Collaborative Testing Services, Inc.

Containerboard Interlaboratory Testing Program

Participant Summary Report #568 (A) - January 2017

Introduction to the Containerboard Program

Explanation of Tables and Definitions of Terms

Analysis	Sample	Analysis Name
201	BX11	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	42D2	Mullen Burst of Linerboard, 42 lb Linerboard
206	56A1	Mullen Burst of Linerboard, 56 lb Linerboard
215	42D2	Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard
216	56A1	Ring Crush of Linerboard, Rigid Platen Type, 56 lb Linerboard
223	42D2	STFI of Linerboard, 42 lb Linerboard
224	56A1	STFI of Linerboard, 56 lb Linerboard
228	56A	Roughness - Stylus Method, 56 lb Linerboard
229	42D2	Roughness - Sheffield Method, 42 lb Linerboard
231	42B	Internal Bond Strength, Linerboard, 42 lb Linerboard
234	42B	Coefficient of Static Friction - Inclined Plane, 42 lb Linerboard
237	42B	Air Resistance - Gurley Method, Linerboard, 42 lb Linerboard
240	CM91	Flat Crush Strength (CMT) of Medium, 26 lb Corrugating Medium
250	CM91	Fluted Crush of Medium, 26 lb Corrugating Medium
255	CM91	Ring Crush of Medium, 26 lb Corrugating Medium
261	CM91	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	CM91	October 2016-Current
	CM81	October 2015-September 2016
36 lb Linerboard	36Z3	December 2014-Current
	36Z2	February 2012-October 2014
42 lb Linerboard	42D2	August 2016-Current
	42D1	April 2015-July 2016
56 lb Linerboard	56A1	July 2016-Current

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
62QTXJ	730.5	-0.45	36.6	730.5	-0.45	36.6	1	LS
ADCJRX	837.4	0.76	34.8	837.4	0.76	34.8	1	ER
AR9XRR	678.1	-1.04	36.2	678.1	-1.04	36.2	1	LS
B9BWDZ	923.4	1.72	45.1	923.4	1.72	45.1	1	EX
CAHREH	749.4	-0.23	42.9	749.4	-0.23	42.9	1	ES
CGG7CC	733.3	-0.42	35.0	733.3	-0.42	35.0	1	LL
CWCHTU	857.6	0.98	31.8	857.6	0.98	31.8	1	LG
DWWGN7	738.6	-0.36	10.4	738.6	-0.36	10.4	1	LG
FFVTZB	782.8	0.14	27.6	782.8	0.14	27.6	1	ET
FFXB7M	840.0	0.79	53.3	840.0	0.79	53.3	1	LH
JNFXL9	735.4	-0.39	66.3	735.4	-0.39	66.3	1	LS
NK6PA6	751.2	-0.21	68.5	751.2	-0.21	68.5	1	ER
NKMEW7	754.4	-0.18	40.4	754.4	-0.18	40.4	1	ER
Q7RB24	630.6	-1.57	37.1	630.6	-1.57	37.1	1	LL
QQ333K	930.4	1.80	44.6	930.4	1.80	44.6	1	ER
QWNVF6	571.2	-2.24 *	15.8	571.2	-2.24 *	15.8	1	LG
U2NGUC	711.2	-0.66	99.4	711.2	-0.66	99.4	1	EX
U2RW9X	774.9	0.05	87.8	774.9	0.05	87.8	1	LM
VJK7GT	877.2	1.20	30.4	877.2	1.20	30.4	1	TE
XT4EZ7	818.2	0.54	54.7	818.2	0.54	54.7	1	TB
XXXBMC	749.5	-0.23	12.1	749.5	-0.23	12.1	1	LM

Consensus (All Labs) Results

Month Mean	770.26	Grand Mean	770.26
Avg SDr	48.64	Avg SDr	48.64
SD btwn Labs	88.82	SD btwn Labs	88.82
Labs Incld	21	Labs Incld	21

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	739.62	118.62	30.64	5
Clip sealing	770.13	79.93	0.12	14
Tape sealing	847.72	41.74	77.46	2

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	SDr	Mean	CPV	SDr	Months	Inst
62QTXJ	39.6	-1.19	1.7	39.5	-1.16	1.9	2	EM
AR9XRR	45.5	0.82	1.2	45.1	0.80	1.6	4	LC
CGG7CC	46.8	1.28	1.2	46.8	1.41	1.2	1	XX
DWWGN7	44.7	0.54	2.9	44.3	0.52	2.8	3	LZ
F3B4AL	39.5	-1.24	1.3	38.9	-1.37	1.3	4	WK
FFXB7M	40.4	-0.93	1.0	41.6	-0.41	1.0	4	TC
JNFXL9	43.0	-0.03	1.9	41.4	-0.49	2.1	4	EM
V3D6PC	45.3	0.75	0.5	44.8	0.69	1.0	4	TB

Consensus (All Labs) Results

Month Mean	43.10	Grand Mean	42.80
Avg SDr	1.62	Avg SDr	1.71
SD btwn Labs	2.91	SD btwn Labs	2.86
Labs Incld	8	Labs Incld	8

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
39YFXM	49.7	1.67	1.2	48.3	1.13	1.6	4	EM
47BDBZ	49.5	1.58	1.6	49.6	1.86	1.4	4	LC
62QTXJ	48.0	0.88	0.9	47.6	0.74	1.6	2	EM
6PCXHJ	45.5	-0.30	1.8	48.2	1.04	1.5	4	TB
79NUJV	43.6	-1.20	2.0	43.5	-1.65	1.6	3	EM
8MNVWW	46.8	0.32	1.5	49.4	1.71	1.8	4	TG
8RTYDH	45.2	-0.46	2.6	45.1	-0.70	2.4	4	TD
9QXN7L	46.0	-0.07	1.3	45.6	-0.43	1.3	4	LD
ADCJRX	45.2	-0.46	1.7	44.4	-1.11	1.8	4	EM
AR9XRR	47.4	0.59	0.6	47.4	0.62	1.6	4	LC
B9BWDZ	42.5	-1.73	1.2	43.8	-1.44	1.7	4	LD
CAHREH	43.9	-1.04	2.3	44.6	-1.00	1.8	4	LD
CGG7CC	46.8	0.32	1.2	46.4	0.05	1.3	4	BU
CWCHTU	43.5	-1.25	2.4	45.3	-0.63	3.3	4	EM
DWWGN7	44.3	-0.85	3.0	44.8	-0.90	2.4	3	LE
F3B4AL	41.6	-2.13 *	0.9	39.4	-3.93 X	1.3	3	WK
FFVTZB	54.2	3.77 X	1.5	53.0	3.76 X	1.2	4	TD
FFXB7M	48.1	0.92	0.7	46.4	0.00	0.7	4	TC
HDHVPR	49.2	1.41	1.8	47.9	0.88	2.0	2	XX
JNFXL9	46.0	-0.08	1.6	46.7	0.20	1.7	4	EM
K2JYFN	45.7	-0.21	1.4	45.6	-0.44	1.8	4	TK
KQXH73	50.8	2.18 *	1.1	47.5	0.63	2.0	4	LC
LYTVMG	46.4	0.10	1.3	45.9	-0.26	1.8	4	LD
NK6PA6	45.5	-0.32	2.0	43.4	-1.67	2.3	4	EX
NKMEW7	44.6	-0.75	1.9	45.5	-0.49	1.5	4	LD
NWF2KE	38.6	-3.52 X	2.0	40.4	-3.41 X	1.9	4	TD
PJNU34	44.8	-0.63	1.6	45.9	-0.28	1.5	4	TM
Q7RB24	45.3	-0.41	1.7	47.7	0.78	2.4	4	LC
QQ333K	43.1	-1.43	1.2	43.5	-1.60	1.7	4	TB
RMV67H	47.8	0.77	1.3	46.1	-0.16	1.8	3	LC
U2NGUC	46.9	0.36	0.6	47.7	0.79	0.7	2	TL
U2RW9X	49.1	1.40	2.6	48.9	1.44	2.1	4	EM
V3D6PC	46.9	0.37	1.1	45.8	-0.30	1.0	4	TG
VJK7GT	47.1	0.45	0.9	47.1	0.43	0.9	1	LD
W4AX6W	44.0	-1.00	1.7	43.8	-1.48	1.6	4	LD
WGUC9V	45.3	-0.41	1.4	45.0	-0.78	1.7	4	LD
XT4EZ7	47.2	0.49	0.9	48.6	1.30	0.8	4	LD
XXXBMC	48.7	1.21	1.3	48.3	1.12	1.5	4	TG
XZMH8A	47.1	0.45	5.0	48.0	0.91	3.3	3	LC

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
ZCN3EQ	44.6	-0.72	1.9	45.8	-0.32	1.9	4	LD

Consensus (All Labs) Results

Month Mean	46.15	Grand Mean	46.35
Avg SDr	1.79	Avg SDr	1.81
SD btwn Labs	2.13	SD btwn Labs	1.76
Labs Incld	38	Labs Incld	37

Key to Instrument Codes Reported by Participants

BU	Buchel Digital Crush Tester	EM	Emerson 1200 Series
EX	Emerson (model not specified)	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
TM	TMI/Hinde & Dausch	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
227TGP	117.7	112.8	119.5 *	No Data	116.7	1.94	10.8	3.4	117.0	2.38 *	11.7	3.0	15	LA
2GHANR	110.8	107.9	104.1	105.1	107.0	-0.54	11.5	3.0	108.9	-0.03	11.5	3.2	16	TB
2JQJFN	118.1	107.2	111.9	114.5	112.9	0.98	10.7	4.6	113.4	1.31	11.4	3.6	16	AX
3EBCRP	105.3	103.1	107.7	107.2	105.8	-0.83	10.3	2.1	106.8	-0.67	11.5	4.8	16	LA
4A94BK	107.7	108.3	108.9	108.6	108.4	-0.18	5.7	0.5 L	108.6	-0.13	7.1	1.4	16	AH
4KPLC4	115.7 L	109.3 L	109.2 L	107.0 L	110.3	0.31	3.6	3.8	112.3	0.97	5.9	3.3	12	LA
7N222L	105.4	107.9	105.6	105.1	106.0	-0.80	9.8	1.3	106.3	-0.81	9.5	1.6	16	LB
8F33KW	100.3 *	100.1	103.1	101.7	101.3	-1.99	9.4	1.4	101.6	-2.22 *	8.7	3.0	16	AH
AA7B8K	113.5	110.6	113.3	113.2	112.7	0.91	9.8	1.4	108.0	-0.31	11.2	3.6	16	AH
AP3AD2	114.4	113.3	111.1	111.0	112.4	0.86	9.7	1.7	111.5	0.72	9.7	2.6	16	LC
AR9XRR	110.2	102.6	105.2	104.7	105.7	-0.87	11.5	3.2	107.9	-0.35	10.9	3.4	16	AH
B9BWDZ	111.5	110.5	109.5	108.0	109.9	0.20	9.8	1.5	110.0	0.29	10.7	1.6	16	AH
BJARCV	107.8	110.1	112.6	104.5	108.8	-0.08	13.2	3.5	108.9	-0.03	12.5	2.3	12	LA
BWFL7T	116.8	117.9 *	113.6 H	119.1 *	116.9	1.98	14.2	2.4	112.5	1.04	9.2	4.0	16	LC
BXRHBX	109.1	108.8	108.7	108.9	108.9	-0.05	6.8	0.2 L	109.1	0.01	7.0	0.3 L	16	LJ
CAHREH	108.6	108.3	106.0	107.8	107.7	-0.36	8.4	1.2	109.8	0.23	10.6	2.2	16	LA
CKKUZF	98.9 *	102.0	105.5	103.5	102.5	-1.69	11.5	2.8	105.5	-1.05	11.7	3.7	16	LC
D27YJT	114.1	104.1	115.6	110.5	111.1	0.51	11.5	5.1	109.7	0.20	11.4	3.4	12	LC
DWWGN7	111.3	110.8	111.2	116.9	112.5	0.88	11.2	2.9	113.5	1.33	11.6	2.8	13	LZ
E2LDNG	108.5	103.2	110.2	105.9	106.9	-0.55	10.8	3.1	104.7	-1.30	11.0	2.9	16	LC
FFXB7M	116.5	113.3	108.3	108.0	111.5	0.62	11.4	4.1	111.0	0.59	11.3	4.0	16	AA
FUVH7A	111.4	105.9	108.4	111.6	109.3	0.06	12.1	2.7	109.8	0.22	11.9	3.0	16	TB
GQFBHB	106.7	111.0	111.7	111.2	110.2	0.27	6.8	2.3	108.1	-0.28	8.1	2.6	16	TB
JLUCWR	106.0	108.1	101.3	106.5	105.5	-0.92	12.5	2.9	108.2	-0.25	11.3	3.4	16	LZ
JNFXL9	101.8	103.7	106.2	106.4	104.5	-1.16	13.4	2.2	101.7	-2.18 *	12.3	2.9	16	RE
LELM8H	105.3	109.1	107.2	108.1	107.4	-0.42	7.2	1.6	107.3	-0.52	7.3	2.3	16	TP
LFWMB4	101.4	110.9	110.1	115.0	109.3	0.07	9.5	5.7	109.8	0.22	9.9	4.1	16	LA
LYTVMG	108.3	109.2	106.3	109.3	108.3	-0.21	9.8	1.4	109.5	0.14	9.9	3.1	16	AA
M8EF7K	112.8	110.0	110.8	102.1	108.9	-0.04	9.6	4.7	104.6	-1.33	10.3	4.8	16	LC
MB4PH8	108.8	118.6 *	126.0 X	121.0 *	118.6	2.43 *	12.2	7.2 H	114.3	1.56	11.7	8.0 H	16	AH
NKMEW7	112.1	107.9	105.1	105.4	107.6	-0.37	9.8	3.2	109.7	0.20	11.0	3.2	16	AH
PAGXGL	114.4	118.5 *	117.6 *	115.6	116.5	1.89	11.3	1.8	114.5	1.62	12.2	2.9	12	LA
PRX24D	112.8 L	113.2 L	112.1 L	111.8 L	112.5	0.86	3.4	0.6	112.0	0.89	4.0	1.2	16	XX
QBABJ4	103.0	100.4	99.4 *	101.4	101.1	-2.05 *	13.5	1.5	106.0	-0.91	11.4	3.7	16	LC
QQ333K	106.0	103.7	101.5	102.3	103.4	-1.46	11.9	2.0	102.7	-1.88	11.8	3.8	16	LA

Containerboard Interlaboratory Testing Program
Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42D2
TAPPI Official Test Method T807

Report #568 (A)
January 2017

	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
QRXGV4	108.9	108.4	110.5	106.7 L	108.7	-0.11	10.0	1.6	109.0	0.00	11.3	3.9	16	LC
QWNVF6	104.9	104.3	107.1	104.0	105.1	-1.02	9.7	1.4	107.9	-0.34	10.5	2.5	16	AH
R2FKAG	112.6	106.4	112.7	113.4	111.3	0.56	9.7	3.3	113.5	1.34	9.8	3.1	16	LJ
RZKWYY	108.7	105.9	117.2	115.3	111.7	0.68	9.1	5.3	111.1	0.60	11.4	8.2 H	16	LZ
T6VADQ	110.1	112.7	110.5	108.9	110.5	0.37	10.6	1.6	113.4	1.31	10.1	3.4	16	LC
THJA9Z	112.4	114.8	108.2	117.4	113.2	1.05	9.2	3.9	110.4	0.40	11.2	3.3	14	LA
U2RW9X	112.9	109.5	112.1	111.4	111.5	0.61	5.7	1.4	109.7	0.21	8.2	4.8	16	AH
V6LEJV	109.3	101.0	100.5 *	103.6	103.6	-1.40	10.5	4.0	103.7	-1.61	10.7	2.6	16	LA
V6ZQET	110.7	103.6 L	107.2 L	104.0	106.4	-0.69	5.5	3.3	106.1	-0.87	5.4	2.3	16	RE
W4AX6W	107.8	112.3	109.5	105.5	108.8	-0.08	9.9	2.9	108.2	-0.25	11.7	2.8	16	LC
WGUC9V	105.4	105.8	105.7	102.1	104.8	-1.10	7.3	1.8	104.6	-1.33	8.0	1.4	16	LA
WQHBTA	110.4	110.0	112.3	115.6	112.1	0.76	10.0	2.6	112.5	1.03	11.6	3.4	16	XX
X7QNPX	104.4	102.5	107.7	109.7	106.1	-0.76	11.1	3.2	106.4	-0.79	11.3	2.4	16	LA
XZMH8A	114.6	112.7	109.7	114.4	112.9	0.96	12.6	2.3	110.9	0.57	11.3	3.0	12	LA
YZWADV	108.4	105.9	108.5	108.2	107.7	-0.34	12.1	1.2	108.8	-0.08	11.5	2.9	16	LA
ZCN3EQ	108.1	112.0	110.5	111.2	110.5	0.35	11.6	1.7	109.6	0.16	11.5	2.3	16	LA

Consensus (All Labs) Results

Wk Mean	109.46	108.43	108.97	109.01	Month Mean	109.09	Grand Mean	109.04
Avg SDr	10.03	10.26	10.85	9.81	Avg SDr	10.26	Avg SDr	10.46
SD btwn Labs	4.47	4.52	4.22	4.88	SD btwn Labs	3.92	SD btwn Labs	3.35
Labs Incld	51	51	50	50	SD btwn Wks	2.99	SD btwn Wks	3.45
Labs Excld	0	0	1	0	Labs Incld	51	Labs Incld	51
Labs not Rcvd	0	0	0	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
227TGP	122.5 *	118.1	125.0	No Data	121.8	2.15 *	11.1	3.5	122.3	2.41 *	9.7	3.7	11	LA
2GHANR	110.7	116.5	112.4	114.6	113.5	-0.11	12.3	2.5	115.2	0.34	10.1	3.4	12	TB
2JQJFN	112.0	116.4	118.8	112.1	114.8	0.24	9.0	3.3	117.1	0.90	9.6	5.6	12	AX
3EBCRP	109.7	110.3	109.6	113.9	110.9	-0.84	11.8	2.0	108.6	-1.60	11.9	2.5	12	LA
4A94BK	111.9	113.3 L	114.4 L	114.1	113.4	-0.15	5.1	1.1	114.0	0.00	6.3	1.4	12	AH
4KPLC4	115.0	116.5	115.8	114.2	115.4	0.39	8.7	1.0	118.4	1.27	7.9	3.8	8	LA
7N222L	112.0	114.1	107.5	108.3	110.5	-0.94	10.7	3.1	109.9	-1.21	10.3	2.8	12	LB
8F33KW	111.1	116.3	109.5	109.4	111.6	-0.66	8.4	3.3	112.0	-0.60	9.4	4.3	12	AH
AA7B8K	120.7	113.6	114.8	108.7	114.5	0.13	11.2	4.9	112.7	-0.40	10.9	3.3	12	AH
AR9XRR	112.2	112.8	110.4	113.9	112.3	-0.45	11.1	1.5	112.4	-0.48	9.5	4.7	12	AH
B9BWDZ	112.5	118.0	117.0	113.0	115.1	0.32	9.3	2.8	115.6	0.45	9.3	3.6	12	AH
BJARCV	113.2	111.0	115.0	112.6	113.0	-0.27	9.4	1.7	113.4	-0.18	11.2	4.0	12	LA
BWFL7T	129.6 X	120.3	125.6 H	130.3 X	126.5	3.40 X	12.5	4.6	126.0	3.47 X	9.7	14.8 H	12	LC
BXRHBX	113.8	113.9	113.9 L	113.9	113.9	-0.02	7.0	0.1 L	115.6	0.44	8.5	4.4	12	LJ
CAHREH	115.8	107.5	109.1 H	115.8	112.1	-0.52	14.0	4.4	114.8	0.22	11.8	4.7	12	LA
CKKUZF	115.4	116.1	109.7	104.5	111.4	-0.69	9.8	5.4	108.6	-1.57	10.5	4.7	12	LC
D27YJT	108.3	114.3 H	112.2	115.3	112.5	-0.39	13.6	3.1	114.4	0.09	11.1	3.3	12	XX
DWWGN7	112.8	118.2	124.8	115.5	117.8	1.05	9.5	5.1	119.9	1.70	10.3	4.6	12	LZ
E2LDNG	112.4	112.2	102.2 *L	107.7	108.6	-1.45	7.3	4.8	109.1	-1.44	8.6	3.3	12	LA
FFXB7M	119.0 H	117.0	117.8	112.0	116.4	0.67	13.4	3.1	114.8	0.21	12.1	3.1	12	AA
FUVH7A	113.5	108.5	108.1	120.8	112.7	-0.34	11.0	5.9	115.0	0.29	11.6	4.2	12	TB
GQFBHB	121.8	121.1	123.2	125.4 *	122.9	2.42 *	10.3	1.9	120.7	1.94	9.6	3.3	12	TB
JLUCWR	106.2	116.4	110.4	110.0	110.7	-0.87	10.0	4.2	111.4	-0.75	11.5	3.8	12	LZ
JNFXL9	105.3	108.6	110.9	118.8	110.9	-0.83	10.9	5.7	109.1	-1.44	10.0	4.5	12	RE
LELM8H	111.0	113.0	114.1	115.1	113.3	-0.18	8.2	1.8	112.3	-0.50	7.6	2.1	12	TP
LFWMB4	110.5	116.2	110.6	110.2	111.9	-0.57	9.1	2.9	113.0	-0.31	9.9	2.8	12	LA
LYTVMG	116.3	115.9	113.6	123.0	117.2	0.88	9.9	4.0	115.0	0.28	9.8	3.5	12	AA
M8EF7K	106.8	117.6	107.2	111.1	110.7	-0.89	11.4	5.0	111.7	-0.69	11.5	4.5	12	LC
MB4PH8	112.4	122.4	127.0 *	127.6 *	122.4	2.28 *	10.6	7.0	117.5	1.01	10.1	5.9	12	AH
NKMEW7	111.9	105.8	115.1	116.3	112.3	-0.46	11.1	4.7	114.5	0.14	9.7	3.3	12	AH
PAGXGL	117.2	116.0	123.5	120.3	119.3	1.44	13.5	3.4	120.4	1.84	12.6	4.5	8	LA
PRX24D	127.2 X	125.1 *L	124.1 L	124.3 L	125.2	3.05 X	4.8	1.4	124.9	3.15 X	4.6	1.5	12	XX
QBABJ4	113.0	111.1	111.6 L	113.7	112.4	-0.44	7.0	1.2	111.1	-0.85	8.8	2.2	12	LC
QQ333K	109.8	105.7	121.9 H	105.8	110.8	-0.86	17.8	7.7 H	107.6	-1.88	13.8	6.7 H	12	LZ
QRXGV4	112.0	113.4	118.5	115.1	114.7	0.21	8.6	2.8	115.0	0.29	9.1	3.4	12	LC

Containerboard Interlaboratory Testing Program

Analysis 206

Bursting Strength (Mullen), 56 lb Linerboard - 56A1

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
QWNVF6	107.9	111.1	107.0	112.5	109.6	-1.18	10.5	2.6	113.7	-0.09	9.7	4.6	12	AH
R2FKAG	109.2	115.7	123.2	118.5	116.7	0.73	9.2	5.9	115.6	0.45	9.1	5.0	12	LJ
RZKWYY	122.5 *	118.9	124.9	119.9	121.6	2.07 *	12.3	2.7	120.4	1.86	12.6	3.0	12	LZ
T6VADQ	119.1	117.2	119.1	120.9	119.1	1.39	9.8	1.5	117.2	0.91	9.9	3.2	12	LC
THJA9Z	113.9	117.9	116.1	112.2	115.0	0.29	8.1	2.5	115.2	0.33	8.8	2.3	10	LA
U2RW9X	121.8	118.1	116.5	121.3	119.4	1.49	9.2	2.5	115.1	0.32	9.2	4.4	12	AH
V6LEJV	107.2	110.4	104.8	111.2	108.4	-1.51	9.3	3.0	109.9	-1.22	8.9	2.9	12	LA
V6ZQET	116.0	115.2	110.4	110.6	113.1	-0.25	10.3	3.0	115.2	0.34	8.5	2.9	12	RE
W4AX6W	112.9	109.0	117.6	110.9	112.6	-0.37	10.7	3.7	112.3	-0.50	10.7	3.8	12	LC
WGUC9V	110.9	108.7	108.7	106.5	108.7	-1.43	7.7	1.8	109.3	-1.38	7.6	2.5	12	LA
WQHBTA	107.4	121.0	117.9	115.4	115.4	0.40	12.5	5.9	115.0	0.29	11.7	5.4	12	XX
X7QNPX	117.3	111.2	111.8	111.5	113.0	-0.27	10.2	2.9	111.5	-0.75	10.0	2.6	12	LA
XZMH8A	116.4	112.3	112.8	112.2	113.4	-0.15	11.3	2.0	115.4	0.40	10.7	2.2	12	LA
YZWADV	113.5	111.1	115.8	114.6	113.7	-0.06	10.5	2.0	113.4	-0.18	11.4	3.3	12	LA
ZCN3EQ	109.0	107.6	109.2	109.1	108.7	-1.44	11.2	0.8	111.6	-0.70	9.2	2.5	12	LA

Consensus (All Labs) Results

Wk Mean	113.20	114.37	114.82	114.26	Month Mean	113.96	Grand Mean	114.04
Avg SDr	9.97	10.63	11.39	9.99	Avg SDr	10.53	Avg SDr	10.16
SD btwn Labs	4.36	4.34	6.06	5.12	SD btwn Labs	3.67	SD btwn Labs	3.44
Labs Incld	48	50	50	48	SD btwn Wks	3.69	SD btwn Wks	3.84
Labs Excld	2	0	0	1	Labs Incld	48	Labs Incld	48
Labs not Rcvd	0	0	0	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
227TGP	94.3	92.1	95.1	No Data	93.8	1.30	3.1	1.6	92.2	0.80	3.6	2.4	15	LZ
2GHANR	89.5	88.0	89.6 H	90.5	89.4	0.11	5.1	1.0	90.0	0.28	4.4	1.9	16	LC
2JQJFN	85.7	92.2	83.1	89.1	87.5	-0.39	4.1	4.0	83.3	-1.31	4.8	6.0 H	16	LC
3EBCRP	89.2	88.2	90.2	94.0	90.4	0.38	3.3	2.5	89.2	0.08	3.6	2.4	16	LC
4KPLC4	91.7	90.2	90.1	91.0	90.8	0.48	2.5	0.8	91.0	0.51	2.6	2.1	12	LZ
4V86NM	88.9	91.0	87.8	89.9	89.4	0.12	4.3	1.4	91.0	0.51	4.4	2.2	16	XX
6WZDF4	87.3	86.9	No Data	No Data	87.1	-0.51	3.8	0.3 L	87.1	-0.42	3.8	0.3 L	2	EX
77YNYX	95.1	92.5	91.6	93.2 L	93.1	1.10	3.1	1.5	91.5	0.62	4.0	2.4	16	EM
7M7RFJ	94.0	95.5	96.1	97.7	95.8	1.82	3.8	1.5	92.9	0.95	2.5	2.3	16	LD
7N222L	81.8	84.4	83.8	84.2	83.6	-1.45	4.3	1.2	87.4	-0.35	4.5	3.8	16	LC
83XXCJ	86.1	87.8 L	88.3 L	87.4 L	87.4	-0.42	1.9	1.0	86.7	-0.52	2.7	1.2	16	MB
8F33KW	97.1	96.1	96.3	93.7	95.8	1.83	4.7	1.5	96.5	1.80	4.9	5.6 H	16	LZ
8MNVWW	91.5	92.7	92.4	93.3	92.5	0.94	3.0	0.8	90.8	0.47	3.4	2.0	16	TH
8XHJJJ	89.2	88.1	90.2	88.9	89.1	0.03	3.2	0.8	90.5	0.39	3.4	2.3	16	MB
A868HH	90.5	89.3	91.5	93.3	91.1	0.58	3.6	1.7	90.1	0.28	3.6	1.7	16	LD
ADCJRX	83.3	86.2	86.0	85.8	85.3	-0.98	2.7	1.3	82.9	-1.42	2.9	2.8	16	EM
AR9XRR	89.6	88.0	88.0	86.9	88.1	-0.22	3.7	1.1	89.3	0.10	3.9	1.2	16	LC
BXRHBX	87.2 H	87.1 H	87.2 H	87.1	87.1	-0.49	6.5	0.0 L	87.3	-0.36	7.2	0.4 L	16	LD
CKKUZF	90.8	90.7	90.6	89.1	90.3	0.35	5.0	0.8	89.2	0.07	4.0	1.7	16	LC
CWCHTU	87.8	85.8	86.4	88.8	87.2	-0.47	4.7	1.4	85.9	-0.71	4.1	1.8	16	EM
DWWGN7	87.7	90.9	90.0	87.3	89.0	0.00	3.6	1.8	88.4	-0.11	3.3	1.6	13	LC
E2LDNG	86.4	76.8 *H	86.6	77.9 *	81.9	-1.89	6.1	5.3	85.7	-0.74	5.4	4.7	16	LZ
FUVH7A	80.6	79.2 *	71.2 X	77.5 *	77.1	-3.16 X	5.1	4.2	80.1	-2.08 *	4.0	3.6	16	LZ
GQFBHB	100.1 *	100.1 *	99.3 *	101.6 *	100.3	3.02 X	4.4	1.0	99.9	2.62 *	4.6	1.8	16	LX
HQ6676	94.8	96.3	95.1	90.4	94.2	1.38	4.1	2.6	94.5	1.35	4.2	2.6	8	TH
JNFXL9	87.5	86.2	86.3	86.2	86.5	-0.65	3.0	0.6	87.6	-0.30	3.5	2.1	16	EM
K2JYFN	86.6 L	86.0	87.2	86.5	86.6	-0.64	2.0	0.5 L	85.9	-0.69	3.0	0.7	16	MB
LELM8H	87.9 L	87.2	89.8	87.7	88.2	-0.22	3.4	1.1	87.6	-0.29	3.0	1.0	16	TH
LFWMB4	91.0	88.2	92.8	87.9	90.0	0.27	4.0	2.3	89.4	0.12	3.7	2.1	16	LD
LYTVMG	87.7	84.0	85.1 L	88.2	86.3	-0.72	3.7	2.0	85.8	-0.74	3.2	2.6	15	LD
MB4PH8	93.6	89.1	91.2	91.8	91.4	0.66	3.5	1.9	90.3	0.35	4.5	3.8	16	LC
NK6PA6	82.3	86.6	79.4 *	81.5	82.4	-1.74	3.5	3.0	82.8	-1.45	4.0	2.1	16	EN
NKMEW7	87.9	85.5	87.4	87.4	87.1	-0.51	4.2	1.1	86.7	-0.52	3.7	1.9	16	LD
NWF2KE	93.4	91.6 L	94.3	90.9 L	92.6	0.96	2.0	1.6	92.3	0.83	1.4	1.7	16	TD
PAGXGL	101.4 *	95.1	93.5	94.7	96.2	1.92	3.7	3.5	97.9	2.15 *	4.5	3.3	12	LD

Containerboard Interlaboratory Testing Program
Analysis 215
Ring Crush, 42 lb Linerboard - 42D2
TAPPI Official Test Method T822

Report #568 (A)
January 2017

	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
PKGQPC	82.9	83.3	84.6	85.1	84.0	-1.33	4.5	1.0	83.0	-1.39	4.5	1.6	8	LC
PRX24D	84.4	84.5	92.8	90.3 H	88.0	-0.26	5.0	4.2	85.6	-0.77	4.6	3.6	16	LD
Q6G7NE	80.7 H	89.0	94.7	82.3 H	86.7	-0.62	6.3	6.4 H	88.9	0.01	6.0	5.3 H	14	MB
QBABJ4	89.2	87.7	89.0	86.8	88.1	-0.22	3.0	1.1	88.5	-0.08	3.8	1.5	16	LD
QQ333K	88.3	85.2	84.1	88.9	86.6	-0.62	3.8	2.3	86.8	-0.48	4.0	2.8	16	LD
QRXGV4	87.7	92.2	96.0	86.5	90.6	0.43	3.2	4.3	91.3	0.57	3.8	3.5	16	LC
R2FKAG	78.9 *	81.1	83.1 L	83.2	81.6	-1.98	3.1	2.0	80.4	-2.00 *	3.1	2.1	16	TU
RUY9X2	81.3	80.1	82.5	81.3	81.3	-2.05 *	4.6	1.0	80.7	-1.93	4.3	2.8	16	LD
RZKWYY	88.3	90.6	85.0	89.5	88.4	-0.17	4.1	2.4	90.3	0.34	5.2	7.1 H	16	LC
THJA9Z	73.7 X	99.5 *	103.7 X	101.9 *	94.7	1.53	3.8	14.1 H	94.5	1.35	5.6	8.4 H	14	LC
U2RW9X	92.4	92.6	89.8	91.1	91.5	0.67	3.4	1.3	91.5	0.64	3.9	1.5	16	EM
V6LEJV	86.7	86.4	85.4	86.7	86.3	-0.71	4.8	0.6	85.8	-0.73	4.0	1.4	16	LD
V6ZQET	93.2	92.0	91.7	91.2	92.0	0.82	5.0	0.8	88.4	-0.11	3.8	2.8	16	LZ
VJK7GT	90.2	92.1	91.0	90.5	90.9	0.53	3.5	0.8	91.2	0.56	3.3	1.1	16	LD
W4AX6W	87.0	86.4	83.7	89.6	86.7	-0.62	4.4	2.4	86.3	-0.62	4.3	1.7	16	LD
WGUC9V	89.3	90.2	88.4	88.9	89.2	0.05	3.7	0.7	89.9	0.25	3.4	1.0	16	LD
WQHBTA	84.7 H	85.2	82.6	83.7	84.0	-1.32	5.9	1.2	83.5	-1.28	5.7	2.0	16	LC
X7QNPX	94.1	93.0	94.2	92.7	93.5	1.21	4.1	0.8	94.9	1.44	4.0	1.3	16	LD
XZMH8A	96.2	92.7	95.0	95.1	94.8	1.54	4.1	1.5	93.9	1.20	5.2	4.9 H	12	LC
ZCN3EQ	92.0	89.0	88.6	88.9	89.6	0.17	2.4	1.6	92.1	0.77	2.9	1.8	16	LD

Consensus (All Labs) Results

Wk Mean	89.02	88.88	89.31	88.97	Month Mean	88.97	Grand Mean	88.86
Avg SDr	4.25	3.94	3.93	4.03	Avg SDr	4.01	Avg SDr	4.11
SD btwn Labs	4.79	4.63	4.38	4.80	SD btwn Labs	3.75	SD btwn Labs	4.22
Labs Incld	54	55	52	53	SD btwn Wks	2.87	SD btwn Wks	2.99
Labs Excld	1	0	2	0	Labs Incld	53	Labs Incld	55
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
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	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
227TGP	139.2	142.2	138.7	No Data	140.0	0.39	4.9	1.9	139.7	0.47	4.0	2.0	11	LZ
2GHANR	143.2	136.3	141.8	134.8	139.0	0.22	4.8	4.1	141.8	0.83	5.1	3.3	12	LC
2JQJFN	134.0	144.6	133.6	137.8	137.5	-0.04	4.6	5.1	127.3	-1.68	7.6	12.4 H	12	LC
3EBCRP	140.4 L	134.8	148.8	144.0	142.0	0.74	4.4	5.9	138.2	0.21	4.0	4.9	12	LC
4KPLC4	138.7 L	137.4 L	136.2 L	137.2	137.4	-0.07	1.8	1.0	137.1	0.02	2.0	1.0	8	LZ
4V86NM	143.0	147.7	135.4	143.4	142.4	0.80	4.7	5.1	142.9	1.02	4.4	3.7	12	XX
6WZDF4	135.9	141.0	No Data	No Data	138.4	0.12	6.4	3.6	138.4	0.25	6.4	3.6	2	EX
77YNYX	141.4	150.2	145.1	142.2	144.7	1.21	4.9	4.0	143.2	1.07	5.3	3.1	12	EM
7M7RFJ	145.1	145.3	146.2	143.9	145.1	1.28	3.1	0.9	138.4	0.25	3.0	5.9	12	LD
7N222L	139.5	137.5	130.6	135.4	135.7	-0.35	3.6	3.8	135.1	-0.33	4.1	3.9	12	LC
83XXCJ	134.9	133.8	135.3	134.9	134.7	-0.53	3.1	0.6 L	129.5	-1.30	7.6	5.4	12	MB
8F33KW	149.8 *	159.8 *	157.8 X	152.1 *	154.9	2.98 X	5.0	4.7	147.5	1.82	5.6	9.2 H	12	LZ
8MNVWW	140.1	139.6	139.1	140.7	139.9	0.37	4.0	0.7 L	136.7	-0.05	3.7	2.4	12	TH
8XHJJJ	136.5	133.0	136.5	138.9	136.2	-0.27	4.0	2.4	136.4	-0.11	4.5	2.8	12	TH
A868HH	139.3	139.0	143.0	139.1	140.1	0.40	4.7	1.9	139.5	0.43	4.9	2.9	12	LD
ADCJRX	134.8	135.9	133.8	133.2 L	134.4	-0.58	2.9	1.2	130.8	-1.08	3.1	2.9	12	EM
AR9XRR	139.0	140.1	135.4	136.6	137.8	0.00	3.8	2.1	138.6	0.28	4.3	2.6	12	LC
BXRHBX	135.5	135.4	135.4	135.4	135.4	-0.41	4.7	0.0 L	135.3	-0.30	6.7	0.1 L	12	LD
CKKUZF	140.1	140.0	140.2	139.9	140.1	0.40	3.9	0.1 L	139.0	0.34	3.8	2.4	12	LC
CWCHTU	138.8	137.4	134.2	142.7	138.3	0.08	3.4	3.6	135.3	-0.29	3.8	3.8	12	EM
DWWGN7	138.0 L	138.7	139.9	132.5	137.3	-0.08	3.2	3.3	136.5	-0.09	4.1	2.9	12	LY
E2LDNG	135.3	124.1 H	131.6	119.7 *	127.7	-1.76	6.6	7.1	133.4	-0.63	7.4	8.3	12	LZ
FUVH7A	128.4 H	121.6 *	125.4 *	119.0 *	123.6	-2.47 *	5.9	4.1	124.3	-2.20 *	5.1	4.0	12	LZ
GQFBHB	165.3 X	159.8 *	161.4 X	163.0 X	162.4	4.29 X	5.7	2.4	159.2	3.84 X	5.7	3.6	12	LX
HQ6676	150.0 *	149.5	149.6	150.1	149.8	2.10 *	5.2	0.3 L	148.2	1.93	5.3	2.3	8	TH
JNFXL9	129.9	137.3	136.9	133.0	134.3	-0.61	3.8	3.5	134.2	-0.49	4.7	2.7	12	EM
K2JYFN	139.6 L	138.3 L	138.0 L	138.1	138.5	0.13	2.2	0.8 L	131.8	-0.90	2.5	7.1	12	MB
LELM8H	133.2	132.8	133.1	132.1	132.8	-0.87	4.0	0.5 L	132.5	-0.78	3.5	0.9 L	12	TH
LFWMB4	140.6	139.3	141.2	141.1	140.5	0.48	5.2	0.9	140.9	0.68	4.6	1.3	12	LD
LYTVMG	131.3	127.6 L	130.9	129.4	129.8	-1.39	4.4	1.7	131.2	-1.01	4.3	1.6	12	LD
MB4PH8	143.2	141.3	139.0	139.1	140.7	0.50	5.9	2.0	137.9	0.16	5.8	5.0	12	LC
NK6PA6	129.6	130.6	127.2	130.7	129.5	-1.44	2.9	1.6	128.4	-1.50	3.6	2.4	12	EN
NKMEW7	134.1	131.6	133.8	132.2	132.9	-0.85	3.8	1.2	134.6	-0.43	4.2	2.0	12	LD
NWF2KE	134.7	134.7 L	142.0	139.3	137.6	-0.02	2.8	3.6	135.6	-0.25	2.9	3.0	12	TD
PAGXGL	151.8 *	158.1 *	148.5	149.0	151.8	2.45 *	5.7	4.4	152.5	2.68 *	5.0	3.5	8	LD

Containerboard Interlaboratory Testing Program

Analysis 216

Ring Crush, 56 lb Linerboard - 56A1

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
PKGQPC	129.4	130.2	127.4	129.3	129.1	-1.52	5.6	1.2	128.7	-1.43	5.7	3.9	8	LC
PRX24D	138.0	131.6	142.0	138.6	137.6	-0.04	4.7	4.3	134.7	-0.40	4.6	6.0	12	LD
Q6G7NE	123.7 *H	150.3 H	146.9	134.4 H	138.8	0.18	10.8	12.2 H	139.6	0.45	7.8	18.1 H	11	MB
QBABJ4	136.4	139.8	138.6 L	138.4	138.3	0.09	3.2	1.4	137.0	-0.01	3.6	1.9	12	LD
QQ333K	136.0	133.8	136.7	136.6	135.8	-0.35	3.7	1.4	133.2	-0.66	4.5	5.0	12	LD
QRXGV4	143.2	142.7	145.7 H	142.9	143.6	1.02	6.4	1.4	144.3	1.26	5.9	3.8	8	LC
R2FKAG	119.2 X	123.7	129.3	126.5	124.7	-2.28 *	4.2	4.3	125.3	-2.03 *	4.7	4.4	12	TU
RUY9X2	129.9	125.7	126.9	122.2 *	126.2	-2.03 *	4.3	3.2	129.9	-1.23	4.6	3.6	12	LD
RZKWYY	138.7	139.9	130.5	137.0	136.5	-0.22	5.4	4.2	135.1	-0.33	5.3	5.5	12	LC
THJA9Z	107.3 X	155.9	155.8 X	159.3 X	144.6	1.19	5.5	24.9 H	146.4	1.63	7.9	16.4 H	10	LC
U2RW9X	143.0	144.3	139.9	141.5	142.2	0.77	3.8	1.9	142.0	0.86	4.5	2.7	12	EM
V6LEJV	135.2	134.6	134.6	134.1	134.6	-0.55	3.9	0.5 L	134.0	-0.53	4.0	1.8	12	LD
V6ZQET	135.8	137.5	140.2	139.5	138.2	0.08	5.0	2.0	135.1	-0.33	4.5	3.0	12	LZ
VJK7GT	140.0 L	142.1	142.8	143.6	142.1	0.76	3.3	1.5	141.4	0.77	3.6	1.4	12	LD
W4AX6W	134.6	135.9	135.0	135.1	135.1	-0.46	4.4	0.5 L	135.2	-0.31	4.2	1.8	12	LD
WGUC9V	137.6	136.9	138.3	133.9	136.7	-0.19	2.6	1.9	137.7	0.12	2.9	1.8	12	LD
WQHBTA	142.3	143.1	137.3 L	139.2	140.5	0.47	3.3	2.7	140.7	0.64	3.8	2.2	12	LC
X7QNPX	145.4	140.9	139.3	137.3	140.7	0.51	4.6	3.4	137.1	0.01	5.1	5.7	12	LD
XZMH8A	145.5	147.9	142.9	147.0	145.8	1.40	6.1	2.2	143.1	1.05	10.3	10.0 H	12	LC
ZCN3EQ	146.3	143.0	145.0	145.5	145.0	1.25	3.7	1.4	145.4	1.44	4.0	3.7	12	LD

Consensus (All Labs) Results

Wk Mean	138.27	139.20	137.75	137.26	Month Mean	137.78	Grand Mean	137.02
Avg SDr	5.14	4.64	4.02	4.60	Avg SDr	4.62	Avg SDr	5.03
SD btwn Labs	5.68	8.37	5.92	6.83	SD btwn Labs	5.73	SD btwn Labs	5.78
Labs Incld	52	55	51	51	SD btwn Wks	4.75	SD btwn Wks	5.45
Labs Excld	3	0	3	2	Labs Incld	53	Labs Incld	54
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
LY	L&W Crush Tester 958	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	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
227TGP	22.2	21.6	21.9	No Data	21.9	-0.35	2.0	0.3	21.8	-0.56	1.8	0.5	15	LW
2GHANR	23.3	22.2	22.6	22.1	22.5	0.24	1.9	0.5	22.9	0.52	1.9	0.4	16	LW
2JQJFN	20.3	20.3	19.8	22.8	20.8	-1.40	2.0	1.4	20.7	-1.71	1.7	1.0	16	XX
3EBCRP	20.8	20.7	21.3	21.3	21.0	-1.20	1.3	0.3	20.9	-1.46	1.5	0.7	16	LA
3P8LU6	22.6 L	22.6 L	24.8 L	21.5 L	22.9	0.56	0.0	1.4	23.2	0.82	0.0	1.1	8	LU
4A94BK	23.1	23.1	22.7	22.9	22.9	0.64	1.0	0.2	22.7	0.32	1.1	0.3	16	TT
4V86NM	22.6 L	22.7 L	22.7 L	24.2 L	23.0	0.71	0.1	0.8	22.8	0.39	0.1	1.1	16	XX
6WZDF4	43.2 XL	43.2 XL	No Data	No Data	43.2	19.98 X	0.0	0.0 L	43.2	21.13X	0.0	0.0 L	2	TT
7M7RFJ	22.3	22.6	22.4	22.8	22.5	0.22	1.0	0.2	23.9	1.53	1.1	0.9	16	LZ
7N222L	22.8	23.1	22.3 L	23.5	22.9	0.63	1.4	0.5	22.9	0.54	1.7	0.4	16	LU
83XXCJ	22.4 L	21.8 L	22.9 L	22.6 L	22.4	0.13	0.2	0.5	23.5	1.17	0.4	1.3	16	BK
8WVTMK	20.9 L	24.5 *L	22.2 L	21.6 L	22.3	0.02	0.1	1.6	21.2	-1.21	0.3	1.3	14	LW
A868HH	22.2	20.8	22.5	23.0	22.1	-0.15	1.9	1.0	22.3	-0.08	2.0	0.7	16	LY
AA7B8K	23.4	22.1	22.4	22.1	22.5	0.22	1.8	0.6	22.6	0.26	1.8	0.8	16	LU
AP3AD2	23.7 L	21.7 L	20.5 L	20.7 L	21.7	-0.60	0.4	1.5	22.2	-0.16	0.4	1.3	16	LA
AR9XRR	22.6	22.3	22.1	22.5	22.4	0.07	1.9	0.2	22.2	-0.18	1.9	0.3	16	LU
BJARCV	25.5 *H	23.2	23.2	22.7	23.6	1.28	3.7	1.3	23.9	1.51	2.7	0.8	12	LU
BWFL7T	21.4 L	20.8 L	21.1 L	21.7 L	21.3	-0.98	0.3	0.4	21.1	-1.28	0.3	0.8	16	LA
CKKUZF	22.0 L	21.9 L	21.0 L	20.4 L	21.3	-0.91	0.3	0.8	21.6	-0.73	0.4	0.7	16	LA
DWWGN7	21.4	21.4	22.2	22.1	21.8	-0.47	1.9	0.5	22.1	-0.27	1.8	0.8	13	LW
E2LDNG	21.6 L	24.1 L	20.9 L	21.1 L	22.0	-0.31	0.5	1.5	22.2	-0.15	0.5	1.0	16	LA
FUVH7A	21.6	20.7	22.8	22.1	21.8	-0.44	2.0	0.9	21.7	-0.64	1.9	0.6	16	LZ
HQ6676	23.7	22.6	25.9 *	24.3	24.1	1.76	1.9	1.4	22.8	0.47	1.7	1.8 H	8	TT
JLUCWR	25.4 *	24.3	24.7	25.5 *	25.0	2.56 *	2.0	0.6	24.9	2.59 *	2.3	0.8	16	LZ
JNFXL9	21.5	22.2	22.1	22.7	22.1	-0.15	2.1	0.5	22.1	-0.30	2.0	0.7	16	LZ
LELM8H	22.2	22.6	22.6	22.5	22.5	0.16	1.2	0.2	22.3	-0.03	1.2	0.2	16	TT
LYTVMG	22.0	20.8	21.2	20.4	21.1	-1.14	1.9	0.7	20.9	-1.54	2.5	1.0	16	LW
M8EF7K	24.3	22.5	22.2	21.9	22.7	0.40	1.9	1.1	22.7	0.30	1.9	0.8	16	LA
MB4PH8	22.4	22.3	21.7	21.9 L	22.0	-0.22	0.8	0.3	22.7	0.33	0.9	0.8	16	LY
NK6PA6	20.3	20.9	19.6	21.3	20.5	-1.67	1.8	0.7	20.6	-1.78	1.9	0.6	16	LY
NKMEW7	22.5	22.7	21.6	21.9	22.2	-0.09	2.2	0.5	21.9	-0.51	2.0	0.5	16	LU
PYD3Z2	23.0	21.2	21.3	21.3	21.7	-0.55	2.3	0.9	21.5	-0.85	1.9	0.6	16	LW
Q6G7NE	22.7 L	23.5 L	24.3 L	23.3 L	23.4	1.11	0.1	0.7	22.7	0.33	0.1	0.7	14	LA
QBABJ4	22.1	22.7	22.5	21.7	22.3	-0.03	2.1	0.5	22.6	0.24	2.0	0.6	16	LA
QQ333K	23.2	21.6	22.4	24.8 *	23.0	0.70	2.4	1.4	22.5	0.18	2.0	0.8	16	LY

	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
QRXGV4	21.7 L	21.6 L	22.4 L	23.2 L	22.2	-0.05	0.6	0.7	27.3	4.97 X	1.7	9.4 H	15	LA
QWNVF6	20.1	20.0	21.0	20.6	20.4	-1.79	1.9	0.5	22.0	-0.33	1.9	1.8 H	16	LU
RUY9X2	21.1	22.0	21.5	21.8	21.6	-0.65	1.9	0.4	21.8	-0.62	1.8	0.5	16	LY
RZKWYY	22.7	23.6	21.0	21.6	22.2	-0.06	1.9	1.1	22.6	0.23	2.0	1.2	16	LW
T6VADQ	24.4	24.8 *	24.4	24.6	24.5	2.16 *	1.8	0.2	24.4	2.05 *	1.9	0.7	16	LA
THJA9Z	18.1 XL	20.3 L	20.2 L	20.2 L	19.7	-2.46 *	0.0	1.1	21.0	-1.36	0.0	1.4	13	LW
U8ADET	20.5	21.3	22.2	21.9	21.5	-0.77	1.8	0.7	21.3	-1.04	2.0	1.1	16	XX
V6LEJV	21.3	20.5	21.7	22.2	21.4	-0.82	2.1	0.7	21.7	-0.66	1.9	0.6	16	LW
VJK7GT	21.6	20.7	21.6	21.3	21.3	-0.95	1.8	0.4	21.5	-0.93	2.0	0.5	16	LY
W4AX6W	22.3	22.8	24.5	23.0	23.2	0.86	1.6	0.9	22.8	0.42	1.7	1.1	16	LA
WGUC9V	21.2	22.3	20.9	22.2 L	21.6	-0.61	1.4	0.7	21.8	-0.57	1.6	0.6	16	BK
WQHBTA	22.0	21.7	22.5	21.7	22.0	-0.29	2.1	0.4	21.9	-0.51	1.9	0.6	16	XX
X7QNPX	23.6	23.3	24.1	23.3	23.6	1.23	2.1	0.4	23.9	1.55	2.0	1.0	16	LY
XZMH8A	24.7	23.1	22.5	23.4	23.5	1.12	2.4	0.9	23.6	1.27	2.1	0.9	12	LU
YZWADV	22.8	22.6	24.8	25.1 *	23.8	1.47	2.0	1.4	23.9	1.55	2.3	0.8	16	LW
ZCN3EQ	24.0	23.2	22.6	23.0	23.2	0.86	1.6	0.6	23.3	0.89	1.6	0.8	16	LA

Consensus (All Labs) Results

Wk Mean	22.40	22.16	22.28	22.38	Month Mean	22.28	Grand Mean	22.37
Avg SDr	1.79	1.59	1.68	1.76	Avg SDr	1.70	Avg SDr	1.68
SD btwn Labs	1.25	1.15	1.34	1.22	SD btwn Labs	1.05	SD btwn Labs	0.99
Labs Incld	49	50	50	49	SD btwn Wks	0.83	SD btwn Wks	0.89
Labs Excld	2	1	0	0	Labs Incld	50	Labs Incld	49
Labs not Rcvd	0	0	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 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
227TGP	32.9	32.6	33.6	No Data	33.0	-0.29	2.9	0.5	32.2	-0.77	2.6	0.7	11	LW
2GHANR	33.2	33.7	33.0	32.9	33.2	-0.18	2.5	0.3	33.4	0.04	2.8	0.8	12	LW
2JQJFN	29.8	31.6	28.9 *	33.5	30.9	-1.63	2.5	2.0 H	30.5	-1.84	2.5	1.6	12	XX
3EBCRP	30.8	32.3	32.5	30.3	31.5	-1.28	2.1	1.1	31.6	-1.13	2.4	1.1	12	LA
3P8LU6	38.0 *L	33.9 L	35.8 L	35.3 L	35.8	1.46	0.0	1.7	35.8	1.53	0.0	1.7	4	LU
4A94BK	33.6	33.9	33.9	33.7	33.8	0.20	1.3	0.2	33.6	0.15	1.3	0.3	12	TT
4V86NM	34.6 L	34.3 L	33.0 L	34.5 L	34.1	0.41	0.1	0.8	34.0	0.42	0.1	1.0	12	XX
6WZDF4	51.6 XL	50.3 XL	No Data	No Data	51.0	11.19 X	0.0	0.9	51.0	11.31X	0.0	0.9	2	LZ
7M7RFJ	35.5	34.2	35.1	35.0	35.0	0.95	1.9	0.6	35.2	1.15	1.7	1.6	12	LZ
7N222L	34.7	34.6	34.9	34.3	34.6	0.74	2.4	0.3	33.9	0.31	2.6	1.4	12	LU
83XXCJ	36.6	38.0 XL	37.1 L	36.2 L	37.0	2.23 *	1.0	0.8	36.2	1.82	0.9	1.2	12	BK
8WVTMK	32.9 L	32.7 L	31.6 L	33.5 L	32.7	-0.52	0.1	0.8	31.8	-1.04	0.4	1.1	10	LW
A868HH	33.2	32.1	33.1	33.0	32.8	-0.40	2.4	0.5	33.6	0.15	2.8	0.8	12	LY
AA7B8K	34.6	34.1	35.0	34.0	34.4	0.62	2.6	0.5	34.6	0.81	2.6	1.6	12	LU
AP3AD2	35.3 L	32.3 L	30.0 L	33.4 L	32.8	-0.45	0.7	2.2 H	33.4	0.01	0.9	2.5 H	11	LA
AR9XRR	34.3	34.0	32.7	34.1	33.8	0.19	2.6	0.7	33.3	-0.05	2.4	0.8	12	LU
BJARCV	34.3	35.6	36.8	35.4	35.5	1.31	3.1	1.0	35.6	1.41	2.9	1.3	12	LU
BWFL7T	30.4 L	32.3 L	33.6	31.8 L	32.0	-0.94	0.8	1.3	31.7	-1.09	0.7	1.3	12	LA
CKKUZF	32.5 L	33.1 L	33.1 L	33.3 L	33.0	-0.32	0.8	0.3	32.4	-0.60	0.9	1.3	12	LA
DWWGN7	33.3	33.0	34.8	32.0	33.2	-0.15	2.4	1.2	33.1	-0.19	2.5	1.0	12	LW
E2LDNG	34.4	32.9 L	32.1 L	32.0 L	32.9	-0.39	0.9	1.1	33.6	0.17	0.9	1.3	12	LA
FUVH7A	32.3	32.3	33.4	32.0	32.5	-0.63	2.8	0.6	32.9	-0.31	2.8	0.8	12	LZ
HQ6676	30.9	30.8	31.3	29.6 *	30.7	-1.81	2.5	0.7	30.4	-1.92	2.3	0.6	8	TT
JLUCWR	38.1 *	37.6 X	36.1	37.5 *	37.3	2.45 *	3.2	0.8	37.4	2.62 *	3.2	1.0	12	LZ
JNFXL9	33.4	33.9	32.1	32.0	32.9	-0.40	3.2	0.9	33.7	0.21	2.5	1.3	12	LZ
LELM8H	33.7 L	33.2	33.0 L	33.6	33.4	-0.06	1.1	0.4	33.3	-0.08	1.3	0.4	12	TT
LYTVMG	33.3	31.8	31.1	31.9	32.0	-0.92	2.5	0.9	31.7	-1.11	2.7	0.7	12	LW
M8EF7K	34.9	33.3	32.6	33.9	33.6	0.11	2.7	1.0	33.6	0.13	3.4	1.1	12	LA
MB4PH8	32.7	34.1	32.0	34.1	33.2	-0.17	1.8	1.1	34.1	0.47	2.0	1.5	12	LY
NK6PA6	31.0	32.1	31.3	30.5	31.2	-1.43	2.1	0.7	30.8	-1.65	2.5	0.6	12	LY
NKMEW7	32.5	33.3	31.5	33.9	32.8	-0.44	3.0	1.0	32.1	-0.83	2.8	0.9	12	LU
PYD3Z2	30.7	32.8	32.5	32.2	32.0	-0.92	2.5	0.9	31.7	-1.06	2.2	1.0	12	LW
Q6G7NE	33.6 L	33.0 L	34.3 L	34.7 L	33.9	0.26	0.2	0.7	33.7	0.19	0.2	0.8	10	LA
QBABJ4	33.5	31.7	32.7	32.9	32.7	-0.51	2.6	0.8	32.9	-0.34	2.6	0.9	12	LA
QQ333K	32.0	33.9	33.5	35.1	33.6	0.07	2.3	1.3	32.9	-0.34	2.7	1.3	12	LZ

Containerboard Interlaboratory Testing Program

Analysis 224

STFI, 56 lb Linerboard - 56A1

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
QRXGV4	35.1	35.3 L	35.0	34.2 L	34.9	0.91	1.0	0.5	39.1	3.67 X	2.3	7.4 H	12	LA
QWNVF6	32.4	32.6 H	32.7	32.9	32.6	-0.54	4.8	0.2	33.2	-0.10	3.5	0.7	12	LU
RUY9X2	32.3	32.7	32.1	31.6	32.2	-0.82	3.2	0.4	32.5	-0.54	2.8	0.6	12	LY
RZKWYY	33.2	34.8	33.3	33.8	33.8	0.18	3.0	0.7	33.9	0.30	3.2	1.9	12	LW
T6VADQ	37.8 *	37.7 X	36.7	37.8 *	37.5	2.58 *	3.0	0.5	37.3	2.50 *	2.9	1.0	12	LA
THJA9Z	30.8 L	31.8 L	32.3 L	34.4 L	32.3	-0.73	0.0	1.5	32.3	-0.69	0.0	1.1	9	LW
U8ADET	33.6	33.7	33.1	33.8	33.5	0.03	2.9	0.3	32.9	-0.29	2.9	1.6	12	XX
V6LEJV	32.9	31.6	30.8	32.9	32.1	-0.91	2.2	1.0	32.3	-0.68	2.5	1.4	12	LW
VJK7GT	32.7	32.2	32.3	32.0	32.3	-0.76	2.7	0.3	32.4	-0.64	2.7	0.4	12	LY
W4AX6W	34.7	33.4	34.8	32.6	33.9	0.24	2.1	1.1	33.3	-0.06	2.7	1.5	12	LA
WGUC9V	31.7	31.5	31.9	31.6	31.7	-1.15	2.4	0.2 L	32.2	-0.78	2.1	0.8	12	BK
WQHBTA	32.4	35.0	33.1	34.2	33.7	0.13	2.1	1.2	33.5	0.05	2.2	0.8	12	LU
X7QNPX	34.0	35.1	35.0	34.0	34.5	0.66	2.5	0.6	34.2	0.51	2.2	3.2 H	12	LY
XZMH8A	36.4	36.2 *	37.2 *	36.2	36.5	1.93	3.3	0.5	35.8	1.55	3.0	1.3	12	LU
YZWADV	34.8	36.0 *	36.3	35.0	35.5	1.32	3.3	0.8	35.4	1.28	3.2	1.1	12	LW
ZCN3EQ	32.2	32.4	34.5	33.2	33.1	-0.24	2.5	1.1	33.9	0.35	2.4	0.9	12	LA

Consensus (All Labs) Results

Wk Mean	33.49	33.27	33.38	33.51	Month Mean	33.48	Grand Mean	33.38
Avg SDr	2.36	2.51	2.21	2.34	Avg SDr	2.36	Avg SDr	2.35
SD btwn Labs	1.89	1.27	1.84	1.66	SD btwn Labs	1.56	SD btwn Labs	1.55
Labs Incld	50	47	50	49	SD btwn Wks	0.92	SD btwn Wks	1.24
Labs Excld	1	4	0	0	Labs Incld	50	Labs Incld	49
Labs not Rcvd	0	0	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 with moisture correction	LZ	L&W (model not specified)
TT	TMI Short Span Compression, 17-34 (MB K455)	XX	Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program

Analysis 228

Roughness - Stylus Method, 56 lb Linerboard - 56A

TAPPI Provisional Test Method T575

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
227TGP	189.5	0.57	18.3	180.6	0.01	18.5	4	EV
4V86NM	197.6	0.89	11.5	209.5	1.60	19.5	4	EV
83XXCJ	204.0	1.15	13.3	199.5	1.05	15.3	3	EV
BJARCV	168.8	-0.26	19.2	180.2	-0.01	28.8	3	EV
BWFL7T	154.8	-0.81	11.4	163.5	-0.93	50.7	4	EV
CKKUZF	220.6	1.81	51.8	205.3	1.37	36.3	4	LA
E2LDNG	197.7	0.90	32.4	205.1	1.36	33.7	4	EV
J7GVRA	167.3	-0.32	16.9	164.6	-0.87	18.1	4	EV
JLUCWR	168.4	-0.27	10.8	166.4	-0.77	13.8	4	XX
M8EF7K	146.7	-1.14	13.9	158.6	-1.20	16.1	4	LA
MB4PH8	115.5	-2.38 *	10.8	118.9	-3.38 X	12.0	4	EV
NK6PA6	188.3	0.52	14.4	178.7	-0.09	12.9	4	EV
NKMEW7	189.9	0.59	17.0	189.7	0.51	17.0	4	EV
PAGXGL	149.6	-1.02	12.7	153.0	-1.51	15.8	3	EV
Q6G7NE	149.2	-1.04	32.5	181.8	0.07	34.4	4	LA
QRXGV4	190.1	0.59	21.6	190.0	0.53	21.0	4	LA
RZKWYY	194.9	0.78	16.9	188.0	0.41	14.7	4	EV
THJA9Z	191.4	0.65	13.7	187.1	0.37	15.9	4	EV
V6LEJV	183.0	0.31	22.5	194.8	0.79	21.7	4	EV
XZMH8A	147.6	-1.10	18.6	146.1	-1.89	19.5	3	LA
ZCN3EQ	164.9	-0.41	17.4	165.9	-0.80	15.6	4	XX

Consensus (All Labs) Results

Month Mean	175.23	Grand Mean	180.41
Avg SDr	21.15	Avg SDr	23.96
SD btwn Labs	25.07	SD btwn Labs	18.19
Labs Incld	21	Labs Incld	20

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 - 42D2

TAPPI Provisional Test Method T538

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
8F33KW	372.4	1.39	7.9	364.4	0.48	6.6	4	XX
AP3AD2	357.9	-0.94	8.4	356.6	-1.49	8.7	4	XX
AR9XRR	367.7	0.64	9.7	366.9	1.13	9.4	4	XX
QBABJ4	434.8	11.42 X	1.0	436.2	18.59 X	1.0	4	XX
W4AX6W	358.5	-0.84	5.2	360.7	-0.43	8.2	4	LA
YL2MDV	362.2	-0.25	6.6	363.7	0.31	8.5	4	LA

Consensus (All Labs) Results

Month Mean	363.73	Grand Mean	362.45
Avg SDr	7.70	Avg SDr	8.37
SD btwn Labs	6.22	SD btwn Labs	3.97
Labs Incld	5	Labs Incld	5

Key to Instrument Codes Reported by Participants

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

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
2JQJFN	109.8	-0.91	13.8	110.0	-1.02	15.6	3	SC
3EBCRP	126.6	-0.27	9.1	122.1	-0.51	7.4	3	TM
AP3AD2	119.4	-0.54	6.4	132.6	-0.07	9.6	3	SC
AR9XRR	138.9	0.19	8.4	141.5	0.30	8.0	3	HY
BJARCV	86.2	-1.79	4.3	84.3	-2.10 *	8.2	2	TM
CKKUZF	175.8	1.58	7.9	169.5	1.48	9.1	3	HY
E2LDNG	128.8	-0.19	13.0	141.7	0.32	9.0	3	TM
JLUCWR	123.0	-0.41	11.0	130.3	-0.17	10.0	3	TM
LFWMB4	135.0	0.04	8.2	134.4	0.01	6.9	3	SC
LYTVMG	146.2	0.46	6.4	156.5	0.94	6.3	3	TM
NKMEW7	116.6	-0.65	9.2	118.0	-0.68	8.5	3	TM
PAGXGL	143.6	0.37	6.0	143.3	0.38	8.7	3	HY
QBABJ4	60.4	-2.77 X	1.5	64.2	-2.95 X	1.4	3	LZ
THJA9Z	189.0	2.07 *	10.8	169.0	1.46	32.4	3	SC
V6LEJV	175.2	1.55	10.5	172.1	1.59	10.8	3	HY
WQHBTA	126.4	-0.28	9.7	128.2	-0.25	8.9	2	TM
WWLEH8	131.6	-0.09	6.0	122.2	-0.51	5.3	3	TM
XZMH8A	103.8	-1.13	7.7	106.4	-1.17	7.4	2	TM

Consensus (All Labs) Results

Month Mean	133.88	Grand Mean	134.24
Avg SDr	9.07	Avg SDr	11.75
SD btwn Labs	26.57	SD btwn Labs	23.77
Labs Incld	17	Labs Incld	17

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	131.09	26.90	2.79	14
Modified Scott Bond Mechanics	157.04	25.68	23.16	2

Analysis Notes

QBABJ4 - Method used is not covered in this test.

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

	Monthly Results			Cumulative Results			
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months
227TGP	21.8	-2.05 *	0.8	21.8	-2.27 *	0.8	1
2GHANR	27.0	-0.01	3.0	29.5	1.14	2.5	3
AP3AD2	29.6	1.01	1.1	29.5	1.11	1.5	3
AR9XRR	24.0	-1.18	1.9	25.5	-0.66	1.7	3
BJARCV	27.9	0.35	2.1	26.2	-0.35	1.6	2
CKKUZF	26.4	-0.24	1.8	27.9	0.41	2.6	3
D27YJT	26.7	-0.12	2.6	26.6	-0.18	2.0	2
E2LDNG	27.6	0.23	3.2	29.8	1.26	3.4	3
JLUCWR	24.8	-0.87	2.3	24.3	-1.19	2.0	3
JNFXL9	27.5	0.19	2.3	26.4	-0.24	1.9	3
LYTVMG	29.4	0.94	2.8	27.7	0.31	4.0	3
NK6PA6	29.1	0.83	2.8	27.1	0.06	2.3	3
NKMEW7	31.2	1.64	2.9	30.1	1.37	2.7	3
QBABJ4	31.4	1.72	1.5	30.7	1.67	1.2	3
QQ333K	29.2	0.86	3.2	25.1	-0.83	3.2	3
QWNVF6	25.6	-0.56	1.5	26.9	-0.04	1.1	3
RZKWYY	22.8	-1.65	2.2	23.9	-1.33	2.0	3
THJA9Z	28.2	0.46	3.1	28.9	0.84	3.3	3
V6LEJV	26.4	-0.24	3.2	26.7	-0.13	2.3	3
XZMH8A	24.5	-0.99	1.9	26.4	-0.27	1.8	2
ZCN3EQ	26.2	-0.32	1.3	25.4	-0.69	1.5	3

Consensus (All Labs) Results

Month Mean	27.02	Grand Mean	26.95
Avg SDr	2.38	Avg SDr	2.30
SD btwn Labs	2.55	SD btwn Labs	2.27
Labs Incld	21	Labs Incld	21

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
227TGP	25.3	-1.31	1.3	25.3	-1.38	1.3	1	XX
2GHANR	27.7	-0.32	2.9	27.6	-0.31	2.5	3	LP
4KPLC4	33.0	1.81	9.0	31.6	1.51	7.2	2	XX
4V86NM	26.7	-0.75	1.4	27.2	-0.53	1.9	3	LW
67RRGN	27.7	-0.35	2.8	28.9	0.28	2.6	3	XX
83XXCJ	33.7	2.08 *	1.2	33.1	2.18 *	2.0	3	XX
9P93VJ	25.8	-1.09	2.1	24.2	-1.88	1.7	3	LA
AR9XRR	27.0	-0.60	3.6	28.3	0.02	3.3	3	TP
BJARCV	24.7	-1.56	1.6	25.0	-1.54	1.5	2	LA
CKKUZF	27.9	-0.26	1.6	28.0	-0.13	1.7	3	LA
D27YJT	24.6	-1.58	2.5	24.5	-1.77	2.1	2	LA
E2LDNG	29.6	0.43	1.7	28.5	0.06	1.3	3	LP
JLUCWR	31.1	1.04	4.0	29.4	0.51	4.1	3	TD
LFWMB4	28.2	-0.14	2.2	27.9	-0.20	1.8	3	LP
LYTVMG	27.7	-0.35	3.5	27.2	-0.51	3.0	3	HG
PRX24D	26.7	-0.74	2.5	27.9	-0.20	3.7	3	GG
QBABJ4	29.8	0.50	1.9	29.5	0.54	1.6	3	LA
QQ333K	29.2	0.27	1.4	29.0	0.33	1.5	3	LP
QRXGV4	27.0	-0.64	1.4	27.8	-0.25	2.0	3	LA
THJA9Z	30.4	0.76	3.3	29.6	0.59	3.4	3	HG
V6LEJV	31.7	1.28	2.1	30.8	1.13	1.8	3	LP
VJK7GT	31.8	1.33	1.5	31.6	1.51	1.6	3	LP
XZMH8A	30.2	0.68	1.7	29.6	0.61	2.5	2	LA
ZCN3EQ	28.5	-0.02	1.6	28.1	-0.12	1.3	3	LA
ZGZ3KV	27.4	-0.46	2.0	27.4	-0.43	2.0	1	LP

Consensus (All Labs) Results

Month Mean	28.53	Grand Mean	28.31
Avg SDr	2.89	Avg SDr	2.68
SD btwn Labs	2.47	SD btwn Labs	2.18
Labs Incld	25	Labs Incld	25

Key to Instrument Codes Reported by Participants

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
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
2GHANR	61.0	60.5	60.0	60.1	60.4	0.43	2.5	0.5	61.8	1.10	2.8	1.6	16	LC
2JQJFN	59.7	58.1	59.6	58.2	58.9	-0.21	3.2	0.9	59.4	-0.12	3.4	1.8	16	LC
2WURD7	56.5	61.1	60.5	60.5 H	59.6	0.10	4.2	2.1	59.8	0.08	3.7	2.1	12	LC
3EBCRP	57.2	55.3 *	56.5	57.0	56.5	-1.23	2.7	0.9	56.9	-1.38	2.8	1.7	16	LC
4A94BK	56.5	57.0	56.8	57.2	56.9	-1.07	4.1	0.3 L	58.2	-0.72	5.2	1.5	16	TG
4V86NM	56.5 L	56.4	48.7 XH	54.9 *L	54.1	-2.25 *	7.0	3.7 H	55.1	-2.29 *	4.4	2.8	16	XX
67RRGN	58.3	57.9	59.9	60.6	59.2	-0.09	3.0	1.3	59.6	-0.04	3.1	1.0	16	LD
6WZDF4	57.4	59.0	No Data	No Data	58.2	-0.53	3.9	1.1	58.2	-0.74	3.9	1.1	2	LZ
7M7RFJ	60.4	60.5	60.0	60.8	60.4	0.43	2.7	0.4	59.3	-0.16	2.4	1.3	16	LC
7N222L	61.8	63.8	61.1	62.3	62.2	1.21	3.0	1.1	61.9	1.13	2.5	0.9	16	LD
83XXCJ	60.4 L	60.2 L	60.7	62.3	60.9	0.64	1.8	1.0	60.2	0.28	1.8	0.8	16	MB
8XHJJJ	60.7	62.0	60.7	65.4 *	62.2	1.20	2.6	2.2	60.8	0.59	2.6	1.8	16	MB
99HE6K	60.4	59.9	59.4	60.0	59.9	0.23	2.9	0.4	60.5	0.43	2.7	0.8	16	LD
9P93VJ	62.0	63.4	63.2	64.2	63.2	1.63	2.8	0.9	63.2	1.78	2.9	1.7	16	LC
A868HH	60.4	61.0	61.7	62.8	61.5	0.89	2.9	1.0	61.0	0.69	2.9	0.9	16	LD
AR9XRR	59.7	57.4	56.6 L	60.0	58.4	-0.42	3.5	1.7	60.1	0.21	3.3	2.1	16	LC
BJARCV	54.2 *H	59.8 H	58.1	50.7 X	55.7	-1.58	5.5	4.1 H	57.9	-0.85	4.5	3.0	12	XX
BXRHBX	59.0 H	59.1	59.1	59.1 H	59.1	-0.14	5.5	0.0 L	59.7	0.05	5.4	0.9	16	LD
DWWGN7	64.9 *	60.3 L	64.9 *	61.5	62.9	1.49	3.3	2.3	64.4	2.38 *	2.7	3.5 H	13	LE
FUVH7A	57.0	56.7	63.5	57.6	58.7	-0.30	3.7	3.2	58.1	-0.77	3.3	2.0	16	LZ
GQFBHB	60.3	60.4	60.2 L	61.0	60.4	0.45	1.9	0.3	60.0	0.17	2.5	1.3	16	LD
HQ6676	54.4	53.4 X	53.0 *	52.5 X	53.3	-2.58 *	3.9	0.8	53.5	-3.09 X	3.8	0.8	8	TH
HVXAY9	51.5 X	49.8 X	49.5 X	47.3 X	49.5	-4.21 X	3.5	1.7	56.7	-1.48	2.8	5.7 H	12	TH
JNFXL9	58.1	57.8	58.4	58.2	58.1	-0.55	3.2	0.3 L	58.1	-0.78	3.2	1.4	16	LZ
K2JYFN	59.4	59.3 L	59.0 L	59.2 L	59.2	-0.08	1.3	0.2 L	59.0	-0.31	2.7	1.4	16	MB
KVEZ8K	63.6 L	63.3	64.4	64.9 *	64.1	1.98	2.4	0.7	64.1	2.21 *	2.4	0.7	4	TM
LELM8H	60.0	60.3	58.0	59.6	59.5	0.03	2.8	1.0	58.4	-0.60	2.9	1.7	16	TH
M2TMUK	48.7 XL	45.6 XL	46.0 XL	47.4 X	46.9	-5.32 X	1.2	1.4	46.8	-6.41 X	2.9	1.2	15	TC
MANM9D	61.3	60.6	62.1	60.6	61.1	0.73	3.6	0.7	60.7	0.54	3.9	1.5	16	LD
NK6PA6	57.4	60.1	58.8	59.2	58.9	-0.22	3.4	1.1	58.9	-0.38	3.4	1.1	4	EN
NKMEW7	60.0	60.1 H	59.7	61.0	60.2	0.34	4.0	0.6	59.0	-0.33	3.4	1.2	16	LD
NN4RCZ	57.9	59.0	58.1	60.0	58.8	-0.27	3.7	1.0	59.8	0.07	3.3	1.8	16	MB
NVLCJ7	60.2	59.7	60.8	59.2	60.0	0.25	2.2	0.7	60.4	0.36	2.5	0.8	16	LC
NWF2KE	60.8 L	59.8 L	61.5 L	60.3 L	60.6	0.52	1.3	0.7	61.9	1.13	1.2	1.5	16	TD
PYXJF4	60.6 L	60.5	60.0	60.6	60.4	0.45	1.7	0.3 L	59.4	-0.13	2.2	1.2	16	LD

Containerboard Interlaboratory Testing Program

Analysis 240

Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM91

TAPPI Official Test Method T809

	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
Q6G7NE	52.6 *	58.4	60.2	58.6	57.4	-0.84	3.3	3.3	57.2	-1.24	3.5	4.3 H	14	MB
QBABJ4	58.0	56.3	55.8	55.3 *	56.4	-1.29	2.8	1.2	55.6	-2.03 *	2.8	1.2	16	LD
QQ333K	56.8	58.8	59.1	58.9	58.4	-0.42	3.3	1.1	59.1	-0.25	3.5	1.2	16	LZ
QWNVF6	58.7	58.8	60.2	61.3	59.8	0.15	2.9	1.2	59.4	-0.12	2.1	0.8	16	LZ
R2FKAG	62.8	59.4	60.4 L	62.3	61.2	0.78	2.6	1.6	59.8	0.06	2.5	2.1	16	TU
T6VADQ	56.7	58.6	60.4	59.3	58.7	-0.28	3.9	1.6	57.9	-0.87	3.4	1.3	12	LD
U2RW9X	61.9	63.6	62.5	61.4	62.3	1.25	3.1	0.9	63.2	1.80	2.9	1.2	16	EM
V6LEJV	58.1	59.6	54.3 *H	57.4	57.3	-0.88	4.7	2.2	58.1	-0.76	4.1	2.0	8	LD
V6ZQET	62.2	59.5	57.7 H	59.3	59.7	0.12	5.4	1.9	59.0	-0.33	3.7	1.9	16	XX
WQHBTA	63.4	63.2	61.0	63.3	62.7	1.42	4.2	1.2	61.6	0.98	3.5	1.9	16	LC
X7QNPX	61.6	60.6 H	61.2	60.9	61.1	0.72	4.8	0.4	60.9	0.65	3.9	1.0	16	LD
XZMH8A	58.1	59.7	50.0 X	49.5 X	54.3	-2.16 *	3.2	5.3 H	58.0	-0.83	4.1	4.2 H	12	LC
YZWADV	59.3	54.4 *	54.4 *	60.0	57.0	-1.01	4.3	3.0	57.9	-0.85	5.1	2.7	16	LC
ZCN3EQ	60.0	61.1	59.9	59.9	60.2	0.35	2.9	0.6	60.7	0.55	2.8	1.1	16	LD
ZGZ3KV	62.0	61.9	60.2	59.2	60.8	0.60	2.9	1.4	61.9	1.15	3.4	1.4	16	LD

Consensus (All Labs) Results

Wk Mean	59.38	59.66	59.63	60.12	Month Mean	59.40	Grand Mean	59.64
Avg SDr	3.73	3.16	3.42	3.12	Avg SDr	3.51	Avg SDr	3.31
SD btwn Labs	2.52	2.07	2.47	2.20	SD btwn Labs	2.35	SD btwn Labs	2.00
Labs Incld	48	47	45	44	SD btwn Wks	1.73	SD btwn Wks	1.99
Labs Excld	2	3	4	5	Labs Incld	48	Labs Incld	48
Labs not Rcvd	0	0	1	1				

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	EN	Emerson 2200 Series
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LE	L&W CRUSH TESTER 275	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 - CM91

TAPPI Official Method T824

	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
2GHANR	74.9	75.2	74.4 H	72.3	74.2	0.46	3.0	1.3	74.4	0.49	2.9	1.1	16	XX
4KPLC4	73.6 L	72.3	72.9	73.7	73.1	-0.08	1.3	0.7	73.1	-0.07	1.7	2.4	12	XX
67RRGN	71.7	74.9	71.0	71.7	72.3	-0.48	2.2	1.8	73.3	0.00	2.4	1.5	16	XX
7N222L	72.7	72.6	72.0	72.8	72.5	-0.39	2.1	0.4	72.6	-0.32	2.0	0.9	16	LD
99HE6K	72.3	72.1	72.8	73.2	72.6	-0.35	2.6	0.5	72.3	-0.45	3.1	0.6	16	XX
AR9XRR	75.9	77.6	75.8	76.5	76.4	1.59	2.0	0.8	77.1	1.66	2.2	1.1	16	LC
DWWGN7	76.8	71.6	79.2 *	73.2	75.2	0.97	2.6	3.5	73.7	0.18	2.6	3.4 H	13	LE
FUVH7A	76.2	74.9	72.9	64.9 XH	72.2	-0.54	3.9	5.1 H	71.7	-0.68	4.1	5.2 H	16	LZ
K2JYFN	71.1	70.3	70.5	70.5	70.6	-1.35	2.2	0.4	70.4	-1.28	2.4	1.1	16	MB
MANM9D	74.6	74.0	72.4	73.6	73.6	0.18	1.8	1.0	74.7	0.65	2.1	1.1	16	LD
NVLCJ7	72.1	72.0	73.0	72.5	72.4	-0.45	2.7	0.5	72.0	-0.59	3.0	0.8	16	LD
NWF2KE	69.7 L	70.9 L	72.2 L	70.4 L	70.8	-1.25	0.8	1.1	72.3	-0.45	1.1	1.5	16	TD
PYXJF4	70.3	70.9	70.1	69.9	70.3	-1.52	2.0	0.4	69.7	-1.57	2.0	1.1	16	LD
QBABJ4	71.2	74.1	73.6	72.9	72.9	-0.18	2.2	1.2	74.1	0.37	2.6	1.8	16	LD
V6LEJV	75.6	77.5	77.0	75.9	76.5	1.64	2.3	0.9	77.3	1.79	2.4	1.4	8	LD
ZCN3EQ	72.0	73.5	74.5	73.5	73.4	0.04	2.5	1.0	70.5	-1.25	2.6	2.1	16	LD
ZGZ3KV	78.5	75.6	76.0	76.5	76.6	1.69	2.2	1.3	76.7	1.50	2.8	0.9	16	LD

Consensus (All Labs) Results

Wk Mean	73.48	73.52	73.54	73.07
Avg SDr	2.30	2.00	2.38	2.28
SD btwn Labs	2.51	2.21	2.40	1.99
Labs Incld	17	17	17	16
Labs Excld	0	0	0	1
Labs not Rcvd	0	0	0	0

Month Mean	73.28
Avg SDr	2.35
SD btwn Labs	1.98
SD btwn Wks	1.74
Labs Incld	17

Grand Mean	73.29
Avg SDr	2.54
SD btwn Labs	2.27
SD btwn Wks	1.99
Labs Incld	17

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)
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 - CM91

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
2GHANR	No Data	44.3	44.4	38.3	42.3	-0.41	2.1	3.5 H	43.6	0.18	2.6	2.8	15	LC
2WURD7	32.0 *	31.0 X	32.0 *	32.3	31.8	-3.99 X	2.5	0.6	30.8	-4.13 X	2.5	1.1	12	XX
4V86NM	42.9	47.2	45.2	49.9	46.3	0.94	2.5	3.0	47.5	1.49	2.7	2.1	16	XX
67RRGN	42.5	44.2 H	42.4	42.6	42.9	-0.21	3.4	0.9	42.9	-0.07	3.5	0.8	16	LD
6WZDF4	41.9	42.2	No Data	No Data	42.1	-0.50	2.3	0.2 L	42.1	-0.35	2.3	0.2 L	2	EM
7M7RFJ	48.8	49.8 *	48.8	48.6	49.0	1.86	2.0	0.6	44.8	0.57	1.8	2.7	16	LD
8MNVWW	44.5	44.1	44.2 L	44.2 L	44.2	0.23	1.7	0.2 L	42.8	-0.10	2.0	1.0	16	TH
9P93VJ	49.7	43.1	51.6	50.1	48.6	1.73	1.8	3.8 H	46.6	1.19	2.2	3.3 H	16	LD
AR9XRR	44.1	44.3	43.6	45.8	44.4	0.30	2.8	0.9	44.2	0.39	2.7	1.1	16	LC
BXRHBX	39.4	39.5	39.4	39.3	39.4	-1.41	2.1	0.0 L	40.6	-0.83	3.0	1.7	16	LD
E9FR69	45.8 H	43.6 H	40.6	38.4 H	42.1	-0.50	4.3	3.3	41.4	-0.56	4.0	2.5	16	LZ
F3B4AL	41.0	41.7 L	40.6	41.7 L	41.3	-0.78	1.4	0.5	42.4	-0.23	1.2	0.9	16	WK
GQFBHB	42.3	42.3	44.1	43.9	43.2	-0.13	1.8	1.0	43.6	0.17	2.0	1.3	16	LZ
HVXAY9	40.4	39.6	39.4	38.9	39.6	-1.36	2.9	0.7	36.1	-2.36 *	2.0	2.9 H	12	TH
JNFXL9	42.9	40.6	42.8	42.8	42.3	-0.43	2.1	1.1	42.4	-0.22	2.5	1.2	16	EM
K2JYFN	42.5	40.9	41.3	40.4	41.3	-0.77	1.8	0.9	38.9	-1.39	2.3	1.7	16	MB
KVEZ8K	47.3	49.4	49.0	48.7	48.6	1.72	2.4	0.9	48.6	1.84	2.4	0.9	4	LD
M2TMUK	30.8 *	30.1 XL	31.0 *	30.2 *	30.5	-4.44 X	1.5	0.4	33.3	-3.29 X	1.7	5.2 H	15	TC
QBABJ4	43.6	42.3	41.8	42.5	42.6	-0.34	2.5	0.7	42.7	-0.12	2.9	1.5	16	LD
R2FKAG	39.9	40.1	39.1	40.4	39.9	-1.25	2.2	0.6	39.6	-1.18	2.3	0.9	16	TU
ZCN3EQ	46.0	45.2	43.9	44.4	44.8	0.44	2.3	0.9	45.2	0.70	2.5	1.0	16	LD
ZGZ3KV	44.4	45.7	46.0	48.2	46.1	0.86	2.1	1.6	45.7	0.88	2.0	0.9	16	LD

Consensus (All Labs) Results

Wk Mean	42.51	43.49	42.43	42.45	Month Mean	43.54	Grand Mean	43.10
Avg SDr	2.50	2.38	2.22	2.48	Avg SDr	2.41	Avg SDr	2.52
SD btwn Labs	4.58	2.94	4.89	5.30	SD btwn Labs	2.93	SD btwn Labs	2.98
Labs Incld	21	20	21	21	SD btwn Wks	1.69	SD btwn Wks	1.78
Labs Excld	0	2	0	0	Labs Incld	20	Labs Incld	20
Labs not Rcvd	1	0	1	1				

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)
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
4V86NM	15.2 L	15.1 L	15.4 L	15.5 L	15.3	0.77	0.0	0.2	15.0	0.58	0.0	0.4	16	XX
7M7RFJ	15.6	15.5	15.4	15.4	15.5	1.00	0.7	0.1	15.2	0.86	0.7	0.4	16	LZ
83XXCJ	15.4 L	16.2 L	15.9 L	15.9 L	15.9	1.46	0.2	0.3	16.2	2.17 *	0.2	0.5	16	BK
99HE6K	14.2	14.2	14.4	14.4	14.3	-0.46	0.7	0.1	14.0	-0.75	0.8	0.5	16	LB
9P93VJ	16.3	15.8	15.0	15.6	15.7	1.22	0.8	0.5	15.5	1.32	0.8	0.4	16	LA
AR9XRR	14.5	14.2	14.2	14.5	14.4	-0.39	0.9	0.2	14.4	-0.22	1.0	0.2	16	LU
E9FR69	15.9	14.5	14.6	15.3	15.1	0.49	1.0	0.7	14.8	0.33	1.1	0.6	16	LA
HQ6676	13.5	12.9 *	13.3	13.2	13.2	-1.77	1.0	0.3	12.7	-2.37 *	0.9	0.6	8	TT
JNFXL9	13.8	14.4	13.7	13.1	13.8	-1.12	1.3	0.5	13.7	-1.05	1.1	0.5	16	LZ
KVEZ8K	15.8	15.6	15.9	15.7	15.7	1.28	1.0	0.1	15.7	1.57	1.0	0.1	4	LA
LELM8H	14.6	15.0	14.7	14.5	14.7	0.02	0.5	0.2	14.1	-0.61	0.7	0.6	16	TT
M2TMUK	14.4 L	13.4 L	13.5 L	13.8 L	13.8	-1.08	0.0	0.5	13.9	-0.84	0.0	0.3	15	TS
MANM9D	14.5	14.8	14.2	15.3	14.7	0.02	1.0	0.5	14.7	0.21	1.0	0.5	16	LB
NKMEW7	14.3	14.1	14.0	14.1	14.1	-0.65	0.9	0.1	14.0	-0.64	1.0	0.2	16	LU
NVLCJ7	14.2	14.3	14.3	14.2	14.3	-0.51	0.8	0.1 L	14.0	-0.73	0.8	0.5	16	LB
PYXJF4	13.9	14.3	14.0	13.9	14.0	-0.80	0.5	0.2	13.8	-0.90	0.6	0.5	16	LA
Q6G7NE	17.1 *L	15.0 L	15.6 L	14.5 L	15.6	1.07	0.0	1.1 H	14.8	0.36	0.0	1.0 H	13	LA
QBABJ4	15.1	14.6	14.3	14.9	14.7	0.06	0.9	0.3	14.5	-0.05	0.9	0.3	16	LA
QQ333K	14.4	14.3	14.7	14.0	14.3	-0.41	1.0	0.3	14.3	-0.30	1.0	0.4	16	LB
QWNVF6	13.2	12.8 *	13.7	12.6 *	13.1	-1.93	1.1	0.5	14.0	-0.69	1.1	0.7	16	LU
UEGTBW	15.7 L	16.0 L	16.5 *L	15.4 L	15.9	1.48	0.0	0.5	15.3	1.02	0.0	0.7	8	LZ
W4AX6W	13.8	14.7	15.1	14.4	14.5	-0.20	0.8	0.6	14.7	0.19	1.1	0.7	16	LA
YZWADV	16.5	15.2	15.8	15.7	15.8	1.36	1.0	0.6	15.5	1.28	1.1	0.5	16	LW
ZCN3EQ	14.5	14.9	14.1	14.2	14.4	-0.28	0.8	0.3	14.4	-0.22	0.8	0.3	16	LB
ZGZ3KV	14.1	14.0	14.0	14.4	14.1	-0.66	0.9	0.2	14.1	-0.52	0.9	0.2	4	LZ

Consensus (All Labs) Results

Wk Mean	14.83	14.63	14.66	14.58	Month Mean	14.67	Grand Mean	14.53
Avg SDr	0.83	0.78	0.77	0.83	Avg SDr	0.80	Avg SDr	0.82
SD btwn Labs	1.01	0.85	0.86	0.89	SD btwn Labs	0.83	SD btwn Labs	0.77
Labs Incld	25	25	25	25	SD btwn Wks	0.43	SD btwn Wks	0.51
Labs Excld	0	0	0	0	Labs Incld	25	Labs Incld	25
Labs not Rcvd	0	0	0	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		