Collaborative Testing Services, Inc.

Containerboard Interlaboratory Testing Program

Participant Summary Report #561 (F) - June 2016

Revision Notice:

CTS discovered that some flags on the Monthly Results CPV and SD Wks were incorrectly assigned for this cycle. The statistical calculations are correct, only the flag was displayed in error. CTS notified all affected laboratories. If you have any questions, please do not hesitate to contact Kyle Kruger at containerboard@cts-interlab.com or (571) 434-1925 (ext. 115)

Introduction to the Containerboard Program

Explanation of Tables and Definitions of Terms

Analysis	Sample	Analysis Name
201	BX10	Box Compression Strength, Corrugated Boxes
202	ECT9	Edgewise Compressive Strength, Wax (T811), Corrugated board
203	ECT9	Edgewise Compressive Strength by Clamp (T839), Corrugated board
205	42D1	Mullen Burst of Linerboard, 42 lb Linerboard
207	36Z3	Mullen Burst of Linerboard, 36 lb Linerboard
215	42D1	Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard
217	36Z3	Ring Crush of Linerboard, Rigid Platen Type, 36 lb Linerboard
223	42D1	STFI of Linerboard, 42 lb Linerboard
225	36Z3	STFI of Linerboard, 36 lb Linerboard
228	56A	Roughness - Stylus Method, 56 lb Linerboard
229	42D2	Roughness - Sheffield Method, 42 lb Linerboard
231	36Z	Internal Bond Strength, Linerboard, 36 lb Linerboard
234	36Z	Coefficient of Static Friction - Inclined Plane, 36 lb Linerboard
237	36Z	Air Resistance - Gurley Method, Linerboard, 36 lb Linerboard
240	CM81	Flat Crush Strength (CMT) of Medium, 26 lb Corrugating Medium
250	CM81	Fluted Crush of Medium, 26 lb Corrugating Medium
255	CM81	Ring Crush of Medium, 26 lb Corrugating Medium
261	CM81	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	CM81	October 2015-Current
	CM73	December 2013-September 2015
36 lb Linerboard	36Z3	December 2014-Current
	36Z2	February 2012-October 2014
42 lb Linerboard	42D1	April 2015-Current
	42B4	May 2014-March 2015
69 lb Linerboard	69C2	March 2015-Current
	69C1	January 2014-January 2015

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

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 (SDr'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 SDr	- For the cumulative period, the average of the within-laboratory standard deviations (SDr'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.

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 SDr for each week is not shown, but laboratory average SDr and consensus average SDr values are shown.
L	Indicates low within-laboratory standard deviation. The laboratory SDr for each week is not shown, but laboratory monthly average SDr and consensus average SDr 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	SDr	Mean	CPV	SDr	Months	Inst
3CX8UL	737.4	0.81	55.0	775.6	1.55	43.9	4	LG
4HY4QQ	641.6	-0.66	22.9	670.7	-0.65	29.6	4	EX
9V8FAM	659.7	-0.39	23.5	677.7	-0.51	34.4	4	ER
ALEJMC	789.1	1.60	24.2	777.9	1.59	40.6	4	TE
E77YDA	675.6	-0.14	39.7	688.0	-0.29	38.2	3	LH
EG9JDG	590.0	-1.46	22.5	656.9	-0.94	50.8	4	LL
FHFYKM	638.2	-0.72	35.1	653.3	-1.02	57.1	4	ER
FHJJBB	747.0	0.96	18.2	763.0	1.28	32.6	3	LH
FXCDKG	630.4	-0.84	25.0	630.4	-1.50	25.0	1	LG
G9N3YC	765.6	1.24	13.4	775.3	1.54	12.0	4	ER
GM9H3C	643.3	-0.64	10.3	638.4	-1.33	45.3	4	LS
HTPDH7	673.1	-0.18	27.3	675.1	-0.56	34.0	3	EX
LR39C4	743.0	0.89	57.0	754.3	1.10	40.1	3	LS
N9KT38	743.2	0.90	23.7	743.2	0.87	23.7	1	XX
PAVBGW	705.0	0.31	49.1	700.2	-0.04	38.1	4	ET
PXY4LD	658.8	-0.40	16.4	685.9	-0.34	49.7	4	ER
RBCE3Z	584.4	-1.54	186.2	715.8	0.29	113.4	4	EX
T7YTTT	681.2	-0.06	23.4	680.2	-0.45	45.1	4	LL
U94YRY	709.6	0.38	28.3	699.8	-0.04	55.0	4	LG
UEBAY8	620.5	-0.99	40.3	667.4	-0.72	49.1	4	LM
VFZZLX	699.9	0.23	14.1	704.7	0.06	54.6	4	LM
XCPWNR	843.8	2.44 *	29.0	781.3	1.67	164.2	4	TB
XQVQHP	625.5	-0.91	23.0	651.1	-1.06	28.5	4	LS
Y7ZJM4	630.2	-0.84	20.6	678.9	-0.48	42.4	4	ES

Consensus (All Labs) Results

Month Mean	684.84	Grand Mean	701.87
Avg SDr	48.36	Avg SDr	56.61
SD btwn Labs	65.05	SD btwn Labs	47.69
Labs Incld	24	Labs Incld	24

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	683.38	54.74	1.46	5
Clip sealing	675.12	50.06	9.72	16
Tape sealing	739.11	136.74	54.27	3

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	XX	Instrument make/model not specified by lab

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
864VLL	44.8	0.82	1.3	44.8	0.76	1.3	1	EM
DWLDNE	35.7	-1.18	1.2	33.2	-1.79	1.7	4	XX
FHJJBB	36.1	-1.10	1.3	38.2	-0.68	1.3	2	TC
GM9H3C	44.6	0.77	1.2	43.5	0.48	1.3	4	LC
JDW399	36.3	-1.05	1.2	37.7	-0.79	1.4	4	WK
LR39C4	40.5	-0.14	1.9	40.7	-0.14	2.0	3	EM
U94YRY	44.3	0.72	1.6	45.1	0.83	1.8	4	LZ
XQVQHP	39.4	-0.37	2.9	40.6	-0.15	2.2	4	EM
ZB6Y9X	48.0	1.54	1.1	48.0	1.48	1.1	1	TB

Consensus (All Labs) Results

Month Mean	41.08	Grand Mean	41.30
Avg SDr	1.62	Avg SDr	1.61
SD btwn Labs	4.52	SD btwn Labs	4.55
Labs Incld	9	Labs Incld	9

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	LC	L&W Crush Tester 48
LZ	L&W Crush Tester (model not specified)	TB	TMI Monitor/Compression Tester, Model 17-70
TC	TMI Monitor/Compression Tester, Model 17-37	WK	Zwick Z005 Crush Tester
XX	Instrument make/model not specified by lab		

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
3CX8UL	45.0	-0.16	1.9	44.8	-0.35	2.7	4	EM
4HY4QQ	46.4	0.42	1.2	45.7	0.13	1.2	4	LD
839ARU	44.7	-0.28	2.9	44.6	-0.45	2.4	4	LD
864VLL	44.8	-0.25	1.3	44.3	-0.62	1.5	4	EM
9V8FAM	43.5	-0.77	2.6	44.2	-0.71	1.8	4	TB
A7MLLG	42.6	-1.13	2.0	44.0	-0.80	1.4	4	TG
AZZYQB	46.6	0.48	0.8	46.5	0.56	0.8	4	LC
C47CLE	45.0	-0.14	4.0	45.5	0.03	2.8	4	LC
DWLDNE	35.6	-3.98 X	0.8	33.1	-6.79 X	1.5	4	XX
E77YDA	77.0	12.86 X	3.2	55.7	5.64 X	2.8	3	EM
EG9JDG	44.8	-0.24	1.4	46.0	0.30	2.1	4	LC
FHFYKM	45.5	0.06	2.7	46.7	0.68	2.2	4	LD
FHJJBB	42.1	-1.32	0.8	42.9	-1.39	0.9	2	TC
FV6YDB	48.6	1.32	1.1	49.2	2.04 *	1.2	4	LC
G9N3YC	43.3	-0.84	1.1	42.3	-1.75	1.0	4	EM
GLDZZB	45.9	0.21	1.3	46.7	0.66	1.4	4	LC
GM9H3C	46.5	0.45	1.6	46.4	0.50	1.3	4	LC
H8MU2C	47.2	0.74	1.6	47.2	0.93	1.6	4	EM
HTPDH7	48.1	1.10	0.6	47.9	1.34	0.8	3	TL
L3P839	44.7	-0.27	1.8	44.9	-0.30	1.9	4	TK
LD7RM6	42.9	-0.99	3.4	42.1	-1.82	2.1	4	TD
LR39C4	46.2	0.33	1.2	45.3	-0.10	1.6	3	EM
LUALT6	43.1	-0.93	3.1	42.9	-1.43	3.0	4	LC
MTTRQA	50.8	2.19 *	1.3	49.7	2.34 *	1.8	4	LC
PAVBGW	51.7	2.56 *	1.2	52.0	3.57 X	1.6	4	TD
PXY4LD	43.9	-0.59	2.5	43.5	-1.06	2.7	4	EN
QAPFBW	47.2	0.73	1.5	47.4	1.05	1.6	4	LD
T7YTTT	45.5	0.04	1.0	45.1	-0.17	1.1	4	BU
TFAVET	40.5	-1.98	1.6	43.2	-1.27	1.3	4	TB
U94YRY	43.4	-0.79	3.4	45.3	-0.10	2.4	4	LE
UEBAY8	41.4	-1.62	4.0	44.9	-0.31	2.4	4	EM
VFZZLX	48.9	1.43	0.9	47.4	1.05	1.2	4	TG
XCPWNR	46.5	0.45	1.0	46.4	0.54	0.9	4	LD
XQVQHP	46.4	0.42	1.1	44.8	-0.38	1.7	4	EM
Y7ZJM4	43.7	-0.70	2.8	45.8	0.19	2.0	4	LD
YM3GKT	43.7	-0.70	1.6	45.3	-0.10	1.5	4	LD
ZB6Y9X	47.9	1.03	0.8	47.9	1.35	0.8	1	TG
ZRDQB3	47.1	0.70	1.7	46.4	0.52	1.6	4	LD
ZXJK6X	43.0	-0.97	1.8	43.5	-1.08	1.6	4	LD

Consensus (All Labs) Results

Month Mean	45.37	Grand Mean	45.46
Avg SDr	2.02	Avg SDr	1.78
SD btwn Labs	2.46	SD btwn Labs	1.82
Labs Incld	37	Labs Incld	36

Key to Instrument Codes Reported by Participants

BU	Buchel Digital Crush Tester	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
TB	TMI Monitor/Compression Tester, Model 17-70	TC	TMI Monitor/Compression Tester, Model 17-37
TD	TMI Digital Crush Tester, Model 17-09	TG	TMI Digital Crush Tester, 17-76
TK	TLS Compression Tester, Model 5184	TL	Tech-Lab Systems Compression
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	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
3NN4TY	110.9	106.1	103.5	103.1 L	105.9	-1.21	9.3	3.6	106.9	-1.01	10.5	2.7	16	LZ
443RHM	106.7 L	103.0	110.2	114.5	108.6	-0.38	6.9	4.9	111.6	0.73	10.0	6.1	16	LC
4HY4QQ	108.0	112.0 H	113.0	107.5	110.1	0.08	13.6	2.8	108.8	-0.30	12.3	2.2	15	AH
7U2BJT	105.5	108.2	104.1	105.4	105.8	-1.24	10.3	1.7	105.5	-1.53	11.1	2.7	16	LC
7X7URM	106.4	109.0	108.7	107.6	107.9	-0.60	10.3	1.2	108.8	-0.32	10.7	1.8	16	LB
839ARU	107.1	102.5	100.7 *	103.6	103.5	-1.96	9.9	2.7	104.9	-1.74	9.6	2.3	16	LA
8BLEPL	105.4	114.6	103.8	106.9	107.7	-0.67	9.4	4.8	107.3	-0.87	10.9	4.4	16	LA
9KBC6T	113.6	117.3	111.8	112.5	113.8	1.22	11.6	2.4	110.2	0.20	11.8	5.2	16	TB
9V8FAM	108.4	108.1	109.5	110.9	109.2	-0.19	11.2	1.2	106.9	-1.02	11.0	2.5	16	LA
DP6ZPF	108.4	108.1	113.3	113.7	110.9	0.31	12.2	3.1	111.0	0.48	12.0	2.6	16	LZ
DQZHRG	109.4	109.3	109.4	109.3	109.3	-0.16	7.5	0.0 L	109.4	-0.11	7.9	0.0 L	16	LJ
DRCFWL	109.0	104.7	105.2	109.0	107.0	-0.88	12.7	2.3	108.8	-0.33	11.6	1.9	16	LA
E6QZUK	107.5	108.2	109.5	107.8	108.3	-0.49	11.9	0.9	108.6	-0.38	11.7	2.2	8	XX
ECDPGF	106.7	110.8	114.4	107.5	109.9	0.00	6.2	3.5	107.8	-0.69	9.3	7.5 H	16	LJ
ER6MHB	112.0	114.1	107.3	111.1	111.1	0.38	6.9	2.9	106.8	-1.06	8.1	5.1	14	AX
FHFYKM	115.3	111.1	116.1	115.4	114.5	1.42	12.3	2.3	109.1	-0.20	9.8	4.2	16	AH
FHJJBB	110.3	116.8	114.5	109.3	112.7	0.87	14.8	3.5	113.1	1.28	13.5	2.2	12	AA
FXCDKG	117.3	113.2	121.9 *	109.2	115.4	1.70	10.0	5.5	115.4	2.11 *	10.0	5.5	4	AH
GM9H3C	108.1	101.7	111.1	110.0	107.7	-0.65	9.0	4.2	105.7	-1.47	10.2	3.5	16	AH
GNGX9H	106.4	109.8	107.2	110.5	108.5	-0.42	11.9	2.0	108.5	-0.45	11.0	2.6	16	AH
GVZ2FK	109.3	108.5 L	107.3	107.8 L	108.2	-0.50	6.4	0.9	109.1	-0.21	8.0	3.1	16	LA
HCGJNB	114.6	112.8	115.3	111.6	113.6	1.14	10.0	1.7	112.9	1.20	10.4	3.3	16	LC
HM6HEG	112.7	116.7	107.6	111.3	112.1	0.68	8.9	3.8	109.3	-0.13	10.2	5.9	12	LC
HMZ2GH	102.3 *	107.7	104.1	107.8	105.5	-1.35	11.2	2.7	105.8	-1.43	9.6	2.2	16	LA
KQXCB9	116.6	111.6	116.9	109.1	113.5	1.13	9.7	3.8	114.6	1.83	9.4	2.5	16	LC
L8GCVD	110.2	123.1 X	119.6	118.1 *	117.8	2.42 *	11.3	5.5	112.5	1.03	10.1	8.1 H	16	LC
L9CXP4	109.9	110.6	No Data	109.4	110.0	0.04	10.0	0.6	109.2	-0.19	10.5	4.7	11	LC
MEDTL9	101.5 *	101.6	105.0	112.4	105.1	-1.45	10.7	5.1	108.6	-0.39	11.8	4.3	16	AH
MTTRQA	112.6	106.5	115.3	111.7	111.5	0.51	13.0	3.7	111.5	0.68	11.3	3.6	16	LA
MXLVJE	114.0	109.3	112.7	116.5	113.1	1.00	11.5	3.0	114.1	1.64	12.1	2.6	16	LA
MZFGD6	113.1	113.4	116.2 L	103.8 H	111.6	0.54	16.2	5.4	112.7	1.11	9.1	2.8	16	XX
NKE6G7	110.3	No Data	No Data	105.5	107.9	-0.61	10.4	3.4	110.1	0.15	11.9	2.8	14	LA
P6GDAA	105.6	104.0	109.0	106.8	106.4	-1.07	10.6	2.1	108.6	-0.39	9.8	2.5	14	LC
PLQET4	110.5	105.4	105.6	107.9	107.3	-0.77	6.3	2.4	105.9	-1.38	7.1	2.9	16	TB
PMFPKW	121.0 X	125.6 X	122.0 *	118.0 *	121.7	3.62 X	8.4	3.1	111.9	0.83	6.4	6.5 H	16	RE

Containerboard Interlaboratory Testing Program
Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42D1
TAPPI Official Test Method T807

Report #561 (F)
June 2016

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
QAPFBW	109.5	114.4	111.2	115.4	112.6	0.85	9.0	2.7	113.4	1.39	8.7	3.2	16	LA
QRVBD4	108.3	106.2	107.5	109.6	107.9	-0.60	13.4	1.4	108.2	-0.54	11.7	3.2	16	LA
RBCE3Z	No Data	No Data	107.9	106.3	107.1	-0.84	11.6	1.1	111.3	0.59	13.9	7.0 H	14	XX
RYMEBW	110.5	107.9	107.7	111.0	109.3	-0.18	8.5	1.7	109.4	-0.09	9.3	2.0	16	TP
RZYU6X	110.3	107.2	108.5	108.4	108.6	-0.38	7.9	1.3	108.9	-0.28	8.6	2.1	16	AH
TZ9JJU	116.2	115.6	113.6	112.4	114.4	1.40	11.4	1.8	109.4	-0.10	12.9	5.0	16	XX
U94YRY	117.2	116.1	117.8	No Data	117.0	2.20 *	11.4	0.9	114.0	1.61	12.9	4.5	15	LZ
UEBAY8	102.9	106.7	106.8	101.1 *	104.4	-1.68	12.2	2.8	104.5	-1.91	10.6	2.6	16	AH
V2EKHY	109.4	105.4	105.0 L	107.5	106.8	-0.92	6.2	2.0	109.4	-0.08	8.1	5.0	16	LA
XGLK6Y	107.1	99.8 *	106.3	112.6	106.5	-1.04	10.4	5.2	107.1	-0.94	10.7	3.5	16	LC
XL2VH3	113.3	111.3	109.3	109.9	111.0	0.35	10.2	1.8	111.7	0.76	11.0	2.3	12	LA
XQVQHP	112.3	115.6	115.0	109.8	113.2	1.03	13.1	2.7	105.9	-1.40	10.8	7.1 H	16	LA
Y7ZJM4	110.9	109.1	112.0	115.4	111.9	0.61	12.3	2.7	111.4	0.62	11.0	2.5	16	LA
YM3GKT	109.8	107.3	109.4	109.8	109.1	-0.24	9.3	1.2	111.9	0.83	10.2	3.0	16	AA
Z8ULQY	112.8	113.8	110.6	109.0	111.5	0.51	12.0	2.2	112.2	0.94	12.4	2.3	15	TB
ZXJK6X	111.5	109.6	112.0	107.0	110.1	0.06	10.1	2.3	112.3	0.95	11.7	3.4	16	LC

Consensus (All Labs) Results

Wk Mean	109.95	109.42	110.46	109.75	Month Mean	109.85	Grand Mean	109.67
Avg SDr	10.64	10.20	11.03	10.67	Avg SDr	10.68	Avg SDr	10.60
SD btwn Labs	3.69	4.40	4.85	3.69	SD btwn Labs	3.26	SD btwn Labs	2.72
Labs Incld	49	47	49	50	SD btwn Wks	3.00	SD btwn Wks	3.98
Labs Excld	1	2	0	0	Labs Incld	50	Labs Incld	51
Labs not Rcvd	1	2	2	1				

Key to Instrument Codes Reported by Participants

AA	Perkins Model A	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 207
Bursting Strength (Mullen), 36 lb Linerboard - 36Z3
TAPPI Official Test Method T807

Report #561 (F)
June 2016

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
3NN4TY	78.4	76.4	79.2	77.9	78.0	-0.38	4.8	1.2	75.9	-1.34	4.9	3.4	12	LZ
443RHM	80.9	80.7 L	80.9	77.6	80.0	0.47	3.9	1.6	80.0	0.44	5.1	1.9	12	LC
4HY4QQ	79.5 L	80.0	79.5	76.0	78.8	-0.06	5.2	1.8	80.6	0.69	4.9	3.0	12	AH
7U2BJT	76.1	77.0	76.2	74.2	75.9	-1.26	5.0	1.2	76.8	-0.98	5.3	1.9	12	LC
7X7URM	75.7	76.5	77.0	73.6 *	75.7	-1.33	3.8	1.5	76.4	-1.14	3.6	1.7	12	LB
839ARU	77.8	76.6	76.4	75.1	76.5	-1.00	4.4	1.1	77.0	-0.85	4.1	1.6	12	LA
8BLEPL	80.2	79.8	80.7	76.3	79.3	0.15	6.5	2.0	78.9	-0.04	5.5	2.1	12	LA
9KBC6T	81.2	82.0	80.1	80.3	80.9	0.84	5.0	0.9	78.2	-0.36	5.9	2.6	12	TB
9V8FAM	74.0	75.0	75.3	74.5	74.7	-1.74	4.4	0.6	74.8	-1.84	4.8	1.0	12	LA
DP6ZPF	77.5	79.6	76.3	79.8	78.3	-0.24	4.4	1.7	79.4	0.19	5.9	2.3	12	LZ
DQZHRG	79.2	79.3 L	79.2 L	79.2	79.2	0.14	2.7	0.0 L	79.1	0.03	3.4	0.4 L	12	LJ
DRCFWL	75.4	78.2	76.8	78.0	77.1	-0.75	5.6	1.3	78.8	-0.07	4.9	1.8	12	LA
E6QZUK	79.8	77.4	78.9	79.2	78.8	-0.02	4.1	1.0	77.9	-0.49	5.2	2.0	12	LC
ECDPGF	78.4	81.9	83.4	77.2	80.2	0.56	3.2	2.9	78.8	-0.08	4.4	2.4	12	LJ
ER6MHB	79.8	81.4	76.1	75.4	78.2	-0.29	4.2	2.9	77.6	-0.62	4.7	2.6	10	AX
FHFYKM	81.5	77.6	75.9	79.5	78.6	-0.11	5.1	2.4	79.4	0.18	4.9	2.3	12	AH
FHJJBB	79.5	80.8	82.3	81.8	81.1	0.90	5.6	1.2	82.1	1.32	5.1	1.6	12	AA
FXCDKG	81.6	80.4	82.2	79.0	80.8	0.79	5.9	1.4	78.3	-0.33	5.7	3.0	8	AH
GM9H3C	72.6 *	72.5	74.4	77.6	74.3	-1.92	4.7	2.4	74.5	-1.93	5.2	2.6	12	AH
GNGX9H	78.7	76.5	80.2	77.6	78.3	-0.27	5.1	1.6	76.7	-0.98	5.2	2.4	12	AH
GVZ2FK	81.3	81.7	81.1 L	81.1 L	81.3	1.01	2.8	0.3 L	81.2	0.95	2.5	0.8	12	LA
HCGJNB	79.3	81.4	78.5	77.4	79.1	0.10	5.9	1.7	79.6	0.27	6.1	1.9	12	LC
HM6HEG	79.2	71.4 *L	75.7 L	105.4 X	82.9	1.68	4.7	15.3 H	78.8	-0.10	5.4	9.9 H	10	LC
HMZ2GH	79.3	73.4	74.4	78.4	76.4	-1.06	5.1	2.9	77.0	-0.85	5.4	2.2	12	LA
KQXCB9	87.2 *	83.5	84.8 *	81.9	84.3	2.27 *	5.1	2.2	83.2	1.82	6.1	1.8	12	LC
L8GCVD	80.8	77.7 H	79.5	77.5	78.9	-0.01	6.6	1.5	78.4	-0.25	5.9	1.9	12	LC
L9CXP4	75.4	76.7	No Data	75.1	75.7	-1.31	4.7	0.9	78.0	-0.44	4.9	2.1	11	LC
MEDTL9	79.1	70.4 *	74.2	79.5	75.8	-1.29	6.2	4.3	78.2	-0.34	5.4	3.2	12	AH
MTTRQA	73.6	80.9	81.3	78.5	78.6	-0.14	5.4	3.6	81.9	1.24	5.8	8.5 H	11	LA
MXLVJE	85.0	82.1	79.8	83.5	82.6	1.54	4.2	2.2	83.3	1.84	5.4	2.2	12	LA
MZFGD6	86.2 *	85.3	86.5 *	87.7 X	86.4	3.14 X	4.4	1.0	84.5	2.36 *	4.5	2.0	12	XX
NKE6G7	78.5	No Data	No Data	77.1	77.8	-0.45	5.1	1.0	78.5	-0.23	5.7	2.1	10	LA
P6GDAA	74.4	78.4	76.5	77.5	76.7	-0.93	5.0	1.7	77.0	-0.85	4.5	1.5	10	LC
PLQET4	84.9	83.6	80.4	85.2 *	83.5	1.93	5.5	2.2	81.0	0.86	5.6	3.2	12	TB
PMFPKW	81.0	80.8	81.4	82.4	81.4	1.04	5.7	0.7	83.5	1.92	4.9	2.1	12	RE

Containerboard Interlaboratory Testing Program

Analysis 207

Bursting Strength (Mullen), 36 lb Linerboard - 36Z3

TAPPI Official Test Method T807

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
QAPFBW	78.8	80.7	79.2	77.5	79.1	0.07	4.8	1.3	78.3	-0.30	5.4	1.5	8	LA
QRVBD4	76.5	74.5	74.1	78.1	75.8	-1.29	4.9	1.9	76.9	-0.92	5.5	2.1	12	LA
RBCE3Z	No Data	No Data	67.7 X	67.0 X	67.4	-4.80 X	6.4	0.5 L	80.9	0.81	7.3	8.0 H	10	XX
RYMEBW	75.9	76.1	75.6	75.5	75.8	-1.30	4.4	0.3 L	76.5	-1.10	4.2	1.2	12	TP
RZYU6X	79.0	80.1	79.0	80.0	79.5	0.26	3.4	0.6	79.8	0.32	3.6	0.6	12	AH
TZ9JJU	78.9	80.5	75.4	81.5	79.1	0.07	4.7	2.7	76.5	-1.10	5.2	2.8	12	XX
U94YRY	85.9 *	82.7	82.8	No Data	83.8	2.03 *	5.4	1.8	82.7	1.59	5.2	1.1	11	LZ
UEBAY8	75.6	75.1	77.8	78.8	76.8	-0.86	5.6	1.7	77.0	-0.87	5.1	1.9	12	AH
V2EKHY	77.1	78.5	77.6	80.2	78.3	-0.23	3.5	1.4	79.8	0.34	3.8	1.7	12	LA
XGLK6Y	77.9	77.0	78.0	79.5	78.1	-0.33	5.6	1.0	77.7	-0.56	5.2	1.3	12	LC
XL2VH3	81.0	81.4	80.0	80.0	80.6	0.71	5.8	0.7	82.2	1.38	6.8	2.5	9	LA
XQVQHP	78.9	78.0	78.3	77.5 H	78.2	-0.30	7.4	0.6	75.9	-1.34	6.1	2.7	12	LA
Y7ZJM4	78.9	81.1	76.2	79.3	78.9	-0.01	5.6	2.0	79.3	0.14	5.4	2.0	12	LA
YM3GKT	82.2	81.6	83.8	81.0	82.2	1.36	4.9	1.2	81.1	0.90	6.2	1.8	12	AA
Z8ULQY	77.6	80.0	79.9	79.3	79.2	0.13	5.9	1.1	80.3	0.57	5.2	1.4	12	TB
ZXJK6X	78.6	81.3	82.0	81.3	80.8	0.79	5.3	1.5	79.4	0.17	5.2	2.4	12	LC

Consensus (All Labs) Results

Wk Mean	79.12	78.88	78.85	78.60	Month Mean	78.89	Grand Mean	79.01
Avg SDr	4.85	5.04	5.01	5.19	Avg SDr	5.04	Avg SDr	5.21
SD btwn Labs	3.16	3.22	2.96	2.46	SD btwn Labs	2.40	SD btwn Labs	2.32
Labs Incld	50	49	48	47	SD btwn Wks	2.82	SD btwn Wks	2.97
Labs Excld	0	0	1	3	Labs Incld	49	Labs Incld	51
Labs not Rcvd	1	2	2	1				

Key to Instrument Codes Reported by Participants

AA	Perkins Model A	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	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2LAX3R	73.4 X	75.1 *	73.4 *H	74.3 *	74.0	-2.60 *	6.2	0.8	75.1	-3.12 X	6.3	3.1	16	MB
3CX8UL	80.4	77.5	79.7	78.8	79.1	-1.55	3.6	1.2	82.0	-1.39	3.5	2.3	16	EM
3NN4TY	85.5	86.0	88.6	83.4	85.9	-0.14	3.8	2.1	87.4	-0.03	4.2	3.9	16	LC
3XDRQM	94.5 *	91.1	96.0	92.8	93.6	1.46	3.9	2.1	92.7	1.32	4.5	3.8	16	MB
4APEDT	73.2 XH	82.8	80.4	83.0	79.8	-1.40	5.3	4.6 H	81.8	-1.43	4.2	2.8	16	LD
7U2BJT	87.9	87.3	87.6	87.3	87.5	0.20	3.8	0.3 L	86.9	-0.15	3.8	1.4	16	LD
7X7URM	84.2	89.5	89.9	84.5	87.0	0.10	3.8	3.1	87.4	-0.03	3.7	2.5	16	LC
839ARU	89.8	89.2	91.6	89.6	90.1	0.73	3.6	1.1	88.6	0.28	3.5	2.2	16	LD
8BLEPL	91.4	84.1	88.9	93.4	89.5	0.60	4.1	4.0	93.3	1.45	5.0	9.1 H	16	LC
9KBC6T	86.2	82.7	89.7	81.5	85.0	-0.32	4.1	3.7	82.6	-1.23	3.9	5.8 H	15	LZ
9V8FAM	87.1	87.9	87.1	86.1	87.0	0.10	3.8	0.8	83.1	-1.12	5.2	4.9	16	LD
A7MLLG	87.8	85.9	86.9	85.8	86.6	0.01	3.2	0.9	89.1	0.39	3.3	2.2	16	TH
ALEJMC	88.9	88.9	89.7	87.9	88.9	0.48	2.9	0.7	88.4	0.23	3.4	1.1	16	LD
CFJCFM	90.4	90.5	90.7	91.4	90.7	0.87	2.8	0.5	89.8	0.59	3.8	1.0	16	LD
DQZHRG	87.1	87.4	87.1	87.3	87.2	0.14	3.4	0.2 L	87.7	0.04	4.6	0.4 L	16	LD
DRCFWL	76.7 X	80.3	76.6	76.0	77.4	-1.91	3.2	2.0	88.2	0.18	4.0	8.6 H	16	LD
DWLDNE	67.5 X	67.0 X	67.6 X	68.2 X	67.6	-3.95 X	1.9	0.5	66.4	-5.30 X	1.9	5.7	16	XX
E6QZUK	85.8	89.0	84.6	87.3 H	86.7	0.02	4.6	1.9	87.6	0.01	5.5	3.1	7	LZ
E77YDA	82.4	77.0 *	78.0	76.9	78.6	-1.67	3.2	2.6	82.1	-1.36	4.1	3.3	12	EM
ECDPGF	81.2	76.6 *L	80.4	78.3	79.1	-1.55	2.0	2.1	79.6	-1.99	4.7	8.9 H	16	LC
ER6MHB	93.2	94.0	94.8	94.1	94.0	1.55	3.4	0.7	95.4	1.98	3.9	2.9	14	LZ
FHFYKM	87.3	87.9	86.1	87.2	87.2	0.12	3.2	0.8	85.8	-0.44	3.6	1.8	16	LD
G9N3YC	79.0 *	78.8	79.0	80.1	79.2	-1.53	2.2	0.6	79.5	-2.02 *	2.1	1.0	16	EX
GM9H3C	88.3	86.3	89.1	88.3	88.0	0.30	3.0	1.2	87.4	-0.04	7.4	2.1	16	LC
GVZ2FK	82.9	83.4	83.1	84.9	83.6	-0.62	2.7	0.9	84.0	-0.89	3.2	1.0	16	LD
HM6HEG	89.9	91.6	87.7	89.6	89.7	0.65	3.8	1.6	89.6	0.54	6.1	8.3 H	12	LC
KHX2W4	89.8	88.4	90.8	89.0	89.5	0.61	4.0	1.0	89.2	0.42	4.4	1.5	16	EM
L8GCVD	84.4	85.1 H	87.3	88.4	86.3	-0.05	4.4	1.9	85.7	-0.44	4.3	1.5	16	LC
L9CXP4	85.2	85.5	No Data	85.8	85.5	-0.22	3.1	0.3 L	89.6	0.52	3.6	3.7	11	LD
LD7RM6	93.3 L	91.9 L	96.0 L	90.8 L	93.0	1.33	1.1	2.3	92.4	1.22	1.5	1.3	16	TD
LU724G	82.6	82.9	83.0 L	86.4	83.7	-0.59	2.4	1.8	85.1	-0.60	3.1	2.0	16	LD
MEDTL9	81.5 H	86.2	85.8	85.2	84.7	-0.40	5.3	2.2	89.1	0.41	4.8	3.9	16	LC
MTTRQA	99.3 X	98.7 *	91.7	96.4 H	96.5	2.07 *	5.0	3.5	97.6	2.54 *	5.1	2.6	16	LC
MXLVJE	89.6	94.4	91.8	91.6	91.9	1.10	5.0	2.0	90.7	0.80	4.7	2.6	16	LZ
MZFGD6	84.5	85.1	82.5	82.3	83.6	-0.62	3.4	1.4	87.2	-0.08	3.9	3.5	16	LD

Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42D1

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
P6GDAA	89.2	93.6	93.7	93.3	92.5	1.22	4.1	2.2	92.5	1.25	8.7	3.6	14	LC
PLQET4	101.1 XH	100.7 X	100.1 *	96.2	99.5	2.70 *	5.3	2.2	97.8	2.58 *	4.7	4.3	16	LX
PMFPKW	84.1	84.9	80.4 L	80.3	82.5	-0.85	2.8	2.4	87.7	0.04	3.6	4.4	16	LZ
PXY4LD	85.2	82.1	83.1	84.4	83.7	-0.59	3.0	1.4	82.9	-1.15	4.0	1.9	16	EN
QAPFBW	92.6	91.8	92.5	92.9	92.5	1.22	3.3	0.4	92.5	1.25	3.2	2.1	16	LD
QRVBD4	89.4	87.9	85.7	87.3	87.6	0.21	4.2	1.5	88.1	0.14	3.8	1.7	16	LC
RYMEBW	87.5	86.9	88.5	85.5	87.1	0.11	3.2	1.3	87.0	-0.13	3.6	1.0	16	TH
TQRGH3	88.7	89.6	88.6	89.3 L	89.1	0.52	2.1	0.5	87.6	0.03	2.7	1.7	16	WK
TZ9JJU	86.7	86.2 L	85.1	77.8 H	83.9	-0.54	4.5	4.2 H	85.5	-0.51	3.9	2.3	16	LC
U94YRY	85.3	83.5	85.2	No Data	84.7	-0.39	4.2	1.0	85.6	-0.48	3.6	2.1	15	LC
UEBAY8	88.2	90.6	87.3	84.5	87.6	0.22	4.7	2.5	88.6	0.27	4.0	2.0	16	EM
UPRYYX	87.3	83.5	79.9	79.8	82.6	-0.82	4.4	3.6	81.8	-1.45	4.6	4.6	15	LC
V2EKHY	88.8 L	89.4 L	88.0 L	88.2	88.6	0.42	2.2	0.6	88.6	0.28	2.3	0.6 L	16	LZ
WLLCZQ	89.3	87.1	87.9	89.1	88.4	0.37	4.2	1.0	88.4	0.24	4.6	3.0	12	XX
XQVQHP	85.4	86.3	88.4	85.8	86.5	-0.02	3.3	1.4	85.8	-0.44	3.5	2.1	16	EM
YM3GKT	83.7	83.7	83.9	84.4	83.9	-0.55	3.4	0.3 L	85.2	-0.58	3.4	1.6	16	LD
Z8ULQY	84.9	86.5	84.4	No Data	85.3	-0.27	3.8	1.1	85.7	-0.45	4.3	2.9	14	LC
ZLP78M	86.5	87.8	84.9	84.0	85.8	-0.16	4.3	1.7	85.7	-0.45	4.5	2.3	8	TH
ZXJK6X	86.3	89.4	84.8	84.5	86.2	-0.07	3.4	2.2	87.1	-0.10	3.6	3.0	16	LD

Consensus (All Labs) Results

Wk Mean	86.69	86.53	86.69	86.14
Avg SDr	3.72	3.65	3.91	3.53
SD btwn Labs	3.68	4.71	5.21	5.14
Labs Incld	49	52	52	51
Labs Excld	6	2	1	1
Labs not Rcvd	0	0	1	2

Month Mean	86.56
Avg SDr	3.78
SD btwn Labs	4.81
SD btwn Wks	1.98
Labs Incld	53

Grand Mean	87.51
Avg SDr	4.25
SD btwn Labs	3.97
SD btwn Wks	3.59
Labs Incld	52

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	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
WK	Zwick Z005 Crush Tester	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	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2LAX3R	67.2 X	69.3 *	67.1 X	66.5 *	67.5	-3.29 X	4.3	1.2	68.7	-3.89 X	5.6	4.3	12	MB
3CX8UL	75.4	75.6	77.4	79.8	77.0	-0.84	2.8	2.1	79.8	-0.33	2.8	2.5	12	EM
3NN4TY	78.1	78.1	77.3	74.6	77.0	-0.84	3.2	1.7	76.7	-1.31	3.2	5.6 H	12	LC
3XDRQM	85.4	80.1	86.7	81.5 H	83.4	0.81	4.1	3.1	83.7	0.92	4.3	3.4	8	MB
4APEDT	75.4	76.4	75.5	75.4	75.7	-1.19	3.1	0.5	77.1	-1.19	3.0	1.2	12	LD
7U2BJT	78.0	81.5	81.5	79.6	80.1	-0.03	2.8	1.7	81.6	0.24	2.9	1.9	12	LD
7X7URM	77.8 H	77.0	80.7	78.5	78.5	-0.46	4.3	1.6	79.3	-0.47	3.5	1.7	12	LC
839ARU	82.5	81.9	81.4	81.1	81.7	0.37	2.6	0.6	81.9	0.36	2.6	1.5	12	LD
8BLEPL	83.1	73.3 H	79.6	84.1	80.0	-0.06	4.3	4.9 H	82.1	0.43	6.2	11.3 H	12	LC
9KBC6T	80.3	80.1	74.4 H	73.3	77.0	-0.84	5.3	3.7	77.4	-1.10	4.2	2.7	11	LZ
9V8FAM	78.6	79.8	76.3	79.3	78.5	-0.45	3.3	1.5	76.5	-1.38	4.6	5.1	12	LD
A7MLLG	82.9	81.2 L	81.8	81.4	81.8	0.40	1.7	0.8	82.2	0.47	2.0	0.8	12	TH
ALEJMC	81.9	82.1 L	81.9	84.0	82.5	0.57	2.2	1.0	81.7	0.30	2.3	1.2	12	LD
CFJCFM	81.7	82.2	84.1	85.4 L	83.4	0.80	2.9	1.7	82.8	0.64	2.7	1.4	12	LD
DQZHRG	80.5	80.4	80.3	80.6	80.5	0.05	3.1	0.1 L	80.5	-0.09	3.1	0.3 L	12	LD
DRCFWL	75.4 H	73.8	78.0	No Data	75.7	-1.17	5.0	2.1	83.2	0.78	4.1	5.0	11	LD
DWLDNE	60.6 X	60.4 X	60.1 XL	60.7 X	60.4	-5.12 X	1.6	0.3 L	64.8	-5.13 X	2.3	4.7	8	XX
E6QZUK	72.6 *	77.4	82.3	82.1	78.6	-0.43	2.3	4.6	80.7	-0.02	4.6	4.4	12	LZ
E77YDA	75.2	71.4	76.9	67.1 *H	72.6	-1.97	3.8	4.4	78.7	-0.67	3.3	5.6 H	12	EM
ECDPGF	77.0	72.3 L	73.0	72.6	73.7	-1.69	1.9	2.2	75.1	-1.83	2.4	2.5	12	LC
ER6MHB	82.9	84.4	78.9	84.1	82.6	0.60	3.6	2.5	86.2	1.73	3.5	4.1	10	LZ
FHFYKM	82.2	79.7	80.8	81.5	81.1	0.21	2.3	1.1	79.8	-0.33	2.7	1.5	12	LD
G9N3YC	72.3 *	72.3	72.7	72.7	72.5	-2.01 *	2.1	0.2 L	74.6	-2.00 *	2.1	2.1	12	EX
GM9H3C	83.2	79.6	83.8	80.5	81.8	0.39	2.8	2.0	82.0	0.37	2.8	2.2	12	LC
GVZ2FK	74.4	74.5	74.8 L	77.3	75.3	-1.29	2.4	1.4	76.4	-1.42	2.2	1.4	12	LD
HM6HEG	84.4	85.7 H	84.5	80.6	83.8	0.91	3.6	2.2	82.5	0.55	3.3	2.7	12	LC
KHX2W4	80.9	79.6	81.1	82.2	81.0	0.18	3.1	1.1	81.1	0.09	3.5	1.7	12	EM
L8GCVD	76.6	80.6	78.9	81.1	79.3	-0.25	3.7	2.0	79.8	-0.31	3.5	1.6	12	LC
L9CXP4	79.6 L	81.6	No Data	79.9	80.4	0.03	1.8	1.1	84.1	1.07	2.7	3.7	11	LD
LD7RM6	79.6 L	75.9 L	80.0	76.8	78.1	-0.56	1.6	2.0	75.7	-1.65	1.7	2.4	12	TD
LU724G	76.1	75.8 L	76.0	77.7	76.4	-1.00	2.1	0.8	77.2	-1.16	2.1	1.1	12	LD
MEDTL9	82.0	82.1	83.9	83.9	82.9	0.69	2.5	1.1	82.5	0.56	2.9	2.4	12	LC
MTTRQA	95.3 X	91.9 *	83.1 H	88.7	89.8	2.45 *	5.0	5.2 H	85.3	1.45	4.4	8.1 H	12	LC
MXLVJE	81.4	84.1	84.4	83.3	83.3	0.78	4.0	1.3	84.0	1.03	3.3	2.6	12	LZ
MZFGD6	77.6	72.9	73.2	72.6	74.1	-1.60	3.5	2.4	78.4	-0.78	3.5	5.3	12	LD

Containerboard Interlaboratory Testing Program

Analysis 217

Ring Crush, 36 lb Linerboard - 36Z3

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
P6GDAA	85.5	83.9	86.0	87.2	85.7	1.39	3.1	1.4	85.6	1.54	3.0	1.4	10	LC
PLQET4	89.8 *	93.0 *	87.9	88.3 H	89.7	2.45 *	4.9	2.3	87.5	2.16 *	5.1	3.1	12	LX
PMFPKW	82.5 L	88.0	88.8 *	89.4	87.2	1.79	3.2	3.2	84.5	1.18	2.8	3.2	12	LZ
PXY4LD	79.0	79.7	78.5	80.1	79.3	-0.25	2.8	0.7	78.3	-0.80	2.7	1.4	12	EN
QAPFBW	88.9 *	86.8	85.9	87.1	87.2	1.78	3.4	1.2	87.1	2.03 *	3.1	1.1	8	LD
QRVBD4	81.6	80.3	81.8	80.6	81.1	0.21	2.9	0.7	81.4	0.21	2.9	0.9	12	LC
RYMEBW	81.2	81.3	81.0	79.2	80.7	0.11	3.2	1.0	80.9	0.04	3.1	1.3	12	TH
TQRGH3	84.1	83.4	84.5	84.2	84.1	0.98	2.6	0.4	82.4	0.51	3.2	2.1	8	WK
TZ9JJU	85.2	85.1	81.3	72.2 H	80.9	0.18	4.9	6.1 H	82.1	0.41	3.6	3.5	12	LC
U94YRY	79.2	82.9	79.2	NO DATA	80.4	0.04	3.2	2.2	81.5	0.24	2.7	2.7	11	LC
UEBAY8	83.4	81.7 L	79.6	78.6	80.8	0.14	3.0	2.1	82.0	0.40	2.7	2.1	12	EM
UPRYYX	77.6	76.6	76.5	74.0	76.2	-1.06	3.8	1.5	76.1	-1.51	4.3	2.0	11	LC
V2EKHY	81.0	85.9	83.7	83.6 L	83.6	0.85	1.9	2.0	82.1	0.43	2.4	1.5	12	LZ
WLLCZQ	81.1	83.3	84.9	83.4	83.2	0.76	2.5	1.6	83.8	0.97	3.8	2.4	8	XX
XQVQHP	78.4	79.7	79.8	80.5	79.6	-0.17	2.8	0.9	79.4	-0.46	2.4	1.2	12	EM
YM3GKT	79.5	78.4	77.3	77.4	78.1	-0.55	2.2	1.0	78.9	-0.59	2.0	1.0	12	LD
Z8ULQY	80.3	80.5	76.5	78.9	79.1	-0.31	3.4	1.8	78.3	-0.81	4.5	2.2	8	LC
ZLP78M	79.4	81.0	75.8	77.8	78.5	-0.46	4.5	2.2	78.5	-0.74	4.5	2.2	4	TH
ZXJK6X	78.8	76.8	80.3	78.0	78.5	-0.46	2.6	1.5	80.2	-0.19	2.5	2.5	12	LC

Consensus (All Labs) Results

Wk Mean	80.22	80.06	80.28	79.80	Month Mean	80.26	Grand Mean	80.79
Avg SDr	3.15	3.24	3.38	3.35	Avg SDr	3.27	Avg SDr	3.33
SD btwn Labs	3.69	4.83	3.92	4.99	SD btwn Labs	3.87	SD btwn Labs	3.11
Labs Incld	51	53	51	51	SD btwn Wks	2.28	SD btwn Wks	3.29
Labs Excld	3	1	2	1	Labs Incld	52	Labs Incld	52
Labs not Rcvd	0	0	1	2				

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	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
WK	Zwick Z005 Crush Tester	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	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2LAX3R	23.5	24.6	22.4	22.1 L	23.1	0.68	0.9	1.1	24.6	1.60	0.6	1.2	16	BK
3NN4TY	22.0	23.1	22.0	21.7	22.2	-0.14	1.6	0.6	22.6	0.02	1.8	0.6	16	LW
3XDRQM	22.8 L	22.3 L	22.3 L	22.3 L	22.4	0.05	0.1	0.3	22.3	-0.16	0.1	0.7	16	LA
443RHM	21.1 L	21.9 L	21.2 L	21.2 L	21.4	-0.88	0.3	0.4	21.0	-1.22	0.4	0.8	16	LA
4APEDT	20.0	21.5	21.4	21.2	21.0	-1.16	1.9	0.7	21.5	-0.82	1.8	0.7	16	LY
7U2BJT	22.4	22.5	22.3	22.9	22.5	0.14	1.2	0.3	22.2	-0.29	1.4	0.5	16	LA
7X7URM	23.9	23.9	23.2	23.2	23.6	1.06	1.6	0.4	23.2	0.47	1.6	0.5	16	LU
839ARU	21.9	21.3	21.2	21.7	21.5	-0.73	1.6	0.4	21.4	-0.91	1.6	0.4	16	BK
8BLEPL	19.8 L	20.5 L	19.9 L	20.2 L	20.1	-1.99	0.0	0.3	20.9	-1.30	0.4	1.3	16	LW
9KBC6T	20.7	21.6	21.0	21.2	21.1	-1.10	1.8	0.4	21.2	-1.03	1.7	0.5	16	LZ
9V8FAM	22.2	21.3	21.5	21.0	21.5	-0.77	1.7	0.5	21.3	-0.96	1.8	0.6	16	LY
ALEJMC	21.1	21.7	21.0	21.2	21.3	-0.95	2.0	0.3	21.4	-0.86	2.0	0.5	16	LY
CFJCFM	22.5	21.4	21.3	21.1	21.5	-0.71	1.8	0.6	23.1	0.41	1.9	1.4	16	LY
DP6ZPF	24.1	23.8	23.1	23.6	23.6	1.11	2.3	0.4	23.6	0.80	2.1	0.9	16	LZ
DRCFWL	36.1 X	36.0 X	36.8 X	36.3 X	36.3	12.19 X	2.3	0.3	25.2	2.02 *	1.9	7.0 H	16	XX
E6QZUK	20.2 L	21.4 L	23.1 L	21.0 L	21.4	-0.81	0.4	1.2	21.5	-0.83	0.4	0.8	8	LA
F3LUU6	22.0	No Data	21.4	19.9 *	21.1	-1.12	2.0	1.1	21.3	-0.97	2.0	0.9	15	XX
FHFYKM	21.7	21.8	22.9	22.1	22.1	-0.21	1.9	0.6	21.6	-0.73	2.0	0.6	16	LU
FXCDKG	22.5	22.7	23.4	23.3	23.0	0.53	1.8	0.4	23.0	0.32	1.8	0.4	4	LU
GM9H3C	21.7	22.1	22.0	22.0	21.9	-0.37	1.6	0.2	21.6	-0.74	1.8	0.6	16	LU
GNGX9H	24.3	23.2	21.9	22.7	23.0	0.56	1.6	1.0	23.3	0.56	2.0	0.7	16	LU
HCGJNB	24.9	24.6	24.9 *	25.5 *	25.0	2.30 *	2.0	0.4	24.3	1.36	1.6	0.9	16	XX
HM6HEG	21.5 L	19.6 *L	22.7 L	21.9 L	21.5	-0.80	0.3	1.3	24.9	1.80	1.4	5.9 H	12	LA
HMZ2GH	22.0	21.5	21.5	22.6	21.9	-0.43	1.4	0.5	21.5	-0.83	1.7	0.5	16	LW
K43GFF	20.7	21.8	21.4	22.1	21.5	-0.75	1.3	0.6	21.3	-0.99	1.4	0.7	16	LW
KQXCB9	24.2	25.7 *	24.9 *	24.5	24.8	2.16 *	1.7	0.6	25.2	2.02 *	1.9	0.7	16	LA
L8GCVD	23.5 L	23.1 L	21.7 L	21.8 L	22.5	0.15	0.4	0.9	22.3	-0.19	0.4	0.8	16	LA
L9CXP4	22.7	20.9	No Data	22.6	22.1	-0.25	2.3	1.0	22.2	-0.28	2.1	0.8	11	LZ
MEDTL9	22.1	22.6	22.6	22.7	22.5	0.11	1.0	0.3	23.0	0.32	0.9	0.9	12	LY
MTTRQA	24.8	25.1	24.1	24.4	24.6	1.94	2.2	0.4	24.3	1.36	1.8	1.1	16	LU
MXLVJE	20.9	21.6	21.3	21.2	21.2	-0.99	1.6	0.3	21.5	-0.81	1.8	0.6	16	LW
NKE6G7	23.8	23.5	23.1	24.4	23.7	1.18	1.3	0.5	23.6	0.82	1.5	0.7	16	LU
P6GDAA	24.7 L	25.0 L	24.1 L	24.3 L	24.5	1.91	0.0	0.4	25.2	2.06 *	0.0	0.9	14	LA
PXY4LD	21.2	21.5	20.5	21.5	21.2	-1.04	1.6	0.4	20.8	-1.32	1.8	0.8	16	LY
QAPFBW	22.8	23.4	22.6	23.6	23.1	0.65	2.1	0.5	23.6	0.79	2.2	0.7	16	LA

Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42D1

TAPPI Provisional Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
QRVBD4	21.3 L	21.6 L	21.2 L	20.9 L	21.3	-0.97	0.4	0.3	21.2	-1.01	1.4	0.4	16	LA
RYMEBW	21.3 L	22.0	21.6	22.4	21.9	-0.44	0.9	0.5	21.9	-0.49	0.9	0.4	16	TT
RZYU6X	22.7	22.8 L	22.3	22.2	22.5	0.14	0.9	0.3	22.5	-0.07	0.9	0.2 L	16	TT
TQRGH3	23.7	23.9	23.6	24.0	23.8	1.26	1.0	0.2	23.7	0.91	1.2	0.3	16	LY
TZ9JJU	22.3	22.3	21.4	21.7	21.9	-0.38	1.7	0.4	21.5	-0.83	1.8	0.8	16	LU
U94YRY	21.4	21.8	21.8	No Data	21.7	-0.61	2.0	0.2	21.6	-0.74	1.9	0.6	15	LW
WLLCZQ	24.5 L	22.7 L	22.7 L	22.7 L	23.2	0.70	0.1	0.9	23.7	0.92	0.1	0.9	12	XX
XGLK6Y	22.1	23.3	21.1	23.5	22.5	0.12	1.8	1.1	23.0	0.34	2.0	1.2	16	LA
XL2VH3	23.9	25.1	23.5	23.6	24.0	1.44	2.3	0.7	24.0	1.14	2.2	0.8	14	LW
XQVQHP	22.5	24.8	22.7	23.3	23.3	0.84	1.7	1.0	23.4	0.64	2.0	1.1	16	LZ
YM3GKT	21.1	21.5	20.5	20.6	20.9	-1.28	1.9	0.5	20.9	-1.31	1.8	0.4	16	LW
Z86NDX	22.5 L	23.3 L	24.2 L	23.2 L	23.3	0.81	0.0	0.7	28.9	4.90 X	1.2	9.6 H	16	LU
Z8ULQY	22.1	21.5	22.5	22.7	22.2	-0.16	1.7	0.5	22.6	0.06	1.9	0.8	15	LW
ZL9VR3	21.3 L	21.5 L	19.1 *L	22.9 L	21.2	-1.02	0.0	1.6 H	21.2	-1.06	0.3	0.9	16	LW
ZXJK6X	23.5	22.1	22.7	22.2	22.6	0.21	1.6	0.7	22.6	0.01	2.0	1.1	16	LA

Consensus (All Labs) Results

Wk Mean	22.37	22.55	22.18	22.39	Month Mean	22.36	Grand Mean	22.55
Avg SDr	1.55	1.55	1.52	1.45	Avg SDr	1.53	Avg SDr	1.62
SD btwn Labs	1.31	1.36	1.23	1.23	SD btwn Labs	1.14	SD btwn Labs	1.30
Labs Incld	49	48	48	48	SD btwn Wks	0.67	SD btwn Wks	1.51
Labs Excld	1	1	1	1	Labs Incld	49	Labs Incld	49
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
LU	L&W 52 without moisture correction(was 53)	LW	L&W 53 with moisture correction (was 53M)
LY	L&W 152 without moisture correction	LZ	L&W (model not specified)
TT	TMI Short Span Compression, 17-34 (MB K455)	XX	Instrument make/model not specified by lab

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2LAX3R	22.6 L	22.0 L	22.4 L	22.6 L	22.4	0.75	0.2	0.3	23.0	1.29	0.2	0.8	12	BK
3NN4TY	21.5	21.3	21.4	20.8	21.3	-0.33	1.2	0.3	21.8	0.07	1.4	0.5	12	LW
3XDRQM	20.6 L	21.1 L	21.1 L	21.1 L	21.0	-0.59	0.0	0.3	21.1	-0.71	0.0	0.6	8	LA
443RHM	20.0 L	20.2 L	19.9 L	20.5 L	20.2	-1.37	0.2	0.3	20.5	-1.31	0.2	0.4	12	LA
4APEDT	21.1	21.0	20.4	21.1	20.9	-0.67	1.2	0.3	21.1	-0.65	1.3	0.4	12	LY
7U2BJT	22.6	21.9	20.5	21.4	21.6	-0.02	1.5	0.9	21.6	-0.19	1.3	0.7	12	LA
7X7URM	21.4	21.7	21.6	21.6	21.6	0.00	1.1	0.1	21.8	0.02	1.1	0.2	12	LU
839ARU	21.2	20.0	20.3	20.7	20.6	-1.00	1.0	0.5	20.6	-1.12	1.1	0.4	12	BK
8BLEPL	21.3 L	19.7 L	21.1 L	20.5 L	20.7	-0.91	0.0	0.7	20.7	-1.06	0.3	0.6	11	LW
9KBC6T	20.7	20.8	20.5	20.6	20.7	-0.91	1.1	0.1	21.1	-0.69	1.1	0.7	12	LZ
9V8FAM	21.1	20.6	20.0	20.5	20.5	-1.02	1.2	0.4	20.8	-0.98	1.3	0.4	12	LY
ALEJMC	21.2	21.5	21.1	21.1	21.2	-0.35	1.5	0.2	21.0	-0.73	1.4	0.3	12	LY
CFJCFM	21.1	21.0	20.8	21.1	21.0	-0.58	1.1	0.2	22.5	0.73	1.2	1.2	12	LY
DP6ZPF	23.9	23.9 *	22.9	22.9	23.4	1.70	1.3	0.6	23.2	1.45	1.7	1.1	12	LZ
DRCFWL	29.0 X	27.5 X	28.6 X	28.1 X	28.3	6.40 X	1.4	0.7	24.4	2.69 *	1.5	2.9 H	12	XX
E6QZUK	19.9 L	21.5 L	22.6 L	21.1 L	21.3	-0.32	0.3	1.1 H	26.4	4.67 X	1.5	18.3 H	12	LA
F3LUU6	21.5	No Data	20.4	18.8 *	20.2	-1.31	1.2	1.3 H	20.4	-1.34	1.2	0.7	9	LY
FHFYKM	20.9	21.0	21.6	21.4	21.2	-0.38	1.2	0.3	21.1	-0.68	1.1	0.3	12	LU
FXCDKG	21.7	21.2	20.9	21.2	21.3	-0.33	1.2	0.3	21.4	-0.37	1.1	1.4	8	LU
GM9H3C	21.7	21.8	21.5	21.6	21.6	0.03	1.7	0.1	21.3	-0.43	1.3	0.5	12	LU
GNGX9H	23.4	22.4	22.1	21.0	22.2	0.61	1.3	1.0	22.4	0.59	1.4	0.7	12	LU
HCGJNB	23.5	24.2 *	22.2	24.1 *	23.5	1.80	1.4	0.9	22.7	0.93	1.2	0.8	12	XX
HM6HEG	22.1 L	31.9 X	31.1 X	21.4 L	26.6	4.78 X	1.0	5.6 H	23.0	1.22	0.8	4.0 H	12	LA
HMZ2GH	21.2	20.8	21.3	21.0	21.1	-0.51	1.1	0.2	21.0	-0.72	1.1	0.3	12	LW
K43GFF	21.1	22.0	21.0	21.8	21.5	-0.11	1.1	0.5	21.3	-0.50	1.2	0.4	12	LW
KQXCB9	24.1 *	23.7	23.8 *	23.7	23.8	2.09 *	1.5	0.2	23.5	1.70	1.3	0.4	12	LA
L8GCVD	22.8 L	21.8 L	21.8 L	No Data	22.2	0.52	0.2	0.6	21.6	-0.14	0.2	0.5	11	LA
L9CXP4	21.0	21.5	No Data	21.7	21.4	-0.20	1.4	0.4	22.2	0.49	1.5	1.1	11	LZ
MEDTL9	20.9	21.9	22.2 L	22.1	21.8	0.15	0.6	0.6	22.4	0.62	0.7	1.0	12	LY
MTTRQA	24.5 *	24.1 *	23.5	24.0 *	24.0	2.31 *	1.2	0.4	22.9	1.11	1.0	0.9	12	LU
MXLVJE	20.7	20.6	21.1	20.1	20.6	-0.93	1.0	0.4	20.5	-1.22	1.2	1.1	12	LW
NKE6G7	22.9	23.1	22.5	22.9	22.8	1.18	0.9	0.2	22.2	0.43	1.0	0.7	12	LU
P6GDAA	24.0 L	22.9 L	23.8 *L	23.6 L	23.6	1.89	0.0	0.5	23.2	1.44	0.0	0.9	10	LA
PXY4LD	20.4	20.5	20.2	20.1	20.3	-1.24	1.0	0.2	20.3	-1.47	1.2	0.6	12	LY
QAPFBW	22.2	22.5	21.6	21.9	22.1	0.43	1.3	0.4	21.9	0.18	1.2	0.3	8	LA

WebCode	Weekly Means Week 1	Week 2	Week 3	Week 4	Monthly Results Mean	CPV	SDr	SD Wks	Cumulative Results Mean	CPV	SDr	SD Wks	Wks	Inst
QRVBD4	20.4 L	20.3 L	20.4 L	20.1 L	20.3	-1.24	0.2	0.1	20.6	-1.18	1.0	0.6	12	LA
RYMEBW	21.0	21.5	21.7	21.3	21.3	-0.24	0.8	0.3	21.5	-0.27	0.8	0.2	12	TT
RZYU6X	21.8	21.7	21.9	21.4	21.7	0.12	0.7	0.2	21.8	0.08	0.7	0.3	12	TT
TQRGH3	23.0	23.1	23.1	22.7	23.0	1.30	0.8	0.2	23.1	1.32	0.8	0.2	8	LY
TZ9JJU	21.1	20.9	21.5	21.5	21.3	-0.33	1.3	0.3	21.0	-0.75	1.2	0.4	12	LU
U94YRY	20.4	20.7	21.1	No Data	20.7	-0.83	1.1	0.3	21.1	-0.71	1.3	0.4	11	LW
WLLCZQ	21.8 L	21.3 L	21.9 L	21.5 L	21.6	0.02	0.0	0.3	22.3	0.54	0.0	0.8	8	XX
XGLK6Y	21.2	21.8	21.8	21.5	21.6	-0.04	1.2	0.3	22.0	0.25	1.5	0.9	12	LA
XL2VH3	23.9	23.0	23.4	23.0	23.3	1.66	1.4	0.4	23.0	1.28	1.6	0.7	11	LW
XQVQHP	21.3	21.6	21.4	22.6	21.7	0.12	1.3	0.6	22.0	0.19	1.3	0.7	12	LZ
YM3GKT	20.3	20.0	19.8	19.9	20.0	-1.52	1.1	0.2	20.2	-1.60	1.2	0.2	12	LW
Z86NDX	22.3 L	22.3 L	22.3 L	23.1 L	22.5	0.85	0.0	0.4	26.3	4.54 X	0.7	5.7 H	12	LU
Z8ULQY	21.6	22.0	21.8	21.4	21.7	0.09	1.2	0.3	22.6	0.86	1.3	0.8	12	LW
ZL9VR3	20.7 L	19.7 L	20.3 L	19.8 L	20.1	-1.42	0.0	0.5	20.5	-1.30	0.3	0.6	12	LW
ZXJK6X	22.4	22.8	23.5	22.3	22.7	1.08	1.4	0.5	22.4	0.65	1.1	0.6	12	LA

Consensus (All Labs) Results

Wk Mean	21.72	21.63	21.58	21.53	Month Mean	21.60	Grand Mean	21.76
Avg SDr	1.07	1.06	1.07	1.06	Avg SDr	1.07	Avg SDr	1.12
SD btwn Labs	1.17	1.12	1.05	1.15	SD btwn Labs	1.05	SD btwn Labs	1.00
Labs Incld	49	47	47	47	SD btwn Wks	0.49	SD btwn Wks	0.98
Labs Excld	1	2	2	1	Labs Incld	48	Labs Incld	48
Labs not Rcvd	0	1	1	2				

Key to Instrument Codes Reported by Participants

BK	Buchel Strip Compression Tester BK-155	LA	L&W Autoline
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

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
2LAX3R	152.2	-0.69	27.0	152.2	-0.69	27.0	1	EV
3NN4TY	167.1	-0.02	20.1	167.1	-0.02	20.1	1	EV
3XDRQM	175.3	0.35	13.8	175.3	0.35	13.8	1	LA
443RHM	160.9	-0.30	11.2	160.9	-0.30	11.2	1	EV
8BLEPL	188.3	0.94	21.0	188.3	0.94	21.0	1	EV
9V8FAM	139.5	-1.28	10.8	139.5	-1.28	10.8	1	EV
DP6ZPF	166.0	-0.07	18.3	166.0	-0.07	18.3	1	XX
E6QZUK	170.9	0.15	10.5	170.9	0.15	10.5	1	EV
FHFYKM	183.5	0.73	16.7	183.5	0.73	16.7	1	EV
HM6HEG	172.2	0.21	19.2	172.2	0.21	19.2	1	LA
HMZ2GH	146.2	-0.97	13.4	146.2	-0.97	13.4	1	EV
L8GCVD	223.0	2.52 *	36.5	223.0	2.52 *	36.5	1	LA
MEDTL9	131.4	-1.64	17.3	131.4	-1.64	17.3	1	EV
MTTRQA	146.8	-0.94	19.7	146.8	-0.94	19.7	1	LA
MXLVJE	189.8	1.01	9.0	189.8	1.01	9.0	1	EV
NKE6G7	187.3	0.90	15.1	187.3	0.90	15.1	1	EV
P6GDAA	163.2	-0.20	15.5	163.2	-0.20	15.5	1	LA
PXY4LD	151.4	-0.73	17.6	151.4	-0.73	17.6	1	EV
QAPFBW	157.9	-0.44	15.8	157.9	-0.44	15.8	1	XX
WLLCZQ	197.5	1.36	21.5	197.5	1.36	21.5	1	EV
XGLK6Y	147.5	-0.91	20.4	147.5	-0.91	20.4	1	LA

Consensus (All Labs) Results

Month Mean	167.52	Grand Mean	167.52
Avg SDr	18.64	Avg SDr	18.64
SD btwn Labs	22.00	SD btwn Labs	22.00
Labs Incld	21	Labs Incld	21

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		

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
7U2BJT	442.0	1.69	0.9	409.0	1.73	7.4	4	XX
ER6MHB	369.2	-0.52	10.1	374.0	-0.11	8.6	4	XX
GM9H3C	370.2	-0.49	6.9	367.4	-0.46	8.5	4	XX
WEZGW2	389.9	0.11	5.7	370.0	-0.32	7.7	4	XX
ZXJK6X	360.7	-0.78	8.5	360.3	-0.83	7.7	4	XX

Consensus (All Labs) Results

Month Mean	386.41	Grand Mean	376.15
Avg SDr	7.15	Avg SDr	8.00
SD btwn Labs	32.87	SD btwn Labs	19.01
Labs Incld	5	Labs Incld	5

Key to Instrument Codes Reported by Participants

XX Instrument make/model not specified by lab

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
7U2BJT	87.2	-1.85	1.2	84.0	-2.48 *	1.5	4	LZ
8BLEPL	238.0	1.95	17.9	220.3	1.76	18.3	4	SC
9V8FAM	82.0	-1.98	9.1	155.5	-0.26	14.4	4	XX
DP6ZPF	146.0	-0.37	10.2	142.6	-0.66	10.4	4	TM
E6QZUK	155.4	-0.13	7.3	158.2	-0.17	5.5	2	TM
FHFYKM	147.2	-0.34	9.7	148.8	-0.47	7.5	4	TM
GM9H3C	182.8	0.56	4.3	182.8	0.59	4.7	4	HY
GVZ2FK	181.0	0.51	5.6	177.7	0.44	5.2	4	SC
HMZ2GH	196.0	0.89	7.4	201.4	1.17	8.3	4	HY
KR84H4	165.6	0.12	4.2	165.3	0.05	4.4	4	TM
L8GCVD	195.0	0.87	21.9	183.6	0.62	14.0	4	HY
MTTRQA	147.0	-0.34	5.8	141.7	-0.69	5.3	4	TM
NKE6G7	123.0	-0.95	9.3	128.4	-1.10	10.3	4	TM
QRVBD4	172.8	0.31	13.4	194.4	0.95	13.8	4	HY
TZ9JJU	170.2	0.24	8.3	161.5	-0.07	8.1	4	XX
YM3GKT	181.2	0.52	8.5	174.2	0.32	7.9	4	TM

Consensus (All Labs) Results

Month Mean	160.65	Grand Mean	163.74
Avg SDr	10.31	Avg SDr	9.77
SD btwn Labs	39.68	SD btwn Labs	32.14
Labs Incld	16	Labs Incld	16

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	160.97	38.53	0.31	12
Modified Scott Bond Mechanics	189.42	9.31	28.77	2

Key to Instrument Codes Reported by Participants

HY	Huygen Digitized Scott Internal Bond Tester	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	SDr	Mean	CPV	SDr	Months
3NN4TY	23.2	-1.63	0.8	24.2	-1.41	1.4	4
63XRVR	29.8	1.53	1.4	27.1	0.26	1.6	4
7U2BJT	28.8	1.05	0.8	27.7	0.59	0.9	4
8BLEPL	27.6	0.48	1.9	27.0	0.18	2.5	4
9V8FAM	24.6	-0.96	1.5	29.7	1.78	2.6	4
DP6ZPF	31.2	2.20 *	3.8	29.8	1.81	3.5	4
E6QZUK	26.4	-0.10	2.1	28.0	0.79	3.0	2
FHFYKM	25.6	-0.48	2.3	28.6	1.14	1.8	4
FXCDKG	27.0	0.19	1.0	27.0	0.21	1.0	1
GM9H3C	24.8	-0.87	1.3	24.2	-1.41	1.9	4
HCGJNB	27.8	0.57	1.3	24.4	-1.29	1.8	4
HMZ2GH	24.2	-1.15	0.8	24.7	-1.15	1.1	4
L8GCVD	28.6	0.94	0.7	27.6	0.58	1.4	4
MTTRQA	26.3	-0.15	2.6	26.9	0.12	2.5	4
NKE6G7	27.2	0.28	3.3	26.5	-0.08	2.7	4
PXY4LD	28.1	0.70	2.7	26.0	-0.34	1.6	4
QAPFBW	24.2	-1.15	1.5	24.3	-1.33	1.2	4
XQVQHP	26.6	0.00	2.3	27.5	0.50	2.0	4
YM3GKT	26.0	-0.28	4.1	25.2	-0.83	3.0	4
Z8ULQY	24.2	-1.15	1.5	26.5	-0.11	2.0	4

Consensus (All Labs) Results

Month Mean	26.61	Grand Mean	26.63
Avg SDr	2.12	Avg SDr	2.09
SD btwn Labs	2.09	SD btwn Labs	1.73
Labs Incld	20	Labs Incld	20

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
2LAX3R	54.9	1.34	1.1	55.0	1.53	2.0	4	XX
3YA92X	51.0	0.26	1.5	49.7	-0.51	1.4	2	LA
63XRVR	53.2	0.87	1.7	54.5	1.35	2.2	4	GA
7886DQ	53.6	0.98	1.9	53.1	0.79	2.1	4	XX
7U2BJT	53.8	1.02	1.6	53.6	1.02	2.1	4	LA
8BLEPL	51.7	0.46	2.6	51.3	0.12	3.0	4	HG
9V8FAM	52.7	0.74	1.5	53.3	0.89	2.7	4	LP
ALEJMC	48.9	-0.31	0.7	49.8	-0.47	1.3	4	LP
DP6ZPF	46.4	-1.00	3.7	46.2	-1.87	4.1	4	TD
E6QZUK	51.8	0.50	1.2	52.0	0.37	1.7	2	LP
GM9H3C	53.1	0.83	3.0	52.5	0.59	2.7	4	TP
GVZ2FK	49.3	-0.21	2.1	51.0	0.01	1.7	4	LP
HCGJNB	42.1	-2.19 *	2.1	41.0	-3.88 X	2.0	4	LA
HM6HEG	50.5	0.14	4.7	50.2	-0.31	3.1	3	LA
HMZ2GH	51.1	0.30	2.2	51.4	0.13	1.9	4	LP
L8GCVD	49.8	-0.07	1.5	50.0	-0.39	1.6	4	LA
MTTRQA	52.1	0.57	1.8	52.3	0.50	1.9	4	LA
MZFGD6	44.0	-1.66	4.3	46.8	-1.63	3.6	4	GG
NKE6G7	43.1	-1.90	2.1	44.7	-2.47 *	2.3	4	LA
P6GDAA	51.4	0.37	1.8	52.4	0.53	2.1	4	TL
QAPFBW	49.8	-0.07	1.4	50.8	-0.09	1.6	4	LA
V2EKHY	42.6	-2.05 *	2.7	48.9	-0.82	2.4	4	XX
WLLCZQ	50.7	0.18	1.8	33.8	-6.71 X	1.3	3	LW
YM3GKT	50.6	0.17	2.4	50.8	-0.08	3.2	4	HG
Z8ULQY	52.7	0.73	2.4	53.1	0.82	2.1	4	LP

Consensus (All Labs) Results

Month Mean	50.04	Grand Mean	51.01
Avg SDr	2.35	Avg SDr	2.40
SD btwn Labs	3.63	SD btwn Labs	2.57
Labs Incld	25	Labs Incld	23

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	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2LAX3R	66.7 X	67.3 X	67.5 X	65.7 *	66.8	3.88 X	2.4	0.8	66.2	3.97 X	3.0	1.3	12	MB
339JWX	57.7	58.0	55.8	56.5	57.0	-0.88	2.5	1.0	56.4	-1.50	2.4	1.0	16	EM
3XDRQM	57.5	62.4	55.5	58.8	58.5	-0.13	2.9	2.9	57.5	-0.88	2.9	2.0	16	MB
3YA92X	62.9	59.7	59.3	61.2	60.8	0.95	2.1	1.6	60.8	0.92	2.0	1.1	8	LC
7886DQ	58.3	59.8	59.8	61.8	59.9	0.53	2.7	1.4	60.6	0.82	2.3	1.1	16	LD
7U2BJT	56.8	58.6	57.8	58.0	57.8	-0.50	2.3	0.7	57.9	-0.70	2.2	1.6	16	LD
7X7URM	59.7	58.4	58.8	58.6	58.9	0.02	2.2	0.6	59.5	0.22	2.1	1.2	16	LD
9FFH8R	63.0	62.4	62.0	61.6	62.3	1.67	2.1	0.6	61.8	1.51	2.1	0.7	16	LD
9KBC6T	54.6	55.2 *	59.4	56.3	56.3	-1.20	2.8	2.2	59.1	0.00	2.7	2.8 H	16	LZ
9V8FAM	No Data	58.1	59.4	59.7	59.1	0.13	2.9	0.9	58.6	-0.27	2.5	1.1	14	LZ
APFRRL	59.4	59.6	59.2	59.2	59.3	0.26	2.2	0.2 L	60.1	0.57	2.0	2.5	16	LD
C62VMG	No Data	No Data	61.1	59.8	60.4	0.79	2.4	0.9	60.1	0.56	2.6	1.7	14	LX
CFJCFM	56.6	58.0	58.0	56.7	57.4	-0.71	1.7	0.8	56.9	-1.25	1.7	1.0	16	LD
CZVY4G	60.7	60.8	61.1	61.6	61.1	1.08	1.8	0.4	60.9	1.02	1.6	0.4	15	LC
DQZHRG	59.3	59.5 H	59.4	59.4	59.4	0.28	3.6	0.1 L	59.4	0.16	3.3	0.1 L	16	LD
DRCFWL	56.0	58.4	58.6	57.9	57.7	-0.53	2.6	1.2	57.2	-1.07	3.1	1.4	16	LD
DVAWAF	60.5	58.8	59.5	61.4	60.0	0.60	2.9	1.1	59.5	0.23	3.0	2.3	16	LC
ECDPGF	56.9	60.4	57.6	58.0 L	58.2	-0.28	1.4	1.5	59.4	0.15	2.0	1.8	16	LC
FHFYKM	57.4	58.9	59.5	58.5	58.6	-0.12	2.5	0.9	57.6	-0.82	2.6	1.4	16	LD
FXCDKG	60.2	59.9	58.2	58.0	59.1	0.13	1.6	1.1	59.1	-0.02	1.6	1.1	4	LZ
GM9H3C	60.2	61.0	61.0	58.6	60.2	0.68	2.6	1.1	60.8	0.95	2.8	1.3	16	LC
H2Y3V6	59.2	57.3	57.5	57.2	57.8	-0.50	2.2	1.0	60.6	0.81	2.4	2.3	12	MB
HMZ2GH	60.0	61.5	60.7	60.2	60.6	0.88	3.0	0.7	59.6	0.26	3.3	1.1	12	LD
KQXCB9	56.4	55.3 *	54.3	55.1	55.3	-1.72	2.5	0.9	56.1	-1.69	2.2	1.1	16	LD
L9CXP4	58.2	60.6	No Data	57.8	58.9	0.02	2.6	1.5	58.6	-0.28	2.5	1.1	11	LD
LD7RM6	61.2	60.6 L	63.9 *L	64.4 *L	62.5	1.81	1.0	1.9	62.6	1.93	1.3	1.6	16	TD
LEE7TB	54.6	53.4 X	54.9	52.8 *H	53.9	-2.37 *	2.8	1.0	54.5	-2.61 *	2.4	1.2	16	TX
MTTRQA	59.7	60.6	59.4 H	54.5 H	58.6	-0.13	4.0	2.7	58.5	-0.34	4.1	1.9	16	LC
NKE6G7	60.3	61.4	53.3 *H	61.8	59.2	0.19	3.8	4.0 H	59.0	-0.05	3.8	2.6 H	16	XX
PLQET4	55.5	52.4 X	55.2	54.9	54.5	-2.10 *	2.2	1.4	56.2	-1.62	2.5	2.1	16	LD
PMFPKW	69.4 X	69.1 X	67.7 X	67.1 X	68.3	4.60 X	2.4	1.1	64.7	3.11 X	3.3	6.9 H	16	XX
QAPFBW	60.8	59.9	59.9	59.4	60.0	0.58	2.2	0.6	59.1	-0.01	2.2	0.9	16	LD
QRVBD4	55.9	57.4	56.4	56.0	56.4	-1.16	2.4	0.7	59.2	0.06	2.0	2.1	16	LC
RYMEBW	59.8	55.6 *	57.4	55.0 L	56.9	-0.91	2.3	2.1	58.5	-0.34	2.4	1.5	16	TH
RZYU6X	59.8	60.6 H	58.2	60.7	59.8	0.48	3.6	1.1	59.8	0.39	3.9	1.3	16	TG

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
TQRGH3	59.4 L	58.4	59.4 L	58.8	59.0	0.09	1.2	0.5	59.3	0.11	1.9	0.6	16	LC
TZ9JJU	58.4	59.4	59.0	58.2	58.7	-0.04	1.6	0.6	60.6	0.80	2.0	3.2 H	16	LC
U94YRY	60.7	65.0 X	61.3	No Data	62.3	1.70	2.3	2.4	61.9	1.57	1.9	1.5	15	LE
UB8G69	59.9	60.4	58.7	58.4	59.4	0.26	2.9	1.0	59.3	0.12	2.6	0.7	16	LD
UE7RZ9	59.3	60.0	59.8	58.8	59.5	0.32	3.2	0.5	59.3	0.12	2.5	0.7	16	LC
UEBAY8	60.9	60.7	61.3	60.4	60.8	0.97	2.6	0.4	61.4	1.28	2.8	1.1	16	EM
WLLCZQ	54.2 *	51.3 XH	56.2	54.6	54.1	-2.29 *	6.1	2.1	57.3	-1.00	4.3	2.8 H	12	XX
XL2VH3	57.2 H	59.2	55.1	54.3 H	56.4	-1.15	3.9	2.2	55.7	-1.91	3.9	2.1	14	LC
XQVQHP	59.9	59.9	58.5	59.3	59.4	0.28	2.2	0.7	58.3	-0.45	2.3	1.6	16	LZ
Z8ULQY	60.0	60.7	No Data	60.5	60.4	0.76	2.1	0.4	61.5	1.31	2.2	1.5	14	LC
ZLP78M	60.7	61.8	62.3	61.0	61.4	1.28	2.1	0.7	60.8	0.94	1.9	1.6	16	MB

Consensus (All Labs) Results

Wk Mean	58.80	59.47	58.66	58.66	Month Mean	58.82	Grand Mean	59.12
Avg SDr	2.44	2.70	2.50	2.63	Avg SDr	2.70	Avg SDr	2.61
SD btwn Labs	2.14	1.75	2.31	2.69	SD btwn Labs	2.06	SD btwn Labs	1.78
Labs Incld	42	39	42	44	SD btwn Wks	1.43	SD btwn Wks	1.65
Labs Excld	2	6	2	1	Labs Incld	44	Labs Incld	44
Labs not Rcvd	2	1	2	1				

Analysis Notes

PLQET4 - Data appears to be switched between Analysis 240 and Analysis 255 for Week 3. Data switched by CTS.

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LE	L&W CRUSH TESTER 275
LX	L&W 506	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	TD	TMI Digital Crush Tester, Model 17-09
TG	TMI Compression Tester, Model 17-10	TH	TMI Compression Tester, Model 17-76
TX	TMI Crush Tester (model not specified)	XX	Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program

Analysis 250

Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium - CM81

TAPPI Official Method T824

Report #561 (F)
June 2016

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
7886DQ	70.2	70.4	70.1	71.6	70.6	0.58	2.0	0.7	69.5	0.42	2.1	1.3	16	XX
7U2BJT	70.3	71.9	72.2	70.9	71.3	0.82	2.3	0.9	70.4	0.65	2.0	1.3	16	LD
7X7URM	63.5	63.8	63.4	63.1	63.4	-1.69	1.8	0.3 L	64.2	-0.94	1.8	1.0	16	LD
9FFH8R	69.9	69.5	70.1	71.2	70.2	0.46	2.4	0.7	69.7	0.47	2.3	0.9	16	LD
9KBC6T	70.4	61.1 H	63.6	70.6	66.4	-0.74	4.2	4.8 H	68.8	0.24	3.3	3.5 H	16	LZ
APFRRL	69.7	69.5	69.8	69.5	69.6	0.29	2.1	0.2 L	68.8	0.26	2.0	2.7	16	LD
C62VMG	No Data	No Data	68.4	69.3	68.9	0.04	1.8	0.7	58.6	-2.37 *	5.2	4.6 H	14	LD
GM9H3C	70.5	71.9 L	71.1	71.7	71.3	0.82	1.8	0.7	71.3	0.90	2.3	1.2	16	LC
HMZ2GH	76.1 *	76.0	75.4	75.2	75.7	2.21 *	2.0	0.4	76.2	2.15 *	2.1	0.7	8	LD
LD7RM6	69.9 L	69.5 L	71.6	69.5 L	70.1	0.43	1.0	1.0	71.0	0.80	1.1	1.5	16	TD
QAPFBW	67.2	66.1	66.4	66.1	66.5	-0.73	2.3	0.5	66.1	-0.44	2.1	1.3	16	LD
U94YRY	67.7	61.3	66.2	No Data	65.1	-1.17	1.9	3.4 H	65.2	-0.68	2.2	1.9	15	LE
UB8G69	65.5 H	66.3	64.7 H	65.1	65.4	-1.06	4.2	0.7	65.4	-0.63	4.2	0.7	4	XX
UE7RZ9	64.7 H	66.0 H	66.6 H	65.3 H	65.7	-0.98	4.7	0.8	65.7	-0.57	4.7	0.8	4	XX
V2EKHY	67.2	69.5 L	69.1	69.0 L	68.7	-0.02	1.1	1.0	68.1	0.06	1.4	0.8	16	XX
Z8ULQY	72.6	71.2	71.8	68.8	71.1	0.75	2.3	1.6	66.6	-0.33	2.4	3.5 H	15	XX

Consensus (All Labs) Results

Wk Mean	69.03	68.25	68.77	69.13	Month Mean	68.74	Grand Mean	67.85
Avg SDr	2.34	3.04	2.72	2.31	Avg SDr	2.59	Avg SDr	2.82
SD btwn Labs	3.18	4.14	3.39	3.12	SD btwn Labs	3.14	SD btwn Labs	3.89
Labs Incld	15	15	16	15	SD btwn Wks	1.65	SD btwn Wks	2.08
Labs Excld	0	0	0	0	Labs Incld	16	Labs Incld	16
Labs not Rcvd	1	1	0	1				

Key to Instrument Codes Reported by Participants

LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LE	L&W CRUSH TESTER 275	LZ	L&W Crush Tester (model not specified)
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 - CM81

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
339JWX	40.5	41.8	40.9	42.1	41.3	0.79	1.7	0.8	41.3	0.89	2.0	0.8	16	LC
3YA92X	39.7	40.9	39.3	40.4	40.1	0.21	1.8	0.7	41.5	1.00	1.8	1.7	8	LD
7886DQ	38.1	37.0	37.9	38.9	38.0	-0.76	2.2	0.8	37.1	-0.95	2.1	0.7	16	LD
7U2BJT	40.4	40.7	40.8	40.7	40.7	0.49	1.8	0.2 L	38.7	-0.25	1.9	1.4	16	LD
9FFH8R	41.4	40.4	41.3	39.7	40.7	0.50	1.5	0.8	40.5	0.57	1.6	0.6	16	LD
A7MLLG	39.3	39.2	39.5	38.8	39.2	-0.19	2.5	0.3	38.8	-0.19	2.0	1.8	16	TH
CZVY4G	41.1	42.1	42.7	41.5	41.8	1.04	1.8	0.7	41.8	1.14	1.5	1.0	15	LC
DQZHRG	38.6 H	38.5 H	38.8 H	38.4 H	38.6	-0.48	4.3	0.2 L	38.3	-0.43	3.5	0.4	16	LD
DVAWAF	25.8 X	25.2 X	25.2 X	24.3 X	25.1	-6.69 X	1.8	0.6	24.9	-6.44 X	2.0	3.4 H	16	XX
ECDPGF	37.2	35.1	34.8 *	35.4	35.6	-1.84	1.2	1.1	35.2	-1.82	1.3	1.3	16	LC
GM9H3C	38.7	40.3	39.7	39.8	39.6	0.01	1.9	0.6	39.8	0.23	1.8	1.0	16	LC
JDW399	35.1 *L	34.8	35.4 L	34.7 L	35.0	-2.12 *	0.8	0.3	35.5	-1.69	1.0	0.7	16	WK
L9CXP4	36.6	41.4	No Data	37.1	38.4	-0.58	1.7	2.6 H	39.6	0.15	1.9	2.2	11	LD
LEE7TB	25.9 XH	26.2 XH	22.4 XH	28.7 XH	25.8	-6.37 X	4.0	2.6 H	26.7	-5.65 X	3.5	1.5	16	TX
PLQET4	43.1	43.9	44.1	43.9	43.8	1.91	2.1	0.4	42.7	1.52	2.2	1.6	16	LZ
QAPFBW	41.2	39.7	40.5	40.0	40.4	0.35	1.7	0.7	40.7	0.66	2.0	1.0	16	LD
TQRGH3	42.9	42.3	41.5	42.2	42.2	1.22	1.9	0.6	41.2	0.85	2.3	1.0	16	WK
UBA7BR	37.8	40.0	39.7	37.7	38.8	-0.38	2.9	1.2	36.8	-1.11	2.8	2.4 H	16	LZ
WLLCZQ	40.2	41.0	41.9	41.0	41.0	0.65	2.1	0.7	41.3	0.90	2.2	1.3	12	XX
XQVQHP	39.8	38.6	40.6	40.5	39.8	0.11	2.1	0.9	38.8	-0.21	2.1	1.3	16	EM
Z8ULQY	39.8	36.5	38.4	35.7	37.6	-0.93	2.2	1.9	36.4	-1.26	2.2	2.8 H	12	LC

Consensus (All Labs) Results

Wk Mean	39.55	39.68	39.87	39.40	Month Mean	39.60	Grand Mean	39.27
Avg SDr	2.21	1.95	2.12	2.28	Avg SDr	2.14	Avg SDr	2.08
SD btwn Labs	2.05	2.45	2.32	2.45	SD btwn Labs	2.17	SD btwn Labs	2.23
Labs Incld	19	19	18	19	SD btwn Wks	0.99	SD btwn Wks	1.46
Labs Excld	2	2	2	2	Labs Incld	19	Labs Incld	19
Labs not Rcvd	0	0	1	0				

Analysis Notes

PLQET4 - Data appears to be switched between Analysis 240 and Analysis 255 for Week 3. Data switched by CTS.

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)
TH	TMI Compression Tester, Model 17-76	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 - CM81

TAPPI Provisional Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2LAX3R	12.8 L	12.7 L	13.0 L	13.1 L	12.9	0.13	0.1	0.2	13.9	1.55	0.1	0.8	16	BK
339JWX	12.9	13.2	12.8	12.7	12.9	0.12	0.8	0.2	12.8	-0.52	0.7	0.3	16	LB
3XDRQM	11.4 *L	12.0 L	12.0 L	12.0 L	11.9	-2.57 *	0.0	0.3	12.3	-1.31	0.0	0.5	14	LA
3YA92X	14.3 *	14.7 X	14.3	14.3 *	14.4	4.18 X	0.7	0.2	14.1	1.90	0.6	0.4	8	LA
7U2BJT	12.7	13.0	13.1	12.8	12.9	0.18	0.8	0.2	12.8	-0.41	0.8	0.4	16	LA
9V8FAM	12.5	12.2	12.2	11.8	12.2	-1.76	0.8	0.3	12.2	-1.45	0.8	0.2	16	LB
APFRRL	13.0	13.3	13.1	13.0	13.1	0.70	0.6	0.1	13.0	-0.06	0.7	0.2	16	LA
C62VMG	No Data	No Data	13.2	12.4	12.8	-0.14	0.6	0.6	12.5	-1.08	0.7	0.3	14	LB
CZVY4G	13.2	12.4	13.3	12.9	13.0	0.35	0.6	0.4	13.1	0.17	0.6	0.5	15	XX
FHFYKM	12.3	12.5	13.0	12.6	12.6	-0.70	0.8	0.3	12.5	-0.90	0.8	0.3	16	LU
FXCDKG	12.6	12.9	12.8	13.0	12.8	-0.06	0.8	0.1	12.8	-0.43	0.8	0.1	4	LU
GM9H3C	12.8	12.5	13.0	12.8	12.8	-0.18	0.7	0.2	12.5	-0.94	0.7	0.3	16	LU
L9CXP4	12.9	12.5	No Data	12.9	12.8	-0.10	0.7	0.2	13.2	0.30	0.9	0.7	11	LZ
LEE7TB	12.3 L	12.1 L	12.6 L	12.0 L	12.2	-1.62	0.0	0.3	12.1	-1.76	0.0	0.5	16	TS
QAPFBW	12.4	12.9	13.1	13.0	12.9	0.05	0.7	0.3	13.1	0.10	0.8	0.3	16	LA
RYMEBW	13.1	13.0	12.9	12.5	12.8	0.02	0.6	0.3	13.6	1.05	0.6	2.2 H	16	TT
TQRGH3	13.9	14.4 X	14.0	14.2	14.1	3.42 X	0.5	0.2	14.0	1.65	0.6	0.2	16	LB
UB8G69	13.0	13.1	12.9	13.1	13.0	0.52	0.7	0.1	12.9	-0.18	0.8	0.1 L	16	LB
UBA7BR	12.9	13.0	14.4 *	14.1	13.6	1.96	0.9	0.8 H	13.1	0.18	0.9	0.7	16	LA
UE7RZ9	13.0	12.9	13.0	13.0	13.0	0.38	0.6	0.1	12.9	-0.22	0.7	0.1 L	16	LB
WLLCZQ	13.5 L	12.4 L	14.1 L	13.7 L	13.4	1.60	0.0	0.7 H	13.5	0.89	0.0	0.6	12	XX
XL2VH3	13.1	13.3	12.8	13.1	13.1	0.69	0.7	0.2	13.8	1.30	0.7	0.5	14	LW
XQVQHP	12.5	12.9	13.3	13.2	13.0	0.38	0.7	0.4	13.2	0.22	0.7	0.4	16	LZ
ZXJK6X	12.9	12.5	13.1	12.9	12.8	0.02	0.5	0.3	13.0	-0.04	0.8	0.5	16	LA

Consensus (All Labs) Results

Wk Mean	12.86	12.72	13.13	12.95	Month Mean	12.83	Grand Mean	13.04
Avg SDr	0.61	0.63	0.64	0.66	Avg SDr	0.64	Avg SDr	0.68
SD btwn Labs	0.57	0.39	0.59	0.63	SD btwn Labs	0.38	SD btwn Labs	0.55
Labs Incld	23	21	23	24	SD btwn Wks	0.34	SD btwn Wks	0.62
Labs Excld	0	2	0	0	Labs Incld	22	Labs Incld	24
Labs not Rcvd	1	1	1	0				

Key to Instrument Codes Reported by Participants

BK	Buchel Strip Compression Tester BK-155	LA	L&W Autoline
LB	L&W Model 152	LU	L&W 52 without moisture correction (was 53)
LW	L&W 53 with moisture correction (was 53M)	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		