Collaborative Testing Services, Inc.

Containerboard Interlaboratory Testing Program

Participant Summary Report #594 (C) - March 2019

Introduction to the Containerboard Program

Explanation of Tables and Definitions of Terms

Analysis	Sample	Analysis Name
201	BX13	Box Compression Strength, Corrugated Boxes
202	EC11	Edgewise Compressive Strength, Wax (T811), Corrugated Board
203	EC11	Edgewise Compressive Strength by Clamp (T839), Corrugated Board
205	42F1	Mullen Burst of Linerboard, 42 lb Linerboard
206	56A2	Mullen Burst of Linerboard, 56 lb Linerboard
215	42F1	Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard
216	56A2	Ring Crush of Linerboard, Rigid Platen Type, 56 lb Linerboard
223	42F1	STFI of Linerboard, 42 lb Linerboard
224	56A2	STFI of Linerboard, 56 lb Linerboard
228	56A	Roughness - Stylus Method, 56 lb Linerboard
229	42D3	Roughness - Sheffield Method, 42 lb Linerboard
231	42D	Internal Bond Strength, Linerboard, 42 lb Linerboard
234	56A	Coefficient of Static Friction - Inclined Plane, 56 lb Linerboard
237	42D	Air Resistance - Gurley Method, Linerboard, 42 lb Linerboard
240	CM92	Flat Crush Strength (CMT) of Medium, 26 lb Corrugating Medium
250	CM92	Fluted Crush of Medium, 26 lb Corrugating Medium
255	CM92	Ring Crush of Medium, 26 lb Corrugating Medium
261	CM92	STFI of Medium, 26 lb Corrugating Medium

Collaborative Testing Services, Inc.
CONTAINERBOARD INTERLABORATORY TESTING PROGRAM

INTRODUCTION

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

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

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

USE OF AVERAGE MEAN AS A COLLABORATIVE REFERENCE VALUE

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

Material	Lot Code	Dates in Use
26 lb Corrugating Medium	CM92	January 2018-Current
	CM91	October 2016-December 2017
35 lb Linerboard	35E1	June 2017-Current
42 lb Linerboard	42F1	January 2019-Current
	42D3	November 2017-December 2018
56 lb Linerboard	56A2	January 2018-Current
	56A1	July 2016-November 2017

ABOUT CTS

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

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EXPLANATION OF TABLES

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

Definitions of Terms Used

Weekly Results

Laboratory Data

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

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

Consensus Data

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

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

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

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

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

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

Monthly Results

Laboratory Data

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

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

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

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

Consensus Data

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

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

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

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

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

Cumulative Results

Laboratory Data

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

Consensus Data

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

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

Flag	Explanation

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

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

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

Flags assigned to Weekly Means:

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

Flags assigned to Monthly SD Wks and Cumulative SD Wks:

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

Containerboard Interlaboratory Testing Program

Analysis 201

Top to Bottom Box Compression Strength, Corrugated Boxes - BX13

TAPPI Official Test Method T804

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV		SD	Mean	CPV	SD Months	Months	Inst
2343TQ	935.4	0.92		16.03	937.8	1.04	22.31	3	TE
244T8L	819.2	-0.91		52.99	845.5	-0.44	48.29	3	LG
72G82R	882.4	0.08		47.52	863.8	-0.14	21.03	3	ER
82CRNQ	867.9	-0.14		22.47	885.2	0.20	72.09	3	LG
8MTARG	1,021.5	2.27	*	16.39	1,030.7	2.53	* 26.50	3	LH
92PY8D	872.0	-0.08		60.36	860.3	-0.20	25.03	3	ER
98CQCL	890.8	0.22		48.37	890.8	0.29	0.00	1	EX
9LHMVM	887.4	0.16		10.95 L	886.7	0.22	16.11	3	ET
B6NWTP	974.6	1.53		21.18	938.4	1.05	51.53	3	ER
CJWC76	771.9	-1.65		63.12	750.8	-1.95	* 18.88	3	LS
FC3D78	986.9	1.72		60.90	951.8	1.27	33.81	3	LG
GWBUB6	865.1	-0.19		30.14	860.7	-0.19	24.89	3	ER
HTKC44	853.1	-0.37		56.43	853.1	-0.31	0.00	1	LS
JA9Q29	739.8	-2.15	*	35.57	753.5	-1.91	* 47.59	3	LS
K4CGA8	835.2	-0.66		59.75	830.7	-0.67	19.80	3	ET
KVHCG7	803.1	-1.16		43.90	826.8	-0.73	20.73	3	LS
L4XBQB	840.2	-0.58		63.79	872.5	0.00	35.30	3	LL
LX8ZGD	923.6	0.73		35.23	893.5	0.33	42.58	2	LM
NZKKCR	867.0	-0.16		93.86	863.3	-0.15	12.81	3	LG
PPZR39	835.2	-0.66		17.54	804.5	-1.09	43.42	2	EX
QR7H4V	926.6	0.78		35.96	909.0	0.58	16.80	3	LM
TDT27P	913.6	0.57		66.78	774.5	-1.57	196.72	2	ES
TMPRWR	882.6	0.09		54.47	886.6	0.22	19.90	3	ES
XN3WCQ	835.0	-0.66		54.56	862.9	-0.16	24.18	3	LS
XPAEBM	925.2	0.76		42.27	925.2	0.84	0.00	1	TB
Z84QWT	846.8	-0.47		78.42	930.2	0.92	82.90	3	LS

Consensus (All Labs) Results

Month Mean	877.01	Grand Mean	872.64
Avg SD	50.10	Avg SD Months	55.11
SD btwn Labs	63.76	SD btwn Labs	62.41
Labs Incld	26	Labs Incld	26

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	878.38	67.06	1.38	9
Clip sealing	876.28	64.05	0.73	17

Key to Instrument Codes Reported by Participants

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

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
244T8L	44.5	0.94	0.76	L	44.4	0.97	1.24	4	TH
6VHYJE	41.4	-0.04	2.12		41.4	0.03	0.00	1	LC
98CQCL	41.7	0.05	1.74		41.1	-0.07	1.11	4	LC
A4VQQD	42.6	0.34	3.89	H	43.7	0.76	0.76	4	LC
CJWC76	42.5	0.31	1.73		43.1	0.57	1.22	4	LC
EPX83B	36.0	-1.73	3.54	H	39.2	-0.66	2.76	4	XX
GWBUB6	37.9	-1.13	2.48		38.5	-0.88	1.59	4	EN
HTKC44	41.3	-0.06	0.87	L	41.3	0.00	0.00	1	LD
JA9Q29	27.7	-4.33 X	1.77		29.2	-3.83 X	1.26	4	EM
KVHCG7	40.8	-0.21	1.29		37.8	-1.11	3.45	4	LD
L6MN9U	36.8	-1.46	1.55		35.4	-1.88 *	1.48	4	WK
LX8ZGD	47.8	1.99 *	1.21		47.8	2.08 *	0.00	1	TC
NZKKCR	43.3	0.57	2.76		43.6	0.74	0.56	4	LE
TQJQ6V	39.9	-0.50	0.74	L	39.5	-0.56	0.64	3	TD
WMRPFP	44.5	0.93	1.17		41.4	0.02	2.38	4	LD

Consensus (All Labs) Results

Month Mean	41.49	Grand Mean	41.29
Avg SD	2.08	Avg SD Months	1.79
SD btwn Labs	3.18	SD btwn Labs	3.15
Labs Incld	14	Labs Incld	14

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	EN	Emerson 2200
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LE	L&W Crush Tester 840	TC	TMI Monitor/Compression Tester, Model 17-37
TD	TMI Digital Crush Tester, Model 17-09	TH	TMI Monitor/Compression Tester, Model 17-76
WK	Zwick Z005 Crush Tester	XX	Instrument make/model not specified by lab

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2343TQ	45.9	0.85	1.26		46.0	0.88	0.59	4	LD
244T8L	44.6	0.18	1.45		45.6	0.71	1.10	4	TH
4XP738	41.2	-1.57	1.15		42.5	-1.00	1.46	3	TK
6FJYN6	46.7	1.26	2.73		45.4	0.55	1.34	4	XX
72G82R	41.1	-1.61	1.56		42.2	-1.15	1.11	3	LD
82CRNQ	45.9	0.84	3.12		46.3	1.08	1.07	4	TJ
8MTARG	44.8	0.25	2.11		47.9	1.94 *	2.11	4	EM
92PY8D	44.1	-0.08	1.85		44.7	0.20	1.04	4	LD
98CQCL	42.4	-0.97	2.32		42.4	-1.06	1.35	4	LC
9LHMVM	43.5	-0.40	1.09		42.8	-0.83	0.72	4	EM
A4VQQD	45.9	0.82	1.40		46.0	0.93	0.87	4	LC
B6HK8E	47.4	1.62	1.79		48.5	2.24 *	0.95	4	TD
B6NWTP	44.4	0.05	1.57		43.3	-0.54	0.73	4	EM
CFW2B7	41.9	-1.22	1.74		43.2	-0.64	1.43	3	EM
CJWC76	46.3	1.03	1.81		44.7	0.22	1.46	4	LC
FC3D78	43.8	-0.26	2.77		45.3	0.50	1.74	4	EM
GWBUB6	43.1	-0.60	2.02		41.8	-1.38	1.70	4	EN
HKDA8J	41.8	-1.26	1.57		41.8	-1.38	1.34	4	LC
JA9Q29	42.1	-1.12	1.39		42.7	-0.88	1.64	4	EM
K4CGA8	45.9	0.82	1.82		44.7	0.21	0.86	4	TD
KVHCG7	44.9	0.34	1.81		44.9	0.32	0.25	4	LD
L4XBQB	45.2	0.48	1.81		45.3	0.53	1.48	4	LC
L6MN9U	41.8	-1.23	1.43		38.7	-3.08 X	6.86 H	4	WK
M3TG4M	44.6	0.17	1.04		46.1	0.97	1.51	4	TG
NYQYJZ	45.4	0.56	1.44		44.8	0.27	0.50	4	EM
NZKKCR	46.4	1.06	0.87 L		45.0	0.37	1.34	4	LY
QR7H4V	43.2	-0.53	2.36		43.7	-0.36	1.08	4	EM
RYXCEY	47.6	1.71	1.01		45.5	0.66	1.39	4	LD
TDT27P	46.5	1.14	2.47		44.6	0.16	2.64	2	CT
TMPRWR	43.9	-0.19	1.10		44.9	0.29	0.96	4	LD
TQJQ6V	40.1	-2.12 *	0.88 L		40.5	-2.10 *	0.55	3	TD
WMRPFP	43.7	-0.30	1.11		41.5	-1.53	1.54	4	LD
WTTADE	43.0	-0.67	0.91 L		42.2	-1.16	1.27	4	LD
X4TW6C	46.9	1.36	8.23 H		45.5	0.63	0.99	4	LD
XPAEBM	51.6	3.71 X	0.30 L		53.6	5.01 X	2.12	4	LD
YACM6C	43.5	-0.40	1.31		45.0	0.36	1.01	4	TD
Z84QWT	52.8	4.35 X	1.81		50.8	3.52 X	1.90	4	EM

Consensus (All Labs) Results

Month Mean	44.27	Grand Mean	44.33
Avg SD	2.21	Avg SD Months	1.30
SD btwn Labs	1.96	SD btwn Labs	1.84
Labs Incld	35	Labs Incld	34

Key to Instrument Codes Reported by Participants

CT	Con-Ten	EM	Emerson 1200 Series
EN	Emerson 2200	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LY	L&W 830
TD	TMI Digital Crush Tester, Model 17-09	TG	TMI Digital Crush Tester, 17-76
TH	TMI Monitor/Compression Tester, Model 17-76	TJ	TLS Compression Tester, Model CDM-5
TK	TLS Compression Tester, Model 5184	WK	Zwick Z005 Crush Tester
XX	Instrument make/model not specified by lab		

Containerboard Interlaboratory Testing Program

Analysis 205

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

TAPPI Official Test Method T807

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2KMQ9D	106.9	104.1	104.1	105.5	105.1	-1.35	7.1	1.3	107.1	-0.98	8.6	2.2	12	LB
2MGD4P	107.8 L	110.4	109.5	110.9	109.7	-0.06	7.5	1.4	109.3	-0.28	9.9	2.4	12	LA
2QAL4P	108.4	109.8	112.6	109.8	110.2	0.08	5.8	1.8	113.1	0.95	5.4	2.8	12	RE
32AQCH	109.1	110.7	111.6	108.8	110.1	0.05	10.7	1.3	109.2	-0.31	9.2	2.0	12	TB
3CT6FK	108.5	110.9	111.1	121.2 X	112.9	0.87	10.3	5.6	113.1	0.95	9.4	4.5	12	AX
3TFLJG	120.6 *	120.3 *	118.9 H	124.5 X	121.1	3.20 X	11.1	2.4	120.0	3.15 X	10.4	2.5	11	LA
4BBJEG	109.5	117.5	112.4	112.3	112.9	0.87	10.1	3.3	113.2	0.96	9.6	3.1	11	LC
6FZFGD	99.7 *	109.7	105.9	102.8 H	104.5	-1.53	11.1	4.3	106.0	-1.32	9.2	4.3	12	LJ
6VHYJE	103.7	105.6	102.6	106.1	104.5	-1.54	10.1	1.6	105.8	-1.38	8.5	2.2	12	LC
6W6MVE	108.1	109.3	111.4	108.8	109.4	-0.13	8.2	1.4	108.6	-0.49	7.6	1.6	12	TP
72G82R	108.4	105.9	105.7	111.5	107.9	-0.57	8.9	2.7	106.7	-1.09	8.5	2.9	12	LZ
92PY8D	114.7	118.3	117.8	113.6	116.1	1.78	8.5	2.3	112.9	0.88	8.7	3.0	12	AH
9JQNF4	110.2	113.1	113.0	112.4	112.2	0.65	10.3	1.4	111.6	0.48	9.6	2.2	12	LJ
A6LRW2	108.7 L	108.5 L	106.4 L	108.0	107.9	-0.56	3.1	1.0	107.8	-0.75	3.2	0.8 L	12	LA
AKKRRB	118.6 *	114.3	115.3	114.2	115.6	1.64	9.0	2.1	117.2	2.25 *	9.4	3.6	12	AH
BFJ3NA	105.3	104.8	101.6	106.6	104.6	-1.51	8.7	2.1	105.4	-1.50	8.1	3.6	12	LC
BGGDHQ	106.6	113.1	109.5	111.9	110.3	0.11	7.3	2.9	110.7	0.17	8.8	2.5	12	LC
C8NKM7	100.7 *	106.8	104.4	106.1	104.5	-1.53	9.2	2.7	108.6	-0.49	10.1	4.2	12	LC
CE8QJD	106.7	107.8	102.5	105.5	105.6	-1.21	8.2	2.3	106.1	-1.30	8.8	3.0	12	LA
CJWC76	107.6	106.3	109.8	109.8	108.4	-0.43	7.3	1.7	106.8	-1.06	7.8	2.4	12	AH
DMDWQZ	110.9	110.3	110.5 L	110.5 L	110.5	0.19	4.7	0.3 L	110.5	0.13	5.1	0.3 L	12	LJ
EPDMC6	113.7	115.1	111.6	118.7 *	114.8	1.40	9.7	3.0	111.3	0.38	8.0	3.1	12	LA
ETWLQZ	110.2	104.4	111.0	107.3	108.2	-0.47	8.7	3.0	109.9	-0.09	9.3	3.1	8	LC
H393TG	108.6 L	110.9	110.7	110.7	110.2	0.10	5.0	1.1	110.1	-0.02	4.2	0.8 L	12	LA
HKDA8J	112.9	111.9	110.0	113.7	112.1	0.64	8.7	1.6	112.7	0.81	9.7	2.5	12	LA
HW4BGY	106.5	113.0	115.8	111.6	111.7	0.53	6.9	3.9	112.4	0.72	6.3	2.6	11	XX
J6DVKV	112.3	109.3	109.1	109.0	109.9	0.02	10.8	1.6	108.3	-0.59	10.0	2.8	12	LC
J8JFAF	116.6	114.9	107.1	110.3	112.2	0.68	9.9	4.3	113.8	1.18	11.3	4.0	8	LA
JBKGCY	105.6	107.7	112.5	108.2	108.5	-0.39	8.8	2.9	106.8	-1.08	9.8	2.4	12	LC
KVHCG7	107.1	104.3	105.5	104.9	105.5	-1.26	8.0	1.2	105.2	-1.58	8.5	2.3	12	LA
L24NVY	113.3	114.3	117.9	118.7 *	116.1	1.77	11.6	2.7	116.4	2.01 *	10.9	2.5	12	LZ
L7FUB7	118.3 *	122.6 *	129.5 X	129.1 X	124.9	4.29 X	10.0	5.4	123.9	4.38 X	8.3	3.3	12	XX
LPDVMC	109.6	111.8	No Data	111.9	111.1	0.35	5.5	1.3	111.3	0.39	5.8	1.5	11	LC
MAX9E7	106.4	108.3	106.7	107.6	107.3	-0.75	8.6	0.9	107.9	-0.70	8.6	2.1	12	LC
NL6L8Q	108.1	108.9	109.9	110.2	109.3	-0.17	9.3	1.0	106.8	-1.06	9.2	2.6	12	LB

Containerboard Interlaboratory Testing Program

Analysis 205

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

TAPPI Official Test Method T807

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
NVAEWK	114.6	123.1 *	114.5	123.0 X	118.8	2.55 *	9.5	4.9	117.9	2.49 *	9.6	3.6	12	LC
NZKKCR	107.7 H	119.2	116.6	112.9	114.1	1.21	18.0	5.0	115.9	1.85	12.3	3.5	12	LZ
PPZR39	112.0	111.6	110.8	112.0	111.6	0.49	9.5	0.6	109.9	-0.06	11.7	4.2	12	AH
RYXCEY	112.3	112.3	113.0	112.5	112.5	0.75	7.7	0.3 L	112.6	0.80	7.4	0.7 L	12	LA
TDT27P	109.6	114.8	106.0 H	116.0	111.6	0.49	10.5	4.7	111.1	0.30	10.3	3.3	8	XX
TMM2QA	111.4	108.3	109.2	111.1	110.0	0.03	8.4	1.5	110.8	0.20	9.5	2.5	12	LA
TMPRWR	110.0	112.6	115.3	111.2	112.3	0.69	9.1	2.3	109.4	-0.22	10.0	4.2	12	LA
TQJQ6V	104.0	102.4	100.4 *	101.4 *	102.1	-2.23 *	10.2	1.5	123.0	4.11 X	9.9	15.6 H	12	XX
TZA8ZQ	113.2	112.3	105.0 L	No Data	110.2	0.09	8.3	4.5	110.9	0.25	9.5	2.9	11	TB
V6ERV2	108.1	106.8	108.0	108.7	107.9	-0.56	9.1	0.8	113.8	1.17	9.1	5.1	12	LC
VMWQ67	118.7 *	107.9	109.4 H	107.0	110.8	0.25	12.5	5.4	109.8	-0.10	11.2	4.4	12	LJ
WMRPFP	107.8	109.6	109.7	105.5	108.1	-0.50	7.9	2.0	108.4	-0.54	7.0	2.0	12	LA
WNLE3R	106.4	117.4	115.2	106.2	111.3	0.41	9.9	5.8	111.0	0.26	9.6	4.3	12	AH
X4TW6C	106.3	103.9	122.1 *	105.2	109.4	-0.14	9.0	8.5 H	110.2	0.03	12.2	7.1 H	12	LC
XDW8EL	112.3	111.0	113.6	108.7	111.4	0.44	8.6	2.1	110.0	-0.05	9.1	2.7	12	LC
XX4J4N	100.6 *	102.5	99.3 *	106.3	102.2	-2.20 *	8.0	3.0	104.1	-1.92	8.1	3.1	8	AH
YHM4EW	114.0	107.0	110.9	108.4	110.1	0.06	7.8	3.1	111.0	0.28	8.3	3.5	12	AA
YP923K	108.1	107.1	109.8	107.9	108.2	-0.47	6.8	1.1	108.1	-0.66	6.8	1.1	12	AH
ZNTRXQ	110.1	112.3	112.3	110.2	111.2	0.39	9.8	1.2	109.2	-0.29	9.1	3.3	12	LC

Consensus (All Labs) Results

Wk Mean	109.57	110.68	110.11	109.57	Month Mean	109.87	Grand Mean	110.14
Avg SDr	9.73	8.76	9.23	8.63	Avg SD	9.07	Avg SD	8.97
SD btwn Labs	4.41	4.84	4.82	3.59	SD btwn Labs	3.50	SD btwn Labs	3.13
Labs Incld	54	54	52	49	SD btwn Wks	3.00	SD btwn Wks	3.13
Labs Excld	0	0	1	4	Labs Incld	52	Labs Incld	51
Labs not Rcvd	0	0	1	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	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2KMQ9D	111.4	111.4	107.8	103.2	108.4	-1.01	10.1	3.9	109.4	-1.03	12.5	3.8	12	LB
2MGD4P	108.9	113.7	109.4	115.4	111.9	-0.16	9.1	3.2	112.0	-0.25	10.9	2.9	12	LA
2QAL4P	107.0	109.0	108.2	110.8	108.8	-0.93	7.3	1.6	112.2	-0.18	6.0	3.0	12	RE
32AQCH	118.6	108.4	111.4	116.9	113.8	0.33	11.1	4.8	110.5	-0.70	10.5	4.4	11	TB
3CT6FK	118.9	113.6	117.7	117.7	117.0	1.13	10.3	2.4	117.1	1.34	12.9	2.0	12	AX
3TFLJG	112.9	125.4 X	119.0	116.7	118.5	1.51	11.0	5.2	119.4	2.03	*10.3	4.0	12	LA
4BBJEG	106.6	110.3	115.3	110.1	110.6	-0.48	12.3	3.6	112.0	-0.23	11.5	3.2	9	LC
6FZFGD	112.7	113.7	107.9	107.2	110.4	-0.53	8.1	3.3	109.9	-0.89	9.1	4.8	8	LJ
6VHYJE	108.8	101.5 *	114.8	109.2	108.6	-0.98	10.7	5.5	110.3	-0.75	10.3	5.3	12	LC
6W6MVE	110.9	111.6	113.0	114.3	112.5	-0.01	9.1	1.5	112.1	-0.20	8.4	1.2 L	12	TP
72G82R	115.1	105.5	104.3	120.5	111.4	-0.28	10.5	7.8 H	109.3	-1.08	10.8	4.8	12	LZ
92PY8D	117.4	116.6	116.4	112.5	115.7	0.81	10.5	2.2	116.8	1.24	11.6	2.3	12	AH
9JQNF4	112.6	110.5	115.1	111.3	112.3	-0.03	11.2	2.0	114.2	0.44	10.8	4.0	12	LJ
A6LRW2	121.3 L	120.3 L	121.4 L	121.7 L	121.2	2.18 *	3.2	0.6 L	127.2	4.42	X90.6	28.4 H	12	LA
AKKRRB	121.2	118.0	126.7 *	120.4	121.6	2.28 *	9.6	3.7	120.2	2.27	*12.1	4.0	12	AH
BFJ3NA	104.5	105.9	105.2	107.8	105.8	-1.66	9.0	1.4	109.0	-1.16	8.4	6.8	12	LC
BGGDHQ	109.3	112.8	109.9	114.2 H	111.6	-0.23	13.6	2.3	112.4	-0.13	12.1	4.3	12	XX
C8NKM7	108.6 L	109.8	106.0	102.7	106.8	-1.43	9.5	3.1	111.7	-0.32	10.7	5.5	12	LA
CE8QJD	108.5	112.2	108.5	104.2	108.3	-1.04	10.9	3.3	107.3	-1.67	10.6	4.5	12	LA
CJWC76	108.2	111.0	106.1	100.8 *L	106.5	-1.49	7.4	4.3	107.2	-1.72	9.0	4.4	12	AH
DMDWQZ	113.4 L	113.3	113.1	113.6	113.3	0.22	5.2	0.2 L	113.7	0.29	4.1	0.5 L	12	LJ
EPDMC6	117.7	117.7	118.3	116.9	117.6	1.29	8.3	0.5 L	115.6	0.88	7.9	2.3	12	LA
ETWLQZ	109.7	110.5	115.5	111.3	111.7	-0.18	11.3	2.6	113.1	0.09	11.1	2.8	8	LC
H393TG	111.9	112.3 L	112.7 L	113.0 L	112.5	-0.01	4.0	0.5 L	112.4	-0.10	4.2	0.4 L	12	LA
HKDA8J	113.7	115.6	101.6	112.3	110.8	-0.42	11.8	6.2	112.2	-0.17	11.1	4.1	12	LA
HW4BGY	113.4	114.5	109.5	115.0	113.1	0.16	8.7	2.5	115.8	0.93	7.3	5.4	11	XX
J6DVKV	106.3	115.2	112.5	112.3	111.6	-0.23	11.0	3.8	113.0	0.06	11.1	3.8	8	LC
J8JFAF	114.3	107.4	106.6	104.2	108.1	-1.09	10.7	4.3	112.8	0.02	11.7	6.1	12	LA
JBKGCY	117.8	114.2	111.5	108.7	113.1	0.15	12.0	3.9	114.5	0.55	12.8	4.4	12	LC
KVHCG7	108.4	110.6	108.6	109.1	109.2	-0.83	10.0	1.0	109.8	-0.91	10.8	3.3	12	LA
L24NVY	124.9 *	116.4	124.7 *	119.0	121.2	2.19 *	13.2	4.2	119.5	2.08	*12.2	3.2	12	LZ
L7FUB7	138.0 X	120.7 *	120.7	125.7 *	126.3	3.45 X	11.4	8.2 H	120.4	2.36	*11.3	11.3 H	12	XX
MAX9E7	109.2	110.2	109.8	112.9	110.5	-0.49	10.3	1.6	108.6	-1.29	10.3	4.2	12	LC
NL6L8Q	109.8	106.6	111.2	115.9	110.9	-0.40	9.1	3.9	109.4	-1.04	8.9	3.6	12	LB
NVAEWK	119.8	119.5 H	116.1	120.7	119.0	1.64	13.1	2.0	118.1	1.64	12.0	3.5	12	LC

Containerboard Interlaboratory Testing Program

Analysis 206

Bursting Strength (Mullen), 56 lb Linerboard - 56A2

TAPPI Official Test Method T807

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
NZKKCR	120.2	117.5	118.9	116.2	118.2	1.43	11.1	1.7	114.8	0.62	10.8	3.5	12	LZ
PPZR39	113.2	109.6	107.2	109.2	109.8	-0.67	10.8	2.5	109.1	-1.13	11.4	1.8	12	AH
RYXCEY	115.1	114.5	114.4	115.1	114.8	0.58	7.0	0.4 L	114.7	0.58	9.3	0.6 L	12	LA
TDT27P	112.0	111.5 L	114.2	118.5	114.1	0.39	7.9	3.2	113.8	0.33	10.2	4.2	8	XX
TMM2QA	113.8	114.7	105.3	105.1	109.7	-0.69	10.3	5.2	111.1	-0.53	10.9	3.6	12	LA
TMPRWR	111.2 H	112.4	116.5	108.4	112.1	-0.09	13.2	3.4	110.8	-0.61	10.9	4.7	12	LA
TQJQ6V	114.1	117.3	115.0 H	113.4	115.0	0.62	14.2	1.7	124.4	3.58	X12.2	14.8 H	12	XX
TZA8ZQ	115.3	164.3 X	109.4	No Data	129.7	4.31 X	10.0	30.1 H	116.1	1.02	11.5	16.3 H	11	LA
V6ERV2	103.9	106.8	106.8	109.9	106.8	-1.41	10.0	2.4	111.2	-0.48	12.4	4.2	12	LC
VMWQ67	120.6	115.4 H	127.3 *	106.4	117.4	1.24	13.1	8.8 H	112.5	-0.10	11.4	6.6	12	LA
WMRPFP	110.3	105.3	109.2	110.8	108.9	-0.89	6.4	2.5	111.0	-0.55	6.8	2.9	12	LA
WNLE3R	113.0	111.4	115.6	117.8	114.5	0.49	8.8	2.8	112.3	-0.14	10.1	4.0	12	AH
X4TW6C	111.5	114.5	125.0 *	107.2	114.6	0.52	8.8	7.6 H	115.9	0.96	10.2	6.0	12	LC
XDW8EL	112.9	115.2	114.9	112.6	113.9	0.35	13.1	1.4	112.8	0.02	11.4	3.1	12	LC
XX4J4N	103.6	101.6 *	111.1	110.0	106.6	-1.48	9.2	4.7	108.5	-1.30	8.6	5.0	8	AH
YHM4EW	105.9	111.7	106.7	110.7	108.8	-0.93	11.8	2.9	110.5	-0.71	12.4	3.0	12	AA
YP923K	113.0	112.1	111.8	111.9	112.2	-0.07	7.5	0.5 L	112.2	-0.18	7.5	0.6 L	12	AH
ZNTRXQ	110.6	111.5	117.9	120.4	115.1	0.66	9.7	4.8	112.1	-0.21	9.9	5.0	8	LC

Consensus (All Labs) Results

Wk Mean	112.57	112.22	112.90	112.53	Month Mean	112.48	Grand Mean	112.76
Avg SDr	9.94	10.55	9.62	10.69	Avg SD	10.19	Avg SD	10.41
SD btwn Labs	4.82	4.28	5.87	5.40	SD btwn Labs	3.99	SD btwn Labs	3.25
Labs Incld	52	51	53	52	SD btwn Wks	3.66	SD btwn Wks	4.80
Labs Excld	1	2	0	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	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2343TQ	95.9	93.8	92.9	94.9 L	94.4	0.81	1.7	1.3	94.1	0.97	1.9	1.2	12	LD
2KMQ9D	87.3	84.3	86.2	84.8	85.7	-0.80	2.1	1.4	86.4	-0.62	2.6	3.7	12	LC
2QAL4P	86.5	88.5	86.8	86.0	86.9	-0.56	2.5	1.1	88.3	-0.24	3.1	2.1	12	LZ
3CT6FK	78.6 *	78.3 *H	74.5 X	79.8	77.8	-2.25 *	3.6	2.3	77.0	-2.55 *	4.0	1.8	12	LC
3TFLJG	98.1	99.2	97.5	98.8	98.4	1.56	2.1	0.7	97.2	1.60	2.7	1.5	11	LZ
3U9JQM	93.7	96.0	95.8 L	96.6	95.5	1.03	3.3	1.2	94.5	1.04	3.2	1.7	12	TH
3X8T4A	96.6	98.7	95.8	95.0 H	96.5	1.21	3.5	1.6	94.3	1.00	2.7	2.1	12	XX
4BBJEG	97.4	94.4	89.3	85.7	91.7	0.32	3.8	5.2	92.0	0.52	3.6	3.1	11	LD
4XP738	90.2	89.9	89.8	86.5	89.1	-0.15	2.3	1.7	87.8	-0.33	3.1	2.0	12	MB
6FZFGD	92.3	94.7	95.0	93.3	93.8	0.72	3.2	1.2	93.0	0.73	3.0	1.4	12	LD
6VHYJE	87.8	85.1	88.4	87.4	87.2	-0.52	2.7	1.4	88.1	-0.27	2.7	2.0	12	LD
6W6MVE	90.4	91.3	88.7	88.7	89.7	-0.04	3.7	1.3	89.5	0.01	5.2	2.7	12	TJ
72G82R	88.8	86.6	89.6	91.2	89.0	-0.17	3.0	1.9	89.0	-0.10	2.7	1.7	12	LD
92PY8D	87.0	87.2	85.9 L	89.2	87.3	-0.49	2.4	1.4	87.0	-0.49	2.9	1.7	12	LD
9JQNF4	94.9	91.4	90.8	90.8	91.9	0.37	3.0	2.0	91.9	0.51	2.9	2.6	12	LD
A4VQQD	86.2	85.2	84.7	86.0	85.5	-0.82	2.6	0.7	86.2	-0.67	2.5	0.7 L	12	LC
A6LRW2	83.8	83.9 L	85.1 L	84.4	84.3	-1.04	1.5	0.6	83.7	-1.18	1.6	0.7	12	TU
BFJ3NA	87.5	90.6	94.1	93.5	91.4	0.27	3.9	3.0	90.6	0.23	3.4	2.4	12	LD
C8NKM7	87.9	87.2	85.5	87.9	87.1	-0.52	2.6	1.1	88.6	-0.18	2.6	1.4	12	LD
CE8QJD	91.1	96.5	87.9	85.2	90.2	0.04	2.8	4.8	88.6	-0.17	3.1	4.2	12	LZ
CJWC76	90.9	88.9	90.6	88.3	89.7	-0.05	3.7	1.3	90.2	0.15	3.0	1.6	12	LC
DB2T63	76.7 *H	90.7	90.0	90.9	87.1	-0.53	5.1	6.9 H	88.0	-0.29	4.8	5.4 H	12	MB
DMDWQZ	90.6	89.7	89.5	89.9	89.9	-0.01	2.0	0.5	90.0	0.12	2.0	0.3 L	12	LD
E3NW3G	81.5	81.6	81.4	82.2	81.7	-1.53	1.9	0.4 L	78.6	-2.22 *	2.2	3.6	12	RS
EPDMC6	91.4	90.4	90.0	92.5	91.1	0.20	2.6	1.1	89.6	0.03	2.6	1.5	12	LD
FF8Z46	90.1	88.7	89.8	88.4	89.3	-0.13	2.3	0.8	89.5	0.02	6.6	2.4	12	LD
FPVXMX	88.8	88.5	90.6	88.3	89.0	-0.17	4.0	1.0	86.3	-0.64	4.3	3.9	8	TH
GWBUB6	82.5	85.0	82.1	85.0	83.7	-1.16	2.8	1.5	83.8	-1.15	2.7	1.6	12	EN
H393TG	88.6	88.6 L	88.7	88.6	88.6	-0.25	1.7	0.0 L	88.4	-0.21	2.1	2.6	12	LZ
HKDA8J	84.6 H	88.5 H	72.9 XH	73.5 XH	79.9	-1.86	9.6	7.9 H	82.5	-1.43	7.9	5.2	12	LC
HW4BGY	84.9	79.1 *	84.0	81.1	82.3	-1.42	2.7	2.7	82.2	-1.48	3.6	3.2	12	LD
J6DVKV	112.5XH	101.3 *H	100.1 *H	99.6	103.4	2.48 *	16.4	6.1 H	100.5	2.28	*11.5	4.3	12	LC
J8JFAF	102.5 *	102.3 *	102.3 *	101.9 *	102.2	2.27 *	3.1	0.2 L	100.4	2.26	*3.0	2.2	8	LD
KVHCG7	91.2	88.6	88.0	93.6	90.3	0.07	3.2	2.5	91.2	0.36	2.9	2.0	12	LD
L24NVY	90.6	91.1	88.6	88.5	89.7	-0.05	4.1	1.3	89.1	-0.07	3.2	1.5	12	LC

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
M3TG4M	90.7	90.6	91.7	91.9	91.2	0.24	2.6	0.7	90.1	0.13	2.6	1.1	12	TH
NL6L8Q	89.8	94.1	94.8	92.7	92.9	0.54	3.1	2.2	92.0	0.52	3.2	3.0	12	LC
NYQYJZ	84.4	82.6	85.2	83.1	83.8	-1.13	3.0	1.2	84.8	-0.95	3.4	1.2	12	EM
NZKKCR	87.9	86.8	91.4	91.0	89.2	-0.13	2.8	2.3	87.8	-0.34	3.2	2.3	12	LG
RYXCEY	91.8	91.7	92.5	91.4	91.9	0.35	3.5	0.5	91.1	0.35	3.3	1.0	12	LD
TWLWKX	89.8	101.9 *	96.3	No Data	96.0	1.12	4.2	6.0 H	94.4	1.01	3.1	3.8	11	MB
TZA8ZQ	103.9 *	95.2	95.5	No Data	98.2	1.52	3.1	4.9	96.0	1.35	3.6	5.3 H	11	LD
VH3XNW	88.5	83.6	89.6	87.4	87.3	-0.50	2.3	2.6	83.5	-1.22	2.4	4.0	12	LD
VHGKZJ	84.9	85.6	86.2	84.4	85.3	-0.87	3.4	0.8	84.7	-0.97	3.6	1.1	8	LC
WMRPFP	78.8 *	82.9	81.6	81.3	81.2	-1.63	2.7	1.7	84.2	-1.08	2.7	2.6	12	LD
WNLE3R	96.9	89.4	93.4	97.0	94.2	0.78	3.9	3.6	94.4	1.02	3.7	2.4	12	LC
X4TW6C	86.3	89.0	88.3	No Data	87.9	-0.39	2.3	1.4	88.3	-0.23	2.1	1.1	11	LD
XDW8EL	95.0	94.9	91.9	96.8	94.6	0.86	3.2	2.0	90.9	0.30	2.8	3.3	12	LD
XX4J4N	97.7	99.2	100.3 *	101.0 *	99.6	1.77	3.3	1.4	97.5	1.66	3.7	3.4	8	LZ
YACM6C	91.8 L	94.4 L	92.0 L	95.1 L	93.3	0.62	1.2	1.7	93.5	0.84	1.0	1.8	12	TD
ZNTRXQ	89.7	89.0	91.9	89.2	89.9	-0.01	2.8	1.3	89.8	0.07	3.1	1.2	12	LD

Consensus (All Labs) Results

Wk Mean	89.69	90.13	90.36	89.93	Month Mean	89.96	Grand Mean	89.43
Avg SDr	3.18	3.45	3.29	3.00	Avg SD	3.97	Avg SD	3.68
SD btwn Labs	5.58	5.63	4.72	5.32	SD btwn Labs	5.41	SD btwn Labs	4.86
Labs Incld	50	51	49	47	SD btwn Wks	2.71	SD btwn Wks	2.66
Labs Excld	1	0	2	1	Labs Incld	51	Labs Incld	51
Labs not Rcvd	0	0	0	3				

Key to Instrument Codes Reported by Participants

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

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2343TQ	146.7 L	143.8 L	142.1	144.5	144.3	0.71	2.3	1.9	144.0	0.56	2.6	1.2 L	12	LD
2KMQ9D	131.2	132.3	131.7	130.4	131.4	-1.11	3.6	0.8	133.6	-0.75	3.5	3.6	12	LC
2QAL4P	130.0	132.1	131.9	130.3	131.1	-1.16	3.8	1.1	134.3	-0.66	3.5	4.8	12	LZ
3CT6FK	121.5 *	128.4	121.4 *	127.8	124.8	-2.05 *	6.3	3.9	122.9	-2.09 *	8.1	5.8	12	LC
3TFLJG	146.7	144.3	145.6	144.0	145.2	0.83	4.2	1.3	145.4	0.74	4.2	2.0	12	LZ
3U9JQM	144.6	150.5	148.8	145.4	147.3	1.14	5.2	2.8	145.7	0.77	4.3	2.3	12	TH
3X8T4A	147.6	150.4	148.1	150.5	149.2	1.40	6.7	1.5	147.6	1.01	5.5	2.1	8	XX
4BBJEG	156.0	147.4	136.6	136.1	144.0	0.67	6.5	9.5 H	145.1	0.69	5.9	6.3	9	LD
4XP738	137.4	139.8	134.5	135.1	136.7	-0.36	4.0	2.4	137.1	-0.30	4.2	4.3	8	MB
6FZFGD	142.7	149.0	144.7	142.0	144.6	0.75	5.7	3.1	144.7	0.65	5.1	2.7	8	LD
6VHYJE	137.9	139.3	138.4	138.7	138.6	-0.09	4.4	0.6	138.6	-0.12	4.6	1.9	12	LD
6W6MVE	141.7	139.2	138.6	136.9	139.1	-0.02	6.4	2.0	138.7	-0.11	11.2	3.3	12	TJ
72G82R	141.7	137.3	141.4	142.0	140.6	0.19	3.7	2.2	139.2	-0.05	4.4	1.9	12	LD
92PY8D	135.8	136.9	134.8 L	138.3	136.4	-0.40	2.5	1.5	136.4	-0.40	4.0	1.3	12	LD
9JQNF4	150.6	145.7	145.3	145.5	146.8	1.06	4.5	2.5	147.0	0.93	4.5	3.2	12	LD
A4VQQD	134.3	135.8	137.0	139.1	136.5	-0.38	3.4	2.0	137.1	-0.31	3.7	1.4	12	LC
A6LRW2	131.4	131.4	133.6	132.5	132.2	-0.99	3.4	1.1	132.3	-0.92	3.1	1.7	12	TU
BFJ3NA	144.3	149.9	144.8	143.7	145.7	0.90	5.9	2.8	145.0	0.68	7.6	3.5	12	LD
C8NKM7	136.2 L	139.2	135.4	137.4	137.0	-0.31	3.0	1.7	137.8	-0.22	4.1	2.4	12	LD
CE8QJD	145.4	144.3	140.3	136.2 H	141.6	0.33	5.8	4.2	136.2	-0.42	7.1	10.5 H	12	LZ
CJWC76	140.2	139.3	143.0	137.6	140.0	0.11	3.5	2.3	142.6	0.38	4.3	2.6	12	LC
DB2T63	120.9*H	141.6	137.0	142.8	135.6	-0.52	8.1	10.1 H	139.5	-0.01	7.4	8.9	12	MB
DMDWQZ	139.5	139.2	139.8 L	139.2 L	139.4	0.02	2.3	0.3 L	139.7	0.02	1.7	0.4 L	12	LD
E3NW3G	133.0	134.1	135.1	133.9 L	134.0	-0.74	3.0	0.9	124.7	-1.87	2.9	7.1	12	RS
EPDMC6	138.6	138.4	144.1	140.4	140.4	0.16	4.3	2.6	138.9	-0.08	4.4	2.5	11	LD
FF8Z46	143.7	140.5	148.0	145.4	144.4	0.73	4.7	3.2	142.7	0.40	4.5	2.9	12	LD
FPVXMX	129.2	133.9	135.6 H	141.7	135.1	-0.59	6.3	5.1	135.1	-0.56	6.3	5.1	4	TH
GWBUB6	126.7	132.6	129.0	133.4	130.4	-1.24	4.2	3.1	129.9	-1.21	4.2	2.1	12	EN
H393TG	139.1	139.7 L	139.9 L	141.0	139.9	0.09	2.4	0.8	141.6	0.25	3.3	3.3	12	LZ
HKDA8J	130.7 H	128.8 H	124.6 *H	127.8 H	128.0	-1.59	13.8	2.6	131.5	-1.02	15.0	5.0	12	LC
HW4BGY	131.9	122.0 *	131.2	130.4	128.9	-1.47	5.0	4.6	127.9	-1.47	4.6	6.6	12	LD
J6DVKV	162.5 *	163.2 *	162.6 X	162.1 XH	162.6	3.30 X	8.3	0.5 L	157.7	2.28 *	9.3	6.3	8	LC
J8JFAF	154.3	156.1	157.5 *	155.0 *	155.7	2.32 *	5.9	1.4	154.8	1.91	5.5	2.3	12	LD
KVHCG7	136.8	137.9	136.5	145.0	139.0	-0.03	5.1	4.0	138.6	-0.12	4.9	2.6	12	LD
L24NVY	137.2	137.5	138.4	138.6	137.9	-0.19	4.3	0.7	136.7	-0.37	4.6	2.3	12	LC

Containerboard Interlaboratory Testing Program

Analysis 216

Ring Crush, 56 lb Linerboard - 56A2

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
M3TG4M	136.3	141.4	139.3	143.1	140.0	0.11	4.5	2.9	143.2	0.46	4.1	3.0	12	TH
NL6L8Q	145.3	142.1	147.2	146.2	145.2	0.84	5.0	2.2	148.0	1.06	4.8	3.7	12	LC
NYQYJZ	128.3	130.4	132.0	129.2	130.0	-1.31	5.2	1.6	129.1	-1.32	5.3	2.0	12	EM
NZKKCR	139.7	140.4	139.8 L	138.4	139.6	0.05	3.4	0.8	138.4	-0.15	4.1	2.6	12	LY
RYXCEY	142.9	141.8	142.7	142.6	142.5	0.46	3.4	0.5 L	142.8	0.41	3.4	0.5 L	12	LD
TWLWKX	177.0 X	163.0 *H	153.5	No Data	164.5	3.56 X	7.0	11.8 H	159.6	2.52 *	6.0	14.4 H	8	MB
TZA8ZQ	161.7 *	No Data	145.8	No Data	153.8	2.05 *	5.1	11.2	148.5	1.12	4.8	8.5	10	LD
VH3XNW	135.1	135.2	134.7	134.5	134.9	-0.62	6.2	0.3 L	127.0	-1.58	5.3	6.3	12	LD
VHGKZJ	127.8	123.4 *	128.0	122.4 *H	125.4	-1.96 *	7.5	2.9	125.4	-1.78	7.5	2.9	4	LC
WMRPFP	131.9	135.8	130.5	134.3	133.1	-0.87	4.5	2.4	133.0	-0.83	3.8	1.7	12	LD
WNLE3R	142.3	140.3	139.0	138.9	140.1	0.13	5.0	1.6	140.5	0.11	6.6	4.8	12	LC
X4TW6C	134.5	134.9	136.3	No Data	135.3	-0.57	3.4	0.9	134.5	-0.63	3.7	1.3	11	LD
XDW8EL	145.2	146.8	146.0	141.9	145.0	0.81	5.7	2.2	141.1	0.19	4.9	3.5	12	LD
XX4J4N	157.9 *	155.4	157.5 *	155.4 *	156.6	2.44 *	5.0	1.3	152.9	1.68	5.1	6.0	8	LZ
YACM6C	140.6 L	138.7 L	138.2 L	141.4 L	139.7	0.06	1.0	1.6	142.3	0.34	1.5	2.9	12	TD
ZNTRXQ	142.4	137.5	139.8	143.1	140.7	0.20	3.8	2.6	141.0	0.18	4.1	2.4	8	LD

Consensus (All Labs) Results

Wk Mean	139.60	140.18	139.29	139.14	Month Mean	139.25	Grand Mean	139.57
Avg SDr	5.22	5.18	5.38	5.02	Avg SD	5.13	Avg SD	5.56
SD btwn Labs	9.20	8.51	7.45	6.72	SD btwn Labs	7.08	SD btwn Labs	7.95
Labs Incld	50	50	50	47	SD btwn Wks	3.42	SD btwn Wks	4.61
Labs Excld	1	0	1	1	Labs Incld	49	Labs Incld	51
Labs not Rcvd	0	1	0	3				

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LY	L&W Crush Tester 958	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	RS	Regmed Digital Crush Tester CT-2000
TD	TMI Digital Crush Tester, Model 17-09	TH	TMI Compression Tester, Model 17-76
TJ	TLS Compression Tester, Model CDM-5	TU	TMI Universal Crush Tester (TMI K440)
XX	Instrument make/model not specified by lab		

Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42F1

TAPPI Official Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2343TQ	23.5	23.4	23.4	23.5	23.4	0.05	1.8	0.1 L	23.4	0.00	1.7	0.3 L	12	LY
2KMQ9D	21.9 L	22.2	20.9 *L	21.0 L	21.5	-1.77	1.0	0.6	22.0	-1.49	1.2	0.8	12	LA
2MGD4P	23.6	23.5	23.5	23.7	23.5	0.14	1.6	0.1 L	23.7	0.30	1.6	0.7	12	LY
2VLNUR	23.7	24.6	25.6	25.0 L	24.7	1.26	1.6	0.8	25.3	2.02 *	1.7	0.9	8	LA
32AQCH	22.9	22.1	23.2	22.0	22.6	-0.79	1.7	0.6	22.2	-1.19	1.8	0.5	12	LZ
3CT6FK	22.8	22.3	22.4	22.2	22.4	-0.92	1.6	0.3	22.8	-0.63	1.7	0.7	12	LZ
3TFLJG	22.8	22.9	23.6	23.3	23.1	-0.23	1.7	0.4	23.2	-0.13	1.8	0.5	11	LW
3U9JQM	23.2 L	23.4 L	22.5 L	23.1 L	23.1	-0.32	0.4	0.4	22.5	-0.93	1.6	0.7	12	LH
3X8T4A	25.0 L	25.2 L	24.8 L	24.2 L	24.8	1.32	0.0	0.5	24.2	0.83	0.0	1.4	12	LA
4BBJEG	26.1 *	22.4	23.0	22.1	23.4	0.00	2.1	1.8 H	23.1	-0.32	1.9	1.3	11	LZ
4YF6JQ	23.0	22.9	22.1	22.9 L	22.7	-0.62	1.8	0.5	23.0	-0.34	1.7	0.5	12	LA
6FZFGD	21.9	23.3	23.8	23.5 L	23.1	-0.27	1.5	0.8	22.5	-0.92	1.6	0.8	12	LY
6VHYJE	23.7	22.7	24.1	22.9	23.3	-0.06	1.5	0.7	23.4	-0.01	1.7	0.5	12	LA
6W6MVE	22.9 L	22.8 L	22.9 L	22.5	22.8	-0.56	1.0	0.2	22.7	-0.73	1.1	0.2 L	12	TT
72G82R	23.5	23.7	23.6	23.6	23.6	0.17	1.7	0.1 L	23.4	0.06	1.6	0.4	12	LY
92PY8D	25.5	22.9	25.3	23.8 H	24.4	0.90	2.2	1.3	23.4	-0.02	1.9	1.2	12	LU
9JQNF4	23.4	22.8	23.6	22.6	23.1	-0.28	1.6	0.5	23.2	-0.13	1.7	0.6	12	LA
AKKRRB	26.2 *	27.3 X	24.9	25.5	26.0	2.41 *	1.9	1.0	25.0	1.71	1.7	1.1	12	LU
BFJ3NA	24.6	25.2	23.8	22.7	24.1	0.65	1.7	1.1	23.9	0.60	1.7	1.1	12	LA
BGGDHQ	25.0	25.6 *H	25.4	25.4	25.3	1.83	2.1	0.2	24.6	1.33	2.0	0.6	12	XX
C8NKM7	22.3	23.0	21.7	22.7	22.4	-0.92	1.4	0.6	23.5	0.09	1.7	1.0	12	LA
CE8QJD	22.8	21.7	21.7	21.0	21.8	-1.49	1.5	0.7	21.9	-1.51	1.6	0.6	12	LA
CJWC76	22.8	23.3	23.2	22.9	23.1	-0.32	1.8	0.3	23.0	-0.43	1.7	0.4	12	LU
DB2T63	23.8	23.9	24.4	23.6	23.9	0.49	1.8	0.3	26.8	3.64 X	1.9	9.5 H	12	LA
EPDMC6	23.7	23.0	24.9	23.5	23.8	0.36	1.7	0.8	23.5	0.10	1.7	0.7	12	LA
ETWLQZ	23.1	23.0	22.8	22.3	22.8	-0.55	1.4	0.3	23.0	-0.38	1.6	0.4	8	LU
FF8Z46	22.1	23.1	23.0	22.2	22.6	-0.76	1.6	0.6	22.8	-0.64	1.6	0.6	12	LY
GWBUB6	22.5	21.5	21.2	22.0	21.8	-1.51	1.6	0.5	21.7	-1.79	1.6	0.4	12	LY
HKDA8J	25.0	25.6 *H	25.4	25.4	25.3	1.83	2.1	0.2	24.6	1.33	2.0	0.6	12	LU
J6DVKV	24.3	25.1	24.7	26.3 *H	25.1	1.60	2.0	0.9	25.2	1.94 *	1.8	0.9	12	LA
KVHCG7	24.7	23.5	25.0	24.1	24.3	0.87	1.9	0.7	24.4	1.04	1.8	0.8	12	LZ
L24NVY	22.4	22.7	22.9	23.4	22.8	-0.53	1.8	0.4	22.6	-0.77	1.8	0.7	12	LW
LAHFE6	23.1	24.7	19.2	X No Data	22.3	-1.01	1.6	2.8 H	21.4	-2.08 *	1.6	2.4	11	LY
LM8AV6	24.0	24.3	24.3	23.9	24.1	0.67	1.5	0.2	24.1	0.76	1.5	0.5	12	LH
LPDVMC	24.8 H	22.9 L	22.1	23.0	23.2	-0.17	1.9	1.1	23.0	-0.37	1.7	1.3	12	LA

Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42F1

TAPPI Official Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
MAX9E7	23.0	22.5	22.3	25.0	23.2	-0.19	1.7	1.3	23.6	0.23	1.9	1.1	12	LA
NL6L8Q	25.1	24.2	24.0	24.3	24.4	0.94	1.8	0.5	24.1	0.81	1.7	0.4	12	LW
NVAEWK	23.1	24.7	24.0	23.6	23.8	0.42	1.9	0.7	23.4	0.00	1.7	0.7	12	LA
NZKKCR	23.0	22.4	22.4	22.8	22.6	-0.71	1.6	0.3	22.8	-0.61	1.6	0.5	12	LU
RYXCEY	23.2	23.4	23.2	23.3	23.3	-0.10	1.3	0.1 L	23.2	-0.17	1.4	0.1 L	12	LA
TBQZ6T	21.3 *	21.1 *	20.9 *	21.1	21.1	-2.17 *	1.6	0.1	19.8	-3.76 X	2.1	1.6	12	LZ
TMM2QA	24.9	25.4 H	25.2	24.3	24.9	1.45	2.1	0.5	25.0	1.75	1.9	2.9 H	12	LU
TWLWKX	19.7 XL	41.0 XL	21.8 L	No Data	27.5	3.86 X	0.1	11.7 H	25.7	2.48 *	1.5	6.6 H	11	LA
TZA8ZQ	25.4	25.0	24.3	No Data	24.9	1.39	1.9	0.6	24.3	1.00	2.0	0.7	11	LH
V6ERV2	22.2	22.2	23.9	22.7	22.8	-0.60	1.5	0.8	22.9	-0.47	1.6	0.6	12	LA
VH3XNW	22.2	22.7	22.7	22.0	22.4	-0.95	1.5	0.4	22.6	-0.77	1.5	0.8	12	LH
VMWQ67	25.4	23.7	33.8 X	45.6 X	32.1	8.19 X	2.0	10.0 H	26.7	3.52 X	1.9	6.6 H	12	LZ
WMRPFP	22.4 L	22.4	22.6	22.3	22.4	-0.93	1.5	0.1	22.3	-1.09	1.2	0.3 L	12	BK
WNLE3R	22.9 H	22.7 H	22.8 H	No Data	22.8	-0.56	3.8	0.1	23.0	-0.41	3.3	1.0	11	LH
X4TW6C	22.9	22.9	23.5	23.0	23.1	-0.30	1.9	0.3	23.5	0.10	1.7	0.5	12	LA
YACM6C	32.1 XH	33.1 XL	33.8 X	34.5 X	33.4	9.35 X	1.9	1.0	33.4	10.56 X	1.9	1.0	4	XX
YHM4EW	25.0	25.8 *	23.4 L	25.7 *	25.0	1.50	2.0	1.1	23.7	0.38	1.8	1.3	12	LH
YP923K	22.7 L	22.8	22.8 L	22.9	22.8	-0.56	1.0	0.1 L	22.8	-0.64	1.0	0.1 L	12	TT
ZNTRXQ	23.3	23.6	22.9	23.4	23.3	-0.10	1.5	0.3	23.5	0.09	1.7	0.4	12	LA

Consensus (All Labs) Results

Wk Mean	23.54	23.38	23.38	23.29	Month Mean	23.39	Grand Mean	23.37
Avg SDr	1.75	1.76	1.73	1.66	Avg SD	1.75	Avg SD	1.72
SD btwn Labs	1.17	1.14	1.19	1.21	SD btwn Labs	1.07	SD btwn Labs	0.95
Labs Incld	52	51	51	48	SD btwn Wks	0.75	SD btwn Wks	1.30
Labs Excld	2	3	3	2	Labs Incld	51	Labs Incld	50
Labs not Rcvd	0	0	0	4				

Key to Instrument Codes Reported by Participants

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

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2343TQ	34.9	35.7	36.5	36.4	35.9	0.67	2.4	0.7	35.6	0.60	2.5	0.7	12	LY
2KMQ9D	33.1	30.3 *L	30.2 L	31.9	31.4	-2.08 *	1.6	1.4	33.2	-0.95	1.8	1.8	12	LA
2MGD4P	33.5	34.5	34.9	35.8	34.7	-0.07	2.4	1.0	34.5	-0.11	5.0	0.9	12	LU
2VLNUR	37.5	36.3	37.3	37.0	37.0	1.37	2.7	0.5	37.0	1.52	2.7	0.5 L	4	LA
32AQCH	32.8	32.3	34.2	34.2	33.4	-0.88	2.8	1.0	33.1	-0.97	2.7	0.7	11	LZ
3CT6FK	35.8	33.2	33.2	33.1	33.8	-0.58	2.7	1.3	34.9	0.18	2.6	1.4	12	XX
3TFLJG	33.4	34.8	33.2	34.9	34.1	-0.44	2.7	0.9	34.1	-0.34	2.7	0.8	12	LW
3U9JQM	32.9	31.7	31.9	31.2 *	31.9	-1.74	2.9	0.7	31.9	-1.76	2.6	0.9	12	LU
3X8T4A	37.0 L	35.2 L	37.1 L	37.6 L	36.7	1.19	0.0	1.0	35.2	0.32	0.0	2.2	8	LA
4BBJEG	36.6 L	33.6 H	32.9	32.8	34.0	-0.49	3.1	1.8	33.3	-0.85	3.0	1.5	9	LZ
4YF6JQ	34.4	35.4 L	35.0	36.0 L	35.2	0.24	1.7	0.6	34.5	-0.10	2.1	1.1	12	LA
6FZFGD	32.8	32.0 H	34.6	33.0	33.1	-1.04	3.4	1.1	33.0	-1.07	3.0	0.9	8	LY
6VHYJE	34.7	36.3	34.8	34.0	34.9	0.09	2.8	1.0	34.6	-0.01	2.6	0.9	12	LA
6W6MVE	33.9 L	33.5 L	33.9 L	33.8 L	33.8	-0.63	1.3	0.2 L	33.6	-0.66	1.6	0.3 L	12	TT
72G82R	33.1	34.5	35.8	35.5	34.7	-0.03	2.7	1.2	34.6	-0.05	2.2	1.1	12	LZ
92PY8D	34.7 H	37.0	35.1	35.1 H	35.5	0.42	4.0	1.0	33.8	-0.55	3.3	1.5	12	LU
9JQNF4	35.0	36.2	34.4	34.5	35.0	0.14	2.4	0.8	35.3	0.39	2.8	0.7	12	LU
AKKRRB	37.6	36.8	35.3	37.4	36.7	1.19	3.1	1.1	36.5	1.19	3.3	0.9	12	LU
BFJ3NA	35.4 H	34.4	34.7	34.5	34.8	-0.01	3.5	0.5	35.8	0.72	3.4	1.1	12	LA
BGGDHQ	36.5	36.6	37.2	36.7	36.8	1.20	3.5	0.3 L	37.1	1.57	3.2	0.8	12	LU
C8NKM7	32.8	33.6	34.0	35.4	33.9	-0.51	2.5	1.1	34.5	-0.12	2.8	1.2	12	LW
CE8QJD	35.2	31.7	33.0	31.9	33.0	-1.12	2.8	1.6	32.6	-1.35	2.5	1.3	12	LA
CJWC76	35.1	34.6	34.8	35.5	35.0	0.12	2.8	0.4	34.7	0.04	2.6	0.5 L	12	LU
DB2T63	33.6	23.9 XL	24.4 X	23.6 XL	26.4	-5.12 X	2.0	4.8 H	33.4	-0.80	2.6	6.8 H	12	LA
EPDMC6	32.8	34.0	35.0	35.3	34.3	-0.31	2.4	1.1	34.0	-0.44	2.6	0.8	12	LA
ETWLQZ	35.7	35.1	33.6	35.4	35.0	0.11	2.7	0.9	34.4	-0.17	2.6	1.0	8	LU
FF8Z46	34.5	34.1	34.5	34.2	34.3	-0.28	2.8	0.2 L	34.5	-0.07	2.8	0.6	12	LY
GWBUB6	32.8	32.1	31.0	31.2 *	31.8	-1.85	2.4	0.8	32.1	-1.64	2.5	0.8	12	LY
HKDA8J	36.5	36.6	37.2	36.7	36.8	1.20	3.5	0.3 L	37.1	1.57	3.2	0.8	12	LU
J6DVKV	36.6	37.1	37.4	35.8	36.7	1.18	3.0	0.7	37.2	1.60	3.0	0.7	8	LA
KVHCG7	37.8	35.5	37.3	37.7 H	37.1	1.39	3.7	1.1	35.8	0.72	3.2	1.5	12	LZ
L24NVY	32.8	33.4	33.2	32.8	33.0	-1.08	2.3	0.3 L	33.2	-0.93	2.7	1.1	12	LW
LAHFE6	33.8	36.0	28.5	* No Data	32.8	-1.23	3.5	3.9	31.6	-1.97 *	2.8	4.3 H	11	XX
LM8AV6	37.4	37.7	38.3	36.8	37.6	1.69	2.4	0.6	36.8	1.37	2.4	0.7	12	LH
LPDVMC	37.3	37.5	33.0	33.4	35.3	0.30	2.4	2.4	35.3	0.39	2.5	2.3	12	LA

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
MAX9E7	24.5 XL	22.7 X	22.5 X	36.9	26.7	-4.94 X	1.9	6.9 H	33.0	-1.07	2.6	5.9 H	12	LA
NL6L8Q	36.2	35.9	36.0	36.4 L	36.1	0.82	2.2	0.2 L	35.5	0.57	2.4	0.6	12	ID
NVAEWK	36.3	36.1	36.4	35.8	36.1	0.82	2.9	0.3 L	35.6	0.57	2.8	0.9	12	LA
NZKKCR	32.4	33.6 L	33.1	32.9	33.0	-1.11	1.9	0.5	33.3	-0.88	1.8	0.5 L	12	LU
RYXCEY	34.6	34.4	34.8	34.5	34.5	-0.15	2.7	0.2 L	34.4	-0.17	2.3	0.2 L	12	LA
TBQZ6T	30.2 *L	2.2 XL	29.6 *L	29.0 X	22.8	-7.31 X	1.5	13.7 H	26.2	-5.42 X	2.5	9.7 H	8	LZ
TMM2QA	35.6	37.6	37.7	35.0	36.5	1.03	3.5	1.4	36.3	1.07	3.2	1.3	12	LU
TWLWKX	32.7	50.4 XH	28.8 *	No Data	37.3	1.52	3.5	11.5 H	38.4	2.38 *	3.4	8.0 H	10	LA
TZA8ZQ	35.4	35.2	36.3	No Data	35.6	0.51	3.0	0.6	35.9	0.82	2.8	1.2	11	LH
V6ERV2	33.5	33.1	34.9	33.7	33.8	-0.61	3.1	0.8	34.2	-0.31	3.0	0.8	12	LA
VH3XNW	32.3	33.6	33.1	32.5	32.9	-1.17	2.2	0.6	33.3	-0.84	2.5	1.1	12	LH
VMWQ67	38.6 *	60.7 X	44.5 XH	53.3 X	49.3	8.83 X	3.7	9.7 H	41.6	4.48 X	3.6	7.6 H	12	LZ
WMRPFP	31.2	31.1 *	32.3 L	33.6	32.1	-1.67	2.0	1.2	32.4	-1.42	2.0	0.9	12	BK
WNLE3R	35.9 H	35.1 H	34.6 H	No Data	35.2	0.24	5.4	0.6	35.2	0.32	3.9	1.2	7	LH
X4TW6C	35.5	34.6	35.2	32.8	34.5	-0.16	2.6	1.2	34.7	0.02	2.7	1.1	12	LA
YACM6C	37.9 L	38.7 *L	39.0 *	36.7	38.1	2.00 *	1.7	1.0	38.1	2.19 *	1.7	1.0	4	XX
YHM4EW	35.7	36.5	35.2	37.4	36.2	0.86	3.4	1.0	34.8	0.07	3.0	1.5	12	LH
YP923K	33.7 L	33.3 L	33.3 L	34.1 L	33.6	-0.73	1.3	0.4	33.7	-0.64	1.4	0.4 L	12	TT
ZNTRXQ	33.5	35.4	34.0	34.0	34.2	-0.34	3.2	0.8	34.7	0.05	3.2	0.8	8	LA

Consensus (All Labs) Results

Wk Mean	34.75	34.76	34.45	34.76	Month Mean	34.79	Grand Mean	34.66
Avg SDr	2.74	2.84	2.98	2.67	Avg SD	2.86	Avg SD	2.79
SD btwn Labs	1.88	1.88	2.29	1.77	SD btwn Labs	1.64	SD btwn Labs	1.56
Labs Incld	53	49	51	47	SD btwn Wks	1.95	SD btwn Wks	2.05
Labs Excld	1	5	3	3	Labs Incld	50	Labs Incld	52
Labs not Rcvd	0	0	0	4				

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 228

Roughness - Stylus Method, 56 lb Linerboard - 56A

TAPPI Official Test Method T575

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
32AQCH	162.1	-0.17	10.73		168.0	0.29	6.05	4	LA
3TFLJG	171.3	0.64	9.83		164.3	0.12	4.83	4	EV
3X8T4A	166.8	0.24	17.12		217.5	2.58 *	35.62 H	4	LA
72G82R	175.5	1.01	12.25		175.1	0.62	1.50 L	4	EV
92PY8D	187.3	2.04 *	11.59		180.0	0.85	7.17	4	EV
AU7T9L	152.1	-1.05	11.70		146.3	-0.71	8.56	3	EV
AX744L	169.6	0.49	25.49		169.3	0.35	1.72	3	LS
BFJ3NA	154.6	-0.83	21.38		157.1	-0.21	3.71	4	LA
C8NKM7	172.1	0.71	24.16		173.6	0.55	2.25	3	LA
CE8QJD	174.2	0.89	9.82		167.7	0.28	7.72	4	EV
DB2T63	173.9	0.86	26.70		178.0	0.75	4.64	4	LA
GWBUB6	169.7	0.50	11.70		173.6	0.55	7.86	4	EV
HKDA8J	147.5	-1.45	6.70 L		141.9	-0.91	6.58	4	EV
J6DVKV	137.7	-2.31 *	30.31 H		139.7	-1.01	4.13	3	LA
J8JFAF	126.5	-3.29 X	14.35		124.7	-1.71	2.58	2	EV
L24NVY	169.1	0.44	16.55		165.3	0.17	4.65	4	XX
MAX9E7	156.4	-0.67	22.81		154.1	-0.35	4.46	4	LA
NVAEWK	155.7	-0.73	12.19		166.5	0.23	7.41	4	LA
RYXCEY	162.1	-0.17	21.71		162.2	0.03	0.48 L	4	XX
TMM2QA	157.1	-0.61	14.90		156.4	-0.24	18.31	4	EV
VMWQ67	165.9	0.16	18.24		167.2	0.25	6.27	4	XX
WNLE3R	101.2	-5.51 X	6.80 L		107.9	-2.48 *	5.90	3	EV

Consensus (All Labs) Results

Month Mean	164.03	Grand Mean	161.65
Avg SD	18.02	Avg SD Months	9.98
SD btwn Labs	11.41	SD btwn Labs	21.68
Labs Incld	20	Labs Incld	22

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 229

Roughness - Sheffield Method, 42 lb Linerboard - 42D3

TAPPI Official Test Method T538

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
6FZFGD	366.6	-0.20	7.42	365.4	-0.32	5.43	3	PP
6VHYJE	363.8	-0.64	5.26	359.8	-1.08	2.69	4	LA
AX744L	362.8	-0.79	8.88	366.1	-0.23	4.24	3	XX
CJWC76	377.5	1.48	10.78	374.7	0.91	6.19	4	XX
EPDMC6	366.5	-0.22	9.81	368.1	0.03	1.09	4	LA
FPVXMX	271.3	-14.90 X	4.97	287.4	-10.74 X	22.77	2	XX
JBKGCY	358.0	-1.52	8.83	357.3	-1.41	0.89 L	4	LA
KVHCG7	372.1	0.64	13.22	374.9	0.95	2.00	4	XX
LPDVMC	369.5	0.25	7.60	369.4	0.21	0.65 L	4	XX
V6ERV2	360.5	-1.14	6.74	360.5	-0.98	0.00	1	LA
X4TW6C	373.5	0.86	7.60	371.2	0.44	2.99	3	XX
XX4J4N	361.5	-0.99	7.29	359.3	-1.15	4.67	3	XX
YHM4EW	372.5	0.71	9.65	372.5	0.62	0.00	1	PP
ZNTRXQ	377.9	1.54	7.64	383.0	2.02 *	14.35 H	3	LA

Consensus (All Labs) Results

Month Mean	367.90	Grand Mean	367.86
Avg SD	8.74	Avg SD Months	5.53
SD btwn Labs	6.48	SD btwn Labs	7.49
Labs Incld	13	Labs Incld	13

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 231

Internal Bond, 42 lb Linerboard - 42D

TAPPI Official Test Method T569

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2KMQ9D	97.4	-0.72	4.28		96.8	-0.48	0.85	2	TM
3CT6FK	51.1	-4.34 X	4.24		76.7	-1.63	36.13	2	SC
6FZFGD	118.0	0.89	7.81		118.0	0.73	0.00	1	HY
72G82R	93.4	-1.04	4.04		93.3	-0.68	0.14	2	XX
92PY8D	90.2	-1.29	3.49		88.9	-0.93	1.84	2	TM
9JQNF4	104.8	-0.15	7.76		104.7	-0.03	0.14	2	HZ
AX744L	113.0	0.50	9.97		108.8	0.20	5.94	2	XX
C8NKM7	128.8	1.73	5.59		128.8	1.34	0.00	2	HY
CE8QJD	115.6	0.70	18.53		113.5	0.47	2.97	2	TM
CJWC76	116.5	0.77	14.81		113.2	0.45	4.71	2	HY
EPDMC6	92.3	-1.12	6.49		96.8	-0.48	6.31	2	SC
ETWLQZ	100.8	-0.46	11.30		102.8	-0.14	2.83	2	TM
HKDA8J	97.8	-0.69	3.96		95.8	-0.54	2.83	2	TM
J6DVKV	137.0	2.37 *	35.28	H	130.5	1.44	9.19	2	SC
J8JFAF	121.2	1.14	9.58		121.2	0.91	0.00	1	HY
LPDVMC	102.8	-0.30	3.93		122.2	0.97	27.41	2	SC
NYAHQT	101.2	-0.43	5.59		99.3	-0.34	2.74	2	SC
TMM2QA	60.6	-3.60 X	11.59		61.2	-2.51 *	0.85	2	TM
VMWQ67	101.4	-0.41	8.17		113.0	0.44	16.40	2	TM
X4TW6C	96.2	-0.82	6.06		98.1	-0.41	2.69	2	TM
XDW8EL	96.4	-0.80	8.74		98.0	-0.41	2.31	2	SC
ZE67JF	108.4	0.14	8.11		133.6	1.62	35.64	2	TM
ZNTRXQ	43.5	-4.93 X	0.42	L	44.1	-3.49 X	0.85	2	LZ

Consensus (All Labs) Results

Month Mean	106.66	Grand Mean	105.23
Avg SD	11.57	Avg SD Months	13.83
SD btwn Labs	12.80	SD btwn Labs	17.53
Labs Incld	20	Labs Incld	22

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	104.41	12.25	2.25	17
Modified Scott Bond Mechanics	122.66	8.68	16.00	2

Analysis Notes

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

Key to Instrument Codes Reported by Participants

HY	Huygen Digitized Scott Internal Bond Tester	HZ	Huygen Internal Bond Tester with AccuPress
LZ	L&W (model not specified)	SC	Scott Internal Bond Tester (Manual)
TM	TMI Monitor/Internal Bond Tester	XX	Instrument make/model not specified by lab

	Monthly Results				Cumulative Results			
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months
32AQCH	23.8	-1.18	0.45	L	24.1	-1.14	1.08	4
3TFLJG	28.8	0.79	1.30		26.7	-0.05	2.44	4
6FZFGD	23.8	-1.18	2.17		25.4	-0.59	1.37	3
72G82R	27.4	0.24	4.16		25.7	-0.46	2.18	4
92PY8D	28.1	0.51	1.14		29.2	1.00	2.70	4
BGGDHQ	27.4	0.24	2.16		26.3	-0.21	1.97	4
C8NKM7	24.2	-1.02	1.48		24.6	-0.93	1.09	4
CE8QJD	29.0	0.87	4.64	H	30.2	1.41	1.01	4
CJWC76	25.5	-0.49	2.92		25.7	-0.43	0.80	4
GWBUB6	27.4	0.23	3.62		27.1	0.16	2.32	4
HKDA8J	26.9	0.04	2.27		25.6	-0.51	1.73	4
J6DVKV	21.0	-2.28 *	2.35		21.0	-2.41 *	1.60	3
KVHCG7	27.2	0.16	2.08		30.1	1.37	2.28	4
L24NVY	27.6	0.32	1.95		25.0	-0.76	2.16	4
LPDVMC	28.4	0.63	1.14		28.2	0.58	0.30 L	4
NVAEWK	28.5	0.68	1.63		28.3	0.64	0.20 L	4
NYAHQT	22.8	-1.57	1.30		24.1	-1.12	1.53	4
RYXCEY	26.8	0.00	0.84		26.5	-0.11	0.48	4
TMM2QA	28.0	0.47	1.17		26.5	-0.11	3.07	4
TZA8ZQ	24.2	-1.02	2.28		26.0	-0.32	2.55	4
V6ERV2	27.8	0.40	1.30		29.1	0.95	1.45	4
VH3XNW	32.0	2.05 *	1.54		31.7	2.06 *	0.89	3
VMWQ67	23.2	-1.41	3.92		24.9	-0.78	1.19	4
X4TW6C	28.8	0.79	1.46		26.4	-0.15	3.24	4
YHM4EW	30.6	1.50	1.67		27.5	0.30	2.61	4
ZNTRXQ	27.4	0.24	3.85		30.6	1.60	2.80	3

Consensus (All Labs) Results

Month Mean	26.79	Grand Mean	26.77
Avg SD	2.37	Avg SD Months	1.93
SD btwn Labs	2.54	SD btwn Labs	2.40
Labs Incld	26	Labs Incld	26

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2343TQ	18.2	0.21	0.42	L	19.3	0.68	1.48	2	LP
244T8L	17.9	-0.06	2.28	H	18.0	-0.69	0.18	2	TL
2CYXZM	17.8	-0.14	1.05		18.3	-0.38	0.70	2	LP
32AQCH	30.9	11.56 X	3.01	H	23.9	5.86 X	9.97	2	LP
3TFLJG	18.6	0.57	1.04		18.5	-0.16	0.14	2	XX
3X8T4A	20.9	2.63 *	1.26		19.1	0.47	2.62	2	LA
6FZFGD	18.1	0.13	1.47		18.8	0.12	0.91	2	TP
6VHYJE	18.0	0.05	0.83		18.4	-0.27	0.55	2	LA
72G82R	18.0	0.01	0.48	L	19.2	0.62	1.73	2	LP
AX744L	18.2	0.22	1.31		18.3	-0.44	0.06	2	LP
BFJ3NA	16.9	-0.93	1.44		17.7	-1.05	1.11	2	LA
BGGDHQ	18.3	0.27	1.39		18.9	0.23	0.83	2	LA
C8NKM7	19.4	1.28	1.43		20.0	1.51	0.85	2	LP
CE8QJD	17.7	-0.24	1.25		18.4	-0.33	0.92	2	LP
CJWC76	17.8	-0.11	1.28		17.7	-1.09	0.25	2	TP
EPDMC6	18.4	0.38	0.74		18.9	0.31	0.75	2	LA
H393TG	15.7	-2.02 *	1.25		18.0	-0.72	3.25	2	XX
HKDA8J	18.3	0.33	1.22		19.1	0.55	1.14	2	LA
HW4BGY	16.0	-1.75	2.67	H	17.8	-1.00	2.47	2	GG
J6DVKV	16.1	-1.66	1.37		15.5	-3.57 X	0.92	2	LA
KVHCG7	18.1	0.15	1.35		20.1	1.57	2.72	2	GA
RC6X76	18.3	0.31	2.48	H	18.7	0.04	0.52	2	LP
RYXCEY	18.5	0.50	0.72		18.4	-0.29	0.19	2	LA
TMM2QA	17.6	-0.34	1.02		18.6	-0.10	1.38	2	LA
TWQCXY	19.3	1.15	1.32		20.1	1.66	1.25	2	GA
TZA8ZQ	17.9	-0.08	1.08		22.6	4.40 X	6.67	2	LP
V6ERV2	16.5	-1.28	1.38		16.5	-2.36 *	0.00	1	LA
VMWQ67	16.8	-1.05	1.96		19.1	0.54	3.30	2	TD
X4TW6C	17.5	-0.44	0.92		17.9	-0.86	0.58	2	LA
YHM4EW	17.8	-0.11	1.57		17.8	-0.90	0.00	1	TP
ZNTRXQ	20.2	2.03 *	1.47		20.8	2.37 *	0.75	2	LA

Consensus (All Labs) Results

Month Mean	17.96	Grand Mean	18.65
Avg SD	1.41	Avg SD Months	1.50
SD btwn Labs	1.12	SD btwn Labs	0.90
Labs Incld	30	Labs Incld	28

Key to Instrument Codes Reported by Participants			
GA	Gurley Precision #4340 Automatic Densometer	GG	Gurley Precision #4320 Densometer
LA	L&W Autoline	LP	L&W Air Permeance Tester SE 166
TD	TMI Gurley Densometer	TL	Teledyne Gurley Densometer #4110, Oil Flotation
TP	Technidyne Profile/ plus Roughness & Porosity	XX	Instrument make/model not specified by lab

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2CYXZM	59.9	59.3	60.9	60.9	60.3	0.17	2.6	0.8	60.1	0.22	2.4	1.0	16	LD
2KMQ9D	59.5	58.9	60.4	60.9	59.9	-0.04	2.8	0.9	60.7	0.51	2.9	1.6	16	LC
2MGD4P	59.4	60.2	61.7	60.2	60.4	0.24	4.0	1.0	61.4	0.81	3.9	2.0	16	LD
2UTQLK	60.3	60.4	60.4	60.4	60.4	0.23	1.5	0.1 L	60.3	0.33	1.6	0.2 L	16	LD
32AQCH	60.5	60.0	57.8	64.2	60.6	0.39	3.8	2.6	60.2	0.30	3.6	3.1	16	LZ
3CT6FK	61.9	56.6	56.0	57.8	58.1	-1.19	2.7	2.6	55.9	-1.66	2.8	2.2	16	LC
3U9JQM	59.3	58.9	59.3	59.7	59.3	-0.43	3.0	0.3	58.9	-0.28	2.7	1.3	16	TH
3X8T4A	58.7	57.7	55.9	58.0	57.6	-1.51	3.7	1.2	58.9	-0.31	4.2	1.8	16	XX
4BBJEG	60.2	59.6	56.8	58.1	58.7	-0.82	3.5	1.5	57.9	-0.75	4.0	1.7	15	LD
4RLZPP	61.5	62.8	62.8 L	63.7	62.7	1.70	2.7	0.9	63.2	1.64	3.1	1.0	16	LD
4XP738	58.6	60.4	60.5	64.1	60.9	0.57	3.0	2.3	66.5	3.10 X	3.4	6.4 H	8	MB
6FZFGD	62.5	62.5	61.9	61.9 H	62.2	1.38	4.4	0.4	62.1	1.11	4.1	1.3	16	LD
6PCAZL	60.0	59.7	60.7	60.4	60.2	0.12	1.9	0.4	60.1	0.23	2.1	0.6 L	16	TH
6W6MVE	60.7	62.7	57.9	59.0	60.1	0.07	3.3	2.1	60.3	0.32	3.1	2.0	16	TJ
72G82R	64.0	61.0 H	59.7	No Data	61.6	0.99	3.8	2.2	60.0	0.18	3.4	2.0	15	LZ
92PY8D	57.4	58.4	57.7	59.8	58.3	-1.05	3.7	1.1	59.1	-0.19	3.3	1.5	16	LD
9JQNF4	58.6	56.1	59.0	58.2	58.0	-1.27	3.0	1.3	57.2	-1.03	3.5	7.4 H	16	LC
A6LRW2	62.2	62.0 L	61.8	61.9	61.9	1.22	1.6	0.2 L	62.0	1.07	1.9	0.4 L	16	TU
AX744L	No Data	No Data	No Data	53.3 XH	53.3	-4.19 X	5.9	0.0	53.7	-2.62 *	4.7	1.2	3	LD
C8NKM7	57.8	59.6	57.4	57.8	58.1	-1.16	2.8	1.0	58.0	-0.70	2.7	1.0	16	LD
CJWC76	62.2	59.1	60.4	61.5	60.8	0.50	3.0	1.4	60.7	0.50	3.2	2.0	16	LC
DB2T63	55.5 *	53.3 *	56.3	54.4 X	54.9	-3.21 X	3.1	1.3	56.7	-1.28	3.4	1.7	16	MB
DMDWQZ	60.7	60.1	60.4	61.0	60.6	0.35	2.3	0.4	60.7	0.49	2.1	0.5 L	16	LD
DPYVQF	48.9 X	48.9 XH	49.8 X	52.2 X	49.9	-6.28 X	3.6	1.5	49.7	-4.41 X	3.3	1.1	12	TC
ETWLQZ	60.4 L	62.2	60.1	62.1	61.2	0.75	3.1	1.1	60.9	0.59	3.0	1.3	12	LC
FAJGJ3	60.7	60.0	59.4	59.0	59.8	-0.14	3.2	0.7	60.1	0.24	3.1	0.6 L	16	LC
FF8Z46	59.7	59.6	61.1	60.7	60.3	0.17	3.1	0.7	60.5	0.44	2.9	1.0	15	LD
GWBUB6	58.1	59.4	59.2	58.1	58.7	-0.82	3.1	0.7	59.2	-0.16	3.0	1.2	16	EN
HKDA8J	57.5	56.8	57.5	58.7	57.6	-1.48	3.2	0.8	58.8	-0.34	3.2	2.0	16	LC
JXED4X	58.8	62.2	62.5	58.4	60.5	0.30	3.6	2.2	57.6	-0.86	3.4	4.6	16	LC
KD7PVX	60.9	60.5	59.7	59.5	60.2	0.10	3.3	0.7	60.3	0.31	3.1	0.6 L	16	LD
KVHCG7	60.1	58.7	56.8	57.8	58.3	-1.03	3.2	1.4	58.6	-0.43	2.9	1.5	16	LZ
LM8AV6	59.9	61.4	59.2	62.5	60.8	0.48	3.6	1.5	61.5	0.88	3.2	1.5	16	LD
N3E784	61.1	61.2	60.2	60.5	60.7	0.47	2.5	0.5	60.9	0.61	2.5	0.9	16	EM
NL6L8Q	61.6	60.9	60.6	60.5	60.9	0.56	2.1	0.5	61.1	0.66	2.2	0.9	16	LD

Containerboard Interlaboratory Testing Program

Analysis 240

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

TAPPI Official Test Method T809

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
NXVB6B	65.9 *	66.2 *	66.2 X	65.7 *	66.0	3.76 X	2.5	0.2 L	57.9	-0.74	2.5	14.4 H	16	LC
NYAHQT	59.0	57.6	57.2	58.9	58.2	-1.14	3.0	0.9	57.1	-1.11	3.0	1.1	16	LZ
NZKKCR	60.0	58.9	59.1	61.4	59.8	-0.09	2.3	1.2	59.2	-0.17	2.4	1.6	16	LZ
RC6X76	60.8	61.1	60.8 L	59.6	60.6	0.37	3.1	0.7	60.1	0.23	3.0	1.2	16	LD
RYXCEY	60.8 L	60.8	60.6	60.5	60.7	0.43	1.8	0.2 L	60.9	0.61	1.9	0.4 L	16	LD
TMM2QA	57.5	56.8	57.5	58.7	57.6	-1.48	3.2	0.8	59.0	-0.27	3.1	2.1	16	XX
TWLWKX	61.4	33.8 X	57.3	No Data	50.8	-5.74 X	2.6	14.9 H	51.7	-3.53 X	4.1	8.7 H	12	MB
TZA8ZQ	65.8 *	64.3	62.6	No Data	64.2	2.65 *	3.0	1.6	65.2	2.52 *	3.3	1.5	15	LD
V6ERV2	54.8 *	53.9 *	62.2	62.0	58.2	-1.11	3.2	4.5 H	61.3	0.79	2.8	2.9	16	LD
VH3XNW	57.0	56.7	59.4	59.6	58.2	-1.13	2.8	1.5	56.3	-1.45	3.0	1.9	16	LD
YACM6C	64.1 L	64.4 L	62.3 L	63.6 L	63.6	2.24 *	0.9	1.0	63.2	1.62	1.2	1.8	16	TD
YP923K	58.9 H	58.9	59.9 H	58.6 H	59.1	-0.56	5.1	0.5	58.6	-0.43	5.2	1.1	16	TG
ZNTRXQ	53.3 X	55.3	53.5 X	50.9 X	53.3	-4.20 X	2.6	1.8	54.1	-2.44 *	3.0	1.9	12	LD

Consensus (All Labs) Results

Wk Mean	60.14	59.71	59.57	60.39	Month Mean	59.99	Grand Mean	59.57
Avg SDr	3.28	2.94	3.06	2.97	Avg SD	3.09	Avg SD	3.10
SD btwn Labs	2.27	2.62	1.91	1.99	SD btwn Labs	1.60	SD btwn Labs	2.24
Labs Incld	45	45	44	41	SD btwn Wks	1.42	SD btwn Wks	2.92
Labs Excld	2	2	3	4	Labs Incld	42	Labs Incld	45
Labs not Rcvd	1	1	1	3				

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	EN	Emerson 2200 Series
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LZ	L&W Crush Tester (model not specified)	MB	Messmer Buchel K440
TC	TMI Monitor/Compression Tester, 17-37	TD	TMI Digital Crush Tester, Model 17-09
TG	TMI Compression Tester, Model 17-10	TH	TMI Compression Tester, Model 17-76
TJ	TLS Compression Tester, Model CDM-5	TU	TMI Universal Crush Tester (TMI K440)
XX	Instrument make/model not specified by lab		

Containerboard Interlaboratory Testing Program

Analysis 250

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

TAPPI Official Test Method T843

Report #594 (C)
March 2019

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2CYXZM	74.7	77.5	78.4	76.1	76.7	1.17	2.8	1.6	76.0	0.94	2.6	1.4	16	LD
2UTQLK	73.4	73.6	73.4 L	73.4	73.5	-0.18	1.4	0.1 L	73.5	-0.18	1.2	0.2 L	16	LD
32AQCH	75.0	71.7	73.8 L	72.5	73.2	-0.28	2.3	1.5	72.7	-0.56	3.3	2.7	16	LZ
4XP738	71.1 H	71.1	69.2	68.0	69.9	-1.69	4.1	1.5	71.4	-1.12	3.6	2.0	8	MB
6FZFGD	76.2	75.8	75.9	76.1	76.0	0.88	2.4	0.2 L	75.7	0.80	2.4	0.9	16	LD
C8NKM7	79.3 *	78.0	80.4 *	81.2 *	79.7	2.44 *	2.7	1.4	79.4	2.46 *	2.4	1.0	16	LD
CJWC76	76.6	75.5	78.3	74.3	76.2	0.95	2.4	1.7	76.5	1.15	2.3	1.4	16	LC
FAJGJ3	73.0	73.5	73.7	74.1	73.6	-0.13	3.2	0.5	73.1	-0.39	3.2	0.5	16	LD
FPVXMX	73.3	73.7	72.1	74.4	73.4	-0.23	2.8	1.0	73.1	-0.38	2.5	0.8	8	TH
H393TG	73.6	71.8	73.8	73.8	73.3	-0.27	2.5	1.0	72.2	-0.76	2.0	2.0	16	LZ
HKDA8J	64.0 XH	65.4 XH	65.9 *H	67.0 H	65.6	-3.49 X	7.8	1.2	65.2	-3.89 X	7.8	2.2	16	XX
NL6L8Q	71.3	70.2	69.7 L	69.1 L	70.1	-1.59	1.2	0.9	70.7	-1.44	1.6	0.9	16	LD
NZKKCR	74.0	74.9	71.9	74.5	73.8	-0.03	2.3	1.3	73.7	-0.10	2.5	1.3	16	LZ
RC6X76	72.5	74.1 L	76.7	70.5	73.5	-0.18	2.1	2.6 H	73.3	-0.27	2.3	1.7	16	LD
RYXCEY	73.4	73.3	73.9	73.0	73.4	-0.21	2.2	0.4	73.3	-0.30	2.0	0.5	16	LD
TZA8ZQ	75.9	76.3 H	74.1 H	No Data	75.4	0.64	4.6	1.1	76.9	1.30	3.3	1.6	15	LD
WMRPFP	71.7	73.8	72.4	71.6	72.4	-0.64	2.3	1.0	72.8	-0.53	2.3	1.1	16	LD
YACM6C	71.5 L	72.2 L	72.5 L	73.1 L	72.3	-0.66	1.1	0.6	72.5	-0.63	1.2	1.0	16	TD
ZNTRXQ	55.0 X	51.5 X	52.0 X	53.0 X	52.9	-8.82 X	2.6	1.6	59.7	-6.35 X	2.7	9.9 H	12	LD

Consensus (All Labs) Results

Wk Mean	73.92	73.93	73.66	73.10	Month Mean	73.89	Grand Mean	73.93
Avg SDr	2.61	2.50	3.18	3.22	Avg SD	2.63	Avg SD	2.49
SD btwn Labs	2.19	2.19	3.50	3.34	SD btwn Labs	2.38	SD btwn Labs	2.24
Labs Incld	17	17	18	17	SD btwn Wks	1.25	SD btwn Wks	1.37
Labs Excld	2	2	1	1	Labs Incld	17	Labs Incld	17
Labs not Rcvd	0	0	0	1				

Key to Instrument Codes Reported by Participants

LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LZ	L&W Crush Tester (model not specified)	MB	Messmer Buchel K440
TD	TMI Digital Crush Tester, Model 17-09	TH	TMI Compression Tester, Model 17-76
XX	Instrument make/model not specified by lab		

Containerboard Interlaboratory Testing Program

Analysis 255

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

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2CYXZM	45.4 L	45.5	44.5	43.7 L	44.8	0.05	1.9	0.8	44.7	-0.02	1.9	1.1	16	LD
3UA8ET	39.4 *H	39.8 H	38.1 H	38.9 H	39.1	-2.22 *	7.8	0.7	41.6	-1.32	6.1	3.4	16	TX
4BBJEG	46.4	42.7	42.2	39.5	42.7	-0.77	3.1	2.9	43.7	-0.44	2.8	2.0	15	LD
4RLZPP	45.3	46.2	45.0	45.4	45.5	0.33	2.9	0.5	45.0	0.11	2.7	0.7 L	16	LD
4XP738	38.9 *	40.7	41.7	42.1	40.9	-1.50	2.4	1.4	41.4	-1.43	2.1	1.3	8	MB
6FZFGD	46.9	49.9	47.9	50.6 *	48.8	1.65	2.8	1.7	47.4	1.12	2.5	1.6	16	LD
6PCAZL	40.1 L	40.7	40.5 L	39.3	40.2	-1.78	1.6	0.6	40.7	-1.70	1.8	0.7 L	16	TH
7Z4F8P	48.7	47.2	47.6	47.2	47.7	1.19	2.6	0.7	46.5	0.76	2.7	2.0	16	LZ
9JQNF4	47.5	44.5	46.1	45.1	45.8	0.45	1.9	1.3	48.2	1.46	1.9	6.0	16	LD
A6LRW2	41.5	41.6 L	41.4	41.5 L	41.5	-1.26	1.4	0.1 L	41.3	-1.43	1.4	0.5 L	16	TU
CJWC76	45.3	43.1	44.4	44.7	44.3	-0.12	3.0	0.9	44.7	-0.02	2.9	1.0	16	LC
DMDWQZ	45.8	45.7	45.6	45.9	45.8	0.43	3.2	0.1 L	45.7	0.41	2.1	0.2 L	16	LD
DPYVQF	32.7 X	36.5 *H	36.4 H	36.1 *H	35.5	-3.64 X	5.6	1.8	36.0	-3.67 X	5.8	4.2	12	TC
FBCER9	45.0	48.5	46.9	47.4	46.9	0.90	2.7	1.5	46.1	0.56	2.7	1.9	16	LZ
GWNRW2	24.1 XL	24.4 XL	25.2 X	23.1 XL	24.2	-8.10 X	1.9	0.9	25.6	-8.10 X	2.1	1.8	8	XX
HTKC44	45.8	47.2	46.0	46.2	46.3	0.65	2.9	0.6	45.7	0.43	2.1	0.9 L	16	LD
JXED4X	43.6 H	45.7	48.5	47.5	46.3	0.65	5.1	2.2	50.1	2.25 *	3.4	5.8	16	LC
KVHCG7	44.9 L	46.7	45.2	46.7	45.9	0.49	1.7	0.9	44.9	0.07	2.0	1.1	16	LD
M3TG4M	44.3	45.3	44.3	45.0	44.7	0.02	1.9	0.5	43.1	-0.67	2.0	1.3	16	TH
N3E784	45.9	45.6 L	44.8	45.5 L	45.5	0.32	1.5	0.4	45.7	0.41	1.5	0.4 L	16	LC
NXVB6B	34.0 X	33.7 X	33.6 *	32.8 X	33.5	-4.41 X	2.5	0.5	42.2	-1.08	2.8	14.4 H	16	XX
RC6X76	43.6	41.8	43.1	42.1	42.6	-0.80	3.6	0.8	42.9	-0.75	3.8	1.0 L	16	LD
RYXCEY	44.5	44.8	44.0	44.8	44.5	-0.05	3.1	0.4	44.6	-0.05	3.1	0.5 L	16	LD
TWLWKX	41.9	No Data	52.5	* No Data	47.2	1.02	2.9	7.5	46.9	0.91	2.8	5.3	3	MB
ZNTRXQ	45.1	46.0	45.9	45.1	45.5	0.35	2.8	0.5	45.7	0.42	2.7	1.1	12	LD

Consensus (All Labs) Results

Wk Mean	44.36	44.34	44.01	44.11	Month Mean	44.66	Grand Mean	44.73
Avg SDr	3.62	3.31	2.96	3.25	Avg SD	3.15	Avg SD	2.77
SD btwn Labs	2.57	3.18	4.05	3.41	SD btwn Labs	2.53	SD btwn Labs	2.36
Labs Incld	22	22	24	22	SD btwn Wks	1.95	SD btwn Wks	3.85
Labs Excld	3	2	1	2	Labs Incld	22	Labs Incld	23
Labs not Rcvd	0	1	0	1				

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 261

STFI, 26 lb Corrugating Medium - CM92

TAPPI Official Test Method T826

Report #594 (C)
March 2019

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2UTQLK	14.4 L	14.6 L	14.3 L	14.6 L	14.5	-0.55	0.4	0.1	14.5	-0.27	1.6	0.1 L	16	LA
3U9JQM	14.3	14.1 H	14.6	14.6	14.4	-0.69	1.2	0.2	14.5	-0.26	1.0	0.6	16	LH
3UA8ET	14.4	14.9	14.7	14.5	14.6	-0.20	1.1	0.2	14.2	-0.91	0.9	0.4	16	TT
3X8T4A	15.6 L	15.9 L	15.9 L	15.8 *L	15.8	2.24 *	0.0	0.1	15.2	1.21	1.2	1.0	16	LA
4BBJEG	16.1 *	14.3	13.8	13.9	14.5	-0.44	1.1	1.1 H	14.6	-0.12	1.1	0.6	15	LZ
4YF6JQ	15.0	15.6	14.0	14.5	14.8	0.15	1.0	0.7	14.5	-0.19	1.0	0.5	16	LA
6FZFGD	14.1	14.9	14.9	14.4 L	14.6	-0.30	0.9	0.4	14.2	-0.85	1.0	0.4	16	LB
6VHYJE	14.8	14.8	15.2	15.2	15.0	0.55	0.9	0.3	15.0	0.73	1.0	0.3 L	16	LA
6W6MVE	15.3	15.2	14.7	14.9	15.0	0.59	0.9	0.3	14.8	0.49	0.9	0.3 L	16	TT
72G82R	15.3	14.6	14.3	15.0	14.8	0.12	1.0	0.4	14.7	0.27	0.9	0.3 L	16	LB
92PY8D	14.6	14.9	15.0	14.9	14.8	0.24	1.2	0.2	14.4	-0.45	1.1	0.4	16	LU
CJWC76	14.6	14.6	14.6	15.2	14.8	0.07	1.1	0.3	14.7	0.12	1.0	0.2 L	16	LU
DB2T63	14.6	14.4	15.7	14.8	14.9	0.33	1.1	0.6	16.4	3.97 X	1.4	6.6 H	16	LA
DPYVQF	14.0 H	13.9	13.7 H	13.6 *	13.8	-1.97 *	1.3	0.2	13.7	-2.03 *	1.3	0.3 L	12	TS
ETWLQZ	15.1	14.9	14.6	14.8	14.9	0.26	0.9	0.2	14.7	0.28	1.0	0.2 L	12	LU
FAJGJ3	14.0	14.4	14.5	14.9	14.5	-0.56	0.9	0.4	14.4	-0.37	0.9	0.4	16	LB
FBCER9	15.3	15.9	15.6	15.8 *	15.6	1.89	1.1	0.3	15.5	2.01 *	1.2	0.8	16	LA
KD7PVX	14.0	14.6	14.8	15.1	14.6	-0.23	0.9	0.4	14.5	-0.15	0.9	0.4	16	LB
KVHCG7	15.0	15.6	15.0	15.0	15.2	0.88	1.0	0.3	14.9	0.60	1.0	0.8	16	LZ
N3E784	13.2 *L	13.0 *	13.9	14.5 H	13.6	-2.27 *	1.2	0.7	13.5	-2.45 *	1.0	0.4	16	LB
RYXCEY	14.9	14.7	15.0	14.8	14.9	0.30	0.9	0.1	14.8	0.37	0.9	0.1 L	16	LB
TWLWKX	11.7 X	24.3 XH	12.9	* No Data	16.3	3.32 X	1.3	6.9 H	15.2	1.22	1.1	6.2 H	10	LA
V6ERV2	14.3	14.6	14.7	15.0	14.6	-0.18	0.8	0.3	14.6	-0.04	1.1	0.2 L	16	LA
VH3XNW	14.3	13.7	14.3	14.5	14.2	-1.13	0.9	0.3	14.3	-0.63	0.9	0.3 L	16	LH
YACM6C	23.0 XL	24.1 XH	22.5 XH	20.7 XH	22.6	16.34 X	2.2	1.4 H	22.6	17.29 X	2.2	1.4	4	XX
ZNTRXQ	14.8	15.4	15.5	15.0	15.2	0.90	1.0	0.3	15.3	1.40	1.0	0.3 L	12	LA

Consensus (All Labs) Results

Wk Mean	14.67	14.73	14.66	14.80	Month Mean	14.73	Grand Mean	14.62
Avg SDr	0.98	1.00	1.00	1.04	Avg SD	1.01	Avg SD	1.04
SD btwn Labs	0.62	0.68	0.68	0.49	SD btwn Labs	0.48	SD btwn Labs	0.46
Labs Incld	24	24	25	24	SD btwn Wks	0.41	SD btwn Wks	1.34
Labs Excld	2	2	1	1	Labs Incld	24	Labs Incld	24
Labs not Rcvd	0	0	0	1				

Key to Instrument Codes Reported by Participants

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

End of Report