Collaborative Testing Services, Inc.

Containerboard Interlaboratory Testing Program

Participant Summary Report #593 (B) - February 2019

Introduction to the Containerboard Program

Explanation of Tables and Definitions of Terms

Analysis	Sample	Analysis Name
201	BX13	Box Compression Strength, Corrugated Boxes
202	EC11	Edgewise Compressive Strength, Wax (T811), Corrugated Board
203	EC11	Edgewise Compressive Strength by Clamp (T839), Corrugated Board
205	42F1	Mullen Burst of Linerboard, 42 lb Linerboard
207	35E1	Mullen Burst of Linerboard, 35 lb Linerboard
215	42F1	Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard
217	35E1	Ring Crush of Linerboard, Rigid Platen Type, 35 lb Linerboard
223	42F1	STFI of Linerboard, 42 lb Linerboard
225	35E1	STFI of Linerboard, 35 lb Linerboard
228	56A	Roughness - Stylus Method, 56 lb Linerboard
229	42D3	Roughness - Sheffield Method, 42 lb Linerboard
231	42D	Internal Bond Strength, Linerboard, 42 lb Linerboard
234	56A	Coefficient of Static Friction - Inclined Plane, 56 lb Linerboard
237	42D	Air Resistance - Gurley Method, Linerboard, 42 lb Linerboard
240	CM92	Flat Crush Strength (CMT) of Medium, 26 lb Corrugating Medium
250	CM92	Fluted Crush of Medium, 26 lb Corrugating Medium
255	CM92	Ring Crush of Medium, 26 lb Corrugating Medium
261	CM92	STFI of Medium, 26 lb Corrugating Medium

Collaborative Testing Services, Inc.
CONTAINERBOARD INTERLABORATORY TESTING PROGRAM

INTRODUCTION

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

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

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

USE OF AVERAGE MEAN AS A COLLABORATIVE REFERENCE VALUE

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

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

ABOUT CTS

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

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EXPLANATION OF TABLES

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

Definitions of Terms Used

Weekly Results

Laboratory Data

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

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

Consensus Data

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

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

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

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

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

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

Monthly Results

Laboratory Data

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

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

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

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

Consensus Data

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

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

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

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

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

Cumulative Results

Laboratory Data

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

Consensus Data

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

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

Flag	Explanation

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

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

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

Flags assigned to Weekly Means:

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

Flags assigned to Monthly SD Wks and Cumulative SD Wks:

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

Containerboard Interlaboratory Testing Program

Analysis 201

Top to Bottom Box Compression Strength, Corrugated Boxes - BX13

TAPPI Official Test Method T804

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
3VYJRC	1,012.6	1.83	73.24		971.9	1.45	57.56	2	LS
6BZ3M7	907.4	0.35	26.33		900.3	0.33	10.08	2	LM
6CWPU4	868.0	-0.20	58.30		854.5	-0.38	19.09	2	ER
8C6GX6	744.9	-1.93 *	9.09	L	740.2	-2.16 *	6.65	2	LS
8X2DBP	901.2	0.26	22.66		858.6	-0.31	60.25	2	LG
997FH8	883.1	0.01	39.52		858.5	-0.32	34.78	2	ER
AHPA9U	873.8	-0.12	24.93		861.4	-0.27	17.54	2	LG
BQZVV4	831.6	-0.72	57.50		854.5	-0.38	32.39	2	ER
CBD8U6	916.8	0.48	32.50		939.0	0.94	31.41	2	TE
DGHBHH	867.2	-0.21	73.39		888.7	0.16	30.41	2	LL
E3VKVK	863.4	-0.27	106.18	H	863.4	-0.24	0.00	1	LM
GMUKY2	809.1	-1.03	43.70		828.5	-0.78	27.46	2	ET
KJLBHF	961.2	1.11	41.20		920.3	0.65	57.84	2	ER
KNVRR6	823.3	-0.83	37.21		893.8	0.23	99.72	2	LG
L867NP	1,060.5	2.50 *	46.11		1,035.2	2.44 *	35.77	2	LH
LAPV93	870.2	-0.17	15.21		886.3	0.12	22.77	2	ET
LMHHEX	835.5	-0.66	55.70		838.6	-0.62	4.48	2	LS
LMXWNT	869.0	-0.19	31.54		888.6	0.15	27.72	2	ES
PDLL6R	806.4	-1.07	77.06		760.3	-1.85	65.18	2	LS
Y7NBPC	949.1	0.94	52.41		934.3	0.86	21.03	2	LG
YANJUL	877.6	-0.07	79.41		876.9	-0.03	1.00	2	LS

Consensus (All Labs) Results

Month Mean	882.47	Grand Mean	878.75
Avg SD	53.32	Avg SD Months	40.78
SD btwn Labs	71.08	SD btwn Labs	64.20
Labs Incld	21	Labs Incld	21

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	878.79	70.47	3.68	6
Clip sealing	883.94	73.73	1.47	15

Key to Instrument Codes Reported by Participants

ER	Emerson 6200 Series	ES	Emerson 8510
ET	Emerson 7200	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
TE	Testometric M500 - 25 KN		

Containerboard Interlaboratory Testing Program

Analysis 202

Edgewise Compressive Strength, by T811, Corrugated Board - EC11

TAPPI Official Test Method T811

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
8C6GX6	42.4	0.61	1.24		43.5	0.92	1.19	4	LC
8X2DBP	46.0	1.34	1.29		44.5	1.17	1.29	4	TH
997FH8	37.1	-0.48	3.88		39.0	-0.20	1.62	4	EN
AHPA9U	44.2	0.97	2.78		43.5	0.93	0.64	4	LE
F87VLT	33.5	-1.22	2.81		34.9	-1.24	1.36	3	WK
HWDC6Q	38.7	-0.16	4.30	H	40.1	0.06	1.30	4	LD
KZP9G7	39.9	0.09	0.74	L	39.9	0.02	1.10	3	TD
LMHHEX	34.3	-1.06	2.49		38.5	-0.34	4.36	H 4	LD
MUACRL	44.1	0.95	1.56		42.9	0.76	2.38	4	LC
PDLL6R	30.2	-1.90 *	1.41		30.5	-2.34 *	1.65	4	EM
Q622YX	40.5	0.20	2.73		41.3	0.36	1.28	4	LC
QKDFFV	42.7	0.67	2.20		39.5	-0.09	2.38	4	XX

Consensus (All Labs) Results

Month Mean	39.47	Grand Mean	39.82
Avg SD	2.51	Avg SD Months	1.95
SD btwn Labs	4.87	SD btwn Labs	3.99
Labs Incld	12	Labs Incld	12

Key to Instrument Codes Reported by Participants

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

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2TAVUQ	44.9	0.15	1.38		44.8	0.09	0.44	4	EM
3VYJRC	49.3	2.08 *	1.89		48.6	1.99 *	3.42 H	4	TB
42GAVJ	43.5	-0.44	2.35		43.4	-0.59	1.14	4	LD
6BZ3M7	42.7	-0.77	2.27		44.2	-0.18	1.34	4	EM
6CWPU4	42.2	-0.99	1.64		42.8	-0.91	0.77	2	LD
7G7727	42.9	-0.71	1.38		43.3	-0.64	1.22	3	EM
8C6GX6	43.2	-0.56	2.28		44.5	-0.06	1.16	4	LC
8KJFE2	45.1	0.24	0.75		44.4	-0.12	1.29	4	LD
8X2DBP	47.2	1.16	1.38		45.7	0.55	1.01	4	TH
997FH8	42.8	-0.75	1.06		41.6	-1.51	1.53	4	EN
AHPA9U	43.2	-0.57	2.62		44.5	-0.05	0.99	4	LY
BQZVV4	45.7	0.52	1.08		44.8	0.11	0.97	4	LD
CBD8U6	45.2	0.30	0.91		45.9	0.66	0.59	4	LD
CTW8KZ	46.9	1.04	2.01		47.2	1.31	1.62	4	TG
DCQ4XN	40.0	-1.98 *	1.61		53.4	4.37 X	23.25 H	4	LC
DGHBHH	45.8	0.57	1.35		44.7	0.03	2.01	4	LC
DQKTQY	45.5	0.41	2.65		45.2	0.31	0.52	4	TD
E3VKVK	47.2	1.16	2.12		46.3	0.86	1.13	3	TG
E626L7	44.8	0.12	2.05		44.9	0.14	0.11 L	4	LD
F87VLT	28.4	-7.01 X	1.94		37.6	-3.49 X	7.99 H	3	WK
GMUKY2	44.4	-0.06	1.70		43.7	-0.46	1.38	4	TD
HWDC6Q	41.5	-1.33	0.92		40.3	-2.12 *	1.04	4	LD
JBQC9U	46.5	0.86	0.85		46.4	0.87	0.79	3	LC
KJLBHF	42.7	-0.80	1.32		43.0	-0.79	0.24	4	EM
KNVRR6	47.7	1.38	0.95		46.4	0.89	1.04	4	TJ
KZP9G7	41.1	-1.48	0.74 L		41.3	-1.63	1.27	3	TD
L867NP	49.2	2.03 *	1.89		49.0	2.16 *	0.27	3	EM
LAPV93	42.6	-0.83	1.60		42.8	-0.90	0.70	4	EM
LMHHEX	44.7	0.06	1.24		45.6	0.51	1.44	4	LD
LMXWNT	45.8	0.55	0.75		45.1	0.27	0.72	4	LD
MP3QYJ	42.2	-1.00	1.47		43.1	-0.73	1.31	2	TK
MUACRL	46.3	0.75	1.17		45.8	0.58	1.08	4	LC
ND66CK	51.9	3.22 X	0.44 L		54.3	4.84 X	1.65	4	LD
PDLL6R	42.6	-0.84	0.56 L		42.5	-1.03	1.75	4	EM
PHA77M	44.7	0.08	1.39		44.6	-0.03	0.94	4	LD
Q622YX	42.2	-1.03	1.95		42.6	-0.99	1.42	4	LC
QGFY42	47.9	1.46	1.48		49.5	2.45 *	1.60	4	TD
RGCU4J	44.7	0.10	0.79		44.5	-0.06	0.37	2	TL
Y7NBPC	47.0	1.09	2.22		45.2	0.28	1.85	4	EM

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
Z77LZ6	43.5	-0.42	3.67	H	44.5	-0.04	1.21	4	XX
Z7GNL4	41.0	-1.55	1.17		42.2	-1.20	1.27	4	LD

Consensus (All Labs) Results

Month Mean	44.51	Grand Mean	44.61
Avg SD	1.68	Avg SD Months	1.27
SD btwn Labs	2.30	SD btwn Labs	2.01
Labs Incld	39	Labs Incld	38

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	EN	Emerson 2200
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LY	L&W 830	TB	TMI Monitor/Compression Tester, Model 17-70
TD	TMI Digital Crush Tester, Model 17-09	TG	TMI Digital Crush Tester, 17-76
TH	TMI Monitor/Compression Tester, Model 17-76	TJ	TLS Compression Tester, Model CDM-5
TK	TLS Compression Tester, Model 5184	TL	Tech-Lab Systems Compression
WK	Zwick Z005 Crush Tester	XX	Instrument make/model not specified by lab

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
42GAVJ	107.9	110.9	103.5	106.6	107.2	-0.90	7.6	3.1	106.5	-1.10	7.6	2.2	8	LC
66DMM2	109.2	109.4	110.0	111.2	110.0	-0.13	7.6	0.9	109.1	-0.35	12.6	5.0	8	AH
6BGGPA	104.6	104.5	107.2	113.9	107.5	-0.81	6.9	4.4	105.9	-1.28	7.8	4.2	8	LC
6CWPU4	110.5	108.7	100.7 *	107.0	106.7	-1.03	8.9	4.3	106.1	-1.20	8.3	3.0	8	LA
6XBDG9	116.4	121.3 X	112.5	117.1 *	116.8	1.78	9.5	3.6	117.5	2.03 *	9.6	3.0	8	LC
6YKHUW	125.3 X	124.5 XL	124.5 XL	123.5 X	124.4	3.90 X	3.9	0.8	123.3	3.69 X	7.3	1.9	8	XX
8C6GX6	103.0	109.6	106.7	106.3	106.4	-1.12	6.7	2.7	106.1	-1.22	8.1	2.4	8	AH
8TVGTA	112.7	114.4	118.9 *	108.9	113.7	0.91	9.9	4.2	113.3	0.84	9.3	3.3	7	LC
9TNUP2	106.0	113.7	106.2	107.1	108.2	-0.61	8.0	3.7	106.8	-1.01	8.1	4.4	8	LJ
A4KDPT	106.6	105.6	109.0	107.4	107.2	-0.91	6.8	1.4	108.0	-0.66	9.3	1.9	8	LC
AHPA9U	120.0 *	114.2	113.6	115.9 *	115.9	1.53	7.0	2.9	116.8	1.84	8.1	2.4	8	LZ
B4X9MK	105.2 H	106.6	113.6 H	109.0	108.6	-0.51	11.4	3.7	110.8	0.12	9.5	3.8	8	AH
BQZVV4	111.1	111.9	110.8	108.2	110.5	0.02	8.4	1.6	111.3	0.27	8.7	1.8	8	AH
CAL9LX	103.3	106.1	106.7	103.6 *	104.9	-1.54	10.9	1.7	107.4	-0.82	9.6	3.0	8	LC
DCQ4XN	109.9	115.8	114.5	113.3	113.4	0.82	10.0	2.5	112.9	0.73	10.1	3.0	8	LA
DYHBC3	No Data	115.0	118.3	121.7 X	118.3	2.20 *	8.4	3.3	119.4	2.57 *	9.9	2.6	7	LA
E626L7	113.9	112.8	113.7	113.3	113.4	0.84	7.5	0.5	112.7	0.67	7.2	0.8	8	LA
EVCGNH	103.4	105.6	108.5	112.2	107.4	-0.83	9.6	3.8	106.3	-1.15	9.1	3.5	8	LA
FCW6WR	112.7	108.8	114.1	109.2	111.2	0.22	8.5	2.6	111.4	0.29	9.2	2.6	8	LJ
HBDZDK	110.7	114.4	108.6	110.4	111.1	0.17	8.4	2.4	110.9	0.15	9.5	2.5	8	LC
HWDC6Q	104.7	106.3	109.1	109.7	107.4	-0.83	6.1	2.4	108.6	-0.50	6.6	2.1	8	LA
HX7ACX	113.2	113.6 L	113.0	112.6	113.1	0.74	5.4	0.4 L	114.6	1.21	5.2	1.7	8	RE
J3WYC2	107.0	109.0	110.4	105.5	108.0	-0.68	8.7	2.2	107.7	-0.74	9.7	2.3	8	LC
J6PWK8	107.9	109.0	111.1	108.5	109.1	-0.36	8.4	1.4	111.5	0.32	8.5	3.8	8	AA
JAXDZN	119.4 *	117.2	115.6	112.9	116.3	1.63	9.3	2.7	116.6	1.78	10.5	2.5	8	LZ
JC82X2	104.9	106.7	102.8	104.5	104.7	-1.59	8.7	1.6	105.9	-1.26	10.2	1.8	8	LC
JNJQCX	104.7	113.9	107.7	110.8	109.2	-0.33	10.4	4.0	109.3	-0.31	9.3	2.7	8	LC
JYWVJT	114.6	108.9	112.0	110.5	111.5	0.30	9.9	2.5	111.5	0.33	9.9	2.5	4	LC
KZP9G7	131.5 X	134.0 X	137.5 X	133.0 X	134.0	6.56 X	10.4	2.5	133.5	6.57 X	9.8	2.1	8	XX
L7RGLD	105.5	109.4	106.9	108.9	107.7	-0.77	11.4	1.8	109.4	-0.27	10.5	4.2	8	LA
LMHHEX	104.0	103.0 *	107.5	104.5	104.8	-1.58	9.1	1.9	105.1	-1.50	8.8	2.8	8	LA
LMXWNT	105.7	106.5	113.4	115.5	110.3	-0.04	11.5	4.9	108.0	-0.66	10.5	4.3	8	LA
M84QVP	115.0	115.5	121.0 *	121.3 X	118.2	2.16 *	8.6	3.4	118.0	2.17 *	9.6	4.1	8	AH
MCVXDX	111.4	110.5	104.1	111.0	109.3	-0.33	9.6	3.5	110.7	0.09	10.5	3.1	8	LC
NWVKAL	114.8	110.9	113.2	No Data	113.0	0.71	5.2	2.0	112.8	0.69	5.9	1.7	7	XX

Containerboard Interlaboratory Testing Program

Analysis 205

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

TAPPI Official Test Method T807

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
PFNGVM	111.0	117.3	126.2 X	125.3 X	119.9	2.65 *	10.0	7.2 H	121.4	3.14 X	10.4	5.0	8	TB
PHA77M	108.2	112.1	113.2 L	113.2	111.7	0.35	7.3	2.4	110.6	0.08	13.6	6.9 H	8	LC
PKFQYT	107.6	108.3	108.9	110.8	108.9	-0.43	7.8	1.4	108.2	-0.60	7.2	1.7	8	TP
PZC6W2	115.1	117.3	114.4	112.4	114.8	1.21	8.2	2.0	116.8	1.82	9.1	3.1	8	LC
QRUYXA	110.3	110.0 L	110.9	110.7 L	110.5	0.02	4.1	0.4 L	110.0	-0.11	3.8	0.6 L	8	LA
QXL7FH	108.3	110.9	110.4	111.8	110.4	-0.02	6.1	1.5	111.4	0.31	6.0	1.7	8	LC
TCUWA2	107.2	113.6	108.0	109.8	109.7	-0.22	9.7	2.8	108.3	-0.59	8.6	2.5	8	LC
TY9HCT	113.5	113.4	111.7 H	109.1	111.9	0.42	10.8	2.1	111.2	0.24	9.9	2.5	8	TB
UPZCTB	106.7	107.0 L	108.8 L	108.2 L	107.7	-0.77	3.7	1.0	107.8	-0.74	3.3	0.8 L	8	LA
UTYMNB	110.7	110.5	110.9	110.3	110.6	0.05	5.8	0.2 L	110.5	0.06	5.3	0.3 L	8	LJ
VDH8YK	107.9	108.5	107.4	110.3	108.5	-0.53	6.4	1.3	108.0	-0.67	6.9	1.1	8	AH
W9ZA63	114.9	112.7	117.8	113.0	114.6	1.15	8.9	2.3	114.6	1.20	8.9	2.3	4	LA
YMUFB4	114.2	105.4	108.8	112.0	110.1	-0.09	10.9	3.8	111.1	0.22	10.1	2.9	8	LA
YYT4BD	101.9	103.9	104.6	108.7	104.8	-1.57	9.6	2.8	105.6	-1.35	9.2	2.3	8	LB
Z6BWZG	108.1	111.5	110.0	108.3	109.5	-0.27	6.0	1.6	109.6	-0.21	7.0	1.2	8	LA
Z9TDV8	112.3	109.1	109.3	110.5	110.3	-0.03	7.9	1.5	110.5	0.05	8.5	1.0	8	LC
ZG4FG9	107.8	108.5	105.6	110.3	108.1	-0.66	5.5	1.9	108.7	-0.46	8.4	2.2	8	TB
ZHFEBG	112.6	109.0	111.6	112.3	111.4	0.26	7.4	1.6	108.2	-0.60	8.7	3.6	8	LC
ZJ8DLA	104.1	106.1	108.5	105.5	106.1	-1.21	8.3	1.8	106.1	-1.21	8.3	1.8	4	AH
ZLEQ8G	109.4	111.1	109.4	107.9 H	109.5	-0.27	11.8	1.3	109.1	-0.36	10.9	2.8	8	LA
ZPXLAA	117.1	114.9	115.1	106.2	113.3	0.81	7.2	4.8	113.2	0.81	8.9	4.2	8	AX

Consensus (All Labs) Results

Wk Mean	109.60	110.37	110.38	109.94
Avg SDr	7.88	8.74	8.84	8.62
SD btwn Labs	4.42	3.66	4.13	3.01
Labs Incld	53	53	53	50
Labs Excld	2	3	3	5
Labs not Rcvd	1	0	0	1

Month Mean	110.43
Avg SD	8.50
SD btwn Labs	3.59
SD btwn Wks	2.80
Labs Incld	54

Grand Mean	110.35
Avg SD	8.87
SD btwn Labs	3.52
SD btwn Wks	2.91
Labs Incld	53

Key to Instrument Codes Reported by Participants

AA	Perkins Model A	AH	Perkins Model AH
AX	Perkins Mullen Tester (model not specified)	LA	L&W Bursting Strength Tester
LB	L&W Burst-O-Matic	LC	L&W Autoline
LJ	L&W Bursting Strength Tester J-Type	LZ	L&W (model not specified)
RE	Regmed/Mullen Tester	TB	TMI Monitor/Burst 1000
TP	Technidyne PROFILE/Plus	XX	Instrument make/model not specified by lab

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
42GAVJ	93.1	91.2	90.2	89.0	90.9	-0.38	8.9	1.8	91.0	-0.48	7.4	2.1	12	LC
66DMM2	92.8	92.0	92.4	91.6	92.2	0.06	8.0	0.5	92.9	0.13	8.1	2.4	12	AH
6BGGPA	92.2	87.1 L	87.7	99.3	91.6	-0.15	8.3	5.7 H	89.9	-0.80	8.4	4.1	12	LC
6CWPU4	89.5	90.7	90.0	90.3	90.1	-0.64	8.9	0.5	88.2	-1.35	8.6	3.1	12	LA
6XBDG9	97.3	96.4	92.7	98.9	96.3	1.44	8.9	2.6	95.1	0.82	8.6	3.3	12	LC
6YKHUW	103.9XH	102.5 *	102.0 *	102.1 *	102.6	3.54 X	10.7	0.9	94.4	0.61	8.4	7.3 H	12	XX
8C6GX6	88.8	85.6	86.3	87.8	87.1	-1.63	7.0	1.4	87.8	-1.46	7.6	2.0	12	AH
8TVGTA	92.5	96.6	99.9	95.5	96.1	1.37	10.3	3.1	93.9	0.45	8.4	4.3	11	LC
9TNUP2	92.8	88.7	90.1	88.6	90.0	-0.66	7.8	2.0	89.5	-0.93	7.7	1.8	10	LJ
A4KDPT	94.0	88.7 L	87.3	83.2 *	88.3	-1.23	6.0	4.5	90.0	-0.80	8.7	4.4	12	LA
AHPA9U	98.2 *	95.9	98.3	96.8	97.3	1.76	9.1	1.1	96.5	1.24	9.2	2.3	12	LZ
B4X9MK	92.2	91.6	92.6	89.0	91.4	-0.22	6.8	1.6	95.2	0.84	6.9	4.5	8	AH
BQZVV4	90.7	96.4	95.5	93.7	94.1	0.69	6.9	2.5	94.3	0.55	8.2	2.4	12	AH
CAL9LX	90.5	93.1	88.4	90.8	90.7	-0.44	8.0	1.9	89.7	-0.87	9.4	1.7	8	LC
DCQ4XN	89.8	91.9	93.5	98.8	93.5	0.50	8.2	3.9	93.5	0.31	8.3	3.8	12	LA
DYHBC3	No Data	98.6	92.0	96.1 H	95.5	1.18	11.7	3.3	99.2	2.10	*10.7	5.3	11	LA
E626L7	93.0	92.9	92.1	92.8	92.7	0.24	7.1	0.4 L	92.8	0.11	5.3	0.3 L	12	LA
EVCGNH	88.0	86.5	85.1	89.2	87.2	-1.60	5.8	1.8	87.2	-1.65	6.7	2.6	12	LA
FCW6WR	94.4	91.5	93.4	89.6	92.2	0.07	9.1	2.2	91.3	-0.37	8.6	2.7	12	LJ
HBDZDK	90.6	89.7	88.7 H	90.6	89.9	-0.70	9.3	0.9	92.2	-0.10	8.3	3.6	12	LC
HWDC6Q	92.1	94.9	90.4	86.0	90.8	-0.39	6.6	3.7	88.9	-1.14	6.4	3.1	12	LA
HX7ACX	97.0	96.6	95.4	95.6	96.2	1.38	5.8	0.8	96.3	1.20	5.1	1.8	12	RE
J3WYC2	87.5	86.1	87.0	90.3	87.7	-1.43	8.3	1.8	89.1	-1.05	8.1	3.2	8	LC
J6PWK8	92.8	93.0	92.0 H	92.7	92.6	0.20	11.0	0.4 L	92.3	-0.05	9.4	1.9	12	AA
JAXDZN	97.1	102.7 *	101.8 *H	93.9	98.9	2.29 *	10.4	4.2	97.9	1.68	10.1	2.8	12	LZ
JC82X2	88.5	88.7	87.8	90.2	88.8	-1.06	9.1	1.0	92.2	-0.09	9.0	3.4	12	LC
JNJQCX	90.9	94.0	94.9	91.1	92.7	0.23	9.0	2.0	90.3	-0.69	9.0	2.5	12	LC
JYWVJT	91.2	91.7	95.8	91.1	92.4	0.14	8.3	2.2	93.7	0.37	8.3	2.7	12	LC
KZP9G7	104.5 X	110.5 X	111.0 X	107.0 X	108.3	5.41 X	10.1	3.1	99.2	2.10	* 9.7	9.9 H	8	XX
L7RGLD	95.2	91.9 H	93.6	88.9 H	92.4	0.14	13.2	2.7	92.9	0.13	10.2	2.5	12	LA
LMHHEX	88.4	90.7	88.7	87.4	88.8	-1.07	8.9	1.4	89.4	-0.98	8.5	2.5	12	LA
LMXWNT	86.9	92.6	89.7	94.7	91.0	-0.34	9.8	3.4	89.1	-1.06	8.8	2.6	12	LA
M84QVP	102.8 X	97.5	98.7	97.3	99.1	2.35 *	7.1	2.6	99.6	2.21	* 7.7	2.0	12	AH
MCVXDX	88.1	95.5	88.1	87.3	89.8	-0.75	9.6	3.9	91.3	-0.38	8.9	4.7	12	LA
NWVKAL	90.5	92.2	91.8	No Data	91.5	-0.17	5.6	0.9	90.7	-0.57	4.8	1.0	9	XX

Containerboard Interlaboratory Testing Program

Analysis 207

Bursting Strength (Mullen), 35 lb Linerboard - 35E1

TAPPI Official Test Method T807

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
PFNGVM	105.3 X	96.3	101.0 *	105.5 X	102.0	3.34 X	9.5	4.4	99.4	2.18 *	8.3	4.7	12	TB
PHA77M	91.9	91.0	93.3	91.2	91.9	-0.05	6.8	1.0	94.5	0.64	7.8	3.1	12	LC
PKFQYT	90.0	88.4	88.6	87.8	88.7	-1.10	6.1	0.9	88.8	-1.17	6.5	1.2	12	TP
PZC6W2	102.0XH	100.3 *	92.4	91.0	96.4	1.47	10.1	5.5 H	98.0	1.72	9.5	7.1 H	12	LC
QRUYXA	92.1	92.2 L	92.6	92.3 L	92.3	0.10	3.6	0.2 L	92.3	-0.07	5.4	0.8 L	12	LA
TCUWA2	91.1	94.3	95.9	86.9	92.1	0.01	9.3	4.0	90.8	-0.54	9.0	4.2	12	LC
TY9HCT	93.1	93.4	98.0	99.4 *	96.0	1.32	8.1	3.2	93.4	0.29	8.3	2.8	12	TB
UPZCTB	92.1	92.2 L	92.4 L	92.5 L	92.3	0.10	2.8	0.2 L	92.6	0.03	3.2	0.9 L	12	LA
UTYMNB	91.8	91.1	91.2	91.2 L	91.3	-0.22	4.3	0.3 L	91.4	-0.33	3.2	0.8 L	12	LJ
VDH8YK	89.4	87.3	88.0	90.3	88.8	-1.09	5.2	1.4	89.3	-1.02	6.3	1.2	12	AH
W9ZA63	92.2	98.0	95.6	90.3	94.0	0.68	6.0	3.4	94.6	0.67	7.1	2.8	12	LA
YMUFB4	91.1	91.1	88.5	91.9	90.7	-0.45	8.7	1.5	90.4	-0.66	8.7	1.6	12	LA
YYT4BD	88.8	87.7	85.6	89.2	87.8	-1.40	7.1	1.6	88.1	-1.38	6.8	1.5	12	LB
Z6BWZG	85.8 *	89.3	85.8	90.0	87.7	-1.42	5.4	2.2	88.2	-1.35	4.9	2.3	11	LA
Z9TDV8	96.9	94.7	91.7	90.2	93.4	0.45	7.2	3.0	93.2	0.21	7.5	4.1	12	LC
ZG4FG9	96.0	91.1	86.1	86.1	89.8	-0.73	7.8	4.8	91.7	-0.24	8.6	3.6	12	TB
ZHFEBG	94.3	93.4	98.1	96.2	95.5	1.16	7.6	2.1	93.9	0.45	7.9	2.2	8	LC
ZJ8DLA	87.8	94.6	90.3	90.4	90.8	-0.42	6.6	2.8	92.4	-0.03	6.8	2.2	12	AH
ZLEQ8G	91.5	85.3	89.0	93.1	89.7	-0.76	7.5	3.4	91.8	-0.22	8.4	3.3	12	LA
ZPXLAA	97.5	91.7	100.1	93.2	95.6	1.19	7.2	3.9	95.0	0.77	6.4	3.3	12	AX

Consensus (All Labs) Results

Wk Mean	91.84	92.57	92.18	91.79	Month Mean	92.01	Grand Mean	92.50
Avg SDr	7.93	8.09	8.03	8.14	Avg SD	8.05	Avg SD	7.94
SD btwn Labs	2.99	3.97	4.44	3.91	SD btwn Labs	3.00	SD btwn Labs	3.20
Labs Incld	49	54	54	52	SD btwn Wks	2.66	SD btwn Wks	3.42
Labs Excld	5	1	1	2	Labs Incld	52	Labs Incld	55
Labs not Rcvd	1	0	0	1				

Key to Instrument Codes Reported by Participants

AA	Perkins Model A	AH	Perkins Model AH
AX	Perkins Mullen Tester (model not specified)	LA	L&W Bursting Strength Tester
LB	L&W Burst-O-Matic	LC	L&W Autoline
LJ	L&W Bursting Strength Tester J-Type	LZ	L&W (model not specified)
RE	Regmed/Mullen Tester	TB	TMI Monitor/Burst 1000
TP	Technidyne PROFILE/Plus	XX	Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42F1

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2EQDY2	84.4	84.8	No Data	No Data	84.6	-0.86	2.7	0.3	84.3	-0.95	3.0	1.0	4	EX
2TAVUQ	85.5	84.3	84.1	86.0	85.0	-0.77	3.9	0.9	85.3	-0.74	3.5	1.0	8	EM
42GAVJ	90.4	86.6	84.5	88.4	87.5	-0.27	2.9	2.5	88.6	-0.03	2.7	2.1	8	LD
4L6XYJ	95.1	96.3	95.4	95.1	95.5	1.38	3.3	0.6	93.9	1.14	3.1	1.8	8	TH
6BGGPA	87.6	92.8	88.6	92.2	90.3	0.32	2.8	2.6	90.1	0.31	3.1	2.0	8	LD
6CWPU4	85.0	89.6	89.5	88.1	88.1	-0.14	2.6	2.1	88.9	0.05	2.6	1.8	8	LD
7LTBE8	82.1	81.5	85.3	86.7	83.9	-1.00	2.3	2.5	81.6	-1.54	2.5	3.1	8	LD
8C6GX6	89.4	87.1	89.5	90.3	89.1	0.06	3.1	1.4	90.4	0.37	2.7	1.7	8	LC
8TVGTA	90.8	89.3	93.8	91.9	91.4	0.55	3.9	1.9	92.1	0.74	3.4	1.6	7	LD
997FH8	83.9	83.0	85.4	81.8	83.5	-1.07	2.8	1.5	83.9	-1.03	2.7	1.8	8	EN
9TNUP2	93.4	92.3	93.0 L	93.7	93.1	0.89	2.8	0.6	92.6	0.84	2.9	1.3	8	LD
A4KDPT	88.5	81.6	84.1	80.4 *	83.7	-1.05	3.0	3.6	86.8	-0.42	2.9	4.5	8	LC
AHPA9U	88.3	84.5	84.3	86.2	85.8	-0.60	3.6	1.9	87.0	-0.36	3.4	2.0	8	LG
B4X9MK	93.5	96.0	94.8	91.8	94.0	1.08	3.4	1.8	94.5	1.25	3.5	1.9	8	LC
BQZVV4	84.7	85.2	86.4	85.1	85.3	-0.70	3.4	0.7	86.9	-0.39	3.1	1.9	8	LD
CAL9LX	103.7XH	100.0 *H	96.6	97.9 *H	99.6	2.22 *	9.3	3.1	99.1	2.24 *	7.9	2.5	8	LC
CBD8U6	95.6	93.0	93.4	92.2	93.5	0.98	1.9	1.5	94.0	1.15	1.9	1.2	8	LD
CTW8KZ	89.2	90.2	90.5	89.7	89.9	0.23	2.7	0.6	89.5	0.17	2.6	0.7 L	8	TH
DCQ4XN	83.8 H	81.0	84.8	84.9 H	83.6	-1.05	6.7	1.8	83.8	-1.06	6.9	3.2	8	LC
DGHBFW	83.6	92.7	82.8	81.5 H	85.2	-0.74	5.6	5.1	88.5	-0.05	4.7	4.9	8	MB
DQKTQY	95.7 L	94.0 L	95.0 L	92.7 L	94.4	1.15	1.0	1.3	93.6	1.07	0.9	1.9	8	TD
DYHBC3	No Data	96.1	96.3	98.1 *	96.8	1.66	3.0	1.1	96.6	1.70	3.0	1.4	7	LZ
E626L7	91.3	92.1	91.1	92.1	91.7	0.60	4.2	0.5	90.8	0.45	3.3	1.0	8	LD
EVCGNH	87.4	84.0	90.6	93.0	88.7	0.00	3.2	3.9	87.8	-0.20	3.3	4.0	8	LZ
FCW6WR	90.4	92.2	89.4	91.2	90.8	0.42	3.0	1.2	91.9	0.69	2.9	3.0	8	LD
GJTN8L	81.2	79.3	81.2	79.6 *L	80.3	-1.74	2.4	1.0	77.1	-2.50 *	2.4	3.6	8	RS
GVPPR3	94.7	97.4	95.1	93.7	95.2	1.33	2.0	1.6	93.7	1.09	2.5	2.8	8	XX
HWDC6Q	83.1	85.6	85.2	86.1	85.0	-0.77	3.0	1.3	85.7	-0.66	2.6	1.3	8	LD
HX7ACX	90.4	90.9	92.3	90.1	90.9	0.44	3.4	0.9	88.9	0.05	3.3	2.2	8	LZ
J3WYC2	92.6	92.9	90.3	91.1	91.7	0.61	3.5	1.2	91.0	0.49	3.2	1.1	8	LC
JAXDZN	90.0	89.3	87.1	87.7	88.5	-0.04	2.9	1.3	88.8	0.01	2.8	1.5	8	LC
JNJQCX	89.4 L	89.3 L	89.4 L	91.1	89.8	0.22	1.5	0.9	89.0	0.06	2.5	1.7	8	LD
LMHHEX	92.0	94.0	93.7	92.1	93.0	0.86	3.0	1.0	91.6	0.63	2.7	1.7	8	LD
MCVXDX	91.2	90.1	88.8	89.0	89.7	0.20	2.9	1.1	89.3	0.12	2.6	1.0	8	LD
MP3QYJ	86.2	85.3 L	85.7	86.5	86.0	-0.57	2.9	0.5	87.2	-0.33	3.4	1.8	8	MZ

Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42F1

TAPPI Official Test Method T822

WebCode	Weekly Means Week 1	Week 2	Week 3	Week 4	Monthly Results Mean	CPV	SD	SD Wks	Cumulative Results Mean	CPV	SD	SD Wks	Wks	Inst
MUACRL	85.8	86.1	86.2	86.9	86.3	-0.51	2.5	0.5	86.5	-0.47	2.4	0.4 L	8	LC
NWVKAL	78.7 *	83.9	81.4	82.9	81.7	-1.44	3.9	2.3	82.2	-1.41	4.0	3.6	8	LD
PFNGVM	105.1 X	103.8 *	105.7 X	106.0 X	105.1	3.37 X	2.6	1.0	105.6	3.65 X	3.1	1.0	8	LX
PHA77M	88.5	87.9 L	87.1	88.5	88.0	-0.16	2.0	0.7	88.5	-0.04	2.0	1.0	8	LD
PKFQYT	95.5 H	88.1	90.0	91.8	91.4	0.54	4.3	3.1	89.4	0.15	5.8	3.3	8	TJ
QRUYXA	90.6 L	89.7 L	89.8 L	89.6 L	89.9	0.24	1.3	0.4 L	88.3	-0.08	2.3	3.3	8	LZ
RAQY8L	91.6	88.3	83.3 H	91.9	88.7	0.00	10.8	4.0	89.7	0.21	8.0	2.9	8	LD
RUW8LK	92.7	95.6	93.5	94.7	94.1	1.11	2.4	1.3	93.2	0.97	2.2	1.3	8	MB
TJV98J	78.9 *	82.1 H	86.2	87.1	83.6	-1.07	4.5	3.8	83.6	-1.11	4.5	3.8	4	TH
TY9HCT	95.9	96.2	98.6 *	103.2 X	98.5	2.00 *	4.0	3.4	95.2	1.40	3.8	5.5	8	LD
UPZCTB	84.0	83.9 L	84.0 L	83.8 L	83.9	-1.00	1.4	0.1 L	83.4	-1.15	1.6	0.6 L	8	TU
UTYMNB	89.9	90.0	90.0	89.8	89.9	0.24	2.6	0.1 L	90.0	0.29	2.0	0.2 L	8	LD
W9ZA63	91.2	69.3 XH	93.3	67.3 XH	80.3	-1.74	6.9	13.8 H	80.3	-1.82	6.9	13.8 H	4	LD
X8ZT6B	85.0	84.4	82.6	84.5	84.1	-0.95	3.8	1.0	84.1	-0.99	3.8	1.0	4	LC
YYT4BD	86.4	86.5	91.8	91.7	89.1	0.07	3.4	3.0	91.5	0.61	3.2	3.3	8	LC
Z6BWZG	88.5	88.3	88.3	87.5	88.2	-0.12	3.0	0.4 L	88.8	0.02	2.6	1.1	8	LD
ZHFEBG	89.2	91.4	88.3	89.5	89.6	0.17	3.2	1.3	89.7	0.21	3.2	1.2	8	LD
ZJ8DLA	101.1 *	93.7	93.5	93.4	95.4	1.37	4.0	3.8	95.4	1.45	4.0	3.8	4	LZ
ZPXLAA	78.1 *	76.3 *	73.4 X	76.4 X	76.1	-2.61 *	3.9	2.0	76.7	-2.60 *	4.1	1.6	8	LC

Consensus (All Labs) Results

Wk Mean	88.66	89.06	89.13	89.22	Month Mean	88.75	Grand Mean	88.70
Avg SDr	3.42	3.36	4.30	3.38	Avg SD	3.85	Avg SD	3.62
SD btwn Labs	4.88	5.50	4.40	4.23	SD btwn Labs	4.86	SD btwn Labs	4.62
Labs Incld	51	53	51	49	SD btwn Wks	2.78	SD btwn Wks	3.07
Labs Excld	2	1	2	4	Labs Incld	53	Labs Incld	53
Labs not Rcvd	1	0	1	1				

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
EX	Emerson (model not specified)	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LG	L&W 753
LX	L&W 506	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	MZ	Messmer Buchel (model not specified)
RS	Regmed Digital Crush Tester CT-2000	TD	TMI Digital Crush Tester, Model 17-09
TH	TMI Compression Tester, Model 17-76	TJ	TLS Compression Tester, Model CDM-5
TU	TMI Universal Crush Tester (TMI K440)	XX	Instrument make/model not specified by lab

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2EQDY2	76.2	76.3	No Data	No Data	76.3	-0.33	3.8	0.0	77.5	-0.06	3.2	1.3	8	EX
2TAVUQ	69.8	70.4	70.8	72.6	70.9	-1.51	3.1	1.2	71.5	-1.31	3.5	2.0	12	EM
42GAVJ	77.9	74.9	74.5	80.4	76.9	-0.19	3.0	2.8	76.6	-0.25	3.3	1.9	12	LD
4L6XYJ	75.9	76.5	75.4	76.5	76.1	-0.37	3.5	0.5	79.0	0.25	3.3	4.1	12	TH
6BGGPA	81.5	80.9	80.1	82.1	81.1	0.74	4.4	0.9	80.6	0.58	4.7	1.0	12	LD
6CWPU4	75.5	75.8	81.4	78.1	77.7	-0.02	3.6	2.7	78.0	0.04	3.6	1.6	12	LD
7LTBE8	76.1	75.4	78.0	77.7	76.8	-0.21	4.3	1.2	71.8	-1.26	3.8	4.9	12	LD
8C6GX6	82.0	79.6	80.9	79.5	80.5	0.59	3.6	1.2	81.2	0.72	3.6	1.4	12	LC
8TVGTA	75.2	74.2	78.9	79.4	76.9	-0.18	4.1	2.6	79.4	0.35	3.6	2.8	12	LD
997FH8	77.2	76.1	79.5	78.1	77.7	-0.01	3.1	1.5	76.2	-0.32	3.2	1.5	12	EN
9TNUP2	83.0	84.0	82.6	83.9	83.4	1.23	2.8	0.7	84.3	1.37	2.9	1.9	10	LD
A4KDPT	76.9	70.8	69.5 L	76.2	73.4	-0.97	2.7	3.7	75.8	-0.41	3.0	2.9	12	LC
AHPA9U	80.0	74.5	73.8	76.8	76.3	-0.33	3.0	2.8	76.7	-0.23	3.5	3.0	12	LG
B4X9MK	86.1	85.9	87.0	83.3	85.6	1.72	3.2	1.6	81.5	0.78	5.6	4.6	8	LC
BQZVV4	77.6	74.7	77.0	74.8	76.0	-0.38	4.5	1.5	76.2	-0.33	3.4	1.3	12	LD
CAL9LX	82.0	81.2	87.4	84.2 H	83.7	1.30	6.0	2.8	83.7	1.24	6.0	2.8	4	LC
CBD8U6	82.8	81.6 L	82.7	82.7 L	82.4	1.02	2.1	0.5	82.9	1.07	2.5	0.7 L	12	LD
CTW8KZ	77.5	78.1	77.8	77.2	77.6	-0.02	2.6	0.4 L	78.9	0.24	2.9	1.2	12	TH
DCQ4XN	75.7 H	69.0 H	64.5 *H	66.0 *H	68.8	-1.96 *	9.0	5.0	72.4	-1.12	8.6	5.9	12	LC
DGHBFW	73.4	80.4	72.4	73.0	74.8	-0.65	5.2	3.8	75.5	-0.47	5.8	4.6	12	MB
DQKTQY	76.0 L	74.7 L	73.3 L	74.4 L	74.6	-0.69	1.4	1.1	76.0	-0.36	2.2	3.2	12	TD
DYHBC3	No Data	84.5	88.1 *	88.2 *	86.9	2.01 *	3.4	2.1	83.6	1.22	4.2	7.5 H	11	LZ
E626L7	80.9	80.2	79.9	80.4	80.3	0.56	4.0	0.4 L	80.6	0.60	3.6	0.4 L	12	LD
EVCGNH	80.5 H	77.3	78.3	76.2	78.1	0.07	5.2	1.8	77.4	-0.08	3.9	2.6	12	LZ
FCW6WR	80.4	82.1	80.7	78.0	80.3	0.56	3.0	1.7	80.8	0.64	2.8	1.4	12	LD
GJTN8L	67.3 *	68.5 L	68.0 *	69.0	68.2	-2.09 *	2.2	0.7	65.2	-2.63 *	2.4	2.4	12	RS
GVPPR3	86.7	86.4	81.8	85.5	85.1	1.61	3.2	2.3	89.0	2.34 *	3.3	9.6 H	8	MB
HWDC6Q	75.1	74.8	76.2	76.4	75.6	-0.47	3.0	0.8	76.2	-0.32	2.9	1.4	12	LD
HX7ACX	80.8	79.9	81.0	79.6	80.3	0.56	2.9	0.7	82.3	0.94	2.9	2.7	12	LZ
J3WYC2	75.4	76.3	77.1	77.7	76.6	-0.25	2.9	1.0	80.2	0.50	2.8	4.0	8	LC
JAXDZN	77.6	75.8	76.3	75.7	76.4	-0.30	3.6	0.9	76.7	-0.22	3.6	1.3	12	LC
JNJQCX	79.2	78.7	79.9	79.5	79.3	0.34	2.4	0.5	78.9	0.24	2.5	0.8 L	12	LD
LMHHEX	79.4	80.7	81.0	78.8	80.0	0.48	3.5	1.1	78.3	0.12	3.2	2.7	12	LD
MCVXDX	78.6	77.6	79.6	79.0	78.7	0.20	3.0	0.8	79.4	0.33	2.7	0.9 L	12	LD
MP3QYJ	73.1	72.8	76.3	69.7	73.0	-1.05	2.9	2.7	67.9	-2.06 *	2.8	5.9	8	MB

Containerboard Interlaboratory Testing Program

Analysis 217

Ring Crush, 35 lb Linerboard - 35E1

TAPPI Official Test Method T822

Report #593 (B)
February 2019

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
MUACRL	76.0	78.3	77.6	76.7	77.2	-0.13	3.3	1.0	77.5	-0.06	2.8	0.7 L	12	LC
NWVKAL	65.5 *	68.2	72.6	70.7	69.3	-1.86	3.3	3.1	67.1	-2.24 *	3.2	4.2	10	LD
PFNGVM	90.6 *	90.5 *	96.4 X	97.2 X	93.7	3.49 X	3.9	3.6	92.0	2.97 X	4.4	4.0	12	LX
PHA77M	77.5	75.1	77.1	77.7	76.9	-0.20	3.1	1.2	77.2	-0.12	3.0	1.3	12	LD
PKFQYT	79.8 H	76.3	75.5	77.6	77.3	-0.10	5.4	1.9	76.6	-0.24	6.0	2.2	12	TJ
QRUYXA	77.7	80.6	79.4	78.7 L	79.1	0.29	2.6	1.2	78.8	0.22	2.3	1.1	8	LZ
RAQY8L	81.2	82.9	79.9	81.3	81.3	0.78	3.3	1.2	80.8	0.64	3.1	1.8	12	LD
RUW8LK	82.2	83.3	84.6	85.1	83.8	1.32	3.6	1.3	80.6	0.59	4.7	5.0	12	MB
TJV98J	70.2	70.3	72.8	74.9	72.0	-1.25	4.5	2.3	72.0	-1.20	4.5	2.3	4	TH
TY9HCT	85.2 H	85.0 H	87.0 H	86.4	85.9	1.78	6.6	1.0	81.8	0.84	5.9	5.1	11	LC
UPZCTB	73.7 L	73.8 L	73.7	73.6 L	73.7	-0.89	1.5	0.1 L	74.3	-0.72	1.5	0.5 L	12	TU
UTYMNB	80.4	80.2	80.1 L	80.3	80.3	0.55	2.7	0.1 L	79.4	0.35	1.7	1.4	12	LD
W9ZA63	86.0	63.7 *H	85.9	63.5 XH	74.8	-0.65	7.4	12.9 H	79.8	0.43	7.3	12.0 H	12	LC
X8ZT6B	72.2	71.1	73.9	72.2	72.3	-1.19	3.0	1.2	70.3	-1.56	3.5	2.6	8	LC
YYT4BD	86.4	86.5	83.0	84.1	85.0	1.59	3.8	1.7	84.9	1.48	3.9	1.4	12	LC
Z6BWZG	76.4	79.7	78.7	78.2	78.3	0.11	3.3	1.4	78.7	0.19	3.2	0.9 L	12	LD
ZHFEBG	78.4	79.7	81.2	81.5	80.2	0.54	3.3	1.4	80.9	0.65	3.8	1.6	8	LD
ZJ8DLA	84.5 H	79.8	76.9	78.5	79.9	0.47	5.3	3.3	82.0	0.88	5.1	2.9	12	LZ
ZPXLAA	67.4 *	67.3	66.9 *	69.5	67.8	-2.19 *	4.1	1.2	66.8	-2.29 *	3.7	3.0	12	LC

Consensus (All Labs) Results

Wk Mean	78.20	77.46	78.04	77.99	Month Mean	77.76	Grand Mean	77.77
Avg SDr	3.94	3.93	3.65	3.90	Avg SD	3.91	Avg SD	3.91
SD btwn Labs	5.11	5.45	5.15	4.67	SD btwn Labs	4.56	SD btwn Labs	4.78
Labs Incld	53	54	52	51	SD btwn Wks	2.56	SD btwn Wks	3.58
Labs Excld	0	0	1	2	Labs Incld	53	Labs Incld	53
Labs not Rcvd	1	0	1	1				

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
EX	Emerson (model not specified)	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LG	L&W 753
LX	L&W 506	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	RS	Regmed Digital Crush Tester CT-2000
TD	TMI Digital Crush Tester, Model 17-09	TH	TMI Compression Tester, Model 17-76
TJ	TLS Compression Tester, Model CDM-5	TU	TMI Universal Crush Tester (TMI K440)

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2EQDY2	23.5 L	23.2 L	No Data	No Data	23.3	0.00	0.0	0.2	23.2	-0.07	0.0	0.5	4	TT
42GAVJ	22.3	23.5	24.0	23.7	23.4	0.04	1.6	0.7	23.4	0.13	1.8	0.5	8	LA
4L6XYJ	22.2	21.5	21.8	22.6	22.0	-1.36	1.9	0.5	22.2	-1.24	2.0	0.7	8	LH
6BGGPA	23.4	25.1	24.9	24.2	24.4	1.12	1.8	0.8	23.9	0.70	1.7	1.2	8	LA
6CWPU4	22.9	24.0	23.5 L	23.0	23.3	0.01	1.6	0.5	23.3	0.10	1.6	0.5	8	LY
6XBDG9	22.7	23.9	23.7	22.8	23.3	-0.07	1.6	0.6	23.1	-0.15	1.5	0.5	8	LA
7LTBE8	22.0	21.3	21.9	23.0	22.0	-1.34	1.5	0.7	22.8	-0.58	1.5	0.9	8	LH
8C6GX6	21.9	23.1	22.8	23.1	22.7	-0.63	1.6	0.6	22.9	-0.40	1.6	0.5	8	LU
8KJFE2	23.6	24.1	24.6	23.6	24.0	0.68	1.5	0.5	24.2	1.05	1.9	0.5	8	LH
8TVGTA	22.6	21.8 H	23.1	21.6	22.3	-1.13	1.9	0.7	22.9	-0.46	1.8	1.0	7	LZ
997FH8	21.5	21.8	21.2	21.2 *	21.4	-2.01 *	1.6	0.3	21.6	-1.93	1.5	0.3	8	LY
9TNUP2	22.7	22.3	22.3 L	22.6	22.5	-0.90	1.5	0.2	22.2	-1.25	1.7	0.5	8	LY
A4KDPT	21.6 L	22.0	21.5 L	21.4 *	21.6	-1.78	1.1	0.3	22.2	-1.27	1.3	0.9	8	LA
AHPA9U	22.4	22.4	22.1	23.1	22.5	-0.87	1.6	0.4	22.9	-0.46	1.5	0.6	8	LU
B4X9MK	22.5 H	25.1 H	22.2 H	22.4 H	23.0	-0.31	3.0	1.4 H	23.0	-0.26	3.1	1.2	8	LY
BQZVV4	21.7	22.7	22.5	25.0	23.0	-0.38	1.6	1.4 H	22.9	-0.48	1.7	1.0	8	LU
CAL9LX	25.6 *	24.4	26.3 *	24.5	25.2	1.93	1.8	0.9	25.3	2.35 *	1.7	1.0	8	LA
CBD8U6	23.2	22.9	22.9	23.4	23.1	-0.24	1.6	0.2	23.3	0.08	1.7	0.3	8	LY
DCQ4XN	24.5	24.4	24.1	24.2	24.3	1.02	2.0	0.2	24.3	1.19	2.0	0.3 L	8	LU
DGHBFW	25.9 *	22.8	25.2	24.1	24.5	1.18	1.8	1.3 H	28.3	5.88 X	1.9	11.5 H	8	LA
DYHBC3	No Data	23.6	23.9	24.1	23.8	0.51	2.0	0.3	23.3	0.04	1.9	0.6	7	LW
E626L7	23.2	23.2	23.3	23.0	23.2	-0.17	1.5	0.1	23.2	-0.11	1.5	0.1 L	8	LA
EGE7HY	18.4 X	19.4 X	19.2 X	23.5	20.1	-3.35 X	1.7	2.3 H	21.0	-2.60 *	1.6	2.4 H	8	LY
EVCGNH	22.0	22.1	22.5	22.7 L	22.3	-1.08	1.6	0.3	22.0	-1.48	1.7	0.5	8	LA
FCW6WR	23.9	24.3	23.4	24.2	23.9	0.60	1.9	0.4	23.3	0.07	1.7	0.7	8	LA
FEKYDT	19.3 X	19.1 XH	15.4 XH	20.1 X	18.5	-5.06 X	2.4	2.1 H	19.2	-4.80 X	2.3	1.6	8	LZ
FGAA4L	26.4 X	25.0	25.5	26.4 X	25.8	2.56 *	1.8	0.7	25.8	2.99 X	1.8	0.7	4	LA
GVPPR3	23.7	23.5	23.3	23.9	23.6	0.27	1.8	0.3	25.1	2.10 *	1.8	4.6 H	8	LA
HBDZDK	24.5	24.4	24.1	24.2	24.3	1.02	2.0	0.2	24.3	1.19	2.0	0.3 L	8	XX
HWDC6Q	21.8 L	22.1	22.1 L	22.3	22.1	-1.31	1.0	0.2	22.3	-1.14	1.0	0.4	8	BK
HZEK92	23.7	22.9	22.5	22.9	23.0	-0.38	1.3	0.5	23.0	-0.34	1.4	0.4	8	LW
J3WYC2	21.8	20.9 *	24.0	22.8 L	22.4	-1.00	1.8	1.3 H	22.2	-1.24	4.0	1.4	8	LA
J6PWK8	22.1	24.2	23.4	24.4	23.5	0.17	1.8	1.1	23.1	-0.19	1.8	0.8	8	LH
JAXDZN	23.4	21.7	22.9	23.7	22.9	-0.43	1.6	0.9	22.5	-0.84	1.8	0.8	8	LW
JYWVJT	23.4	23.7	22.9	22.9	23.2	-0.13	1.8	0.4	23.2	-0.05	1.8	0.4	4	LU

Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42F1

TAPPI Official Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
L7RGLD	24.4	23.3	23.1	24.0	23.7	0.39	2.0	0.6	24.0	0.86	1.8	0.6	8	LZ
LMHHEX	23.3 L	25.8 *	25.7 *	24.3	24.8	1.49	1.5	1.2	24.4	1.30	1.8	0.9	8	LZ
M84QVP	25.5 *	24.9	25.7 *	23.7	25.0	1.67	1.4	0.9	24.5	1.45	1.6	0.8	8	LU
M9VP4W	23.9	24.2	24.4	24.4	24.2	0.92	1.5	0.3	24.1	0.95	1.5	0.6	8	LH
MCVXDX	23.5	24.1	22.7	23.7	23.5	0.16	1.5	0.6	24.0	0.84	1.9	0.8	8	LA
PHA77M	24.2	23.8	23.6	23.7	23.8	0.50	1.9	0.3	23.7	0.46	1.6	0.4	8	LA
PKFQYT	22.3	22.8 L	22.7 L	22.5	22.6	-0.79	1.1	0.2	22.6	-0.75	1.1	0.2 L	8	TT
PZC6W2	23.0	23.6	23.0	22.7	23.1	-0.27	1.7	0.4	23.0	-0.30	1.7	0.5	8	LA
QXL7FH	22.1	21.4 L	22.3	21.8	21.9	-1.48	1.3	0.4	22.9	-0.39	1.6	1.5	8	LA
RAQY8L	23.1	22.3	22.9	22.0	22.6	-0.81	1.5	0.5	22.9	-0.48	1.6	0.6	8	LY
RUW8LK	24.1 L	25.5 L	25.6 L	24.9 L	25.0	1.76	0.0	0.7	23.8	0.66	0.0	1.6	8	BK
TCUWA2	24.5	22.7	22.5 H	22.7	23.1	-0.22	1.8	0.9	23.8	0.61	2.0	1.0	8	LA
TY9HCT	24.5	23.7	25.1	23.7	24.3	0.95	1.9	0.7	24.1	0.98	2.1	0.6	8	LW
VDH8YK	22.7	23.1 L	22.9 L	22.6 L	22.8	-0.55	1.0	0.2	22.7	-0.60	1.0	0.2 L	8	TT
W7ZZZT	23.2 H	23.7	22.7	22.6	23.0	-0.31	2.0	0.5	23.2	-0.07	1.7	0.5	8	LA
YMUFB4	23.7	23.6	23.6	24.2	23.8	0.45	1.7	0.3	25.1	2.12 *	1.9	3.7 H	8	LU
YYT4BD	24.5	24.0	24.2	23.6	24.1	0.75	1.4	0.4	24.0	0.87	1.6	0.4	8	LW
Z6BWZG	23.2	22.6	23.7	24.4	23.5	0.14	1.7	0.8	23.3	0.05	1.7	0.6	8	LA
Z9TDV8	23.7	25.4	24.2	24.6	24.5	1.17	2.0	0.7	23.1	-0.14	1.4	1.5	8	LA
ZG4FG9	21.9	22.0	21.5	22.0	21.8	-1.56	1.7	0.3	22.1	-1.38	1.8	0.3	8	LZ
ZHFEBG	23.1	23.6	23.0	23.4	23.3	-0.06	1.7	0.3	23.5	0.32	1.7	0.4	8	LA
ZLEQ8G	24.7	24.7	23.1	24.3	24.2	0.89	1.8	0.8	23.7	0.52	1.7	0.8	8	LY
ZPXLAA	23.7	21.8	23.0	22.1	22.6	-0.74	1.9	0.9	22.9	-0.37	1.7	0.7	8	LZ

Consensus (All Labs) Results

Wk Mean	23.24	23.32	23.37	23.31	Month Mean	23.34	Grand Mean	23.26
Avg SDr	1.74	1.74	1.68	1.66	Avg SD	1.70	Avg SD	1.79
SD btwn Labs	1.07	1.18	1.17	0.93	SD btwn Labs	0.96	SD btwn Labs	0.85
Labs Incld	54	56	55	55	SD btwn Wks	0.66	SD btwn Wks	1.13
Labs Excld	3	2	2	2	Labs Incld	56	Labs Incld	55
Labs not Rcvd	1	0	1	1				

Key to Instrument Codes Reported by Participants

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

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2EQDY2	23.2 L	22.7 L	No Data	No Data	22.9	0.52	0.0	0.4	23.3	0.90	0.0	1.1	8	LZ
42GAVJ	22.1	21.4	22.4	22.7	22.1	-0.12	1.5	0.5	22.3	-0.17	1.6	0.5	12	LA
4L6XYJ	19.8 *	19.0 *	18.6 *	19.0 X	19.1	-2.54 *	1.6	0.5	20.6	-1.92	1.6	2.1	12	LH
6BGGPA	23.1	23.6	22.9	23.0	23.2	0.70	1.7	0.3	22.9	0.51	1.8	0.6	12	LA
6CWPU4	22.5	22.3	22.4 L	21.6	22.2	-0.06	1.5	0.4	22.1	-0.37	1.6	0.7	12	LY
6XBDG9	22.5	22.5	22.1	23.2	22.6	0.25	1.6	0.5	22.6	0.12	1.6	0.6	12	LA
7LTBE8	21.4	21.1	20.9	22.3	21.5	-0.66	1.7	0.6	21.4	-1.10	1.5	0.6	12	LH
8C6GX6	22.4	22.5	22.4	21.8	22.3	-0.01	1.8	0.3	22.3	-0.15	1.8	0.4	12	LU
8KJFE2	23.9	24.2 H	24.6	23.5	24.0	1.38	2.7	0.5	23.6	1.19	2.1	1.3	12	LH
8TVGTA	22.3 L	21.9	22.6	22.1	22.2	-0.06	1.6	0.3	21.8	-0.66	1.7	0.9	12	LZ
997FH8	20.1	20.7 L	21.6	21.0	20.8	-1.14	1.2	0.6	21.0	-1.44	1.4	0.5	12	LY
9TNUP2	21.5	21.1	21.5	21.5	21.4	-0.69	1.5	0.2	21.7	-0.72	1.7	0.6	10	LY
A4KDPT	19.7 *L	19.6	20.5 L	19.9 *	19.9	-1.87	1.2	0.4	21.0	-1.45	1.2	1.1	12	LA
AHPA9U	22.1	21.5	21.8	22.6	22.0	-0.24	1.7	0.5	21.7	-0.74	1.5	0.7	12	LW
B4X9MK	22.1 H	25.8 *H	21.6 H	23.0 H	23.1	0.68	3.5	1.9 H	22.8	0.42	3.5	1.4	8	LH
BQZVV4	21.5	21.2	21.2	23.6	21.9	-0.31	1.5	1.1	21.7	-0.73	1.4	0.7	12	LU
CAL9LX	23.1	23.8	24.5 L	24.5 H	24.0	1.34	1.7	0.7	24.1	1.66	1.7	0.6	8	LA
CBD8U6	22.4	22.3	22.6	22.9	22.5	0.21	1.8	0.3	22.4	-0.04	1.6	0.3	12	LY
DCQ4XN	23.9	23.2	25.4 *	23.6	24.0	1.36	1.9	1.0	24.3	1.86	1.8	1.1	12	LU
DGHBFW	23.2 H	22.0	27.0 XH	22.0	23.6	1.01	2.3	2.3 H	22.1	-0.34	1.9	2.2 H	12	LA
DYHBC3	No Data	21.5	23.0	23.0	22.5	0.16	1.9	0.8	21.9	-0.57	1.7	0.7	11	LW
E626L7	22.5	22.2	22.5	22.4	22.4	0.09	1.2	0.1	22.3	-0.13	1.4	0.1 L	12	LA
EGE7HY	18.0 X	18.5 *	18.5 *	22.0	19.3	-2.40 *	1.5	1.8 H	21.1	-1.34	1.5	2.2 H	12	LY
EVCGNH	20.1	22.0 L	20.2	20.9	20.8	-1.18	1.3	0.8	20.7	-1.81	1.4	0.7	12	LA
FCW6WR	22.9	22.8	22.3	22.7	22.7	0.31	1.7	0.2	22.8	0.37	1.6	0.3	12	LU
FEKYDT	20.0	19.8	19.4 *	18.6 X	19.4	-2.26 *	2.0	0.6	19.4	-3.07 X	2.0	0.6	4	LZ
FGAA4L	23.3	23.6	23.1	23.4	23.3	0.84	1.8	0.2	23.3	0.92	1.8	0.2 L	4	LA
GVPPR3	22.6	23.3	23.4	22.4	22.9	0.50	2.0	0.5	24.0	1.56	2.0	4.3 H	7	LA
HBDZDK	23.9	23.2	25.4 *	23.6	24.0	1.36	1.9	1.0	24.3	1.95 *	1.8	1.0	12	XX
HWDC6Q	21.5 L	21.0 L	21.7 L	20.6	21.2	-0.87	0.9	0.5	21.0	-1.51	1.1	0.5	12	BK
HZEK92	22.1	22.5	22.1	22.1	22.2	-0.07	1.4	0.2	22.0	-0.45	1.5	0.4	8	LW
J3WYC2	22.0	20.9	21.3	20.1 *L	21.1	-0.95	1.4	0.8	21.1	-1.34	1.3	0.7	8	LA
J6PWK8	22.5	23.3	23.1	22.5	22.8	0.43	2.0	0.4	22.5	0.03	1.9	0.8	12	LH
JAXDZN	22.4	21.3	22.0	21.6	21.8	-0.37	1.6	0.5	21.6	-0.82	1.8	0.5	12	LW
JYWVJT	22.5	21.3	22.3 L	22.7	22.2	-0.08	1.5	0.6	22.2	-0.23	1.6	0.6	12	LA

Containerboard Interlaboratory Testing Program

Analysis 225

STFI, 35 lb Linerboard - 35E1

TAPPI Official Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
L7RGLD	25.0 *	22.7	22.7	23.5	23.5	0.95	1.4	1.1	23.7	1.27	1.7	0.9	12	LZ
LMHHEX	22.2	24.0	23.9 L	22.6	23.2	0.71	1.7	0.9	22.3	-0.10	1.7	1.4	12	LZ
M84QVP	24.9 *	22.0	24.3	25.2 *H	24.1	1.45	2.1	1.5	24.6	2.18 *	2.1	1.3	12	LU
M9VP4W	23.4	23.9	24.3	23.9	23.9	1.26	1.5	0.4	23.5	1.05	1.5	0.6	12	LH
MCVXDX	22.4 H	21.8	21.8	22.2	22.0	-0.19	2.0	0.3	22.6	0.19	1.8	0.6	12	LW
PHA77M	22.0	22.4	22.0	22.0	22.1	-0.14	1.8	0.2	22.3	-0.20	1.6	0.4	12	LA
PKFQYT	21.2	21.5	21.8	21.5	21.5	-0.60	1.2	0.2	21.6	-0.83	1.2	0.2 L	12	TT
PZC6W2	22.3	22.2	22.1	22.2	22.2	-0.05	1.7	0.1 L	22.3	-0.17	1.6	0.3	12	LA
QXL7FH	20.3 L	19.0 *L	20.1	20.0 *	19.8	-1.93	1.2	0.6	21.4	-1.05	1.3	1.5	12	LA
RAQY8L	20.8	20.9	21.2	22.0	21.2	-0.84	1.5	0.5	22.0	-0.42	1.7	0.8	12	LY
RUW8LK	23.8 L	24.9 *L	23.9 L	24.4 L	24.3	1.56	0.0	0.5	22.4	-0.01	2.0	1.5	12	BK
TCUWA2	23.0	22.5	22.3	22.2	22.5	0.15	1.6	0.4	23.2	0.78	1.9	0.8	12	LA
TY9HCT	24.4	23.5	24.2	23.5	23.9	1.30	2.0	0.5	23.5	1.11	1.8	0.7	11	LW
VDH8YK	21.4	21.7 L	21.8 L	21.6 L	21.6	-0.50	1.1	0.2	21.8	-0.69	1.0	0.3	12	TT
W7ZZZT	21.5	21.2	22.3	20.5	21.4	-0.74	2.0	0.7	22.6	0.16	1.9	1.5	12	LA
YMUFB4	23.5	24.3	23.8	23.1	23.6	1.08	1.9	0.5	24.1	1.72	1.9	0.6	12	LU
YYT4BD	24.2	23.3	24.1	24.1	23.9	1.29	1.7	0.4	23.3	0.87	1.8	0.6	12	LW
Z6BWZG	22.0	22.5 L	22.6	22.7	22.5	0.13	1.4	0.3	22.5	0.09	1.6	0.5	12	LA
Z9TDV8	36.9 X	34.3 X	34.3 XH	35.2 X	35.2	10.22 X	2.3	1.2	26.7	4.39 X	1.7	6.3 H	12	LA
ZG4FG9	21.4	21.5	21.6	21.3	21.4	-0.66	1.6	0.1	21.6	-0.84	1.7	0.3	12	LZ
ZHFEBG	23.5	22.8	22.9	22.4	22.9	0.47	1.5	0.4	22.9	0.49	1.6	0.6	8	LA
ZLEQ8G	22.7	22.7	22.5	22.7	22.6	0.29	1.4	0.1 L	22.8	0.35	1.7	0.3	12	LU
ZPXLAA	22.7	20.6	23.0	21.6	21.9	-0.27	1.7	1.1	23.0	0.58	1.7	1.5	12	XX

Consensus (All Labs) Results

Wk Mean	22.34	22.13	22.35	22.40	Month Mean	22.28	Grand Mean	22.44
Avg SDr	1.63	1.80	1.64	1.77	Avg SD	1.72	Avg SD	1.71
SD btwn Labs	1.23	1.43	1.45	1.14	SD btwn Labs	1.26	SD btwn Labs	0.98
Labs Incld	55	57	55	54	SD btwn Wks	0.73	SD btwn Wks	1.10
Labs Excld	2	1	2	3	Labs Incld	57	Labs Incld	56
Labs not Rcvd	1	0	1	1				

Key to Instrument Codes Reported by Participants

BK	Buchel Strip Compression Tester BK-155	LA	L&W Autoline
LH	L&W 282	LU	L&W 52 without moisture correction (was 53)
LW	L&W 53 with moisture correction (was 53M)	LY	L&W 152 (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		

Containerboard Interlaboratory Testing Program

Analysis 228

Roughness - Stylus Method, 56 lb Linerboard - 56A

TAPPI Official Test Method T575

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
6BGGPA	161.7	-0.29	14.24		156.9	-0.57	3.93	4	LA
6CWPU4	177.0	0.40	14.70		176.2	0.85	2.92	4	EV
6XBDG9	169.9	0.08	13.56		167.7	0.22	5.20	4	LA
8TVGTA	0.3	-7.62 X	0.02	L	53.3	-8.13 X	91.85 H	3	LA
997FH8	172.9	0.21	10.61		173.4	0.64	8.04	4	EV
B4X9MK	112.3	-2.53 *	9.97		111.9	-3.85 X	1.54	3	EV
BQZVV4	185.0	0.77	21.04		175.4	0.79	6.80	4	EV
CAL9LX	144.4	-1.08	26.34		141.8	-1.67	4.28	3	LA
DCQ4XN	143.3	-1.13	12.04		139.7	-1.82	5.46	4	EV
DGHBFW	184.0	0.72	27.19		178.1	0.98	4.52	4	LA
DYHBC3	160.7	-0.34	15.38		163.3	-0.10	2.91	4	EV
E626L7	161.6	-0.30	18.96		162.8	-0.14	1.17 L	4	XX
EVCGNH	167.3	-0.04	15.21		167.6	0.22	7.66	4	EV
J3WYC2	207.6	1.79	33.53	H	196.1	2.30 *	10.05	3	LA
JAXDZN	165.4	-0.12	13.51		165.9	0.09	5.40	4	XX
L7RGLD	164.1	-0.18	15.05		168.5	0.28	6.51	4	XX
MCVXDX	176.2	0.37	18.18		174.3	0.71	2.62	2	LA
RUW8LK	218.8	2.30 *	20.91		234.4	5.09 X	13.71	3	EV
TCUWA2	150.3	-0.81	12.74		152.3	-0.90	4.73	4	LA
UEDBD2	150.4	-0.81	8.69	L	144.8	-1.45	7.37	3	EV
VBCL9Y	167.4	-0.03	21.27		169.1	0.33	2.40	2	LS
YMUFB4	182.0	0.63	48.43	H	152.3	-0.90	19.83 H	4	EV
ZG4FG9	176.5	0.38	15.21		166.8	0.16	7.67	4	LA

Consensus (All Labs) Results

Month Mean	168.12	Grand Mean	164.65
Avg SD	20.48	Avg SD Months	7.12
SD btwn Labs	22.03	SD btwn Labs	13.69
Labs Incld	22	Labs Incld	20

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 229

Roughness - Sheffield Method, 42 lb Linerboard - 42D3

TAPPI Official Test Method T538

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
42GAVJ	358.4	-1.20	7.61		358.5	-1.17	0.46 L	4	LA
8C6GX6	381.9	1.81	11.50		373.2	0.72	6.00	4	XX
9TNUP2	359.5	-1.06	6.67		364.9	-0.35	7.54	2	PP
JC82X2	357.1	-1.36	5.36		356.3	-1.45	1.61	4	LA
LMHHEX	376.6	1.13	7.16		375.4	1.02	1.13	4	XX
PHA77M	367.8	0.00	10.12		370.0	0.32	3.11	2	XX
QXL7FH	370.3	0.32	9.37		367.6	0.01	3.61	4	XX
TJV98J	303.5	-8.23 X	3.63 L		303.5	-8.31 X	0.00	1	XX
VBCL9Y	370.9	0.40	8.99		367.8	0.03	4.38	2	LA
Z6BWZG	368.7	0.12	8.82		368.4	0.11	0.51 L	4	LA
ZHFEBG	371.9	0.53	11.77		382.0	1.87 *	14.97 H	3	LA
ZJ8DLA	362.4	-0.69	7.79		359.1	-1.10	4.57	3	XX

Consensus (All Labs) Results

Month Mean	367.78	Grand Mean	367.56
Avg SD	8.86	Avg SD Months	5.91
SD btwn Labs	7.81	SD btwn Labs	7.71
Labs Incld	11	Labs Incld	11

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 231

Internal Bond, 42 lb Linerboard - 42D

TAPPI Official Test Method T569

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
6CWPU4	93.2	-0.71	3.77		93.2	-0.71	0.00	1	XX
8C6GX6	109.9	-0.01	8.88		109.9	-0.01	0.00	1	HY
A4KDPT	96.2	-0.58	4.38		96.2	-0.58	0.00	1	TM
AB772R	97.3	-0.54	7.90		97.3	-0.54	0.00	1	SC
BQZVV4	87.6	-0.94	9.50		87.6	-0.94	0.00	1	TM
CAL9LX	124.0	0.59	6.52		124.0	0.59	0.00	1	SC
DCQ4XN	93.8	-0.68	5.63		93.8	-0.68	0.00	1	TM
EVCGNH	111.4	0.06	3.65		111.4	0.06	0.00	1	TM
EZ9X4X	158.8	2.05 *	7.46		158.8	2.05 *	0.00	1	TM
FCW6WR	104.6	-0.23	2.61		104.6	-0.23	0.00	1	HZ
J3WYC2	164.6	2.30 *	13.32		164.6	2.30 *	0.00	1	SC
JNJQCX	99.6	-0.44	13.04		99.6	-0.44	0.00	1	SC
JYWVJT	104.8	-0.22	18.73	H	104.8	-0.22	0.00	1	TM
L7RGLD	124.6	0.61	8.32		124.6	0.61	0.00	1	TM
MCVXDX	128.8	0.79	7.50		128.8	0.79	0.00	1	HY
PHA77M	100.0	-0.42	2.35		100.0	-0.42	0.00	1	TM
QXL7FH	141.6	1.33	8.35		141.6	1.33	0.00	1	SC
VBCL9Y	104.6	-0.23	4.88		104.6	-0.23	0.00	1	HY
YMUFB4	61.8	-2.03 *	10.80		61.8	-2.03 *	0.00	1	TM
Z6BWZG	101.2	-0.37	7.43		101.2	-0.37	0.00	1	SC
ZHFEBG	44.7	-2.75 X	1.27	L	44.7	-2.75 X	0.00	1	LZ
ZPXLAA	102.2	-0.33	5.54		102.2	-0.33	0.00	1	SC

Consensus (All Labs) Results

Month Mean	110.03	Grand Mean	110.03
Avg SD	8.56	Avg SD Months	0.00
SD btwn Labs	23.75	SD btwn Labs	23.75
Labs Incld	21	Labs Incld	21

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	109.77	25.13	0.26	18
Modified Scott Bond Mechanics	119.33	13.39	9.30	2

Analysis Notes

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

Key to Instrument Codes Reported by Participants

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

	Monthly Results				Cumulative Results			
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months
6CWPU4	27.2	0.16	1.64		26.0	-0.37	2.51	4
6XBDG9	28.1	0.44	2.53		28.7	0.66	0.90	4
7LTBE8	32.4	1.83	1.08		31.6	1.76	1.20	2
8C6GX6	24.7	-0.63	3.44		25.5	-0.52	0.95	4
997FH8	28.6	0.60	2.03		26.5	-0.14	2.54	4
AB772R	23.1	-1.14	2.14		24.5	-0.91	1.27	4
BQZVV4	30.4	1.19	2.51		28.7	0.69	3.07	4
CAL9LX	19.4	-2.34 *	1.14		21.1	-2.20 *	1.62	3
DCQ4XN	23.6	-0.99	4.20		25.0	-0.75	1.50	4
DYHBC3	26.2	-0.16	1.30		26.1	-0.33	1.98	4
E626L7	27.0	0.10	1.00		26.3	-0.24	0.48	4
EVCGNH	30.4	1.19	1.14		30.6	1.40	0.67	4
HBDZDK	27.9	0.39	2.30		26.4	-0.21	2.05	4
J3WYC2	29.4	0.87	1.14		30.2	1.23	0.71	3
J6PWK8	24.8	-0.61	2.86		27.2	0.11	2.16	4
JAXDZN	23.0	-1.19	2.83		24.6	-0.90	1.57	4
L7RGLD	25.2	-0.47	0.69		25.5	-0.53	0.37	4
LMHHEX	29.3	0.84	2.11		31.4	1.70	1.46	4
MCVXDX	23.4	-1.06	2.30		24.1	-1.09	1.63	4
PHA77M	27.7	0.34	1.66		25.8	-0.43	2.85	4
PZC6W2	27.8	0.35	4.60 H		29.6	1.00	1.19	4
QXL7FH	28.4	0.55	1.14		28.1	0.45	0.26 L	4
TY9HCT	23.6	-0.99	2.30		26.6	-0.14	2.25	4
W9ZA63	28.8	0.68	1.92		26.7	-0.07	2.61	3
YMUFB4	25.7	-0.32	1.86		25.8	-0.43	2.93	4
ZG4FG9	22.8	-1.25	0.84		23.2	-1.42	2.15	4
ZHFEBG	31.8	1.64	1.92		31.3	1.68	1.55	3

Consensus (All Labs) Results

Month Mean	26.69	Grand Mean	26.92
Avg SD	2.24	Avg SD Months	1.83
SD btwn Labs	3.12	SD btwn Labs	2.63
Labs Incld	27	Labs Incld	27

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2R4DVV	19.1	-0.11	1.68		19.1	-0.11	0.00	1	LP
42GAVJ	18.8	-0.31	1.03		18.8	-0.31	0.00	1	LA
6BGGPA	18.5	-0.53	2.12		18.5	-0.53	0.00	1	LA
6CWPU4	20.4	0.91	1.08		20.4	0.91	0.00	1	LP
8C6GX6	17.5	-1.27	1.05		17.5	-1.27	0.00	1	TP
8X2DBP	18.2	-0.78	1.84		18.2	-0.78	0.00	1	TL
9TNUP2	19.4	0.15	1.89		19.4	0.15	0.00	1	TP
BXVYFR	21.0	1.35	4.24	H	21.0	1.35	0.00	1	GA
CAL9LX	14.8	-3.27 X	1.03		14.8	-3.27 X	0.00	1	LA
CBD8U6	20.3	0.82	1.16		20.3	0.82	0.00	1	LP
CQ7WU8	17.2	-1.51	0.54	L	17.2	-1.51	0.00	1	LA
DCQ4XN	19.9	0.55	2.16		19.9	0.55	0.00	1	LA
DYHBC3	18.4	-0.60	1.96		18.4	-0.60	0.00	1	XX
E626L7	18.3	-0.71	1.09		18.3	-0.71	0.00	1	LA
EVCGNH	19.0	-0.15	1.15		19.0	-0.15	0.00	1	LP
HBDZDK	19.4	0.18	0.91		19.4	0.18	0.00	1	LA
J3WYC2	18.0	-0.93	2.34		18.0	-0.93	0.00	1	LA
K4CHWY	18.8	-0.30	1.85		18.8	-0.30	0.00	1	LP
L7RGLD	21.5	1.68	1.94		21.5	1.68	0.00	1	TD
LMHHEX	22.0	2.06 *	2.85		22.0	2.06 *	0.00	1	GA
MCVXDX	20.6	1.04	2.46		20.6	1.04	0.00	1	LP
NWVKAL	19.5	0.22	2.59		19.5	0.22	0.00	1	GG
PHA77M	18.3	-0.68	1.36		18.3	-0.68	0.00	1	LA
QRUYXA	20.3	0.82	2.71		20.3	0.82	0.00	1	XX
RUW8LK	17.2	-1.48	1.13		17.2	-1.48	0.00	1	XX
TY9HCT	27.3	6.03 X	2.41		27.3	6.03 X	0.00	1	LP
VBCL9Y	18.3	-0.68	0.68	L	18.3	-0.68	0.00	1	LP
YMUFB4	19.5	0.25	1.30		19.5	0.25	0.00	1	LA
Z6BWZG	19.5	0.19	1.10		19.5	0.19	0.00	1	LA
ZG4FG9	16.8	-1.76	0.85		16.8	-1.76	0.00	1	LP
ZHFEBG	21.3	1.56	1.51		21.3	1.56	0.00	1	LA

Consensus (All Labs) Results

Month Mean	19.20	Grand Mean	19.20
Avg SD	1.85	Avg SD Months	0.00
SD btwn Labs	1.34	SD btwn Labs	1.34
Labs Incld	29	Labs Incld	29

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

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2EQDY2	58.1	61.0	No Data	No Data	59.5	-0.09	3.3	2.1	58.2	-0.70	3.0	1.6	9	EM
2R4DVV	60.4	63.1	60.5	60.5	61.1	0.54	3.3	1.3	59.8	0.01	2.9	1.4	16	LD
3DUARC	59.3	60.0	60.7	60.3	60.1	0.12	3.5	0.6	60.2	0.21	3.0	0.7 L	16	LC
4L6XYJ	60.1	59.4	59.5	59.4	59.6	-0.07	2.4	0.3	58.7	-0.47	2.7	1.3	16	TH
6CWPU4	60.1	57.4	58.6	58.1	58.5	-0.50	2.6	1.2	59.3	-0.20	3.2	1.7	16	LC
6KM7NE	60.2	60.2	61.3	59.9	60.4	0.25	2.2	0.6	60.1	0.13	2.1	0.7 L	12	TH
7LTBE8	55.5	56.5	57.6	57.3	56.7	-1.24	2.7	0.9	55.4	-1.94 *	2.9	1.5	16	LD
8C6GX6	57.9	59.1	60.9	55.6	58.4	-0.57	3.0	2.3	61.1	0.57	3.1	2.2	16	LC
8KJFE2	61.7	62.9	59.1	57.5	60.3	0.21	4.1	2.5	60.7	0.43	3.7	2.0	16	LD
8TVGTA	58.2	59.4	58.0	56.3	58.0	-0.73	3.3	1.3	57.6	-0.97	4.1	1.6	13	LD
8WQBPQ	60.2	60.3	60.0	60.3	60.2	0.17	2.1	0.1 L	60.3	0.24	1.5	0.2 L	16	LD
997FH8	60.4	59.7	58.0	61.9	60.0	0.10	2.7	1.6	59.2	-0.26	3.0	1.3	16	EN
9C7RD8	60.8	59.8	60.0	60.5	60.3	0.21	2.8	0.5	60.3	0.21	3.0	0.6 L	16	LD
9TNUP2	62.5	61.6	60.8	60.5	61.3	0.64	3.4	0.9	62.0	1.01	4.0	1.5	12	LD
A4KDPT	63.1	61.6	61.0	60.4	61.5	0.71	2.9	1.2	60.2	0.20	3.0	2.2	16	LC
AB772R	58.0	57.7	57.3	56.8	57.5	-0.94	2.8	0.5	56.9	-1.30	3.2	0.9	16	LZ
AHPA9U	60.7	56.2 *	60.3	58.3	58.9	-0.37	2.2	2.1	58.9	-0.39	2.7	1.6	16	LZ
BQZVV4	57.9	59.7	57.6	59.8	58.7	-0.42	3.6	1.2	59.8	0.02	3.0	1.6	16	LD
CQ7WU8	58.7 H	60.6	59.2	60.8	59.8	0.02	4.0	1.1	60.1	0.15	3.8	1.3	12	LD
CXTP68	61.6	61.2	62.7	62.6	62.0	0.91	2.6	0.7	60.8	0.45	2.7	1.0	16	EM
DCQ4XN	58.1	59.9	58.2	58.4	58.7	-0.45	3.6	0.8	60.0	0.11	3.1	2.3	16	LC
DGHBFW	57.2	58.6	55.5	56.7	57.0	-1.12	3.1	1.3	57.6	-0.97	3.3	1.4	16	MB
DQKTQY	63.3	61.1 L	65.6 *L	64.8 L	63.7	1.59	1.2	2.0	63.2	1.53	1.2	2.0	16	TD
DV3QKG	49.7 X	49.6 X	49.6 X	49.7 X	49.7	-4.08 X	3.4	0.1 L	50.0	-4.36 X	3.8	1.7	12	TC
E626L7	60.6 L	62.0	60.8	60.8	61.1	0.52	2.1	0.6	61.1	0.60	2.0	0.4 L	16	LD
FCW6WR	44.9 X	46.0 X	46.1 X	44.5 X	45.4	-5.83 X	2.4	0.8	59.1	-0.32	3.9	8.3 H	16	LC
GVPPR3	54.9	52.5 XH	52.2 XH	53.7 *H	53.3	-2.60 *	5.4	1.2	51.3	-3.78 X	4.0	8.3 H	12	XX
JYWVJT	61.4	61.0	62.9	61.3	61.6	0.76	3.3	0.8	60.6	0.39	3.1	1.4	12	LC
K4CHWY	60.6	61.2	57.9 L	59.8	59.9	0.05	2.2	1.4	60.3	0.24	2.7	1.2	16	LD
LMHHEX	58.7	57.1	57.5	60.3	58.4	-0.55	3.1	1.4	58.9	-0.39	2.7	1.5	16	LZ
M9VP4W	61.3	62.0	61.1	61.6	61.5	0.71	2.6	0.4	61.6	0.83	3.2	1.6	16	LD
MCVXDX	58.7	59.7	58.1	56.4	58.2	-0.63	2.5	1.4	58.4	-0.60	2.7	1.3	16	LD
MP3QYJ	70.9 X	75.0 X	72.9 X	69.7 X	72.1	5.00 X	3.8	2.4	72.1	5.53 X	3.8	2.4	4	MB
PFNGVM	59.2	59.8	62.2	60.3 L	60.4	0.25	2.4	1.3	60.5	0.33	3.7	2.5	16	LD
PKFQYT	57.9	58.2	59.2	59.6	58.7	-0.41	3.0	0.8	59.9	0.07	3.2	2.1	16	TJ

Containerboard Interlaboratory Testing Program

Analysis 240

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

TAPPI Official Test Method T809

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
PZC6W2	62.6	63.8	62.5	64.4	63.3	1.44	2.5	0.9	62.6	1.27	2.6	1.2	16	LD
RAQY8L	59.5	No Data	59.3	61.1	60.0	0.08	2.9	1.0	60.3	0.22	2.8	1.6	15	LD
RL34DG	66.6 *	64.5 *	65.4 *	65.0 *	65.4	2.27 *	2.2	0.9	63.2	1.54	2.5	2.4	8	TM
RUW8LK	59.0	57.3 H	57.9	58.5 H	58.2	-0.65	5.3	0.7	59.3	-0.21	4.4	1.8	12	MB
TY9HCT	63.1	66.9 X	64.4	63.4	64.4	1.89	3.2	1.7	65.3	2.49 *	3.3	1.8	16	LD
UPZCTB	62.3	62.2 L	62.1	62.3 L	62.2	0.99	1.4	0.1 L	62.0	1.00	1.9	0.5 L	16	TU
UTYMNB	60.4	60.3	60.2	60.6	60.4	0.25	3.3	0.2 L	60.5	0.32	1.8	0.6 L	16	LD
VBCL9Y	No Data	No Data	No Data	55.0	55.0	-1.93	3.6	0.0	53.9	-2.63 *	4.1	1.6	2	LD
VDH8YK	56.1	59.3 H	58.5 H	57.3	57.8	-0.80	5.2	1.4	58.3	-0.68	5.0	1.1	16	TG
VVG897	34.8 X	33.5 X	34.4 X	32.9 X	33.9	-10.48 X	2.6	0.9	58.1	-0.76	2.6	14.5 H	16	LC
XKNZX6	63.5	63.0	64.2	62.5	63.3	1.43	3.1	0.7	63.4	1.63	3.3	0.9	12	LD
XL6PND	59.3	59.6	56.5	61.3 H	59.2	-0.24	4.1	2.0	57.7	-0.92	3.1	4.6	16	LC
YMUFB4	58.1	59.9	58.2	58.4	58.7	-0.45	3.6	0.8	60.2	0.18	3.1	2.4	16	XX
YYT4BD	61.3	62.5	61.2	61.0	61.5	0.71	2.1	0.7	61.0	0.56	2.4	1.0	16	LD
ZG4FG9	57.7	63.1	59.9	57.4	59.5	-0.10	3.4	2.7 H	60.6	0.36	3.4	3.2	16	LZ
ZHFEBG	54.3 *	54.1 X	54.8 *	54.7	54.5	-2.14 *	3.0	0.3	54.3	-2.44 *	3.1	1.6	12	LD
ZLEQ8G	66.4 *	63.6	61.8	63.5	63.8	1.64	3.4	1.9	61.8	0.92	3.8	2.0	16	LD
ZPXLAA	55.4	58.4	56.5	54.3	56.2	-1.46	3.2	1.7	55.2	-2.06 *	3.1	1.4	16	LC

Consensus (All Labs) Results

Wk Mean	59.85	60.35	59.89	59.61	Month Mean	59.77	Grand Mean	59.78
Avg SDr	3.15	3.04	3.21	3.06	Avg SD	3.16	Avg SD	3.12
SD btwn Labs	2.63	2.01	2.45	2.74	SD btwn Labs	2.47	SD btwn Labs	2.23
Labs Incld	48	44	46	48	SD btwn Wks	1.28	SD btwn Wks	2.90
Labs Excld	4	7	5	4	Labs Incld	49	Labs Incld	50
Labs not Rcvd	1	2	2	1				

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 250

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

TAPPI Official Test Method T843

Report #593 (B)
February 2019

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2R4DVV	74.5	75.9	74.7	72.5	74.4	0.41	2.9	1.4	73.1	0.00	2.4	1.3	16	LD
3DUARC	72.8	72.4	73.4	73.0	72.9	-0.62	2.7	0.4	72.9	-0.07	3.2	0.5 L	16	LD
8C6GX6	76.2	73.5	76.0	76.0	75.4	1.10	2.5	1.3	76.6	1.07	2.4	1.2	16	LC
8WQBPQ	73.6	73.5	73.9	73.6	73.6	-0.11	1.3	0.2 L	73.5	0.10	1.2	0.2 L	16	LD
9TNUP2	76.6	75.1	76.3	76.5	76.1	1.58	2.3	0.7	75.6	0.76	2.5	1.0	12	LD
AHPA9U	73.0	75.1	73.8	72.5	73.6	-0.14	2.3	1.1	73.2	0.03	2.7	1.4	16	LZ
DCQ4XN	63.9 XH	64.6 XH	67.1 XH	63.7 XH	64.8	-6.15 X	9.5	1.6	65.3	-2.40 *	7.8	2.2	16	XX
DQKTQY	74.5 L	73.2	73.1	71.6	73.1	-0.48	1.4	1.2	72.7	-0.13	1.2	1.3	16	TD
E626L7	74.1	73.8	73.1	73.4	73.6	-0.15	2.2	0.4	73.3	0.04	2.1	0.5 L	16	LD
HWDC6Q	72.2	74.5	73.8	72.2	73.2	-0.44	2.6	1.2	72.9	-0.08	2.3	1.0	16	LD
K4CHWY	77.6	75.4	74.7	75.1	75.7	1.29	2.7	1.3	75.6	0.75	2.6	1.2	16	LD
MCVXDX	77.9	80.9 X	81.0 X	79.6 *	79.9	4.15 X	2.3	1.4	79.4	1.93 *	2.5	0.9	16	LD
MP3QYJ	73.5	71.7	73.8	72.8	72.9	-0.59	2.9	0.9	72.9	-0.06	2.9	0.9	4	MB
QRUYXA	73.3 L	70.7	74.3 L	73.4	72.9	-0.61	1.1	1.6	72.1	-0.31	1.8	1.9	16	LZ
TJV98J	72.6	72.2	73.2	73.3	72.8	-0.68	2.2	0.5	72.8	-0.10	2.2	0.5 L	4	TH
TY9HCT	76.3	75.6	75.9	78.1	76.5	1.82	2.8	1.1	77.3	1.28	3.3	1.4	16	LD
YYT4BD	70.8 L	71.5	71.1 *	70.2	70.9	-1.99 *	1.8	0.5	70.9	-0.69	1.7	0.8	16	LD
ZG4FG9	71.3 H	73.1	76.3	72.2	73.2	-0.39	3.7	2.2	72.8	-0.10	3.4	2.7	16	LZ
ZHFEBG	54.5 X	54.2 XH	51.6 X	52.6 X	53.2	-14.10 X	2.9	1.4	66.6	-1.99 *	2.6	10.0 H	12	LD

Consensus (All Labs) Results

Wk Mean	74.15	73.57	74.21	73.88	Month Mean	73.81	Grand Mean	73.14
Avg SDr	2.90	2.19	2.14	2.30	Avg SD	2.42	Avg SD	3.00
SD btwn Labs	2.11	1.59	1.41	2.41	SD btwn Labs	1.46	SD btwn Labs	3.26
Labs Incld	17	16	16	17	SD btwn Wks	1.11	SD btwn Wks	2.62
Labs Excld	2	3	3	2	Labs Incld	16	Labs Incld	19
Labs not Rcvd	0	0	0	0				

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 255

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

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2EQDY2	39.8 *	39.0 *	No Data	No Data	39.4	-1.88	2.0	0.6	42.2	-0.84	2.5	1.9	9	EM
2R4DVV	41.8	44.1 H	43.4	45.0	43.6	-0.34	4.0	1.4	42.7	-0.63	3.9	1.3	16	LD
3EM8ZJ	44.1	44.0	44.0	44.8	44.2	-0.12	2.3	0.4	46.1	0.55	2.6	1.9	16	LZ
6KM7NE	41.3	41.2	41.4	40.1 *	41.0	-1.29	1.8	0.6	40.9	-1.29	1.9	0.6 L	12	TH
8C6GX6	45.5	44.6	44.1	43.3	44.4	-0.05	2.5	0.9	44.9	0.13	2.9	1.1	16	LC
8KJFE2	44.5 L	46.0	45.0	45.2	45.2	0.24	1.6	0.6	45.6	0.39	2.1	0.9 L	16	LD
8TVGTA	41.9	42.1	44.9	44.0	43.2	-0.48	2.6	1.5	44.0	-0.19	2.6	1.4	13	LD
9TNUP2	46.4	47.4	46.6	46.2	46.7	0.78	2.3	0.5	46.9	0.85	2.4	1.3	12	LD
CQ7WU8	48.7	48.5	47.5	47.4	48.0	1.27	2.6	0.7	47.6	1.08	3.2	2.7	12	LD
CTW8KZ	42.7	43.2	42.6	43.5	43.0	-0.56	2.1	0.4	42.8	-0.62	2.0	1.1	16	TH
CXTP68	45.8	45.3	45.9	45.4	45.6	0.39	1.5	0.3	45.7	0.42	1.5	0.3 L	16	LC
CYKMDD	48.8	47.1	47.6	48.3 H	47.9	1.24	3.3	0.8	45.6	0.37	2.9	2.2	16	LZ
DV3QKG	35.9 XH	36.1 XH	39.9 H	42.8 H	38.7	-2.14 *	6.6	3.3 H	37.3	-2.58 *	6.0	4.4	12	TC
E626L7	45.6	44.6	45.3	45.1	45.1	0.22	3.4	0.4	44.5	-0.02	3.2	0.6 L	16	LD
FCW6WR	58.1 X	57.5 X	59.0 X	56.9 X	57.9	4.87 X	2.1	0.9	48.2	1.30	2.1	6.0	16	LD
FK9L7D	46.6 H	45.8 H	45.6	44.7	45.7	0.42	4.4	0.8	42.5	-0.73	5.5	3.5	12	TX
GZFZ32	28.9 X	26.6 X	26.5 X	25.7 X	26.9	-6.42 X	2.2	1.4	26.9	-6.26 X	2.2	1.4	4	XX
K4CHWY	44.6	46.7	45.6	44.5	45.4	0.30	2.1	1.1	44.9	0.13	1.9	1.1	16	LD
LMHHEX	42.9	46.5	43.7	44.7	44.5	-0.02	2.3	1.6	44.2	-0.11	2.4	1.2	16	LD
MP3QYJ	42.9	42.1	40.4	42.0	41.8	-0.98	1.7	1.0	41.8	-0.96	1.7	1.0	4	MB
PFNGVM	49.2	49.2	51.1 *	50.8 *	50.1	2.02 *	2.4	1.0	49.4	1.74	3.1	1.7	16	LZ
UPZCTB	41.6	41.4	41.1	41.2 L	41.3	-1.16	1.3	0.2	41.5	-1.07	1.5	0.6 L	16	TU
UTYMNB	45.6	45.8	45.4	45.5	45.6	0.39	2.5	0.2 L	45.5	0.34	1.4	0.4 L	16	LD
VVG897	66.8 X	65.2 X	65.9 X	66.6 X	66.1	7.88 X	3.1	0.7	42.0	-0.90	2.7	14.5 H	16	XX
XKNZX6	45.2	44.2	45.6	45.4	45.1	0.21	2.5	0.6	44.8	0.11	2.6	0.7 L	12	LD
XL6PND	45.7	50.5 *	47.9	47.9	48.0	1.26	2.6	2.0	50.1	1.98 *	2.7	5.7	16	LC
ZHFEBG	44.3	44.0	47.7	45.1	45.3	0.27	2.6	1.7	46.1	0.56	2.7	1.3	12	LD

Consensus (All Labs) Results

Wk Mean	44.58	44.92	44.88	44.92	Month Mean	44.53	Grand Mean	44.52
Avg SDr	2.57	2.63	2.85	2.76	Avg SD	2.85	Avg SD	2.89
SD btwn Labs	2.49	2.74	2.67	2.34	SD btwn Labs	2.74	SD btwn Labs	2.81
Labs Incld	23	23	23	23	SD btwn Wks	1.16	SD btwn Wks	3.66
Labs Excld	4	4	3	3	Labs Incld	24	Labs Incld	26
Labs not Rcvd	0	0	1	1				

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 261

STFI, 26 lb Corrugating Medium - CM92

TAPPI Official Test Method T826

Report #593 (B)
February 2019

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
3DUARC	14.4 L	14.1	15.0	13.9	14.3	-0.60	0.8	0.5	14.5	-0.19	0.9	0.4	16	LB
3EM8ZJ	14.5	14.8	15.2	14.8	14.8	0.21	1.1	0.3	15.3	2.07 *	1.2	0.9	16	LA
42GAVJ	14.3	15.2	15.1	15.4	15.0	0.50	1.0	0.5	14.9	1.05	1.0	0.3	16	LA
4L6XYJ	15.2 H	15.2	15.4	15.3	15.3	0.95	1.3	0.1	14.7	0.36	1.0	0.7	16	LH
6CWPU4	14.7	14.8	15.2 L	14.5	14.8	0.11	0.8	0.3	14.7	0.36	0.9	0.4	16	LB
7LTBE8	14.3	14.0	13.7	14.7	14.2	-0.86	0.9	0.4	14.4	-0.46	0.9	0.5	16	LH
8C6GX6	14.6	14.8	14.7	14.7	14.7	0.02	0.9	0.1	14.7	0.30	0.9	0.2	16	LU
8TVGTA	14.9 H	14.5 L	14.3	14.7	14.6	-0.20	1.1	0.3	14.5	-0.10	1.1	0.5	13	LZ
8WQBPQ	14.5 L	14.3	14.6	14.7 L	14.5	-0.28	0.6	0.2	14.5	-0.20	1.6	0.1	16	LA
9C7RD8	14.6	13.9	14.9	14.6	14.5	-0.34	0.8	0.4	14.5	-0.03	0.9	0.4	16	LB
9TNUP2	14.1	13.9	14.1	14.3	14.1	-1.02	1.0	0.2	14.1	-1.21	1.0	0.3	12	LB
BQZVV4	14.0	14.3	14.2	15.4	14.5	-0.39	0.9	0.6	14.2	-0.99	1.1	0.4	16	LU
CQ7WU8	17.0 X	16.5 *	15.5	15.9 *	16.2	2.52 *	1.0	0.7	16.3	4.86 X	1.0	0.4	12	LA
CXTP68	13.8	13.2 *	13.5 *	13.9	13.6	-1.82	0.9	0.3	13.7	-2.39 *	0.9	0.6	16	LB
DGHBFW	14.2	14.3	15.6	15.2	14.8	0.17	1.1	0.7	16.3	4.85 X	1.4	6.6 H	16	LA
DV3QKG	13.4 *	13.9	14.2 H	13.7	13.8	-1.51	1.3	0.3	14.1	-1.36	1.2	0.7	12	TS
E626L7	14.9	14.6	14.7	14.7	14.7	0.04	0.9	0.1	14.8	0.60	1.0	0.1 L	16	LB
FK9L7D	14.2	14.2	14.8	14.1	14.3	-0.66	0.8	0.3	14.1	-1.36	0.9	0.3	12	TT
GVPPR3	2.6 XL	15.0	No Data	15.0	10.9	-6.32 X	0.7	7.1 H	22.3	21.62 X	2.5	21.7 H	10	LA
JYWVJT	14.8	14.5	14.7	14.6	14.6	-0.11	1.0	0.1	14.7	0.46	1.0	0.2	12	LU
LMHHEX	15.0	15.1	15.0	14.8	15.0	0.45	1.0	0.1	14.8	0.72	1.0	0.8	16	LZ
PKFQYT	14.4	14.9	14.9	15.0	14.8	0.19	0.9	0.3	14.8	0.65	0.9	0.3	16	TT
PZC6W2	15.0	14.5	14.7	14.8	14.8	0.08	1.0	0.2	14.7	0.33	1.1	0.3	16	LA
RUW8LK	15.9 *L	16.2 *L	16.7 XL	15.6 L	16.1	2.30 *	0.0	0.4	15.0	1.19	1.2	1.0	12	BK
W7ZZZT	14.3	14.4	14.1	13.7	14.1	-0.94	0.9	0.3	14.6	0.19	0.9	0.6	16	LA
Z9TDV8	26.0 XH	25.0 XH	25.3 X	25.0 XH	25.3	17.59 X	1.7	0.5	22.1	21.12 X	1.1	5.6 H	12	LA
ZHFEBG	15.7 *	15.4	15.6	15.1	15.4	1.19	1.0	0.3	21.6	19.77 X	1.8	9.3 H	12	LA

Consensus (All Labs) Results

Wk Mean	14.56	14.63	14.73	14.73	Month Mean	14.70	Grand Mean	14.54
Avg SDr	1.06	0.89	0.92	1.01	Avg SD	0.97	Avg SD	1.04
SD btwn Labs	0.56	0.70	0.57	0.56	SD btwn Labs	0.60	SD btwn Labs	0.36
Labs Incld	24	26	24	26	SD btwn Wks	0.36	SD btwn Wks	0.51
Labs Excld	3	1	2	1	Labs Incld	25	Labs Incld	22
Labs not Rcvd	0	0	1	0				

Key to Instrument Codes Reported by Participants			
BK	Buchel Strip Compression Tester BK-155	LA	L&W Autoline
LB	L&W Model 152	LH	L&W 282
LU	L&W 52 without moisture correction (was 53)	LZ	L&W (model not specified)
TS	TMI Monitor/STFI Compression Tester, 17-33	TT	TMI Short Span Compression, 17-34 (MB K455)

End of Report