Collaborative Testing Services, Inc.

Containerboard Interlaboratory Testing Program

Participant Summary Report #550 (H) - July 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
206	69C2	Mullen Burst of Linerboard, 69 lb Linerboard
215	42D1	Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard
216	69C2	Ring Crush of Linerboard, Rigid Platen Type, 69 lb Linerboard
223	42D1	STFI of Linerboard, 42 lb Linerboard
224	69C2	STFI of Linerboard, 69 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.

For further information, contact:
Collaborative Testing Services, Inc
21331 Gentry Drive
Sterling, VA 20166 USA
Voice: 571-434-1925
Fax: 571-434-1937
containerboard@cts-interlab.com

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
26PQ4M	848.0	0.32	54.3	804.4	-0.53	51.2	4	ES
3L98KN	840.2	0.21	32.4	826.0	-0.15	33.5	4	LG
89MBK2	678.0	-2.18 *	15.6	782.4	-0.91	46.1	3	LH
8BCG6X	841.7	0.23	73.1	839.2	0.07	66.1	4	ER
AMZK39	832.9	0.10	10.6	859.4	0.42	65.2	4	LS
BY7V8A	963.0	2.02 *	34.0	927.8	1.61	51.8	4	EX
G6X2EY	845.0	0.28	62.6	895.5	1.05	48.1	4	LH
KAG9N3	813.8	-0.18	70.0	845.0	0.18	68.5	4	ER
KX8PTT	825.8	0.00	60.9	812.3	-0.39	50.3	4	LM
KYGP2G	937.3	1.64	33.1	893.1	1.01	30.9	4	TE
MEQ79U	755.2	-1.04	41.7	737.8	-1.68	44.5	4	LG
NCPYU8	808.8	-0.25	39.4	792.8	-0.73	36.0	4	ET
PGJ72M	896.1	1.03	43.5	906.8	1.24	41.1	4	ER
RZ32FD	839.9	0.20	65.6	846.1	0.19	73.9	4	EX
TLN9DT	777.8	-0.71	49.8	797.3	-0.65	60.6	4	ER
U2BVB6	892.8	0.98	32.0	934.3	1.72	27.6	4	TB
U6DPE2	753.8	-1.06	16.6	778.4	-0.98	33.8	4	LM
VF8A9D	785.4	-0.60	38.8	841.5	0.12	44.3	4	LG
WYE8TK	759.2	-0.98	45.6	742.0	-1.60	43.0	3	LL

Consensus (All Labs) Results

Month Mean	826.03	Grand Mean	834.84
Avg SDr	46.65	Avg SDr	50.00
SD btwn Labs	67.93	SD btwn Labs	57.90
Labs Incld	19	Labs Incld	19

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	806.45	36.43	19.58	5
Clip sealing	806.29	59.97	19.73	11
Tape sealing	931.03	35.52	105.00	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

(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

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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
3L98KN	58.0	0.34	2.0	59.8	1.45	3.9	4	WK
8BCG6X	58.7	0.70	2.1	58.3	0.48	2.2	4	EN
AMZK39	59.5	1.15	2.0	58.4	0.53	2.1	4	LC
BVBUE8	55.4	-1.05	6.1	56.4	-0.70	4.9	2	TM
FMGRPQ	54.7	-1.40	1.4	54.6	-1.87	2.4	2	LC
G6X2EY	57.2	-0.09	2.3	56.7	-0.51	1.9	4	TC
J6PTDA	55.0	-1.28	4.1	56.7	-0.53	2.8	4	XX
JCNDEJ	58.8	0.76	0.8	57.9	0.26	0.9	4	WK
MC2YNX	59.0	0.89	1.7	58.9	0.88	1.5	3	TB

Consensus (All Labs) Results

Month Mean	57.36	Grand Mean	57.51
Avg SDr	2.94	Avg SDr	2.76
SD btwn Labs	1.87	SD btwn Labs	1.58
Labs Incld	9	Labs Incld	9

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

(TM) - TMI/Hinde & Dausch

(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
26PQ4M	59.9	0.19	1.2	58.4	-0.43	3.9	4	LD
3L98KN	60.5	0.41	7.6	63.1	1.53	4.4	4	WK
44ACNC	55.7	-1.42	1.5	58.8	-0.24	3.4	4	TD
66X8NP	60.6	0.44	3.0	60.9	0.61	2.8	4	LD
7A3A4Q	60.0	0.23	0.9	63.5	1.70	1.9	4	TX
89MBK2	56.7	-1.03	2.6	55.9	-1.47	3.7	3	EM
8BCG6X	60.2	0.31	2.0	60.4	0.42	2.0	4	EN
9KJP86	59.5	0.03	2.7	59.1	-0.14	2.7	4	TB
A46PQK	63.1	1.39	1.8	63.2	1.55	1.8	4	LD
AMZK39	60.9	0.55	3.0	59.6	0.09	2.4	4	LC
BVBUE8	60.4	0.38	3.0	59.6	0.08	2.2	4	TM
BWGNLR	60.2	0.28	1.0	62.6	1.31	1.2	4	LC
BY7V8A	61.0	0.60	2.0	59.7	0.14	2.3	4	CT
CQT2T8	58.8	-0.23	1.5	58.5	-0.39	1.8	4	TG
FMGRPQ	60.0	0.22	1.4	60.8	0.59	1.6	2	LC
FQKBZ7	62.6	1.21	2.4	82.2	9.44 X	5.8	3	LC
G6X2EY	61.0	0.61	1.1	61.1	0.69	1.0	4	TC
KAG9N3	58.9	-0.19	2.1	57.8	-0.67	3.6	4	EN
KU7PRV	64.5	1.93	1.3	63.5	1.68	2.4	3	TK
KX8PTT	56.0	-1.29	2.7	57.1	-0.94	1.9	4	TC
MC2YNX	58.3	-0.43	0.9	58.6	-0.35	0.9	3	TG
MGT4H2	59.1	-0.12	2.8	59.8	0.15	3.1	4	LD
NCPYU8	65.1	2.15 *	1.4	64.3	2.02 *	1.4	3	TD
PGJ72M	58.4	-0.38	1.5	56.6	-1.17	1.8	4	EM
Q68ZNY	54.2	-1.97	2.9	57.7	-0.71	2.7	4	LC
RZ32FD	52.5	-2.63 *	2.2	55.9	-1.46	1.7	4	TL
TLN9DT	60.1	0.26	1.8	59.7	0.10	2.1	4	LD
U2BVB6	62.0	0.98	1.0	61.2	0.73	1.1	4	LC
U4JYAM	59.9	0.18	2.3	59.8	0.17	2.1	4	LC
U6DPE2	58.1	-0.51	1.6	56.9	-1.07	1.4	4	EM
VF8A9D	49.6	-3.74 X	4.9	54.8	-1.92	4.1	4	EM
WPA7AL	57.5	-0.73	1.5	57.6	-0.75	1.7	3	EX
WYE8TK	57.0	-0.91	3.2	58.0	-0.59	3.2	3	LC
XMLYM4	57.3	-0.80	1.6	57.2	-0.91	1.6	3	TB
ZG4B4H	60.2	0.31	2.4	58.5	-0.36	2.9	4	LD

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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	59.41	Grand Mean	59.42
Avg SDr	2.42	Avg SDr	2.50
SD btwn Labs	2.63	SD btwn Labs	2.41
Labs Incld	34	Labs Incld	34

Instrument Code List as Reported by the Labs

(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

(TX) - TMI (model not specified)

(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
26PQ4M	110.0	108.7	114.8	106.6	110.0	0.46	10.1	3.5	110.2	0.35	11.7	3.3	16	LA
2GJ8TN	104.4	108.3 L	105.8	107.1	106.4	-0.76	7.9	1.7	107.4	-0.51	8.8	2.4	15	LC
2PW7CZ	118.8 *	122.8 X	123.2 X	115.8 L	120.2	3.87 X	7.6	3.5	117.7	2.67 *	8.1	8.4 H	16	RE
2ZKVKM	104.9	107.3	105.8	104.4	105.6	-1.02	10.4	1.2	103.4	-1.73	10.7	3.9	16	LC
3L98KN	115.4	111.7	107.5	111.7	111.6	0.99	11.3	3.2	113.2	1.29	12.2	2.4	16	LZ
424NAL	107.6	155.9 X	109.2	108.5	120.3	3.92 X	12.8	23.8 H	116.0	2.15 *	12.6	11.3 H	16	TB
4ELK4P	125.8 X	124.6 X	123.5 XL	125.9 XL	125.0	5.48 X	5.3	1.1	124.0	4.60 X	6.2	2.3	16	AH
4TAL6P	105.3	114.2	107.5	111.7	109.7	0.35	12.4	4.0	107.5	-0.47	10.6	5.1	16	LA
66X8NP	103.4	104.3	103.0	105.3	104.0	-1.57	10.3	1.0	103.9	-1.58	8.2	2.3	16	LA
6KN6QK	106.6	110.5	105.6	109.8	108.1	-0.18	10.3	2.4	104.9	-1.29	11.4	3.8	16	LC
7NNFLK	108.3	110.0	110.5	111.7	110.1	0.50	9.9	1.4	111.0	0.59	11.1	3.4	16	LA
8JUZAH	105.6	111.0	117.9 *	112.1	111.7	1.01	12.1	5.0	112.5	1.07	11.3	2.9	15	LA
9KJP86	101.3	105.5	103.7	105.6	104.0	-1.55	8.6	2.0	106.9	-0.67	11.1	3.9	16	LA
9LDFDJ	110.0	112.3	110.9	110.1	110.8	0.73	10.9	1.1	112.9	1.17	9.7	2.6	16	LC
9Q8AD6	112.0	112.6	104.4	104.8	108.4	-0.07	10.6	4.5	110.6	0.48	10.4	3.7	16	LC
9YXW7M	112.8 L	111.6 L	112.1	114.6	112.8	1.39	9.7	1.3	115.2	1.88	10.2	3.8	16	LA
AMZK39	111.9	106.9	108.3	101.7	107.2	-0.49	8.7	4.2	105.2	-1.20	9.2	2.8	16	AH
BCGJ6D	107.3	106.9	106.5	106.9	106.9	-0.59	13.0	0.3 L	105.2	-1.19	14.2	3.7	16	LA
BY7V8A	116.4	112.2	111.7	107.7 H	112.0	1.13	16.1	3.6	110.2	0.35	15.9	2.9	16	XX
CZ6DTB	101.3	108.1	105.1	101.4	104.0	-1.57	9.5	3.3	107.2	-0.56	10.5	3.4	14	AH
DJ9DFG	103.3	103.0 *	102.8	109.5	104.6	-1.35	9.4	3.2	109.6	0.16	9.2	5.4	12	LZ
E3GA2K	107.9	111.4	107.5	105.8	108.2	-0.17	9.1	2.4	107.8	-0.40	8.2	2.5	16	AH
E8TRM8	111.3	108.3	107.6 L	No Data	109.1	0.14	4.8	2.0	109.1	0.01	4.8	2.0	3	XX
FHNPLR	112.4	112.2	112.7	112.1	112.4	1.25	7.4	0.3 L	106.2	-0.88	8.7	6.6	16	AX
FKFFG7	112.6	109.0	109.7	113.6	111.2	0.86	12.3	2.2	113.4	1.35	12.2	2.7	12	LC
FQKBZ7	118.4 *	110.6	103.2	115.5	111.9	1.11	9.8	6.6 H	108.9	-0.06	10.4	6.1	12	LA
G6X2EY	112.0	115.5	111.8	110.0	112.3	1.23	12.9	2.3	112.4	1.03	12.6	2.7	16	AA
HA7PRZ	113.0	105.5 H	105.7	112.3	109.1	0.16	12.5	4.0	107.0	-0.63	11.3	2.9	16	LC
HPMK6B	107.3	105.2	113.0	104.5	107.5	-0.39	8.5	3.8	110.4	0.42	8.6	3.8	16	TB
JMBEWE	111.7	93.6 XL	106.5	105.3	104.3	-1.47	9.2	7.7 H	105.5	-1.10	9.8	4.7	16	LC
K9MMVB	107.4	109.4	No Data	109.4	108.8	0.04	11.0	1.1	106.1	-0.92	11.2	2.7	15	TB
MEQ79U	110.5	106.1	106.6	No Data	107.7	-0.31	9.2	2.4	110.1	0.32	9.6	3.4	10	AH
NNLXT6	111.1	110.7	110.9	108.2	110.2	0.54	9.7	1.3	107.8	-0.38	8.6	3.5	16	LB
NUD3NU	104.1	103.8	108.0	107.9	106.0	-0.91	12.4	2.3	107.9	-0.34	11.6	3.7	16	AH
P6ET6V	107.1	114.2	109.6	110.4	110.3	0.55	14.8	2.9	111.2	0.67	12.6	4.4	12	LA

Report #550

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
P73JRL	107.4	112.1	98.1 *	95.1 X	103.2	-1.84	10.5	7.9 H	104.7	-1.35	11.1	4.5	14	LA
PFBW9P	108.6 L	108.5 L	108.6 L	108.8 L	108.6	-0.01	4.4	0.1 L	106.6	-0.74	5.7	2.5	16	LJ
Q68ZNY	101.5	105.3	98.1 *	104.4	102.3	-2.13 *	11.2	3.2	103.6	-1.68	11.1	3.5	16	LA
QCNNCA	115.2	113.5	107.3 H	115.8	113.0	1.45	14.1	3.9	111.2	0.67	12.2	3.5	16	TP
QHXUZT	105.9	109.9	111.1	108.2	108.8	0.04	9.9	2.3	107.9	-0.34	10.7	2.5	13	LC
QKYXPU	103.5	105.0	108.2	102.0	104.7	-1.33	6.9	2.7	108.0	-0.32	6.4	2.9	16	LA
QXB9F6	107.9 L	107.7 L	108.2 L	108.1 L	108.0	-0.23	3.0	0.2 L	106.7	-0.73	8.8	1.4	16	LA
TLN9DT	113.8	109.0	112.2	110.8	111.5	0.94	12.4	2.0	110.9	0.56	10.9	3.0	16	AH
U6DPE2	109.4	109.8	107.9	108.2	108.8	0.05	10.8	0.9	105.8	-1.02	8.7	2.7	16	AH
UDAJEK	111.9	112.8	113.9	109.9	112.1	1.17	9.5	1.7	112.5	1.06	11.3	3.6	16	LJ
UE48VU	116.3	115.2	113.0	116.7 *	115.3	2.24 *	9.8	1.7	109.0	-0.02	9.3	8.8 H	16	LC
VJUYHH	108.9	108.9	108.2	108.6	108.6	0.00	10.3	0.3 L	107.1	-0.60	9.2	2.1	16	LJ
VMPTEX	107.3	106.3	107.1	111.6	108.1	-0.19	10.1	2.4	109.9	0.26	10.3	2.7	16	LA
W996WM	105.3	109.0	103.9	103.4	105.4	-1.10	7.6	2.5	108.6	-0.13	11.1	3.9	16	LC
WAG64F	116.5	107.5	112.4	109.0	111.3	0.90	12.8	4.0	112.0	0.90	11.2	4.2	16	LZ
XBAKQW	112.1	113.9	103.9	108.4	109.6	0.32	11.5	4.4	110.9	0.59	12.8	3.6	16	AX
ZG4B4H	108.0	110.9	108.6	103.3	107.7	-0.32	10.7	3.2	111.7	0.82	9.4	4.3	16	AA

Consensus (All Labs) Results

Wk Mean	109.27	109.42	108.09	108.73	Month Mean	108.65	Grand Mean	109.05
Avg SDr	10.71	10.70	10.44	10.25	Avg SDr	10.49	Avg SDr	10.52
SD btwn Labs	4.42	3.14	3.94	3.82	SD btwn Labs	2.97	SD btwn Labs	3.24
Labs Incld	51	48	49	48	SD btwn Wks	3.20	SD btwn Wks	4.17
Labs Excld	1	4	2	2	Labs Incld	49	Labs Incld	51
Labs not rcvd	0	0	1	2				

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 #550

Containerboard Interlaboratory Testing Program

Analysis 206

Bursting Strength (Mullen), 69 lb Linerboard - 69C2

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
26PQ4M	159.7	157.8	166.7	163.3	161.9	1.36	12.4	3.9	160.2	1.02	12.1	3.6	12	LA
2GJ8TN	148.0	156.3	159.9	149.6	153.4	-0.32	7.8	5.6	151.5	-0.73	9.4	4.0	12	LC
2PW7CZ	156.0	152.6	155.0	151.0	153.7	-0.27	10.0	2.3	155.7	0.11	9.9	3.5	12	RE
2ZKVKM	148.7	154.8	150.5	147.8	150.5	-0.91	10.5	3.1	148.2	-1.40	10.7	4.1	12	LC
3L98KN	164.1	153.5	158.0	157.0	158.2	0.62	9.8	4.4	158.8	0.73	11.8	3.3	12	LZ
424NAL	155.1	155.9	157.1	153.1	155.3	0.05	13.8	1.7	162.7	1.51	13.3	6.3	12	TB
4ELK4P	158.1	156.7 L	156.6 L	156.0 L	156.9	0.36	4.9	0.9	154.9	-0.05	6.1	3.3	12	AH
4TAL6P	154.1	157.5 H	154.5	158.6	156.2	0.23	17.8	2.2	155.6	0.08	14.1	3.1	12	LA
66X8NP	153.7	157.0	147.1	149.1	151.7	-0.66	9.1	4.5	150.9	-0.86	9.4	4.4	12	LA
6KN6QK	158.3	151.1	157.5	157.6	156.1	0.22	9.9	3.4	155.0	-0.04	11.0	3.2	12	LC
7NNFLK	166.1	158.4	158.9	161.2	161.1	1.21	12.6	3.5	159.1	0.80	11.5	3.5	12	LA
8JUZAH	151.1	153.6	148.2	159.4	153.1	-0.39	10.4	4.8	154.8	-0.07	11.9	3.7	11	LA
9KJP86	150.0	155.2	150.7	159.8	153.9	-0.22	10.1	4.5	153.9	-0.26	11.8	4.3	12	LA
9LDFDJ	154.1	155.8	157.9	159.3	156.8	0.34	11.6	2.3	153.5	-0.33	9.8	4.9	12	LC
9Q8AD6	148.4	153.2	159.1	155.8	154.1	-0.18	9.0	4.5	154.8	-0.08	8.9	3.8	12	LC
9YXW7M	165.1	167.0 *	164.3	166.4 *	165.7	2.11 *	8.7	1.2	166.1	2.20 *	9.3	2.8	12	LA
AMZK39	149.7	152.6	143.3	156.9	150.6	-0.87	10.8	5.7	149.8	-1.07	9.7	4.0	12	AH
BCGJ6D	152.0	153.6	152.5	152.2	152.6	-0.48	10.0	0.7	153.3	-0.38	11.2	4.2	12	LA
BY7V8A	167.0	160.3	168.6 *	160.3	164.1	1.79	13.5	4.4	161.5	1.28	14.8	5.0	12	XX
CZ6DTB	151.1	155.2	152.9	149.1	152.1	-0.59	12.9	2.6	154.9	-0.06	12.3	5.3	11	AH
DJ9DFG	149.1	151.0	148.5	146.2	148.7	-1.25	8.9	1.9	148.7	-1.30	8.9	1.9	4	LZ
E3GA2K	158.0	159.6	153.2	151.6	155.6	0.11	10.3	3.8	155.7	0.10	10.0	3.0	12	AH
E8TRM8	152.6	152.0	154.8	No Data	153.1	-0.38	6.4	1.5	153.1	-0.41	6.4	1.5	3	XX
FHNPLR	145.4	151.8	148.9	144.2 *	147.6	-1.48	8.1	3.4	144.0	-2.24 *	9.2	4.1	12	AX
FKFFG7	156.5	154.3	156.1	154.6	155.4	0.07	11.0	1.1	157.1	0.40	11.4	4.8	12	XX
FQKBZ7	163.0	163.0	152.3	160.0	159.6	0.90	10.3	5.0	158.0	0.57	11.8	4.0	12	LA
G6X2EY	146.3	155.8	149.5	156.0	151.9	-0.63	12.6	4.8	153.6	-0.32	11.5	4.2	12	AA
HA7PRZ	152.2	157.0	162.0	159.7	157.7	0.53	11.8	4.2	155.9	0.14	11.2	6.6	12	LC
HPMK6B	164.2	159.1	160.8	172.3 X	164.1	1.79	11.0	5.9	166.1	2.19 *	10.9	4.1	12	TB
JMBEWE	147.1	157.5	148.9	159.7	153.3	-0.34	9.9	6.2	152.7	-0.49	10.4	5.8	12	LC
K9MMVB	152.7	158.7	No Data	155.1	155.5	0.10	10.7	3.0	153.5	-0.33	11.0	3.1	11	TB
MEQ79U	146.3	149.2	No Data	No Data	147.8	-1.44	9.3	2.1	148.6	-1.32	9.1	1.7	4	AH
NNLXT6	162.1	165.2	161.4	159.8	162.1	1.41	10.2	2.2	158.1	0.60	9.0	4.8	12	LB
NUD3NU	140.9 *	148.7	141.5 *	150.2	145.3	-1.92	11.3	4.8	148.8	-1.29	11.6	4.6	12	AH
P6ET6V	156.3	155.1	151.5	152.0	153.7	-0.26	11.8	2.3	156.0	0.17	11.4	6.2	12	LA

Report #550

Containerboard Interlaboratory Testing Program

Analysis 206

Bursting Strength (Mullen), 69 lb Linerboard - 69C2

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
P73JRL	141.0 *	144.1 *	149.0	134.0 X	142.0	-2.58 *	10.9	6.3	145.1	-2.01 *	10.2	5.2	10	LA
PFBW9P	155.6	155.8	155.5	155.3	155.5	0.10	10.2	0.2 L	157.1	0.40	7.7	2.3	12	LJ
Q68ZNY	143.4	147.1	146.9	147.1	146.1	-1.77	11.8	1.8	147.3	-1.57	10.2	6.0	12	LA
QCNNCA	155.4	153.9	151.9	155.3	154.1	-0.18	8.8	1.6	153.0	-0.44	6.6	3.7	12	TP
QHXUZT	149.5	149.3	153.0	151.0	150.7	-0.86	11.1	1.7	150.8	-0.87	10.6	4.5	12	LC
QKYXPU	176.2 X	171.2 X	166.0	169.6 *	170.8	3.12 X	9.9	4.2	167.7	2.51 *	9.7	4.3	12	LA
QXB9F6	159.9 L	159.9 L	160.8	159.5	160.0	0.99	4.8	0.5 L	158.9	0.75	8.8	4.5	12	LA
TLN9DT	154.7	167.2 *	164.1	160.5	161.6	1.31	11.8	5.4	156.5	0.27	11.3	7.9 H	12	AH
U6DPE2	161.9	153.7	159.5	154.8	157.5	0.48	11.9	3.8	155.7	0.11	12.6	3.0	12	AH
UDAJEK	158.9	160.8	159.1	160.7	159.9	0.96	12.0	1.0	158.6	0.68	11.2	3.4	12	LJ
UE48VU	143.7	142.6 *	150.1	154.2	147.7	-1.46	9.2	5.5	149.8	-1.07	10.4	4.2	12	LC
VJUYHH	156.8	157.1	156.2	156.6	156.7	0.33	9.3	0.4 L	156.8	0.32	10.7	2.9	8	LJ
VMPTEX	154.8	157.5	161.1	160.0	158.3	0.65	13.5	2.8	158.6	0.69	12.2	2.0	12	LA
W996WM	151.6	158.2	150.4	153.1	153.3	-0.34	12.5	3.4	151.6	-0.72	10.4	5.5	12	LC
WAG64F	157.5	158.7	153.3	153.6	155.8	0.15	9.9	2.7	157.0	0.36	11.8	2.8	12	LZ
XBAKQW	163.2	160.1	158.3	161.0	160.6	1.11	10.7	2.0	159.3	0.84	11.3	2.5	12	AX
ZG4B4H	153.7	156.0	162.1	159.0	157.7	0.53	13.6	3.6	159.6	0.89	12.1	4.6	12	AA

Consensus (All Labs) Results

Wk Mean	154.20	155.65	155.32	155.91	Month Mean	155.03	Grand Mean	155.16
Avg SDr	10.94	10.82	11.24	10.43	Avg SDr	10.83	Avg SDr	10.73
SD btwn Labs	6.52	4.90	6.06	5.22	SD btwn Labs	5.05	SD btwn Labs	4.98
Labs Incld	51	51	50	48	SD btwn Wks	3.58	SD btwn Wks	4.24
Labs Excld	1	1	0	2	Labs Incld	51	Labs Incld	52
Labs not rcvd	0	0	2	2				

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 #550

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
2GJ8TN	91.8	93.1	92.5	92.5	92.5	1.43	3.8	0.5 L	91.8	1.53	4.3	3.1	15	LC
2PW7CZ	78.4	82.8	82.8	80.2	81.0	-1.30	3.6	2.2	86.6	0.11	3.7	3.9	16	LZ
2ZKVKM	85.6	87.0	86.6	80.1 H	84.8	-0.40	6.9	3.2	87.9	0.47	5.4	3.0	16	LC
3L98KN	85.7	86.6 L	82.3	87.5	85.5	-0.23	2.3	2.3	85.3	-0.24	3.0	2.1	16	LC
424NAL	77.1 *	82.3	82.0	85.3	81.7	-1.15	5.3	3.4	83.5	-0.75	4.2	2.6	16	LC
44ACNC	92.6	92.9	91.0	92.6 L	92.3	1.39	2.2	0.8	92.5	1.70	1.7	1.1	16	TD
4ELK4P	88.4	87.2	86.7	88.4	87.7	0.28	3.1	0.8	90.8	1.26	3.7	2.8	16	LD
4JHCAZ	89.9	86.3	No Data	91.7	89.3	0.67	4.4	2.8	90.8	1.25	4.0	2.1	11	MB
4TAL6P	86.0	83.6	59.4 XH	86.2	78.8	-1.83	4.9	13.0 H	82.5	-1.00	6.5	11.6 H	16	LC
4ZQ4EQ	86.2	88.9	90.6	85.3	87.7	0.30	5.0	2.4	85.6	-0.16	4.6	2.1	12	TH
66X8NP	84.9	88.8	88.8	88.4	87.7	0.29	2.8	1.9	86.9	0.18	3.5	1.7	16	LD
6KN6QK	89.0	85.5	85.9	87.3	86.9	0.10	3.9	1.6	85.9	-0.08	3.7	2.4	16	LD
7NNFLK	90.7 L	88.8	91.2	89.1	90.0	0.83	3.8	1.2	89.8	0.99	4.1	1.8	16	LD
89MBK2	83.4	82.6	83.5	81.1	82.7	-0.91	4.0	1.1	85.8	-0.11	3.8	3.0	12	EM
9Q8AD6	92.6	94.4 *	94.5	92.4	93.5	1.67	3.8	1.1	93.5	1.98	4.4	3.2	16	TC
9YXW7M	84.3	85.3	85.9	86.5	85.5	-0.23	4.0	0.9	84.0	-0.60	4.2	2.8	16	LZ
AMZK39	84.0	87.2	88.6	88.4	87.0	0.13	3.7	2.1	87.1	0.24	4.7	2.0	16	LC
BCGJ6D	86.1	86.2	84.3	85.3	85.5	-0.24	3.4	0.8	85.1	-0.30	3.6	1.1	16	LC
BPMCXB	89.3	No Data	No Data	No Data	89.3	0.67	4.1	0.0 L	86.2	-0.01	4.3	1.5	7	EX
CQT2T8	96.2 *	95.1 *	95.3	95.3	95.5	2.15 *	3.1	0.5 L	93.3	1.94	3.9	1.7	16	TH
DJ9DFG	80.3	83.5	84.6 H	77.4 *	81.5	-1.20	5.1	3.3	83.3	-0.79	4.6	2.8	12	LC
E8TRM8	89.1	91.9	91.8	No Data	90.9	1.06	5.0	1.6	90.9	1.29	5.0	1.6	3	XX
FHNPLR	99.9 X	89.6	87.5	94.7	92.9	1.54	4.6	5.5	94.0	2.11 *	5.5	3.7	16	LZ
FQKBZ7	86.7 H	90.2	93.8	93.8	91.1	1.11	5.7	3.4	85.3	-0.25	7.9	5.7	12	LC
GRRX3C	86.5	88.0	83.4	83.8	85.4	-0.25	3.2	2.2	86.3	0.01	3.9	2.6	16	TH
HA7PRZ	90.8 H	84.3 H	80.7 H	20.4 XL	69.0	-4.16 X	8.0	32.7 H	82.2	-1.09	8.6	17.0 H	16	LA
HPMK6B	90.7	91.6	93.5	91.8	91.9	1.29	4.7	1.2	92.0	1.58	4.5	2.5	16	LX
JMBEWE	87.5	88.0	90.0	84.8	87.6	0.26	3.3	2.2	86.4	0.06	4.1	2.2	16	LD
K9MMVB	67.0 X	87.8	No Data	84.4	79.7	-1.61	4.4	11.2 H	78.6	-2.08 *	4.0	9.6 H	14	LZ
KAG9N3	87.1	84.7	85.6	84.6	85.5	-0.23	3.5	1.2	83.6	-0.70	3.6	1.9	16	EN
KU7PRV	67.8 X	68.9 X	70.5 X	74.9 *	70.5	-3.81 X	3.9	3.1	72.8	-3.64 X	4.6	3.3	8	MB
KYGP2G	89.1	85.3	85.9	87.0	86.8	0.08	3.5	1.7	86.7	0.14	3.7	1.5	16	LD
M39XZ8	88.4	88.6	86.2	89.2	88.1	0.39	3.4	1.3	83.9	-0.62	4.2	10.0 H	15	XX
NNLXT6	93.0	87.4	93.8	93.8	92.0	1.31	3.5	3.1	87.6	0.37	4.1	3.4	16	LC
NUD3NU	80.7	86.7	82.7	87.7	84.5	-0.48	4.3	3.3	87.5	0.36	4.7	7.9 H	16	LC

Report #550

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
P73JRL	92.8	89.7	86.9	91.5	90.2	0.89	4.3	2.5	89.8	0.99	4.2	2.2	14	LC
PFBW9P	87.1 H	87.4	87.4	87.3	87.3	0.19	4.5	0.1 L	89.0	0.77	3.5	3.2	16	LD
PGJ72M	84.8	85.4	84.6 L	81.3 L	84.0	-0.59	2.9	1.9	80.9	-1.44	3.4	2.6	16	EX
Q68ZNY	88.4	90.0	91.3	92.5	90.5	0.97	4.7	1.7	86.2	0.01	4.1	3.5	16	LC
QCNNCA	85.8	85.6	88.2	87.5	86.8	0.07	4.2	1.3	87.0	0.21	4.3	2.2	16	TH
QKYXPU	87.2	87.4 L	87.8	88.2 L	87.6	0.28	2.1	0.4 L	87.7	0.42	2.2	0.7 L	16	LZ
QXB9F6	82.7 L	82.5	84.3	83.4 L	83.2	-0.78	2.2	0.8	83.9	-0.63	3.3	1.4	16	LD
QZUKU2	90.9	84.2	90.7 H	No Data	88.6	0.51	6.4	3.9	73.5	-3.45 X	5.1	13.5 H	15	MB
TLN9DT	80.6	79.7	83.2	80.8	81.1	-1.29	3.6	1.5	83.2	-0.82	3.8	2.9	16	LD
U6DPE2	83.2	80.6	79.9	85.2	82.2	-1.01	3.7	2.4	81.6	-1.25	3.2	2.2	16	EM
UDAJEK	81.4	79.8 L	80.4	82.5	81.0	-1.30	2.7	1.2	82.5	-1.00	3.0	2.5	16	LC
UE48VU	88.9	89.2	89.4	88.3	89.0	0.59	4.1	0.5 L	85.5	-0.19	4.2	2.4	16	LC
VF8A9D	76.6 *	74.1 XL	77.0 *	72.9 X	75.1	-2.71 *	3.1	2.0	76.9	-2.53 *	3.8	2.8	16	EM
VJUYHH	83.2	85.1	83.8	84.1	84.1	-0.58	4.5	0.8	83.3	-0.79	4.4	3.2	16	LD
VMPTEX	88.1	85.4	89.7	88.7	88.0	0.36	4.3	1.8	85.6	-0.17	3.8	2.0	16	LC
WTWGRY	85.6	85.1 L	85.1	84.9	85.2	-0.32	2.7	0.3 L	85.2	-0.28	3.6	1.0	16	LD
WZXVEL	82.1	83.0	82.0	83.0	82.5	-0.94	3.6	0.6 L	83.1	-0.86	3.9	1.2	16	LD
XBAKQW	83.6	79.9 H	75.8 *	89.5	82.2	-1.03	5.7	5.8	84.5	-0.46	5.1	4.3	16	LC
ZG4B4H	85.2	83.8	80.5	84.2	83.4	-0.73	3.3	2.0	82.8	-0.93	3.4	1.7	16	LD
ZW49AN	90.6	89.8	89.2	86.0	88.9	0.58	3.9	2.0	86.7	0.12	4.0	2.7	16	LD

Consensus (All Labs) Results

Wk Mean	86.55	86.64	86.59	86.80	Month Mean	86.48	Grand Mean	86.20
Avg SDr	4.11	4.38	4.09	4.05	Avg SDr	4.06	Avg SDr	4.31
SD btwn Labs	4.22	3.61	4.55	4.48	SD btwn Labs	4.19	SD btwn Labs	3.67
Labs Incld	52	52	50	50	SD btwn Wks	3.22	SD btwn Wks	4.34
Labs Excld	3	2	2	2	Labs Incld	53	Labs Incld	53
Labs not rcvd	0	1	3	3				

Report #550

Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42D1

TAPPI Official Test Method T822

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 #550

Containerboard Interlaboratory Testing Program

Analysis 216

Ring Crush, 69 lb Linerboard - 69C2

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
2GJ8TN	147.1	139.1	147.0	148.1 *	145.3	1.76	4.1	4.2	141.5	1.47	3.8	5.0	12	LC
2PW7CZ	121.3	121.0	119.3	118.5	120.0	-1.22	3.2	1.4	129.7	-0.12	3.1	8.2	12	LZ
2ZKVKM	146.4	137.0	138.2	113.3	133.7	0.39	5.0	14.3 H	137.5	0.93	6.4	9.4	12	LC
3L98KN	136.3	131.8	130.6	126.5	131.3	0.11	2.6	4.0	128.1	-0.35	3.1	4.0	12	LC
424NAL	118.2 H	137.1 H	136.4	139.4	132.8	0.28	6.8	9.8	132.2	0.22	5.2	6.0	12	LC
44ACNC	148.9	144.8	141.8	143.6	144.8	1.69	3.0	3.0	146.9	2.21 *	2.3	2.5	12	TD
4ELK4P	127.5	127.4	132.9	130.0	129.5	-0.11	3.2	2.6	132.7	0.28	3.8	3.1	12	LD
4JHCAZ	140.7	137.3	No Data	145.0	141.0	1.25	4.5	3.9	141.9	1.53	4.2	4.0	9	MB
4TAL6P	123.1	125.4	102.3 XH	119.9	117.7	-1.50	8.4	10.5	127.8	-0.38	7.5	12.9 H	12	LC
4ZQ4EQ	138.2	137.4	137.1	134.7	136.8	0.76	3.1	1.5	135.0	0.60	4.3	3.8	8	TH
66X8NP	128.0	124.1	124.8	128.4	126.3	-0.48	3.3	2.2	126.8	-0.52	3.5	1.8	12	LD
6KN6QK	134.0	135.0	133.7	135.0	134.4	0.48	3.8	0.7 L	130.8	0.02	4.3	4.4	12	LD
7NNFLK	131.0	130.5	131.7	129.9	130.8	0.05	4.0	0.8 L	130.5	-0.01	3.9	0.8 L	12	LD
89MBK2	126.1	134.7	126.0	125.1	128.0	-0.28	3.7	4.5	135.1	0.61	3.7	6.4	12	EM
9Q8AD6	134.2	138.2	136.4	137.0	136.5	0.72	4.2	1.7	134.9	0.58	4.2	3.0	12	TC
9YXW7M	131.6	136.0	131.8	127.9	131.8	0.17	4.6	3.3	129.3	-0.17	5.0	4.5	12	LZ
AMZK39	137.9	125.4 L	126.7	127.8	129.4	-0.11	3.5	5.7	128.0	-0.36	3.7	4.4	12	LC
BCGJ6D	130.7	128.9	130.7	130.9	130.3	-0.01	4.5	0.9 L	126.4	-0.57	3.6	4.6	12	LC
BPMCXB	147.3	No Data	No Data	No Data	147.3	1.99	4.5	0.0 L	146.4	2.14 *	4.4	1.2	3	EX
CQT2T8	133.1	133.4 L	131.7	132.6	132.7	0.27	3.2	0.8 L	131.5	0.12	3.0	1.2	12	TH
DJ9DFG	122.7	123.4	123.6	120.1	122.4	-0.94	4.5	1.6	122.4	-1.11	4.5	1.6	4	LC
E8TRM8	132.4	141.1	141.3	No Data	138.3	0.93	4.0	5.1	138.3	1.04	4.0	5.1	3	XX
FHNPLR	134.0	125.6	134.2	130.5	131.1	0.08	4.0	4.0	138.2	1.02	4.6	6.5	12	LZ
FQKBZ7	No Data	136.5	127.9	130.6	131.7	0.15	5.1	4.4	132.9	0.31	7.1	3.2	11	LC
GRRX3C	132.3	128.5	132.0	132.9	131.4	0.12	4.0	2.0	131.6	0.13	4.3	1.8	12	TH
HA7PRZ	131.3 H	129.0	126.5	115.5	125.6	-0.57	7.3	7.0	127.9	-0.37	6.7	5.1	12	LA
HPMK6B	147.6	151.0 *	151.6 *	153.4 *	150.9	2.42 *	3.6	2.4	150.0	2.63 *	3.8	2.3	12	LX
JMBEWE	125.3	132.0	137.6	124.8	129.9	-0.06	4.2	6.1	130.4	-0.03	5.0	5.9	12	LD
K9MMVB	101.6 X	150.3 *	No Data	128.4	126.8	-0.43	4.1	24.4 H	126.5	-0.55	5.0	15.0 H	11	LZ
KAG9N3	130.9	132.7 L	128.0	129.7	130.3	-0.01	3.7	2.0	128.0	-0.35	3.6	3.7	12	EN
KU7PRV	111.6 *	116.4 H	116.3	117.4	115.4	-1.76	5.9	2.6	115.4	-2.05 *	5.9	2.6	4	MB
KYGP2G	125.5	123.9	126.2	126.6	125.5	-0.57	3.7	1.2	126.1	-0.61	4.1	3.0	12	LD
M39XZ8	137.6	135.4	134.4	140.9	137.1	0.79	3.8	2.9	133.2	0.35	5.6	7.1	10	XX
NNLXT6	140.1	138.8	142.9	143.1	141.2	1.28	4.2	2.1	141.0	1.41	4.3	3.0	12	LC
NUD3NU	116.8	115.6	123.2	114.8	117.6	-1.51	4.1	3.8	133.7	0.42	14.1	21.8 H	12	LC

Report #550

Containerboard Interlaboratory Testing Program

Analysis 216

Ring Crush, 69 lb Linerboard - 69C2

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
P73JRL	143.9	146.2	134.8	138.5	140.9	1.23	5.2	5.2	141.0	1.41	6.4	4.1	10	LC
PFBW9P	133.7	133.6	133.9 L	133.8 L	133.8	0.40	2.3	0.1 L	133.7	0.41	2.9	0.7 L	12	LD
PGJ72M	121.8	118.3 L	117.6	121.8	119.9	-1.24	3.4	2.2	118.5	-1.65	3.5	1.9	12	EX
Q68ZNY	128.6	128.4	132.6	134.9	131.1	0.09	5.1	3.2	128.5	-0.28	5.2	5.7	12	LC
QCNNCA	130.8	133.1 L	136.0	135.9	134.0	0.42	3.3	2.5	130.8	0.03	3.0	4.0	12	TH
QKYXPU	131.6 L	134.3 L	133.8 L	133.2 L	133.2	0.34	1.7	1.2	133.5	0.39	2.2	1.2	12	LZ
QXB9F6	124.5	124.6	125.8	125.3	125.0	-0.63	2.8	0.6 L	125.1	-0.75	3.0	1.7	12	LD
QZUKU2	144.9	144.8	144.5	No Data	144.7	1.69	4.3	0.2 L	125.7	-0.66	5.8	12.6 H	11	MB
TLN9DT	114.7	114.9	116.7	114.1	115.1	-1.80	3.9	1.1	125.9	-0.63	3.9	8.5	12	LD
U6DPE2	117.3	118.7	114.7	123.7	118.6	-1.39	3.4	3.8	117.0	-1.85	3.3	2.5	12	EM
UDAJEK	116.6	116.5	119.4	120.4	118.2	-1.43	3.3	2.0	122.9	-1.04	3.6	6.0	12	LC
UE48VU	135.0	137.1	135.4	134.7	135.6	0.61	4.2	1.1	131.6	0.13	3.8	4.6	12	LC
VF8A9D	119.4	122.4	122.6	118.9	120.8	-1.13	5.2	2.0	121.6	-1.21	6.5	4.4	12	EM
VJUYHH	134.2	137.8	138.2	134.8	136.2	0.69	2.6	2.0	132.5	0.25	4.5	5.2	8	LD
VMPTEX	131.2	135.5	135.2	131.6	133.4	0.35	4.5	2.3	131.2	0.09	3.4	4.3	12	LC
WTWGRY	124.9	125.6	125.9	125.6 L	125.5	-0.58	2.8	0.4 L	125.5	-0.69	3.2	0.9 L	12	LD
WZXVEL	121.0	122.7 L	122.5	119.9	121.5	-1.05	4.0	1.3	119.0	-1.57	6.6	4.9	12	LD
XBAKQW	123.3 H	123.6 H	113.2 H	130.0	122.5	-0.93	12.0	6.9	124.9	-0.77	8.3	4.5	12	LC
ZG4B4H	120.1	120.4	116.7	116.0	118.3	-1.42	2.9	2.3	118.0	-1.70	3.2	2.1	12	LD
ZW49AN	129.3	126.6	127.1	127.1	127.5	-0.34	4.7	1.2	127.8	-0.38	4.4	2.9	12	LD

Consensus (All Labs) Results

Wk Mean	130.50	130.92	130.38	129.28	Month Mean	130.39	Grand Mean	130.61
Avg SDr	4.78	4.49	4.29	3.94	Avg SDr	4.48	Avg SDr	4.94
SD btwn Labs	9.25	8.77	8.60	9.05	SD btwn Labs	8.48	SD btwn Labs	7.39
Labs Incld	53	54	51	52	SD btwn Wks	5.25	SD btwn Wks	6.05
Labs Excld	1	0	1	0	Labs Incld	55	Labs Incld	55
Labs not rcvd	1	1	3	3				

Report #550

Containerboard Interlaboratory Testing Program

Analysis 216

Ring Crush, 69 lb Linerboard - 69C2

TAPPI Official Test Method T822

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 #550

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
2GJ8TN	22.6 L	23.8 L	22.8 L	27.6 XL	24.2	1.78	0.0	2.3 H	24.1	1.78	0.0	1.4	15	LA
2ZKVKM	22.0 L	22.6 L	22.9 L	22.4 L	22.5	0.34	0.4	0.4	22.5	0.39	0.7	0.8	16	LA
3L98KN	22.3	22.2	21.5	21.0	21.8	-0.22	1.8	0.6	21.7	-0.39	1.8	0.7	16	LW
424NAL	23.1	22.9	23.2	23.4	23.2	0.91	1.8	0.2	22.9	0.74	1.9	0.8	16	LW
4JHCAZ	21.1 L	19.4 L	No Data	22.3 L	20.9	-0.90	0.1	1.4	21.3	-0.67	0.1	0.9	11	LA
4TAL6P	No Data	19.8 L	21.2 L	20.3 L	20.5	-1.29	0.5	0.7	22.7	0.58	1.2	5.8 H	11	LW
66X8NP	21.6	22.9	20.5	22.4	21.9	-0.15	1.6	1.0	21.6	-0.40	1.5	0.6	16	BK
6KN6QK	22.3	22.9	21.7	23.0	22.5	0.35	1.9	0.6	22.1	0.04	1.9	0.9	16	LA
7NNFLK	23.1	23.0	23.3	22.4	23.0	0.75	2.0	0.4	22.8	0.61	1.9	0.3	16	XX
7Y6APZ	22.5 L	22.4 L	22.3 L	21.5 L	22.2	0.12	0.0	0.5	21.8	-0.23	0.0	1.3	16	TT
8JUZAH	24.4	23.7	22.2	23.7	23.5	1.19	2.1	0.9	23.6	1.32	2.2	0.8	15	LW
9KJP86	21.3	20.9	22.0	21.3	21.4	-0.53	1.7	0.4	21.2	-0.82	1.7	0.4	15	LU
9LDFDJ	23.7	23.6	24.2	24.5 *	24.0	1.59	2.1	0.5	24.6	2.27 *	2.2	0.7	16	LA
9Q8AD6	22.7 L	22.9 L	22.6 L	22.1 L	22.6	0.46	0.3	0.4	22.9	0.74	0.6	0.7	16	LA
9YXW7M	21.5	21.3	21.2	20.9	21.2	-0.69	1.9	0.2	21.0	-0.96	1.9	0.5	16	LW
AMZK39	21.7	22.0	21.4	22.1	21.8	-0.19	1.7	0.3	21.9	-0.20	1.9	0.3	16	LU
B6HUNA	22.7 L	21.8 L	21.6 L	21.0 L	21.8	-0.21	0.0	0.7	22.5	0.40	0.0	1.0	16	LU
BCGJ6D	22.0	21.8	21.8	23.1	22.2	0.13	1.6	0.6	21.6	-0.44	1.5	0.6	16	LW
BPMCXB	24.6 L	No Data	No Data	No Data	24.6	2.09 *	0.0	0.0 L	25.8	3.30 X	0.0	0.8	7	LZ
CZ6DTB	23.1	21.5	23.1	22.8	22.6	0.46	2.1	0.8	23.4	1.17	2.1	1.1	14	LU
DJ9DFG	22.5	21.4	23.6	21.3	22.2	0.12	1.9	1.1	22.6	0.45	2.0	0.9	12	LW
E3GA2K	22.6	22.1	22.5	22.5	22.4	0.32	1.0	0.2	22.8	0.67	1.1	0.5	16	TT
FKFFG7	23.4	21.0	21.2	21.9	21.9	-0.12	1.4	1.1	22.3	0.18	1.5	0.9	12	XX
FQKBZ7	22.0	22.2	21.9	21.6	21.9	-0.09	1.5	0.3	22.1	0.02	1.5	0.5	12	LU
GRRX3C	23.1	22.6	22.9	23.0	22.9	0.70	1.8	0.2	23.2	0.97	2.0	0.7	16	TT
HA7PRZ	20.9 L	20.1 L	22.1 L	17.9 XL	20.3	-1.44	0.4	1.8 H	21.4	-0.63	0.4	1.3	16	LA
JHV4JB	22.6	21.4	22.0	20.9	21.7	-0.26	2.1	0.7	21.6	-0.44	1.9	0.6	16	LY
JMBEWE	22.3	19.5	22.1	21.9	21.5	-0.46	1.7	1.3	21.7	-0.32	1.9	1.0	16	LZ
K9MMVB	21.5	21.2	No Data	20.3	21.0	-0.86	1.9	0.6	21.0	-0.94	1.8	0.7	15	LZ
KAG9N3	21.3	21.2	21.9	20.8	21.3	-0.59	1.9	0.4	20.8	-1.18	1.8	0.6	16	LY
KQ8B67	21.1	20.2	21.4	21.5	21.1	-0.79	1.8	0.6	21.2	-0.79	1.6	0.4	16	LW
KYGP2G	21.5	21.1	21.4	21.5	21.4	-0.53	1.9	0.2	21.3	-0.72	1.9	0.5	16	LY
M39XZ8	22.7 L	20.0 L	21.5 L	39.2 XL	25.8	3.10 X	0.1	9.0 H	26.7	4.14 X	0.1	8.7 H	14	XX
MEQ79U	23.5	22.9	22.7 H	No Data	23.0	0.81	3.5	0.5	22.9	0.76	2.4	1.0	10	LW
NNLXT6	23.5	22.7	23.2	23.4	23.2	0.94	1.5	0.3	23.1	0.86	1.8	0.4	16	LU

Report #550

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
NUD3NU	24.3	22.6	24.7 *	22.9	23.6	1.30	1.3	1.0	22.9	0.75	1.0	0.8	16	LY
P6ET6V	22.8	23.7	23.6	21.6	23.0	0.74	1.1	1.0	23.0	0.81	1.5	0.8	12	LU
Q68ZNY	22.9	23.5	22.0	21.5	22.5	0.35	2.0	0.9	21.6	-0.42	2.1	1.4	16	LY
QCNNCA	22.4	22.7	22.1	21.7	22.2	0.14	1.1	0.4	22.3	0.19	1.2	0.5	16	TT
QHXUZT	23.9	23.1	24.6 *	22.8	23.6	1.27	2.1	0.8	24.5	2.14 *	2.2	1.1	13	LA
QZUKU2	25.0 *L	25.8 XL	23.5 L	No Data	24.8	2.22 *	0.6	1.2	24.0	1.69	0.6	1.4	15	BK
TLN9DT	20.3	20.4	20.7	20.2	20.4	-1.35	2.0	0.2	21.0	-1.01	1.9	0.6	16	LU
UA7QJ2	18.5 XL	No Data	19.6 *L	21.1 L	19.7	-1.89	0.4	1.3	21.1	-0.87	0.8	5.4 H	15	LW
UE48VU	24.0 L	22.5 L	22.7 L	21.2 L	22.6	0.46	0.4	1.2	21.9	-0.18	0.4	1.0	16	LA
VJUYHH	21.7 L	21.5 L	21.3 L	20.6 L	21.3	-0.64	0.0	0.5	21.5	-0.51	1.4	0.9	16	LU
VMPTEX	21.7	20.9	22.0	22.5	21.8	-0.21	1.6	0.7	21.3	-0.69	1.8	0.6	16	LA
W996WM	21.4 L	20.8 L	20.2 L	21.2 L	20.9	-0.94	0.3	0.5	20.7	-1.23	0.3	0.6	16	LA
WAG64F	23.1	22.8	23.2	22.6	22.9	0.71	2.1	0.2	23.3	1.05	2.0	0.6	16	LZ
WZXVEL	21.7	21.3	21.0	21.3	21.3	-0.56	2.0	0.3	21.2	-0.79	1.9	0.6	16	LY
XBAKQW	19.8 *	19.6	20.2	20.5	20.0	-1.65	1.8	0.4	19.8	-2.08 *	1.6	0.8	16	XX
ZG4B4H	20.2	20.9	20.1	20.1	20.3	-1.39	2.0	0.4	20.2	-1.64	1.8	0.5	16	LW
ZW49AN	19.4 *	18.9 *	18.5 X	20.1	19.2	-2.29 *	1.9	0.7	19.8	-2.02 *	1.9	0.7	16	LY

Consensus (All Labs) Results

Wk Mean	22.35	21.76	22.11	21.80	Month Mean	22.04	Grand Mean	22.09
Avg SDr	1.61	1.55	1.78	1.53	Avg SDr	1.63	Avg SDr	1.62
SD btwn Labs	1.21	1.27	1.15	1.06	SD btwn Labs	1.23	SD btwn Labs	1.12
Labs Incld	50	49	48	46	SD btwn Wks	0.80	SD btwn Wks	1.38
Labs Excld	1	1	1	3	Labs Incld	51	Labs Incld	50
Labs not rcvd	1	2	3	3				

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 #550

Containerboard Interlaboratory Testing Program

Analysis 224

STFI, 69 lb Linerboard - 69C2

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
2GJ8TN	36.5 L	35.8 L	36.0 L	37.2 *L	36.4	1.25	0.0	0.6	36.0	1.28	0.0	0.7	12	LA
2ZKVKM	34.6 L	34.2 L	33.1 L	31.8 L	33.4	0.06	0.5	1.3	33.8	0.31	0.6	1.4	12	LA
3L98KN	31.9	31.6	31.3	30.1	31.2	-0.81	1.4	0.8	31.7	-0.60	1.4	0.8	12	LW
424NAL	32.9	33.7	33.6	33.5	33.4	0.06	2.0	0.4	32.6	-0.23	1.8	1.1	12	LW
4JHCAZ	33.1 L	32.0 L	No Data	33.7 L	32.9	-0.13	0.1	0.9	33.4	0.15	0.1	0.9	9	LA
4TAL6P	43.4 X	30.1	30.1	29.5	33.3	0.01	1.4	6.8 H	34.0	0.39	1.8	4.4 H	12	LW
66X8NP	32.6	29.8	31.3	32.5	31.5	-0.68	1.4	1.3	31.4	-0.77	1.3	0.9	12	BK
6KN6QK	32.3	32.3	32.1	32.1	32.2	-0.42	1.5	0.1 L	31.4	-0.74	1.5	1.3	12	LA
7NNFLK	32.6	32.6	33.5	34.1	33.2	-0.02	1.6	0.7	33.5	0.17	1.8	0.8	12	XX
7Y6APZ	35.0 L	35.0 L	34.2 L	34.7 L	34.7	0.58	0.0	0.4	33.8	0.32	0.0	1.3	12	TT
8JUZAH	35.3	35.4	35.6	34.8	35.3	0.80	2.1	0.3 L	35.6	1.11	2.1	0.6	11	LW
9KJP86	31.4	32.0	31.1	31.9	31.6	-0.67	1.5	0.5	30.9	-0.96	1.6	0.7	12	LU
9LDFDJ	38.0	38.0	38.4 *	39.4 X	38.5	2.08 *	1.8	0.6	37.9	2.09 *	1.8	0.6	12	LA
9Q8AD6	34.3 L	35.1 L	35.2 L	35.3 L	34.9	0.68	0.5	0.5	33.4	0.13	0.8	1.5	12	LA
9YXW7M	32.7	32.4	31.9	31.9	32.2	-0.41	1.5	0.4	32.3	-0.37	1.7	0.6	12	LW
AMZK39	31.5	30.9	31.4	30.5	31.1	-0.88	1.7	0.5	31.2	-0.83	1.6	0.5	12	LU
B6HUNA	32.8 L	32.6 L	31.7 L	32.0 L	32.3	-0.40	0.0	0.5	32.4	-0.32	0.0	1.5	12	LU
BCGJ6D	31.9	31.1	30.5	30.9	31.1	-0.85	1.4	0.6	30.8	-1.01	1.4	0.9	12	LW
BPMCXB	37.8 L	No Data	No Data	No Data	37.8	1.82	0.0	0.0 L	37.3	1.85	0.0	0.5	3	LZ
CZ6DTB	35.8	35.3	34.8	33.9	34.9	0.67	2.1	0.8	34.7	0.68	1.8	1.5	12	LU
DJ9DFG	32.7	33.9	31.9	31.5 L	32.5	-0.30	1.8	1.1	32.5	-0.27	1.8	1.1	4	LW
E3GA2K	32.9	32.9	33.3	33.5	33.2	-0.04	1.2	0.3 L	33.1	-0.02	1.2	0.5	12	TT
FKFFG7	34.6	33.0	34.6	34.6	34.2	0.37	2.0	0.8	34.1	0.45	1.8	0.9	12	LU
FQKBZ7	34.1	34.9	34.7	34.3	34.5	0.50	1.5	0.4	33.9	0.36	1.7	0.8	12	LU
GRRX3C	33.1	31.8	31.2	32.0	32.0	-0.50	1.6	0.8	33.4	0.14	1.8	1.3	12	TT
HA7PRZ	32.1 L	31.7 L	30.7 L	29.6	31.0	-0.90	0.6	1.1	31.9	-0.52	0.6	1.4	11	LA
JHV4JB	31.6	31.3	31.2	30.9	31.3	-0.79	1.8	0.3 L	31.8	-0.58	1.7	0.6	12	LY
JMBEWE	32.6	30.9	32.4	31.3	31.8	-0.59	2.0	0.8	32.9	-0.11	1.9	1.6	12	LZ
K9MMVB	30.3	31.4	No Data	30.7	30.8	-0.98	1.8	0.5	30.7	-1.05	1.6	0.5	11	LZ
KAG9N3	30.9	31.0	31.2	31.4	31.1	-0.86	1.4	0.2 L	30.5	-1.17	1.5	0.9	12	LY
KQ8B67	32.3	31.2	30.5	30.2	31.0	-0.89	1.3	0.9	30.9	-0.96	1.4	0.9	12	LW
KYGP2G	31.0	31.5	31.7	31.5	31.4	-0.72	1.7	0.3 L	31.3	-0.79	1.6	0.4	12	LY
M39XZ8	34.1 L	28.5 L	34.2 L	53.1 XL	37.5	1.68	0.1	10.7 H	37.9	2.13 *	0.6	10.0 H	12	XX
MEQ79U	34.3	34.5	36.5	No Data	35.1	0.74	1.6	1.2	35.0	0.83	1.7	1.4	5	LW
NNLXT6	34.7	34.0	35.9	35.4	35.0	0.69	1.8	0.8	34.7	0.69	1.7	0.6	12	LU

Report #550

Containerboard Interlaboratory Testing Program

Analysis 224

STFI, 69 lb Linerboard - 69C2

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
NUD3NU	37.8	36.8	37.6	37.7 *	37.5	1.68	1.4	0.5	36.6	1.56	1.4	1.0	12	LY
P6ET6V	36.6	37.4	37.7	34.4	36.5	1.30	1.6	1.5	36.0	1.28	1.6	1.3	12	LU
Q68ZNY	33.5	35.2	34.8 L	37.3 *	35.2	0.77	1.6	1.6	33.6	0.21	1.8	1.7	12	LY
QCNNCA	33.5	33.4	33.6	33.3	33.5	0.08	1.2	0.2 L	32.9	-0.07	1.2	0.5	12	TT
QHXUZT	38.3 *	37.6	38.5 *	36.6	37.7	1.79	2.2	0.9	37.0	1.73	2.0	2.0	12	LA
QZUKU2	39.2 *	39.2 *	37.9 L	No Data	38.8	2.21 *	0.9	0.8	37.1	1.77	0.8	1.4	11	BK
TLN9DT	29.7	30.2	30.5	31.9	30.6	-1.07	1.7	1.0	31.2	-0.83	1.8	0.8	12	LU
UA7QJ2	31.2	No Data	31.4	31.0	31.2	-0.83	2.0	0.2 L	31.7	-0.61	1.9	1.6	11	LW
UE48VU	31.4 L	32.0 L	32.8 L	31.5 L	31.9	-0.54	0.4	0.7	31.3	-0.81	0.5	1.1	12	LA
VJUYHH	34.9 L	35.1 L	33.5 L	33.8 L	34.3	0.43	0.0	0.8	34.0	0.38	1.2	1.5	8	LU
VMPTEX	31.5	30.5	32.2	30.3	31.1	-0.85	1.5	0.9	31.3	-0.79	1.7	0.9	12	LA
W996WM	30.2 L	30.6 L	30.7 L	30.0 L	30.4	-1.15	0.5	0.3 L	30.1	-1.32	0.4	0.4	12	LA
WAG64F	36.5	36.1	37.6 H	34.9	36.3	1.21	4.7	1.1	35.5	1.03	3.2	1.1	12	LZ
WZXVEL	30.2	30.4	30.9	31.4	30.7	-1.02	1.6	0.6	31.1	-0.86	1.5	0.5	12	LY
XBAKQW	28.5	26.2 *	28.4	27.9 *	27.7	-2.21 *	1.6	1.1	27.6	-2.41 *	1.6	1.2	12	XX
ZG4B4H	30.7	31.6	29.5	29.7	30.4	-1.15	2.0	1.0	30.2	-1.26	1.9	0.9	12	LW
ZW49AN	31.2	31.4	31.0	31.3	31.2	-0.82	1.6	0.2 L	31.3	-0.79	1.7	0.6	12	LY

Consensus (All Labs) Results

Wk Mean	33.32	32.92	33.14	32.55	Month Mean	33.25	Grand Mean	33.10
Avg SDr	1.50	1.60	1.86	1.48	Avg SDr	1.62	Avg SDr	1.55
SD btwn Labs	2.43	2.59	2.56	2.27	SD btwn Labs	2.50	SD btwn Labs	2.27
Labs Incld	51	50	49	47	SD btwn Wks	1.93	SD btwn Wks	1.83
Labs Excld	1	0	0	2	Labs Incld	52	Labs Incld	52
Labs not rcvd	0	2	3	3				

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 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

Report #550

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
2GJ8TN	128.7	-0.56	9.7	127.4	-0.60	12.3	4	LA
2ZKVKM	149.0	0.95	23.4	187.2	3.69 X	27.8	4	LA
4JHCAZ	152.4	1.20	23.5	142.5	0.48	19.5	4	LA
4TAL6P	151.9	1.16	13.5	147.3	0.83	11.1	4	EV
9KJP86	144.0	0.58	10.1	144.0	0.59	11.9	4	EV
9YXW7M	136.6	0.03	11.0	117.5	-1.30	11.3	4	EV
ANWN3B	136.0	-0.02	13.1	139.7	0.29	15.1	4	EV
BCGJ6D	142.7	0.48	8.6	150.3	1.05	11.3	4	EV
DJ9DFG	140.8	0.34	10.6	137.7	0.14	11.3	3	EV
FQKBZ7	116.2	-1.49	13.4	128.3	-0.53	11.9	3	EV
HA7PRZ	147.5	0.83	19.7	147.5	0.85	19.7	1	LA
JMBEWE	129.1	-0.53	9.2	133.3	-0.17	11.6	4	LA
KAG9N3	157.5	1.57	10.4	151.9	1.16	16.5	3	EV
M39XZ8	151.4	1.12	6.0	156.8	1.51	19.2	4	EV
NUD3NU	110.2	-1.93	8.3	103.2	-2.33 *	7.7	4	EV
P6ET6V	129.6	-0.49	9.6	133.2	-0.18	13.5	3	EV
QHXUZT	116.3	-1.48	9.9	119.4	-1.16	14.7	4	LA
QZUKU2	135.5	-0.05	12.0	138.0	0.17	14.9	3	EV
TLN9DT	142.0	0.43	13.7	142.0	0.45	14.2	4	EV
UE48VU	140.4	0.31	15.9	149.8	1.01	25.1	4	LA
W996WM	118.2	-1.34	9.1	115.7	-1.43	8.4	4	EV
WAG64F	121.5	-1.09	11.1	124.0	-0.84	15.3	4	LA

Consensus (All Labs) Results

Month Mean	136.25	Grand Mean	135.68
Avg SDr	13.15	Avg SDr	14.69
SD btwn Labs	13.50	SD btwn Labs	13.96
Labs Incld	22	Labs Incld	21

Instrument Code List as Reported by the Labs

(EV) - Emveco Microgage Model 210-R

(LA) - L & W Autoline

Report #550

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
4TAL6P	239.0	2.43 *	9.6	210.8	1.85	13.7	4	SC
6KN6QK	66.4	-3.49 X	1.3	70.3	-4.14 X	1.2	4	LZ
9Q8AD6	142.6	-0.88	26.3	146.9	-0.88	14.0	4	SC
AMZK39	172.3	0.14	6.7	169.7	0.10	4.5	4	HY
BCGJ6D	205.4	1.27	22.9	203.6	1.54	14.4	4	HY
FQKBZ7	137.6	-1.05	7.2	142.7	-1.06	5.9	3	TM
HA7PRZ	183.8	0.53	9.8	170.6	0.13	12.6	4	TM
P6ET6V	128.4	-1.37	10.5	131.3	-1.54	9.5	3	TM
QXB9F6	179.2	0.37	9.2	178.4	0.46	8.4	4	SC
TLN9DT	158.0	-0.35	4.8	152.1	-0.66	5.0	4	TM
UE48VU	177.0	0.30	18.2	181.5	0.60	13.7	4	HY
VJUYHH	170.0	0.06	16.0	173.9	0.28	11.3	2	HZ
VMPTEX	185.6	0.59	12.2	194.3	1.14	10.9	4	HY
VV4QXB	163.4	-0.17	4.3	161.3	-0.26	4.9	4	TM
WAG64F	144.2	-0.83	6.4	153.5	-0.59	15.7	4	TM
XBAKQW	127.9	-1.38	8.4	134.0	-1.43	18.2	4	SC
ZG4B4H	178.0	0.33	5.1	174.8	0.31	5.6	4	TM

Consensus (All Labs) Results

Month Mean	168.27	Grand Mean	167.44
Avg SDr	12.77	Avg SDr	11.34
SD btwn Labs	29.17	SD btwn Labs	23.46
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 #550

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
424NAL	32.0	2.16 *	4.3	30.1	1.57	3.1	4
4TAL6P	24.2	-1.39	1.5	24.7	-1.62	1.5	4
6KN6QK	29.8	1.16	1.3	29.4	1.16	1.4	4
9KJP86	26.8	-0.20	1.6	28.3	0.50	1.7	3
9Q8AD6	29.2	0.89	1.3	29.7	1.31	1.4	4
AMZK39	25.4	-0.84	1.5	25.5	-1.15	1.8	4
BCGJ6D	27.0	-0.11	2.8	27.0	-0.27	2.5	4
DJ9DFG	26.4	-0.38	1.1	25.9	-0.91	1.3	3
FKFFG7	26.9	-0.16	1.7	26.7	-0.40	2.1	3
FQKBZ7	24.8	-1.11	1.4	26.0	-0.83	1.1	3
HA7PRZ	25.4	-0.84	1.5	27.4	-0.01	3.0	4
KAG9N3	24.8	-1.10	0.8	25.0	-1.43	1.1	4
MEQ79U	27.8	0.25	2.8	27.5	0.02	2.4	4
P6ET6V	24.8	-1.11	1.4	25.9	-0.89	1.7	3
P73JRL	30.0	1.25	2.2	29.1	0.96	2.7	4
TLN9DT	29.8	1.16	0.8	29.4	1.16	1.6	4
UE48VU	28.3	0.50	2.2	28.4	0.58	1.7	4
UMYBYR	28.4	0.53	3.2	28.9	0.85	3.8	3
WAG64F	25.8	-0.66	2.2	25.6	-1.06	2.6	4
ZG4B4H	35.5	3.77 X	14.6	28.2	0.45	7.6	4

Consensus (All Labs) Results

Month Mean	27.25	Grand Mean	27.42
Avg SDr	2.07	Avg SDr	2.70
SD btwn Labs	2.20	SD btwn Labs	1.71
Labs Incld	19	Labs Incld	20

Instrument Code List as Reported by the Labs

(ZZ) - Instruments No Longer Tracked

Report #550

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
2GJ8TN	52.3	0.69	1.9	53.1	1.04	2.7	4	TL
2ZKVKM	50.3	-0.06	1.9	50.1	-0.24	1.8	4	LA
424NAL	50.6	0.03	1.4	50.6	-0.01	2.1	4	LP
4TAL6P	51.8	0.50	3.0	51.3	0.26	2.8	4	HG
6KN6QK	53.2	1.03	2.5	46.5	-1.71	1.8	4	LA
9KJP86	51.6	0.44	2.1	51.9	0.54	1.9	4	LP
AMZK39	52.5	0.79	1.9	51.8	0.49	2.8	4	TP
BCGJ6D	52.7	0.83	2.0	52.2	0.66	1.9	4	LP
E8TRM8	50.0	-0.18	2.6	50.0	-0.26	2.6	1	GG
FKFFG7	41.6	-3.39 X	1.7	42.3	-3.46 X	1.9	3	XX
FQKBZ7	54.0	1.35	1.9	54.3	1.54	2.3	3	LA
HA7PRZ	50.2	-0.10	2.8	50.6	0.00	2.9	4	LP
JMQNV8	48.3	-0.84	1.2	48.4	-0.92	2.1	4	LA
KYGP2G	49.3	-0.45	1.3	50.1	-0.23	1.1	4	LP
M39XZ8	46.2	-1.62	4.5	50.0	-0.27	3.4	4	LW
P6ET6V	44.4	-2.32 *	1.6	44.5	-2.53 *	2.0	3	XX
QKYXPU	50.9	0.16	2.6	52.1	0.62	2.8	4	XX
QXB9F6	50.2	-0.09	1.0	50.6	-0.01	1.5	4	LP
QZUKU2	54.0	1.34	1.2	54.2	1.46	1.3	3	XX
UE48VU	50.5	0.00	2.0	51.2	0.26	1.8	4	LA
UMYBYR	51.0	0.20	2.9	50.1	-0.20	2.5	3	GA
UN8KRN	51.8	0.50	1.9	52.9	0.92	2.4	4	XX
WAG64F	44.2	-2.39 *	1.8	46.2	-1.85	3.2	4	XX
ZG4B4H	51.0	0.20	2.1	51.7	0.45	2.3	4	HG

Consensus (All Labs) Results

Month Mean	50.48	Grand Mean	50.63
Avg SDr	2.22	Avg SDr	2.33
SD btwn Labs	2.62	SD btwn Labs	2.41
Labs Incld	23	Labs Incld	23

Report #550

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 #550

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
3L98KN	65.0	68.2 X	66.2 *	66.0 *	66.3	2.40 *	2.8	1.3	66.0	2.06 *	2.6	3.1	16	LC
424NAL	60.6	61.4	60.4	63.1	61.4	-0.30	3.2	1.2	62.4	0.30	3.1	2.0	16	LC
44ACNC	65.2 L	65.9 *	65.2 L	62.2 L	64.6	1.45	1.2	1.7	64.0	1.06	1.1	1.5	16	TD
4JHCAZ	61.4	59.7	No Data	59.7	60.3	-0.92	2.8	1.0	59.1	-1.32	3.2	3.0	11	MB
4ZQ4EQ	60.9	62.2	59.8	61.3	61.0	-0.49	2.2	1.0	61.6	-0.10	2.1	1.5	12	TD
6KN6QK	65.4	63.3	61.8	59.0	62.3	0.22	2.4	2.7	61.2	-0.32	2.5	3.1	16	XX
6WMTXG	61.5	62.1	61.9	61.4	61.7	-0.12	1.7	0.3	61.5	-0.18	1.8	0.5	13	LC
7NNFLK	61.8	62.7	62.8	64.0	62.8	0.49	3.3	0.9	62.1	0.12	3.3	1.8	16	LD
8JUZAH	62.7	62.6	63.2	62.4	62.7	0.44	3.5	0.4	61.5	-0.14	3.6	1.9	15	LC
8MPRHF	62.2	62.0	61.8	61.6	61.9	-0.02	2.4	0.3 L	62.0	0.07	2.4	0.4	16	LC
9KJP86	61.9	60.7	61.1	59.8	60.9	-0.59	3.0	0.9	60.4	-0.68	2.8	1.6	16	LZ
9LDFDJ	60.7	59.4	59.6	59.6	59.8	-1.16	3.0	0.6	58.5	-1.63	3.3	1.6	16	LD
A46PQK	63.2	62.6	63.0	61.8	62.6	0.38	2.4	0.6	62.2	0.17	2.9	0.8	16	LD
A9KDC3	59.4 H	63.2 H	60.5 H	69.6 XH	63.1	0.66	8.0	4.6 H	64.0	1.05	6.3	3.8 H	16	LC
AMZK39	63.7	60.9	60.6	61.5	61.7	-0.15	3.5	1.4	61.3	-0.24	3.3	1.3	16	LC
BCGJ6D	61.0	60.3	60.5	62.2	61.0	-0.52	4.1	0.9	61.2	-0.31	4.2	1.0	15	LC
BPMCXB	61.6	No Data	No Data	No Data	61.6	-0.16	2.0	0.0 L	59.9	-0.96	2.7	1.6	7	LZ
E3GA2K	60.1	61.0	61.0	60.3	60.6	-0.73	4.1	0.5	60.8	-0.50	4.6	0.9	16	TG
EKX2D3	63.4	62.3	63.4	62.6	62.9	0.54	2.3	0.6	62.7	0.45	2.0	0.4 L	15	LD
FQKBZ7	58.7 H	60.2	58.0	57.8 H	58.7	-1.78	4.4	1.1	61.6	-0.09	3.9	3.4 H	12	LC
GRRX3C	57.0	55.5 X	56.2 *	51.4 XH	55.0	-3.77 X	8.6	2.5	58.0	-1.85	5.0	3.6 H	16	TH
HPMK6B	62.4	62.3	61.1	63.8	62.4	0.25	3.1	1.1	62.2	0.19	3.1	1.1	16	LD
HXAPRG	63.9	64.0	66.3 *	64.7	64.7	1.52	3.0	1.1	65.6	1.86	3.0	1.0	16	TM
JMBEWE	60.0	62.1	61.1	62.7	61.5	-0.25	2.9	1.2	60.9	-0.47	2.7	1.8	16	LD
JMQNV8	61.6	62.4	62.3	62.6	62.2	0.15	2.5	0.5	64.5	1.31	3.9	2.3	16	LC
K9MMVB	68.2 *	59.6	No Data	64.1	64.0	1.10	2.6	4.3 H	61.9	0.05	2.9	3.4 H	15	LZ
KU7PRV	65.4 H	65.0	63.2	63.3	64.2	1.24	4.4	1.1	65.7	1.87	4.5	2.3	8	MB
M39XZ8	57.4 L	No Data	47.9 XL	54.8 XH	53.4	-4.68 X	9.2	4.9 H	56.7	-2.48 *	7.0	5.0 H	14	XX
MEQ79U	60.9	60.7	64.0	59.8	61.4	-0.32	2.5	1.8	61.5	-0.16	2.8	1.4	16	LZ
MKW2TU	64.4	64.7	63.5	63.6	64.0	1.15	3.2	0.6	64.4	1.26	2.7	0.8	16	LD
N2VKWV	63.0	61.4	64.5	61.5	62.6	0.35	3.8	1.4	62.6	0.38	3.5	1.5	12	LC
N9PTDF	61.0	63.5	65.0	63.3	63.2	0.69	3.0	1.7	62.8	0.50	3.7	2.5	12	XX
NNLXT6	62.1	61.7 L	62.5	61.7	62.0	0.04	2.2	0.4	61.8	-0.03	2.1	1.3	16	LD
PFBW9P	62.7	62.9	62.3	63.0	62.7	0.43	2.9	0.3	62.7	0.43	2.8	0.4	16	LD
PPCJY2	60.1	59.3	59.4	59.9	59.7	-1.22	2.6	0.4	61.0	-0.40	2.3	1.3	16	EM

Report #550

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
PQQR4V	60.2	61.7	61.8	60.8	61.1	-0.44	2.2	0.7	60.0	-0.90	2.4	2.0	14	LZ
QCNNCA	63.6	61.3	62.9	60.3	62.1	0.06	2.5	1.5	62.1	0.12	2.6	1.1	16	TH
QZUKU2	68.6 *	65.7 *	65.0	65.3	66.2	2.30 *	3.5	1.6	66.1	2.10 *	3.9	2.5	16	MB
TLN9DT	59.6	58.2 *	58.2	57.8	58.5	-1.90	2.4	0.8	59.1	-1.35	2.6	0.8	16	LD
U6DPE2	63.4	63.0	62.8	64.5	63.4	0.82	2.6	0.8	64.7	1.41	2.8	1.6	16	EM
UDAJEK	63.4	63.1 L	62.7 L	61.7	62.7	0.43	2.0	0.7	62.8	0.50	2.5	1.9	16	LC
UN8KRN	61.2	60.9	59.4	62.2	60.9	-0.55	2.5	1.1	61.8	-0.03	2.8	1.0	16	LD
VJT4XQ	62.4	62.8	61.9	61.5	62.2	0.12	2.9	0.6	62.0	0.10	2.6	0.4	16	LD
VJUYHH	68.6 *H	69.5 X	72.7 X	71.8 X	70.7	4.76 X	4.8	1.9	69.4	3.68 X	4.6	4.4 H	14	LC
VMPTEX	56.6 *	57.2 *	60.3	59.6	58.4	-1.92	2.8	1.8	60.3	-0.74	2.5	2.1	16	LC
WJMARP	60.2	60.6	59.6	58.7	59.8	-1.18	3.2	0.8	60.5	-0.62	2.6	1.3	16	LC
XBAKQW	61.7	60.9	59.1	59.7	60.3	-0.87	3.6	1.2	61.0	-0.43	3.3	2.0	16	LC
XLQEVX	57.8	60.4	58.5	56.8 *	58.4	-1.94	4.0	1.5	58.6	-1.59	3.6	2.2	8	TH
ZW49AN	62.5	61.7	61.0	64.6	62.5	0.28	3.3	1.6	62.2	0.20	4.6	1.8	16	LD

Consensus (All Labs) Results

Wk Mean	62.04	61.81	61.71	61.68	Month Mean	61.94	Grand Mean	61.82
Avg SDr	3.23	3.34	3.39	2.72	Avg SDr	3.17	Avg SDr	3.35
SD btwn Labs	2.64	1.81	2.23	2.11	SD btwn Labs	1.83	SD btwn Labs	2.05
Labs Incld	49	44	44	44	SD btwn Wks	1.46	SD btwn Wks	2.04
Labs Excld	0	3	2	4	Labs Incld	46	Labs Incld	48
Labs not rcvd	0	2	3	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

(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

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

Report #550

Containerboard Interlaboratory Testing Program

Analysis 250

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

TAPPI Official Method T824

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
3L98KN	74.9	72.2	74.9	73.4	73.9	0.16	2.3	1.3	74.4	0.38	2.6	2.6	16	LC
424NAL	73.9	73.1	75.8	75.6	74.6	0.48	2.7	1.3	73.1	-0.01	2.5	1.3	16	XX
44ACNC	74.2	71.4	74.7	78.8	74.8	0.55	1.9	3.0	73.9	0.22	1.1	2.0	16	TD
6KN6QK	75.7	72.6	74.0	73.9	74.0	0.23	2.6	1.3	74.7	0.49	2.5	1.2	16	XX
AMZK39	79.1	75.8	79.2	77.8	78.0	1.92	2.4	1.6	78.1	1.53	2.5	1.4	16	LC
EKX2D3	73.0	73.1	73.1	73.4	73.2	-0.15	1.9	0.2 L	72.8	-0.11	1.9	0.5	15	LD
K9MMVB	64.4	78.4	No Data	72.6 H	71.8	-0.74	3.4	7.0 H	74.9	0.53	4.2	4.1 H	15	LZ
KU7PRV	64.4	65.0 *	66.7 *	63.2 X	64.8	-3.75 X	2.8	1.4	65.5	-2.37 *	3.4	1.4	8	MB
N2VKWV	76.4	77.2	73.0	76.6	75.8	0.99	2.2	1.9	76.9	1.17	2.6	2.0	12	LC
N9PTDF	62.3 H	73.3	72.1	69.4	69.3	-1.82	4.3	4.9	69.0	-1.29	4.5	5.4 H	16	TU
NNLXT6	71.3	71.5	72.5	72.0	71.8	-0.73	1.7	0.5 L	71.6	-0.47	1.6	0.7	16	LD
QKYXPU	74.0 L	73.9	74.4	73.9 L	74.0	0.23	1.2	0.2 L	73.6	0.13	1.4	0.9	16	XX
WJMARP	72.9	69.1	68.3 H	73.3	70.9	-1.12	2.8	2.6	72.5	-0.19	3.2	2.1	16	LZ

Consensus (All Labs) Results

Wk Mean	72.04	72.81	73.22	74.22	Month Mean	73.50	Grand Mean	73.15
Avg SDr	3.12	2.04	2.48	2.49	Avg SDr	2.56	Avg SDr	2.79
SD btwn Labs	5.13	3.41	3.28	2.60	SD btwn Labs	2.32	SD btwn Labs	3.22
Labs Incld	13	13	12	12	SD btwn Wks	2.90	SD btwn Wks	2.38
Labs Excld	0	0	0	1	Labs Incld	12	Labs Incld	13
Labs not rcvd	0	0	1	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 #550

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
424NAL	37.7	40.4	38.3	39.0	38.9	-1.58	3.3	1.1	40.8	-0.81	2.5	2.3	16	LC
6KN6QK	44.8	40.4	44.9	45.2	43.8	0.17	2.8	2.3	43.6	0.15	2.9	1.4	16	LD
6WMTXG	45.6	45.6	45.9	46.3	45.8	0.88	1.4	0.3	45.0	0.65	1.4	2.8	13	LC
A46PQK	47.7	47.6	47.2	48.9	47.8	1.58	2.0	0.8	48.0	1.69	2.1	0.5	16	LD
AMZK39	45.3	44.9	45.2	44.5	45.0	0.57	2.9	0.4	44.1	0.35	2.9	0.7	16	LC
BPMCXB	43.5	No Data	No Data	No Data	43.5	0.04	3.0	0.0 L	41.6	-0.53	3.3	1.5	7	EM
CQT2T8	42.7	No Data	43.1	43.2	43.0	-0.13	1.8	0.2	43.3	0.06	2.0	0.6	15	TH
HPMK6B	44.4	43.3	44.6	44.0	44.1	0.26	2.3	0.6	46.3	1.09	3.4	1.4	16	LZ
HXAPRG	43.9	44.5	43.8	44.0	44.0	0.24	2.1	0.3	40.3	-0.96	2.1	2.5	16	LD
JCNDEJ	45.1 L	45.2 L	46.8 L	46.7	46.0	0.92	1.1	0.9	44.7	0.53	1.1	1.1	16	WK
JMBEWE	37.9	44.2	45.1	45.2	43.1	-0.10	2.2	3.5 H	40.9	-0.77	2.3	2.3	16	LD
JMQNV8	47.1	46.7	47.0	46.9	46.9	1.25	2.0	0.2 L	47.5	1.53	2.5	1.0	16	LD
KU7PRV	35.0 *	37.4	38.5	37.6	37.1	-2.18 *	2.8	1.5	36.9	-2.15 *	2.4	1.6	8	MB
M39XZ8	45.9	42.1	48.0	48.2	46.1	0.95	2.2	2.9 H	44.7	0.54	2.8	2.7	15	XX
MKW2TU	47.1	45.1	45.6	47.1	46.2	1.02	2.6	1.0	46.1	1.02	2.3	0.8	16	LD
PFBW9P	44.7	44.0	44.5	44.0	44.3	0.34	2.0	0.4	44.6	0.50	1.9	0.5	16	LD
PPCJY2	40.4	40.6	40.4	41.1	40.6	-0.96	2.3	0.3	41.0	-0.72	1.8	1.0	16	LC
TE33VZ	40.6	39.2	40.1	43.6	40.8	-0.89	2.3	1.9	41.6	-0.54	2.7	1.8	12	LZ
UDAJEK	40.3 L	40.6	41.8	40.9	40.9	-0.86	1.4	0.6	41.1	-0.71	1.8	1.1	16	LC
UN8KRN	42.1 H	42.1	41.6 H	42.7	42.1	-0.43	4.0	0.5	42.6	-0.18	3.9	1.1	16	LD
VJUYHH	44.5	45.9	45.2	43.8	44.9	0.53	2.2	0.9	45.9	0.95	3.1	4.9 H	16	LD
XLQEVX	38.5	40.2	38.2	38.2	38.8	-1.60	3.1	1.0	38.2	-1.69	2.8	0.9	8	TH

Consensus (All Labs) Results

Wk Mean	42.94	42.98	43.61	43.86	Month Mean	43.35	Grand Mean	43.12
Avg SDr	2.58	2.44	2.33	2.32	Avg SDr	2.44	Avg SDr	2.55
SD btwn Labs	3.46	2.78	3.06	3.12	SD btwn Labs	2.84	SD btwn Labs	2.89
Labs Incld	22	20	21	21	SD btwn Wks	1.35	SD btwn Wks	1.87
Labs Excld	0	0	0	0	Labs Incld	22	Labs Incld	22
Labs not rcvd	0	2	1	1				

Report #550

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

(EM) - Emerson 1200 Series

(LD) - L&W Crush Tester 248

(MB) - Messmer Buchel K440

(WK) - Zwick Z005 Crush Tester

(LC) - L & W Crush Tester 48

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

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

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

Report #550

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
4JHCAZ	14.3 L	13.7 L	No Data	14.3 L	14.1	-1.43	0.0	0.3	14.1	-1.73	0.0	0.4	11	LA
6KN6QK	15.4	15.0	15.6	15.7	15.4	0.68	1.2	0.3	15.2	0.27	1.1	0.6	16	LA
6WMTXG	15.7	15.3	15.2	15.3	15.4	0.67	0.7	0.2	15.2	0.38	0.8	0.4	13	XX
8JUZAH	15.4	15.9	15.3	15.0	15.4	0.72	1.2	0.4	15.6	0.98	1.1	0.3	15	LW
8MPRHF	14.9	15.0	15.1	15.0	15.0	0.02	1.2	0.1	15.0	-0.05	1.2	0.1	16	LB
9KJP86	14.6	14.5	14.8	15.1	14.8	-0.36	1.1	0.2	14.6	-0.69	1.1	0.2	15	LU
A46PQK	15.1	15.0	15.4	15.5	15.2	0.44	0.9	0.2	15.2	0.37	1.1	0.3	16	LA
AMZK39	15.2	15.3	15.2	15.6	15.3	0.55	1.0	0.2	15.2	0.29	1.1	0.2	16	LU
EKX2D3	14.7	14.8	14.3	13.9 *	14.4	-0.91	0.9	0.4	14.4	-1.21	0.8	0.3	15	LA
GRRX3C	15.5	15.2	15.3	15.1	15.3	0.50	1.1	0.2	15.6	0.98	1.3	0.3	16	TT
HXAPRG	15.2	15.8	15.0	15.2	15.3	0.57	1.8	0.4	15.5	0.91	1.4	0.3	16	LA
JMBEWE	14.6	14.3	16.1	15.2	15.0	0.07	1.3	0.8	15.3	0.50	1.4	0.7	16	LZ
JMQNV8	15.9 L	16.0 L	15.6 L	16.2 *L	15.9	1.48	0.0	0.2	16.2	2.07 *	0.0	0.4	16	LA
M39XZ8	14.8 L	12.9 *L	21.5 XL	22.1 XL	17.8	4.57 X	0.0	4.7 H	17.1	3.76 X	0.0	4.0 H	15	XX
MEQ79U	13.7 *	13.2	13.8 *	12.9 X	13.4	-2.52 *	1.0	0.4	14.1	-1.70	1.1	1.0 H	16	LW
PPCJY2	14.5	14.8	14.9	15.2	14.8	-0.22	1.2	0.3	14.8	-0.35	1.2	0.4	16	LB
PQQR4V	14.4	14.4	14.7	14.6	14.5	-0.72	1.1	0.2	14.8	-0.40	1.1	0.4	14	LW
Q68ZNY	14.8	14.1	16.3	14.7	15.0	-0.01	1.6	0.9 H	14.6	-0.75	1.2	0.8 H	16	LB
QCNNCA	15.1	15.0	14.8	15.4	15.1	0.18	0.8	0.2	14.8	-0.34	0.8	0.3	16	TT
QZUKU2	15.6 L	16.2 L	16.2 L	No Data	16.0	1.62	0.2	0.3	15.8	1.52	0.2	0.7	15	BK
TE33VZ	14.1	13.2	14.3	14.2	14.0	-1.63	1.0	0.5	14.4	-1.10	1.1	0.6	12	LA
VJT4XQ	15.0	14.9	15.7	15.0	15.2	0.29	1.2	0.4	15.0	0.05	1.2	0.2	16	LB

Consensus (All Labs) Results

Wk Mean	14.93	14.75	15.18	15.05	Month Mean	14.98	Grand Mean	15.02
Avg SDr	1.03	1.02	1.14	1.14	Avg SDr	1.08	Avg SDr	1.05
SD btwn Labs	0.55	0.91	0.64	0.54	SD btwn Labs	0.62	SD btwn Labs	0.55
Labs Incld	22	22	20	19	SD btwn Wks	0.39	SD btwn Wks	0.49
Labs Excld	0	0	1	2	Labs Incld	21	Labs Incld	21
Labs not rcvd	0	0	1	1				

Report #550

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