Collaborative Testing Services, Inc.

Containerboard Interlaboratory Testing Program

Participant Summary Report #551 (J) - August 2015

Introduction to the Containerboard Program

Explanation of Tables and Definitions of Terms

Analysis	Sample Lot	Analysis Name
201	BOX9	Box Compression Strength, Corrugated Boxes
202	ECT8	Edgewise Compressive Strength, Wax (T811), Corrugated board
203	ECT8	Edgewise Compressive Strength by Clamp (T839), Corrugated board
205	42D1	Mullen Burst of Linerboard, 42 lb Linerboard
207	36Z3	Mullen Burst of Linerboard, 36 lb Linerboard
215	42D1	Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard
217	36Z3	Ring Crush of Linerboard, Rigid Platen Type, 36 lb Linerboard
223	42D1	STFI of Linerboard, 42 lb Linerboard
225	36Z3	STFI of Linerboard, 36 lb Linerboard
228	69C	Roughness - Stylus Method, 69 lb Linerboard
231	36Z	Internal Bond Strength, Linerboard, 36 lb Linerboard
234	36Z	Coefficient of Static Friction - Inclined Plane, 36 lb Linerboard
237	36Z	Air Resistance - Gurley Method, Linerboard, 36 lb Linerboard
240	CM73	Flat Crush Strength (CMT) of Medium, 26 lb Corrugating Medium
250	CM73	Fluted Crush of Medium, 26 lb Corrugating Medium
255	CM73	Ring Crush of Medium, 26 lb Corrugating Medium
261	CM73	STFI of Medium, 26 lb Corrugating Medium

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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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 69 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
36# Linerboard	36Z1	June 2010 - December 2011
	36Z2	February 2012 - Current
42# Linerboard	42B2	June 2012 - April 2013
	42B3	May 2013 - Current
69# Linerboard	69A2	January 2013 - September 2013
	69C1	November 2013 - Current
26# Corrugating Medium	CM73	December 2012 - Current

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

Cumulative Results

Laboratory Data

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

Consensus Data

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

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

Flag	Explanation

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

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

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

Flags assigned to Weekly Means:

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

Flags assigned to Monthly SD Wks and Cumulative SD Wks:

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

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Containerboard Interlaboratory Testing Program

Analysis 201

Top to Bottom Box Compression Strength, Corrugated Boxes - BOX9

TAPPI Official Test Method T804

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
63TCAT	840.9	0.24	92.3	823.6	-0.11	82.0	4	ER
72HPBE	919.8	1.37	38.8	928.1	1.48	30.7	4	TB
9VK8MD	836.2	0.18	67.3	838.2	0.11	67.3	4	ER
BC4M4F	934.6	1.58	34.5	934.6	1.58	34.5	1	ER
CMWQKE	717.4	-1.52	47.0	733.7	-1.48	48.8	3	LL
GGRFH2	748.4	-1.07	29.1	755.8	-1.14	34.8	3	LH
JKQD4E	751.2	-1.03	37.0	778.3	-0.80	43.9	4	ER
JXAVY3	764.0	-0.85	60.4	847.3	0.25	53.2	4	LH
LYY4WW	868.1	0.63	40.1	851.6	0.32	74.1	4	EX
NDRH8B	779.2	-0.64	73.7	820.1	-0.16	46.8	4	LG
NEMZAC	770.4	-0.76	34.3	768.1	-0.95	33.2	4	LM
Q6Q4Z7	828.0	0.06	88.4	800.8	-0.46	60.2	4	ES
RRYWHV	832.5	0.12	54.3	806.0	-0.38	51.9	4	LM
TZ44XV	921.6	1.39	39.8	908.2	1.18	37.3	4	ER
UBK9HZ	746.6	-1.10	54.6	736.3	-1.44	49.1	4	LG
V2A9NP	900.7	1.10	38.3	910.6	1.21	31.4	4	TE
XDGXEP	923.8	1.42	75.8	940.5	1.67	54.6	4	EX
YNW6QJ	782.2	-0.59	18.3	810.0	-0.32	41.8	4	LG
ZE2NEK	855.4	0.45	96.9	852.4	0.33	80.8	4	LS
ZUTLFF	754.7	-0.98	40.9	771.8	-0.90	42.8	3	LL

Consensus (All Labs) Results

Month Mean	823.78	Grand Mean	830.79
Avg SDr	57.43	Avg SDr	52.30
SD btwn Labs	70.20	SD btwn Labs	65.75
Labs Incld	20	Labs Incld	20

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	797.82	47.92	25.96	5
Clip sealing	811.86	70.22	11.93	12
Tape sealing	914.76	12.36	90.98	3

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Containerboard Interlaboratory Testing Program

Analysis 201

Top to Bottom Box Compression Strength, Corrugated Boxes - BOX9

TAPPI Official Test Method T804

Instrument Code List as Reported by the Labs

(ER) - Emerson 6200 Series

(EX) - Emerson Apparatus (Model not specified)

(LH) - L.A.B. Compression Tester Model #10610

(LM) - Lansmont 122-15k

(TB) - TMI Monitor/Compression Tester, Model 17-70

(ES) - Emerson 8510

(LG) - TLS / L.A.B. Validator Series

(LL) - Lansmont 76-5K

(LS) - Lansmont Squeezer

(TE) - Testometric M500 - 25 KN

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Containerboard Interlaboratory Testing Program

Analysis 202

Edgewise Compressive Strength, by T811, Corrugated board - ECT8

TAPPI T811

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
9VK8MD	60.3	0.66	2.7	58.9	0.68	2.4	4	EN
D9TJ79	60.5	0.72	1.1	58.3	0.41	0.8	4	WK
H9GDW2	53.3	-0.98	1.4	54.1	-1.67	2.1	3	LC
JXAVY3	62.3	1.15	2.0	58.1	0.29	1.9	4	TC
NDRH8B	58.8	0.30	1.9	59.4	0.95	3.4	4	WK
QVJ6TQ	49.4	-1.90	1.6	54.5	-1.49	2.6	4	XX
WTEMVW	58.4	0.21	1.5	58.6	0.55	1.6	3	TB
ZE2NEK	56.8	-0.15	2.2	58.1	0.27	2.0	4	LC

Consensus (All Labs) Results

Month Mean	57.48	Grand Mean	57.51
Avg SDr	1.87	Avg SDr	2.22
SD btwn Labs	4.24	SD btwn Labs	2.02
Labs Incld	8	Labs Incld	8

Instrument Code List as Reported by the Labs

(EN) - Emerson 2200

(LC) - L&W Crush Tester 48

(TB) - TMI Monitor/Compression Tester, Model 17-70

(TC) - TMI Monitor/Compression Tester, Model 17-37

(WK) - Zwick Z005 Crush Tester

(XX) - Instrument make/model not specified by lab

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Containerboard Interlaboratory Testing Program

Analysis 203

Edgewise Compressive Strength by T839, Corrugated board - ECT8

TAPPI T839

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
28JFQN	64.1	1.72	2.3	64.3	2.23 *	2.0	3	TK
63TCAT	58.2	-0.40	3.7	57.6	-0.63	3.8	4	EN
72HPBE	61.6	0.80	0.9	60.7	0.67	0.9	4	LC
9VK8MD	62.4	1.09	2.9	60.9	0.76	2.2	4	EN
BC4M4F	56.6	-0.96	1.2	58.6	-0.22	2.2	4	TB
CMWQKE	57.8	-0.53	2.2	57.4	-0.73	3.0	3	LC
D3NKVJ	60.6	0.46	2.5	61.0	0.83	2.8	4	LD
EDZA9E	54.5	-1.71	2.2	55.9	-1.35	2.8	4	LC
GGRFH2	54.3	-1.77	4.4	55.4	-1.60	4.0	3	EM
H9GDW2	63.4	1.44	2.4	61.7	1.10	1.9	3	LC
H9VZ73	59.1	-0.07	2.2	58.0	-0.47	1.8	4	EX
JKQD4E	60.8	0.51	1.6	60.0	0.39	2.0	4	LD
JXAVY3	60.8	0.54	1.2	61.2	0.88	1.1	4	TC
K9Q3BX	63.3	1.41	2.5	63.1	1.72	2.2	4	LD
KD2DZ7	59.4	0.03	1.5	59.5	0.19	2.3	4	TM
KJN3M2	58.1	-0.42	1.8	57.8	-0.56	2.0	4	TD
LYY4WW	61.2	0.66	1.6	57.0	-0.91	1.6	4	TL
NDRH8B	63.7	1.54	2.0	62.8	1.56	4.4	4	WK
NEMZAC	56.7	-0.92	2.1	56.9	-0.92	1.6	4	EM
PU948R	57.5	-0.64	1.9	57.3	-0.77	1.7	4	TB
Q2QT47	61.6	0.81	1.6	60.0	0.40	3.0	4	LD
Q6Q4Z7	61.0	0.60	1.9	59.1	-0.01	4.0	4	LD
RAZKAU	57.8	-0.52	1.6	58.4	-0.31	1.9	4	TG
RRYWHV	57.1	-0.78	1.8	56.6	-1.07	1.9	4	TC
TZ44XV	59.4	0.04	2.3	58.4	-0.31	1.7	4	EM
W8A8CJ	62.2	1.01	2.0	61.7	1.11	1.5	4	LC
WTEMVW	58.2	-0.41	1.6	58.4	-0.30	1.2	3	TG
XDGXEP	58.6	-0.25	2.4	60.4	0.56	2.5	4	CT
XXPZDU	58.9	-0.16	5.3	81.0	9.33 X	6.3	3	LC
YNW6QJ	52.3	-2.48 *	6.0	53.8	-2.26 *	4.9	4	EM
ZAQBWL	59.2	-0.04	1.4	59.2	0.04	2.0	4	LC
ZE2NEK	60.7	0.49	2.5	60.0	0.37	2.6	4	LC
ZUTLFF	56.3	-1.07	1.4	58.2	-0.38	1.1	3	BU

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Containerboard Interlaboratory Testing Program

Analysis 203

Edgewise Compressive Strength by T839, Corrugated board - ECT8

TAPPI T839

Consensus (All Labs) Results

Month Mean	59.31	Grand Mean	59.09
Avg SDr	2.51	Avg SDr	2.52
SD btwn Labs	2.81	SD btwn Labs	2.34
Labs Incld	33	Labs Incld	32

Instrument Code List as Reported by the Labs

(BU) - Buchel Digital Crush Tester

(CT) - Con-Ten

(EM) - Emerson 1200 Series

(EN) - Emerson 2200

(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

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Containerboard Interlaboratory Testing Program

Analysis 205

Bursting Strength (Mullen), 42 lb Linerboard - 42D1

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
3EZB7H	108.4	109.1	112.7	110.6	110.2	0.14	10.5	1.9	106.6	-0.81	10.2	5.0	16	LC
3XMZEP	111.5	105.8	104.2	99.5 *	105.3	-1.37	11.9	5.0	108.5	-0.18	12.7	4.5	12	LA
4AE7MD	128.7 X	129.8 X	130.1 X	129.2 X	129.5	6.04 X	8.7	0.6	125.3	5.43 X	6.5	3.3	16	AH
6FGERL	108.9	111.1	112.3	113.7	111.5	0.55	8.8	2.1	110.5	0.49	10.1	3.2	16	LC
6KQRAJ	107.3	108.5	110.8	111.3	109.5	-0.08	13.0	1.9	111.2	0.70	11.3	3.3	16	LJ
7UWWXU	113.1	109.1	105.7	106.9	108.7	-0.31	9.6	3.2	109.8	0.26	9.0	4.0	16	TB
7YN4HN	110.1	113.0	104.7	109.5	109.3	-0.13	10.1	3.4	107.8	-0.41	9.0	2.8	16	LC
8K4439	104.0	109.0	110.0 L	105.6 L	107.2	-0.79	6.4	2.8	114.0	1.66	8.0	9.1 H	16	RE
8QRN7P	110.4	105.0	115.1	112.2	110.7	0.28	10.1	4.2	110.5	0.48	9.8	5.7	12	LZ
974NFK	115.5	116.5	113.2	116.1	115.3	1.71	9.0	1.5	109.3	0.09	9.2	8.9 H	16	LC
BB942D	112.9	109.2 L	108.5 L	108.3	109.7	-0.01	5.5	2.1	108.5	-0.20	6.4	3.1	16	LA
BC4M4F	110.6	108.0	103.5	110.1	108.0	-0.52	9.8	3.2	106.4	-0.90	10.5	3.1	16	LA
BKU9AD	114.6 L	116.7	115.4 L	120.2 X	116.7	2.14 *	6.4	2.5	113.6	1.53	6.3	6.2	8	LA
C2CNPE	109.2	115.2	111.0	114.2	112.4	0.82	9.6	2.8	108.2	-0.29	11.4	4.0	16	AH
CGPZH9	105.5	109.2	106.8	105.7	106.8	-0.90	9.7	1.7	107.5	-0.52	8.8	2.5	16	AH
CKNBD9	103.0 H	111.1	115.1	111.5	110.2	0.14	14.3	5.1	111.2	0.73	12.9	3.8	16	TP
CQV47H	112.1	117.7 *	110.9	110.5	112.8	0.94	10.2	3.3	110.5	0.49	10.4	2.9	16	LA
CWHR2N	111.4	112.9	109.3	109.3	110.7	0.30	11.5	1.8	108.7	-0.13	9.1	3.5	16	LB
D3NKVJ	102.9	97.5 X	104.5	109.1	103.5	-1.92	8.8	4.8	103.8	-1.76	8.7	2.5	16	LA
D8YXDH	106.7 L	104.2	109.8	107.9	107.1	-0.79	9.0	2.3	107.2	-0.61	8.7	1.3	16	LA
DPZL4G	112.6	113.7	110.6	109.2 L	111.5	0.55	10.5	2.0	114.6	1.86	12.3	11.4 H	16	TB
EDZA9E	102.3	104.8	100.6 *	103.1	102.7	-2.15 *	10.5	1.7	102.7	-2.13 *	10.5	2.7	16	LA
EG46RH	107.5	104.0	107.4	108.5	106.8	-0.89	11.7	2.0	106.3	-0.91	11.4	2.6	15	TB
F32WN9	94.8 X	98.4 X	90.8 X	104.5	97.1	-3.86 X	10.3	5.8	102.1	-2.32 *	10.4	5.9	14	LA
G92UC4	113.2	115.7	112.4	102.9	111.1	0.41	8.3	5.6	107.9	-0.40	8.6	7.1 H	16	AX
H9ENPH	111.6	109.6	114.7	112.2	112.0	0.70	8.0	2.1	112.3	1.07	9.6	2.3	16	LC
JKQD4E	110.0	110.7	105.2	109.0	108.7	-0.31	12.0	2.5	110.8	0.57	11.4	3.0	16	AH
JMTCE7	110.8	108.2	109.3	109.7	109.5	-0.08	14.4	1.1	107.9	-0.38	11.0	2.2	16	LJ
JTGYAC	111.7	112.1	116.0	111.8	112.9	0.97	11.1	2.0	112.3	1.09	11.6	2.8	16	LA
JXAVY3	113.0	111.8	115.5	109.0	112.3	0.79	13.6	2.7	112.5	1.16	12.8	2.7	16	AA
KAXHG4	117.8	109.2	105.9	112.3	111.3	0.49	10.8	5.0	112.1	1.03	11.5	4.2	16	LZ
KPQCR9	101.2 *	107.4	103.6	104.8	104.3	-1.68	11.4	2.6	106.2	-0.97	10.4	3.4	16	AH
LMJGLB	114.3	102.7	107.8	110.0	108.7	-0.32	11.6	4.8	105.1	-1.33	11.4	4.7	16	LC
LU2PA8	104.8	101.5 *	102.7	102.1	102.8	-2.13 *	12.4	1.4	104.4	-1.55	13.9	3.6	16	LA
N42W2C	110.5	109.1	112.5	109.0	110.3	0.17	10.8	1.6	109.5	0.14	10.4	2.5	16	LA

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Containerboard Interlaboratory Testing Program

Analysis 205

Bursting Strength (Mullen), 42 lb Linerboard - 42D1

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
NDRH8B	113.5	114.8	115.8	110.8	113.7	1.22	11.7	2.2	113.1	1.37	11.9	2.6	16	LZ
NEMZAC	109.0	111.8	112.0	111.4	111.0	0.40	7.5	1.4	107.8	-0.42	8.9	2.8	16	AH
Q6Q4Z7	114.2	112.6	114.1	109.1	112.5	0.85	10.8	2.4	111.3	0.74	11.5	3.0	16	LA
Q8T6Z4	104.9	109.1	106.0	107.5	106.9	-0.87	10.5	1.8	104.9	-1.38	11.1	3.7	16	LC
QGHQ72	108.0	107.7	105.2	107.9	107.2	-0.77	13.1	1.3	107.8	-0.44	11.3	2.4	16	LC
RMNJZW	111.5	108.8	108.6	110.8	109.9	0.06	11.9	1.4	112.4	1.12	11.9	3.2	12	LC
TVUNN8	112.7	107.8	112.1	108.7	110.3	0.18	11.8	2.4	108.5	-0.20	11.2	5.1	16	LA
TXZ9ET	114.0	109.4	115.7	119.9 *H	114.8	1.54	14.6	4.3	110.2	0.39	12.1	4.8	16	LC
UBK9HZ	110.7	114.4	No Data	No Data	112.6	0.86	10.6	2.6	110.5	0.50	9.6	3.5	11	AH
UQXJAT	109.8	110.3 L	110.2 L	111.3	110.4	0.21	4.9	0.6	109.8	0.26	4.8	1.4	7	XX
WQ96WZ	112.9	109.1	105.8	111.3	109.8	0.01	10.9	3.0	110.7	0.54	12.0	3.0	16	AX
X4QC9R	106.6	108.5	108.7 L	108.6 L	108.1	-0.50	6.0	1.0	108.0	-0.35	5.2	0.8 L	16	LJ
XDGXEP	119.7 *	115.5 H	108.1	110.1	113.4	1.11	14.9	5.3	111.5	0.82	15.9	3.4	16	XX
XXPZDU	108.0	112.6	107.1	110.5	109.5	-0.06	11.5	2.5	108.7	-0.13	10.1	5.8	12	LA
YNTK2V	108.7	105.4	108.6	108.2	107.7	-0.62	9.8	1.5	107.3	-0.59	10.6	2.8	16	LC
ZE2NEK	103.8	104.2	100.9	103.5	103.1	-2.03 *	10.5	1.5	104.7	-1.45	9.8	2.8	16	AH
ZH2WJV	113.3	112.6	119.7 *	115.1	115.1	1.66	13.9	3.2	114.1	1.68	10.7	3.1	16	LA

Consensus (All Labs) Results

Wk Mean	110.00	109.92	109.52	109.50	Month Mean	109.73	Grand Mean	109.06
Avg SDr	10.58	10.60	11.33	10.60	Avg SDr	10.77	Avg SDr	10.55
SD btwn Labs	4.02	3.82	4.42	3.95	SD btwn Labs	3.27	SD btwn Labs	2.99
Labs Incld	50	49	49	50	SD btwn Wks	2.91	SD btwn Wks	4.28
Labs Excld	2	3	2	2	Labs Incld	50	Labs Incld	51
Labs not rcvd	0	0	1	1				

Instrument Code List as Reported by the Labs

(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

Report #551

Containerboard Interlaboratory Testing Program

Analysis 207

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

TAPPI Official Test Method T807

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
3EZB7H	77.3	75.2	78.1	76.5	76.8	-0.45	5.5	1.3	76.4	-0.78	5.3	2.1	12	LC
3XMZEP	76.7	76.9	79.8	73.8	76.8	-0.44	4.8	2.5	77.6	-0.43	5.8	3.0	8	LA
4AE7MD	86.7 *	85.8 *	86.2 *	85.1	86.0	2.17 *	4.0	0.7	87.3	2.61 *	3.9	2.3	12	AH
6FGERL	85.6 *L	83.7	84.6	84.7	84.6	1.80	3.7	0.8	84.1	1.62	4.3	2.0	12	LC
6KQRAJ	75.5	77.6	77.3	76.9	76.8	-0.43	4.7	0.9	77.7	-0.40	4.4	1.5	12	LJ
7UWWXU	83.0	84.9	86.3 *	85.2	84.8	1.85	5.3	1.4	86.5	2.38 *	4.6	2.8	12	TB
7YN4HN	79.0	83.6	77.5	81.6	80.4	0.60	4.6	2.7	79.7	0.23	4.8	2.5	11	LC
8K4439	79.8	82.8	79.2	80.6	80.6	0.65	4.3	1.6	81.4	0.75	4.2	1.6	12	RE
8QRN7P	81.7	80.1	80.7	79.9	80.6	0.63	5.2	0.8	80.5	0.49	5.3	1.3	12	LZ
974NFK	77.7	74.7	76.0	75.3	75.9	-0.70	5.3	1.3	76.3	-0.83	5.3	1.7	12	LC
BB942D	77.7	80.6	79.3	80.2	79.4	0.32	4.0	1.3	80.1	0.36	4.3	1.7	12	LA
BC4M4F	72.8	73.6	75.8	76.3	74.6	-1.05	5.5	1.7	75.9	-0.96	5.1	1.8	12	LA
BKU9AD	83.8	81.9	88.3 *	87.1 *	85.3	1.98	4.1	2.9	86.7	2.43 *	4.0	2.9	8	LA
C2CNPE	77.4	79.0	81.4	80.0	79.5	0.32	5.0	1.7	79.3	0.10	5.3	2.1	12	AH
CGPZH9	78.0	78.6	81.9	77.3	79.0	0.18	4.7	2.0	79.7	0.25	4.3	1.3	12	AH
CKNBD9	74.8	75.8	77.7	75.8	76.0	-0.66	4.5	1.2	76.3	-0.82	4.2	1.3	12	TP
CQV47H	78.9	78.3	81.7	82.2	80.3	0.56	5.8	2.0	80.3	0.43	5.2	1.4	12	LA
CWHR2N	78.6	75.6	74.6	79.4	77.1	-0.36	4.7	2.3	76.3	-0.84	3.6	1.8	12	LB
D3NKVJ	73.6	73.9	74.0	74.3	74.0	-1.25	3.7	0.3 L	73.8	-1.60	3.6	2.3	12	LA
D8YXDH	82.8	77.7	79.0	80.1	79.9	0.45	4.1	2.2	79.3	0.10	4.6	1.5	12	LA
EDZA9E	72.8	72.2	75.2	71.0	72.8	-1.58	5.4	1.8	74.4	-1.42	5.2	2.4	12	LA
EG46RH	77.8	77.7 H	75.4	75.9	76.7	-0.46	6.3	1.3	76.0	-0.91	5.3	1.8	12	TB
F32WN9	67.0 X	71.8	68.2 X	76.2	70.8	-2.15 *	4.9	4.1 H	76.8	-0.69	5.8	10.7 H	12	LA
G92UC4	81.4	81.6	77.2	80.3	80.1	0.51	5.0	2.1	79.1	0.04	4.9	2.9	12	AX
H9ENPH	79.6	84.2	81.6	83.5	82.2	1.10	5.6	2.1	82.5	1.11	6.0	1.9	12	LC
JKQD4E	82.3	81.2	79.3	79.1	80.5	0.61	4.9	1.5	80.8	0.58	4.6	1.6	12	AH
JMTCE7	75.9	81.1	80.4	80.0 H	79.4	0.29	6.0	2.4	79.3	0.10	5.2	2.3	12	LJ
JTGYAC	78.5	82.0	81.5	81.1	80.8	0.70	6.9	1.5	82.3	1.06	6.0	2.3	11	LA
JXAVY3	80.8	80.0	81.0	80.3	80.5	0.62	6.1	0.5	81.2	0.70	6.1	1.9	12	AA
KAXHG4	79.3	74.9	77.2	79.2 H	77.6	-0.20	6.1	2.1	78.4	-0.19	5.6	1.7	12	LZ
KPQCR9	72.8	67.3 X	72.6	71.9	71.2	-2.05 *	5.3	2.6	74.3	-1.45	5.4	3.7	10	AH
LMJGLB	71.3 *	74.9	73.7	73.5	73.4	-1.42	6.5	1.5	74.7	-1.35	5.7	2.0	12	LC
LU2PA8	75.2	77.9	75.8	74.5	75.8	-0.71	4.4	1.5	76.6	-0.73	4.8	2.0	12	LA
N42W2C	77.6	80.0	77.1	79.7	78.6	0.07	6.0	1.4	78.3	-0.21	5.9	1.5	12	LA
NDRH8B	82.3	83.7	77.2	83.4	81.7	0.95	5.9	3.0	81.1	0.68	5.5	2.2	12	LZ

Report #551

Containerboard Interlaboratory Testing Program

Analysis 207

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

TAPPI Official Test Method T807

WebCode	Weekly Means Week 1	Week 2	Week 3	Week 4	Monthly Results Mean	CPV	SDr	SD Wks	Cumulative Results Mean	CPV	SDr	SD Wks	Wks	Inst
NEMZAC	77.4	79.8	80.4	75.7	78.3	-0.01	4.7	2.2	77.2	-0.56	3.8	1.8	12	AH
Q6Q4Z7	76.5	80.2	80.1	78.0	78.7	0.10	6.5	1.8	79.5	0.17	5.6	1.7	12	LA
Q8T6Z4	75.6	75.5	77.1	77.7	76.5	-0.53	5.0	1.1	75.1	-1.21	5.5	1.6	12	LC
QGHQ72	76.3	76.5	75.8	75.2	76.0	-0.68	5.9	0.6	76.6	-0.74	5.7	1.2	9	LC
RMNJZW	80.5	78.4	78.3	77.7	78.7	0.11	4.7	1.2	79.6	0.21	5.6	2.2	8	XX
TVUNN8	76.7	79.7	78.6	77.6	78.2	-0.05	4.9	1.3	77.4	-0.49	5.0	1.9	12	LA
TXZ9ET	78.1	78.2	79.9	86.4 *	80.7	0.66	6.7	3.9	78.7	-0.09	6.2	3.9	12	LC
UBK9HZ	78.9	79.9	No Data	No Data	79.4	0.30	4.5	0.7	83.0	1.28	5.6	8.8 H	10	AH
UQXJAT	80.5	83.5	82.6	80.5	81.8	0.98	4.3	1.5	81.8	0.88	4.3	1.5	4	XX
WQ96WZ	79.2	73.9	74.5	75.1	75.7	-0.76	5.1	2.4	76.0	-0.93	4.9	2.0	12	AX
X4QC9R	78.6	78.7	78.6	78.8	78.7	0.10	4.4	0.1 L	79.5	0.16	3.8	0.7	12	LJ
XDGXEP	68.6 X	70.5 *	73.1	66.9 XH	69.8	-2.44 *	7.0	2.7	68.2	-3.37 X	6.9	2.7	12	XX
XXPZDU	79.1	78.7	81.9	79.2	79.7	0.40	6.1	1.5	79.4	0.13	5.6	1.6	8	LA
YNTK2V	80.9	75.5	75.4	76.0	76.9	-0.40	5.9	2.6	76.4	-0.78	5.2	2.5	12	LC
ZE2NEK	75.8	77.1	75.2	71.1	74.8	-1.01	4.9	2.6	75.1	-1.21	5.2	2.1	12	AH
ZH2WJV	81.4	78.2	83.5	80.9	81.0	0.76	6.0	2.2	81.5	0.81	5.5	2.1	12	LA

Consensus (All Labs) Results

Wk Mean	78.46	78.55	78.77	78.60	Month Mean	78.33	Grand Mean	78.95
Avg SDr	5.39	5.47	4.97	5.17	Avg SDr	5.27	Avg SDr	5.08
SD btwn Labs	3.28	3.58	3.53	3.80	SD btwn Labs	3.51	SD btwn Labs	3.19
Labs Incld	49	50	49	49	SD btwn Wks	1.94	SD btwn Wks	2.83
Labs Excld	2	1	1	1	Labs Incld	51	Labs Incld	50
Labs not rcvd	0	0	1	1				

Instrument Code List as Reported by the Labs

(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

Report #551

Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42D1

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
28JFQN	74.0 *	83.0	78.6	78.3	78.5	-1.52	4.0	3.7	74.7	-2.46 *	4.4	4.3	12	MB
3EZB7H	90.6	89.7	86.9	86.8	88.5	0.71	3.8	1.9	86.6	0.27	3.9	2.4	16	LD
4AE7MD	87.4	85.8	85.5	84.9	85.9	0.13	4.6	1.0	88.9	0.80	3.7	2.7	16	LD
4EAWTP	88.6	89.8	88.5	88.3	88.8	0.78	3.1	0.7 L	87.9	0.55	3.7	2.2	16	LD
63TCAT	85.1	91.9	86.1	84.4	86.9	0.35	2.8	3.4	84.9	-0.12	3.4	2.4	16	EN
6FGERL	91.4	95.5 *	92.0	87.0	91.5	1.37	4.5	3.5	92.7	1.65	4.1	2.1	16	TC
6KQRAJ	82.3	79.0	81.4	79.0 L	80.4	-1.09	2.8	1.7	81.7	-0.86	2.9	2.3	16	LC
7UWWXU	91.4	91.5	91.0	90.2	91.0	1.27	4.2	0.6 L	91.7	1.44	4.5	2.1	16	LX
7YN4HN	90.3	89.2	92.6	93.0	91.3	1.33	4.3	1.8	92.0	1.50	4.2	2.0	16	LC
8BYWM9	88.5	89.8	87.6 L	89.4	88.8	0.78	3.5	1.0	87.2	0.41	3.7	2.4	16	TH
8EY6RJ	80.1	83.0	82.6	83.5	82.3	-0.67	4.5	1.5	82.6	-0.64	4.2	1.0	16	LD
8K4439	79.8	85.2	79.3	83.7	82.0	-0.74	3.4	2.9	84.5	-0.21	3.4	3.7	16	LZ
8QRN7P	81.3	81.4	80.3	82.7	81.4	-0.86	4.2	1.0	82.4	-0.69	4.7	2.3	12	LC
974NFK	86.6	86.2	89.5	85.2	86.9	0.35	3.7	1.8	86.1	0.14	4.1	2.5	16	LC
BB942D	86.8 L	86.4 L	86.0 L	86.8	86.5	0.27	2.5	0.4 L	87.3	0.41	2.1	0.7 L	16	LZ
BKU9AD	89.3 L	90.7	90.0	89.5	89.9	1.01	3.5	0.6 L	89.6	0.94	4.1	1.6	8	LD
BWNL8P	79.8	80.8 H	80.6	81.1	80.6	-1.05	6.2	0.6 L	73.6	-2.71 *	5.4	13.5 H	15	MB
C2CNPE	71.8 *H	85.3	82.0 H	60.4 XH	74.9	-2.32 *	7.7	11.2 H	82.0	-0.79	5.6	7.1	16	LC
CKNBD9	86.4	87.1	86.1	85.0	86.1	0.18	3.0	0.9	86.5	0.23	3.9	2.0	16	TH
CQV47H	93.1	90.3	89.7	89.8	90.7	1.20	3.3	1.6	89.7	0.98	3.7	1.8	16	LD
CWHR2N	91.9	88.9	91.9	90.3	90.8	1.21	5.3	1.5	88.9	0.80	4.4	3.1	16	LC
D3NKVJ	88.0	87.9 L	86.0	89.1	87.7	0.54	2.7	1.3	87.1	0.37	3.2	1.8	16	LD
D8YXDH	82.2	81.6	82.8	82.8	82.3	-0.67	3.8	0.6 L	83.3	-0.48	3.2	1.4	16	LD
DPZL4G	83.3	86.4	90.4	83.7	85.9	0.14	4.0	3.3	84.0	-0.33	4.4	3.0	16	LC
EDZA9E	84.4	84.4	81.7	92.2	85.7	0.08	3.4	4.5	86.7	0.28	3.9	3.6	16	LC
EG46RH	81.1	86.2	80.7	85.3	83.3	-0.44	4.0	2.8	80.8	-1.06	4.1	7.9	14	LZ
F32WN9	66.3 XH	93.1	68.7 XH	92.9	80.2	-1.13	6.9	14.7 H	86.8	0.31	5.2	8.5 H	14	LC
G92UC4	89.0	88.3	89.5	90.8	89.4	0.91	3.6	1.1	93.1	1.75	5.3	4.2	16	LZ
GGRFH2	76.1	74.9 X	72.2 X	72.4 *	73.9	-2.54 *	3.2	1.9	80.8	-1.07	3.5	5.5	12	EM
JKQD4E	84.4	85.9	85.3	84.9	85.1	-0.04	3.8	0.6 L	84.3	-0.27	3.9	2.4	16	LD
JMTCE7	81.9	82.4	83.2	82.8	82.5	-0.62	3.7	0.6 L	84.2	-0.28	4.3	1.7	16	LD
K6QQEX	81.3	80.0	84.3	76.5	80.5	-1.06	3.1	3.2	84.1	-0.30	4.1	3.8	12	TH
KJN3M2	91.8 L	91.3	91.0	91.2 L	91.3	1.33	1.9	0.3 L	92.0	1.51	1.9	0.9 L	16	TD
LMJGLB	73.9 *	72.6 X	92.7	75.1	78.6	-1.50	4.8	9.5 H	85.0	-0.09	5.4	6.1	16	LC
LU2PA8	83.3	85.6	83.7	83.2	84.0	-0.30	4.1	1.1	84.8	-0.15	3.6	1.2	16	LC

Report #551

Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42D1

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
N42W2C	91.3	87.7	89.0	85.5	88.4	0.68	3.3	2.4	86.6	0.27	3.7	2.3	16	LC
NDRH8B	90.5	87.6	86.7	85.7	87.6	0.52	2.9	2.1	85.8	0.09	3.0	2.5	16	LC
NEMZAC	77.7	79.6	79.8	87.3	81.1	-0.93	2.9	4.2	81.0	-1.01	3.4	2.7	16	EM
Q8T6Z4	85.2	85.6	85.9	86.2	85.7	0.09	3.5	0.4 L	86.2	0.17	3.7	2.3	16	LD
QLCMVR	87.7 H	88.1	90.3	93.3 H	89.9	1.01	6.6	2.5	90.1	1.06	5.2	2.2	12	MB
RAZKAU	90.5	91.7	92.4	91.5	91.5	1.38	2.7	0.8 L	93.4	1.83	3.7	1.6	16	TH
TVUNN8	86.5	85.4	60.9 XH	99.3 *	83.0	-0.51	5.9	16.0 H	81.9	-0.80	6.2	12.1 H	16	LC
TZ44XV	85.8	84.1	81.1 L	80.4 L	82.8	-0.55	1.9	2.5	81.8	-0.82	3.0	2.6	16	EX
UQXJAT	88.1	93.0	91.3	92.5	91.2	1.31	4.5	2.2	91.1	1.29	4.7	1.8	7	XX
V2A9NP	87.0	86.0	87.1	88.7	87.2	0.42	3.4	1.1	86.8	0.30	3.5	1.4	16	LD
W2UA4Z	84.2	83.5	83.4	84.0	83.8	-0.34	4.4	0.4 L	84.6	-0.20	3.7	0.9 L	16	LD
WQ96WZ	84.8	82.9	77.1 H	73.4 *H	79.6	-1.28	7.5	5.3	82.4	-0.71	6.0	4.7	16	LC
X4QC9R	86.8	86.6	86.9	86.9	86.8	0.34	4.2	0.1 L	87.2	0.41	3.9	0.4 L	16	LD
X8TBJK	88.0	84.4	89.3 L	93.9	88.9	0.80	3.8	3.9	84.6	-0.18	3.9	10.3 H	15	XX
XXPZDU	94.5	91.6	81.4	90.2	89.4	0.91	4.4	5.6	86.6	0.27	7.7	6.7	12	LC
YNTK2V	80.3 H	21.3 XL	80.8 H	72.0 *H	63.6	-4.83 X	8.1	28.5 H	76.6	-2.02 *	8.5	22.5 H	16	LA
YNW6QJ	72.9 *	79.3	77.0	79.0	77.1	-1.84	3.3	2.9	76.6	-2.03 *	3.6	2.8	16	EM
ZE2NEK	90.6	85.4	86.5	86.9	87.4	0.46	3.6	2.3	87.1	0.37	4.5	2.0	16	LC
ZH2WJV	84.0	86.1	87.6	86.1	86.0	0.14	3.2	1.5	84.9	-0.13	4.2	2.5	16	LZ

Consensus (All Labs) Results

Wk Mean	85.16	86.51	85.75	85.74	Month Mean	85.31	Grand Mean	85.45
Avg SDr	4.22	3.84	4.08	4.32	Avg SDr	4.15	Avg SDr	4.34
SD btwn Labs	5.39	3.88	4.39	5.71	SD btwn Labs	4.50	SD btwn Labs	4.37
Labs Incld	53	51	51	53	SD btwn Wks	4.25	SD btwn Wks	5.28
Labs Excld	1	3	3	1	Labs Incld	53	Labs Incld	54
Labs not rcvd	0	0	0	0				

Instrument Code List as Reported by the Labs

(EM) - Emerson 1200

(EN) - Emerson 2200

(EX) - Emerson (model not specified)

(LA) - L&W Autoline

(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

(TC) - TMI Monitor/Compression Tester, Model 17-37

(TD) - TMI Digital Crush Tester, Model 17-09

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

(XX) - Instrument make/model not specified by lab

Report #551

Containerboard Interlaboratory Testing Program

Analysis 217

Ring Crush, 36 lb Linerboard - 36Z3

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
28JFQN	74.8	74.1	68.6 *	70.0 *	71.9	-1.73	3.2	3.1	69.8	-3.39 X	3.3	3.0	8	MB
3EZB7H	84.1	82.3	82.4 L	79.7	82.1	0.86	2.1	1.8	80.0	0.08	3.1	2.4	12	LD
4AE7MD	79.1	77.5	76.8	76.1	77.4	-0.34	3.7	1.3	78.9	-0.28	3.7	3.4	12	LD
4EAWTP	82.0	80.9	82.6	82.7	82.1	0.85	3.0	0.8	80.7	0.34	2.9	1.7	12	LD
63TCAT	80.2	81.2	80.5 L	79.5	80.3	0.41	2.6	0.7 L	79.5	-0.09	2.7	1.3	12	EN
6FGERL	81.9 H	88.0 *	85.7 H	82.9	84.6	1.49	5.7	2.8	85.7	2.04 *	4.2	2.0	12	TC
6KQRAJ	74.1 L	75.2	78.3	74.5	75.5	-0.81	2.6	1.9	76.3	-1.17	2.3	2.1	12	LC
7UWWXU	85.7	83.6 H	84.8	85.6	84.9	1.57	5.0	1.0	85.2	1.88	4.6	1.8	12	LX
7YN4HN	83.0	83.3	83.5	85.8	83.9	1.31	3.3	1.3	84.8	1.73	3.0	1.5	11	LC
8BYWM9	79.5	78.5 L	79.9	77.8	78.9	0.06	3.0	1.0	77.3	-0.84	3.1	1.9	12	TH
8EY6RJ	77.6	78.7	77.5	77.5	77.8	-0.23	2.1	0.6 L	77.9	-0.64	2.3	1.2	12	LD
8K4439	76.0	81.1	77.1	76.0	77.5	-0.31	2.8	2.4	79.5	-0.09	2.7	3.1	12	LZ
8QRN7P	72.4	74.9	76.0	72.6	74.0	-1.21	3.1	1.8	75.7	-1.37	3.6	2.5	12	LC
974NFK	79.4	86.5	82.4	78.8	81.8	0.77	2.4	3.5	80.8	0.37	3.0	2.3	12	LC
BB942D	79.6	79.6 L	79.5 L	78.5 L	79.3	0.15	1.4	0.6 L	80.0	0.11	2.1	0.7	12	LZ
BKU9AD	85.0	85.3	84.7	86.0	85.3	1.66	3.7	0.6 L	84.8	1.74	3.0	0.7	8	LD
BWNL8P	76.5 H	74.6 H	77.3 H	75.2 H	75.9	-0.72	7.2	1.2	62.7	-5.83 X	5.2	15.3 H	12	MB
C2CNPE	60.4 XH	64.8 XH	No Data	No Data	62.6	-4.09 X	13.3	3.2	78.6	-0.38	7.3	11.3 H	10	LC
CKNBD9	77.5	79.8	78.8	78.0	78.5	-0.05	2.7	1.0	80.4	0.22	2.5	1.7	12	TH
CQV47H	85.4	83.6	83.5	84.1	84.2	1.38	2.4	0.9	83.6	1.32	3.3	1.3	12	LD
CWHR2N	80.8	80.6	80.7	84.1	81.5	0.71	4.3	1.7	80.5	0.26	3.8	2.1	12	LC
D3NKVJ	80.6	79.5	81.8	80.8	80.7	0.49	2.9	0.9	79.7	-0.01	2.7	1.0	12	LD
D8YXDH	77.3	76.2	76.0	76.1	76.4	-0.59	3.1	0.6 L	76.1	-1.23	2.8	0.9	12	LD
DPZL4G	77.2	77.4	79.6	79.0	78.3	-0.11	3.7	1.2	77.4	-0.81	3.8	2.6	12	LC
EDZA9E	77.5	77.5	77.5	74.5	76.8	-0.49	3.9	1.5	76.9	-0.97	4.5	3.0	12	LC
EG46RH	61.7 X	65.2 X	68.7 *H	80.6	69.1	-2.45 *	4.2	8.2 H	73.0	-2.31 *	3.4	8.7 H	11	LZ
F32WN9	84.7	61.1 XH	62.0 XH	85.4	73.3	-1.38	6.9	13.6 H	80.5	0.26	4.9	8.9 H	12	LC
G92UC4	86.5	80.6	82.3	84.2	83.4	1.19	3.4	2.5	84.7	1.69	3.7	3.8	12	LZ
GGRFH2	72.4	70.4 *	70.2 L	70.0 *	70.8	-2.02 *	2.4	1.1	76.8	-1.01	2.5	6.5 H	8	EM
JKQD4E	77.5	78.1	81.5	79.4	79.1	0.10	3.0	1.8	78.3	-0.48	2.7	1.8	12	LD
JMTCE7	76.6	77.5	74.1	77.6	76.4	-0.58	3.8	1.6	77.9	-0.64	3.5	3.6	12	LD
K6QQEX	80.0	77.5	77.1	78.5	78.3	-0.11	3.6	1.3	79.1	-0.23	4.4	2.2	12	TH
KJN3M2	75.6	74.6	73.4	76.0	74.9	-0.98	3.7	1.2	76.0	-1.28	2.5	2.1	12	TD
LMJGLB	81.0	67.4 X	86.6	69.5 *	76.1	-0.66	4.2	9.2 H	80.3	0.20	3.9	6.0	12	LC
LU2PA8	80.8	80.6	80.6	82.2	81.1	0.59	2.4	0.8	80.8	0.35	2.3	1.2	12	LD

Report #551

Containerboard Interlaboratory Testing Program

Analysis 217

Ring Crush, 36 lb Linerboard - 36Z3

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
N42W2C	80.3	86.7	82.0	83.4	83.1	1.11	3.4	2.7	80.5	0.26	3.0	2.8	12	LC
NDRH8B	85.1	79.8	81.8	80.8	81.9	0.80	2.1	2.3	82.1	0.80	2.3	2.1	12	LC
NEMZAC	75.0 L	74.7	73.3 L	80.3	75.8	-0.74	2.0	3.1	75.9	-1.32	2.0	1.7	12	EM
Q8T6Z4	83.4	84.8	83.6	83.8	83.9	1.31	2.6	0.6 L	82.6	0.99	2.8	1.9	12	LD
QLCMVR	70.7 *H	80.3	78.4	83.3	78.2	-0.14	4.7	5.4	81.5	0.60	4.2	4.6	10	MB
RAZKAU	80.5	80.5	79.9	81.0	80.5	0.44	2.3	0.4 L	81.7	0.69	2.6	1.1	12	TH
TVUNN8	76.5	78.0	55.2 XH	89.0 *H	74.7	-1.03	6.4	14.1 H	78.9	-0.28	5.8	10.8 H	12	LC
TZ44XV	75.3	77.0	75.1 L	74.7	75.5	-0.81	2.7	1.0	75.6	-1.43	2.9	0.8	12	EX
UQXJAT	77.2	81.4	84.9	80.6	81.0	0.58	2.6	3.2	81.0	0.44	2.6	3.2	4	XX
V2A9NP	81.3	80.2	82.7	82.5	81.7	0.74	2.0	1.1	81.4	0.57	2.2	0.9	12	LD
W2UA4Z	77.7	75.5	78.3	77.2	77.2	-0.39	3.7	1.2	77.5	-0.77	2.9	1.1	12	LD
WQ96WZ	78.9	72.1 H	72.3 H	71.2 H	73.6	-1.30	7.3	3.6	77.3	-0.84	5.8	5.3	12	LC
X4QC9R	80.6	80.9	80.8	80.7	80.7	0.51	2.2	0.2 L	82.9	1.10	2.3	1.7	12	LD
X8TBJK	84.4	81.5	83.8	85.8	83.9	1.31	3.1	1.8	80.9	0.42	3.4	4.4	11	XX
XXPZDU	80.5	80.6	71.0 H	81.4	78.4	-0.09	5.2	4.9	77.9	-0.63	5.1	3.7	8	LC
YNTK2V	76.5 H	78.6	81.0 H	70.6	76.7	-0.51	5.7	4.4	82.6	0.97	6.4	5.3	12	LA
YNW6QJ	63.0 XH	73.5 L	72.9	74.6	71.0	-1.96	6.3	5.4	74.3	-1.87	4.3	4.3	12	EM
ZE2NEK	82.3	81.2	76.8	82.4	80.7	0.50	2.7	2.6	82.1	0.83	2.9	1.9	12	LC
ZH2WJV	80.0	82.0	83.4	83.0	82.1	0.86	3.1	1.5	81.9	0.74	3.5	1.9	12	LZ

Consensus (All Labs) Results

Wk Mean	79.38	79.37	79.06	79.35	Month Mean	78.73	Grand Mean	79.73
Avg SDr	3.44	3.44	3.86	3.55	Avg SDr	3.81	Avg SDr	3.61
SD btwn Labs	3.70	3.77	4.48	4.66	SD btwn Labs	3.94	SD btwn Labs	2.92
Labs Incld	51	50	51	53	SD btwn Wks	3.84	SD btwn Wks	3.88
Labs Excld	3	4	2	0	Labs Incld	53	Labs Incld	52
Labs not rcvd	0	0	1	1				

Instrument Code List as Reported by the Labs

(EM) - Emerson 1200

(EN) - Emerson 2200

(EX) - Emerson (model not specified)

(LA) - L&W Autoline

(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

(TC) - TMI Monitor/Compression Tester, Model 17-37

(TD) - TMI Digital Crush Tester, Model 17-09

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

(XX) - Instrument make/model not specified by lab

Report #551

Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42D1

TAPPI Provisional Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
3EZB7H	21.6	21.8	21.4	20.8	21.4	-0.81	2.0	0.4	21.6	-0.51	2.0	0.9	16	LZ
3N2V8P	21.2 L	22.7 L	22.2 L	21.8 L	22.0	-0.24	0.0	0.6	22.4	0.30	0.0	1.0	16	LU
3XMZEP	23.8	22.8	22.0	23.3	22.9	0.69	1.2	0.8	23.1	0.96	1.4	0.8	12	LU
4EAWTP	20.9	23.5	23.9	23.3	22.9	0.61	2.1	1.4	20.5	-1.54	1.9	1.7 H	16	LY
4NV22P	20.7	21.8	19.9 *	21.0	20.8	-1.36	1.8	0.8	21.1	-0.98	1.7	0.5	16	LW
63TCAT	21.0	21.2	21.3	20.8	21.1	-1.14	1.6	0.2	21.0	-1.07	1.8	0.4	16	LY
6FGERL	22.8 L	21.7 L	23.2 L	23.3 L	22.7	0.48	0.4	0.7	22.9	0.75	0.5	0.7	16	LA
7YN4HN	23.0 L	22.1 L	23.6 L	23.2 L	23.0	0.74	0.0	0.6	23.7	1.52	0.0	1.4	16	LA
8BYWM9	23.2	23.5	26.2 X	23.2	24.0	1.73	1.7	1.5	23.4	1.23	1.9	1.0	16	TT
8EY6RJ	20.6	21.4	21.6	21.9	21.4	-0.83	1.7	0.5	21.3	-0.79	1.9	0.6	16	LY
8QRN7P	22.0	22.8	22.3	22.0	22.3	0.03	2.3	0.4	22.3	0.23	2.1	0.8	12	LW
974NFK	21.5 L	22.3 L	22.0 L	21.2 L	21.7	-0.49	0.4	0.5	21.8	-0.29	0.4	0.9	16	LA
A22348	21.9	21.2	21.6	22.2	21.7	-0.52	2.0	0.4	21.7	-0.41	2.0	0.6	16	LY
BC4M4F	22.0	21.7	21.5	22.2	21.9	-0.37	1.9	0.3	21.4	-0.65	1.7	0.5	16	LY
BWNL8P	21.9 L	22.0 L	21.9 L	23.5 L	22.3	0.09	0.4	0.8	23.2	1.03	0.5	1.2	15	BK
C2CNPE	22.9	22.5	23.4	23.5	23.1	0.80	1.0	0.5	23.1	0.95	1.0	0.7	16	LY
CGPZH9	22.9	22.5	22.8	22.6	22.7	0.42	1.0	0.2	22.7	0.62	1.0	0.4	16	TT
CKNBD9	22.5	21.8	22.5	22.0	22.2	-0.04	1.0	0.3	22.3	0.24	1.1	0.5	16	TT
CQV47H	23.0	23.2	23.7	23.0	23.2	0.96	2.1	0.3	22.9	0.77	2.0	0.4	16	XX
CWHR2N	23.1	23.0	23.0	22.6	22.9	0.69	1.6	0.2	23.1	0.96	1.8	0.3	16	LU
D3NKVJ	22.4	22.6	21.7	21.9	22.1	-0.09	1.7	0.4	21.8	-0.25	1.6	0.7	16	BK
DPZL4G	22.1	23.9	22.0	24.0	23.0	0.76	2.2	1.1	22.8	0.68	1.9	0.8	16	LW
EDZA9E	24.1	22.0	22.1	22.2	22.6	0.34	2.7	1.0	21.9	-0.15	2.3	1.2	16	LY
EG46RH	21.8	20.7	21.6	21.8	21.5	-0.76	1.9	0.5	21.1	-0.94	1.8	0.7	15	LZ
H9ENPH	23.8	24.1	24.4 *	24.8 *	24.3	1.98	2.2	0.4	24.5	2.28 *	2.2	0.6	16	LA
HDP28G	19.6 *L	22.9 L	20.1 L	18.7 XL	20.3	-1.86	0.5	1.8 H	19.9	-2.08 *	0.5	1.2	15	LW
JKQD4E	21.6	22.1	22.3	21.0	21.7	-0.50	2.0	0.6	21.1	-0.93	1.9	0.8	16	LU
JMTCE7	23.2 L	23.3 L	23.4 L	23.6 L	23.4	1.10	0.0	0.2	22.0	-0.09	1.0	1.1	16	LU
JTGYAC	24.3	23.9	24.3	23.8	24.1	1.77	2.2	0.2	23.6	1.44	2.2	0.7	16	LW
KAXHG4	23.4	24.0	26.6 X	23.4	24.4	2.06 *	2.1	1.5	23.5	1.32	2.1	1.0	16	LZ
KPQCR9	22.8	23.4	22.4	22.0	22.7	0.41	1.6	0.6	23.0	0.90	2.0	0.9	16	LU
LMJGLB	23.0	23.3 L	22.2 L	22.8 L	22.8	0.56	1.8	0.5	22.4	0.26	1.1	0.5	16	LA
LU2PA8	22.0	21.8	21.6	21.3	21.7	-0.56	1.7	0.3	21.6	-0.43	1.6	0.6	16	LW
N42W2C	21.7	21.2	22.2	21.5	21.7	-0.57	2.2	0.4	21.4	-0.66	1.9	0.6	16	LA
NDRH8B	21.3	21.5	21.9	21.3	21.5	-0.75	1.6	0.3	21.6	-0.49	1.8	0.6	16	LW

Report #551

Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42D1

TAPPI Provisional Test Method T826

WebCode	Weekly Means Week 1	Week 2	Week 3	Week 4	Monthly Results Mean	CPV	SDr	SD Wks	Cumulative Results Mean	CPV	SDr	SD Wks	Wks	Inst
Q8T6Z4	23.3	23.2	23.1	22.5	23.0	0.79	1.8	0.4	22.4	0.33	1.7	0.9	16	LA
QGHQ72	25.8 X	24.5 *	23.8	23.0	24.3	1.96	1.9	1.2	24.5	2.27 *	2.2	1.1	16	LA
QLCMVR	22.3 L	21.1 L	21.7 L	22.3 L	21.8	-0.38	0.1	0.5	21.3	-0.74	0.1	0.8	12	LA
RMNJZW	23.1	22.4	23.3	21.2	22.5	0.24	1.5	0.9	22.2	0.15	1.5	0.9	12	XX
TVUNN8	20.3 L	25.7 XL	20.5 L	19.7 *L	21.6	-0.65	0.5	2.8 H	20.9	-1.08	0.5	2.0 H	11	LW
TXZ9ET	20.7 L	20.3 L	21.3 L	21.1 L	20.8	-1.38	0.3	0.4	20.9	-1.13	0.3	0.5	16	LA
UBK9HZ	21.9	23.7	No Data	No Data	22.8	0.56	2.4	1.2	23.1	0.98	2.5	0.8	11	LU
V2A9NP	22.4	20.7	21.2	21.4	21.4	-0.80	1.5	0.7	21.5	-0.59	1.8	0.5	16	LY
WQ96WZ	19.7 *	20.6	19.5 *	19.8 *	19.9	-2.29 *	1.7	0.5	20.0	-1.96	1.7	0.5	16	XX
X8TBJK	45.6 XL	41.2 XL	44.2 XL	42.5 XL	43.4	20.61 X	0.2	1.9 H	30.4	7.90 X	0.1	10.4 H	14	XX
XXPZDU	21.7	22.2	23.0	21.5	22.1	-0.14	1.2	0.7	21.9	-0.15	1.5	0.4	12	LU
YNTK2V	20.0 L	21.7 L	21.0 L	20.2 L	20.7	-1.46	0.3	0.8	21.3	-0.79	0.4	1.3	16	LA
YW2C7J	22.1 L	21.3 L	22.2 L	21.8 L	21.9	-0.35	0.0	0.4	21.7	-0.34	0.0	1.3	16	TT
ZE2NEK	21.7	22.2	21.1	22.5	21.9	-0.36	2.0	0.6	21.9	-0.21	1.9	0.4	16	LU
ZH2WJV	21.6	20.9	20.9	21.2	21.1	-1.08	1.8	0.3	21.1	-0.94	1.9	0.5	16	LW

Consensus (All Labs) Results

	Week 1	Week 2	Week 3	Week 4					
Wk Mean	22.09	22.31	22.13	22.14	Month Mean	22.24	Grand Mean	22.09	
Avg SDr	1.68	1.59	1.49	1.69	Avg SDr	1.63	Avg SDr	1.62	
SD btwn Labs	1.12	1.04	1.12	1.13	SD btwn Labs	1.03	SD btwn Labs	1.05	
Labs Incld	48	48	46	47	SD btwn Wks	0.83	SD btwn Wks	0.87	
Labs Excld	2	2	3	2	Labs Incld	49	Labs Incld	49	
Labs not rcvd	0	0	1	1					

Instrument Code List as Reported by the Labs

(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

Report #551

Containerboard Interlaboratory Testing Program

Analysis 225

STFI, 36 lb Linerboard - 36Z3

TAPPI Provisional Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
3EZB7H	21.2	21.2	21.6	20.9	21.2	-0.35	1.7	0.3	21.8	0.51	1.5	0.9	12	LZ
3N2V8P	21.0 L	21.7 L	21.6 L	21.9 L	21.5	0.10	0.0	0.4	21.6	0.25	0.0	0.5	12	LU
3XMZEP	23.0	21.5	21.7	22.8	22.3	1.01	1.0	0.7	21.9	0.57	1.1	0.7	8	LU
4EAWTP	20.1	22.7	23.1 *	22.9	22.2	0.94	1.5	1.4	20.1	-1.69	1.5	1.8 H	12	LY
4NV22P	20.8	20.9	21.1	21.7	21.1	-0.43	1.2	0.4	21.0	-0.48	1.2	0.3	12	LW
63TCAT	20.3	21.4	20.5	19.9	20.5	-1.17	1.3	0.6	20.0	-1.75	1.2	0.7	12	LY
6FGERL	20.6 L	21.6 L	21.6 L	21.2 L	21.3	-0.27	0.3	0.5	21.4	-0.06	0.3	0.5	12	LA
7YN4HN	21.4 L	21.7 L	22.0 L	20.4 L	21.4	-0.14	0.0	0.7	21.7	0.36	0.0	0.9	11	LA
8BYWM9	22.1	22.2	22.2	22.3	22.2	0.90	1.4	0.1 L	22.0	0.73	1.4	0.4	12	TT
8EY6RJ	20.8	20.7	21.5	20.9	21.0	-0.62	1.1	0.4	20.8	-0.75	1.3	0.3	12	LY
8QRN7P	21.4	21.8	22.2	21.8	21.8	0.40	1.7	0.4	22.2	0.97	1.6	0.7	12	LW
974NFK	21.1 L	21.9 L	21.8 L	24.1 XL	22.2	0.96	0.2	1.3	21.8	0.48	0.3	1.0	11	LA
A22348	21.2	21.2	21.4	21.5	21.4	-0.14	0.9	0.1 L	21.1	-0.39	1.1	0.3	12	LY
BC4M4F	21.0	21.4	21.4	21.3	21.2	-0.28	1.3	0.2	21.1	-0.46	1.2	0.4	11	LY
BWNL8P	21.7 L	22.1 L	21.4 L	22.4 L	21.9	0.53	0.3	0.4	22.4	1.24	0.3	0.8	12	BK
C2CNPE	21.0	22.8	21.5	22.1	21.9	0.49	0.7	0.8	21.4	0.03	0.6	0.8	12	LY
CGPZH9	21.6	21.8	21.8	21.8	21.8	0.38	0.7	0.1 L	21.5	0.07	0.8	0.3	12	TT
CKNBD9	21.8	21.2	21.2	21.5	21.4	-0.03	0.8	0.3	21.0	-0.50	0.8	0.4	12	TT
CQV47H	22.5	22.1	21.7	21.6	22.0	0.64	1.2	0.4	22.3	1.10	1.3	0.4	12	XX
CWHR2N	21.9	21.6	22.0	22.0	21.9	0.51	1.3	0.2	21.8	0.48	1.2	0.7	12	LU
D3NKVJ	21.0	21.0	21.0	21.2	21.1	-0.51	1.1	0.1 L	20.8	-0.73	0.9	0.2	12	BK
DPZL4G	22.3	22.1	21.9	22.6	22.2	0.91	1.7	0.3	22.3	1.07	1.5	0.4	12	LW
EDZA9E	20.2	21.7	21.8	21.2	21.2	-0.30	1.3	0.7	21.2	-0.32	1.4	0.7	12	LY
EG46RH	20.6	20.6	21.0	21.3	20.9	-0.74	1.4	0.3	21.0	-0.59	1.2	0.3	12	LZ
H9ENPH	23.8 *	23.7 *	23.5 *	23.3 *	23.6	2.68 *	1.2	0.2	23.2	2.26 *	1.2	0.5	12	LA
HDP28G	18.8 *L	20.0	19.0 XL	30.4 X	22.0	0.70	1.1	5.6 H	21.5	0.12	1.0	4.4 H	12	LW
JKQD4E	20.0	21.0	21.3	21.6	21.0	-0.60	1.2	0.7	21.1	-0.37	1.2	0.5	12	LU
JMTCE7	21.2 L	20.9 L	20.8 L	21.5 L	21.1	-0.42	0.0	0.3	21.4	-0.01	0.8	0.7	12	LU
JTGYAC	22.3	22.9	22.9	23.1	22.8	1.68	1.4	0.3	22.7	1.63	1.6	0.3	11	LW
KAXHG4	22.1	22.5	21.7	21.8	22.0	0.68	1.3	0.3	22.5	1.32	1.4	0.6	12	LZ
KPQCR9	22.4	20.9	22.2	21.7	21.8	0.44	1.6	0.7	22.1	0.89	1.5	0.6	10	LU
LMJGLB	21.7 L	21.9 L	21.8 L	21.8 L	21.8	0.43	0.2	0.1 L	21.4	0.00	0.2	0.5	12	LA
LU2PA8	21.2	20.9	21.0	20.9	21.0	-0.61	1.4	0.1 L	21.1	-0.37	1.3	0.2	12	LW
N42W2C	20.9	21.0	21.4	21.0	21.1	-0.49	1.4	0.2	20.6	-1.04	1.2	0.5	12	LA
NDRH8B	21.2	21.8	20.9	20.9	21.2	-0.34	1.2	0.4	21.3	-0.15	1.2	0.4	12	LW

Report #551

Containerboard Interlaboratory Testing Program

Analysis 225

STFI, 36 lb Linerboard - 36Z3

TAPPI Provisional Test Method T826

WebCode	Weekly Means Week 1	Week 2	Week 3	Week 4	Monthly Results Mean	CPV	SDr	SD Wks	Cumulative Results Mean	CPV	SDr	SD Wks	Wks	Inst
Q8T6Z4	21.8	22.3	21.6	22.5	22.1	0.75	1.1	0.4	21.6	0.24	1.1	0.5	12	LA
QGHQ72	22.7	23.1	22.0	23.1	22.7	1.59	1.6	0.5	23.1	2.09 *	1.7	0.8	9	LA
QLCMVR	20.6 L	20.6 L	21.1 L	20.6 L	20.7	-0.97	0.0	0.3	20.6	-1.04	0.0	0.5	10	LA
RMNJZW	22.0	21.0	21.5	21.5	21.5	0.04	1.1	0.4	21.3	-0.20	1.1	0.5	8	XX
TVUNN8	19.5	19.3 *L	19.5 *	20.3	19.7	-2.30 *	0.7	0.5	21.6	0.29	1.1	3.6 H	8	LW
TXZ9ET	20.5 L	20.0 L	20.0 L	19.9 *L	20.1	-1.73	0.2	0.3	20.0	-1.88	0.2	0.4	12	LA
UBK9HZ	22.5	22.3	No Data	No Data	22.4	1.18	1.1	0.2	22.7	1.61	1.2	0.7	10	LU
V2A9NP	21.6	20.5	20.4	22.2	21.2	-0.35	1.3	0.9	21.0	-0.60	1.3	0.5	12	LY
WQ96WZ	18.9 *	19.8	20.2	19.9	19.7	-2.26 *	1.4	0.5	19.3	-2.70 *	1.2	0.6	12	XX
X8TBJK	32.1 XL	30.3 XL	31.4 XL	31.2 XL	31.3	12.42 X	0.1	0.7	27.1	7.27 X	0.1	5.5 H	11	XX
XXPZDU	21.1	21.2	21.5	22.0	21.4	-0.05	0.9	0.4	21.2	-0.33	0.9	0.5	8	LU
YNTK2V	19.8 L	19.9 L	19.6 *L	18.5 XL	19.4	-2.57 *	0.2	0.7	20.6	-1.08	0.3	1.1	12	LA
YW2C7J	21.8 L	21.4 L	22.1 L	21.5 L	21.7	0.31	0.0	0.3	21.4	0.00	0.0	0.5	12	TT
ZE2NEK	21.3	21.8	21.5	21.9	21.6	0.21	1.0	0.3	21.4	0.03	1.1	0.3	12	LU
ZH2WJV	20.7	20.6	20.7	21.4	20.9	-0.77	1.1	0.3	20.7	-0.86	1.2	0.4	12	LW

Consensus (All Labs) Results

	Week 1	Week 2	Week 3	Week 4					
Wk Mean	21.24	21.43	21.45	21.58	Month Mean	21.46	Grand Mean	21.42	
Avg SDr	1.15	1.07	1.16	1.10	Avg SDr	1.12	Avg SDr	1.12	
SD btwn Labs	0.99	0.90	0.78	0.83	SD btwn Labs	0.79	SD btwn Labs	0.78	
Labs Incld	49	49	47	45	SD btwn Wks	0.94	SD btwn Wks	1.02	
Labs Excld	1	1	2	4	Labs Incld	49	Labs Incld	49	
Labs not rcvd	0	0	1	1					

Instrument Code List as Reported by the Labs

(BK) - Buchel Strip Compression Tester BK-155

(LA) - L & W Autoline

(LU) - L & W 52 without moisture correction (was 53)

(LW) - L & W 53 with moisture correction (was 53M)

(LY) - L & W 152 (was 52M)

(LZ) - L & W (model not specified)

(TT) - TMI Short Span Compression, 17-34 (MB K455)

(XX) - Instrument make/model not specified by lab

Report #551

Containerboard Interlaboratory Testing Program

Analysis 228

Roughness - Stylus Method, 69 lb Linerboard - 69C

TAPPI Provisional Test Method T575

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
3EZB7H	134.4	-0.03	17.5	131.2	-0.28	13.7	4	LA
3XMZEP	130.8	-0.29	15.2	128.2	-0.53	13.7	3	EV
63TCAT	147.4	0.94	8.5	150.9	1.34	12.4	3	EV
7YN4HN	125.0	-0.72	11.1	125.7	-0.73	11.3	4	LA
8QRN7P	141.2	0.48	12.5	140.5	0.48	11.8	3	EV
974NFK	145.6	0.81	15.3	147.5	1.06	22.8	4	LA
BC4M4F	144.6	0.73	10.7	144.3	0.79	11.0	4	EV
BKU9AD	127.6	-0.53	12.0	129.5	-0.42	14.3	2	EV
BWNL8P	136.8	0.15	17.3	134.5	-0.01	14.1	3	EV
C2CNPE	111.2	-1.75	6.4	109.9	-2.03 *	7.7	4	EV
JKQD4E	136.4	0.12	15.2	140.3	0.46	14.3	4	EV
K4W7L7	118.4	-1.21	9.9	137.1	0.20	14.7	4	EV
KAXHG4	127.8	-0.52	13.6	124.3	-0.85	15.4	4	LA
LMJGLB	153.4	1.38	25.3	188.0	4.38 X	29.4	4	LA
LU2PA8	143.4	0.64	11.2	146.9	1.01	11.4	4	EV
QGHQ72	123.2	-0.86	11.7	119.5	-1.25	13.7	4	LA
QLCMVR	131.2	-0.26	14.7	138.4	0.31	18.5	4	LA
TVUNN8	146.1	0.84	8.4	147.5	1.06	11.4	4	EV
TXZ9ET	122.8	-0.89	7.8	118.3	-1.34	8.8	4	EV
X8TBJK	148.2	1.00	9.9	154.1	1.60	15.3	4	EV
XXPZDU	103.5	-2.32 *	12.6	118.1	-1.36	13.1	3	EV
YNTK2V	144.5	0.72	8.8	146.0	0.93	15.3	2	LA
ZH2WJV	155.8	1.56	9.8	129.4	-0.43	11.1	4	EV

Consensus (All Labs) Results

Month Mean	134.75	Grand Mean	134.64
Avg SDr	13.05	Avg SDr	13.78
SD btwn Labs	13.47	SD btwn Labs	12.18
Labs Incld	23	Labs Incld	22

Instrument Code List as Reported by the Labs

(EV) - Emveco Microgage Model 210-R

(LA) - L & W Autoline

Report #551

Containerboard Interlaboratory Testing Program

Analysis 231

Internal Bond, 36 lb Linerboard - 36Z

TAPPI Provisional Test Method T569

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
3XMZEP	121.4	-1.62	7.6	130.9	-1.45	9.9	3	TM
6FGERL	133.4	-1.18	5.0	140.8	-1.05	13.9	4	SC
974NFK	174.8	0.33	9.9	175.9	0.36	14.0	4	HY
BKU9AD	165.6	-0.01	3.9	163.3	-0.15	3.1	2	HY
D8YXDH	193.0	0.99	8.9	182.9	0.64	8.7	4	SC
JKQD4E	146.0	-0.72	2.8	151.4	-0.63	4.6	4	TM
JMTCE7	170.4	0.17	9.4	172.7	0.23	10.7	3	HZ
KAXHG4	138.0	-1.01	14.3	153.1	-0.56	16.8	4	TM
LU2PA8	196.2	1.11	11.3	205.3	1.53	14.6	4	HY
N42W2C	183.6	0.65	11.0	186.0	0.76	11.2	4	HY
Q8T6Z4	66.8	-3.61 X	2.7	67.8	-3.98 X	1.7	4	LZ
T8QUJQ	163.2	-0.10	1.3	161.5	-0.22	4.5	4	TM
TVUNN8	227.0	2.23 *	17.2	223.0	2.24 *	14.1	4	SC
WQ96WZ	133.0	-1.20	19.5	133.9	-1.33	17.7	4	SC
XXPZDU	158.6	-0.26	10.7	147.2	-0.79	8.4	3	TM
YNTK2V	175.0	0.33	4.5	174.3	0.29	12.0	4	TM
ZE2NEK	173.8	0.29	4.2	170.2	0.13	4.5	4	HY

Consensus (All Labs) Results

Month Mean	165.81	Grand Mean	167.02
Avg SDr	10.17	Avg SDr	11.45
SD btwn Labs	27.45	SD btwn Labs	24.96
Labs Incld	16	Labs Incld	16

Instrument Code List as Reported by the Labs

(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

Report #551

Containerboard Interlaboratory Testing Program

Analysis 234

COF Inclined Plane (Slide Angle), 36 lb Linerboard - 36Z

TAPPI Official Test Method T815

	Monthly Results			Cumulative Results			
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months
3XMZEP	27.0	-0.04	0.9	25.7	-1.03	1.7	3
63TCAT	22.0	-2.28 *	1.9	24.4	-1.74	1.3	4
6FGERL	29.6	1.12	1.1	29.7	1.24	1.2	4
8QRN7P	25.4	-0.75	1.1	25.8	-0.95	1.3	3
974NFK	28.0	0.43	1.1	28.5	0.59	1.3	4
BC4M4F	30.2	1.39	1.9	29.0	0.84	1.5	3
DPZL4G	24.8	-1.02	2.0	28.8	0.73	3.0	4
F32WN9	26.8	-0.13	1.8	29.0	0.84	2.3	4
JKQD4E	28.0	0.41	3.7	29.3	1.01	2.2	4
KAXHG4	25.0	-0.93	1.6	25.8	-0.95	2.6	4
LU2PA8	27.2	0.05	1.9	27.5	0.00	2.6	4
PGNLC3	28.3	0.54	2.2	28.6	0.62	3.1	3
Q8T6Z4	29.6	1.12	1.1	29.3	0.98	1.3	4
RMNJZW	27.4	0.14	1.7	27.1	-0.24	1.9	3
TVUNN8	26.2	-0.39	1.3	24.9	-1.49	1.3	4
UBK9HZ	31.0	1.74	2.0	28.4	0.48	2.3	4
XXPZDU	25.8	-0.57	0.8	25.7	-1.01	1.0	3
YNTK2V	35.2	3.61 X	2.4	29.5	1.12	2.9	4
ZE2NEK	25.2	-0.84	0.8	25.7	-1.04	1.4	4

Consensus (All Labs) Results

Month Mean	27.08	Grand Mean	27.50
Avg SDr	1.75	Avg SDr	2.01
SD btwn Labs	2.25	SD btwn Labs	1.78
Labs Incld	18	Labs Incld	19

Instrument Code List as Reported by the Labs

(ZZ) - Instruments No Longer Tracked

Report #551

Containerboard Interlaboratory Testing Program

Analysis 237

Air Resistance, 36 lb Linerboard - 36Z

TAPPI Official Test Method T460

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
3XMZEP	43.4	-2.08 *	1.6	43.9	-3.99 X	1.7	3	XX
7YN4HN	51.0	0.11	1.5	52.7	1.00	2.4	4	TL
974NFK	50.8	0.06	1.7	51.2	0.14	1.8	4	LA
BB942D	53.4	0.81	2.1	52.3	0.77	2.8	4	XX
BC4M4F	50.3	-0.10	1.2	51.4	0.30	1.8	4	LP
BWNL8P	54.6	1.15	2.3	54.4	1.99	1.7	3	XX
D8YXDH	51.2	0.17	1.6	50.8	-0.08	1.3	4	LP
DPZL4G	50.7	0.03	1.9	50.7	-0.12	2.1	4	LP
EMQVED	53.7	0.89	1.5	52.6	0.93	2.0	4	XX
KAXHG4	47.2	-0.98	2.4	47.8	-1.77	2.8	4	XX
LMJGLB	53.0	0.70	2.6	50.9	-0.03	2.1	4	LA
LU2PA8	52.1	0.45	1.4	52.2	0.72	1.7	4	LP
PGNLC3	52.4	0.51	1.7	51.1	0.08	2.3	3	GA
Q8T6Z4	53.7	0.90	2.5	46.6	-2.45 *	2.1	4	LA
RMNJZW	42.3	-2.39 *	1.6	42.4	-4.87 X	2.0	3	XX
TVUNN8	53.8	0.93	1.6	51.7	0.46	2.4	4	HG
UQXJAT	52.4	0.52	3.7	51.2	0.16	3.2	2	GG
UZY4AZ	47.9	-0.79	1.2	48.2	-1.57	1.8	4	LA
V2A9NP	50.0	-0.17	1.3	50.0	-0.51	1.2	4	LP
X8TBJK	53.1	0.73	6.8	50.5	-0.27	4.3	4	LW
XXPZDU	43.8	-1.96	2.0	50.6	-0.17	1.9	3	LA
YNTK2V	50.7	0.02	1.9	50.3	-0.36	2.9	4	LP
ZE2NEK	52.3	0.50	2.8	52.3	0.77	2.4	4	TP

Consensus (All Labs) Results

Month Mean	50.60	Grand Mean	50.92
Avg SDr	2.42	Avg SDr	2.34
SD btwn Labs	3.46	SD btwn Labs	1.75
Labs Incld	23	Labs Incld	21

Report #551

Containerboard Interlaboratory Testing Program

Analysis 237

Air Resistance, 36 lb Linerboard - 36Z

TAPPI Official Test Method T460

Instrument Code List as Reported by the Labs

(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

(TL) - Teledyne Gurley Densometer #4110, Oil Flotation

(TP) - Technidyne Profile/ plus Roughness & Porosity

(XX) - Instrument make/model not specified by lab

Report #551

Containerboard Interlaboratory Testing Program

Analysis 240

Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM73

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
28JFQN	61.7	61.2 H	64.8 H	65.0	63.2	0.62	4.4	2.0	64.8	1.52	4.5	2.5	12	MB
3EZB7H	59.9	63.0	63.9	60.7	61.9	-0.10	2.7	1.9	61.5	-0.15	2.7	1.6	16	LD
3PBZKE	57.0 *	54.5 X	55.2 X	55.7 *	55.6	-3.60 X	2.6	1.1	57.6	-2.13 *	3.3	2.3	12	TH
3XRGCN	63.0	62.7	60.1	63.1	62.2	0.09	3.4	1.4	62.2	0.21	3.4	1.4	4	LZ
4EAWTP	65.1	60.8	62.2	60.0	62.0	-0.03	2.6	2.2	61.9	0.07	4.0	1.5	16	LD
6KQRAJ	60.2	63.9	61.2	61.8	61.8	-0.17	2.4	1.6	62.6	0.39	2.4	1.8	16	LC
7UWWXU	61.2	61.6	60.3	59.3	60.6	-0.80	2.6	1.0	61.6	-0.11	2.7	1.2	16	LD
8BYWM9	56.5 *	55.1 X	56.2 X	55.7 *	55.9	-3.44 X	3.0	0.6	56.9	-2.49 *	4.9	3.2	16	TH
9U8HLL	62.7	63.0 L	62.8	63.0	62.9	0.46	1.7	0.1 L	62.8	0.51	1.8	0.3 L	15	LD
AKY3FE	60.0	62.2	63.5	62.7	62.1	0.02	2.0	1.5	60.8	-0.51	2.2	2.2	14	LZ
BC4M4F	62.6	60.5	63.1	59.0	61.3	-0.43	3.2	1.9	60.7	-0.56	2.9	1.8	16	LZ
BWNL8P	60.5	59.6	60.8	58.6 H	59.9	-1.22	3.7	1.0	63.9	1.07	3.7	2.9	16	MB
CGPZH9	60.3	59.6	60.6 H	59.2	59.9	-1.19	4.5	0.6	60.6	-0.60	4.7	1.0	16	TG
CKNBD9	60.9 L	62.4	62.9	63.3	62.4	0.17	2.8	1.0	62.1	0.17	2.7	1.0	16	TH
CQV47H	62.7	58.9	60.8	60.6	60.8	-0.73	3.3	1.6	61.5	-0.16	3.3	1.7	16	LD
CWHR2N	62.9	61.9	61.3	62.2	62.0	-0.01	2.0	0.7	62.1	0.14	2.0	0.7	16	LD
DLFTTE	21.9 X	52.2 XH	22.4 X	16.3 X	28.2	-18.87 X	3.7	16.3 H	25.1	-18.45 X	4.3	11.8 H	8	TX
DPZL4G	61.1	65.1	62.9	66.9	64.0	1.08	3.3	2.5	62.3	0.23	3.1	1.8	16	LC
EG46RH	59.5	67.7 *	59.0	58.2	61.1	-0.54	2.6	4.4 H	62.4	0.29	2.9	3.6 H	15	LZ
EMQVED	61.8	61.5	60.1	62.7	61.5	-0.30	2.4	1.1	61.7	-0.05	2.7	1.1	16	LD
H9ENPH	59.8	59.3	60.7	58.0	59.4	-1.47	3.2	1.1	58.5	-1.67	3.2	1.6	16	LD
JKQD4E	60.1	60.0	59.9	58.7 L	59.7	-1.33	2.1	0.7	59.1	-1.35	2.4	0.7	16	LD
JMTCE7	66.4 *	64.2	67.4 X	66.6	66.2	2.28 *	3.6	1.4	69.2	3.74 X	4.2	3.4 H	16	LC
JTGYAC	62.0 H	64.1	63.2	64.8	63.5	0.81	3.9	1.2	62.0	0.11	3.6	2.1	16	LC
JYKXK2	61.4	63.1	62.4	62.1	62.3	0.11	2.2	0.7	62.5	0.36	3.2	1.3	12	LC
K6QQEX	61.7	62.3	60.4	59.7	61.0	-0.58	2.1	1.1	61.4	-0.21	2.1	1.1	12	TD
K9Q3BX	62.0	62.2	61.2	60.9	61.6	-0.27	2.8	0.6	62.2	0.20	2.8	0.8	16	LD
KJN3M2	63.8	62.5	61.6	63.8 L	62.9	0.49	1.9	1.1	63.6	0.88	1.4	1.5	16	TD
KKKJXD	61.9	62.5	61.5	62.1	62.0	-0.03	2.7	0.4	62.0	0.11	2.7	0.4	16	LD
LBRMB3	70.9 XH	70.7 X	68.6 X	66.7	69.2	3.97 X	3.8	2.0	65.5	1.87	6.2	4.4 H	16	LC
ME8GRZ	64.6	67.3 *	64.5	67.3	65.9	2.16 *	3.2	1.6	63.7	0.95	3.6	2.9	12	XX
N42W2C	59.6	59.0 L	59.6	59.3	59.4	-1.50	1.8	0.3 L	60.4	-0.72	2.4	2.0	16	LC
NDRH8B	65.2	65.6	70.3 X	64.1	66.3	2.35 *	2.6	2.7	65.9	2.04 *	2.6	3.3	16	LC
NEMZAC	62.2	61.5	64.4	64.2	63.0	0.55	2.9	1.4	64.3	1.24	2.9	1.8	16	EM
PJQJMV	65.3	64.5	64.7	63.2	64.4	1.32	2.6	0.9	65.3	1.75	3.0	1.1	16	TM

Report #551

Containerboard Interlaboratory Testing Program

Analysis 240

Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM73

TAPPI Official Test Method T809

WebCode	Weekly Means Week 1	Week 2	Week 3	Week 4	Monthly Results Mean	CPV	SDr	SD Wks	Cumulative Results Mean	CPV	SDr	SD Wks	Wks	Inst
Q8T6Z4	69.4 X	60.6	64.2	64.7	64.7	1.48	3.7	3.6	61.3	-0.26	2.9	3.5 H	16	LD
QLCMVR	No Data	59.3	65.6 *	55.7 *	60.2	-1.05	2.9	5.0 H	59.3	-1.26	3.0	3.7 H	11	MB
QWGFM8	70.5 X	61.2	60.3	63.2	63.8	0.97	2.2	4.6 H	61.4	-0.23	2.5	2.7	16	LC
RBV3BV	61.3	61.0	61.7	62.7	61.7	-0.21	2.0	0.7	61.7	-0.05	1.8	0.4	13	LC
UBK9HZ	61.1	63.4	63.5	No Data	62.7	0.34	3.4	1.4	61.9	0.04	2.9	1.4	15	LD
UZY4AZ	60.3	65.2	64.3	63.2	63.3	0.66	2.5	2.1	63.7	0.97	3.4	2.3	16	LC
WQ96WZ	58.5	60.2	60.1	58.1	59.2	-1.57	2.8	1.1	60.8	-0.52	3.2	1.9	16	LC
WR4NY2	62.2	62.6	61.9	61.6	62.1	0.01	2.8	0.4	62.0	0.07	2.5	0.3 L	16	LC
X4QC9R	62.7	62.1	61.9	61.9	62.1	0.03	2.5	0.4	62.5	0.35	2.9	0.4	16	LD
X8TBJK	No Data	58.1	61.4	57.9 H	59.1	-1.63	4.0	1.9	57.2	-2.30 *	6.1	3.6 H	13	XX
XJJ8JW	61.3	60.4	59.4	60.7	60.5	-0.89	2.5	0.8	60.7	-0.54	2.4	1.2	16	EM
XXPZDU	58.4	61.1	61.0	64.6	61.3	-0.44	3.4	2.5	60.5	-0.65	3.8	2.1	12	LC
YRTVWV	64.6	62.6	64.7	64.4	64.1	1.11	3.1	1.0	64.4	1.30	2.9	0.8	16	LD
ZE2NEK	62.3	60.1	60.8	60.4	60.9	-0.64	3.3	1.0	61.2	-0.32	3.2	1.2	16	LC

Consensus (All Labs) Results

Wk Mean	61.58	62.04	61.97	61.66	Month Mean	62.06	Grand Mean	61.80
Avg SDr	2.65	2.98	3.01	2.98	Avg SDr	2.93	Avg SDr	3.24
SD btwn Labs	2.12	2.14	1.74	2.96	SD btwn Labs	1.79	SD btwn Labs	1.99
Labs Incld	43	45	43	47	SD btwn Wks	1.88	SD btwn Wks	2.05
Labs Excld	4	4	6	1	Labs Incld	45	Labs Incld	47
Labs not rcvd	2	0	0	1				

Instrument Code List as Reported by the Labs

(EM) - Emerson 1200 Series

(LD) - L&W Crush Tester 248

(MB) - Messmer Buchel K440

(TG) - TMI Compression Tester, Model 17-10

(TM) - TMI/Hinde & Dauch

(XX) - Instrument make/model not specified by lab

(LC) - L & W Crush Tester 48

(LZ) - L & W Crush Tester (model not specified)

(TD) - TMI Digital Crush Tester, Model 17-09

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

(TX) - TMI Crush Tester (model not specified)

Report #551

Containerboard Interlaboratory Testing Program

Analysis 250

Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium - CM73

TAPPI Official Method T824

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
28JFQN	61.5 L	64.0 *	65.8	62.4 X	63.4	-2.29 *	2.2	1.9	64.8	-2.32 *	3.0	1.8	12	MB
9U8HLL	72.6 L	73.5	73.0	72.2	72.8	-0.11	2.1	0.6	73.0	-0.03	1.9	0.4 L	15	LD
BB942D	74.2 L	74.2	73.3	73.4	73.8	0.12	1.4	0.5 L	73.9	0.23	1.3	0.6	16	XX
CWHR2N	72.7 L	71.1	71.2	72.0	71.8	-0.36	1.7	0.8	71.7	-0.41	1.7	0.7	16	LD
DPZL4G	77.8	80.3	75.6	73.9	76.9	0.84	2.5	2.8	74.0	0.25	2.5	2.5	16	XX
EG46RH	75.4	70.8	79.2	75.4	75.2	0.44	2.5	3.4	74.2	0.29	4.2	4.0	15	LZ
JYKXK2	77.1	77.8	78.5	75.6	77.3	0.93	2.1	1.3	77.1	1.12	2.0	2.0	12	LC
KJN3M2	72.4	73.4	74.7	74.5	73.8	0.11	1.8	1.1	74.0	0.25	1.4	2.0	16	TD
ME8GRZ	63.3 H	73.5	66.5	66.3 XH	67.4	-1.37	5.1	4.3	67.9	-1.47	4.6	4.9 H	16	TU
NDRH8B	77.2	73.1	65.8	73.3	72.4	-0.22	2.6	4.7	73.6	0.15	2.7	3.3	16	LC
Q8T6Z4	76.0	80.7	76.1	76.3	77.3	0.93	1.7	2.3	75.4	0.63	2.2	1.8	16	LD
QWGFM8	61.3	75.4	73.0	76.5	71.6	-0.40	2.7	7.0 H	72.4	-0.21	3.0	3.8	16	LZ
ZE2NEK	79.8	80.2	77.7	79.0 *	79.1	1.36	2.4	1.1	78.5	1.52	2.6	1.5	16	LC

Consensus (All Labs) Results

Wk Mean	72.41	74.47	73.10	74.74	Month Mean	73.28	Grand Mean	73.11
Avg SDr	2.99	1.99	2.62	2.27	Avg SDr	2.53	Avg SDr	2.73
SD btwn Labs	6.31	4.63	4.64	2.07	SD btwn Labs	4.30	SD btwn Labs	3.57
Labs Incld	13	13	13	11	SD btwn Wks	3.08	SD btwn Wks	2.62
Labs Excld	0	0	0	2	Labs Incld	13	Labs Incld	13
Labs not rcvd	0	0	0	0				

Instrument Code List as Reported by the Labs

(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

(TU) - TMI Universal Crush Tester (TMI K440)

(XX) - Instrument make/model not specified by lab

Report #551

Containerboard Interlaboratory Testing Program

Analysis 255

Ring Crush (RCT), 26 lb Corrugating Medium - CM73

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
28JFQN	37.6	38.2 *	35.2 *	35.6 *	36.6	-2.10 *	2.2	1.5	36.8	-2.17 *	2.4	1.5	12	MB
3EZB7H	44.7	44.4	44.9	44.9	44.7	0.46	2.1	0.3	41.7	-0.52	2.1	2.9	16	LD
3PBZKE	36.3 *	35.2 X	33.7 *	37.6	35.7	-2.40 *	2.2	1.6	37.4	-1.98	2.6	1.7	12	TH
6KQRAJ	40.0	39.6	40.5	40.0	40.0	-1.03	2.0	0.4	40.8	-0.81	1.8	0.9	16	LC
7UWWXU	42.8	43.9	43.1	44.0	43.5	0.05	2.5	0.6	45.5	0.77	3.1	1.9	16	LZ
D9TJ79	46.4 L	45.5	44.2 L	45.6 L	45.4	0.67	1.0	0.9	44.9	0.57	1.1	1.1	16	WK
DLFTTE	30.6 X	27.6 X	37.6	35.1 *H	32.7	-3.34 X	4.6	4.5 H	33.0	-3.47 X	4.7	3.3 H	8	TX
DPZL4G	41.3	41.2	42.8	40.7	41.5	-0.57	2.3	0.9	40.5	-0.93	2.5	2.0	16	LC
EMQVED	42.0	41.1	39.7	42.9	41.4	-0.59	3.5	1.4	42.0	-0.41	3.9	1.0	16	LD
FGXBN3	43.9	43.3	41.7	41.1	42.5	-0.24	2.4	1.3	41.8	-0.49	2.6	1.7	16	LZ
JMTCE7	41.8	43.8	43.6	43.1	43.1	-0.07	2.6	0.9	46.1	0.94	3.0	4.7 H	16	LD
K9Q3BX	47.1	48.0	47.2	47.4	47.4	1.30	1.8	0.4	47.8	1.53	2.1	0.6	16	LD
PJQJMV	46.1	45.1	45.5	45.5	45.5	0.71	2.5	0.4	42.3	-0.33	2.3	2.7	16	LD
Q8T6Z4	44.3	44.6	44.5	44.0	44.3	0.33	3.1	0.3	43.9	0.23	2.7	1.3	16	LD
RAZKAU	42.1	43.0	43.1	43.2	42.8	-0.14	3.0	0.5	43.2	-0.01	2.2	0.6	16	TH
RBV3BV	45.6	46.1	44.5	45.9 L	45.5	0.70	1.2	0.7	45.7	0.84	1.3	0.4	13	LC
UZY4AZ	46.9	46.6	45.2	47.0	46.4	1.00	2.4	0.8	47.1	1.31	2.5	1.1	16	LD
X4QC9R	42.8	43.0	42.7	42.8	42.8	-0.14	2.6	0.1 L	44.1	0.28	2.1	0.9	16	LD
X8TBJK	48.0	46.7	46.9	49.2	47.7	1.41	2.7	1.2	45.4	0.71	2.7	2.9	15	XX
XJJ8JW	41.1	40.3	40.4	42.6	41.1	-0.69	1.9	1.1	40.7	-0.86	1.8	0.8	16	LC
YRTVWV	46.2	46.1	46.1	46.5	46.2	0.93	1.9	0.2 L	46.2	0.99	2.3	0.6	16	LD
ZE2NEK	45.0	44.7	43.6	45.0	44.6	0.41	3.0	0.7	44.3	0.35	3.0	0.7	16	LC

Consensus (All Labs) Results

Wk Mean	43.43	43.75	42.58	43.16	Month Mean	43.29	Grand Mean	43.26
Avg SDr	2.37	2.34	2.54	2.86	Avg SDr	2.40	Avg SDr	2.46
SD btwn Labs	3.11	2.59	3.53	3.66	SD btwn Labs	3.16	SD btwn Labs	2.96
Labs Incld	21	20	22	22	SD btwn Wks	0.88	SD btwn Wks	1.84
Labs Excld	1	2	0	0	Labs Incld	21	Labs Incld	21
Labs not rcvd	0	0	0	0				

Report #551

Containerboard Interlaboratory Testing Program

Analysis 255

Ring Crush (RCT), 26 lb Corrugating Medium - CM73

TAPPI Official Test Method T822

Instrument Code List as Reported by the Labs

(LC) - L & W Crush Tester 48

(LD) - L&W Crush Tester 248

(LZ) - L & W Crush Tester (model not specified)

(MB) - Messmer Buchel K440

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

(TX) - TMI Digital Crush Tester (model not specified)

(WK) - Zwick Z005 Crush Tester

(XX) - Instrument make/model not specified by lab

Report #551

Containerboard Interlaboratory Testing Program

Analysis 261

STFI, 26 lb Corrugating Medium - CM73

TAPPI Provisional Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
3EZB7H	14.8	14.7	15.0	15.7	15.0	0.20	1.3	0.4	15.1	0.32	1.3	0.7	16	LZ
3XRGCN	16.4 *	14.3	14.7	14.2	14.9	0.01	1.1	1.0 H	14.9	-0.08	1.1	1.0 H	4	LA
8BYWM9	15.9	15.9	16.3 *	15.9	16.0	1.69	1.4	0.2	15.6	1.19	1.3	0.3	16	TT
9U8HLL	14.4	14.3	13.7	12.7 X	13.8	-1.72	0.8	0.8	14.3	-1.27	0.8	0.5	15	LA
AKY3FE	14.9	15.2	15.0	15.5	15.1	0.34	1.3	0.2	14.8	-0.29	1.2	0.3	14	LW
BC4M4F	14.7	14.6	14.6	14.1	14.5	-0.60	1.2	0.3	14.6	-0.59	1.1	0.3	16	LB
BWNL8P	15.1 L	14.2 L	14.8 L	15.2 L	14.8	-0.11	0.2	0.4	15.4	0.80	0.2	0.6	15	BK
CKNBD9	14.9	14.6	14.9	15.2	14.9	-0.04	0.8	0.2	14.9	0.01	0.8	0.2	16	TT
DLFTTE	14.7 L	14.8 L	14.6 L	15.1 L	14.8	-0.16	0.0	0.2	14.7	-0.39	0.0	0.2	8	XX
EDZA9E	15.2	14.6	15.5	15.4	15.2	0.41	1.6	0.4	14.9	-0.15	1.4	0.8 H	16	LB
FGXBN3	14.4	13.6	15.0	13.9	14.3	-0.99	1.2	0.6	14.4	-1.05	1.1	0.6	16	LA
JTGYAC	15.4	16.2	15.5	15.7	15.7	1.24	1.2	0.3	15.5	1.08	1.1	0.3	16	LW
K9Q3BX	15.7	15.3	15.2	15.2	15.4	0.70	1.0	0.2	15.3	0.68	1.1	0.2	16	LA
KKKJXD	14.7	14.9	15.4	15.1	15.0	0.19	1.1	0.3	15.1	0.22	1.2	0.2	16	LB
PJQJMV	15.2	15.0	15.0	15.0	15.1	0.24	1.5	0.1	15.3	0.74	1.5	0.3	16	LA
Q8T6Z4	14.5	15.4	15.2	15.0	15.0	0.22	1.0	0.4	15.1	0.21	1.1	0.4	16	LA
QLCMVR	13.1 *L	13.7 L	13.7 L	14.3 L	13.7	-1.82	0.0	0.5	13.9	-1.85	0.0	0.5	12	LA
RBV3BV	15.1	15.2	16.0	15.6	15.5	0.91	0.7	0.4	15.4	0.90	0.7	0.3	13	XX
UBK9HZ	13.4 *	12.7 X	13.7	No Data	13.3	-2.49 *	1.1	0.5	13.6	-2.53 *	1.1	0.7	15	LU
UZY4AZ	15.4 L	15.8 L	15.8 L	16.1 L	15.8	1.31	0.0	0.3	15.9	1.81	0.0	0.3	16	LA
WR4NY2	14.9	15.1	15.0	14.5	14.9	-0.06	1.2	0.2	15.0	0.04	1.2	0.2	16	LB
X8TBJK	25.1 XL	23.2 XL	22.5 XL	23.8 XL	23.6	13.32 X	0.1	1.1 H	18.5	6.58 X	0.1	4.4 H	15	XX
XJJ8JW	15.1	15.0	14.4	15.1	14.9	-0.01	1.0	0.3	14.8	-0.30	1.1	0.3	16	LB
ZE2NEK	15.0	15.7	14.7	15.7	15.3	0.55	1.2	0.5	15.2	0.48	1.1	0.3	16	LU

Consensus (All Labs) Results

Wk Mean	14.91	14.92	14.94	15.12	Month Mean	14.90	Grand Mean	14.94
Avg SDr	1.04	1.11	1.05	1.04	Avg SDr	1.06	Avg SDr	1.04
SD btwn Labs	0.71	0.66	0.68	0.61	SD btwn Labs	0.66	SD btwn Labs	0.54
Labs Incld	23	22	23	21	SD btwn Wks	0.44	SD btwn Wks	0.47
Labs Excld	1	2	1	2	Labs Incld	23	Labs Incld	23
Labs not rcvd	0	0	0	1				

Report #551

Containerboard Interlaboratory Testing Program

Analysis 261

STFI, 26 lb Corrugating Medium - CM73

TAPPI Provisional Test Method T826

Instrument Code List as Reported by the Labs

(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)

(TT) - TMI Short Span Compression, 17-34 (MB K455)

(XX) - Instrument make/model not specified by lab