb Corrugating Medium
255	CM92	Ring Crush of Medium, 26 lb Corrugating Medium
261	CM92	STFI of Medium, 26 lb Corrugating Medium

Collaborative Testing Services, Inc.
CONTAINERBOARD INTERLABORATORY TESTING PROGRAM

INTRODUCTION

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

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

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

USE OF AVERAGE MEAN AS A COLLABORATIVE REFERENCE VALUE

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

Material	Lot Code	Dates in Use
26 lb Corrugating Medium	CM92	January 2018-Current
	CM91	October 2016-December 2017
35 lb Linerboard	35E1	June 2017-Current
42 lb Linerboard	42D3	November 2017-Current
	42D2	August 2016-October 2017
56 lb Linerboard	56A2	January 2018-Current
	56A1	July 2016-November 2017

ABOUT CTS

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

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EXPLANATION OF TABLES

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

Definitions of Terms Used

Weekly Results

Laboratory Data

WebCode	- A six character laboratory identifier used to maintain information on a confidential basis. The WebCode is unique for each cycle and will change for each report. Your WebCode can be found in your Individual Report (Current Month Performance Report) and your datasheet.
Weekly Means	- The average of the test results obtained by the participant for each week that data were reported.

Consensus Data

Wk Mean	- For each week, the average of the Means for all the participants, excluding those laboratories flagged with an 'X'.
Avg SD	- For each week, the average of the within-laboratory standard deviations (SD's) for all the participants, excluding those laboratories flagged with an 'X'. The Avg SD is an indication of the variation of measurements within an average laboratory.
SD btwn Labs	- For each week, the standard deviation of the laboratory Means about the Wk Mean, excluding those laboratories flagged with an 'X'. The SD LABS is an indication of the precision of measurement between the laboratories.
Labs Incld	- The number of laboratory Means included in the Wk Mean for that week.
Labs Excld	- The number of laboratory Means reported but excluded from the Wk Mean for that week because of outlying results ('X' following Mean).
Labs not rcvd	- The number of laboratories failing to report for that week.

Monthly Results

Laboratory Data

Mean	- For each laboratory, the average of all the weekly Means reported for this month.
CPV	- Comparative Performance Value, an indication of how well a laboratory's Mean agrees with the other participants. The CPV is a ratio indicating the number of standard deviations from the consensus mean (Monthly Mean). The closer a laboratory's CPV is to zero, the more consistent its results are with the other participants' data.
SD	- For each laboratory, the average of the weekly within-lab standard deviations (SD's) for all reported Weekly Means this month.
SD Wk	- The standard deviation among the laboratory's weekly Means, including those Means flagged with an 'X'. The SD Wks is an indication of that laboratory's ability to obtain constant results from week to week.

Consensus Data

Month Mean	- The average of the Means for all the participants, excluding those laboratories flagged with an 'X,' reporting data for this month.
Avg SD	- For the current month, the average of the within-laboratory standard deviations (SD's) for all the participants, excluding those laboratories flagged with an 'X'.
SD btwn Labs	- For the current month, the standard deviation of the laboratory Means about the Month Mean, excluding those laboratories flagged with an 'X'.
SD btwn Group	- For the current month, the standard deviation of the laboratory Means within the group about the Month Mean, excluding those laboratories flagged with an 'X'.
SD btwn Wks	- For the current month, the average of the laboratory between week standard deviations (SD Wks') for all the participants, excluding those laboratories flagged with an 'X'.

Cumulative Results

Laboratory Data

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

Consensus Data

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

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

Flag	Explanation

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

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

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

Flags assigned to Weekly Means:

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

Flags assigned to Monthly SD Wks and Cumulative SD Wks:

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

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2LHXE7	541.4	-0.92	9.96		534.6	-1.23	9.69	2	LL
2MF9B9	506.2	-1.85	54.69	H	511.9	-1.92 *	8.06	2	TB
4LUEPP	589.2	0.34	26.78		600.7	0.76	16.24	2	ET
4X7GBM	611.3	0.92	24.32		616.9	1.25	7.92	2	LG
6M4JX8	660.4	2.22 *	9.10		644.9	2.10 *	21.92	2	ER
6RVQGF	578.2	0.05	20.09		583.8	0.25	7.92	2	EX
7PQKEE	571.8	-0.12	18.14		571.9	-0.10	0.13	2	ER
8UEJAL	611.7	0.93	17.69		578.0	0.08	47.62	2	LS
9J929G	575.2	-0.03	8.76		582.8	0.22	10.75	2	ES
9PGMXZ	568.9	-0.20	28.59		566.9	-0.25	2.78	2	TE
AQ86ER	581.3	0.13	29.49		602.8	0.83	30.42	2	LH
CLLZVM	555.6	-0.55	15.69		544.6	-0.93	15.56	2	EX
EVLC6L	635.0	1.55	18.87		592.8	0.53	59.69	2	LG
H4NQEC	585.4	0.24	24.07		570.3	-0.15	21.35	2	LL
MF2JUL	547.6	-0.76	37.73		574.6	-0.02	38.16	2	LS
MUL6EE	572.5	-0.10	9.53		572.5	-0.09	0.00	1	EX
N2D2C2	546.5	-0.79	18.22		549.0	-0.80	3.46	2	ER
NZ8GQM	551.9	-0.64	22.93		558.5	-0.51	9.39	2	LM
PCGCKC	646.5	1.85	43.86		651.9	2.31 *	7.64	2	LG
PUWPYZ	570.6	-0.15	21.45		584.3	0.27	19.37	2	ER
Q9DT4W	640.2	1.68	59.62	H	614.6	1.18	36.20	2	LG
QNQBRP	530.8	-1.20	30.92		541.8	-1.01	15.56	2	LL
VQUVHK	547.5	-0.76	7.72		539.8	-1.07	10.88	2	LS
Z6ZF9Z	562.4	-0.37	22.14		572.7	-0.08	14.57	2	ET
ZFXKYR	546.6	-0.78	14.74		553.5	-0.66	9.76	2	LG
ZMYNAJ	550.4	-0.69	22.57		544.0	-0.95	8.99	2	LM

Consensus (All Labs) Results

Month Mean	576.35	Grand Mean	575.38
Avg SD	27.04	Avg SD Months	22.50
SD btwn Labs	37.91	SD btwn Labs	33.15
Labs Incld	26	Labs Incld	26

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	563.94	43.81	12.40	7
Clip sealing	580.91	35.69	4.57	19

Key to Instrument Codes Reported by Participants

ER	Emerson 6200 Series	ES	Emerson 8510
ET	Emerson 7200	EX	Emerson Apparatus (Model not specified)
LG	TLS / L.A.B. Validator Series	LH	L.A.B. Compression Tester Model #10610
LL	Lansmont 76-5K	LM	Lansmont 122-15k
LS	Lansmont Squeezer	TB	TMI Monitor/Compression Tester, Model 17-70
TE	Testometric M500 - 25 KN		

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
8UEJAL	34.2	-0.74	2.26		36.7	-0.20	1.68	4	EM
CLLZVM	38.7	0.60	2.57		37.5	0.07	1.71	2	LC
H6GL2L	31.0	-1.70	0.88	L	31.9	-1.91 *	1.28	4	WK
LBG336	37.2	0.16	0.79	L	39.0	0.61	1.40	4	TD
MF2JUL	35.7	-0.29	1.43		36.0	-0.46	1.89	3	EM
N2D2C2	33.1	-1.06	4.38	H	35.1	-0.79	1.40	4	EN
Q9DT4W	41.3	1.37	1.05		40.9	1.30	0.55	4	LE
VP4RQY	34.1	-0.77	1.92		34.2	-1.10	0.20 L	4	XX
VQUVHK	40.5	1.15	1.49		40.0	0.99	1.49	4	LC
ZAVA72	37.4	0.23	2.83		38.8	0.54	1.47	4	LC
ZFXKYR	40.2	1.05	1.09		39.9	0.95	0.55	3	TH

Consensus (All Labs) Results

Month Mean	36.67	Grand Mean	37.28
Avg SD	2.14	Avg SD Months	1.34
SD btwn Labs	3.35	SD btwn Labs	2.80
Labs Incld	11	Labs Incld	11

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	EN	Emerson 2200
LC	L&W Crush Tester 48	LE	L&W Crush Tester 840
TD	TMI Digital Crush Tester, Model 17-09	TH	TMI Monitor/Compression Tester, Model 17-76
WK	Zwick Z005 Crush Tester	XX	Instrument make/model not specified by lab

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2LHXE7	41.1	-0.16	1.34		41.0	-0.08	0.80	3	BU
2MF9B9	43.6	1.01	0.94		47.3	2.32 *	2.49	4	LD
2N96XG	43.5	0.96	1.23		43.1	0.72	1.49	4	TD
2NAWT4	39.1	-1.12	1.16		39.1	-0.81	0.23 L	3	EM
2RUN3L	38.0	-1.66	1.32		38.4	-1.08	0.62	4	LD
33LRNQ	40.0	-0.67	1.19		40.8	-0.14	0.72	4	LD
4LUEPP	42.6	0.55	1.44		43.2	0.77	0.71	4	TD
4X7GBM	43.0	0.75	1.00		42.4	0.46	1.20	4	TJ
6M4JX8	38.9	-1.19	0.98		38.9	-0.88	0.05 L	4	EM
6RVQGF	39.8	-0.78	1.23		40.6	-0.24	0.68	4	LD
73ELW7	41.2	-0.11	1.62		38.3	-1.11	2.54	3	LC
8UEJAL	41.5	0.02	1.38		41.0	-0.07	0.43	4	EM
9J929G	41.0	-0.20	1.37		40.1	-0.42	0.72	4	LD
9PGMXZ	42.4	0.46	1.16		42.6	0.55	0.33	4	LD
AQ86ER	43.6	1.03	1.32		45.3	1.57	1.29	4	EM
BL9BWG	41.2	-0.13	1.78		41.0	-0.06	2.08	4	TD
CLLZVM	37.8	-1.75	2.21		36.6	-1.76	1.64	2	LC
EVLC6L	40.4	-0.51	1.34		39.8	-0.55	1.07	4	MK
GTB6WD	40.1	-0.62	1.20		39.1	-0.79	0.70	4	LD
H6GL2L	39.2	-1.05	0.85		37.3	-1.49	1.31	4	WK
H7FU7Y	40.9	-0.26	1.27		41.0	-0.08	0.78	4	LD
HW6M6P	46.7	2.51 *	2.06		41.4	0.06	3.60 H	4	TB
J7AYYX	46.3	2.32 *	1.47		45.8	1.78	0.87	4	TG
L7JJ27	41.4	-0.03	0.68 L		41.6	0.16	0.46	4	EM
LBG336	41.1	-0.16	0.99		41.4	0.06	0.61	4	TD
LJLAH6	42.4	0.45	1.30		47.1	2.25 *	3.30	4	LD
MF2JUL	39.6	-0.86	1.05		41.8	0.22	3.06	3	EM
MUL6EE	43.8	1.11	0.88		43.7	0.94	0.32	4	TL
MVHEAH	42.0	0.26	2.96 H		41.8	0.22	4.42 H	4	CT
N2D2C2	36.7	-2.26 *	1.79		37.9	-1.28	1.03	4	EN
NZ8GQM	44.7	1.56	1.47		43.9	1.04	1.65	4	TG
PBMN3G	40.3	-0.54	2.02		40.4	-0.30	1.78	4	LC
PCDUKT	37.9	-1.69	1.33		39.1	-0.79	1.24	4	TD
PCGCKC	42.2	0.37	1.57		41.1	-0.04	1.00	4	EM
PHHQ4T	43.4	0.92	1.48		42.3	0.42	1.50	2	LC
PUWPYZ	40.2	-0.60	1.25		38.0	-1.24	2.06	4	LD
Q9DT4W	42.1	0.34	1.99		41.1	-0.04	0.96	4	LY
QJDTB9	35.0	-3.09 X	0.77		34.2	-2.67 *	3.10	4	KS
QNQBRP	41.5	0.03	1.37		41.2	0.00	0.27 L	4	LC

Containerboard Interlaboratory Testing Program

Analysis 203

Edgewise Compressive Strength by T839, Corrugated Board - EC10

TAPPI Official Test Method T839

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
RD269Q	41.1	-0.18	1.35		40.0	-0.48	2.89	4	TK
VQUVHK	43.3	0.89	1.74		42.4	0.46	1.30	4	LC
WEJMET	41.2	-0.13	1.32		40.3	-0.35	1.04	4	LD
Z6ZF9Z	42.4	0.48	4.20	H	44.3	1.18	2.57	3	EM
ZAVA72	41.7	0.14	0.95		44.3	1.20	3.45	4	LC
ZFXKYR	40.4	-0.51	0.69		41.2	0.01	0.97	3	TH
ZMYNAJ	43.6	1.02	1.24		42.2	0.38	1.34	4	EM

Consensus (All Labs) Results

Month Mean	41.43	Grand Mean	41.20
Avg SD	1.55	Avg SD Months	1.78
SD btwn Labs	2.10	SD btwn Labs	2.61
Labs Incld	45	Labs Incld	46

Key to Instrument Codes Reported by Participants

BU	Buchel Digital Crush Tester	CT	Con-Ten
EM	Emerson 1200 Series	EN	Emerson 2200
KS	Kyungsung KSU-05M	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LY	L&W 830
MK	Mark-10 ESM303	TB	TMI Monitor/Compression Tester, Model 17-70
TD	TMI Digital Crush Tester, Model 17-09	TG	TMI Digital Crush Tester, 17-76
TH	TMI Monitor/Compression Tester, Model 17-76	TJ	TLS Compression Tester, Model CDM-5
TK	TLS Compression Tester, Model 5184	TL	Tech-Lab Systems Compression
WK	Zwick Z005 Crush Tester		

	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
2RUN3L	98.0 *	104.0	104.3	106.8	103.3	-1.48	11.4	3.7	106.3	-0.90	10.7	4.4	16	LC
2YPR7H	101.3	103.4	107.1	103.8	103.9	-1.32	9.9	2.4	109.6	0.10	8.8	4.4	16	LA
33LRNQ	113.1	112.4	111.8	113.7	112.7	0.83	7.9	0.8	112.4	0.95	9.8	1.0 L	16	LA
34HBN8	No Data	No Data	No Data	109.5	109.5	0.05	5.3	0.0	101.1	-2.45 *	7.3	5.6	5	TP
36NVAL	96.7 *	110.5	105.1	106.4	104.7	-1.13	10.3	5.8	106.0	-0.99	9.6	3.5	16	LC
3ZJWZG	106.3	112.5 H	103.9	122.5 X	111.3	0.49	13.4	8.3 H	109.9	0.18	10.3	7.0	16	LJ
48V8T9	111.0	116.0	112.2	112.7	113.0	0.89	9.8	2.1	110.3	0.32	11.4	3.5	12	LC
4MRKAP	115.0	110.8	117.0	112.0	113.7	1.07	12.9	2.8	113.3	1.21	12.4	3.0	16	LZ
69K24H	107.1	108.7	112.4	109.0	109.3	-0.01	10.6	2.2	109.6	0.09	11.2	2.5	16	TB
6RVQGF	115.0	111.0	115.5	113.5	113.8	1.08	10.6	2.0	112.0	0.83	13.1	3.7	16	AH
73ELW7	113.8	114.5	108.5	114.1	112.7	0.83	13.9	2.8	111.8	0.75	12.1	2.5	12	LA
7C4DGD	109.8	109.7	101.0	109.9	107.6	-0.42	8.0	4.4	108.9	-0.10	8.2	2.2	16	LJ
7PQKEE	104.3	104.8	108.0	104.6	105.4	-0.96	9.9	1.7	104.7	-1.38	15.3	5.0	16	LZ
82EY2E	112.1	114.5	111.0	109.8	111.8	0.62	8.3	2.0	111.0	0.53	8.6	3.0	16	TB
8UEJAL	112.1	107.5	109.9	109.3	109.7	0.09	9.8	1.9	108.2	-0.31	10.6	3.1	16	LA
9H2Y7J	111.4	105.3	110.5	108.9	109.0	-0.07	12.0	2.7	111.5	0.66	11.5	6.6	12	XX
9J929G	107.2	105.5	108.6	109.9	107.8	-0.37	10.4	1.9	105.8	-1.03	10.5	2.3	16	LA
APBRRY	108.3	110.2 L	109.6	110.3	109.6	0.07	4.8	0.9	106.5	-0.83	6.2	5.3	16	AH
APW4Q8	110.4	112.5	111.7	113.3	112.0	0.65	11.7	1.2	111.9	0.80	11.2	4.2	16	LC
AQ6FBU	106.8	106.9 L	110.3 L	109.0 L	108.3	-0.26	3.8	1.7	110.2	0.27	3.8	2.5	16	XX
B94XWJ	109.7	108.7	108.0	107.6	108.5	-0.20	8.6	0.9	109.7	0.13	10.5	2.2	16	LA
DHHNED	107.2	102.7	112.0	98.9 *	105.2	-1.01	8.8	5.7	107.0	-0.68	9.9	3.6	16	XX
EEGXPD	119.3 *	116.6	111.0	No Data	115.6	1.55	13.5	4.2	116.6	2.19	*12.5	4.0	14	LA
F2M92Q	109.6	107.8	110.4	109.4	109.3	0.00	7.2	1.1	106.9	-0.72	5.8	1.9	16	RE
F2NVMB	103.9	108.1	104.8	103.3	105.0	-1.05	8.0	2.1	107.3	-0.59	9.7	3.8	16	LA
GTB6WD	108.5	105.3	105.0	105.0	105.9	-0.82	7.3	1.7	105.8	-1.04	8.7	2.4	16	LA
H7FU7Y	116.1	114.9	117.5 H	111.3	115.0	1.38	14.0	2.7	111.5	0.67	12.5	4.0	16	LC
JTXRYQ	102.1	110.6	117.6	106.8	109.3	-0.01	11.4	6.5	109.1	-0.04	11.0	3.9	15	LA
KHH2XZ	118.0	104.4	115.9	116.5	113.7	1.07	9.6	6.3	113.3	1.21	11.7	4.4	16	LA
KRLC6Q	110.8	112.2	113.4	113.1	112.4	0.75	11.1	1.1	109.4	0.06	12.6	3.4	16	LZ
KTHU67	113.3	119.0 *	119.4 *	120.4 *	118.0	2.13 *	14.9	3.2	116.5	2.17	*12.6	2.7	8	AH
L6PZVY	111.2	107.9	109.1	110.6	109.7	0.09	7.6	1.5	109.0	-0.08	10.5	4.0	16	LC
LHFM98	113.7	107.8	120.8 *	111.0	113.3	0.98	11.2	5.5	112.3	0.90	12.7	4.4	16	TB
MTPQQM	109.5	108.6	112.1 H	103.7	108.5	-0.20	12.8	3.5	110.2	0.27	12.0	4.5	16	LC
MVHEAH	113.1	117.6	110.2	115.1	114.0	1.15	10.9	3.1	114.3	1.50	13.4	4.2	16	XX

Containerboard Interlaboratory Testing Program

Analysis 205

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

TAPPI Official Test Method T807

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
NJV374	104.7	108.1	108.7	107.6	107.3	-0.50	8.1	1.8	106.0	-0.97	9.8	2.2	16	LA
NRRX7M	113.5	103.8 L	107.3	111.9	109.1	-0.05	8.1	4.4	110.3	0.32	10.8	3.4	12	LA
PUWPYZ	102.8	103.1	103.6	102.1	102.9	-1.57	10.0	0.6 L	106.7	-0.78	10.8	3.7	16	AH
Q7NTHK	109.9	109.2	109.1 L	109.3 L	109.4	0.01	4.6	0.3 L	109.5	0.08	5.0	2.2	16	LA
Q9DT4W	113.8	113.1	108.2	112.9	112.0	0.65	11.6	2.6	114.0	1.41	11.6	2.4	15	LZ
T4CQTR	106.3	109.0	102.0	107.7	106.3	-0.74	11.1	3.1	107.3	-0.60	13.4	3.9	16	LA
UBN8ZR	107.4	114.0	111.5	107.9	110.2	0.22	9.5	3.1	109.6	0.10	10.7	2.6	16	LB
UFFLEZ	104.5	104.2	103.5	103.3	103.9	-1.33	7.1	0.6 L	105.3	-1.17	9.5	2.3	16	LC
UXF96Z	105.8	109.6	104.3	107.0	106.7	-0.65	10.3	2.2	108.5	-0.23	12.1	3.5	16	LC
VDAH4P	105.4 H	98.7 *	88.6 X	106.9	99.9	-2.30 *	13.1	8.3 H	104.2	-1.51	12.5	5.2	16	LC
VQUVHK	100.3	107.0	101.9	103.6	103.2	-1.50	10.7	2.9	103.9	-1.62	10.6	3.1	16	AH
W4Z2FP	111.4	105.7	107.9	104.8	107.5	-0.46	11.8	2.9	106.3	-0.89	10.8	2.9	16	LC
X3JAYT	135.8XH	113.0	111.7	117.0	119.4	2.46 *	14.9	11.2 H	114.9	1.69	13.5	7.9 H	16	LA
ZLQF7Q	104.3	111.0	106.5	104.1	106.5	-0.69	10.5	3.2	107.6	-0.48	10.6	3.5	16	LC

Consensus (All Labs) Results

Wk Mean	108.85	109.21	109.61	109.05	Month Mean	109.32	Grand Mean	109.26
Avg SDr	9.89	10.84	10.38	10.40	Avg SD	10.38	Avg SD	10.85
SD btwn Labs	5.01	4.35	4.64	4.33	SD btwn Labs	4.09	SD btwn Labs	3.34
Labs Incld	47	48	47	47	SD btwn Wks	3.79	SD btwn Wks	3.86
Labs Excld	1	0	1	1	Labs Incld	49	Labs Incld	49
Labs not Rcvd	1	1	1	1				

Key to Instrument Codes Reported by Participants

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

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2RUN3L	89.6	87.0	88.4	93.8	89.7	-0.77	8.2	2.9	88.8	-1.19	8.4	3.0	12	LC
2YPR7H	86.1	90.9	86.2	89.4	88.2	-1.24	5.7	2.4	91.8	-0.18	7.3	4.1	12	LA
33LRNQ	93.7	92.8	92.0	92.8	92.8	0.17	5.6	0.7	93.0	0.21	5.8	1.0	12	LA
34HBN8	No Data	No Data	No Data	92.1	92.1	-0.04	4.6	0.0	89.6	-0.93	4.4	2.1	5	TP
36NVAL	84.8	89.1	87.6	106.4 X	92.0	-0.08	8.0	9.8 H	91.8	-0.17	8.0	6.0	12	LC
3ZJWZG	96.5	120.6 X	105.1 XH	102.2 *H	106.1	4.18 X	12.9	10.3 H	97.7	1.83	9.3	9.5 H	12	LJ
48V8T9	92.7	91.3	93.3	92.8	92.5	0.08	6.8	0.9	92.5	0.04	8.2	2.3	12	LC
4MRKAP	96.2	100.8	98.9	95.9	97.9	1.72	9.3	2.3	96.9	1.54	8.7	2.9	12	LZ
69K24H	98.3	99.6	98.3	90.6	96.7	1.35	8.7	4.1	93.6	0.45	8.5	4.3	12	TB
6RVQGF	99.0	95.0	92.5	96.5	95.8	1.06	8.3	2.7	92.9	0.20	8.0	3.2	12	AH
73ELW7	83.7	92.6	93.1	92.4	90.4	-0.55	8.7	4.5	92.3	0.00	9.1	3.6	12	LA
7C4DGD	92.7	92.4	92.3	92.2	92.4	0.04	5.7	0.2 L	92.0	-0.11	6.4	0.4 L	12	LJ
7PQKEE	87.0	85.4	88.8	89.7	87.7	-1.37	7.9	1.9	87.4	-1.67	8.1	1.3	12	LA
82EY2E	94.6	102.1 *	104.0 X	99.3	100.0	2.34 *	7.8	4.1	99.3	2.35 *	8.1	3.4	12	TB
8UEJAL	92.0	89.4	90.5	95.8	91.9	-0.11	8.1	2.8	91.9	-0.15	9.0	3.4	12	LA
9H2Y7J	89.6	95.3	94.5	91.1	92.6	0.11	8.9	2.7	93.0	0.22	7.7	2.6	8	LC
9J929G	87.7	86.5	90.4	89.0	88.4	-1.16	7.2	1.7	89.9	-0.82	7.7	2.6	12	LA
APBRRY	90.7	90.2	88.2	90.9 L	90.0	-0.68	4.2	1.2	89.9	-0.82	4.3	0.9	12	AH
APW4Q8	91.0	91.1	89.9	92.6	91.2	-0.33	8.5	1.1	91.6	-0.24	7.8	2.8	12	LC
AQ6FBU	90.9	91.1	90.5 L	87.9	90.1	-0.65	4.4	1.5	92.0	-0.12	4.4	2.6	12	XX
B94XWJ	91.6	94.2	90.1	90.5	91.6	-0.20	7.4	1.8	91.9	-0.13	7.2	2.5	12	LA
DHHNED	93.8	96.3	91.1	91.6	93.2	0.29	6.8	2.4	91.5	-0.29	8.1	3.3	12	XX
EEGXPD	94.3	101.5 *	94.5	No Data	96.8	1.37	8.6	4.1	98.9	2.24 *	9.2	3.4	11	LA
F2M92Q	95.0	94.8	94.8	96.4	95.3	0.91	5.3	0.8	95.2	0.99	4.9	2.1	12	RE
F2NVMB	88.7	91.9	89.2	85.0 *	88.7	-1.07	6.7	2.8	88.8	-1.19	6.7	2.0	12	LA
GTB6WD	82.7 *	82.8 *	83.1 *	87.6	84.0	-2.48 *	6.7	2.4	86.1	-2.11 *	6.2	2.4	12	LA
H7FU7Y	101.0 *	92.4	95.5	98.1	96.8	1.36	8.7	3.7	95.3	1.01	9.5	2.9	12	LC
JTXRYQ	90.8	92.3	93.0	90.6	91.7	-0.17	9.3	1.2	92.6	0.10	9.2	3.0	12	LA
KHH2XZ	96.9	98.1	90.9	99.5	96.3	1.24	10.6	3.8	95.8	1.19	9.9	2.7	12	LA
KRLC6Q	92.1	86.6	95.3	91.0	91.3	-0.30	8.5	3.6	92.3	0.01	8.3	2.6	12	LZ
KTHU67	90.0	100.2	99.2 *	95.4	96.2	1.20	8.8	4.6	96.2	1.32	8.8	4.6	4	AH
LHFM98	94.2	94.3	95.4	94.6	94.6	0.71	8.8	0.5	94.5	0.74	9.0	1.5	12	TB
MTPQQM	92.3 H	96.7	97.3	95.0	95.3	0.93	10.7	2.3	94.0	0.56	8.8	3.1	12	LC
MVHEAH	90.8	96.2	94.2	95.1	94.1	0.55	9.7	2.3	95.4	1.04	9.2	2.3	12	XX
NJV374	89.0	84.1	90.5	91.9	88.9	-1.02	8.2	3.4	88.1	-1.43	8.0	2.3	12	LA

	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
NRRX7M	94.6	89.7	96.1	95.8 H	94.1	0.55	8.8	3.0	93.8	0.50	8.8	2.9	12	LA
PUWPYZ	88.1	85.4	87.4	90.7	87.9	-1.31	7.5	2.2	89.3	-1.04	7.4	2.9	12	AH
Q7NTHK	92.4 L	92.4 L	92.1 L	92.1	92.2	0.00	4.0	0.2 L	92.1	-0.09	3.9	0.5 L	12	LA
Q9DT4W	98.0	96.3	98.3	98.9	97.9	1.71	8.8	1.1	95.4	1.03	9.8	3.3	11	LZ
T4CQTR	87.8	91.5	87.5	88.0	88.7	-1.07	9.0	1.9	90.7	-0.54	9.0	3.6	12	LA
UBN8ZR	94.6	90.6	90.5	91.9	91.9	-0.10	7.1	1.9	90.1	-0.74	7.3	1.7	12	LB
UFFLEZ	86.1	90.0	86.1	87.4	87.4	-1.47	7.0	1.8	88.8	-1.21	7.4	2.5	12	LA
UXF96Z	90.8	88.3	93.4	92.4	91.2	-0.31	6.8	2.2	90.0	-0.80	8.1	3.2	12	LC
VDAH4P	91.0	86.4	89.1	103.0 *H	92.4	0.04	11.3	7.3 H	91.2	-0.38	9.5	4.7	12	LC
VQUVHK	85.3	89.5	90.1	90.6	88.9	-1.02	8.1	2.4	88.4	-1.33	8.3	3.7	12	AH
W4Z2FP	87.4	88.7	88.5	94.3	89.7	-0.76	7.3	3.1	89.9	-0.83	7.2	5.6	12	LA
X3JAYT	95.1	93.6	92.9	91.1	93.2	0.28	7.5	1.7	94.8	0.84	8.8	3.4	12	XX
ZLQF7Q	96.1	90.6	95.9	89.6	93.0	0.24	6.8	3.4	92.5	0.08	6.7	3.4	12	LC

Consensus (All Labs) Results

Wk Mean	91.64	92.13	91.94	92.94	Month Mean	92.25	Grand Mean	92.32
Avg SDr	8.10	7.74	7.83	8.05	Avg SD	7.86	Avg SD	7.93
SD btwn Labs	4.17	4.63	3.71	3.86	SD btwn Labs	3.31	SD btwn Labs	2.95
Labs Incld	47	46	45	46	SD btwn Wks	3.11	SD btwn Wks	3.34
Labs Excld	0	1	2	1	Labs Incld	47	Labs Incld	48
Labs not Rcvd	1	1	1	1				

Key to Instrument Codes Reported by Participants

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

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2RUN3L	86.9	86.0	82.8	88.7	86.1	-0.69	4.1	2.5	85.8	-0.80	3.4	1.7	16	LD
2YPR7H	83.9	81.7	81.3	82.7	82.4	-1.57	2.9	1.2	81.2	-2.01 *	2.9	1.2	16	TU
33LRNQ	91.8	91.8	91.7	91.4	91.7	0.64	3.3	0.2 L	91.5	0.73	3.3	0.6 L	16	LD
34HBN8	90.3	89.5	88.5	91.9	90.1	0.25	3.8	1.4	89.8	0.28	4.0	1.4	16	TH
36NVAL	91.0	88.3	91.1	91.2	90.4	0.33	4.0	1.4	90.3	0.40	4.3	2.5	16	LC
3ZJWZG	94.6	90.5	89.1	92.9	91.8	0.66	4.4	2.4	90.7	0.52	4.2	2.6	16	LD
4MRKAP	83.5	86.9	87.6	86.5	86.1	-0.69	3.8	1.8	86.9	-0.49	4.0	1.7	16	LC
69K24H	90.0	89.5	83.8	86.9	87.6	-0.35	4.5	2.9	88.2	-0.16	4.3	3.1	16	LC
6UHR2U	93.9	91.4	93.5	93.6	93.1	0.97	4.2	1.1	92.8	1.07	4.3	1.1 L	8	LD
73ELW7	99.0 *	105.6 XH	95.4	92.4 L	98.1	2.16 *	4.9	5.7 H	87.8	-0.25	6.5	8.8 H	12	LC
7C4DGD	88.8	89.2	89.2	88.8	89.0	-0.01	5.3	0.2 L	88.7	-0.01	4.6	0.8 L	16	LD
7PQKEE	87.0	86.1	86.6	84.1	85.9	-0.73	3.6	1.3	86.5	-0.61	3.9	1.6	16	LD
82EY2E	88.5	89.1	96.8	100.0 *	93.6	1.10	4.6	5.7 H	95.4	1.75	5.0	3.4	16	LX
8UEJAL	86.7	93.0	88.8	91.9	90.1	0.26	3.6	2.9	86.3	-0.66	3.7	3.7	16	EM
9PGMXZ	92.5	92.6	92.1 L	93.5 L	92.7	0.87	2.5	0.6	91.5	0.71	2.5	1.2	16	LD
APFARH	86.7	93.4	90.9	87.8	89.7	0.16	3.2	3.1	89.4	0.16	3.4	2.8	16	TH
AQ6FBU	83.3	82.9	76.7 *	73.4 X	79.1	-2.37 *	3.7	4.8	84.8	-1.06	4.2	6.8	16	LD
AVMHFE	89.3	88.4	90.4	87.8	89.0	-0.01	3.9	1.1	90.3	0.41	3.9	1.6	16	LD
B94XWJ	90.3	89.1	90.8	92.0	90.6	0.36	3.6	1.2	91.0	0.59	3.6	1.1 L	16	LD
DEMX7F	87.1	85.2	89.1	86.9	87.1	-0.46	4.6	1.6	86.2	-0.68	4.6	4.8	15	XX
EEGXPD	58.5 XH	64.3 XH	91.7	No Data	71.5	-4.17 X	9.2	17.7 H	88.6	-0.04	5.7	11.7 H	14	LZ
F2M92Q	94.1	93.1	92.5	93.7	93.3	1.03	3.5	0.7	92.9	1.08	3.7	1.6	16	LZ
F2NVMB	88.3	86.3	84.2	88.9	86.9	-0.49	3.7	2.1	87.9	-0.23	3.9	2.7	16	LD
F3GWJL	90.4	87.0	90.5	89.7	89.4	0.09	3.9	1.6	92.0	0.85	4.2	3.4	16	EM
F6LJYC	95.1	95.7 L	88.6	94.3	93.5	1.06	3.5	3.3	93.5	1.26	3.3	2.2	12	LD
GTB6WD	87.0	86.9	85.1	88.0	86.8	-0.54	3.7	1.2	87.9	-0.23	3.6	1.3	16	LD
H7FU7Y	88.2	87.0	87.6	86.8	87.4	-0.39	4.3	0.6	86.8	-0.52	3.6	1.3	16	LD
HXYBNK	78.8 *H	94.4	90.6	83.6	86.8	-0.52	6.4	7.0 H	87.4	-0.37	6.3	6.2	16	MB
J7AYYX	90.2	90.6	88.9	89.2	89.7	0.16	3.2	0.8	89.9	0.30	3.0	1.9	16	TH
JTXRYQ	97.0	100.8 *	100.1 *	97.0	98.7	2.31 *	4.1	2.0	90.7	0.52	6.4	13.4 H	16	LC
KHH2XZ	98.4 *	97.5 *	97.5	96.0	97.3	1.98 *	4.0	1.0	97.7	2.37 *	4.3	2.3	16	LD
KTHU67	88.4	91.0	93.0	94.0	91.6	0.61	3.9	2.5	90.7	0.50	4.5	2.3	8	LC
L7JJ27	81.6	80.4	80.8	80.7	80.9	-1.93 *	3.3	0.5	81.2	-2.02 *	4.0	1.5	16	EM
LHFM98	82.0	79.2 *H	83.6	87.1	83.0	-1.44	4.8	3.3	83.3	-1.45	3.9	3.8	16	LZ
MTPQQM	87.1	90.2	97.9 *	97.3	93.1	0.98	3.7	5.3 H	93.5	1.26	3.6	4.0	16	LD

Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42D3

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
N2D2C2	80.9	80.0 *	83.1	82.2	81.6	-1.78	2.9	1.4	82.7	-1.61	3.9	2.1	16	EN
NJV374	86.6	88.1	84.8	81.9 H	85.4	-0.87	4.9	2.7	84.7	-1.07	5.6	4.2	16	LZ
PCDUKT	97.6	90.3 L	91.4 L	92.8	93.0	0.96	2.1	3.2	92.8	1.06	2.4	2.3	16	TD
PCGCKC	84.9	86.3	88.4	89.3	87.2	-0.44	4.2	2.0	86.2	-0.68	4.0	2.8	16	EM
PUWPYZ	83.3	86.2	83.2	85.9	84.7	-1.04	3.7	1.6	85.1	-0.98	3.6	2.3	16	LD
Q7NTHK	89.2	89.2	89.0	89.2	89.1	0.03	4.4	0.1 L	90.1	0.34	3.3	1.4	16	LZ
Q9DT4W	91.1	89.8	84.7	84.5	87.5	-0.35	4.4	3.4	87.7	-0.28	4.1	2.6	15	LG
RD269Q	78.3 *	64.0 X	66.9 X	77.7 *H	71.7	-4.11 X	5.1	7.3 H	79.2	-2.54 *	4.9	10.8 H	16	MB
T4CQTR	85.2	80.6	84.2	87.8 H	84.5	-1.09	6.0	3.0	93.9	1.36	5.3	7.4	16	LC
UBN8ZR	87.6	89.2	87.1	87.5	87.9	-0.27	3.9	0.9	85.4	-0.90	4.1	2.3	16	LC
UFFLEZ	88.8	89.3	88.1	88.5	88.7	-0.08	3.7	0.5	87.8	-0.26	3.5	1.2	12	LD
UXF96Z	88.9	89.8	89.3	89.6	89.4	0.10	3.3	0.4 L	90.2	0.39	3.8	1.4	16	LD
VDAH4P	91.9	89.7	91.5	91.5 L	91.2	0.51	2.8	1.0	90.1	0.35	4.0	2.5	16	LC
VQUVHK	89.5	90.2	90.3	89.5	89.9	0.21	3.9	0.5	90.6	0.48	4.0	1.3	16	LC
W4Z2FP	87.1	89.2	84.6	86.5	86.9	-0.52	4.3	1.9	89.1	0.07	3.8	2.7	16	LC
Z92LN7	95.9	99.0 *	95.4	96.0	96.6	1.80	4.2	1.6	96.0	1.92	4.4	1.5	8	TH
ZAVA72	88.8	86.3	86.6	87.8	87.4	-0.39	3.1	1.1	86.3	-0.67	3.6	2.3	16	LC
ZLQF7Q	87.1	86.0	85.1	88.8	86.7	-0.54	3.3	1.6	88.3	-0.12	4.0	2.1	16	LD

Consensus (All Labs) Results

Wk Mean	88.74	88.88	88.77	89.30	Month Mean	89.02	Grand Mean	88.77
Avg SDr	3.84	3.97	3.98	4.15	Avg SD	3.99	Avg SD	4.17
SD btwn Labs	4.69	4.48	4.66	4.48	SD btwn Labs	4.20	SD btwn Labs	3.78
Labs Incld	52	50	52	51	SD btwn Wks	2.52	SD btwn Wks	4.14
Labs Excld	1	3	1	1	Labs Incld	51	Labs Incld	53
Labs not Rcvd	0	0	0	1				

Key to Instrument Codes Reported by Participants

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

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2RUN3L	77.1	74.0	73.0	76.3	75.1	-0.75	3.2	1.9	75.2	-0.89	3.9	1.8	12	LD
2YPR7H	73.5	71.4 *	71.2	72.2	72.1	-1.45	2.7	1.0	71.2	-2.11 *	2.5	2.1	12	TU
33LRNQ	81.7	81.4	81.6	81.9	81.6	0.75	3.8	0.2 L	81.3	0.92	3.8	0.6 L	12	LD
34HBN8	78.1	77.8	77.0	76.0	77.2	-0.27	3.4	1.0	77.6	-0.18	3.5	1.9	12	TH
36NVAL	76.4	79.3	83.1	78.7	79.4	0.23	3.2	2.8	78.1	-0.02	4.0	3.0	12	LC
3ZJWZG	84.8	83.1	83.4	83.7	83.7	1.23	3.5	0.7	82.7	1.34	3.6	1.5	12	LD
4MRKAP	74.6	77.0	75.2	74.7	75.4	-0.70	2.5	1.1	75.4	-0.85	3.4	2.1	12	LC
69K24H	77.9	75.6	78.0	78.6	77.5	-0.20	3.9	1.3	77.6	-0.17	4.8	1.7	12	LC
6UHR2U	82.5	83.6	82.8	81.4	82.6	0.96	3.4	0.9	82.6	1.31	3.4	0.9 L	4	LD
73ELW7	79.9	81.3 H	80.9 H	74.5	79.2	0.17	5.4	3.2	75.4	-0.85	6.4	4.2	12	LC
7C4DGD	78.9	78.8	78.9	78.5	78.8	0.09	3.3	0.2 L	78.3	0.02	4.0	0.4 L	12	LD
7PQKEE	76.0	76.2	76.8	77.1 H	76.5	-0.43	4.5	0.5	77.4	-0.26	4.1	1.2	12	LD
82EY2E	77.8 H	79.8 H	85.2	88.5	82.8	1.02	6.0	4.9	84.3	1.83	6.0	3.5	12	LX
8UEJAL	72.6	76.4	75.6	80.7	76.3	-0.48	4.0	3.3	75.7	-0.76	3.2	2.8	12	EM
9PGMXZ	81.2 L	81.5	82.0 L	82.2 L	81.7	0.77	1.5	0.4 L	81.4	0.96	2.0	0.6 L	12	LD
APFARH	73.2	77.1	79.0	75.6	76.2	-0.50	2.7	2.4	75.5	-0.80	3.6	1.6	12	TH
AQ6FBU	72.2	65.2 X	67.6 *	62.5 X	66.9	-2.65 *	3.6	4.1	71.3	-2.06 *	3.7	6.7	12	LD
AVMHFE	80.0	78.2	81.5 L	80.5	80.0	0.38	2.6	1.4	80.5	0.68	3.0	1.3	12	LD
B94XWJ	80.2	80.1	79.9	78.4	79.7	0.29	3.3	0.8	78.7	0.14	3.4	1.2	12	LD
DEMX7F	75.1	80.5	77.6	79.2	78.1	-0.08	4.4	2.3	75.9	-0.69	5.3	6.4	12	XX
EEGXPD	65.1 *H	59.4 XH	83.5	No Data	69.3	-2.08 *	9.0	12.6 H	79.9	0.52	5.4	8.9 H	11	LZ
F2M92Q	82.7	83.1	83.8	85.0	83.7	1.21	3.0	1.0	83.4	1.55	3.1	1.9	12	LZ
F2NVMB	77.8	79.2	78.1	21.6 XL	64.2	-3.27 X	3.5	28.4 H	73.6	-1.38	3.3	16.4 H	12	LD
F3GWJL	80.9	83.4	82.2	82.0	82.1	0.86	3.6	1.0	82.7	1.35	3.6	1.5	12	EM
F6LJYC	84.9	82.1	80.5	84.1 L	82.9	1.04	2.5	2.0	80.7	0.76	3.5	2.2	12	LD
GTB6WD	76.5	76.0	75.8	77.0	76.3	-0.48	3.3	0.5	77.7	-0.17	3.0	1.2	12	LD
H7FU7Y	79.0	76.3	75.3	76.3	76.7	-0.38	2.5	1.6	76.8	-0.42	2.8	1.2	12	LD
HXYBNK	72.1	85.5 *H	80.0	72.4 H	77.5	-0.21	5.5	6.5 H	76.2	-0.61	6.1	4.5	12	MB
J7AYYX	74.6	74.6	74.6	76.5 L	75.1	-0.76	2.6	0.9	77.4	-0.24	2.6	1.9	12	TH
JTXRYQ	90.1 *	89.3 X	89.7 *	91.6 *	90.2	2.71 *	3.0	1.0	82.2	1.21	5.3	11.8 H	12	LC
KHH2XZ	89.1 *	89.0 X	88.8	88.9 *	89.0	2.44 *	4.1	0.1 L	89.0	3.24 X	3.6	0.9 L	12	LD
KTHU67	76.6	81.0	82.4	75.8	78.9	0.13	4.3	3.2	78.9	0.22	4.3	3.2	4	LC
L7JJ27	71.5	72.1 L	69.6	68.3 *	70.4	-1.84	2.8	1.8	71.2	-2.12 *	3.3	1.3	12	EM
LHFM98	71.5	73.2	71.4	76.5	73.2	-1.21	3.9	2.4	71.1	-2.15 *	4.0	2.5	12	LZ
MTPQQM	77.8	75.1	85.2	81.5	79.9	0.34	3.8	4.4	80.7	0.74	3.6	3.4	12	LD

Containerboard Interlaboratory Testing Program

Analysis 217

Ring Crush, 35 lb Linerboard - 35E1

TAPPI Official Test Method T822

WebCode	Weekly Means Week 1	Week 2	Week 3	Week 4	Monthly Results Mean	CPV	SD	SD Wks	Cumulative Results Mean	CPV	SD	SD Wks	Wks	Inst
N2D2C2	77.2	75.8	74.4	76.6	76.0	-0.55	2.8	1.2	75.5	-0.82	3.0	1.1	12	EN
NJV374	77.8	77.1	79.9	81.7	79.1	0.16	2.8	2.1	76.5	-0.50	4.5	4.1	12	LZ
PCDUKT	70.5 L	74.0	74.0	71.1	72.4	-1.38	3.0	1.8	74.1	-1.25	2.7	2.4	12	TD
PCGCKC	78.0	80.7	80.3	80.4	79.9	0.34	3.5	1.3	79.6	0.41	3.0	1.4	12	EM
PUWPYZ	76.2	77.4	74.9	73.6	75.5	-0.66	3.0	1.6	76.4	-0.54	3.2	1.5	12	LD
Q7NTHK	92.4 X	92.4 X	92.1 *	92.1 *H	92.2	3.19 X	4.0	0.2 L	83.1	1.47	3.2	6.8	12	LZ
Q9DT4W	81.5	80.6	78.4	78.2	79.7	0.29	3.4	1.6	78.7	0.14	3.5	2.1	11	LG
RD269Q	65.5 *	56.1 X	51.4 X	62.9 X	59.0	-4.47 X	3.8	6.4 H	61.1	-5.13 X	5.0	5.2	12	MB
T4CQTR	73.8 H	74.0 H	75.7 H	73.1	74.2	-0.98	6.3	1.1	81.8	1.08	4.4	6.2	12	LC
UBN8ZR	79.2	78.1	78.9	81.7	79.5	0.25	3.8	1.6	78.7	0.14	3.7	1.5	12	LC
UFFLEZ	81.4	79.6	79.8	79.8	80.1	0.40	2.1	0.8	79.3	0.33	2.6	1.6	12	LD
UXF96Z	81.0	81.2	80.3	82.2 L	81.2	0.64	2.4	0.8	80.3	0.63	3.2	1.1 L	12	LD
VDAH4P	79.1	78.0	91.5 *	81.5	82.5	0.95	3.4	6.2 H	81.4	0.97	3.4	3.8	12	LC
VQUVHK	81.5	80.7	80.9	81.8	81.2	0.65	3.5	0.5	81.7	1.04	3.5	1.3	12	LC
W4Z2FP	77.1	75.2	75.6	76.1	76.0	-0.55	3.5	0.8	76.8	-0.42	3.2	1.3	12	LC
Z92LN7	82.5	79.2	80.7	77.8	80.1	0.39	3.7	2.0	80.1	0.56	3.7	2.0	4	TH
ZAVA72	79.0	78.5	76.8	78.3	78.1	-0.06	3.7	1.0	77.7	-0.17	3.2	1.5	12	LC
ZLQF7Q	79.4 L	78.5	77.9 H	77.2	78.2	-0.04	3.9	1.0	78.5	0.10	3.5	0.7 L	12	LD

Consensus (All Labs) Results

Wk Mean	77.78	78.37	79.29	79.14	Month Mean	78.39	Grand Mean	78.20
Avg SDr	3.82	3.65	3.66	3.74	Avg SD	3.78	Avg SD	3.81
SD btwn Labs	4.83	3.23	5.08	4.88	SD btwn Labs	4.35	SD btwn Labs	3.33
Labs Incld	52	47	52	49	SD btwn Wks	2.86	SD btwn Wks	4.11
Labs Excld	1	6	1	3	Labs Incld	50	Labs Incld	51
Labs not Rcvd	0	0	0	1				

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42D3

TAPPI Official Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2RUN3L	21.3	22.7	21.7	22.4	22.0	-0.52	1.7	0.6	22.4	-0.11	1.8	0.7	16	LA
3293HT	22.4 H	23.0	22.2	21.9	22.4	-0.16	2.2	0.5	22.1	-0.37	2.0	0.5	16	LW
33LRNQ	22.8	22.9	22.6	22.7	22.7	0.20	1.7	0.1 L	22.7	0.20	1.9	0.2 L	16	LA
34HBN8	22.0 L	22.2 L	22.1 L	22.2 L	22.1	-0.40	1.0	0.1 L	22.2	-0.32	1.0	0.3	16	TT
36NVAL	23.5	21.3	22.7	24.5	23.0	0.45	2.1	1.3	23.1	0.56	2.0	0.9	16	LA
3ZJWZG	23.0	23.5	22.7	23.5	23.2	0.60	2.0	0.4	23.7	1.18	1.0	1.0	16	LU
48V8T9	23.9	24.4	22.9	24.4	23.9	1.32	2.1	0.7	24.0	1.43	2.3	0.7	12	XX
4MRKAP	21.6	22.0	21.3	22.6	21.9	-0.66	1.8	0.6	22.6	0.12	2.1	0.7	16	LW
69K24H	23.8	23.3	23.8	24.1	23.7	1.15	2.1	0.3	24.1	1.57	2.1	0.6	16	LW
73ELW7	24.4	24.1	24.7 *	24.8 *	24.5	1.91	2.3	0.3	24.2	1.69	2.2	0.6	12	LU
7PQKEE	23.6	22.2	22.2	22.4	22.6	0.05	1.8	0.6	22.4	-0.13	1.6	0.7	16	LY
8UEJAL	23.8	23.8	24.1	23.2	23.7	1.15	1.8	0.4	23.1	0.61	1.8	1.1	16	LZ
9H2Y7J	31.3 X	30.8 X	29.9 XL	30.5 XL	30.6	7.88 X	1.6	0.6	41.1	18.42 X	2.1	7.9 H	12	LA
9PGMXZ	20.9	21.6	21.5	20.9	21.2	-1.30	1.8	0.4	21.2	-1.35	1.7	0.3	16	LY
APBRRY	22.5 L	22.4 L	22.8 L	22.6 L	22.6	0.06	0.8	0.2 L	22.4	-0.10	0.9	0.4	16	TT
APW4Q8	22.7	21.9	23.1	23.1	22.7	0.14	2.1	0.6	22.4	-0.11	1.9	0.7	16	LA
AVMHFE	23.7	23.2	22.3	22.5	22.9	0.36	1.8	0.6	22.6	0.04	2.0	0.5	16	LY
B94XWJ	21.8	22.6	22.1	21.3	22.0	-0.58	2.1	0.5	22.4	-0.09	2.0	0.7	16	LY
CTP339	21.8	20.7	20.4	18.6 X	20.3	-2.15 *	2.3	1.3	20.8	-1.72	1.2	1.1	16	LW
DEL6BT	23.6	22.6	21.3	23.5	22.7	0.17	1.9	1.1	21.7	-0.83	2.0	1.3	16	XX
DEMX7F	18.9 X	19.8 *	22.3 L	37.6 X	24.7	2.07 *	1.7	8.8 H	23.6	1.04	1.4	4.0 H	16	XX
DHHNED	23.4	23.9	21.2	21.7	22.6	0.01	2.0	1.3	21.9	-0.58	1.7	1.3	16	XX
EEGXPD	20.8	20.5 *	21.1	No Data	20.8	-1.72	1.9	0.3	21.0	-1.54	1.9	0.6	14	LW
F2NVMB	22.6	23.5	22.1	21.5	22.4	-0.12	2.2	0.8	22.7	0.19	1.8	0.9	16	LA
F3GWJL	22.4	23.4	21.7	22.7	22.5	-0.03	1.9	0.7	22.3	-0.24	1.4	0.6	8	TT
F6LJYC	23.2	23.3	22.8	22.9	23.1	0.50	1.4	0.2 L	23.1	0.54	1.3	0.2 L	12	LH
GTB6WD	21.2	21.5	20.8 L	22.3	21.5	-1.07	1.4	0.6	21.7	-0.77	1.4	0.7	16	BK
H7FU7Y	21.3	22.0	21.7	23.2	22.1	-0.49	1.8	0.8	20.8	-1.72	2.3	1.2	16	LA
HXYBNK	22.2	23.3	22.4	23.5 L	22.9	0.32	2.0	0.6	22.6	0.10	1.8	0.7	16	LA
JB8B4B	24.3	23.1	23.1	22.7	23.3	0.74	2.0	0.7	23.6	1.05	2.2	0.7	16	LH
KRLC6Q	25.3 *	24.3	24.7 *	23.9 L	24.6	1.98 *	2.0	0.6	24.6	2.05 *	2.1	0.7	16	LZ
KTHU67	24.7 H	25.9 XH	24.2 H	23.9 H	24.7	2.07 *	4.6	0.9	24.7	2.19 *	3.4	0.9	8	LH
L6PZVY	22.0	22.5	22.0	22.2	22.2	-0.37	1.9	0.3	22.6	0.05	2.0	1.5	16	LA
LHFM98	21.6	21.8	20.3	21.2	21.2	-1.29	1.9	0.7	21.4	-1.10	1.8	0.6	16	LZ
LJLAH6	25.4 *	23.8	24.9 *H	23.3	24.3	1.76	2.2	1.0	24.7	2.12 *	2.2	1.1	16	LH

Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42D3

TAPPI Official Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
MTPQQM	22.9	21.8	25.1 *	24.0	23.4	0.86	1.9	1.4	23.2	0.69	2.0	1.1	16	LZ
N2D2C2	20.8	21.9	21.4	21.0	21.3	-1.24	1.9	0.5	21.3	-1.19	1.9	0.5	16	LY
NJV374	20.5 L	22.0 H	20.4	22.4	21.3	-1.21	2.0	1.0	21.9	-0.63	2.0	1.4	16	LA
NRRX7M	21.9	20.9	22.4	23.5	22.2	-0.36	2.0	1.1	22.9	0.41	2.0	1.0	12	LU
PUWPYZ	21.9	21.6	21.7	21.3	21.6	-0.89	1.9	0.2	21.9	-0.63	1.8	0.7	16	LU
Q9DT4W	22.7	21.3	22.4	21.9	22.1	-0.43	2.2	0.6	21.7	-0.78	2.0	0.6	15	LU
T4CQTR	20.3	22.0	22.3	21.0	21.4	-1.12	1.8	0.9	22.4	-0.14	0.9	1.4	16	LW
UBN8ZR	23.1	22.6	22.6	22.7	22.7	0.19	1.8	0.2 L	22.7	0.18	1.7	0.5	16	XX
UFFLEZ	21.8 L	22.5	22.9	20.7	22.0	-0.55	1.9	1.0	22.1	-0.39	1.7	0.6	16	LA
UXF96Z	22.7	22.7	23.0	23.0	22.8	0.28	1.9	0.2 L	22.9	0.36	2.0	0.5	16	LA
VDAH4P	21.6	23.5	21.9	22.1	22.3	-0.27	1.7	0.9	20.9	-1.56	1.3	1.3	16	LA
VQUVHK	22.5	22.0	22.1	22.7	22.3	-0.23	1.6	0.3	22.4	-0.13	1.9	0.4	16	LU
W4Z2FP	21.3	22.1 L	22.2	21.8	21.9	-0.68	2.2	0.4	22.9	0.34	1.4	1.0	16	LA
X3JAYT	23.1	23.4	23.6	22.9	23.3	0.69	2.0	0.3	21.9	-0.62	1.6	0.9	16	XX
Z92LN7	22.2	21.6	20.4 L	21.1	21.3	-1.19	1.5	0.8	21.0	-1.55	1.0	0.8	8	TT

Consensus (All Labs) Results

Wk Mean	22.55	22.49	22.36	22.60	Month Mean	22.55	Grand Mean	22.51
Avg SDr	2.02	1.91	2.07	1.93	Avg SD	1.99	Avg SD	1.84
SD btwn Labs	1.21	1.03	1.16	1.02	SD btwn Labs	1.02	SD btwn Labs	1.01
Labs Incld	48	48	49	46	SD btwn Wks	1.44	SD btwn Wks	1.01
Labs Excld	2	2	1	3	Labs Incld	49	Labs Incld	49
Labs not Rcvd	0	0	0	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 225

STFI, 35 lb Linerboard - 35E1

TAPPI Official Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2RUN3L	21.5	22.2	21.8	22.5	22.0	-0.17	1.5	0.4	21.9	-0.26	1.5	0.5	12	LA
3293HT	22.8	22.1	21.1	21.5	21.9	-0.27	1.6	0.7	21.8	-0.30	1.6	0.6	12	LW
33LRNQ	22.0	22.1	22.0	22.2	22.1	-0.08	1.6	0.1 L	21.7	-0.46	1.5	0.4	12	LA
34HBN8	21.8 L	21.5 L	21.8 L	21.9 L	21.7	-0.43	0.8	0.1 L	21.8	-0.34	0.9	0.2 L	12	TT
36NVAL	23.5	23.2	22.5	22.3	22.9	0.74	1.6	0.6	22.4	0.29	1.7	0.7	12	LA
3ZJWZG	22.7	21.6	21.7	22.4	22.1	-0.06	1.4	0.5	22.8	0.73	0.8	1.0	12	LU
48V8T9	23.1	25.2 *	22.8	23.2	23.6	1.50	1.9	1.1	23.6	1.61	1.8	0.8	12	XX
4MRKAP	21.6	22.1	21.2	21.9	21.7	-0.49	1.6	0.4	22.6	0.55	1.7	0.8	12	LW
69K24H	23.9	22.9	23.0	23.5	23.3	1.23	1.9	0.5	23.2	1.10	1.9	0.6	12	LW
73ELW7	23.9	24.8 *	23.7 *	24.8 *	24.3	2.23 *	1.8	0.6	24.1	2.08 *	1.7	0.7	12	LU
7PQKEE	21.8	21.9	21.6	22.3	21.9	-0.27	1.7	0.3	21.8	-0.33	1.6	0.8	12	LY
8UEJAL	21.8	22.7	23.5 *	24.1	23.0	0.92	1.6	1.0	22.7	0.67	1.7	1.0	12	LZ
9H2Y7J	20.8 L	20.6 L	22.3 L	21.0 L	21.2	-1.00	0.9	0.8	28.0	6.19 X	1.0	7.3 H	8	LA
9PGMXZ	22.0 L	20.8	21.6	20.7	21.3	-0.93	1.3	0.6	20.8	-1.42	1.4	0.6	12	LY
APBRRY	21.8 L	21.6 L	21.9 L	21.8 L	21.8	-0.39	0.8	0.1 L	21.9	-0.22	0.8	0.2 L	12	TT
APW4Q8	21.9	22.3	22.1	22.3	22.1	-0.03	1.7	0.2	22.2	0.12	1.8	0.6	12	LA
AVMHFE	23.2	21.7	22.0	22.3	22.3	0.13	1.5	0.6	22.0	-0.12	1.6	0.5	12	LY
B94XWJ	21.6	22.4	21.8	21.4	21.8	-0.36	1.6	0.4	22.2	0.10	1.6	0.6	12	LU
CTP339	21.4	21.8	21.4	20.9 H	21.4	-0.80	2.9	0.4	22.2	0.10	1.7	1.5	12	LW
DEL6BT	22.8	22.2	21.9	23.0	22.5	0.36	1.8	0.5	22.0	-0.10	1.7	0.7	12	LY
DEMX7F	19.1 *L	21.8	22.0	28.8 X	22.9	0.83	1.8	4.1 H	22.1	-0.05	1.0	2.4 H	12	XX
DHHNED	23.8	23.5	22.3	23.5	23.3	1.18	2.0	0.7	22.7	0.60	1.8	0.8	12	XX
EEGXPD	20.5	19.6 *	20.1 *	No Data	20.1	-2.20 *	1.5	0.5	20.9	-1.26	1.7	0.8	11	LW
F2NVMB	22.3	21.9	23.3	21.6	22.3	0.13	1.7	0.7	22.3	0.15	1.2	0.6	12	LA
F3GWJL	21.6 L	22.3	22.3	21.8	22.0	-0.15	1.7	0.3	22.0	-0.10	1.7	0.3	4	TT
F6LJYC	22.7	22.6	22.7	22.4	22.6	0.45	1.4	0.2	22.7	0.66	1.4	0.2	12	LH
GTB6WD	21.1	20.8	20.8 L	21.5	21.1	-1.15	1.2	0.4	21.0	-1.12	1.4	0.5	12	BK
H7FU7Y	20.4	21.9 L	22.0	21.0	21.3	-0.87	1.1	0.8	20.5	-1.67	1.5	0.7	12	LA
HXYBNK	20.8	23.2	22.3	22.8	22.3	0.15	1.6	1.0	21.9	-0.21	1.7	0.7	12	LA
JB8B4B	23.8 L	23.2	21.8	23.4 L	23.0	0.92	1.3	0.8	23.4	1.40	1.7	1.0	12	XX
KRLC6Q	24.4 *H	25.0 *H	24.4 XH	23.9	24.4	2.38 *	6.1	0.5	24.3	2.32 *	3.8	1.1	12	LZ
KTHU67	25.0 *H	25.4 *H	22.7 H	22.8 H	24.0	1.91	3.8	1.4	24.0	1.96 *	3.8	1.4	4	LH
L6PZVY	21.1 L	22.3	21.7	21.2	21.6	-0.58	1.5	0.6	22.2	0.09	1.5	1.1	12	LA
LHFM98	21.4	20.5	21.2	21.5	21.1	-1.06	1.5	0.4	21.1	-1.04	1.7	0.4	12	LZ
LJLAH6	22.7	24.1	24.6 XH	24.2 *	23.9	1.83	2.1	0.8	24.3	2.35 *	2.0	0.7	12	LH

Containerboard Interlaboratory Testing Program

Analysis 225

STFI, 35 lb Linerboard - 35E1

TAPPI Official Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
MTPQQM	21.8	22.2	24.8 X	24.1	23.2	1.13	1.8	1.4	22.9	0.79	1.8	1.1	12	LZ
N2D2C2	20.8	21.3	20.5	20.7	20.8	-1.39	1.7	0.4	21.1	-1.10	1.7	0.6	12	LY
NJV374	19.9	21.0	21.3	21.0 L	20.8	-1.41	1.4	0.6	21.0	-1.15	1.5	1.1	12	LA
NRRX7M	23.1	24.1	22.8	22.0	23.0	0.88	1.9	0.8	22.8	0.74	1.8	0.6	12	LU
PUWPYZ	21.4	21.7	21.3	21.6	21.5	-0.69	1.6	0.2	21.4	-0.70	1.5	0.3	12	LU
Q9DT4W	21.9	21.0	21.7	21.9	21.6	-0.56	1.5	0.4	21.5	-0.68	1.5	0.5	11	LW
T4CQTR	21.5 L	21.3	22.1	21.8	21.7	-0.50	1.7	0.4	21.6	-0.52	1.0	0.6	12	LW
UBN8ZR	22.7	22.7	22.8	22.2	22.6	0.45	1.5	0.3	22.1	0.04	1.3	0.4	12	ID
UFFLEZ	21.8	22.3	22.8	20.1 *	21.8	-0.42	1.6	1.2	21.9	-0.20	1.6	0.7	12	LW
UXF96Z	21.4	21.7	21.1	21.4	21.4	-0.79	1.5	0.2	21.7	-0.43	1.7	0.6	12	LA
VDAH4P	22.3	21.7 L	21.4	21.7 L	21.8	-0.39	1.1	0.4	20.3	-1.85	0.9	1.2	12	LA
VQUVHK	22.9	21.9	21.7	22.0	22.1	-0.03	1.4	0.5	22.2	0.06	1.6	0.3	12	LU
W4Z2FP	20.3	21.6	20.9	21.2	21.0	-1.21	1.8	0.5	21.1	-1.10	1.4	0.6	12	LA
X3JAYT	22.4	22.3	23.3	22.4	22.6	0.45	1.8	0.5	21.4	-0.72	1.8	1.0	12	XX
Z92LN7	21.2	20.3	21.5	21.3	21.1	-1.12	1.8	0.5	21.1	-1.07	1.8	0.5	4	TT

Consensus (All Labs) Results

Wk Mean	22.04	22.22	21.96	22.14	Month Mean	22.15	Grand Mean	22.11
Avg SDr	2.04	1.78	1.74	1.75	Avg SD	1.88	Avg SD	1.71
SD btwn Labs	1.18	1.23	0.78	1.03	SD btwn Labs	0.95	SD btwn Labs	0.95
Labs Incld	50	50	47	48	SD btwn Wks	0.86	SD btwn Wks	0.82
Labs Excld	0	0	3	1	Labs Incld	50	Labs Incld	49
Labs not Rcvd	0	0	0	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 (was 52M)	LZ	L&W (model not specified)
TT	TMI Short Span Compression, 17-34 (MB K455)	XX	Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program

Analysis 228

Roughness - Stylus Method, 56 lb Linerboard - 56A

TAPPI Official Test Method T575

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
33LRNQ	170.6	0.20	14.27		170.4	0.05	0.42 L	4	XX
36NVAL	157.0	-0.60	21.67		158.3	-0.73	5.47	4	LA
4MRKAP	168.5	0.07	4.84	L	169.7	0.01	7.16	4	XX
73ELW7	147.6	-1.15	13.30		149.1	-1.32	3.66	3	EV
7PQKEE	178.4	0.65	10.93		176.1	0.42	4.67	4	EV
APW4Q8	165.1	-0.13	16.98		173.3	0.24	9.70	4	LA
DEMX7F	179.8	0.74	28.04		182.0	0.80	14.07	4	EV
EEGXPD	172.7	0.32	12.32		179.8	0.66	6.70	4	EV
HXYBNK	236.2	4.03 X	24.05		225.4	3.61 X	31.57 H	3	LA
KHH2XZ	136.8	-1.78	20.20		143.0	-1.72	8.41	4	EV
KRLC6Q	180.1	0.75	21.63		178.2	0.56	9.39	4	XX
KTHU67	101.3	-3.86 X	5.44	L	101.3	-4.42 X	0.00	1	EV
LHFM98	154.4	-0.75	10.24		148.1	-1.39	19.05	3	EV
MTPQQM	170.3	0.18	26.80		166.7	-0.19	8.98	4	LA
N2D2C2	171.6	0.25	19.38		170.5	0.06	5.61	4	EV
NJV374	110.0	-3.35 X	16.54		118.4	-3.31 X	9.14	4	LA
NRRX7M	136.5	-1.80	11.35		147.5	-1.43	13.94	3	EV
PUWPYZ	179.9	0.74	17.29		179.0	0.61	3.66	4	EV
T4CQTR	185.0	1.04	18.60		185.1	1.01	9.97	4	EV
UFFLEZ	166.5	-0.04	21.51		190.6	1.36	21.27	4	LA
VDAH4P	205.6	2.25 *	49.02	H	197.2	1.79	18.26	4	LA
VK7ACJ	151.3	-0.94	16.91		156.9	-0.82	4.98	3	EV

Consensus (All Labs) Results

Month Mean	167.24	Grand Mean	169.55
Avg SD	20.80	Avg SD Months	10.77
SD btwn Labs	17.09	SD btwn Labs	15.45
Labs Incld	19	Labs Incld	19

Key to Instrument Codes Reported by Participants

EV Emveco Microgage Model 210-R

LA L&W Autoline

XX Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program

Analysis 229

Roughness - Sheffield Method, 42 lb Linerboard - 42D3

TAPPI Official Test Method T538

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2RUN3L	358.4	-0.95	7.35		360.2	-0.81	1.25 L	4	LA
3E2MYJ	351.9	-1.81 *	6.23		355.6	-1.35	3.50	4	LA
647KB6	369.7	0.54	6.57		382.9	1.84 *	23.64 H	4	TS
8UEJAL	391.7	3.44 X	7.50		386.0	2.20 X	5.39	4	XX
9H2Y7J	369.0	0.45	13.74 H		364.4	-0.32	4.82	3	LA
F2NVMB	366.7	0.14	9.15		364.4	-0.32	2.47	4	LA
L6PZVY	362.4	-0.42	8.87		364.6	-0.30	1.62	4	XX
UXF96Z	373.1	0.99	9.16		373.8	0.77	4.43	4	XX
VQUVHK	373.7	1.07	5.21		371.5	0.50	2.85	4	XX

Consensus (All Labs) Results

Month Mean	365.61	Grand Mean	367.16
Avg SD	8.65	Avg SD Months	8.89
SD btwn Labs	7.58	SD btwn Labs	8.57
Labs Incld	8	Labs Incld	8

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 231

Internal Bond, 42 lb Linerboard - 42D

TAPPI Official Test Method T569

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2MCLX2	107.2	0.25	3.42		109.8	0.27	10.05	4	TM
3ZJWZG	107.8	0.29	6.83		106.0	0.04	2.93	4	HZ
73ELW7	83.6	-1.19	10.01		88.5	-0.99	4.47	3	TM
7PQKEE	89.2	-0.85	6.26		88.7	-0.98	6.06	4	XX
F2NVMB	107.3	0.26	6.65		100.9	-0.26	5.30	4	SC
H7FU7Y	114.0	0.67	3.24		114.1	0.52	2.06	4	TM
KHH2XZ	123.6	1.25	13.67	H	120.5	0.90	3.17	4	HY
KRLC6Q	105.4	0.14	6.91		107.6	0.14	3.74	4	TM
L6PZVY	98.2	-0.30	5.93		106.4	0.07	8.24	4	SC
NJV374	101.2	-0.11	5.85		104.7	-0.03	4.03	4	TM
NRRX7M	67.0	-2.20 *	7.65		68.6	-2.16 *	2.60	3	TM
PUWPYZ	85.0	-1.10	3.39		84.0	-1.26	3.08	4	TM
T4CQTR	108.0	0.30	8.37		138.5	1.96 *	25.59 H	4	SC
TULDMZ	91.3	-0.72	8.87		94.1	-0.66	3.32	4	TM
UFFLEZ	141.8	2.36 *	9.12		134.5	1.72	7.17	4	HY
UXF96Z	59.8	-2.64 X	2.05		56.6	-2.87 X	4.61	4	LZ
VDAH4P	116.6	0.83	9.10		120.9	0.92	4.45	4	SC
VQUVHK	114.1	0.67	6.59		113.0	0.46	1.36	4	HY
W4Z2FP	99.0	-0.25	4.58		101.2	-0.24	6.06	4	TM
ZLQF7Q	98.0	-0.31	2.74		98.0	-0.43	0.00	1	XX

Consensus (All Labs) Results

Month Mean	103.07	Grand Mean	105.24
Avg SD	7.30	Avg SD Months	7.81
SD btwn Labs	16.40	SD btwn Labs	16.94
Labs Incld	19	Labs Incld	19

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	100.36	14.80	2.71	15
Modified Scott Bond Mechanics	127.94	19.60	24.87	2

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
33LRNQ	25.8	-0.12	1.10		25.8	-0.28	0.28 L	4
48V8T9	23.2	-1.11	1.92		23.6	-1.27	0.87	3
4MRKAP	27.0	0.34	2.92		26.4	-0.04	2.36	4
69K24H	30.4	1.65	2.30		27.9	0.68	2.25	3
73ELW7	28.7	1.00	1.04		28.0	0.69	1.02	3
7PQKEE	24.2	-0.73	2.59		27.1	0.28	1.96	4
8UEJAL	22.4	-1.42	2.30		29.0	1.14	4.55	4
ALBJL4	22.6	-1.34	2.41		21.8	-2.11 *	2.02	4
APW4Q8	25.8	-0.12	4.30		29.1	1.19	2.37	4
DHHNED	27.4	0.50	3.13		26.8	0.15	0.66	4
EEGXPD	22.8	-1.27	1.64		24.4	-0.94	3.70	4
H7FU7Y	22.7	-1.31	3.68		21.3	-2.31 *	1.10	4
JTXRYQ	28.4	0.88	2.88		26.5	0.01	2.35	4
KRLC6Q	26.6	0.19	0.55 L		28.8	1.07	2.58	4
L6PZVY	28.4	0.88	1.52		26.9	0.21	1.76	4
LHFM98	28.6	0.96	2.51		24.4	-0.91	3.25	4
N2D2C2	26.3	0.08	1.68		26.4	0.00	1.48	4
NJV374	31.2	1.95 *	2.59		27.6	0.53	3.76	4
NRRX7M	24.6	-0.58	2.51		28.8	1.07	3.64	3
PUWPYZ	26.2	0.04	1.30		26.7	0.12	2.50	4
T4CQTR	23.6	-0.96	1.67		24.5	-0.87	0.96	4
UFFLEZ	22.8	-1.27	3.03		24.5	-0.85	1.70	3
UXF96Z	30.4	1.65	0.55 L		29.3	1.27	1.66	4
VDAH4P	26.7	0.21	1.07		28.6	0.98	1.75	4
VQUVHK	26.3	0.07	2.40		24.8	-0.72	2.60	4
X3JAYT	25.6	-0.19	4.51		28.5	0.91	2.14	4

Consensus (All Labs) Results

Month Mean	26.10	Grand Mean	26.43
Avg SD	2.45	Avg SD Months	2.36
SD btwn Labs	2.61	SD btwn Labs	2.22
Labs Incld	26	Labs Incld	26

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

Containerboard Interlaboratory Testing Program

Analysis 237

Air Resistance, 42 lb Linerboard - 42D

TAPPI Official Test Method T460

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
33LRNQ	18.2	-0.22	1.28		18.1	0.07	0.39	4	LA
36NVAL	20.6	1.33	1.63		18.8	0.71	1.40	4	LA
48V8T9	15.9	-1.73	1.36		15.2	-2.36 *	0.73	3	LA
69K24H	17.8	-0.51	1.40		17.2	-0.65	0.67	3	LP
7PQKEE	18.8	0.12	1.14		18.3	0.22	0.68	4	LP
8UEJAL	18.3	-0.17	1.20		18.9	0.73	0.64	4	GA
9PGMXZ	19.2	0.40	0.79		18.3	0.25	0.74	4	LP
AFK9AJ	17.8	-0.52	1.28		16.6	-1.19	1.11	4	LA
ALBJL4	19.8	0.77	2.54		18.9	0.72	1.12	4	GA
AQ6FBU	20.7	1.39	2.95	H	18.3	0.21	2.15 H	4	GG
C3C8NE	19.4	0.55	0.91		18.3	0.26	0.90	4	XX
DEMX7F	17.8	-0.54	1.71		17.0	-0.88	0.61	4	LW
EEGXPD	16.8	-1.17	1.40		17.0	-0.88	1.35	4	XX
F2NVMB	19.3	0.48	0.36	L	19.7	1.40	0.35	4	LA
H7FU7Y	18.9	0.20	2.77	H	18.4	0.33	1.06	4	LA
HTQUCB	19.7	0.70	1.30		17.6	-0.30	1.63	4	LP
KRLC6Q	17.8	-0.51	1.48		17.8	-0.21	1.03	4	TD
LHFM98	18.6	0.02	1.62		17.6	-0.36	0.92	4	LP
NJV374	19.5	0.60	1.50		18.7	0.62	0.79	4	LP
NRRX7M	17.6	-0.65	2.19		16.5	-1.22	1.24	3	LA
Q7NTHK	16.1	-1.62	2.42		17.4	-0.48	0.99	4	XX
T4CQTR	15.5	-2.02 *	1.72		16.1	-1.58	1.18	4	HG
UFFLEZ	21.4	1.84	1.58		20.4	1.98 *	0.86	4	LP
UXF96Z	21.1	1.62	0.97		20.4	2.01 *	0.63	4	LA
VDAH4P	18.3	-0.20	0.84		17.8	-0.13	0.42	4	LA
VQUVHK	17.2	-0.91	1.66		18.3	0.21	1.11	4	TP
ZFXKYR	19.7	0.74	1.85		18.6	0.51	1.04	3	TL

Consensus (All Labs) Results

Month Mean	18.58	Grand Mean	18.00
Avg SD	1.66	Avg SD Months	1.03
SD btwn Labs	1.53	SD btwn Labs	1.19
Labs Incld	27	Labs Incld	27

Key to Instrument Codes Reported by Participants

GA	Gurley Precision #4340 Automatic Densometer	GG	Gurley Precision #4320 Densometer
HG	Technidyne - Hagerty Model #1 and Profile System	LA	L&W Autoline
LP	L&W Air Permeance Tester SE 166	LW	L&W Gurley Densometer, Oil Flotation
TD	TMI Gurley Densometer	TL	Teledyne Gurley Densometer #4110, Oil Flotation
TP	Technidyne Profile/ plus Roughness & Porosity	XX	Instrument make/model not specified by lab

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2YPR7H	59.4 H	59.9	61.0	62.1	60.6	-0.12	6.1	1.2	61.6	0.48	4.8	1.6	8	TU
33LRNQ	61.1	60.7	61.1	60.9	61.0	0.10	2.1	0.2 L	61.2	0.22	2.1	0.3 L	8	LD
3AM788	64.5 *	65.0 *	64.5	65.6 *	64.9	2.60 *	2.5	0.5	64.9	2.39 *	2.5	0.5	4	TM
3BGUP3	62.1	59.0	63.5	61.6	61.5	0.46	3.2	1.9	61.5	0.44	3.2	1.9	4	LD
3ZJWZG	61.6 H	60.6	61.6	62.1 H	61.5	0.43	6.0	0.6	63.0	1.27	6.5	2.9	8	LC
69K24H	61.5	60.4	63.1	63.5	62.1	0.83	3.1	1.4	61.8	0.61	3.3	1.3	8	LC
73ELW7	60.6	59.1	56.6 *	59.6 L	59.0	-1.15	3.8	1.7	59.0	-1.04	3.8	1.7	4	LC
7BP4CJ	60.4	60.9	59.9	61.5	60.7	-0.08	3.2	0.7	61.1	0.16	3.0	0.7	8	LC
7C4DGD	61.2	61.4	61.2	61.6	61.3	0.33	4.2	0.2 L	61.4	0.34	3.7	0.2 L	8	LD
7PQKEE	59.2 L	61.3	60.7	57.8	59.8	-0.65	3.0	1.6	60.6	-0.10	3.1	1.5	8	LZ
82EY2E	56.2 *	59.2	61.3	57.0	58.4	-1.50	3.1	2.3	58.8	-1.13	2.7	1.9	8	LD
8UEJAL	61.6	56.6 *	56.1 *	59.0	58.3	-1.58	3.2	2.5	59.1	-0.96	3.2	1.9	8	LZ
9H2Y7J	57.8	63.4 H	60.1	63.7 H	61.2	0.28	5.7	2.8 H	62.3	0.89	6.7	2.7	8	XX
AFK9AJ	63.6	66.3 *	62.7	63.6	64.1	2.06 *	3.3	1.6	64.4	2.13 *	3.3	1.5	8	LC
APBRRY	59.6	60.1	59.4	59.9 H	59.8	-0.66	4.6	0.3	59.2	-0.94	4.5	0.8	8	TG
APFARH	60.7	64.0	60.7	59.4	61.2	0.25	2.4	2.0	61.0	0.15	2.5	1.5	8	MB
AVMHFE	62.3	62.9	63.5	61.7	62.6	1.13	3.5	0.8	62.7	1.14	3.3	0.9	8	LD
B94XWJ	59.8	61.1	59.4	61.2	60.4	-0.26	2.9	0.9	60.3	-0.28	3.5	0.9	8	LD
C3C8NE	59.1	59.7	59.3	59.0	59.3	-0.96	2.6	0.3	59.5	-0.72	2.7	0.9	8	LD
CJHAQT	61.1	60.2	63.2	61.9	61.6	0.51	3.4	1.3	61.1	0.18	3.5	1.7	8	LC
DEMX7F	55.0 X	54.4 X	51.3 X	53.7 X	53.6	-4.55 X	3.4	1.6	51.3	-5.49 X	3.6	2.7	8	XX
ETZUKF	61.3	60.8	60.6	59.7	60.6	-0.12	2.8	0.7	60.6	-0.10	2.8	0.7	4	EM
F2M92Q	60.3	60.7	60.2	61.1	60.6	-0.14	3.3	0.4	60.5	-0.15	2.8	0.4	8	XX
F6LJYC	61.6 L	61.6	60.1	59.6 L	60.7	-0.05	2.2	1.0	60.7	-0.04	2.2	1.0	4	LD
HTQUCB	59.1	62.6	59.0	61.2	60.5	-0.20	3.0	1.7	60.4	-0.19	2.9	1.5	8	LD
HXYBNK	57.8	60.1	59.5	58.5	59.0	-1.15	3.4	1.0	58.9	-1.09	3.5	2.4	8	MB
JB8B4B	62.8	60.4	64.1	60.3	61.9	0.71	3.3	1.9	61.7	0.55	3.3	1.4	8	LD
LHFM98	59.6	58.2	58.9	56.7	58.4	-1.54	2.8	1.3	58.5	-1.32	2.8	1.3	8	LZ
MGEFYQ	47.4 X	48.8 X	49.3 X	49.0 X	48.6	-7.68 X	3.5	0.8	47.8	-7.50 X	3.5	1.4	8	TC
MTPQQM	52.5 X	52.8 X	59.6	58.4	55.8	-3.13 X	4.0	3.7 H	57.2	-2.06 *	3.4	3.0	8	LD
N2D2C2	61.3	62.6	61.4	59.0	61.1	0.17	3.0	1.5	60.0	-0.44	3.1	1.6	8	EN
NRRX7M	58.1	60.1	56.0 *	60.3	58.6	-1.37	3.0	2.0	58.6	-1.25	3.0	2.0	4	XX
PCDUKT	60.1 L	62.0 L	62.9 L	62.9 L	62.0	0.73	1.3	1.3	62.3	0.87	1.2	1.4	8	TD
PUWPYZ	57.1	58.6	58.4	60.0	58.5	-1.43	3.4	1.2	59.0	-1.04	3.3	1.7	8	LD
PV9HT3	60.8	60.6	58.5	60.6	60.1	-0.43	2.8	1.1	59.0	-1.06	2.8	1.8	8	TH

Containerboard Interlaboratory Testing Program

Analysis 240

Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM92

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
Q9DT4W	61.4	64.1	62.6	64.5	63.1	1.48	3.3	1.4	62.8	1.16	3.0	1.4	8	LZ
RD269Q	81.9 X	72.8 X	75.7 XH	81.5 XH	77.9	10.84 X	4.9	4.5 H	78.7	10.38 X	4.7	3.4 H	8	MB
TFL8YW	60.6	61.3	61.0	60.0	60.7	-0.04	3.4	0.6	61.1	0.21	3.3	0.7	8	LD
TMKZNH	44.2 XH	42.3 XH	43.1 XH	43.5 XH	43.3	-11.09 X	6.0	0.8	42.6	-10.57 X	9.2	4.0 H	8	LC
UBN8ZR	61.5	60.8	60.9	60.8	61.0	0.12	2.7	0.3	61.3	0.33	2.5	0.9	8	LD
UFFLEZ	58.3	57.3	58.9	58.9	58.3	-1.55	3.6	0.7	58.3	-1.41	3.6	0.7	4	LD
UXF96Z	54.4 X	53.9 X	53.5 X	55.0 *	54.2	-4.17 X	3.0	0.7	54.6	-3.60 X	2.9	1.5	8	LD
VAUQDW	60.6	60.5	60.7	61.4	60.8	-0.01	1.9	0.4	60.9	0.08	1.6	0.3 L	8	LD
VQUVHK	62.6	63.5	61.1	62.0	62.3	0.94	3.6	1.0	62.0	0.69	3.5	1.4	8	LC
W4Z2FP	62.1	62.0	59.9	60.6	61.2	0.22	2.4	1.1	59.4	-0.80	2.7	2.3	8	LC
X3JAYT	64.5 *	64.1	63.2	61.7	63.4	1.63	2.9	1.2	64.0	1.84	3.0	1.3	8	XX
Z92LN7	50.5 X	52.2 X	51.1 X	50.5 X	51.1	-6.14 X	2.6	0.8	48.6	-7.07 X	4.0	2.8	8	TH

Consensus (All Labs) Results

Wk Mean	60.62	61.09	60.64	60.61	Month Mean	60.79	Grand Mean	60.77
Avg SDr	3.65	3.53	3.21	3.15	Avg SD	3.39	Avg SD	3.38
SD btwn Labs	1.84	2.03	2.03	2.09	SD btwn Labs	1.58	SD btwn Labs	1.72
Labs Incld	40	40	41	42	SD btwn Wks	1.33	SD btwn Wks	1.54
Labs Excld	7	7	6	5	Labs Incld	40	Labs Incld	41
Labs not Rcvd	0	0	0	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
TM	TMI/Hinde & Dauch	TU	TMI Universal Crush Tester (TMI K440)
XX	Instrument make/model not specified by lab		

Containerboard Interlaboratory Testing Program

Analysis 250

Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium - CM92

TAPPI Official Test Method T843

Report #581 (B)
February 2018

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
33LRNQ	74.3	73.8	73.5	73.5	73.8	-0.12	2.2	0.4	73.8	-0.18	2.3	0.5	8	LD
3BGUP3	72.4	72.4	74.2	74.8	73.5	-0.26	2.1	1.2	73.5	-0.36	2.1	1.2	4	LD
69K24H	73.6	72.0	74.1	75.6	73.8	-0.09	2.6	1.5	73.3	-0.43	2.5	1.4	8	XX
73ELW7	74.6 H	75.5 H	71.4 H	70.9 H	73.1	-0.43	7.0	2.3 H	66.6	-3.75 X	6.9	7.6 H	8	XX
7BP4CJ	75.2	74.3	74.8	74.0	74.6	0.27	3.3	0.5	75.7	0.77	4.8	1.3	8	LD
C3C8NE	72.6	72.1	72.0	73.1	72.4	-0.74	2.3	0.5	72.5	-0.81	2.4	0.4	8	XX
GTB6WD	71.6	69.3	72.0	70.9	71.0	-1.44	1.8	1.2	71.6	-1.28	2.0	1.3	8	XX
HTQUCB	74.7	75.8	75.5	72.7	74.7	0.32	2.2	1.4	74.5	0.15	2.3	1.1	8	LD
LHFM98	74.5	73.9	73.9	75.2	74.4	0.17	3.1	0.6	74.5	0.15	2.8	0.4	8	LZ
PCDUKT	71.0	70.5	71.0	71.1	70.9	-1.47	1.6	0.3	71.7	-1.24	1.4	1.3	8	TD
Q7NTHK	74.3	73.8 L	74.0 L	73.9	74.0	-0.01	1.2	0.2	73.8	-0.21	1.4	0.8	8	LZ
Q9DT4W	73.8	75.5	73.4	76.4 H	74.8	0.36	3.0	1.4	74.1	-0.02	2.9	1.4	8	LZ
RD269Q	63.0 X	60.7 X	61.4 X	57.8 X	60.7	-6.27 X	1.9	2.2 H	61.7	-6.16 X	2.6	2.0	8	MB
UBN8ZR	70.9	71.0 L	71.4	72.1	71.3	-1.26	1.7	0.6	71.7	-1.23	1.6	0.6	8	LD
UFFLEZ	76.9	76.8	77.8	77.0	77.1	1.46	2.5	0.5	77.1	1.44	2.5	0.5	4	LD
UXF96Z	78.6 *	78.7	78.0 *	78.1	78.3	2.04 *	2.0	0.4	77.4	1.60	1.9	1.8	8	LD
VAUQDW	72.8	73.4	73.5	73.1	73.2	-0.40	1.7	0.3	73.5	-0.32	1.5	0.4	8	LD
VQUVHK	76.7	79.5 *	76.4	77.1	77.4	1.60	2.4	1.4	78.2	1.97 *	2.5	1.4	8	LC

Consensus (All Labs) Results

Wk Mean	74.02	74.01	73.93	74.09	Month Mean	74.01	Grand Mean	74.18
Avg SDr	2.79	3.11	2.84	2.42	Avg SD	2.80	Avg SD	2.43
SD btwn Labs	2.09	2.77	2.09	2.24	SD btwn Labs	2.12	SD btwn Labs	2.03
Labs Incld	17	17	17	17	SD btwn Wks	1.04	SD btwn Wks	1.09
Labs Excld	1	1	1	1	Labs Incld	17	Labs Incld	16
Labs not Rcvd	0	0	0	0				

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 255

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

TAPPI Official Test Method T822

Report #581 (B)
February 2018

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2YPR7H	38.5	38.7	38.5 *	39.6	38.8	-1.89	2.3	0.5	38.8	-1.78	2.3	0.5	8	TU
33LRNQ	44.1	43.1	43.9	43.6	43.7	-0.21	2.3	0.4	43.8	-0.17	2.4	0.3 L	8	LD
3AM788	45.3	43.2	43.7	45.4	44.4	0.03	2.9	1.1	44.4	0.03	2.9	1.1	4	LD
3BGUP3	46.7	46.3	46.7	47.8	46.9	0.90	2.6	0.6	46.9	0.84	2.6	0.6	4	LD
3ZJWZG	45.4	45.3	44.9	46.2	45.5	0.40	2.5	0.5	45.5	0.40	2.6	1.0	8	LD
7C4DGD	44.4	44.7	44.4	44.7	44.6	0.09	3.7	0.2 L	44.9	0.19	3.7	0.3 L	8	LD
82EY2E	47.0	46.1	47.0	47.8	47.0	0.93	2.3	0.7	46.8	0.83	2.8	0.6	8	LZ
8UEJAL	42.0	44.4	42.2	44.9	43.3	-0.33	1.9	1.5	42.0	-0.76	2.3	1.9	8	EM
AFK9AJ	51.3 *	51.8 *	49.2	51.1 *	50.9	2.27 *	1.7	1.1	51.0	2.19 *	1.7	0.9	8	LD
BJ2WMP	39.9	40.7	No Data	40.3	40.3	-1.39	2.6	0.4	41.8	-0.81	2.2	2.8	7	LZ
C3C8NE	42.0	41.4	43.0	41.5	42.0	-0.80	3.6	0.8	42.1	-0.70	3.3	0.7	8	LD
CJHAQT	47.1	48.3	46.9	47.5	47.5	1.10	2.8	0.6	48.3	1.30	2.6	1.4	8	LC
DEMX7F	45.6	48.5	45.7	44.4	46.0	0.61	2.0	1.7	44.0	-0.11	2.4	2.6	8	XX
ETZUKF	44.7 L	44.3 L	44.5 L	43.9 L	44.3	0.01	0.8	0.4	44.3	0.02	0.8	0.4 L	4	LC
F6LJYC	47.2	42.6	44.7	45.7	45.1	0.26	2.0	2.0	45.1	0.25	2.0	2.0	4	LD
H6GL2L	45.4 L	45.1 L	45.3	44.6	45.1	0.27	1.3	0.4	43.9	-0.12	1.6	1.3	8	WK
HTQUCB	45.6	45.8	47.9	45.9	46.3	0.69	1.9	1.1	45.7	0.47	2.2	1.0	8	LD
J7AYYX	44.9	45.4	44.6	44.4	44.8	0.19	2.9	0.4	44.4	0.05	2.5	0.6	8	TH
JB8B4B	47.1	43.6	45.5	44.9	45.3	0.34	2.7	1.4	45.7	0.46	2.7	1.1	8	LD
MGEFYQ	39.0 H	39.2 H	42.2 H	37.9 *	39.6	-1.64	5.8	1.8	39.6	-1.52	5.7	1.4	8	TC
MTPQQM	44.5	43.2	47.0	45.9	45.2	0.30	2.7	1.7	46.1	0.58	2.7	1.6	8	LD
PV9HT3	41.6	41.8	41.4	40.7	41.4	-1.01	1.9	0.5	39.5	-1.57	2.0	2.4	8	TH
R8DEQ3	46.7	46.3	45.0	43.7	45.4	0.39	1.9	1.4	48.1	1.25	2.1	3.2 H	8	LZ
RD269Q	34.8 *	28.9 X	29.0 X	30.4 X	30.8	-4.68 X	3.0	2.8 H	31.8	-4.06 X	2.9	2.9 H	8	MB
TMKZNH	32.0 X	30.1 X	31.8 X	32.6 X	31.6	-4.40 X	3.0	1.1	32.5	-3.83 X	2.8	1.3	8	XX
UXF96Z	46.8	46.1	45.7	45.8	46.1	0.62	2.6	0.5	46.0	0.56	2.5	0.5	8	LD
VQUVHK	45.1	45.6	44.1	43.9	44.6	0.12	3.2	0.8	45.0	0.23	3.2	0.9	8	LC
X8D99H	37.1 H	38.4 H	37.8 *H	38.1 *H	37.8	-2.23 *	6.8	0.6	37.8	-2.10 *	6.8	0.6	4	TX

Consensus (All Labs) Results

Wk Mean	44.06	44.22	44.47	44.23	Month Mean	44.30	Grand Mean	44.29
Avg SDr	2.99	3.12	3.03	2.65	Avg SD	2.94	Avg SD	2.96
SD btwn Labs	3.65	3.09	2.64	3.06	SD btwn Labs	2.89	SD btwn Labs	3.07
Labs Incld	27	26	25	26	SD btwn Wks	1.03	SD btwn Wks	1.46
Labs Excld	1	2	2	2	Labs Incld	26	Labs Incld	26
Labs not Rcvd	0	0	1	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)	WK	Zwick Z005 Crush Tester
XX	Instrument make/model not specified by lab		

Containerboard Interlaboratory Testing Program

Analysis 261

STFI, 26 lb Corrugating Medium - CM92

TAPPI Official Test Method T826

Report #581 (B)
February 2018

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2RUN3L	14.4	15.1	14.4	14.8	14.7	-0.02	0.9	0.4	14.6	-0.29	1.0	0.3	8	LA
33LRNQ	14.7 L	14.7	14.7	14.6	14.7	-0.09	0.8	0.1 L	14.5	-0.53	0.8	0.2 L	8	LB
34HBN8	14.4	14.7 L	14.3	14.8	14.5	-0.40	0.6	0.2	14.5	-0.59	0.6	0.2	8	TT
3AM788	16.1	15.8 H	15.4	15.9	15.8	2.58 *	1.2	0.3	15.8	1.78	1.2	0.3	4	LA
3BGUP3	15.2	15.1	15.6	14.7	15.2	1.08	1.0	0.4	15.2	0.63	1.0	0.4	4	LB
7BP4CJ	14.1	14.5	14.6	15.2	14.6	-0.20	0.9	0.5	14.6	-0.40	0.9	0.4	8	LB
7PQKEE	14.8	14.8	14.5	15.2	14.8	0.30	0.9	0.3	14.6	-0.30	0.9	0.3	8	LB
8UEJAL	15.3	15.3	15.1 H	14.2	15.0	0.64	0.9	0.5	15.0	0.33	1.0	0.4	8	LZ
9H2Y7J	16.6 *	16.0 *L	16.5 *L	16.5 *L	16.4	3.98 X	0.6	0.3	20.6	10.32 X	1.3	4.5 H	8	LZ
AFK9AJ	16.3 *	15.9	16.4 *	16.0	16.2	3.40 X	0.8	0.3	16.1	2.33 *	0.9	0.4	8	LA
DEMX7F	12.4 X	21.4 XH	15.1	20.3 XH	17.3	6.05 X	1.7	4.3 H	16.0	2.10 *	1.4	3.2 H	8	XX
ETZUKF	14.0	14.7	14.4	14.2	14.3	-0.89	1.0	0.3	14.3	-0.87	1.0	0.3	4	LB
F6LJYC	15.0	15.0	15.0	14.7	14.9	0.51	0.9	0.2	14.9	0.20	0.9	0.2 L	4	LH
HTQUCB	14.3	14.2	13.7	14.3	14.1	-1.33	1.0	0.3	14.2	-1.15	0.9	0.4	8	LZ
HXYBNK	14.4	15.3	No Data	15.2	15.0	0.65	1.0	0.5	14.3	-0.86	1.0	0.9	7	LA
MGEFYQ	15.1	14.8	15.1 H	14.5	14.9	0.37	1.2	0.3	14.7	-0.12	1.2	0.2	8	TS
MTPQQM	14.3	14.6	16.2 *	15.9	15.3	1.32	1.0	0.9 H	15.5	1.27	1.2	0.7	8	LZ
PUWPYZ	14.3	14.4	14.1	14.0	14.2	-1.17	1.0	0.2	14.2	-1.01	1.0	0.1 L	8	LU
R8DEQ3	14.5	14.3	14.3	14.0	14.3	-1.00	0.9	0.2	15.3	0.82	1.0	1.1	8	LA
TFL8YW	14.2	14.8	14.9	14.0	14.5	-0.50	0.9	0.4	14.6	-0.37	1.0	0.4	8	LB
UXF96Z	15.3	15.1 H	14.8	15.1	15.1	0.88	1.1	0.2	15.1	0.54	1.0	0.2 L	8	LA
VAUQDW	14.7 L	14.8 L	14.7 L	14.6 L	14.7	-0.06	0.4	0.1	14.6	-0.35	0.4	0.1 L	8	LA
VQUVHK	13.9	14.4	14.6	14.7	14.4	-0.64	0.9	0.4	14.5	-0.48	1.0	0.3	8	LU
X3JAYT	14.7	15.0	14.8	15.6	15.0	0.77	0.9	0.4	14.5	-0.54	0.6	0.6	8	XX
X8D99H	14.2	14.0	14.4	14.2	14.2	-1.16	1.0	0.2	14.2	-1.08	1.0	0.2 L	4	TX
Z92LN7	14.2	13.5 *	13.8	14.5	14.0	-1.63	0.9	0.5	14.2	-1.05	0.7	0.4	8	TT

Consensus (All Labs) Results

Wk Mean	14.76	14.82	14.86	14.87	Month Mean	14.70	Grand Mean	14.81
Avg SDr	0.89	0.96	0.99	0.88	Avg SD	0.95	Avg SD	0.97
SD btwn Labs	0.72	0.58	0.72	0.69	SD btwn Labs	0.43	SD btwn Labs	0.56
Labs Incld	25	25	25	25	SD btwn Wks	0.37	SD btwn Wks	0.77
Labs Excld	1	1	0	1	Labs Incld	23	Labs Incld	25
Labs not Rcvd	0	0	1	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)	TX	TMI (model not specified)
XX	Instrument make/model not specified by lab		