Containerboard Interlaboratory Testing Program

Participant Summary Report #570 (C) - March 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	42D	Internal Bond Strength, Linerboard, 42 lb Linerboard
234	42D	Coefficient of Static Friction - Inclined Plane, 42 lb Linerboard
237	42D	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, 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 (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, excluding those laboratories flagged with an 'X'.

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

Flag	Explanation

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

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

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

Flags assigned to Weekly Means:

H	Indicates high within-laboratory standard deviation. The laboratory 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
46FCHP	740.1	-0.47	41.1	740.1	-0.45	41.1	1	LG
69U9JK	848.2	0.80	22.6	850.1	0.86	26.4	3	ER
7EENP4	719.2	-0.71	49.9	664.2	-1.36	34.1	3	LG
8Y66RB	692.1	-1.03	63.5	723.8	-0.65	75.0	3	ER
DLEJN3	744.0	-0.42	30.4	743.5	-0.41	48.7	3	ES
DZWAM6	676.0	-1.22	38.2	802.7	0.29	65.2	3	TB
E98TNF	866.5	1.01	99.8	810.3	0.38	62.7	3	ET
EAF62B	752.7	-0.32	32.8	749.1	-0.35	28.5	3	LM
EJ27J7	769.6	-0.12	26.4	740.4	-0.45	72.7	2	EX
HG4YQ6	856.9	0.90	34.0	884.7	1.27	29.5	3	TE
HLXWFW	699.6	-0.94	60.1	729.1	-0.58	62.9	3	LM
L9VWUU	727.4	-0.62	55.9	740.1	-0.45	57.8	3	ER
NALE9Z	946.8	1.95	32.7	937.6	1.90	38.9	3	EX
PBQPE3	751.3	-0.34	86.2	715.3	-0.75	58.6	3	LS
QECTNL	662.0	-1.38	36.1	638.1	-1.67	33.8	3	LL
T3NGMT	791.1	0.13	59.3	865.0	1.04	43.9	3	LG
TEZ2NZ	816.4	0.42	35.2	756.2	-0.26	46.6	3	LS
U4UHMW	679.8	-1.17	155.2	680.7	-1.16	116.3	2	EX
V2MKQU	954.4	2.04 *	40.7	930.3	1.81	61.7	3	ER
VAEZHJ	763.6	-0.19	26.4	749.2	-0.34	24.7	3	LG
VZEBYW	901.0	1.41	26.6	898.0	1.43	43.1	3	LH
XYV7FP	804.4	0.28	57.3	770.3	-0.09	45.1	3	LS

Consensus (All Labs) Results

Month Mean	780.14	Grand Mean	778.12
Avg SDr	58.67	Avg SDr	54.78
SD btwn Labs	85.42	SD btwn Labs	83.90
Labs Incld	22	Labs Incld	22

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	755.11	82.60	25.03	6
Clip sealing	792.55	86.49	12.41	14
Tape sealing	768.36	125.24	11.78	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
46FCHP	48.8	1.31	1.9	48.8	1.60	1.9	1	TL
PBQPE3	44.5	-0.07	1.5	44.9	0.22	1.5	4	LC
TEZ2NZ	42.3	-0.78	1.5	42.3	-0.70	1.7	4	EM
VAEZHJ	47.7	0.98	1.6	45.5	0.43	2.3	3	LE
VZEBYW	44.6	-0.04	0.8	42.1	-0.75	1.0	4	TC
WXJ7KF	44.8	0.04	1.1	44.8	0.21	1.4	4	TB
XYV7FP	38.9	-1.87	1.8	39.6	-1.65	2.1	4	EM
YG8AEL	46.0	0.44	1.8	46.0	0.64	1.8	1	XX

Consensus (All Labs) Results

Month Mean	44.69	Grand Mean	44.25
Avg SDr	1.53	Avg SDr	1.75
SD btwn Labs	3.09	SD btwn Labs	2.83
Labs Incld	8	Labs Incld	8

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	LC	L&W Crush Tester 48
LE	L&W Crush Tester 840	TB	TMI Monitor/Compression Tester, Model 17-70
TC	TMI Monitor/Compression Tester, Model 17-37	TL	Tech-Lab Systems Compression
XX	Instrument make/model not specified by lab		

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
3ADE6D	45.8	0.02	1.8	45.0	-0.60	1.7	4	LD
4DT7V7	43.5	-1.04	1.4	43.3	-1.41	1.4	4	LD
69U9JK	45.5	-0.12	1.6	45.2	-0.53	1.6	4	EM
6YP26K	46.5	0.31	1.3	47.4	0.55	2.0	4	TK
7HXN6J	47.1	0.58	2.6	46.1	-0.08	2.1	4	LC
7K474E	47.7	0.89	1.7	48.9	1.27	1.6	4	LC
8Y66RB	41.5	-1.91	2.8	43.7	-1.22	2.1	4	EX
ACJAPH	48.3	1.12	2.1	48.8	1.24	1.6	4	TG
BYQ6WC	45.9	0.04	1.3	47.8	0.72	1.6	4	LC
DLEJN3	45.5	-0.12	1.5	44.4	-0.89	1.6	4	LD
DZWAM6	50.0	1.93	0.8	48.9	1.29	0.8	4	LD
E98TNF	40.6	-2.32 *	0.8	51.2	2.36 *	1.2	4	TD
EAF62B	46.6	0.37	1.1	48.2	0.93	1.1	4	TG
EJ27J7	46.3	0.24	0.9	46.6	0.17	0.7	2	TL
FFZKAF	49.8	1.83	1.0	48.7	1.18	1.1	4	EM
HG4YQ6	47.5	0.78	1.9	47.2	0.45	1.4	3	LD
HLXWFW	47.9	0.98	2.1	48.8	1.25	2.1	4	EM
KM8KUT	38.4	-3.34 X	3.9	43.2	-1.49	2.5	3	TM
L9VWUU	46.6	0.38	0.8	45.3	-0.47	1.3	4	LD
LZPUU3	46.1	0.15	1.9	47.1	0.39	2.1	4	XX
MJVPZZ	43.5	-1.02	1.2	46.3	0.00	1.5	4	TB
MMVVF7	44.5	-0.57	1.4	43.9	-1.14	1.5	4	EM
MUTPD4	39.9	-2.64 *	1.0	39.8	-3.12 X	1.4	4	WK
N4XWT4	45.7	-0.04	0.9	53.5	3.50 X	2.2	4	TD
NALE9Z	44.0	-0.81	1.5	43.8	-1.19	1.5	4	LD
NV4PAX	45.5	-0.10	1.6	45.6	-0.31	1.7	4	LD
PBQPE3	46.7	0.44	2.1	47.0	0.35	1.9	4	LC
QECTNL	45.4	-0.17	1.5	46.4	0.09	2.0	4	LC
T3NGMT	44.8	-0.45	2.1	45.3	-0.48	3.0	4	EM
TEZ2NZ	45.7	-0.05	1.3	45.7	-0.25	1.5	4	EM
U4UHMW	49.8	1.83	1.3	48.3	0.97	2.7	3	CT
UCNNHJ	45.1	-0.30	1.6	44.9	-0.67	1.7	4	LD
V2MKQU	44.9	-0.40	2.4	43.7	-1.21	1.7	4	TB
VAEZHJ	45.3	-0.23	1.5	44.8	-0.72	2.3	3	XX
VHUJYX	45.3	-0.20	1.7	46.0	-0.13	1.8	4	LD
VZEBYW	46.1	0.17	1.1	48.6	1.13	0.9	4	TC
WXJ7KF	43.7	-0.94	0.7	45.0	-0.62	1.0	4	TG
X6G2HE	49.2	1.53	2.0	48.5	1.09	3.2	3	LC
XGRQXV	36.7	-4.08 X	0.5	41.4	-2.36 *	0.6	2	TD

Containerboard Interlaboratory Testing Program

Analysis 203

Edgewise Compressive Strength by T839, Corrugated board - ECT9

TAPPI Official Test Method T839

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
XYV7FP	45.8	0.00	1.1	47.1	0.42	1.4	4	EM
YYCGXU	45.4	-0.15	2.9	46.2	-0.05	2.3	4	TD

Consensus (All Labs) Results

Month Mean	45.76	Grand Mean	46.26
Avg SDr	1.64	Avg SDr	1.79
SD btwn Labs	2.22	SD btwn Labs	2.08
Labs Incld	39	Labs Incld	39

Key to Instrument Codes Reported by Participants

CT	Con-Ten	EM	Emerson 1200 Series
EX	Emerson (model not specified)	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	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
2RJG8R	103.2	102.5	101.2	107.3	103.6	-1.13	11.0	2.6	103.6	-1.40	11.0	2.6	4	XX
33GJ8F	104.2	107.6	100.8	107.8	105.1	-0.77	8.8	3.3	105.1	-0.97	8.8	3.3	4	LC
36LACA	114.1	111.5	115.3	105.7	111.6	0.73	12.3	4.3	110.1	0.42	12.1	3.8	12	LA
3LQDYL	109.1	109.2 L	109.1 L	109.1	109.1	0.15	5.6	0.0 L	108.8	0.07	6.2	0.2 L	16	LJ
4DT7V7	107.5	124.1 X	111.4	115.3	114.5	1.40	8.0	7.1	109.4	0.22	10.5	4.8	16	LC
6QBD7C	106.5	107.7	106.5 L	109.4 L	107.5	-0.22	4.7	1.3	108.2	-0.12	8.1	3.4	12	LA
7EGFGJ	116.6	119.2 *	114.0	112.4	115.5	1.63	7.8	3.0	111.7	0.87	9.5	3.9	16	LC
8FN26J	115.9	108.7	115.8 H	121.6 X	115.5	1.62	14.2	5.3	115.5	1.91	12.4	3.6	16	LA
8MPACC	108.3	106.8	108.0	109.1	108.1	-0.09	7.1	1.0	108.0	-0.16	7.8	1.6	16	TP
8MQ6VH	99.6	68.6 X	110.6 H	108.2	96.8	-2.70 *	11.7	19.4 H	99.4	-2.54 *	10.0	12.3 H	10	LA
9FYGDH	113.0 L	112.0 L	111.6 L	112.0 L	112.2	0.85	3.6	0.6 L	111.9	0.90	3.6	1.1	16	XX
9KU9LE	103.6	101.2 L	101.0 L	100.6 L	101.6	-1.58	5.5	1.4	105.2	-0.95	5.8	3.1	16	RE
ARB429	No Data	104.2	101.8	111.6	105.9	-0.60	7.9	5.1	105.1	-0.97	8.9	6.1	15	AH
BG89H4	104.7	107.9	99.4	105.8	104.5	-0.92	10.8	3.6	105.3	-0.91	10.4	2.6	16	LC
BXE9R8	116.1	120.3 *	120.5 *	113.9	117.7	2.13 *	11.7	3.3	117.2	2.38 *	11.1	2.8	13	LA
C29LR2	112.9	115.6	112.0	112.5	113.3	1.11	11.6	1.6	113.4	1.32	11.8	3.8	16	LZ
CUBYXG	97.4 *L	107.5 H	108.7 H	107.9	105.4	-0.71	13.9	5.3	112.9	1.17	11.6	5.7	16	LC
DLEJN3	106.3	109.5	106.6	105.4	107.0	-0.35	9.8	1.8	109.0	0.11	10.7	2.9	16	LA
DTWPPG	103.4	100.9	99.6	106.2	102.5	-1.37	12.3	2.9	102.5	-1.68	12.3	2.9	4	XX
GNNXJY	108.7	110.7	105.2	106.0	107.7	-0.18	11.5	2.5	107.1	-0.43	11.4	2.7	16	LC
HLXWFW	110.6	112.1	109.9	111.3	111.0	0.58	8.3	0.9	112.7	1.14	6.4	2.3	16	AH
J276VQ	98.4 *	101.2	113.2	No Data	104.3	-0.97	9.4	7.9	112.8	1.16	11.2	9.3 H	15	AH
JXQYXV	108.0	109.5	112.4	117.2	111.8	0.76	13.1	4.0	112.5	1.08	12.0	3.7	16	AX
KND3TN	111.5	111.9	No Data	106.2	109.8	0.32	13.2	3.2	108.9	0.07	11.9	2.9	15	LA
L9VWUU	106.6	112.3	113.3	106.4	109.7	0.27	9.8	3.7	109.9	0.35	10.2	3.6	16	AH
LZPUVN	102.9	102.4	103.5	105.9	103.7	-1.10	7.5	1.6	103.4	-1.42	9.0	2.6	16	LA
M3AY4L	103.9	103.2	104.6	105.5	104.3	-0.96	9.9	1.0	103.5	-1.41	11.1	2.1	16	LC
M3NPRW	103.0	106.8	111.6	113.8	108.8	0.08	10.1	4.8	107.4	-0.34	10.3	4.8	11	LC
NALE9Z	111.0	111.5	115.0	112.5	112.5	0.93	10.3	1.8	110.9	0.63	10.3	2.1	16	AH
NV4PAX	112.2	115.4	112.9	109.2	112.4	0.91	12.0	2.6	110.9	0.63	11.2	2.0	16	LA
PAHCYM	111.1	110.2	108.4	111.1	110.2	0.40	11.6	1.3	110.7	0.57	11.4	3.0	12	LC
PBQPE3	104.1	103.7	102.3	107.7	104.5	-0.92	9.9	2.3	105.5	-0.85	11.2	3.1	16	AH
RKD6HX	114.6	110.7	112.7	104.4	110.6	0.49	10.6	4.4	108.7	0.03	10.3	4.0	8	LJ
T36UQW	111.1	110.0	112.2	111.0	111.1	0.60	10.4	0.9	108.2	-0.11	10.7	3.5	16	LZ
T433YF	109.9	107.5	104.3	105.4	106.8	-0.39	9.5	2.5	106.7	-0.52	10.1	2.0	16	LA

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

Report #570 (C)
March 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
TAMZPN	110.1	115.7	104.6	110.7	110.3	0.42	10.3	4.5	109.1	0.12	11.5	3.3	16	TB
TEZ2NZ	99.0	100.0	101.2	99.6 *	100.0	-1.96	9.5	1.0	97.7	-3.00 X	10.5	7.4 H	16	RE
TTGYRF	106.1	104.3	106.7	109.9	106.7	-0.40	11.4	2.3	104.8	-1.04	10.5	3.2	16	LC
U4UHMW	110.5	114.5	116.6	117.5 *	114.8	1.46	12.2	3.1	105.8	-0.78	11.9	9.4 H	12	XX
U8F3UL	102.6	104.5	101.7	103.7	103.1	-1.23	12.9	1.2	106.0	-0.73	11.0	2.8	16	LB
UCNNHJ	105.8	104.9	103.7	98.4 *	103.2	-1.21	8.0	3.3	103.9	-1.29	8.0	2.2	16	LA
UPZVHP	107.0	106.7	104.8	109.7	107.1	-0.32	6.2	2.0	108.3	-0.08	6.2	1.8	16	AH
V2MKQU	107.7	105.0	105.0	108.5	106.6	-0.44	10.5	1.9	103.9	-1.29	11.1	3.6	16	LZ
V99FUJ	112.8	118.5	115.5	117.4 *	116.1	1.75	8.6	2.5	114.3	1.57	9.7	2.9	16	LC
VAEZHJ	113.8	114.1	106.4	114.0	112.1	0.83	11.4	3.8	113.6	1.38	11.6	3.1	13	LZ
VBD7YD	105.4	109.9	105.9	103.0	106.0	-0.56	9.6	2.9	106.4	-0.61	10.4	2.6	16	LC
VHUJYX	109.9	111.4	106.4	110.0	109.4	0.22	9.2	2.1	109.7	0.30	9.6	2.8	16	AA
VZEBYW	114.0	106.0	107.0	110.0	109.3	0.18	9.8	3.6	110.4	0.49	11.4	3.5	16	AA
X6G2HE	108.2	116.8	107.8	110.8	110.9	0.57	11.7	4.1	110.7	0.58	12.4	3.9	12	LA
XAUYNF	112.1	113.5	107.4	108.2	110.3	0.43	12.6	2.9	110.6	0.54	11.6	3.9	16	TB
XH8T3H	113.5	114.2	110.4	109.8	112.0	0.81	8.9	2.2	110.8	0.59	8.0	2.3	16	TB
YK8HKH	109.6	110.4	No Data	No Data	110.0	0.36	12.1	0.6 L	109.8	0.33	10.8	3.1	14	AH
Z76C7C	105.9	105.6	103.8	No Data	105.1	-0.77	12.2	1.1	105.9	-0.75	10.5	4.3	15	LC
ZV4NEF	111.2	111.7	104.2	104.2	107.8	-0.15	7.4	4.2	110.1	0.41	8.6	3.9	16	LA

Consensus (All Labs) Results

Wk Mean	108.21	109.21	107.97	108.78	Month Mean	108.46	Grand Mean	108.61
Avg SDr	10.38	10.58	10.38	9.68	Avg SDr	10.27	Avg SDr	10.29
SD btwn Labs	4.70	4.94	5.04	4.24	SD btwn Labs	4.34	SD btwn Labs	3.62
Labs Incld	53	52	52	50	SD btwn Wks	4.14	SD btwn Wks	4.04
Labs Excld	0	2	0	1	Labs Incld	54	Labs Incld	53
Labs not Rcvd	1	0	2	3				

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
2RJG8R	109.3	112.3	111.5	102.2 *	108.8	-1.26	13.2	4.6	108.8	-1.34	13.2	4.6	4	XX
33GJ8F	114.7	118.4	112.1	109.7	113.7	0.05	8.9	3.7	113.7	0.04	8.9	3.7	4	LC
36LACA	111.7	109.5	114.0	106.8	110.5	-0.82	11.1	3.1	111.3	-0.65	10.9	3.0	12	LA
3LQDYL	113.9	114.0	114.0	113.9	113.9	0.11	8.4	0.0 L	116.4	0.79	8.9	3.7	12	LJ
4DT7V7	111.9	118.5	112.5	116.0	114.7	0.32	10.1	3.1	113.6	0.00	10.2	4.0	12	LC
6QBD7C	118.4	112.5 L	113.6	119.5	116.0	0.66	5.8	3.5	114.4	0.24	8.8	3.1	12	LA
8FN26J	110.0 H	122.8	126.8 *	115.8	118.9	1.43	13.9	7.5 H	119.9	1.77	13.0	5.3	12	LA
8MPACC	113.7	112.0	109.5	112.8	112.0	-0.41	8.8	1.8	111.9	-0.48	8.4	2.1	12	TP
8MQ6VH	112.0	108.9	121.4	112.8	113.8	0.06	11.9	5.3	113.1	-0.14	10.9	4.2	8	LA
9FYGDH	123.8 *L	124.5 *L	127.0 *	125.7 *L	125.3	3.13 X	4.4	1.4	124.9	3.18 X	4.5	1.3	12	XX
9KU9LE	107.6	112.2	107.2	109.8	109.2	-1.16	7.4	2.3	113.0	-0.17	8.1	3.8	12	RE
ARB429	104.6	111.7	113.9	113.7	111.0	-0.69	10.3	4.4	110.9	-0.76	9.8	3.4	12	AH
BG89H4	108.8	109.8	112.6	110.5	110.4	-0.83	11.1	1.6	109.9	-1.02	11.5	1.9	12	LC
BXE9R8	117.5	122.5	123.4	111.5	118.7	1.38	10.3	5.5	120.9	2.05 *	10.1	4.0	11	LA
C29LR2	116.3	116.0	117.7	118.8	117.2	0.98	13.0	1.3	119.2	1.57	12.1	3.1	12	LZ
CUBYXG	122.8 *	107.9	118.1	118.0 L	116.7	0.85	9.1	6.3	120.3	1.88	9.5	6.2	12	LC
DLEJN3	107.5	115.9	111.1	111.8	111.6	-0.53	9.9	3.4	112.9	-0.18	11.4	4.0	12	LA
DTWPPG	110.7	110.2	102.6 *	107.5	107.7	-1.55	9.3	3.7	107.7	-1.64	9.3	3.7	4	XX
GNNXJY	109.6	121.5	110.5	120.9	115.6	0.56	10.5	6.4	115.9	0.65	9.5	4.4	12	LC
HLXWFW	117.6 L	115.9	115.5	117.0	116.5	0.79	7.1	1.0	117.0	0.97	8.0	2.5	12	AH
J276VQ	110.8	110.6	123.2	No Data	114.9	0.36	10.8	7.2 H	117.4	1.07	10.2	6.8 H	11	AH
JXQYXV	113.7	118.1	113.3	112.0	114.3	0.20	7.8	2.7	115.6	0.58	8.9	5.0	12	AX
KND3TN	114.4	115.3	No Data	116.3	115.4	0.49	11.8	1.0	113.7	0.03	11.5	3.2	11	LA
L9VWUU	118.8	118.6	119.1	121.8	119.6	1.61	9.6	1.5	116.1	0.70	9.4	4.2	12	AH
LZPUVN	105.4	105.6	109.4	106.6	106.8	-1.82	10.2	1.8	108.2	-1.52	9.1	2.8	12	LA
M3AY4L	112.8	109.2	107.3	112.4	110.4	-0.83	9.4	2.6	110.7	-0.81	8.6	2.5	12	LC
M3NPRW	114.7	112.2	109.1	116.9	113.2	-0.08	11.8	3.3	111.1	-0.70	9.6	4.8	8	LC
NALE9Z	115.5	117.5	113.5	120.5	116.8	0.86	9.1	3.0	115.0	0.41	8.8	3.4	12	AH
NV4PAX	111.6	118.9	118.8	117.8	116.8	0.86	9.9	3.5	113.2	-0.12	9.5	4.0	12	LA
PAHCYM	113.6	107.2	117.8	112.5	112.8	-0.21	11.9	4.4	113.4	-0.04	12.1	3.2	12	XX
PBQPE3	111.7	109.0	112.9	113.0	111.7	-0.51	7.4	1.9	111.3	-0.65	9.6	3.7	12	AH
RKD6HX	117.4	110.8	108.4	106.8	110.8	-0.72	10.5	4.7	113.3	-0.09	10.8	4.5	7	LJ
T36UQW	107.9	118.5	116.8	111.9	113.8	0.06	12.6	4.8	112.6	-0.28	11.4	3.8	12	LZ
T433YF	113.9	113.0	112.4	111.1	112.6	-0.25	11.0	1.2	111.9	-0.47	10.8	2.6	12	LA
TAMZPN	111.6	116.5	109.3	120.4	114.5	0.24	11.2	5.0	114.2	0.17	10.6	3.3	12	TB

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
TEZ2NZ	107.1	103.1 *	102.8 *	105.4	104.6	-2.39 *	10.4	2.0	107.7	-1.67	10.0	4.6	12	RE
TTGYRF	107.8	106.8	106.8	110.7	108.0	-1.47	11.4	1.9	108.6	-1.39	10.4	4.6	12	LC
U4UHMW	112.3	113.2	122.0	121.7	117.3	1.01	11.5	5.3	109.9	-1.02	12.0	8.9 H	8	XX
U8F3UL	107.0	109.7	109.4	106.1	108.1	-1.47	14.4	1.7	109.4	-1.18	11.8	2.4	12	LB
UCNNHJ	108.5	107.2	110.8 L	107.3	108.4	-1.37	9.4	1.7	108.8	-1.33	8.1	2.4	12	LA
UPZVHP	111.5	112.1	112.8	114.3 L	112.7	-0.23	5.8	1.2	113.5	-0.04	6.0	1.4	12	AH
V2MKQU	111.1	108.2	112.7	110.3	110.6	-0.79	11.5	1.9	109.8	-1.07	13.3	5.9	12	LZ
V99FUJ	123.8 *	119.4	125.1	124.9 *	123.3	2.60 *	11.0	2.7	120.3	1.88	10.5	2.9	12	LC
VAEZHJ	117.5	122.1	117.6	119.4	119.2	1.50	12.0	2.1	119.3	1.60	10.5	3.7	12	LZ
VBD7YD	108.7	110.7	110.1	107.6	109.3	-1.14	12.2	1.4	108.9	-1.31	9.6	3.2	12	LA
VHUJYX	110.1	114.8	112.9	116.0	113.5	-0.02	10.2	2.6	115.0	0.40	10.2	3.6	12	AA
VZEBYW	115.8	116.3	112.3	114.5	114.7	0.31	10.2	1.8	115.1	0.44	11.7	2.4	12	AA
X6G2HE	117.5	117.3	117.0	112.8	116.1	0.69	11.3	2.3	115.3	0.49	11.1	2.2	12	LA
XAUYNF	119.7	113.0	118.6	117.9	117.3	1.01	13.2	3.0	115.5	0.53	12.4	4.5	12	TB
XH8T3H	115.7	119.4	115.4	116.2	116.7	0.83	12.2	1.8	120.2	1.87	10.7	3.7	12	TB
YK8HKH	113.9	117.8	No Data	No Data	115.9	0.62	8.2	2.8	113.7	0.04	10.5	3.6	10	AH
Z76C7C	112.1	115.7	110.0	No Data	112.6	-0.25	12.2	2.9	112.4	-0.35	11.5	3.8	11	LC
ZV4NEF	120.2	115.7	109.2	114.5	114.9	0.36	10.6	4.5	114.4	0.24	9.1	3.2	10	LA

Consensus (All Labs) Results

Wk Mean	113.14	113.96	113.96	113.88	Month Mean	113.54	Grand Mean	113.58
Avg SDr	11.23	9.97	10.07	10.78	Avg SDr	10.61	Avg SDr	10.35
SD btwn Labs	4.54	4.88	5.56	5.24	SD btwn Labs	3.74	SD btwn Labs	3.56
Labs Incld	53	53	51	50	SD btwn Wks	3.51	SD btwn Wks	3.97
Labs Excld	0	0	0	0	Labs Incld	52	Labs Incld	52
Labs not Rcvd	0	0	2	3				

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
33GJ8F	84.9	86.7	88.5	87.6	86.9	-0.65	3.8	1.5	86.9	-0.73	3.8	1.5	4	LD
394ARP	92.8	94.3	91.9	92.5	92.9	0.87	4.6	1.0	89.7	0.02	5.3	5.2 H	15	MB
3LQDYL	88.8	89.0	89.0 H	88.8 H	88.9	-0.14	7.2	0.1 L	87.8	-0.49	6.9	0.7	16	LD
3ZBYJF	91.0	91.2	89.9	91.6	90.9	0.37	3.2	0.7	90.5	0.23	3.6	1.6	16	LD
4DT7V7	89.5	88.2	84.0	88.8	87.6	-0.47	3.8	2.5	87.0	-0.71	4.2	1.8	16	LD
4NR2RG	93.3	95.0	93.8	94.6	94.2	1.20	3.2	0.7	93.1	0.91	3.6	1.3	16	EM
69U9JK	86.1	85.3	85.0	86.6	85.7	-0.95	2.7	0.7	85.4	-1.13	2.4	0.9	16	EM
6QBD7C	85.4	84.9 L	84.1	87.6	85.5	-1.02	3.2	1.5	88.3	-0.35	3.4	2.9	12	LD
6YP26K	88.0	88.4	88.8	88.4	88.4	-0.28	3.8	0.3 L	87.1	-0.67	2.7	1.4	16	MB
8FN26J	97.4	98.7	93.7	96.8	96.6	1.83	3.8	2.1	97.3	2.04 *	4.6	2.9	16	LD
8MPACC	88.3	87.6	88.3	85.3	87.4	-0.54	3.2	1.4	87.7	-0.52	3.3	1.0	16	TH
8MQ6VH	96.1	98.4 H	96.0 *	97.3 L	96.9	1.91	6.2	1.1	93.3	0.98	5.0	3.6	10	LC
8Y66RB	83.4	82.6	84.9	84.1	83.7	-1.46	3.6	1.0	83.3	-1.69	3.7	1.7	16	EN
9FYGDH	82.5	82.0	88.5	90.2	85.8	-0.94	4.3	4.2	86.3	-0.89	4.7	4.4	16	LD
9JK2K8	88.5 L	89.0 L	89.2 L	88.4	88.8	-0.18	1.6	0.4 L	88.1	-0.42	2.1	1.1	16	MB
9KU9LE	92.5	90.6	92.6	93.2	92.2	0.70	4.6	1.1	90.7	0.29	4.2	1.7	16	LZ
ACJAPH	90.4	89.6	90.0	90.9	90.2	0.20	3.1	0.6	91.5	0.48	3.2	1.3	16	TH
ARB429	95.4	101.7 *	99.6 X	100.3 *	99.3	2.50 *	4.4	2.7	98.6	2.38 *	4.8	3.0	16	LZ
BG89H4	81.0 *	86.7	82.8	82.8	83.3	-1.57	2.5	2.4	87.1	-0.68	3.3	4.8 H	16	LC
BXE9R8	94.5	90.6	91.9	87.9	91.2	0.45	3.9	2.7	93.6	1.03	3.5	2.8	13	LZ
C29LR2	88.1	85.1	86.5	89.1	87.2	-0.59	4.2	1.8	87.0	-0.71	4.0	2.1	16	LC
GNNXJY	93.1	93.9	89.5	94.1	92.6	0.81	4.6	2.1	91.4	0.47	4.2	2.7	16	LC
HG4YQ6	90.2	91.2	91.7	92.8	91.5	0.51	2.9	1.1	91.7	0.53	3.1	1.1	16	LD
HLXWFW	92.3	93.7 L	93.5	91.3	92.7	0.82	4.3	1.1	92.2	0.68	4.2	1.2	16	EM
JXQYXV	91.9	94.2	87.2	87.5	90.2	0.18	3.8	3.4	87.1	-0.69	4.3	3.9	16	LC
KCKL23	91.5	92.9	88.0	91.7	91.0	0.40	3.2	2.1	90.6	0.24	3.5	2.0	16	MB
L9VWUU	89.8	88.3	88.7	88.6	88.8	-0.17	3.6	0.6	87.9	-0.47	3.6	1.1	16	LD
LZPUVN	84.3	84.0	85.6	84.4	84.6	-1.25	3.7	0.7	85.3	-1.16	4.0	1.2	16	LD
M3AY4L	87.4	87.5	90.0	87.8	88.2	-0.33	3.5	1.2	88.3	-0.37	3.4	1.3	16	LD
M3NPRW	97.4	95.6	89.3	89.2	92.9	0.87	3.8	4.2	93.5	1.01	4.2	3.1	11	LD
N4XWT4	90.6 L	91.5 L	90.0 L	91.3 L	90.8	0.35	0.8	0.7	91.4	0.46	2.0	1.2	16	TD
NV4PAX	89.5	91.4	90.6	91.2	90.7	0.31	3.2	0.8	91.3	0.43	3.0	1.6	16	LD
PBQPE3	90.5	87.9	85.7	86.9	87.8	-0.44	4.5	2.1	88.8	-0.22	4.0	1.5	16	LC
RKD6HX	88.2	93.8	91.2	93.3	91.6	0.55	3.8	2.5	89.0	-0.16	4.6	2.6	12	LD
T3NGMT	85.6	86.0	84.5	87.8	86.0	-0.89	4.1	1.4	86.9	-0.74	4.2	1.3	16	EM

Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42D2

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
T433YF	92.0	91.7	91.3	90.3	91.3	0.47	3.3	0.7	92.9	0.85	3.9	1.6	16	LD
TAMZPN	85.3	89.6	90.6	86.1	87.9	-0.40	4.9	2.6	89.3	-0.10	4.5	2.3	16	LC
TEZ2NZ	90.1	94.0	87.2	90.1	90.4	0.23	3.8	2.8	88.1	-0.41	3.8	2.9	16	EM
TTGYRF	90.4	88.8	91.5	89.6	90.1	0.16	4.3	1.2	89.6	-0.01	4.5	1.5	16	LC
U8F3UL	90.4	91.7	89.6	88.6	90.1	0.15	3.2	1.3	88.8	-0.22	4.0	3.6	16	LC
UCNNHJ	89.7	92.5	88.8	90.8	90.5	0.26	4.5	1.6	89.7	0.01	3.6	1.2	16	LD
UWWT7R	85.5	64.5 XH	86.1	93.0	82.3	-1.83	7.1	12.3 H	88.1	-0.43	4.9	6.9 H	16	XX
V2MKQU	86.0	86.5	86.0	87.9	86.6	-0.73	4.1	0.9	87.4	-0.61	3.9	1.5	16	LD
VAEZHJ	87.2	87.3	85.0	85.7	86.3	-0.81	3.6	1.2	87.2	-0.64	3.5	2.3	13	LC
VBD7YD	93.4	87.8	85.8	88.0	88.8	-0.18	3.8	3.2	86.4	-0.87	4.8	4.0	16	LZ
VHUJYX	85.4	89.9	87.8	83.5	86.7	-0.72	3.4	2.8	86.9	-0.74	3.5	1.9	16	LD
X6G2HE	85.6 H	84.7 H	85.1 H	92.0	86.9	-0.67	7.8	3.5	90.6	0.26	7.1	4.4	12	LC
XAUYNF	76.9 X	78.4 *	71.9 X	74.2 X	75.4	-3.61 X	4.5	2.9	78.5	-2.97 X	4.1	3.8	16	LZ
XH8T3H	97.7	101.9 *	101.0 X	98.6 *	99.8	2.64 *	5.6	2.0	99.2	2.52 *	5.0	1.6	16	LX
YCCHAV	93.4	91.9	88.2	94.0 L	91.9	0.62	3.3	2.6	94.1	1.17	3.1	2.9	16	LD
ZMP36C	84.0	77.6 *	81.2 *	81.6 *	81.1	-2.14 *	3.7	2.7	80.0	-2.57 *	4.5	2.5	16	LD
ZV4NEF	97.9	115.4 XH	98.7 X	99.4 *H	102.9	3.42 X	6.3	8.4 H	98.8	2.43 *	4.9	8.6 H	16	LC

Consensus (All Labs) Results

Wk Mean	89.69	89.83	88.52	89.99
Avg SDr	3.85	4.06	4.28	4.01
SD btwn Labs	4.12	5.04	3.15	4.10
Labs Incld	51	50	48	51
Labs Excld	1	2	4	1
Labs not Rcvd	0	0	0	0

Month Mean	89.47
Avg SDr	4.12
SD btwn Labs	3.91
SD btwn Wks	2.63
Labs Incld	50

Grand Mean	89.67
Avg SDr	4.11
SD btwn Labs	3.76
SD btwn Wks	2.86
Labs Incld	51

Analysis Notes

394ARP - Data appears to be switched between Analysis 215 and Analysis 240 for Week 3. Data switched by CTS.

M3NPRW - Data appears to be switched between Analysis 215 and Analysis 255 for Week 3. Data switched by CTS.

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
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	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
33GJ8F	130.7	132.7	132.7	134.1	132.5	-0.94	3.5	1.4	137.0	-0.25	4.3	5.0	8	LD
394ARP	145.0	148.0	143.9	140.2 H	144.3	1.07	5.5	3.2	138.1	0.03	7.8	17.4 H	11	MB
3LQDYL	137.8	137.7	137.7	137.8	137.7	-0.05	6.0	0.1 L	136.1	-0.45	7.0	1.2	12	LD
3ZBYJF	141.9	140.8	134.3	138.0	138.7	0.12	4.2	3.4	139.2	0.28	4.5	3.2	12	LD
4DT7V7	135.9	138.6 H	134.5	138.1	136.8	-0.22	6.2	1.9	135.8	-0.52	5.1	2.1	12	LD
4NR2RG	144.2	138.2	141.9	142.4	141.7	0.62	4.6	2.5	143.3	1.26	5.4	3.2	12	EM
69U9JK	136.1 L	134.4	133.6	134.9	134.8	-0.56	3.3	1.1	132.7	-1.27	3.1	3.1	12	EM
6QBD7C	130.8	133.2	131.6	130.8	131.6	-1.10	3.8	1.2	137.6	-0.11	4.9	4.6	12	LD
6YP26K	138.5	139.9	138.7	137.1	138.5	0.09	3.8	1.1	137.1	-0.21	2.9	2.2	12	MB
8FN26J	153.3	153.1	151.3 *	148.7	151.6	2.31 *	5.6	2.1	152.2	3.38 X	5.2	3.0	12	LD
8MPACC	131.7	133.2	130.4	131.1	131.6	-1.10	4.1	1.2	132.2	-1.39	3.8	1.0 L	12	TH
8MQ6VH	152.9 L	106.1 XH	148.6	151.2 *	139.7	0.29	8.1	22.5 H	143.0	1.20	6.3	15.5 H	8	LC
8Y66RB	127.7 L	129.5	130.1	131.1	129.6	-1.44	4.3	1.4	128.7	-2.22 *	3.8	2.2	12	EN
9FYGDH	138.4	135.8	133.6	140.7	137.1	-0.16	5.1	3.1	135.9	-0.51	4.7	3.9	12	LD
9JK2K8	140.0	140.2 L	133.4	132.8	136.6	-0.24	3.0	4.1	134.0	-0.96	5.1	3.6	12	MB
9KU9LE	141.7	139.2	135.6	134.2	137.7	-0.06	4.1	3.4	137.1	-0.22	4.5	2.5	12	LZ
ACJAPH	143.7 L	143.1	142.1	141.6	142.6	0.79	4.6	0.9	139.2	0.28	4.2	3.3	12	TH
ARB429	144.2 H	153.8	147.9	150.0 *	149.0	1.87	7.9	4.0	151.1	3.11 X	6.4	4.3	12	LZ
BG89H4	128.8 L	126.7	133.1	132.3	130.2	-1.33	3.8	3.0	136.2	-0.43	4.2	6.4	12	LC
BXE9R8	143.1	139.2	140.2	137.3	140.0	0.33	4.5	2.4	140.1	0.51	4.3	1.9	11	LZ
C29LR2	133.4	132.2	128.8	138.3	133.2	-0.83	4.9	3.9	136.3	-0.41	5.4	4.2	12	LC
GNNXJY	149.8	147.2	151.6 *	140.1	147.2	1.56	6.3	5.1	145.4	1.76	6.4	3.9	8	LC
HG4YQ6	141.3	140.6	144.8	142.3	142.2	0.72	3.4	1.8	141.9	0.93	3.1	1.5	12	LD
HLXWFW	137.9	144.9	142.1	140.8	141.4	0.58	3.9	2.9	142.6	1.09	4.2	2.4	12	EM
JXQYXV	137.6	144.1	137.0	139.2	139.5	0.25	5.2	3.2	136.6	-0.32	4.8	4.3	12	LC
KCKL23	142.2	141.3	136.7	137.8	139.5	0.25	4.4	2.7	137.9	-0.02	4.4	3.0	12	MB
L9VWUU	139.8	141.2	135.2	131.2	136.8	-0.21	4.0	4.6	135.2	-0.66	3.7	3.1	12	LD
LZPUVN	134.9	133.1	133.2	132.3	133.4	-0.80	3.9	1.1	133.9	-0.98	3.8	1.9	12	LD
M3AY4L	141.4	142.6	139.5	141.5	141.2	0.55	4.3	1.3	138.9	0.22	3.7	2.0	12	LD
M3NPRW	150.4	148.8	135.5	139.7	143.6	0.95	4.7	7.2	144.2	1.48	4.3	6.7	8	LD
N4XWT4	140.6 L	137.4 L	135.2 L	135.9 L	137.3	-0.13	1.4	2.4	136.4	-0.39	2.0	3.1	12	TD
NV4PAX	143.3	142.6	142.9	143.0	142.9	0.84	3.7	0.3 L	143.1	1.21	4.1	1.8	12	LD
PBQPE3	138.3	136.1	137.1	134.8	136.6	-0.25	3.9	1.5	138.3	0.06	4.4	2.5	12	LC
RKD6HX	146.7	147.8	145.5	144.8	146.2	1.39	5.4	1.3	146.2	1.95	5.4	1.3	4	LD
T3NGMT	132.9	133.4	135.2 L	128.6	132.5	-0.94	4.0	2.8	135.7	-0.55	4.0	3.4	12	EM

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
T433YF	140.3	137.4	140.6	140.2	139.6	0.27	4.5	1.5	140.3	0.56	5.0	2.1	12	LD
TAMZPN	140.9	143.0	137.6	141.0	140.6	0.44	5.3	2.2	141.2	0.76	5.1	3.3	12	LC
TEZ2NZ	135.3	137.0	134.9	137.0	136.0	-0.34	5.7	1.1	135.0	-0.71	4.6	2.3	12	EM
TTGYRF	139.5	137.9	138.6	140.1	139.0	0.17	3.3	1.0	138.4	0.09	3.6	1.9	12	LC
U8F3UL	143.2	146.4	142.2	145.3	144.3	1.07	3.9	1.9	138.5	0.12	4.0	5.8	12	LC
UCNNHJ	137.2	134.7	137.4	140.7	137.5	-0.09	3.8	2.5	137.7	-0.09	3.3	1.9	12	LD
UWWT7R	138.9	116.7 XH	131.9	142.6	132.5	-0.94	9.9	11.4 H	139.4	0.34	6.7	8.5	12	XX
V2MKQU	136.4	136.4	134.0	137.6	136.1	-0.34	3.8	1.5	136.1	-0.45	4.0	1.5	12	LD
VAEZHJ	137.0 L	133.6	128.8	136.9	134.1	-0.68	3.0	3.8	136.5	-0.37	3.2	3.4	12	LY
VBD7YD	140.4	136.0	118.9 XH	135.4	132.7	-0.92	7.9	9.4	132.0	-1.42	8.4	9.3 H	12	LZ
VHUJYX	132.9	129.3	132.0	130.3	131.1	-1.18	4.1	1.7	130.8	-1.71	4.2	1.7	12	LD
X6G2HE	121.0 *H	136.1 H	131.2 H	138.9 H	131.8	-1.06	13.9	7.9	142.5	1.07	9.8	9.5 H	12	LC
XAUYNF	129.6	114.6 X	125.5 H	121.1 X	122.7	-2.62 *	5.9	6.4	122.9	-3.59 X	5.6	4.6	12	LZ
XH8T3H	158.8 *	158.8 *	156.4 X	159.0 X	158.2	3.45 X	5.0	1.2	159.7	5.17 X	5.5	2.8	12	LY
YCCHAV	145.6 L	142.3	139.7	147.1	143.7	0.96	4.8	3.3	142.5	1.07	3.5	3.5	12	LD
ZMP36C	132.2	131.6	129.2	127.5	130.2	-1.35	5.2	2.2	129.8	-1.95	4.8	3.7	12	LD
ZV4NEF	154.4 *L	158.1 *	139.5	155.7 X	151.9	2.37 *	5.3	8.4	147.7	2.31 *	6.9	17.3 H	10	LC

Consensus (All Labs) Results

Wk Mean	139.63	139.78	137.17	138.27	Month Mean	138.03	Grand Mean	138.01
Avg SDr	5.39	4.54	5.04	4.92	Avg SDr	5.26	Avg SDr	4.94
SD btwn Labs	7.17	7.08	5.88	5.37	SD btwn Labs	5.85	SD btwn Labs	4.20
Labs Incld	52	49	50	49	SD btwn Wks	4.91	SD btwn Wks	5.66
Labs Excld	0	3	2	3	Labs Incld	51	Labs Incld	48
Labs not Rcvd	0	0	0	0				

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	TD	TMI Digital Crush Tester, Model 17-09
TH	TMI Compression Tester, Model 17-76	XX	Instrument make/model not specified by lab

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2RJG8R	22.9	22.6	22.6	21.3	22.4	-0.09	1.7	0.7	22.4	-0.07	1.7	0.7	4	XX
36LACA	23.0	22.4	24.4	22.7	23.1	0.74	2.5	0.9	23.3	0.96	2.8	0.9	12	LU
394ARP	22.3 L	23.2 L	22.2 L	23.2 L	22.7	0.30	0.1	0.6	22.7	0.34	0.9	0.8	15	LA
39MC2B	19.8 *L	25.6 *L	19.4 *L	19.4 *L	21.0	-1.53	0.0	3.0 H	21.3	-1.23	0.3	1.7 H	16	LW
3ZBYJF	22.7	22.0	22.8	23.4	22.7	0.31	1.8	0.6	22.4	-0.07	1.9	0.6	16	LY
4DT7V7	22.7	22.6	23.1	22.4	22.7	0.27	2.2	0.3	22.4	-0.03	1.9	1.2	16	LA
6QBD7C	23.2	23.1	21.8	20.8	22.2	-0.23	1.1	1.1	22.2	-0.22	1.1	1.1	4	LA
7EGFGJ	22.7	20.2 *	21.6	21.4 L	21.5	-1.06	1.3	1.0	21.7	-0.74	0.7	1.2	16	LA
8MPACC	22.5	22.3	22.3	21.8	22.2	-0.23	1.1	0.3	22.3	-0.14	1.2	0.3	16	TT
8Y66RB	20.2	21.5	20.6	21.8	21.0	-1.55	1.9	0.8	20.8	-1.78	1.8	0.6	16	LY
9JK2K8	21.9	23.2 L	21.6 L	24.2 L	22.7	0.30	0.7	1.2	23.3	0.92	0.5	1.2	16	BK
BG89H4	21.4	22.5	22.0	22.7	22.2	-0.31	1.9	0.6	21.8	-0.72	1.6	0.9	16	LA
BXE9R8	22.0	21.4	22.2	21.5	21.8	-0.73	1.9	0.4	21.9	-0.57	1.8	0.4	13	LW
C29LR2	22.3	23.0	22.2	21.6	22.3	-0.17	1.9	0.5	22.0	-0.44	2.0	0.9	16	LW
CUBYXG	21.4	21.6 L	20.9	20.9	21.2	-1.35	0.9	0.4	21.1	-1.42	0.9	0.5	16	LA
DTWPPG	19.4 *	23.5	21.9 L	21.5 L	21.6	-0.94	1.5	1.7 H	21.6	-0.93	1.5	1.7 H	4	XX
GNNXJY	23.8	21.7	23.0	22.3	22.7	0.30	2.6	0.9	22.7	0.25	1.3	1.0	16	LA
GP6RMU	22.2	21.0	21.1	22.3	21.6	-0.86	1.5	0.7	21.5	-1.01	1.8	0.8	16	LW
HG4YQ6	21.7	21.5	22.3	22.4	22.0	-0.50	1.7	0.4	21.6	-0.88	1.8	0.5	16	LY
J276VQ	22.7 L	23.1	22.9 L	No Data	22.9	0.50	0.7	0.2	22.6	0.14	0.8	0.5	15	LY
JXQYXV	21.7	22.9	22.3	22.7	22.4	-0.03	1.5	0.5	21.6	-0.89	1.6	1.2	16	XX
KND3TN	23.6	23.5	No Data	23.6	23.6	1.21	1.9	0.0 L	23.6	1.29	2.0	0.8	15	LW
L9VWUU	22.1	21.3	21.5	21.9	21.7	-0.81	2.2	0.4	21.8	-0.63	2.0	0.4	16	LU
LRWKLT	23.5	23.1	23.2	23.2	23.3	0.90	2.0	0.1 L	23.3	0.92	2.0	0.1 L	4	XX
LZPUVN	22.8	21.7	21.6	22.0	22.0	-0.45	1.3	0.6	21.9	-0.54	1.9	0.6	16	LW
M3AY4L	24.3	24.8	25.3 *	24.8 *	24.8	2.53 *	2.0	0.4	23.6	1.25	1.9	1.1	16	LA
M3NPRW	22.9	23.3 L	22.3	22.8	22.8	0.39	1.9	0.4	23.0	0.67	2.1	0.8	11	LZ
NV4PAX	22.1	23.1	23.0	22.9	22.8	0.35	1.6	0.4	23.3	0.92	1.6	0.7	16	LA
PAHCYM	24.4	24.2	24.0	24.8 *	24.3	2.04 *	2.4	0.3	24.3	2.06 *	2.3	0.3	5	XX
PBQPE3	22.9	22.2	22.7	22.4	22.6	0.12	2.0	0.3	22.5	0.07	1.9	0.4	16	LU
RKD6HX	26.1 XL	37.0 XL	26.5 XL	24.6 *L	28.5	6.58 X	0.0	5.7 H	25.6	3.51 X	0.0	4.9 H	8	LU
T36UQW	25.2 *	24.8	23.3	23.8	24.3	1.98	2.3	0.9	24.6	2.40 *	2.3	0.7	16	LZ
T433YF	23.6	22.4	23.8	22.0	22.9	0.53	1.8	0.9	23.5	1.20	1.8	0.8	16	LY
TAMZPN	21.8	22.3	23.9	22.9	22.7	0.32	1.9	0.9	22.7	0.28	1.8	0.5	16	LW
TEZ2NZ	22.0	23.3	23.4	21.8	22.6	0.20	1.8	0.8	22.6	0.21	1.8	0.9	16	LZ

Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42D2

TAPPI Official 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
TTGYRF	21.4 L	22.4 L	21.8 L	21.3 L	21.7	-0.78	0.4	0.5	21.6	-0.91	0.4	0.5	16	LA
U8F3UL	23.1	23.2	22.8	22.8	23.0	0.56	1.8	0.2	23.0	0.61	1.7	0.4	16	LU
UCNNHJ	22.0 L	22.6	21.6	21.2	21.9	-0.63	1.7	0.6	21.8	-0.63	1.6	0.6	16	BK
UPZVHP	22.6	22.8	22.5	22.0	22.5	0.04	1.0	0.3	22.7	0.34	1.1	0.3	16	TT
UWWT7R	22.5	22.8	22.2	23.0	22.6	0.19	1.3	0.3	22.3	-0.09	1.0	0.7	16	XX
V2MKQU	21.6	22.0	21.8	22.0	21.8	-0.64	1.6	0.2	22.3	-0.13	1.8	0.8	16	LY
V99FUJ	24.9 *	25.2 *	24.2	25.6 X	25.0	2.71 *	2.2	0.6	24.8	2.54 *	1.9	0.4	16	LA
VAEZHJ	22.7	21.6	21.7	21.2	21.8	-0.71	1.9	0.7	22.0	-0.43	1.8	0.7	13	LU
VBD7YD	21.6 L	20.4 L	21.1 L	21.5 L	21.1	-1.40	0.4	0.6	21.8	-0.69	1.0	0.9	16	LA
VHUJYX	21.3	22.6	21.2	21.3	21.6	-0.89	1.9	0.7	21.5	-0.97	1.9	0.8	16	LW
VTFKHT	21.1	20.9	20.5	20.5	20.7	-1.83	1.5	0.3	21.4	-1.17	1.9	0.7	16	XX
X6G2HE	23.8	23.6	24.2	22.7	23.6	1.25	2.1	0.6	23.6	1.27	2.0	0.7	12	LU
XAUYNF	21.6	21.6	22.0	21.2	21.6	-0.91	1.9	0.4	21.7	-0.74	1.9	0.5	16	LZ
YCCHAV	23.3	23.1	22.7	22.9	23.0	0.59	1.3	0.3	23.5	1.21	1.2	1.0	16	LZ
YK8HKH	23.8	21.3	No Data	No Data	22.5	0.08	2.1	1.8 H	22.8	0.38	1.9	0.8	14	LU
Z76C7C	24.3	22.9	23.6	No Data	23.6	1.23	1.7	0.7	23.0	0.64	1.9	0.8	15	LA
ZMP36C	21.0	22.3	21.7	21.0	21.5	-1.03	1.7	0.7	21.5	-1.06	1.9	0.5	16	LY
ZV4NEF	21.0 L	23.1 L	22.6 L	22.1 L	22.2	-0.26	0.0	0.9	20.8	-1.76	0.0	1.3	16	LW

Consensus (All Labs) Results

Wk Mean	22.44	22.60	22.38	22.25	Month Mean	22.44	Grand Mean	22.42
Avg SDr	1.74	1.72	1.67	1.58	Avg SDr	1.69	Avg SDr	1.67
SD btwn Labs	1.19	1.12	1.12	1.11	SD btwn Labs	0.93	SD btwn Labs	0.92
Labs Incld	52	52	50	49	SD btwn Wks	0.80	SD btwn Wks	0.82
Labs Excld	1	1	1	1	Labs Incld	52	Labs Incld	52
Labs not Rcvd	0	0	2	3				

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

Containerboard Interlaboratory Testing Program

Analysis 224

STFI, 56 lb Linerboard - 56A1

TAPPI Official 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
2RJG8R	34.0	33.6	35.1	38.0 *	35.2	1.20	3.1	2.0	35.2	0.86	3.1	2.0	4	XX
36LACA	34.9	34.7	32.8	35.7	34.5	0.75	3.0	1.2	35.4	1.02	3.0	1.2	12	LU
394ARP	33.3 L	32.0 L	33.6 L	33.3 L	33.1	-0.22	0.2	0.7	33.3	-0.24	0.2	0.8	11	LA
39MC2B	32.4 L	34.1 L	32.5 L	33.3 L	33.1	-0.21	0.1	0.8	32.6	-0.67	0.4	0.9	10	LW
3ZBYJF	33.3	33.8	32.8	32.4	33.1	-0.23	3.2	0.6	33.3	-0.27	2.9	0.7	12	LY
4DT7V7	35.7	33.3	35.9	36.3	35.3	1.28	2.8	1.3	34.1	0.25	2.7	1.5	12	LA
6QBD7C	33.2	33.1	32.7	32.3	32.8	-0.38	2.5	0.4	32.8	-0.53	2.5	0.4	4	LA
7EGFGJ	34.4	32.3	35.3	32.7	33.7	0.20	2.5	1.4	32.7	-0.60	1.6	1.9	11	LA
8MPACC	33.3	33.3 L	33.6	32.7	33.2	-0.10	1.3	0.4	33.4	-0.20	1.3	0.3	12	TT
8Y66RB	29.5 *	31.7	30.2	31.0	30.6	-1.89	2.4	1.0	30.8	-1.74	2.4	0.8	12	LY
9JK2K8	27.0 X	26.8 X	31.6	34.3 L	29.9	-2.35 *	1.4	3.7 H	34.4	0.42	1.1	3.9 H	12	BK
BG89H4	33.1	33.1	34.1	33.5	33.5	0.04	2.4	0.5	32.1	-0.94	2.3	1.3	12	LA
BXE9R8	33.5 L	31.2	31.3	31.1	31.8	-1.10	2.1	1.2	32.1	-0.94	2.4	0.9	11	LW
C29LR2	33.0	34.3	32.9	32.6	33.2	-0.12	3.0	0.7	34.3	0.31	3.1	1.5	12	LW
CUBYXG	30.8	31.4	30.7	31.6	31.1	-1.53	2.7	0.5	31.3	-1.42	1.7	1.0	12	LA
DTWPPG	28.8 *	35.1	32.9	30.6	31.9	-1.04	2.4	2.7 H	31.9	-1.11	2.4	2.7 H	4	XX
GNNXJY	36.1	31.1	31.0	36.2	33.6	0.15	4.3	3.0 H	37.4	2.19 *	3.2	7.3 H	12	LA
GP6RMU	32.6	31.8	33.3	31.2	32.2	-0.78	2.2	0.9	31.7	-1.20	2.2	1.0	12	LW
HG4YQ6	32.8	32.8	33.1	33.3	33.0	-0.26	2.3	0.2 L	32.6	-0.65	2.6	0.4	12	LY
J276VQ	33.7	33.7	35.3	No Data	34.2	0.56	1.7	0.9	33.8	0.03	1.9	1.0	11	LY
JXQYXV	32.4	33.5	32.6	32.5	32.7	-0.43	2.4	0.5	31.5	-1.30	2.5	1.7	12	XX
KND3TN	34.2	34.7	No Data	34.2	34.4	0.67	3.2	0.3	35.5	1.07	3.2	1.0	11	LW
L9VWUU	32.6	32.5	32.2	33.1	32.6	-0.53	3.2	0.4	32.4	-0.78	3.0	0.8	12	LU
LRWKLT	35.2	36.2	36.0	36.0	35.8	1.66	2.4	0.5	35.8	1.26	2.4	0.5	4	XX
LZPUVN	24.8 X	33.4	33.4	32.1	30.9	-1.67	2.2	4.1 H	31.4	-1.37	2.3	2.4	12	LW
M3AY4L	34.0	34.3	35.1	34.4	34.4	0.71	1.9	0.5	33.2	-0.32	2.3	1.1	12	LA
M3NPRW	34.2	35.4	32.2	32.6	33.6	0.16	3.2	1.5	33.5	-0.15	2.8	1.2	8	LZ
NV4PAX	34.9	34.1	34.2	33.9	34.3	0.58	2.8	0.4	34.0	0.14	2.6	1.0	12	LA
PAHCYM	36.2	36.6	35.7	37.1	36.4	2.04 *	3.3	0.6	36.0	1.35	3.3	0.9	8	LU
PBQPE3	34.0	32.2	33.1	33.1	33.1	-0.21	2.7	0.8	33.3	-0.22	2.5	0.7	12	LU
RKD6HX	38.9 *L	38.2 *L	39.8 XL	40.2 XL	39.3	3.98 X	0.0	0.9	37.5	2.26 *	0.0	2.4	7	LU
T36UQW	38.7 *	38.2 *	37.5 *	37.4 *	38.0	3.10 X	3.4	0.6	37.8	2.44 *	3.3	0.8	12	LZ
T433YF	34.9	34.3	34.7	33.8	34.4	0.70	2.8	0.5	35.5	1.07	2.5	1.8	12	LU
TAMZPN	33.7	34.6	35.3	33.7	34.3	0.64	2.9	0.8	33.9	0.09	2.8	0.8	12	LW
TEZ2NZ	33.1	32.9	33.8	35.3	33.8	0.26	1.8	1.1	33.6	-0.07	2.3	1.1	12	LZ

Containerboard Interlaboratory Testing Program

Analysis 224

STFI, 56 lb Linerboard - 56A1

TAPPI Official 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
TTGYRF	31.5 L	31.2 L	32.6	32.7 L	32.0	-0.93	0.9	0.8	32.5	-0.72	0.8	0.7	12	LA
U8F3UL	34.8	34.4	35.1	34.7	34.7	0.92	2.5	0.3	34.8	0.61	2.6	0.2 L	12	LU
UCNNHJ	33.8	31.6	31.2	33.2	32.4	-0.64	2.4	1.3	32.1	-0.97	2.3	0.8	12	BK
UPZVHP	33.4 L	33.6 L	33.6	33.5	33.5	0.09	1.1	0.1 L	33.7	-0.03	1.2	0.2 L	12	TT
UWWT7R	33.5 L	33.3	32.4 L	31.9 L	32.8	-0.40	1.2	0.8	33.5	-0.16	0.7	0.9	12	XX
V2MKQU	34.0	33.4	33.0	34.1	33.6	0.17	2.0	0.5	33.6	-0.09	2.4	0.8	12	LY
V99FUJ	36.3	37.7 *	38.2 *	36.5	37.2	2.56 *	3.0	0.9	37.3	2.11 *	3.0	0.7	12	LA
VAEZHJ	33.4	32.2	31.9	33.5	32.7	-0.43	2.4	0.8	33.1	-0.34	2.4	0.8	12	LU
VBD7YD	34.8 L	35.1 L	31.8 L	31.5 L	33.3	-0.07	0.8	1.9	33.8	0.02	0.9	1.6	12	LA
VHUJYX	31.0	31.4	32.2	33.3	32.0	-0.94	2.4	1.0	31.9	-1.08	2.6	0.8	12	LW
VTFKHT	33.9	33.0	32.3	33.2	33.1	-0.21	3.6	0.7	33.1	-0.35	3.2	1.5	12	XX
X6G2HE	36.8	35.8	37.1 *	36.3	36.5	2.11 *	2.9	0.6	36.3	1.54	3.0	1.0	12	LU
XAUYNF	31.8	32.0	33.0	31.2	32.0	-0.95	2.4	0.8	32.6	-0.64	2.6	1.0	12	LZ
YCCHAV	34.1	33.7	33.9	34.4	34.0	0.45	2.2	0.3	35.3	0.96	1.8	1.4	12	LZ
YK8HKH	35.3	34.0	No Data	No Data	34.6	0.83	2.5	0.9	34.7	0.56	2.5	1.4	10	LU
Z76C7C	31.4	32.0	34.0	No Data	32.5	-0.62	2.3	1.3	33.2	-0.32	2.9	1.1	11	LA
ZMP36C	32.8	32.7	32.2	28.3 *	31.5	-1.27	2.0	2.1	32.1	-0.97	2.6	1.3	12	LY
ZV4NEF	36.6 L	35.0 L	34.3 L	32.1 L	34.5	0.75	0.0	1.9	33.4	-0.20	0.0	1.8	9	LW

Consensus (All Labs) Results

Wk Mean	33.81	33.64	33.51	33.50	Month Mean	33.39	Grand Mean	33.72
Avg SDr	2.46	2.51	2.57	2.34	Avg SDr	2.45	Avg SDr	2.40
SD btwn Labs	1.92	1.73	1.74	1.93	SD btwn Labs	1.48	SD btwn Labs	1.69
Labs Incld	51	52	50	49	SD btwn Wks	1.33	SD btwn Wks	1.66
Labs Excld	2	1	1	1	Labs Incld	51	Labs Incld	53
Labs not Rcvd	0	0	2	3				

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

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
36LACA	176.5	0.40	12.9	172.7	-0.20	16.4	2	EV
394ARP	178.9	0.52	60.8	184.1	0.47	47.1	3	LA
8FN26J	153.4	-0.76	13.3	154.0	-1.28	15.9	4	EV
8Y66RB	177.3	0.44	10.2	176.7	0.04	12.2	4	EV
9JK2K8	192.2	1.18	27.7	199.8	1.38	19.8	3	EV
BXE9R8	149.2	-0.97	10.4	175.3	-0.04	14.4	4	EV
C29LR2	177.3	0.44	17.5	185.4	0.54	15.6	4	XX
CUBYXG	152.3	-0.81	14.5	156.1	-1.16	13.8	4	EV
GNNXJY	190.6	1.10	31.8	189.5	0.78	23.8	4	LA
L9VWUU	171.7	0.16	19.7	181.7	0.33	18.2	4	EV
LZPUVN	192.6	1.20	20.3	195.0	1.10	18.3	4	EV
M3NPRW	147.5	-1.05	15.8	157.6	-1.07	14.3	3	LA
NV4PAX	167.9	-0.03	15.4	166.3	-0.56	17.0	4	XX
T36UQW	162.2	-0.32	13.7	165.6	-0.61	13.6	4	XX
TTGYRF	191.2	1.13	28.1	210.5	2.00 *	38.0	4	LA
UWWT7R	196.5	1.39	16.4	198.2	1.29	14.8	4	EV
V2MKQU	186.7	0.91	17.2	186.7	0.62	17.2	1	EV
VBD7YD	122.3	-2.31 *	11.5	170.5	-0.32	23.7	4	EV
X6G2HE	142.7	-1.29	15.1	147.0	-1.69	15.5	3	LA
Z76C7C	155.0	-0.68	7.9	156.8	-1.12	13.5	4	LA
ZMEZJD	147.6	-1.04	14.0	157.3	-1.09	13.7	4	EV
ZV4NEF	176.4	0.39	8.6	186.0	0.58	13.7	4	EV

Consensus (All Labs) Results

Month Mean	168.55	Grand Mean	176.03
Avg SDr	21.39	Avg SDr	20.40
SD btwn Labs	20.04	SD btwn Labs	17.20
Labs Incld	22	Labs Incld	22

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 Official Test Method T538

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
2N2YAG	360.9	-1.05	8.8	360.9	-0.68	8.8	1	PP
4DT7V7	367.2	0.74	7.7	361.3	-0.59	8.1	4	LA
6QBD7C	362.0	-0.74	11.7	362.0	-0.41	11.7	1	LA
7EGFGJ	360.0	-1.32	9.2	359.3	-1.10	7.9	4	XX
8H96F3	368.4	1.10	5.4	363.9	0.10	6.9	4	LA
ARB429	367.2	0.75	7.0	369.9	1.65	6.9	4	TS
M3AY4L	437.3	20.96 X	1.2	437.4	19.16 X	1.1	4	XX
PBQPE3	366.4	0.52	6.1	367.6	1.04	7.7	4	XX

Consensus (All Labs) Results

Month Mean	364.58	Grand Mean	363.57
Avg SDr	8.21	Avg SDr	8.42
SD btwn Labs	3.47	SD btwn Labs	3.85
Labs Incld	7	Labs Incld	7

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 231

Internal Bond, 42 lb Linerboard - 42D

TAPPI Official Test Method T569

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
29PKTJ	94.0	-0.64	2.0	97.2	-0.51	3.7	2	TM
36LACA	55.8	-2.10 *	5.0	56.7	-1.92	7.4	2	TM
6QBD7C	102.9	-0.30	9.0	102.9	-0.32	9.0	1	SC
7EGFGJ	136.8	0.99	10.3	145.1	1.14	8.8	2	SC
8FN26J	134.2	0.89	18.7	128.2	0.56	15.5	2	HY
BG89H4	100.4	-0.40	7.5	110.2	-0.07	5.6	2	TM
JXQYXV	101.4	-0.36	10.4	95.2	-0.59	16.8	2	SC
L9VWUU	93.0	-0.68	8.3	92.3	-0.69	7.5	2	TM
LZPUVN	141.6	1.17	5.5	157.7	1.58	8.0	2	HY
M3AY4L	55.0	-2.13 *	0.9	56.2	-1.93	1.1	2	LZ
PBQPE3	110.4	-0.02	7.4	111.8	-0.01	7.5	2	HY
T36UQW	104.6	-0.24	8.6	94.5	-0.61	10.5	2	TM
TTGYRF	140.8	1.14	8.6	133.3	0.73	14.4	2	HY
V2MKQU	86.7	-0.92	7.4	89.6	-0.78	7.0	2	XX
VBD7YD	106.6	-0.16	4.6	104.7	-0.26	8.2	2	TM
VHUJYX	122.2	0.43	8.8	119.4	0.25	6.6	2	TM
X6G2HE	89.0	-0.83	7.0	91.2	-0.72	7.8	2	TM
ZV4NEF	164.0	2.02 *	15.2	176.0	2.21 *	12.2	2	SC

Consensus (All Labs) Results

Month Mean	110.84	Grand Mean	112.11
Avg SDr	9.28	Avg SDr	9.85
SD btwn Labs	26.26	SD btwn Labs	28.92
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	109.42	27.66	1.42	14
Modified Scott Bond Mechanics	125.98	22.09	15.14	2

Analysis Notes

M3AY4L - 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	LZ	L&W (model not specified)
SC	Scott Internal Bond Tester (Manual)	TM	TMI Monitor/Internal Bond Tester
XX	Instrument make/model not specified by lab		

	Monthly Results			Cumulative Results			
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months
2RJG8R	28.6	0.31	2.6	28.6	0.32	2.6	1
36LACA	27.0	-0.23	1.4	26.6	-0.60	2.8	2
7EGFGJ	31.4	1.27	0.9	31.2	1.49	0.9	2
8MQ6VH	27.5	-0.06	1.9	28.6	0.32	1.4	2
8Y66RB	28.5	0.27	2.2	28.0	0.05	2.1	2
BXE9R8	27.8	0.04	1.6	26.6	-0.58	1.3	2
C29LR2	25.6	-0.71	1.3	28.0	0.05	2.0	2
DTWPPG	28.2	0.18	2.9	28.2	0.14	2.9	1
JQMTHR	28.1	0.14	3.4	26.8	-0.51	3.0	2
L9VWUU	28.7	0.35	2.5	27.3	-0.29	2.0	2
LZPUVN	25.2	-0.84	1.6	25.6	-1.03	1.8	2
M3AY4L	29.2	0.52	1.5	30.6	1.22	1.2	2
NV4PAX	26.6	-0.37	2.2	27.1	-0.36	1.7	2
PAHCYM	21.7	-2.03 *	1.0	23.4	-2.02 *	1.4	2
PBQPE3	22.3	-1.82	1.5	23.4	-2.04 *	1.7	2
T36UQW	23.8	-1.32	1.9	25.4	-1.12	2.4	2
TAMZPN	25.8	-0.64	2.6	29.5	0.72	4.8	2
TEZ2NZ	33.0	1.81	2.3	29.8	0.86	1.9	2
TTGYRF	29.1	0.48	3.5	29.9	0.89	2.5	2
V2MKQU	29.4	0.59	3.6	29.1	0.52	3.7	2
VBD7YD	33.4	1.95	3.5	32.2	1.94	3.6	2
VHUJYX	24.3	-1.15	2.4	26.0	-0.86	2.2	2
X6G2HE	28.8	0.38	2.3	28.4	0.21	2.2	2
ZV4NEF	30.2	0.86	4.8	29.4	0.68	3.6	2

Consensus (All Labs) Results

Month Mean	27.67	Grand Mean	27.89
Avg SDr	2.49	Avg SDr	2.50
SD btwn Labs	2.94	SD btwn Labs	2.22
Labs Incld	24	Labs Incld	24

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
36LACA	19.5	0.43	1.1	13.8	-2.04 *	1.0	2	LA
6QBD7C	17.5	-0.87	1.2	17.5	-0.47	1.2	1	LP
9FYGDH	17.0	-1.15	2.4	16.8	-0.76	2.0	2	GG
9JK2K8	21.9	1.97	1.6	22.1	1.57	1.5	2	XX
BXE9R8	17.9	-0.58	2.1	16.1	-1.06	1.6	2	XX
GNNXJY	17.6	-0.76	1.1	18.6	0.03	1.1	2	LA
HG4YQ6	22.4	2.28 *	1.1	22.4	1.68	1.0	2	LP
JJQVVP	18.3	-0.32	0.7	18.1	-0.21	0.6	2	XX
JQMTHR	24.6	3.69 X	4.0	21.8	1.44	3.1	2	GA
LZPUVN	21.0	1.39	1.3	20.6	0.90	1.1	2	LP
M3AY4L	20.5	1.06	1.0	20.7	0.93	1.1	2	LA
NV4PAX	18.3	-0.33	1.5	18.3	-0.11	1.2	2	LA
NZFWDN	17.5	-0.83	1.1	18.1	-0.19	1.0	2	XX
PAHCYM	17.0	-1.17	2.0	12.7	-2.54 *	1.5	2	LA
PBQPE3	17.6	-0.77	1.3	17.9	-0.27	1.8	2	TP
T36UQW	18.9	0.05	2.5	19.9	0.59	2.1	2	TD
TAMZPN	16.9	-1.21	2.6	17.8	-0.34	2.1	2	LP
TTGYRF	18.8	0.00	1.5	19.4	0.37	1.6	2	LA
UWWT7R	17.9	-0.60	1.5	18.1	-0.20	1.6	2	LW
V2MKQU	19.5	0.43	1.5	19.4	0.38	1.6	2	LP
VBD7YD	18.1	-0.44	1.4	18.3	-0.12	1.7	2	LP
VHUJYX	18.3	-0.30	1.9	17.8	-0.33	1.8	2	HG
X6G2HE	20.5	1.04	1.3	19.1	0.26	1.9	2	LA
ZV4NEF	19.9	0.69	2.6	19.7	0.48	2.2	2	HG

Consensus (All Labs) Results

Month Mean	18.82	Grand Mean	18.54
Avg SDr	1.67	Avg SDr	1.65
SD btwn Labs	1.57	SD btwn Labs	2.30
Labs Incld	23	Labs Incld	24

Key to Instrument Codes Reported by Participants

GA	Gurley Precision #4340 Automatic Densometer	GG	Gurley Precision #4320 Densometer
HG	Technidyne - Hagerty Model #1 and Profile System	LA	L&W Autoline
LP	L&W Air Permeance Tester SE 166	LW	L&W Gurley Densometer, Oil Flotation
TD	TMI Gurley Densometer	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
36LACA	59.0	59.0	58.4	59.0	58.9	-0.90	3.5	0.3	57.8	-1.08	4.6	2.9 H	11	XX
394ARP	59.4	57.8	60.9	58.0	59.0	-0.76	3.9	1.4	58.5	-0.73	3.6	2.0	15	MB
3LQDYL	59.4	59.5	59.5	59.4	59.4	-0.49	3.2	0.0 L	59.4	-0.21	5.0	0.3 L	16	LD
3ZBYJF	62.0	63.1	62.0	63.2	62.6	1.72	2.9	0.7	61.6	0.98	2.9	1.2	16	LD
4NDFHE	59.2	60.1	59.6	58.7	59.4	-0.51	2.7	0.6	59.9	0.06	2.8	0.6	16	LD
6YP26K	61.9	61.8	60.5	61.1	61.3	0.84	2.6	0.6	60.0	0.13	2.0	1.1	16	MB
8MPACC	58.7	58.9	59.7	56.7	58.5	-1.15	2.4	1.2	58.8	-0.55	2.7	1.5	16	TH
8Y66RB	58.8	59.0	61.0	61.7	60.1	-0.01	3.7	1.5	60.0	0.12	3.4	1.8	12	XX
9JK2K8	61.4 L	61.6	62.2 L	63.1	62.1	1.33	1.6	0.7	60.9	0.62	1.6	1.0	16	MB
AQXFZG	59.6	61.5	60.7 H	63.0	61.2	0.74	4.1	1.4	61.1	0.73	3.9	0.9	16	LD
BCXTBZ	53.6 XL	54.1 XL	53.7 XL	53.8 *L	53.8	-4.40 X	1.1	0.2	51.3	-4.63 X	1.9	4.2 H	16	TC
BG89H4	58.3 L	57.6	58.7	58.9	58.4	-1.23	2.0	0.6	55.9	-2.11 *	2.5	1.9	16	LC
DTWPPG	61.1 L	59.4	59.1	63.2	60.7	0.39	3.0	1.9	60.7	0.49	3.0	1.9	4	XX
EQZVZB	59.2	58.5	60.4	60.3	59.6	-0.37	3.3	0.9	60.6	0.46	3.8	3.2 H	16	LC
GANYW3	66.1 X	65.9 X	66.7 X	66.4 *	66.3	4.27 X	3.0	0.4	64.5	2.55 *	2.7	1.5	12	TM
HLXWFW	61.8	62.5	64.4 *	65.1 *	63.4	2.29 *	3.8	1.5	62.9	1.71	3.2	1.1	16	EM
JJQVVP	62.3	63.0	63.0	62.5	62.7	1.79	2.8	0.4	62.1	1.24	3.1	1.3	16	LD
JXQYXV	59.8	61.1	59.7	60.3	60.2	0.07	3.0	0.6	59.8	-0.02	3.0	1.2	16	LC
K96DD3	61.6	62.3	60.8	61.0	61.4	0.89	3.1	0.7	61.6	1.00	3.1	1.3	8	LZ
KCKL23	58.1	58.4 H	57.8	60.6	58.7	-0.98	4.7	1.3	60.7	0.51	3.1	1.9	16	MB
KND3TN	57.8	57.0	No Data	56.2	57.0	-2.19 *	2.0	0.8	56.9	-1.58	3.8	1.7	15	LC
L9VWUU	58.0	58.9	60.0 L	59.2	59.0	-0.77	3.3	0.8	59.1	-0.39	3.5	1.4	16	LD
LRWKLT	60.7	59.5	59.0	56.5	58.9	-0.86	3.1	1.8	58.9	-0.49	3.1	1.8	4	LZ
M3AY4L	54.1 X	57.9	55.7 *	54.4 *	55.5	-3.23 X	3.3	1.7	56.2	-1.98	2.9	1.6	16	LD
M3NPRW	58.2	58.3	58.6	59.1	58.5	-1.12	3.1	0.4	58.3	-0.80	3.2	1.1	11	LD
N4XWT4	62.9 L	63.8 *L	60.0 L	62.4 L	62.3	1.50	0.6	1.7	62.0	1.21	1.7	1.5	16	TD
NV4PAX	61.8	61.7	62.7	61.2	61.8	1.18	2.8	0.6	60.5	0.39	2.7	1.1	16	LD
NZFWDN	59.8	61.1	62.3	60.4	60.9	0.54	2.6	1.1	59.8	0.02	3.0	1.1	16	LD
P3XE7T	60.5	60.1	59.7	58.9	59.8	-0.23	2.3	0.7	59.9	0.04	2.4	0.6	16	LC
PBQPE3	59.5	58.6	60.6	60.6	59.8	-0.22	2.8	1.0	59.2	-0.33	3.1	1.7	16	LC
RKD6HX	59.5	60.6	61.7	61.2	60.8	0.43	3.8	0.9	67.3	4.10 X	5.1	5.3 H	12	LC
T433YF	61.9	60.6	61.1	58.5	60.5	0.27	3.2	1.5	60.9	0.62	4.0	1.0	16	LD
TAMZPN	61.2	58.8	58.9	58.0	59.2	-0.63	3.5	1.4	60.6	0.42	3.0	1.5	16	LC
TEZ2NZ	60.7	61.0	61.9	57.1	60.2	0.05	3.3	2.1	58.7	-0.63	3.3	1.7	16	LZ
U8F3UL	61.8 L	61.2	60.8	60.9	61.2	0.73	2.6	0.5	61.9	1.17	2.7	0.8	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
UPZVHP	60.7 H	58.1 H	58.6 H	61.3 H	59.7	-0.32	6.3	1.6	58.5	-0.71	5.4	1.6	16	TG
UWWT7R	43.5 XH	57.0	57.5	55.3	53.3	-4.73 X	5.9	6.6 H	53.0	-3.72 X	5.9	5.7 H	16	XX
V2MKQU	59.3	60.5	59.6	57.9	59.3	-0.57	3.7	1.1	59.2	-0.32	3.5	1.2	16	LZ
V99FUJ	63.3 *	61.8	62.2	60.5	61.9	1.26	2.9	1.1	59.7	-0.08	3.3	2.2	16	LD
VAEZHJ	61.4	58.8 L	58.8	59.5	59.6	-0.34	2.6	1.2	61.7	1.04	2.8	2.5	12	XX
VWD6JQ	58.8	58.4	59.4	57.7	58.6	-1.10	3.4	0.7	59.2	-0.31	3.5	1.4	16	MB
WX6KBE	60.2	61.3	60.8	62.0	61.0	0.63	3.1	0.8	60.5	0.38	3.0	0.7	12	EM
X6G2HE	58.0	60.1	58.4	58.6	58.8	-0.95	4.5	0.9	57.7	-1.15	4.1	3.9 H	12	LC
XAUYNF	55.5 X	58.6	59.2	58.8	58.0	-1.47	3.3	1.7	58.1	-0.91	3.4	2.0	16	LZ
XH8T3H	60.7	60.9	60.5	60.7	60.7	0.39	2.6	0.2 L	59.9	0.03	2.6	1.1	16	LD
YCCHAV	62.2	62.5	62.5 L	60.4	61.9	1.21	1.8	1.0	61.0	0.67	2.5	1.7	16	LC
Z2BG7Q	60.3	61.4	60.2	57.5	59.9	-0.20	2.6	1.7	60.5	0.36	3.0	1.7	11	LC
ZD4VAT	60.0	60.4	57.2	58.1	58.9	-0.87	3.4	1.5	55.1	-2.60 *	3.4	4.5 H	12	TH

Consensus (All Labs) Results

Wk Mean	60.25	60.09	60.13	59.76	Month Mean	60.14	Grand Mean	59.80
Avg SDr	3.27	3.36	3.15	3.00	Avg SDr	3.21	Avg SDr	3.25
SD btwn Labs	1.47	1.73	1.71	2.57	SD btwn Labs	1.44	SD btwn Labs	1.83
Labs Incld	43	46	45	48	SD btwn Wks	1.13	SD btwn Wks	1.79
Labs Excld	5	2	2	0	Labs Incld	44	Labs Incld	45
Labs not Rcvd	0	0	1	0				

Analysis Notes

394ARP - Data appears to be switched between Analysis 215 and Analysis 240 for Week 3. Data switched by CTS.

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LZ	L&W Crush Tester (model not specified)
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
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 Test 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
4NDFHE	72.3	72.8	73.1	73.3	72.9	-0.63	2.7	0.4	72.7	-0.46	2.9	0.4	16	XX
6YP26K	73.8	73.9	72.6	73.4	73.5	-0.29	3.1	0.6	71.7	-1.03	2.5	1.7	16	MB
AQXFZG	73.4	73.0	73.3	74.7	73.6	-0.19	2.1	0.8	74.3	0.43	2.1	1.2	16	LD
JJQVVP	76.5	76.2	75.7	76.7	76.3	1.38	2.8	0.4	76.5	1.63	2.5	0.8	16	LD
M3AY4L	75.6	75.4	75.7	75.5 L	75.6	0.96	1.9	0.1 L	74.5	0.51	2.1	1.4	16	LD
N4XWT4	70.7 L	72.9 L	70.5 L	74.0 L	72.0	-1.13	0.5	1.7	71.7	-1.05	1.3	1.4	16	TD
NV4PAX	73.0	72.8	73.5	72.8	73.0	-0.54	3.0	0.3	71.8	-1.00	2.5	2.4	16	LD
NZFWDN	75.1	71.7	74.8	74.5 L	74.0	0.04	1.8	1.6	73.1	-0.25	2.2	1.4	16	XX
P3XE7T	72.2	72.8	72.0	73.0	72.5	-0.85	2.6	0.5	72.5	-0.58	2.7	0.5	16	LD
PBQPE3	76.3	76.9	76.9 L	78.4 *L	77.1	1.88	2.0	0.9	77.4	2.17 *	2.0	1.1	16	LC
TAMZPN	74.6	71.1	73.4	73.7	73.2	-0.44	2.6	1.5	73.9	0.17	2.7	1.3	16	XX
U8F3UL	71.8	71.8 L	70.3	71.0	71.2	-1.61	1.9	0.7	71.8	-0.97	1.9	1.0	16	LD
VAEZHJ	75.6	74.2 L	76.1	75.3	75.3	0.79	3.1	0.8	74.7	0.64	2.9	2.3	13	LE
X6G2HE	64.3 XH	69.4 H	65.2 XH	69.3 *H	67.1	-4.08 X	8.5	2.7 H	67.1	-3.65 X	8.5	2.7 H	4	XX
XAUYNF	74.5	75.5	75.6	74.5	75.0	0.64	2.1	0.6	73.2	-0.21	2.9	3.6 H	16	LZ

Consensus (All Labs) Results

Wk Mean	73.96	73.36	73.81	74.01	Month Mean	73.94	Grand Mean	73.57
Avg SDr	2.21	3.06	2.47	3.74	Avg SDr	2.39	Avg SDr	2.42
SD btwn Labs	1.79	2.04	2.06	2.16	SD btwn Labs	1.69	SD btwn Labs	1.79
Labs Incld	14	15	14	15	SD btwn Wks	0.91	SD btwn Wks	1.66
Labs Excld	1	0	1	0	Labs Incld	14	Labs Incld	14
Labs not Rcvd	0	0	0	0				

Key to Instrument Codes Reported by Participants

LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
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
3LQDYL	43.6 H	43.5	43.5	43.6	43.5	0.21	3.6	0.1 L	41.4	-0.83	3.0	2.0	16	LD
6YP26K	43.0	42.4	42.7	43.6	42.9	0.01	2.8	0.5	41.6	-0.72	2.2	1.9	16	MB
ACJAPH	44.1	43.4	43.4	42.7	43.4	0.16	2.1	0.6	43.3	-0.05	1.9	0.8	16	TH
BCXTBZ	36.2 *	34.8	34.7 *	34.3 *	35.0	-2.53 *	2.1	0.8	34.0	-3.88 X	1.8	2.2	16	TC
EQZVZB	31.7 X	33.5 *	31.5 X	33.5 *	32.5	-3.31 X	2.2	1.1	30.5	-5.32 X	2.3	2.1	16	XX
GANYW3	48.5	49.0	49.0	48.5	48.7	1.87	1.6	0.3	49.0	2.30 *	2.2	0.7	12	LD
JJQVVP	46.5	46.5 L	47.0	46.7	46.7	1.21	1.9	0.2 L	46.1	1.10	2.1	1.1	16	LD
K96DD3	43.9	42.3	No Data	No Data	43.1	0.06	2.5	1.2	43.0	-0.17	2.7	0.9	5	LZ
KU6CZ2	46.4 H	41.4 H	40.1 H	41.3	42.3	-0.20	4.4	2.8	41.7	-0.70	4.1	2.8	16	LZ
LRWKLT	41.4	41.8	42.7	47.1	43.2	0.11	2.3	2.6	43.2	-0.07	2.3	2.6	4	XX
M3AY4L	42.8	42.2	40.9	41.7	41.9	-0.32	3.4	0.8	42.2	-0.50	2.6	1.0	16	LD
M3NPRW	45.7	47.0	43.8	42.9	44.8	0.63	2.4	1.8	45.5	0.85	2.4	1.4	11	LD
MUTPD4	41.9 L	41.3 L	41.7 L	41.9 L	41.7	-0.38	1.0	0.3	41.8	-0.68	1.3	0.7	16	WK
NV4PAX	43.6	44.6	45.3	43.7	44.3	0.45	2.2	0.8	44.8	0.58	2.5	0.8	16	LD
NZFWDN	43.2	42.4	41.8	41.3	42.2	-0.23	3.0	0.8	42.8	-0.26	3.4	0.8	16	LD
PBQPE3	45.0	42.9	42.2	45.3	43.9	0.31	2.7	1.5	43.6	0.10	2.7	1.2	16	LC
PHGYR8	36.3 *	37.7	39.3	39.1	38.1	-1.53	3.3	1.4	38.1	-2.18 *	3.3	1.4	4	LZ
RKD6HX	39.0 L	42.6	41.9	42.4	41.5	-0.45	2.4	1.7	43.7	0.12	2.7	2.0	12	LD
TEZ2NZ	44.4	45.7	44.0	44.3	44.6	0.54	2.3	0.8	43.2	-0.10	2.2	1.3	16	EM
UWWT7R	44.2	35.2 H	43.0	46.1	42.1	-0.25	4.2	4.8 H	45.9	1.03	3.0	3.7 H	16	XX
WX6KBE	44.4	44.2	43.3	43.5	43.8	0.30	2.0	0.5	44.0	0.25	2.7	0.6	12	LC
XH8T3H	47.3	48.3	48.2	47.8	47.9	1.61	1.4	0.5	44.9	0.63	2.0	2.2	16	LZ
YCCHAV	45.8 L	44.7	43.4	45.1	44.8	0.60	1.7	1.0	45.7	0.94	1.8	2.2	16	LD
Z2BG7Q	41.7	42.4	42.4	44.3	42.7	-0.06	2.2	1.1	44.6	0.49	3.1	2.6	11	LC
ZD4VAT	36.2 *	37.1	35.9 *	35.7	36.2	-2.13 *	2.0	0.6	38.3	-2.12 *	2.3	1.6	12	TH

Consensus (All Labs) Results

Wk Mean	43.11	42.27	42.61	42.75	Month Mean	42.88	Grand Mean	43.40
Avg SDr	2.72	2.89	2.48	2.23	Avg SDr	2.60	Avg SDr	2.60
SD btwn Labs	3.35	4.00	3.26	3.91	SD btwn Labs	3.12	SD btwn Labs	2.42
Labs Incld	24	25	23	24	SD btwn Wks	1.54	SD btwn Wks	1.77
Labs Excld	1	0	1	0	Labs Incld	24	Labs Incld	23
Labs not Rcvd	0	0	1	1				

Analysis Notes

M3NPRW - Data appears to be switched between Analysis 215 and Analysis 255 for Week 3. Data switched by CTS.

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	TC	TMI Monitor/Compression Tester, 17-37
TH	TMI Compression Tester, Model 17-76	WK	Zwick Z005 Crush Tester
XX	Instrument make/model not specified by lab		

Containerboard Interlaboratory Testing Program

Analysis 261

STFI, 26 lb Corrugating Medium - CM91

TAPPI Official 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
2N2YAG	24.2 XL	25.0 XL	25.0 XL	24.9 XL	24.8	23.75 X	0.0	0.4	20.2	10.27X	0.0	5.1 H	16	LZ
394ARP	14.0 L	13.9 L	No Data	14.0 L	14.0	-1.27	0.0	0.1 L	17.3	4.90 X	0.1	9.1 H	13	LA
4DT7V7	14.4	14.8	14.6	14.8	14.6	0.25	1.1	0.2	14.7	0.11	1.0	0.6	16	LA
4NDFHE	14.4	14.5	14.4	14.5	14.4	-0.23	0.9	0.1 L	14.3	-0.58	0.8	0.2	16	LB
8MPACC	14.7	15.1 L	14.6	14.5	14.7	0.43	0.6	0.3	14.5	-0.25	0.6	0.3	16	TT
9JK2K8	15.2 L	15.5 L	14.5 L	16.2 *L	15.3	1.87	0.1	0.7	15.8	2.12 *	0.2	0.8	16	BK
AQXFZG	14.9	15.1	14.8	14.8	14.9	0.84	1.2	0.1	14.6	-0.09	1.1	0.4	16	LB
BCXTBZ	14.3 L	14.6 L	14.9 L	14.2 L	14.5	-0.03	0.1	0.3	14.3	-0.60	0.1	0.6	16	TS
DTWPPG	12.2 X	15.7	13.7	13.0 *	13.6	-2.06 *	1.0	1.5 H	13.6	-1.83	1.0	1.5 H	4	XX
GANYW3	14.9	15.1	15.2 *	15.4	15.2	1.43	1.0	0.2	15.4	1.44	1.1	0.3	12	LA
JJQVVP	14.3	14.2	14.5	14.3	14.3	-0.54	0.9	0.1	14.2	-0.75	0.9	0.2	12	LZ
KND3TN	15.0	15.3	No Data	15.2	15.2	1.44	1.0	0.2	15.6	1.74	1.1	0.4	15	LW
KU6CZ2	15.4	14.5	14.2	14.0	14.5	-0.04	1.0	0.6	14.8	0.37	1.1	0.7	16	LA
L9VWUU	14.0	13.8	14.0	14.1	14.0	-1.36	1.2	0.1	14.1	-0.96	1.0	0.2	16	LU
M3AY4L	16.2 *	16.3 *	16.9 X	16.5 *	16.5	4.53 X	1.5	0.3	15.3	1.19	1.0	0.8	16	LA
M3NPRW	14.2	14.7	14.4	14.4	14.4	-0.29	1.4	0.2	15.1	0.79	1.2	0.7	11	LZ
NV4PAX	14.5	14.7	14.5	14.4	14.5	-0.04	0.7	0.1	14.4	-0.36	0.8	0.2	16	LB
P3XE7T	14.4	14.4	14.5	14.5	14.4	-0.27	0.8	0.1 L	14.3	-0.56	0.8	0.2	16	LB
PBQPE3	14.5	14.6	14.2	14.2	14.4	-0.37	1.0	0.2	14.4	-0.50	0.9	0.2	16	LU
TEZ2NZ	14.9	15.0	14.5	15.2	14.9	0.84	1.0	0.3	14.3	-0.61	1.1	0.6	16	LZ
UWWT7R	15.2	14.2	14.3	15.3	14.7	0.48	1.0	0.6	14.9	0.44	0.5	0.5	16	XX
V2MKQU	13.8	14.0	14.1	14.3 L	14.0	-1.16	0.7	0.2	14.2	-0.75	0.8	0.3	16	LB
WX6KBE	16.0	15.2	14.0	14.0	14.8	0.58	1.1	1.0	14.0	-1.17	1.0	0.9	12	LB
YCCHAV	15.1	15.0	14.7	14.8	14.9	0.81	0.9	0.2	15.3	1.15	0.8	0.3	16	LZ
Z2BG7Q	13.7	13.4 *	13.4 *	15.3	14.0	-1.33	0.7	0.9	14.5	-0.34	0.8	1.1 H	11	XX

Consensus (All Labs) Results

Wk Mean	14.70	14.72	14.38	14.66	Month Mean	14.54	Grand Mean	14.64
Avg SDr	0.99	0.95	0.87	0.87	Avg SDr	0.91	Avg SDr	0.90
SD btwn Labs	0.64	0.66	0.40	0.76	SD btwn Labs	0.43	SD btwn Labs	0.54
Labs Incld	23	24	21	24	SD btwn Wks	0.50	SD btwn Wks	0.62
Labs Excld	2	1	2	1	Labs Incld	23	Labs Incld	23
Labs not Rcvd	0	0	2	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		