Collaborative Testing Services, Inc.

Containerboard Interlaboratory Testing Program

Participant Summary Report #613 (L) - October 2020

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	CM11	April 2019-Current
	CM92	January 2019-March 2019
35 lb Linerboard	35E2	June 2020-Current
	35E1	February 2019-April 2020
42 lb Linerboard	42F2	February 2020-Current
	42F1	January 2019-January 2020
56 lb Linerboard	56G1	January 2020-Current
	56A2	January 2019-November 2019

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

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).

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
3JQRF3	598.3	0.07	75.62		557.8	-0.62	35.61	4	LS
3TJXHG	614.3	0.35	33.21		589.4	0.04	20.25	4	LO
428DFJ	601.2	0.12	15.61		576.4	-0.23	26.43	3	ET
4AMRPG	578.8	-0.28	45.03		563.7	-0.50	15.65	4	ER
6BNKRE	515.7	-1.41	44.98		628.7	0.85	97.74 H	4	LL
7ZJWB2	561.5	-0.59	22.31		612.1	0.51	34.13	4	TE
97MADH	581.0	-0.24	21.08		577.2	-0.22	13.82	4	LG
BRJQRB	630.0	0.63	18.57		598.2	0.22	26.18	4	EX
BYYABA	541.4	-0.95	19.48		577.9	-0.20	25.85	4	ER
FQM2AA	566.0	-0.51	34.17		573.7	-0.29	24.45	4	LJ
H8A474	481.8	-2.02 *	9.31	L	480.3	-2.24 *	1.91 L	4	LL
HE8TM9	601.7	0.13	68.67		596.8	0.19	8.30	4	LM
HVFRR6	697.0	1.83	19.93		636.6	1.02	41.00	4	TC
J3QBLN	546.9	-0.85	23.23		510.6	-1.60	24.56	4	LS
J6XTKK	701.1	1.90	5.55	L	670.5	1.72	31.99	4	LG
LCQK7J	680.0	1.53	42.12		651.8	1.34	50.85	4	TB
LTRMK3	533.4	-1.09	38.60		586.8	-0.02	73.12	4	EX
MCMBVY	598.4	0.07	46.86		560.1	-0.57	29.49	4	LM
P3BZCX	543.7	-0.91	20.57		558.2	-0.61	10.36	4	LS
PP3GCH	597.8	0.06	27.91		542.7	-0.94	55.97	4	LS
Q36ZVU	633.0	0.69	34.76		641.2	1.11	12.64	4	ER
UJHMRT	575.1	-0.35	60.00		537.5	-1.04	32.23	4	ET
VT3EQQ	602.6	0.14	16.87		546.0	-0.87	39.95	4	LG
XZECAU	685.8	1.63	71.41		704.0	2.42 *	26.44	4	EM
YWBY8M	599.9	0.09	82.88	H	593.2	0.12	7.22	4	ER
ZC4V26	654.9	1.08	30.47		605.5	0.37	66.40	3	LH
ZM6DKK	532.6	-1.11	20.96		590.5	0.06	64.96	4	ES

Consensus (All Labs) Results

Month Mean	594.59	Grand Mean	587.67
Avg SD	40.74	Avg SD Months	39.94
SD btwn Labs	55.95	SD btwn Labs	48.03
Labs Incld	27	Labs Incld	27

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	607.09	65.22	12.50	7
Water based adhesive sealing	685.80	0.00	91.21	1
Clip sealing	585.18	49.87	9.41	19

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	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	LJ	TLS / L.A.B. Val Series
LL	Lansmont 76-5K	LM	Lansmont 122-15k
LO	Lansmont 152-30k	LS	Lansmont Squeezer
TB	TMI Monitor/Compression Tester, Model 17-70	TC	TMI Monitor/Compression Tester, Model 17-37
TE	Testometric M500 - 25 KN		

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
3JQRF3	41.9	0.01	1.95		44.6	0.92	3.80	2	LC
4AMRPG	43.2	0.37	2.87		43.2	0.42	0.00	1	EN
6YWTBG	40.8	-0.29	1.46		41.0	-0.35	0.27	2	XX
97MADH	41.0	-0.25	4.27	H	42.2	0.07	1.78	2	LE
J3QBLN	25.2	-4.57 X	0.81	L	24.5	-6.17 X	1.03	2	EM
JVAUVZ	44.7	0.77	2.32		42.0	-0.02	3.88	2	XX
KMCNDJ	34.9	-1.93 *	0.84	L	36.7	-1.86 *	2.63	2	WK
LPWTM2	41.0	-0.24	0.82	L	40.5	-0.55	0.78	2	TF
LTRMK3	44.4	0.70	2.57		43.9	0.68	0.71	2	LC
P3BZCX	44.8	0.81	2.51		42.1	0.04	3.83	2	LD
V46UGV	36.7	-1.43	1.30		38.7	-1.16	2.91	2	LD
Z3TTF4	47.3	1.47	2.11		47.2	1.81	0.11	2	LC

Consensus (All Labs) Results

Month Mean	41.89	Grand Mean	42.02
Avg SD	2.30	Avg SD Months	2.53
SD btwn Labs	3.65	SD btwn Labs	2.84
Labs Incld	11	Labs Incld	11

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	TF	TMI Digital Crush Tester, Model 17-19
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
32BHF3	43.3	-0.57	2.09		39.4	-1.88	5.44	2	XX
3DNL4L	44.5	-0.18	1.79		44.2	-0.11	0.32	2	TD
3JQRF3	47.1	0.73	1.50		47.1	0.95	0.07	2	LC
3TJXHG	43.7	-0.42	3.28	H	43.3	-0.44	0.55	2	LD
428DFJ	47.8	0.94	1.36		46.7	0.82	1.47	2	EM
4AMRPG	44.4	-0.21	5.19	H	44.3	-0.07	0.04	2	EN
6YWTBG	40.4	-1.56	1.15		41.2	-1.23	1.22	2	XX
7ZJWB2	43.8	-0.41	1.60		42.7	-0.68	1.52	2	LD
97MADH	46.4	0.48	2.11		44.8	0.10	2.28	2	LY
9A949W	42.4	-0.88	3.86	H	42.4	-0.80	0.00	1	XX
ABDBNV	43.3	-0.56	1.58		43.7	-0.32	0.49	2	TK
BFMKXC	44.0	-0.33	1.87		41.4	-1.16	3.68	2	LC
BRJQRB	39.1	-1.97 *	2.28		42.5	-0.74	4.77	2	LD
BYYABA	49.1	1.39	0.92		47.0	0.92	2.98	2	LD
CWQHDT	41.3	-1.24	1.34		40.6	-1.45	0.99	2	TD
FQ9JAP	48.7	1.26	0.98		47.9	1.25	1.17	2	TG
H8A474	44.0	-0.33	1.77		42.7	-0.66	1.78	2	LC
HE8TM9	49.0	1.34	1.72		48.3	1.41	0.89	2	EM
J3QBLN	41.4	-1.22	1.14		40.5	-1.48	1.19	2	EM
J6XTKK	46.6	0.55	2.91		46.2	0.63	0.55	2	EM
JL3ZYL	46.7	0.58	0.97		44.1	-0.16	3.68	2	LC
KMCNDJ	42.0	-0.99	0.86		42.4	-0.79	0.53	2	WK
LCQK7J	51.1	2.07 *	0.60	L	50.4	2.18 *	1.03	2	LD
LPWTM2	45.7	0.24	0.82	L	45.4	0.31	0.49	2	TD
LTRMK3	43.4	-0.52	1.48		44.3	-0.09	1.19	2	LC
MCMBVY	40.4	-1.55	2.14		40.0	-1.66	0.48	2	TG
P3BZCX	46.7	0.57	0.84		45.5	0.35	1.71	2	LD
PP3GCH	50.3	1.80	1.49		49.0	1.64	1.91	2	TB
Q36ZVU	45.1	0.03	1.31		44.6	0.05	0.60	2	EM
UJHMRT	45.9	0.31	2.12		44.4	-0.05	2.12	2	TD
V46UGV	42.2	-0.95	0.51	L	40.6	-1.45	2.19	2	LD
VNM73Q	46.7	0.59	0.75	L	46.4	0.68	0.52	2	EM
VT3EQQ	46.5	0.52	2.00		46.7	0.79	0.19	2	TJ
WN4J49	47.3	0.80	0.74	L	47.7	1.17	0.45	2	LD
XZECAU	43.5	-0.51	2.23		44.4	-0.05	1.32	2	TH
YWBY8M	40.1	-1.65	0.85		42.9	-0.59	4.04	2	LD
Z3TTF4	46.7	0.57	1.60		46.8	0.85	0.20	2	LC
ZC4V26	44.7	-0.10	1.81		45.9	0.51	1.73	2	EM
ZM6DKK	49.0	1.37	1.17		47.9	1.24	1.65	2	LD

Consensus (All Labs) Results

Month Mean	44.97	Grand Mean	44.52
Avg SD	1.90	Avg SD Months	2.00
SD btwn Labs	2.97	SD btwn Labs	2.70
Labs Incld	39	Labs Incld	39

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	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
26UCYH	101.7	113.6	116.1	115.5	111.7	0.29	10.4	6.8 H	112.8	0.75	9.6	5.4	16	LA
2AAJMG	101.3	108.4	106.1	112.2	107.0	-0.82	6.0	4.6	105.7	-1.48	6.9	3.4	16	LC
3JQRF3	105.2	101.8	103.9	103.8	103.7	-1.62	9.6	1.4	109.3	-0.37	8.7	5.2	16	AH
4EE3YE	109.9 H	117.8	112.2	109.8	112.4	0.46	10.8	3.7	113.9	1.08	9.1	2.9	15	TB
4R32PG	106.2	103.3	107.0	104.1	105.2	-1.27	9.1	1.8	109.5	-0.29	9.1	5.1	16	LJ
6AG3TH_AL	110.9	106.0 H	106.2	110.5	108.4	-0.50	9.3	2.7	111.9	0.46	8.2	6.6	16	AK
6YWTBG	116.1 L	115.1 L	115.9 L	114.9 L	115.5	1.18	3.0	0.6	114.0	1.11	4.2	1.9	16	LC
8CUGFF	109.2 L	110.2	111.2	104.4	108.8	-0.41	4.8	3.0	109.8	-0.22	6.4	2.4	16	AX
8CUGFF_AL	114.1	110.9	113.8	109.8	112.2	0.39	7.9	2.1	110.4	0.00	7.0	2.1	16	AL
97MADH	116.5	114.8	118.0	115.2	116.1	1.34	5.8	1.4	115.7	1.67	7.0	1.3	16	AH
A6A6BD	113.9	116.0	No Data	No Data	114.9	1.06	10.3	1.5	113.6	1.01	9.6	1.6	8	LC
BFMKXC_AL	110.0	118.0	115.5	115.5	114.7	1.01	9.5	3.4	113.1	0.84	10.0	3.1	16	AL
BRJQRB	108.4	109.2	108.0	109.6	108.8	-0.40	8.9	0.7	107.7	-0.85	9.4	3.1	16	AH
BVFGQU_AL	115.8	108.3	109.9	109.1	110.8	0.06	8.5	3.4	110.1	-0.10	7.8	2.2	10	AL
BYYABA	118.4	118.9	118.3	117.9	118.4	1.87	7.0	0.4 L	114.6	1.30	7.9	3.4	16	AH
CNWDJR	103.7 H	113.9	108.8	110.0	109.1	-0.33	10.3	4.2	111.5	0.32	9.8	3.3	16	LC
CNWDJR_AL	103.9 H	106.3	117.5	109.7	109.3	-0.27	11.8	6.0	108.6	-0.59	12.5	4.7	16	AL
CZ9XP7	109.7	111.3	108.5	109.3	109.7	-0.19	7.6	1.2	108.9	-0.49	6.9	1.5	16	LA
DDMHL6_AL	108.1	106.1	109.2	108.9	108.1	-0.57	5.1	1.4	107.7	-0.88	6.1	2.5	16	AL
FA3BBB	112.1	112.0 H	111.9	117.8	113.4	0.70	10.4	2.9	111.7	0.41	10.8	4.8	16	LB
FXU8C8	103.3	101.9	109.8	105.9	105.2	-1.25	10.2	3.5	105.5	-1.55	9.2	3.4	8	XX
G3YQN6_AL	108.6	107.6	111.7	115.3	110.8	0.07	8.0	3.5	111.3	0.28	8.6	3.8	16	AL
G7EYC6	119.5 *	114.9	113.7	115.0	115.8	1.25	9.6	2.6	112.0	0.50	9.8	4.3	16	LA
H9J7R3	109.7	109.8	109.6	109.9	109.7	-0.18	4.8	0.2 L	109.3	-0.36	5.8	0.5 L	16	LJ
JCJGN3	107.4	109.2	112.5	111.5	110.1	-0.08	9.7	2.3	113.2	0.86	9.5	3.9	16	LC
L67KP7	104.0	96.1 *	104.3	101.4 *	101.5	-2.15 *	8.4	3.8	102.8	-2.41 *	6.8	2.7	16	AC
LPWTM2	112.6	108.0	111.0	111.1	110.7	0.04	11.8	1.9	111.8	0.43	11.4	2.5	16	XX
MNGRKY	108.8	100.0	102.2	110.6	105.4	-1.21	7.8	5.1	108.7	-0.54	7.9	4.4	16	AH
MNGRKY_AI	115.1	110.3	117.4	104.8	111.9	0.33	9.0	5.6	110.5	0.02	9.4	3.7	16	AL
NDDW2U	115.0	113.8	113.0	115.0	114.2	0.88	5.8	1.0	116.2	1.82	6.2	3.0	16	AH
NFYM6K	109.5	111.1	109.0	109.9	109.9	-0.15	7.9	0.9	109.8	-0.19	7.2	1.1	16	AH
NKCHTU	107.7	112.5	104.0	110.7	108.7	-0.42	7.9	3.7	107.7	-0.88	8.5	3.1	16	LC
NM4EF3_AL	111.1	110.3	110.8	111.6	110.9	0.11	8.0	0.6	110.4	-0.02	8.7	3.6	16	AL
NT7NMV_AL	110.1	109.7	110.7	108.8	109.8	-0.16	6.3	0.8	109.4	-0.32	6.1	1.2	16	AL
P3BZCX	104.4	109.3	105.6	106.4 L	106.4	-0.97	7.7	2.1	105.1	-1.67	8.8	2.2	16	LA

Containerboard Interlaboratory Testing Program
Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42F2
TAPPI Official Test Method T807

Report #613 (L)
October 2020

	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
PJEP9V	110.3 L	108.5	108.4	110.6	109.4	-0.25	5.8	1.1	109.6	-0.26	4.7	1.5	16	LA
Q4DGLD_AL	111.0	124.4 *	117.1	120.2 *	118.2	1.82	10.2	5.7	113.6	1.00	9.5	4.7	16	AL
R8VWXQ	109.5	106.9	105.2	105.1	106.7	-0.91	9.2	2.0	106.7	-1.18	9.1	3.2	16	LC
RAMTKY	No Data	110.9	123.1 *	122.8 *	118.9	2.00 *	8.1	7.0 H	116.0	1.77	9.0	7.5 H	13	TB
RPVRPW	105.5	104.3	102.8 H	114.0	106.7	-0.91	9.8	5.0	106.0	-1.41	8.8	4.1	16	LA
UNDGPU	107.1	107.4	106.8	112.6	108.5	-0.48	6.7	2.7	109.6	-0.26	8.2	6.0	11	LA
V46UGV	107.4	107.0 L	109.6	107.4	107.8	-0.63	6.4	1.2	107.3	-0.99	6.2	2.8	16	LA
V7PNBB	108.6 L	108.2 L	107.7 L	No Data	108.2	-0.55	3.3	0.5 L	108.2	-0.72	3.3	0.5 L	3	XX
VHLPWR	101.1	100.8	99.4 *	97.6 X	99.7	-2.55 *	6.9	1.6	100.6	-3.10 X	8.5	3.1	16	LA
VNRHQM_AI	113.0	114.2	111.1	107.6	111.5	0.23	8.1	2.9	110.4	-0.01	7.9	2.9	16	AL
WN4J49_AL	117.6 L	121.0	114.6	121.1 *	118.6	1.92	5.6	3.1	118.2	2.46 *	6.7	2.5	16	AK
X34KGA	114.9	122.6 *	122.9 *	116.4	119.2	2.07 *	10.5	4.1	120.7	3.22 X	11.2	3.4	12	AX
XEF7MN_AL	106.5	113.0	110.4	113.5	110.8	0.08	6.9	3.2	111.2	0.25	8.0	2.5	16	AL
XJ4VZ8_AL	116.0	118.0	114.4	108.2	114.2	0.87	7.4	4.2	116.1	1.77	7.9	3.1	15	AL
YF6QTK	112.2	112.4	108.3	112.6	111.4	0.21	6.1	2.1	110.8	0.11	6.7	1.7	16	LA
YF6QTK_AL	116.4	111.3	112.7	112.2	113.2	0.63	7.1	2.3	111.0	0.19	6.4	2.2	16	AL
YND9H7	107.7	109.2	108.9	107.6	108.4	-0.51	9.3	0.8	108.9	-0.47	7.9	1.1	16	TP
YRF9KN	112.9	113.6	113.6	112.7	113.2	0.64	6.1	0.5 L	112.7	0.71	5.6	0.8 L	12	LA
YWBY8M	103.6	110.2	105.9 H	109.7	107.4	-0.74	10.8	3.2	106.1	-1.37	10.1	2.5	16	LZ
ZM6DKK	110.6	108.1	114.1	107.9	110.2	-0.08	10.3	2.9	107.9	-0.79	10.3	3.4	16	LA
ZZPTNJ	104.3	102.8	109.6	108.8	106.4	-0.98	10.2	3.3	108.9	-0.48	8.8	3.1	16	LZ

Consensus (All Labs) Results

Wk Mean	109.78	110.37	110.73	111.07	Month Mean	110.49	Grand Mean	110.44
Avg SDr	8.41	8.33	8.20	8.51	Avg SD	8.36	Avg SD	8.27
SD btwn Labs	4.62	5.55	4.91	4.47	SD btwn Labs	4.21	SD btwn Labs	3.17
Labs Incld	55	56	55	53	SD btwn Wks	3.15	SD btwn Wks	3.41
Labs Excld	0	0	0	1	Labs Incld	56	Labs Incld	54
Labs not Rcvd	1	0	1	2				

Key to Instrument Codes Reported by Participants

AC	Perkins Model C	AH	Perkins Model AH
AK	L & W Autoline 300	AL	L & W Autoline 400
AX	Perkins Mullen Tester (model not specified)	LA	L&W Bursting Strength Tester
LB	L&W Burst-O-Matic	LC	L&W Autoline (205 Enrollment)
LJ	L&W Bursting Strength Tester J-Type	LZ	L&W (model not specified)
TB	TMI Monitor/Burst 1000	TP	Technidyne PROFILE/Plus
XX	Instrument make/model not specified by lab		

Containerboard Interlaboratory Testing Program

Analysis 207

Bursting Strength (Mullen), 35 lb Linerboard - 35E2

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
26UCYH	89.0	94.6	97.0	95.2	94.0	0.44	8.6	3.4	93.7	0.53	9.0	2.5	12	LA
2AAJMG	91.1	96.0	96.1	95.0	94.6	0.61	7.8	2.3	88.9	-1.12	8.0	4.7	12	LC
3JQRF3	92.0	88.1	88.1	91.0	89.8	-0.68	7.9	2.0	92.9	0.26	7.9	4.8	12	AH
4EE3YE	96.6	97.4	93.9 H	93.4	95.3	0.81	8.7	2.0	95.3	1.05	7.4	3.0	11	TB
4R32PG	88.5	87.2	88.1	88.5	88.1	-1.15	7.3	0.6	91.1	-0.35	7.9	3.4	12	LJ
6AG3TH_AL	94.0	90.7	88.5	88.2	90.3	-0.53	7.0	2.7	96.3	1.42	8.7	6.1	12	AK
8CUGFF	93.6 L	91.4 L	96.4	89.0	92.6	0.08	4.1	3.2	93.4	0.41	5.9	2.5	12	AX
8CUGFF_AL	110.1 X	92.7	92.4	93.2	97.1	1.29	5.8	8.7 H	92.8	0.20	6.1	5.8	12	AL
97MADH	99.0	99.6	97.5	96.5	98.2	1.58	7.3	1.4	97.1	1.67	7.0	2.0	12	AH
A6A6BD	96.0	104.3 *	No Data	No Data	100.2	2.12 *	7.1	5.9	94.4	0.76	7.3	6.5	6	LC
BFMKXC_AL	98.8	94.6	97.1	95.1	96.4	1.10	6.4	1.9	95.0	0.96	9.2	3.9	10	AL
BRJQRB	94.0	95.2	93.6	88.8	92.9	0.16	9.5	2.8	91.3	-0.30	8.3	2.5	12	AH
BVFGQU_AL	90.5	90.9	91.0	90.9	90.9	-0.39	8.7	0.2 L	91.7	-0.17	8.1	1.1	7	XX
BYYABA	101.8 *	106.3 X	99.1	97.0	101.1	2.36 *	7.3	4.0	95.0	0.97	7.3	5.1	12	AH
CNWDJR	95.6	90.6	92.7	94.0	93.2	0.24	8.7	2.1	91.6	-0.21	8.0	3.9	12	LC
CNWDJR_AL	94.1	91.0	94.5	90.2	92.4	0.03	7.4	2.2	93.1	0.32	8.1	3.3	12	AL
CZ9XP7	93.2	91.6	93.2	93.6	92.9	0.16	6.6	0.9	93.8	0.54	6.9	1.9	12	LA
DDMHL6_AL	93.1	91.2	96.3	93.3	93.5	0.31	4.7	2.1	92.6	0.15	5.1	1.4	12	XX
FA3BBB	91.9	97.1	96.1	93.5	94.7	0.63	8.1	2.4	93.0	0.26	7.8	3.5	12	LB
FXU8C8	90.9	89.2	87.1	83.5 *	87.7	-1.25	7.3	3.2	87.5	-1.61	7.6	2.2	12	XX
G3YQN6_AL	92.1	94.8	91.6	96.5	93.8	0.39	6.7	2.3	91.9	-0.11	7.2	2.8	12	XX
G7EYC6	86.9 H	98.6	91.4 H	97.7	93.6	0.35	15.5	5.5	92.4	0.07	11.4	4.4	12	LA
H9J7R3	90.9	90.5	90.7	90.4	90.6	-0.46	5.4	0.2 L	90.5	-0.56	4.8	0.3 L	12	LJ
JCJGN3	93.4	93.2	94.3	91.6	93.1	0.22	7.3	1.1	94.8	0.89	8.0	2.5	12	LC
L67KP7	87.6 L	84.3	88.2	88.4	87.1	-1.40	5.2	1.9	85.4	-2.32 *	6.1	2.8	10	AC
LPWTM2	87.2	90.8	89.4	92.7	90.0	-0.62	8.1	2.3	90.2	-0.66	8.2	1.6	12	XX
MNGRKY	95.4	82.2 *	87.4	91.6	89.2	-0.85	8.9	5.7 H	93.4	0.41	7.5	4.7	12	AH
MNGRKY_AI	93.5	91.7	90.4	94.9	92.6	0.08	7.9	2.0	90.9	-0.43	8.1	3.1	12	AL
NDDW2U	95.2	96.6	98.8	96.4	96.8	1.20	5.3	1.5	99.1	2.36 *	7.1	2.9	12	AH
NFYM6K	89.9	92.5	90.7	91.2	91.1	-0.33	7.1	1.1	90.8	-0.45	6.7	0.8 L	12	AH
NKCHTU	89.5	91.6	96.5	89.0	91.7	-0.18	6.8	3.4	90.3	-0.64	6.9	3.0	12	LA
NT7NMV_AL	91.7	92.7	91.5	90.0 L	91.5	-0.22	4.1	1.1	91.0	-0.40	4.7	1.7	12	AL
P3BZCX	85.6	93.1	86.1	86.8	87.9	-1.19	6.9	3.5	89.1	-1.03	8.3	3.5	12	LA
PJEP9V	92.0	91.1	90.6 L	91.8	91.4	-0.25	4.4	0.7	89.9	-0.79	4.7	1.5	12	LA
Q4DGLD_AL	93.4	103.4 *	95.4	102.7 X	98.7	1.73	7.4	5.1	96.9	1.62	8.7	3.7	12	XX

Containerboard Interlaboratory Testing Program

Analysis 207

Bursting Strength (Mullen), 35 lb Linerboard - 35E2

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
R8VWXQ	95.1	94.0	90.0	91.2	92.6	0.07	9.0	2.4	91.3	-0.31	8.3	2.7	12	LC
RAMTKY	No Data	85.5	91.8	88.2 H	88.5	-1.03	9.6	3.2	93.8	0.54	8.7	4.9	10	TB
RPVRPW	85.0	89.7	90.3	87.6	88.2	-1.12	8.9	2.4	89.2	-1.01	8.4	2.0	12	LA
UNDGPU	89.4	90.0	89.4	88.8	89.4	-0.79	7.3	0.5	91.5	-0.24	7.7	5.1	8	LA
V46UGV	87.4	87.5	84.4 *	89.7	87.3	-1.36	5.8	2.2	89.0	-1.08	6.2	2.3	12	LA
V7PNBB	84.1 *	86.8	86.8	No Data	85.9	-1.73	4.8	1.6	88.9	-1.11	4.3	3.1	7	XX
VHLPWR	87.5	84.4	83.9 *	83.4 *	84.8	-2.03 *	7.3	1.8	85.1	-2.41 *	7.6	2.8	8	LZ
VNRHQM_AI	92.3	88.7	88.2	90.2	89.9	-0.66	8.0	1.8	89.9	-0.79	8.2	2.1	12	AL
WN4J49_AL	99.3	100.7	101.0 *	98.0	99.8	2.01 *	7.1	1.4	98.0	1.98 *	7.3	2.0	12	AK
X34KGA	99.0	97.0	96.2	96.0	97.1	1.28	8.1	1.4	95.2	1.04	10.1	4.5	8	AX
XEF7MN_AL	91.3	93.1	92.0	92.0	92.1	-0.05	6.4	0.7	92.5	0.12	7.3	2.2	12	AL
XJ4VZ8_AL	98.3	101.8 *	93.1	97.2	97.6	1.43	7.8	3.6	98.2	2.04 *	8.9	3.9	11	AL
YF6QTK	85.0	92.4	91.2	90.0	89.7	-0.72	7.9	3.3	89.7	-0.86	6.4	3.6	12	LA
YF6QTK_AL	94.0	92.7	93.6	95.1	93.8	0.41	6.7	1.0	92.4	0.08	6.1	2.1	12	AL
YND9H7	91.6	91.6	88.9	90.4	90.6	-0.45	7.2	1.3	91.6	-0.21	6.8	1.7	12	TP
YRF9KN	92.2 L	93.3 L	93.7 L	93.3 L	93.1	0.22	2.5	0.6	92.5	0.12	2.9	0.6 L	12	LA
YWBY8M	87.1	91.3	89.6	90.0	89.5	-0.76	7.6	1.8	90.0	-0.73	8.4	2.1	12	LA
ZM6DKK	90.0	89.9	89.8	87.8	89.4	-0.79	6.5	1.1	89.5	-0.90	7.2	2.2	12	LA
ZZPTNJ	90.2	89.4	94.1	90.9	91.1	-0.31	9.0	2.0	92.2	-0.01	8.7	2.4	12	LZ

Consensus (All Labs) Results

Wk Mean	92.05	92.46	92.07	91.74	Month Mean	92.31	Grand Mean	92.17
Avg SDr	7.98	7.15	7.41	7.37	Avg SD	7.47	Avg SD	7.54
SD btwn Labs	4.03	4.59	3.83	3.44	SD btwn Labs	3.71	SD btwn Labs	2.94
Labs Incld	52	53	53	51	SD btwn Wks	2.80	SD btwn Wks	3.29
Labs Excld	1	1	0	1	Labs Incld	54	Labs Incld	54
Labs not Rcvd	1	0	1	2				

Key to Instrument Codes Reported by Participants

AC	Perkins Model C	AH	Perkins Model AH
AK	L & W Autoline 300	AL	L & W Autoline 400
AX	Perkins Mullen Tester (model not specified)	LA	L&W Bursting Strength Tester
LB	L&W Burst-O-Matic	LC	L&W Autoline (207 Enrollment)
LJ	L&W Bursting Strength Tester J-Type	LZ	L&W (model not specified)
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
26UCYH	95.8	95.7	96.2	97.4 *	96.3	2.21 *	3.4	0.8	96.6	2.34 *	4.1	4.3	16	LZ
2AAJMG	84.6	94.4	93.7	91.7	91.1	0.02	3.8	4.5 H	92.9	0.82	3.7	3.0	16	LD
3JQRF3	94.5	95.1	92.9	92.9	93.9	1.19	2.8	1.1	94.0	1.30	3.0	1.2	16	LC
4AMRPG	88.4	85.4	83.6 X	84.8 *	85.6	-2.30 *	3.7	2.0	84.8	-2.47 *	3.1	1.6	16	EN
4BV9EZ	82.5 *H	98.1 *	95.9	95.1	92.9	0.80	4.9	7.0 H	92.0	0.48	5.6	6.4 H	16	MB
4EE3YE	92.4	96.0	91.3	94.2	93.5	1.03	3.6	2.1	92.2	0.56	3.8	2.1	14	LD
7ZJWB2	92.6	93.8	93.6	93.8	93.5	1.03	2.3	0.6	93.3	1.00	2.0	1.0	16	LD
97MADH	91.3	91.9	91.1	91.7	91.5	0.19	3.0	0.4	88.8	-0.82	3.0	2.0	16	LG
A6A6BD	92.2	84.6 H	88.8	92.1	89.4	-0.67	4.1	3.6	94.1	1.31	3.8	6.3 H	16	MB
ABDBNV	87.4	87.1	87.3	87.8	87.4	-1.54	1.7	0.3 L	86.9	-1.60	1.6	0.5 L	16	MB
ATV87A	89.5	91.1	97.6 *	93.3	92.9	0.78	2.4	3.5	92.4	0.62	2.9	2.8	12	TE
BFMKXC	90.3	91.6	89.6	86.6	89.5	-0.63	3.6	2.1	86.1	-1.93 *	4.0	4.1	16	LC
BVFGQU	91.1	90.6	93.6	90.7	91.5	0.19	2.9	1.4	91.5	0.28	2.9	1.3	15	LD
BYYABA	85.6	86.4	88.1	89.3	87.4	-1.55	3.0	1.7	87.5	-1.36	2.8	1.4	16	LD
CNWDJR	92.6	92.6	92.7	90.9	92.2	0.50	2.6	0.9	92.6	0.73	2.8	1.0	16	LD
DDMHL6	93.6	87.5 H	87.1 H	93.2 H	90.3	-0.29	5.4	3.5	92.1	0.53	4.9	2.7	16	LZ
EUVWG8	96.7	101.5 X	97.9 *	97.1 *	98.3	3.05 X	3.9	2.2	92.7	0.74	4.1	5.7 H	16	EX
FA3BBB	92.4	91.3	92.3	93.6	92.4	0.57	2.3	0.9	94.7	1.58	2.9	3.4	16	LC
FQ9JAP	96.2	95.8 L	92.2	92.8	94.2	1.35	2.7	2.0	92.5	0.68	2.8	2.7	16	TH
G7EYC6	104.4 X	103.9 X	103.5 X	103.8 X	103.9	5.42 X	3.3	0.4	103.4	5.11 X	3.0	1.5	16	LD
GCKY78	90.7	91.3 L	91.0	90.5	90.9	-0.07	1.5	0.3 L	89.6	-0.51	1.2	1.0	16	RS
H9J7R3	91.8	91.6	91.7	91.2	91.5	0.22	2.9	0.3 L	92.6	0.72	2.8	0.8	16	LD
JCJGN3	91.3	93.8	92.1	91.1	92.1	0.43	2.8	1.2	93.2	0.95	3.1	1.3	16	LD
NKCHTU	92.7	91.7	90.9	91.8	91.8	0.30	3.3	0.7	90.3	-0.21	2.9	1.3	16	LD
NM4EF3	94.7 H	93.2 H	90.0	92.6 H	92.6	0.67	5.2	2.0	93.2	0.95	7.5	3.6	16	LC
P3BZCX	92.0	91.4	91.4	91.2	91.5	0.19	2.9	0.4 L	91.7	0.34	2.9	1.0	16	LD
PJEP9V	91.5	90.8	91.2	90.8	91.1	0.02	2.0	0.4 L	91.5	0.29	2.2	0.9	16	LZ
Q4DGLD	90.3 H	93.1	94.2	95.1	93.2	0.90	4.8	2.1	91.0	0.07	3.7	2.0	16	LD
R8VWXQ	89.6	89.6	88.0	88.1	88.8	-0.92	3.3	0.9	88.9	-0.79	2.8	1.8	16	LD
R9RETZ	91.6	91.0	91.2	91.2	91.2	0.09	3.1	0.3 L	90.7	-0.05	3.5	0.7	16	LD
RAMTKY	No Data	86.5	93.6	93.9	91.3	0.13	3.7	4.2	92.2	0.57	4.0	2.3	15	LX
UNDGPU	88.5	87.2	93.8	88.1	89.4	-0.70	2.6	3.0	89.0	-0.74	2.8	2.2	12	LD
V2XEAP	87.4	87.7	88.2	89.1 L	88.1	-1.24	2.4	0.7	88.4	-0.99	2.8	1.0	16	LD
V46UGV	88.3	89.0	90.1	88.7	89.0	-0.85	3.0	0.8	89.2	-0.67	2.2	1.3	16	LD
V7PNBB	77.1 X	77.5 X	74.1 X	84.0 *	78.2	-5.42 X	2.6	4.2	78.2	-5.17 X	2.6	4.2	4	LD

Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42F2

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
VB3LPP	87.6	85.0	89.5	90.9	88.2	-1.17	2.6	2.6	87.6	-1.32	2.9	3.3	16	LD
VNM73Q	94.3	90.6	91.2	92.3	92.1	0.45	2.6	1.6	91.4	0.25	2.6	1.7	16	EM
VNRHQM	89.8	89.1	90.8	91.3	90.2	-0.33	2.8	1.0	90.4	-0.18	2.9	1.2	16	LD
WLJPAU	89.7	90.1	90.1	89.6	89.9	-0.49	2.9	0.3 L	89.4	-0.60	2.8	1.2	16	LC
WN4J49	94.9	92.6	93.7	93.1	93.6	1.08	3.1	1.0	93.4	1.05	2.7	1.6	16	LD
X34KGA	92.7	91.2	91.4	92.5	92.0	0.39	4.1	0.8	89.5	-0.56	3.8	2.6	16	LD
YF6QTK	86.7 L	87.1	88.8	87.8	87.6	-1.45	2.1	0.9	88.3	-1.02	2.6	0.9	16	LD
YHPNEP	93.4	92.6	95.1	93.2	93.6	1.07	2.8	1.0	90.3	-0.22	2.7	3.2	16	LZ
YND9H7	91.8	92.8	91.0	93.0	92.2	0.48	3.6	0.9	91.6	0.33	3.5	0.8	16	TJ
YRF9KN	92.0	92.9	92.4	92.2	92.4	0.57	1.9	0.4	92.2	0.55	2.7	0.5 L	12	LD
YWBY8M	95.2	98.0 *	92.2	94.4	94.9	1.65	3.9	2.4	92.8	0.81	4.0	2.0	16	LD
YYYB8R	85.1	88.8	78.6 XH	81.0 XH	83.4	-3.23 X	6.6	4.5 H	90.6	-0.10	4.4	6.0 H	16	TU
YZR6MA	82.5 *	82.8 *	91.9	87.1	86.1	-2.08 *	2.8	4.4 H	88.3	-1.02	2.9	3.7	16	LZ
Z3TTF4	88.3	87.8	88.8	88.2	88.3	-1.16	2.8	0.4	87.7	-1.28	2.7	1.2	16	LC
Z8NMD6	73.0 X	75.7 X	76.6 X	72.7 X	74.5	-6.96 X	4.2	1.9	74.7	-6.58 X	3.5	1.2	16	EM
ZZPTNJ	84.8	89.4	91.3	88.3	88.4	-1.09	2.7	2.7	87.4	-1.39	2.7	2.2	16	LC

Consensus (All Labs) Results

Wk Mean	90.61	90.79	91.68	91.25	Month Mean	91.03	Grand Mean	90.83
Avg SDr	3.44	3.45	2.89	3.14	Avg SD	3.22	Avg SD	3.36
SD btwn Labs	3.48	3.46	2.50	2.86	SD btwn Labs	2.37	SD btwn Labs	2.45
Labs Incld	47	47	46	48	SD btwn Wks	2.19	SD btwn Wks	2.70
Labs Excld	3	4	5	3	Labs Incld	46	Labs Incld	48
Labs not Rcvd	1	0	0	0				

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
TE	TMI Digital Crush Tester, Model 17-12	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
26UCYH	85.6	86.2	85.9	86.9	86.1	1.65	3.8	0.6	85.8	2.05 *	3.4	0.9	12	LZ
2AAJMG	79.9	82.9	83.9	85.2	83.0	0.62	3.6	2.2	83.3	1.11	4.6	1.9	12	LD
3JQRF3	84.4	85.9	82.1	82.4	83.7	0.85	3.0	1.8	83.5	1.17	3.0	1.7	12	LC
4AMRPG	77.0	75.0	72.5 *	78.6	75.8	-1.71	3.4	2.6	75.7	-1.75	3.4	1.9	12	EN
4BV9EZ	72.1 *H	88.6	87.2	83.6	82.9	0.58	5.0	7.5 H	79.3	-0.40	5.5	6.5 H	11	MB
4EE3YE	80.6 H	84.3	81.1	83.5	82.4	0.43	5.6	1.8	80.9	0.21	5.3	1.7	10	LC
7ZJWB2	82.9 L	82.6	82.1	81.4	82.2	0.39	2.8	0.7	82.3	0.74	2.7	0.5 L	12	LD
97MADH	82.2	84.5	83.9	82.6	83.3	0.73	3.4	1.1	81.1	0.29	3.1	2.3	12	LG
A6A6BD	86.3	No Data	85.0	86.2	85.8	1.55	3.0	0.8	85.6	1.95 *	8.0	5.9 H	11	MB
ABDBNV	76.6 L	76.4 L	76.7	76.7	76.6	-1.43	1.5	0.1 L	76.4	-1.47	1.4	0.3 L	12	MB
ATV87A	82.2	84.1	83.6	82.9	83.2	0.70	4.7	0.8	81.1	0.27	4.2	2.6	8	EN
BFMKXC	77.1	80.2	78.5	82.8	79.7	-0.45	4.6	2.5	79.6	-0.28	4.7	2.8	12	LC
BVFGQU	85.4	81.6	83.6	82.8	83.3	0.74	3.7	1.6	82.7	0.88	3.5	1.6	11	LD
BYYABA	77.7	78.6	76.8	79.3	78.1	-0.95	3.2	1.1	76.6	-1.39	3.1	1.5	12	LD
CNWDJR	80.1	80.1	82.4	82.9	81.4	0.11	4.2	1.5	81.7	0.50	3.5	1.1	12	LD
DDMHL6	83.1	78.2	83.6	83.8	82.2	0.37	4.7	2.7	80.5	0.05	4.3	3.4	12	LZ
EUVWG8	87.9	88.2	85.8	85.7	86.9	1.89	3.9	1.3	81.7	0.51	3.9	5.7 H	12	EX
FA3BBB	84.0	81.5	84.9	84.8	83.8	0.89	3.5	1.6	85.4	1.89	3.5	2.2	12	LC
FQ9JAP	86.7	86.2	86.2	84.0	85.8	1.53	2.7	1.2	83.9	1.32	3.2	2.0	12	TH
G7EYC6	91.2 *	90.4 *	90.3 *	91.5 X	90.8	3.17 X	3.6	0.6	91.0	3.95 X	3.7	1.1	12	LD
GCKY78	80.0 L	79.6 L	80.1 L	80.3 L	80.0	-0.33	1.2	0.3 L	79.4	-0.37	1.4	0.6 L	12	RS
H9J7R3	82.3	82.3	82.5	82.2	82.4	0.42	2.9	0.1 L	82.6	0.84	3.0	0.4 L	12	LD
JCJGN3	80.5	83.3	80.9	81.5	81.5	0.16	3.3	1.2	82.2	0.69	3.4	1.8	12	LD
NKCHTU	82.2	85.0 L	82.7	82.5	83.1	0.66	3.4	1.3	82.3	0.73	3.0	1.2	12	LD
NM4EF3	84.3 H	79.2 H	82.2 H	80.1	81.5	0.13	6.3	2.3	80.1	-0.11	5.6	2.9	12	LC
P3BZCX	79.4	79.1	79.6	79.3	79.4	-0.55	3.5	0.2 L	80.0	-0.12	3.3	1.3	12	LD
PJEP9V	79.7	79.4	79.6 L	79.9	79.6	-0.46	2.2	0.2 L	80.4	0.03	2.4	1.6	12	LZ
Q4DGLD	80.6	80.7	79.8	83.8	81.2	0.06	3.5	1.7	81.1	0.27	3.5	1.8	12	LD
R8VWXQ	76.8	75.6	75.0	77.5	76.2	-1.56	3.5	1.1	76.3	-1.52	3.2	1.3	12	LD
R9RETZ	85.7	85.1 H	85.3	83.5	84.9	1.26	5.5	1.0	83.6	1.23	4.9	2.1	12	LD
RAMTKY	No Data	78.0	79.4	83.5	80.3	-0.24	3.4	2.9	80.9	0.21	4.6	3.6	11	LX
UNDGPU	81.4	77.9	80.6	81.6	80.4	-0.22	4.1	1.7	79.0	-0.52	3.7	2.6	8	LD
V2XEAP	77.4	77.6	78.0	77.1	77.5	-1.15	2.5	0.4	77.1	-1.20	3.1	1.2	12	LD
V46UGV	78.1	80.2	81.6 L	80.7	80.1	-0.30	2.7	1.5	78.8	-0.57	2.8	2.2	12	LD
V7PNBB	70.9 *	63.9 X	64.8 X	73.9 *	68.4	-4.11 X	3.4	4.8 H	67.4	-4.84 X	3.7	3.5	8	LD

Containerboard Interlaboratory Testing Program

Analysis 217

Ring Crush, 35 lb Linerboard - 35E2

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
VB3LPP	75.7	75.3	77.0	75.4 *	75.8	-1.69	4.3	0.8	74.5	-2.17 *	4.3	2.8	12	LD
VNM73Q	82.2	81.6	82.1	81.3	81.8	0.25	3.7	0.4	80.6	0.10	3.2	1.5	12	EM
VNRHQM	81.9	79.8	80.2	80.3	80.5	-0.16	3.6	1.0	77.8	-0.97	3.3	2.5	12	LD
WLJPAU	77.0	78.2	78.4	79.8	78.4	-0.87	3.8	1.1	77.8	-0.97	3.5	1.8	12	LC
WN4J49	84.6	84.3	84.0	85.4	84.6	1.14	2.9	0.6	82.1	0.65	2.9	2.1	12	LD
X34KGA	84.1	82.9	82.2	80.3	82.4	0.43	4.4	1.6	80.0	-0.13	4.0	2.6	12	LD
YF6QTK	76.9	76.6	77.0	76.8	76.8	-1.37	3.1	0.2 L	77.0	-1.26	3.6	1.7	12	LD
YHPNEP	79.5	84.1	82.5	83.6	82.5	0.45	3.1	2.1	80.0	-0.13	2.8	2.4	12	LZ
YND9H7	78.3	80.1	79.7	82.6 H	80.2	-0.29	4.9	1.8	79.6	-0.30	4.8	1.4	12	TJ
YRF9KN	81.9	82.8	83.0	82.0 L	82.4	0.45	2.2	0.6	82.3	0.73	2.5	0.5 L	12	LD
YWBY8M	81.8	87.2	82.7	84.9	84.1	1.00	3.2	2.4	82.8	0.90	3.3	2.1	12	LD
YYYB8R	76.4	76.0 H	71.8 *H	72.3 XH	74.1	-2.24 *	7.3	2.4	77.6	-1.01	5.2	3.3	12	TU
YZR6MA	70.6 *L	74.7	75.8	77.4	74.6	-2.08 *	3.7	2.9	78.1	-0.85	3.3	3.6	12	LZ
Z3TTF4	78.2	78.1	79.5	79.7	78.9	-0.71	2.9	0.8	79.1	-0.48	3.0	0.8	12	LC
Z8NMD6	67.6 X	63.3 X	63.1 X	64.5 X	64.6	-5.32 X	4.7	2.1	66.3	-5.26 X	4.5	1.9	12	EM
ZZPTNJ	78.6	80.4	78.5	78.5	79.0	-0.67	3.6	0.9	76.7	-1.35	3.6	2.0	12	LC

Consensus (All Labs) Results

Wk Mean	80.61	81.26	81.18	81.48	Month Mean	81.05	Grand Mean	80.35
Avg SDr	3.84	3.97	3.70	3.67	Avg SD	3.81	Avg SD	3.82
SD btwn Labs	4.19	3.85	3.66	2.93	SD btwn Labs	3.09	SD btwn Labs	2.68
Labs Incld	49	48	49	48	SD btwn Wks	1.86	SD btwn Wks	2.49
Labs Excld	1	2	2	3	Labs Incld	48	Labs Incld	48
Labs not Rcvd	1	1	0	0				

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
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
26UCYH	23.2	23.1	21.8 *	22.7	22.7	-1.10	1.5	0.6	22.3	-1.40	1.7	0.6	16	LW
2AAJMG	23.5	22.3	23.1	23.6	23.1	-0.63	1.8	0.6	23.5	0.01	1.7	0.7	16	LA
32BHF3	24.4	25.0	23.9	24.5	24.4	0.95	1.8	0.5	22.2	-1.55	1.5	3.4 H	16	XX
3JQRF3	22.3	22.9	22.4	22.2	22.5	-1.40	1.5	0.3	22.7	-0.96	1.6	0.4	16	LU
4AMRPG	22.4	22.9	23.2	22.8	22.8	-0.97	1.9	0.4	22.0	-1.72	1.7	0.6	16	LY
4BV9EZ	22.0	24.0	24.1 H	24.8	23.8	0.13	1.7	1.2	23.3	-0.21	1.9	0.8	16	LA
4EE3YE	24.6	24.0	23.9	24.1	24.2	0.63	2.0	0.3	23.9	0.48	1.9	0.5	15	LW
4R32PG	25.1	25.4 H	24.2	24.1	24.7	1.25	2.2	0.6	23.9	0.44	1.7	1.5	16	LH
4XUBZF	22.3	22.6	21.9	22.4 L	22.3	-1.57	1.5	0.3	22.4	-1.26	1.6	0.4	16	LW
6AG3TH_AL	22.6	23.6	25.1	25.0	24.1	0.49	1.8	1.2	24.1	0.71	1.8	0.9	16	AK
6YWTBG	22.8	24.4 L	23.4 H	25.4	24.0	0.43	1.6	1.1	24.7	1.38	2.0	0.9	16	LA
7ZJWB2	23.1	22.6	23.5 H	22.8	23.0	-0.74	2.1	0.4	23.2	-0.35	2.0	0.4	16	LY
8CUGFF	24.3 L	24.1 L	24.7 L	24.8	24.5	0.99	1.1	0.3	24.2	0.80	1.4	0.5	16	LU
8CUGFF_AL	25.3	24.4	24.4	25.9 *L	25.0	1.55	1.4	0.7	24.1	0.67	1.3	0.8	16	AL
97MADH	23.5	23.2	23.8	23.1	23.4	-0.30	1.3	0.3	22.7	-0.91	1.5	0.6	16	LU
A6A6BD	24.4	21.1 *	21.7 *L	23.6 L	22.7	-1.11	1.5	1.6 H	25.4	2.18 *	2.0	6.0 H	14	LA
ATV87A	18.7 X	19.2 XH	20.0 X	19.6 X	19.4	-5.01 X	2.0	0.6	20.2	-3.84 X	1.8	1.2	12	LH
BFMKXC	23.3	24.0	23.1	23.5	23.5	-0.18	1.4	0.4	23.9	0.42	1.5	0.6	16	LU
BRJQRB	No Data	No Data	23.6	23.6	23.6	-0.07	1.6	0.0	23.1	-0.44	1.7	0.4	14	XX
BVFGQU_AL	23.4	24.5	24.4	24.3	24.1	0.58	1.8	0.5	26.2	3.06 X	2.2	5.9 H	9	XX
BYYABA	23.4	23.1	22.7	22.3	22.9	-0.92	1.8	0.5	22.5	-1.20	1.7	0.6	16	LU
CNWDJR	22.8	23.4	23.4	23.3	23.2	-0.48	1.3	0.3	23.3	-0.28	1.5	0.3 L	16	LA
CNWDJR_AL	23.6	23.5	23.8	23.8	23.7	0.04	1.9	0.2	23.1	-0.46	1.8	0.4	16	AL
CZ9XP7	23.6	24.0	24.1	24.1	23.9	0.35	1.6	0.3	23.7	0.20	1.8	0.4	16	LY
DDMHL6_AL	22.5 L	23.3	23.2	22.1	22.8	-1.03	1.3	0.5	23.1	-0.52	1.6	0.8	16	AL
DUGVEE	25.0	25.3	24.6	25.5	25.1	1.69	1.6	0.4	25.5	2.24 *	1.6	1.2	16	LH
EUVWG8	29.9 XL	30.9 XL	30.2 XL	27.5 XL	29.6	7.03 X	0.0	1.5 H	30.5	7.94 X	2.1	2.2	16	TT
FA3BBB	23.0	22.6	22.6	22.7	22.7	-1.09	1.4	0.2	23.2	-0.33	1.6	0.7	16	LW
JCJGN3	23.3	23.2	22.5	22.8	22.9	-0.82	1.6	0.4	23.0	-0.63	1.7	0.5	16	LA
L67KP7	22.5	23.2	23.7	23.5	23.2	-0.49	1.4	0.5	23.3	-0.23	1.4	0.6	16	LH
MNGRKY	22.9	22.9	22.8	23.1	22.9	-0.82	1.8	0.1	22.7	-0.98	1.7	0.7	16	LH
MNGRKY_AI	25.2	24.9	24.6	25.5	25.0	1.65	1.4	0.4	25.7	2.48 *	1.8	0.8	16	AL
NDDW2U	24.6 L	24.2 L	24.7 L	25.4 L	24.7	1.29	0.6	0.5	24.6	1.24	1.7	0.5	16	LU
NFYM6K	23.6	23.9	24.2	23.6	23.8	0.21	1.3	0.3	23.5	-0.02	1.2	0.4	16	TT
NKCHTU	22.3	23.4	21.9	23.0	22.6	-1.18	1.6	0.7	22.7	-0.93	1.6	0.6	16	LA

Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42F2

TAPPI Official Test Method T826

Report #613 (L)
October 2020

	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
NM4EF3_AL	24.9	25.1	24.7	26.7 X	25.4	2.01 *	1.6	0.9	24.2	0.74	1.7	1.1	16	AL
NT7NMV_AL	21.9	22.4	23.1	22.5	22.5	-1.39	1.3	0.5	22.6	-1.05	1.4	0.5	16	AL
P3BZCX	23.5	23.2	23.7	23.1	23.4	-0.31	1.7	0.3	23.1	-0.45	1.7	0.3 L	16	LZ
PTZXQW	24.8	25.1	25.1	25.1	25.1	1.66	1.7	0.1	24.2	0.79	1.6	0.7	16	LH
Q4DGLD_AL	42.8 XL	41.3 XL	40.5 XL	41.8 XL	41.6	21.11 X	0.0	0.9	38.1	16.71 X	1.6	6.8 H	16	AL
R8VWXQ_AL	22.5	22.1	22.7	23.6 H	22.7	-1.06	2.0	0.7	22.2	-1.56	1.6	0.8	16	AK
RPVRPW	23.2	25.0	25.4	24.8 H	24.6	1.12	1.9	1.0	24.7	1.37	1.8	0.8	16	LH
V46UGV	22.8	22.9 L	24.0 L	23.3 L	23.2	-0.50	0.9	0.5	23.1	-0.48	1.0	0.5	16	LH
VHLPWR	45.7 XH	43.6 XH	43.1 XH	45.3 XH	44.4	24.42 X	19.8	1.3 H	43.4	22.78 X	19.3	1.8	16	LZ
VNRHQM_AI	23.7 L	24.3	24.1	23.3	23.8	0.24	1.7	0.4	24.0	0.51	1.6	0.5	16	AL
WLJPAU	24.6	25.5	24.7	24.2	24.8	1.30	1.3	0.5	24.0	0.54	1.3	1.1	16	LA
WN4J49_AL	24.5 H	24.6	23.4	24.8 H	24.3	0.79	2.0	0.6	23.9	0.44	1.7	0.6	16	AK
WT3W9L	22.9	23.9	23.8	23.8	23.6	-0.03	1.6	0.5	23.4	-0.09	1.6	0.5	16	LY
X34KGA	22.9	24.3	23.7	25.1	24.0	0.41	1.7	0.9	23.7	0.25	1.7	0.6	16	LH
XEF7MN	No Data	24.1	No Data	23.9	24.0	0.42	1.6	0.2	25.2	1.93	2.1	4.8 H	12	LU
XJ4VZ8_AL	24.7	24.2	24.4	23.3	24.1	0.57	1.8	0.6	24.0	0.50	1.7	0.4	15	AL
XZECAU	23.2	23.8	23.2	23.4	23.4	-0.33	1.8	0.3	22.6	-1.03	1.6	0.7	16	TT
YF6QTK_AL	22.1	23.8	23.1	23.6	23.1	-0.59	1.7	0.8	23.1	-0.52	1.7	0.6	16	AL
YHPNEP	21.7	21.5 *	20.7 X	22.5	21.6	-2.41 *	1.6	0.7	22.4	-1.33	1.4	0.9	16	LA
YND9H7	23.2	23.8	22.5	23.4	23.2	-0.50	1.3	0.6	23.1	-0.48	1.4	0.4	16	TT
YRF9KN	23.4	23.2	23.1	23.2	23.2	-0.51	1.6	0.1	23.3	-0.23	1.8	0.3 L	12	LA
YWBY8M	No Data	No Data	23.5	23.3	23.4	-0.31	1.8	0.1	23.5	-0.01	1.8	0.5	14	LY
YYYB8R	25.8 *	24.1	24.3	24.0	24.6	1.07	1.5	0.8	24.1	0.64	1.9	0.8	16	LA
YZR6MA	23.2 L	21.6 *L	24.9 L	22.9 L	23.2	-0.58	0.3	1.3 H	31.5	9.19 X	0.3	27.0 H	16	XX
ZZPTNJ	25.1	24.3	25.5 *	25.1	25.0	1.58	1.6	0.5	24.1	0.66	1.7	0.9	16	LW

Consensus (All Labs) Results

Wk Mean	23.50	23.66	23.66	23.75	Month Mean	23.64	Grand Mean	23.52
Avg SDr	1.57	1.60	1.57	1.66	Avg SD	1.60	Avg SD	1.66
SD btwn Labs	1.02	1.00	0.93	0.97	SD btwn Labs	0.85	SD btwn Labs	0.87
Labs Incld	53	54	54	55	SD btwn Wks	0.62	SD btwn Wks	1.32
Labs Excld	4	4	5	5	Labs Incld	56	Labs Incld	54
Labs not Rcvd	3	2	1	0				

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
LA	L&W Autoline (223 Enrollment)	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
26UCYH	23.5	22.1	22.5	23.3	22.8	-0.52	1.8	0.6	22.3	-0.98	1.6	0.6	12	LW
2AAJMG	20.4 X	23.1	22.9	22.3	22.2	-1.29	2.0	1.2	22.8	-0.29	1.7	1.1	12	LA
32BHF3	24.1	24.5	24.5	24.3	24.4	1.26	2.1	0.2	20.7	-3.41 X	1.6	3.2 H	12	XX
3JQRF3	21.8	22.4	22.1	22.1	22.1	-1.37	1.6	0.3	22.2	-1.17	1.5	0.4	12	LU
4AMRPG	21.3 *	21.8	22.1	20.9 *	21.5	-2.06 *	1.6	0.6	21.2	-2.65 *	1.5	0.5	12	LY
4BV9EZ	23.0	22.9 H	23.6 H	23.1	23.2	-0.15	2.2	0.3	22.8	-0.30	2.0	0.7	11	LA
4EE3YE	23.4	23.0	23.0	21.9	22.8	-0.54	1.8	0.7	22.9	-0.04	1.8	0.6	11	LW
4R32PG	24.0	24.8 H	24.3	24.3	24.3	1.21	2.3	0.3	23.6	0.97	2.0	1.4	12	LH
4XUBZF	23.2	21.9	22.3	23.5	22.7	-0.69	1.5	0.8	22.3	-0.98	1.5	0.6	12	LW
6AG3TH_AL	23.3	23.0	24.4	24.2 H	23.7	0.50	2.0	0.7	23.9	1.39	1.8	0.8	12	AK
6YWTBG	23.3 L	22.5	23.4 L	24.9	23.5	0.28	1.3	1.0	23.9	1.37	1.1	1.0	12	LA
7ZJWB2	22.5	22.7	22.6	23.1	22.7	-0.65	1.9	0.2	22.2	-1.12	1.9	0.6	12	LY
8CUGFF	24.3 L	24.0 L	24.5 L	24.9	24.4	1.31	0.9	0.4	24.0	1.62	1.4	0.7	12	LU
8CUGFF_AL	24.4	25.3 *	23.9	25.1	24.7	1.62	1.4	0.7	23.4	0.61	1.2	1.1	12	AL
97MADH	23.4	23.3	22.0	22.8	22.9	-0.47	1.6	0.6	22.5	-0.69	1.6	0.5	12	LW
A6A6BD	23.7	22.7 L	23.5	24.2	23.5	0.25	1.3	0.6	23.2	0.41	1.5	1.2	10	LA
ATV87A	18.8 X	19.1 X	20.0 X	20.7 *H	19.7	-4.23 X	1.8	0.9	20.0	-4.43 X	1.6	1.0	8	LH
BFMKXC	24.7	23.9	24.4	23.5 L	24.1	0.98	1.7	0.5	24.1	1.65	1.9	0.7	10	LU
BRJQRB	23.1	23.1	22.3	23.0	22.9	-0.48	1.6	0.4	22.9	-0.12	1.6	0.7	12	XX
BVFGQU_AL	23.0 H	23.5 H	23.9	23.6	23.5	0.25	2.3	0.4	26.0	4.54 X	2.2	4.7 H	6	XX
BYYABA	23.1	22.2	22.9	22.9 H	22.8	-0.62	2.1	0.4	22.2	-1.09	1.8	0.5	12	LU
CNWDJR	22.2	22.1	21.8	22.6	22.2	-1.27	1.6	0.3	22.5	-0.66	1.6	0.4	12	LA
CNWDJR_AL	23.7	23.4	22.4	22.3	22.9	-0.41	1.7	0.7	23.0	0.12	1.6	0.5	12	AL
CZ9XP7	24.0	23.5	23.7	24.0	23.8	0.59	1.6	0.2	23.4	0.58	1.7	0.6	12	LU
DDMHL6_AL	23.2	23.1	22.1	23.2 H	22.9	-0.48	1.8	0.5	22.4	-0.88	1.7	0.9	12	XX
DUGVEE	25.3 *	24.8	25.3	25.0	25.1	2.09 *	1.4	0.3	24.5	2.35 *	1.6	1.0	12	LH
EUVWG8	27.7 XL	28.8 XL	28.6 XL	29.6 XL	28.7	6.25 X	0.0	0.8	26.8	5.69 X	2.3	3.5 H	12	TT
FA3BBB	22.5	21.9	21.9	21.8	22.0	-1.48	1.4	0.3	23.3	0.57	1.6	1.2	12	LW
JCJGN3	22.4	22.0	22.5	22.6	22.4	-1.06	1.7	0.3	22.8	-0.28	1.7	0.6	12	LA
L67KP7	23.2	22.4	23.9	23.7	23.3	0.02	1.6	0.7	23.1	0.23	1.4	0.6	12	LH
MNGRKY	21.3 *	22.1	20.9 *	23.3	21.9	-1.62	1.5	1.0	22.4	-0.89	1.7	0.8	12	LH
MNGRKY_AI	25.1	24.5	23.8	24.2	24.4	1.29	1.3	0.5	25.0	3.09 X	1.7	0.9	12	AL
NDDW2U	23.9 L	24.7 L	24.4 L	24.1 L	24.3	1.16	0.8	0.3	23.6	1.00	1.5	0.6	12	LU
NFYM6K	22.6	23.3	22.7	22.9	22.9	-0.48	1.3	0.3	22.7	-0.42	1.2	0.3	12	TT
NKCHTU	22.8 L	23.0 H	23.7	23.9	23.3	0.07	1.7	0.5	23.0	0.09	1.7	0.5	12	LW

Containerboard Interlaboratory Testing Program

Analysis 225

STFI, 35 lb Linerboard - 35E2

TAPPI Official Test Method T826

Report #613 (L)
October 2020

	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
NM4EF3_AL	24.9	24.9	24.7	22.7	24.3	1.18	1.9	1.1	22.7	-0.44	2.3	1.5	12	AL
NT7NMV_AL	22.8	21.6	22.9	22.5	22.5	-0.97	1.7	0.6	22.2	-1.15	1.6	0.8	12	XX
P3BZCX	22.6	21.5	22.2	22.8	22.3	-1.18	1.4	0.6	22.5	-0.68	1.5	0.7	12	LZ
PTZXQW	24.0	24.6	24.6	24.0	24.3	1.14	1.7	0.3	23.5	0.84	1.5	0.6	12	LH
Q4DGLD_AL	35.2 XL	34.5 XL	35.7 XL	34.8 XL	35.0	13.67 X	0.0	0.5	34.5	17.41 X	0.0	2.3 H	12	AL
R8VWXQ_AL	22.2	21.7 H	22.0	22.4	22.1	-1.43	1.8	0.3	21.7	-1.92	1.6	0.4	12	AK
RPVRPW	23.2	25.7 *	25.4 *	25.3 *	24.9	1.87	1.9	1.2	24.2	1.78	1.9	0.9	12	LH
V46UGV	22.5 L	22.7	22.9 L	23.1 L	22.8	-0.59	0.9	0.2	22.7	-0.46	1.2	0.4	12	LH
VHLPWR	37.7 XH	38.1 XH	36.5 XH	37.4 XH	37.4	16.43 X	13.5	0.7	36.5	20.41 X	13.1	1.5	8	XX
VNRHQM_AI	23.8	23.6	22.5	23.1 H	23.2	-0.05	2.1	0.6	23.6	0.99	1.7	0.8	12	AL
WLJPAU	24.7 L	23.5 L	25.3	24.1	24.4	1.30	1.1	0.8	23.8	1.18	1.3	1.4	12	LA
WN4J49_AL	24.1	23.0	23.2	23.6	23.5	0.22	1.7	0.5	23.0	-0.03	1.6	0.6	12	AK
WT3W9L	23.4	24.5	23.3	23.9	23.8	0.57	1.9	0.5	22.9	-0.08	1.8	0.8	12	LY
X34KGA	22.8	24.0	22.7	24.5	23.5	0.22	1.9	0.9	23.0	0.08	1.7	0.8	12	LH
XEF7MN	No Data	24.0	No Data	24.9	24.4	1.35	1.4	0.6	23.1	0.14	1.7	0.8	9	LU
XJ4VZ8_AL	24.2	23.4	23.2	23.7	23.6	0.39	1.6	0.4	23.4	0.66	1.7	0.4	11	AL
XZECAU	23.6	22.7	23.3	23.3	23.2	-0.06	1.7	0.4	22.8	-0.29	1.6	0.9	12	TT
YF6QTK_AL	23.1 L	23.7	21.4	21.9	22.5	-0.89	1.2	1.0	22.6	-0.50	1.7	0.6	12	AL
YHPNEP	24.2 L	21.5 L	22.5	23.8	23.0	-0.30	1.1	1.2	22.0	-1.39	1.2	1.1	12	LA
YND9H7	23.1	22.8	22.6	23.0	22.9	-0.48	1.5	0.3	22.6	-0.63	1.4	0.4	12	TT
YRF9KN	22.8	22.8	22.7	22.7	22.7	-0.64	1.9	0.1 L	23.0	-0.01	1.8	0.4	12	LA
YWBY8M	23.4	23.2	21.9	22.0	22.6	-0.76	1.7	0.8	22.6	-0.49	1.7	0.5	12	LY
YYYB8R	25.0 H	22.8	24.6	24.3	24.2	1.05	1.9	1.0	23.6	0.94	1.9	0.7	12	LA
YZR6MA	23.0 L	21.1 *L	24.7 L	22.7 L	22.9	-0.48	0.3	1.5 H	31.0	12.10 X	0.3	25.5 H	12	XX
ZZPTNJ	25.2 *	24.0	24.8	23.7	24.4	1.32	1.8	0.7	23.7	1.05	1.6	0.7	12	LW

Consensus (All Labs) Results

Wk Mean	23.40	23.15	23.23	23.33	Month Mean	23.29	Grand Mean	22.97
Avg SDr	1.69	1.67	1.62	1.65	Avg SD	1.66	Avg SD	1.65
SD btwn Labs	0.93	1.06	1.08	1.01	SD btwn Labs	0.86	SD btwn Labs	0.66
Labs Incld	54	56	55	57	SD btwn Wks	0.65	SD btwn Wks	0.78
Labs Excld	5	4	4	3	Labs Incld	56	Labs Incld	52
Labs not Rcvd	1	0	1	0				

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
LA	L&W Autoline (223 Enrollment)	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

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
26UCYH	147.6	0.67	9.26		143.3	0.05	4.44	4	EV
2AAJMG	135.8	-0.40	19.56		164.7	1.81	23.26 H	4	LA
4AMRPG	148.9	0.79	21.09		152.5	0.81	7.15	4	EV
4BV9EZ	119.9	-1.83	11.10		133.2	-0.78	11.16	4	LA
4EE3YE	123.5	-1.51	10.55		122.4	-1.67	5.99	4	XX
4R32PG	153.5	1.20	14.77		154.8	1.00	3.53	4	LS
6AG3TH_AL	138.4	-0.17	18.02		131.0	-0.96	11.82	4	AK
8CUGFF_AL	125.1	-1.37	16.25		121.4	-1.76	3.80	3	AL
A6A6BD	151.4	1.01	14.71		147.6	0.40	5.40	4	LA
BFMKXC	141.6	0.12	18.25		149.8	0.59	7.49	4	EV
BYYABA	160.2	1.81	14.80		157.2	1.20	4.76	4	EV
CNWDJR	144.6	0.40	21.10		142.9	0.02	4.36	4	LA
CNWDJR_AL	142.8	0.23	14.54		143.7	0.08	9.28	4	AL
DDMHL6_AL	134.4	-0.53	11.83		143.3	0.05	6.70	4	XX
G7EYC6	120.5	-1.78	15.36		124.3	-1.52	6.74	4	EV
MNGRKY_AI	130.2	-0.91	12.91		130.2	-1.03	7.04	4	AL
NKCHTU	137.6	-0.24	19.94		136.2	-0.54	1.78	3	LA
NM4EF3_AL	158.1	1.62	15.22		157.1	1.18	11.89	4	AL
NT7NMV_AL	141.9	0.15	14.41		142.2	-0.04	3.05	4	AL
Q4DGLD_AL	152.2	1.08	23.90		183.7	3.38 X	62.04 H	4	AL
R8VWXQ	122.4	-1.61	22.21		124.0	-1.54	3.52	4	LS
RPVRPW	189.3	4.44 X	64.10 H		144.1	0.12	30.20 H	4	EV
WN4J49	143.9	0.34	18.12		155.1	1.02	15.36	4	EV
XEF7MN	147.0	0.61	9.88		148.6	0.49	5.93	4	EV
XJ4VZ8_AL	131.4	-0.80	13.93		132.2	-0.86	7.21	4	AL
YRF9KN	144.1	0.35	9.40		148.0	0.43	3.44	3	LS
YWBY8M	145.1	0.44	6.52 L		148.7	0.50	4.15	4	EV
YYYB8R	143.4	0.29	14.97		161.7	1.56	14.27	4	LA
ZZPTNJ	140.6	0.03	14.98		135.4	-0.60	4.34	4	LS

Consensus (All Labs) Results

Month Mean	140.22	Grand Mean	142.70
Avg SD	15.84	Avg SD Months	10.26
SD btwn Labs	11.05	SD btwn Labs	12.14
Labs Incld	28	Labs Incld	28

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
EV	Emveco Microgage Model 210-R	LA	L&W Autoline (228 Enrollment)
LS	L&W 263	XX	Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program

Analysis 229

Roughness - Sheffield Method, 42 lb Linerboard - 42F2

TAPPI Official Test Method T538

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
3JQRF3	360.9	0.34	8.17		361.4	0.55	0.92	4	XX
6AG3TH_AL	353.1	-0.53	3.11	L	351.8	-0.90	1.15	4	AK
6YWTBG	369.8	1.32	5.69		361.6	0.58	5.71	4	XX
BVFGQU	350.7	-0.79	5.58		354.3	-0.52	2.87	4	PP
CNWDJR_AL	349.9	-0.88	7.88		353.7	-0.62	3.87	4	AL
MNGRKY_AI	350.4	-0.82	7.82		353.6	-0.64	5.38	4	AL
P3BZCX	360.5	0.29	11.03		366.3	1.28	10.00 H	4	XX
Q4DGLD_AL	266.4	-10.10 X	34.80	H	328.7	-4.38 X	53.99 H	3	AL
VNRHQM_AI	378.3	2.26 *	26.86	H	370.4	1.90 *	6.07	4	AL
WN4J49_AL	353.1	-0.53	9.16		352.8	-0.76	4.28	4	AK
XJ4VZ8_AL	352.6	-0.58	2.88	L	349.6	-1.24	3.90	4	AL
YF6QTK_AL	357.2	-0.07	4.05	L	360.2	0.36	2.62	4	AL
Z8NMD6	408.2	5.56 X	6.81		401.4	6.58 X	5.24	4	TS

Consensus (All Labs) Results

Month Mean	357.86	Grand Mean	357.78
Avg SD	10.51	Avg SD Months	4.90
SD btwn Labs	9.06	SD btwn Labs	6.64
Labs Incld	11	Labs Incld	11

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
PP	Technidyne Profile/Plus	TS	TMI Monitor/Smoothness
XX	Instrument make/model not specified by lab		

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
3EXMPK	90.1	-0.62	1.91		90.0	-0.80	0.13	2	TM
3JQRF3	107.6	0.87	4.93		105.9	0.56	1.89	4	HY
4R32PG	146.4	4.20 X	9.02		107.9	0.73	26.81 H	4	TM
6AG3TH	84.6	-1.09	3.19		88.3	-0.95	4.15	3	SC
6YWTBG	87.4	-0.86	2.07		86.7	-1.09	1.09 L	4	SC
BFMKXC	76.4	-1.80	2.19		81.0	-1.58	4.44	4	TM
BVFGQU	109.0	0.99	7.52		108.8	0.81	5.01	4	HY
BYYABA	92.8	-0.39	11.03 H		89.7	-0.82	2.84	3	TM
CNWDJR	89.8	-0.65	5.63		93.1	-0.54	11.82	4	TM
DDMHL6	103.8	0.55	6.14		101.7	0.20	5.14	4	TM
FBFRNN	106.6	0.79	3.58		113.9	1.25	13.06	4	TM
G7EYC6	99.4	0.17	6.88		110.3	0.94	7.95	4	HY
JCJGN3	108.6	0.96	3.44		103.0	0.31	5.14	4	HZ
JXY2K4	100.4	0.26	3.65		99.3	0.00	1.18 L	4	HY
NKCHTU	112.0	1.25	1.41		111.6	1.05	8.71	4	HY
NM4EF3	118.0	1.76	4.47		118.5	1.65	3.87	4	SC
R8VWXQ	105.7	0.71	9.49		114.0	1.26	12.96	4	TM
RPVRPW	112.0	1.25	5.70		113.1	1.18	13.02	4	SC
VNRHQM	41.4	-4.79 X	1.03 L		42.1	-4.92 X	0.78 L	4	LZ
WLJPAU	93.8	-0.31	2.95		94.5	-0.42	2.63	4	TM
WN4J49	82.8	-1.25	2.59		83.5	-1.36	1.78	4	TM
XEF7MN	89.2	-0.70	6.65		87.9	-0.99	4.94	4	TM
YF6QTK	92.1	-0.45	5.18		99.1	-0.02	8.26	4	SC
YWBY8M	80.5	-1.45	1.12 L		83.3	-1.38	2.93	4	XX

Consensus (All Labs) Results

Month Mean	97.40	Grand Mean	99.33
Avg SD	5.27	Avg SD Months	8.75
SD btwn Labs	11.68	SD btwn Labs	11.64
Labs Incld	22	Labs Incld	23

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	96.28	11.81	1.12	19
Modified Scott Bond Mechanics	109.80	3.11	12.40	2

Analysis Notes

VNRHQM - 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
26UCYH	27.4	-0.01	3.29		26.6	-0.20	3.21	4
3JQRF3	22.6	-1.09	2.10		25.6	-0.50	2.03	4
4AMRPG	27.2	-0.06	1.32		21.6	-1.83	14.06 H	4
4EE3YE	34.4	1.56	2.61		28.0	0.27	4.57	4
4R32PG	24.8	-0.60	1.30		24.3	-0.93	1.16	4
6AG3TH	29.7	0.50	3.89		30.1	0.96	0.64	4
6YWTBG	29.0	0.35	0.71		28.6	0.45	0.41 L	4
A6A6BD	16.9	-2.37 *	0.89		19.7	-2.42 *	2.92	4
BFMKXC	29.2	0.39	2.95		28.3	0.35	1.15	4
BVFGQU	28.4	0.21	2.70		27.5	0.09	0.99	4
BYYABA	24.8	-0.60	4.92 H		28.9	0.54	2.97	4
CAFDVE	23.4	-0.91	1.14		24.1	-1.02	0.81	4
CNWDJR	23.2	-0.95	1.48		24.0	-1.03	0.73	4
DDMHL6	29.4	0.44	2.70		28.8	0.51	0.50 L	4
FMNPEA	24.6	-0.64	1.82		24.7	-0.80	0.74	4
G3YQN6	32.4	1.11	2.97		29.1	0.61	3.55	4
NKCHTU	33.8	1.43	1.79		30.8	1.18	3.47	3
NM4EF3	25.4	-0.46	1.14		26.0	-0.40	0.97	4
NT7NMV	24.8	-0.60	1.92		24.3	-0.95	0.72	4
P3BZCX	29.1	0.37	3.73		30.2	0.99	3.35	4
R8VWXQ	29.6	0.48	4.28		29.0	0.58	1.60	4
RPVRPW	30.1	0.60	1.77		30.0	0.91	0.98	4
UNDGPU	32.0	1.02	2.35		31.2	1.31	0.69	3
VNRHQM	20.6	-1.54	0.89		26.1	-0.35	4.03	4
WN4J49	27.7	0.05	3.03		28.2	0.32	0.59	4
X34KGA	29.7	0.51	2.39		29.3	0.68	0.67	4
XEF7MN	33.8	1.43	1.30		29.4	0.72	3.03	4
XJ4VZ8	30.4	0.65	2.36		30.9	1.22	1.36	4
YRF9KN	26.2	-0.28	1.30		25.3	-0.61	0.82	3
YWBY8M	17.6	-2.21 *	1.52		21.3	-1.91	3.32	4
ZZPTNJ	32.9	1.21	2.70		31.1	1.26	1.56	4

Consensus (All Labs) Results

Month Mean	27.45	Grand Mean	27.17
Avg SD	2.46	Avg SD Months	3.31
SD btwn Labs	4.45	SD btwn Labs	3.07
Labs Incld	31	Labs Incld	31

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
26UCYH	19.0	-2.23 *	2.55		18.9	-2.16 *	1.47	4	XX
2AAJMG	22.6	0.20	0.53	L	21.4	-0.50	2.02	4	LA
3JQRF3	21.7	-0.43	3.63		22.9	0.47	1.49	4	TP
4EE3YE	21.7	-0.41	2.67		21.5	-0.43	0.59	4	LP
4R32PG	23.9	1.08	2.73		24.1	1.28	2.37 H	4	TD
6AG3TH_AL	17.5	-3.27 X	1.51		18.8	-2.19 *	1.42	4	XX
7ZJWB2	21.4	-0.61	0.97	L	20.7	-0.99	0.52	4	LP
8CUGFF_AL	23.2	0.61	1.48		22.4	0.17	0.80	3	AL
8NC2ZC	21.2	-0.77	1.88		20.9	-0.82	0.60	4	LP
A6A6BD	21.5	-0.55	2.71		20.8	-0.92	1.00	4	LA
BFMKXC_AL	23.3	0.69	2.02		23.1	0.62	0.31	4	AL
BVFGQU	21.8	-0.31	3.03		23.0	0.56	2.18	4	TP
BYYABA	25.5	2.17 *	5.15	H	23.3	0.78	1.66	4	GA
CNWDJR	25.1	1.93 *	1.32		24.6	1.60	0.83	4	LA
CNWDJR_AL	25.3	2.02 *	1.68		25.1	1.92 *	0.78	4	AL
DDMHL6_AL	22.2	-0.07	0.62	L	22.8	0.46	0.49	4	XX
JXY2K4	21.0	-0.88	1.73		21.7	-0.32	0.61	4	LP
MNGRKY_AI	23.9	1.09	2.11		23.6	0.99	0.24	4	AL
NKCHTU	22.7	0.27	2.63		22.6	0.28	0.51	3	LP
NM4EF3_AL	20.3	-1.36	2.91		20.7	-0.97	1.09	4	AL
NT7NMV_AL	22.4	0.10	1.82		21.8	-0.24	0.48	4	AL
P3BZCX	24.3	1.35	4.47	H	23.2	0.69	1.71	4	GA
PJEP9V	22.2	-0.07	1.55		22.5	0.23	0.36	4	XX
R9RETZ	21.1	-0.80	1.08		21.1	-0.66	0.32	4	XX
RPVRPW	22.1	-0.11	2.45		22.0	-0.11	0.63	4	LP
UNDGPU	20.6	-1.15	1.59		21.1	-0.71	0.75	3	LA
V7PNBB	20.3	-1.36	3.68		20.3	-1.22	0.00	1	GG
VNRHQM_AI	21.7	-0.40	1.24		24.8	1.73	2.29 H	4	AL
WN4J49_AL	21.8	-0.35	1.90		22.0	-0.07	0.34	4	AK
XEF7MN_AL	22.0	-0.22	1.29		22.2	0.01	0.35	4	XX
XJ4VZ8_AL	21.6	-0.46	2.34		20.3	-1.22	1.10	4	AL
YF6QTK_AL	21.6	-0.49	1.20		21.8	-0.21	0.41	4	AL
YRF9KN	21.2	-0.75	0.79	L	21.2	-0.60	0.10 L	3	LA
YWBY8M	23.0	0.46	2.32		22.7	0.35	0.74	4	LP
YYYB8R	23.6	0.90	1.61		24.4	1.51	1.57	4	LA
ZDEREM	23.6	0.89	2.17		23.2	0.70	0.29	4	LP

Consensus (All Labs) Results

Month Mean	22.30	Grand Mean	22.15
Avg SD	2.34	Avg SD Months	1.12
SD btwn Labs	1.47	SD btwn Labs	1.51
Labs Incld	35	Labs Incld	36

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
GA	Gurley Precision #4340 Automatic Densometer	GG	Gurley Precision #4320 Densometer
LA	L&W Autoline (237 Enrollment)	LP	L&W Air Permeance Tester SE 166
TD	TMI Gurley Densometer	TP	Technidyne Profile/ plus Roughness & Porosity
XX	Instrument make/model not specified by lab		

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2NAKZH	58.2	57.9	57.3	57.0	57.6	0.01	4.4	0.5	57.7	0.00	3.5	0.5 L	16	LD
32BHF3	59.0 L	58.1 L	59.9 L	61.3 L	59.5	1.02	0.6	1.4	59.6	1.08	0.8	1.2	16	XX
3JQRF3	57.3	58.0	55.2	59.3	57.4	-0.07	3.3	1.7	58.1	0.21	3.7	2.0	16	LC
3TJXHG	61.9	64.4 *H	60.1	59.3 H	61.4	2.00 *	8.0	2.3	61.5	2.08 *	5.3	1.6	16	LD
4AMRPG	59.2	56.1	60.5	59.2	58.8	0.61	4.9	1.9	58.5	0.47	3.9	2.5	16	EN
4BV9EZ	50.0 X	53.7	55.2	52.7 *	52.9	-2.42 *	3.8	2.2	51.9	-3.18 X	4.2	3.5	16	MB
4EE3YE	58.2	57.8	57.3	58.9	58.1	0.25	3.0	0.7	58.5	0.44	3.3	1.4	14	LD
6AG3TH	49.0 X	50.3 *	50.9 *	54.8	51.3	-3.28 X	3.3	2.5	53.3	-2.38 *	3.5	2.2	16	LD
6NVBR2	58.8	56.2 L	58.7	58.1	58.0	0.20	2.2	1.2	58.3	0.37	2.2	1.8	16	LC
7TMWZE	57.9	64.2 *	61.2	58.2	60.4	1.45	4.0	3.0	60.4	1.48	4.0	3.0	4	TX
89FNLF	59.4	54.3	58.1	54.9	56.7	-0.47	3.3	2.5	56.8	-0.48	3.5	2.6	12	TH
8NC2ZC	61.3	63.8 *	64.3 *	61.4	62.7	2.65 *	4.2	1.5	60.4	1.53	3.5	2.2	16	LD
97MADH	59.1	58.9	53.7	55.6 H	56.8	-0.40	4.9	2.6	57.8	0.08	4.0	1.6	16	LZ
A6A6BD	54.4	No Data	54.4	55.6	54.8	-1.44	3.9	0.7	53.5	-2.30 *	4.8	4.6 H	12	MB
ABDBNV	59.0 L	59.0 L	59.7	59.8 L	59.4	0.94	1.6	0.4	57.7	0.02	1.5	1.3	16	MB
ATV87A	46.3 X	45.2 X	46.9 X	51.1 *	47.4	-5.29 X	3.4	2.6	50.2	-4.07 X	3.1	3.3	12	TH
BFMKXC	59.3	60.1	59.3	54.7	58.4	0.40	4.1	2.5	58.7	0.56	3.7	2.1	16	LC
BVFGQU	54.9	54.8	56.3	55.7	55.4	-1.12	4.2	0.7	55.1	-1.40	3.5	1.1	15	LD
BYYABA	55.6	57.1	54.0	58.3	56.3	-0.69	3.1	1.9	57.1	-0.32	3.5	1.8	16	LD
CNWDJR	55.2	56.5	57.2	58.4	56.8	-0.39	4.2	1.3	57.5	-0.07	3.9	1.5	16	LD
CZ9XP7	59.3	59.0	60.4	59.6	59.6	1.04	4.4	0.6	59.0	0.72	4.1	1.0	16	LD
DUGVEE	54.5	52.1 *	54.0	54.1	53.7	-2.03 *	2.5	1.1	53.5	-2.26 *	3.1	1.5	16	LD
EUVWG8	57.8	57.3	60.7	60.2	59.0	0.74	3.4	1.7	57.4	-0.16	3.3	2.3	16	EM
FA3BBB	58.7 H	58.3	57.3	57.4	57.9	0.19	4.6	0.7	57.8	0.07	3.7	0.9	16	LD
FMNPEA	57.5	58.3	55.8	54.8	56.6	-0.52	3.5	1.6	53.8	-2.11 *	3.4	3.1	16	LZ
H3AWK7	59.9	59.8	59.8 L	59.7	59.8	1.15	2.3	0.1 L	60.2	1.37	2.0	0.3 L	16	LD
H9J7R3	59.2	59.2 L	59.3	59.4	59.3	0.88	2.9	0.1 L	59.4	0.95	3.1	0.3 L	16	LD
HZPZY2	58.4	58.6	57.8	57.3	58.0	0.23	3.5	0.6	57.8	0.09	3.5	0.5 L	16	LC
JCJGN3	53.9	57.0 L	56.2	54.2	55.3	-1.17	3.3	1.5	56.2	-0.80	3.0	1.9	16	LD
JXY2K4	No Data	56.7	No Data	56.4	56.6	-0.52	2.5	0.2	58.3	0.32	2.0	1.8	8	LD
L67KP7	58.0 L	57.7	58.4 L	57.7 L	57.9	0.18	1.7	0.3 L	59.0	0.73	2.1	1.0	16	EN
NFYM6K	56.9	57.1 H	57.1	59.5 H	57.6	0.04	6.2	1.2	57.1	-0.33	5.5	1.4	16	TG
NKCHTU	55.1	56.0	57.0	57.0	56.3	-0.67	2.5	0.9	56.0	-0.91	3.2	1.5	16	LD
NT7NMV	56.0	55.4	58.2	56.4	56.5	-0.55	3.1	1.2	57.5	-0.08	3.8	1.5	16	LZ
P3BZCX	56.3	53.7	58.2	55.6	55.9	-0.85	3.7	1.9	57.5	-0.07	3.5	2.0	16	LZ

	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
PTZXQW	58.6	58.7	58.1	59.2	58.7	0.56	3.4	0.5	60.7	1.68	4.0	2.1	16	LD
Q4DGLD	57.1	57.4 H	55.8	54.1	56.1	-0.76	4.3	1.5	56.4	-0.70	3.8	1.9	16	LD
RAMTKY	40.3 X	59.0	60.9	58.8	54.7	-1.47	3.6	9.7 H	57.6	-0.03	3.8	5.2 H	15	LD
RWDDDU	57.8	57.7 L	57.8	57.6 L	57.7	0.08	1.6	0.1 L	57.8	0.10	1.6	0.3 L	16	LD
TFNPJP	57.6	59.0	57.1	58.1	57.9	0.19	3.2	0.8	57.4	-0.16	3.3	0.8	16	LD
VNRHQM	54.3	54.6	52.2 *	53.2	53.6	-2.08 *	3.3	1.1	55.0	-1.43	3.4	1.9	16	LD
WAQ7VN	62.4 *H	64.9 *	65.1 *	66.5 X	64.7	3.71 X	4.4	1.7	65.0	4.02 X	3.8	1.2	16	LC
WLJPAU	56.4	56.8	57.4	61.9	58.1	0.29	2.7	2.5	57.5	-0.08	3.2	1.8	16	LC
WT3W9L	57.3	57.8	59.5	58.3	58.2	0.34	4.7	0.9	59.1	0.76	3.8	2.2	16	LD
X34KGA	59.2	58.2	58.4	59.6	58.9	0.67	3.6	0.7	58.1	0.23	3.7	1.2	16	LD
YND9H7	58.1	58.3	59.3	58.7	58.6	0.54	2.9	0.5	58.0	0.18	3.6	1.6	16	TJ
YRF9KN	57.1	57.5	57.4	57.8	57.5	-0.06	1.8	0.3 L	57.6	-0.06	2.8	0.4 L	8	LD
YWBY8M	56.0	60.8	60.4	57.0	58.5	0.50	4.5	2.4	57.3	-0.18	3.6	2.2	16	LZ
YYYB8R	63.5 *	58.6	54.2	55.4	57.9	0.19	4.8	4.1	57.7	0.01	4.9	3.5	16	TU
ZDEREM	58.2	58.4	57.8	58.6	58.2	0.34	3.8	0.3 L	59.1	0.79	3.1	1.6	16	LD

Consensus (All Labs) Results

Wk Mean	57.86	57.81	57.81	57.38	Month Mean	57.57	Grand Mean	57.66
Avg SDr	3.72	3.89	3.50	3.91	Avg SD	3.74	Avg SD	3.52
SD btwn Labs	2.12	2.83	2.74	2.38	SD btwn Labs	1.93	SD btwn Labs	1.83
Labs Incld	45	48	48	49	SD btwn Wks	2.08	SD btwn Wks	2.01
Labs Excld	4	1	1	1	Labs Incld	47	Labs Incld	47
Labs not Rcvd	1	1	1	0				

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
TG	TMI Compression Tester, Model 17-10	TH	TMI Compression Tester, Model 17-76
TJ	TLS Compression Tester, Model CDM-5	TU	TMI Universal Crush Tester (TMI K440)
TX	TMI Crush Tester (model not specified)	XX	Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program

Analysis 250

Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium - CM11

TAPPI Official Test Method T843

	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
32BHF3	69.8 L	70.4 L	71.6 L	72.1 L	71.0	0.84	0.7	1.0	70.1	0.60	0.8	1.7	16	XX
3JQRF3	70.5	74.1 *	69.0	70.3	71.0	0.83	3.2	2.2	71.1	1.24	2.9	2.2	16	LC
4AMRPG	70.9	68.9	69.0	72.4	70.3	0.51	3.3	1.7	68.3	-0.52	3.6	2.8	16	XX
4EE3YE	72.0	72.6	71.6	72.2	72.1	1.36	3.4	0.4	70.9	1.08	3.5	1.3	14	LD
6AG3TH	70.9	72.2	70.6	73.8	71.9	1.25	3.1	1.5	71.2	1.25	3.9	2.5	16	LD
8NC2ZC	67.4	70.6	68.2	70.0	69.0	-0.08	3.1	1.5	68.9	-0.16	3.9	1.5	16	LD
97MADH	71.0	66.4	69.6	67.2	68.6	-0.30	3.2	2.1	68.8	-0.19	3.8	1.5	16	LZ
ABDBNV	65.8	65.4	65.9	65.9	65.8	-1.61	1.7	0.2	65.7	-2.12 *	1.6	1.2	16	MB
ATV87A	60.4 X	60.9 X	57.5 X	59.9 X	59.7	-4.48 X	3.3	1.5	58.1	-6.75 X	3.4	2.4	8	TE
BFMKXC	67.5	70.5	71.8	68.6	69.6	0.19	3.2	1.9	69.1	-0.01	4.1	3.7 H	15	LC
BVFGQU	69.3	71.3	70.7	70.1	70.3	0.52	3.1	0.8	70.5	0.87	3.6	1.2	15	LD
CNWDJR	68.1	65.3 H	68.4	69.8	67.9	-0.62	4.2	1.9	67.9	-0.75	4.1	1.6	16	LD
FA3BBB	70.5	69.2	70.1	70.4	70.1	0.41	2.7	0.6	69.6	0.32	2.5	1.4	12	LD
HZPZY2	68.1	69.0	68.7	69.1	68.7	-0.22	4.1	0.5	68.2	-0.56	3.8	0.6	16	LD
JXY2K4	No Data	63.5 *	No Data	64.0 *	63.8	-2.55 *	1.7	0.3	63.1	-3.68 X	2.8	0.9	8	LD
NKCHTU	73.2 *	72.4	74.8 *	73.8	73.5	2.04 *	3.4	1.0	73.2	2.50 *	3.3	2.1	16	LD
NT7NMV	71.2	69.3	70.2	65.3	69.0	-0.09	3.6	2.6	68.4	-0.44	3.6	1.9	16	LZ
PJEP9V	68.1	68.5	68.5	68.7	68.4	-0.36	2.6	0.2	67.5	-1.01	2.6	0.9	16	LZ
RWDDDU	69.0	68.6	68.8	69.0	68.9	-0.16	1.6	0.2 L	68.7	-0.27	1.7	0.2 L	16	LD
V46UGV	70.1	69.0	69.0	69.0	69.3	0.03	3.3	0.5	68.5	-0.38	3.1	1.5	16	LD
VHLPWR	57.6 XH	55.5 XH	56.5 X	56.2 X	56.4	-5.99 X	6.3	0.9	56.3	-7.88 X	4.6	1.6	16	LD
VNRHQM	67.6	68.0	67.1	69.6 H	68.1	-0.53	3.8	1.1	69.0	-0.07	3.2	1.3	16	LD
YRF9KN	67.9	68.5	68.4	68.3	68.3	-0.43	1.6	0.3	68.5	-0.40	2.8	0.4 L	8	LD
ZDEREM	67.0	67.6	65.5 *	68.0 H	67.0	-1.03	3.2	1.1	67.5	-0.99	3.5	1.9	16	LD

Consensus (All Labs) Results

Wk Mean	69.32	69.15	69.40	69.44	Month Mean	69.20	Grand Mean	69.12
Avg SDr	3.05	3.08	2.98	3.10	Avg SD	3.03	Avg SD	3.25
SD btwn Labs	1.89	2.57	2.08	2.52	SD btwn Labs	2.13	SD btwn Labs	1.63
Labs Incld	21	22	21	22	SD btwn Wks	1.29	SD btwn Wks	1.78
Labs Excld	2	2	2	2	Labs Incld	22	Labs Incld	21
Labs not Rcvd	1	0	1	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
TE	TMI Digital Crush Tester, Model 17-12	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
3JQRF3	43.0	45.9	44.1	46.5	44.9	0.37	3.4	1.6	45.4	0.86	2.9	2.0	16	LC
3TJXHG	44.4	46.3	47.2	30.6 X	42.1	-0.48	3.4	7.8 H	44.1	0.18	3.6	4.0	16	LD
6NVBR2	47.8 *L	48.6 *	47.3	47.4	47.8	1.28	1.8	0.6	47.2	1.80	3.6	1.8	16	LC
7TMWZE	41.9	43.8	38.2	38.3	40.5	-0.98	3.2	2.8	39.5	-2.21 *	3.5	2.4	12	LZ
89FNLF	34.2 X	35.1 X	38.6	36.2 *	36.0	-2.39 *	3.2	1.9	35.5	-4.24 X	2.8	1.5	12	TH
8NC2ZC	44.7	44.3	44.5	43.4	44.2	0.17	3.4	0.6	44.7	0.52	3.3	1.0	16	LD
A6A6BD	56.0 X	55.4 X	40.1	55.8 X	51.8	2.55 *	3.2	7.8 H	47.0	1.69	3.5	6.4 H	16	MB
ABDBNV	42.1	43.0 L	42.1	42.2	42.4	-0.41	1.6	0.4 L	41.0	-1.41	1.7	1.5	8	MB
ATV87A	44.7 H	44.2	44.8 H	43.9	44.4	0.23	4.8	0.4 L	44.6	0.43	4.3	1.0	8	TH
BVFGQU	45.7	46.5	44.7	45.3	45.6	0.59	3.2	0.7	45.5	0.93	3.5	0.8	15	LD
CXZQH8	41.9	40.1	38.8	41.7	40.6	-0.95	2.7	1.5	40.8	-1.53	2.7	4.9 H	16	LZ
DL36V9	42.0 H	39.7 *	39.1	40.8	40.4	-1.01	5.5	1.3	40.6	-1.61	5.3	1.2	16	TX
EUVWG8	46.2	44.9	43.9	45.3	45.0	0.43	2.8	1.0	43.5	-0.12	3.0	2.8	16	EM
FQ9JAP	40.5	40.7	42.5	42.5	41.5	-0.66	2.7	1.1	43.2	-0.27	2.6	1.9	16	TH
H3AWK7	44.4	44.4	44.5	44.5 L	44.4	0.24	1.9	0.0 L	43.6	-0.08	2.1	0.5 L	16	LD
H9J7R3	43.6	43.7 L	43.4	43.7	43.6	-0.02	1.5	0.2 L	43.8	0.02	2.5	0.6 L	16	LD
JCJGN3	43.5	45.7	43.9	44.6	44.4	0.24	2.9	0.9	45.6	0.97	3.4	1.4	16	LD
NKCHTU	44.2	43.4	43.8	42.0	43.3	-0.10	3.2	1.0	44.3	0.28	3.4	1.4	16	XX
P3BZCX	42.3	42.6	44.5	41.3	42.7	-0.31	3.0	1.3	43.3	-0.23	3.2	1.1	16	LD
Q4DGLD	46.4	44.9	47.4	47.3	46.5	0.88	3.5	1.1	44.1	0.21	3.3	2.4	16	LD
RAMTKY	57.3 XL	46.5	45.5	45.5	48.7	1.57	2.9	5.7 H	46.1	1.22	3.4	3.2	16	LZ
TFNPJP	45.1	44.6	44.5	43.8	44.5	0.26	2.7	0.5	43.7	-0.03	2.0	0.9	16	LC
VNRHQM	42.9	41.1	42.0	43.5	42.4	-0.40	3.7	1.1	42.1	-0.82	3.2	1.2	16	LD
WAQ7VN	37.9 X	40.7 H	36.5 *H	35.3 *	37.6	-1.90	7.4	2.3	36.2	-3.87 X	4.8	1.5	16	XX
YHPNEP	47.7 *	45.1	45.4	43.8 H	45.5	0.57	4.0	1.6	43.4	-0.18	3.7	2.1	16	LZ
YRF9KN	44.2	44.3	44.6	44.6	44.4	0.24	3.0	0.2 L	44.1	0.16	2.9	0.5 L	8	LD
ZDEREM	43.9	43.8	42.0	45.3	43.7	0.02	2.7	1.3	42.2	-0.77	3.3	1.4	16	LD

Consensus (All Labs) Results

Wk Mean	44.05	43.95	43.09	43.14	Month Mean	43.67	Grand Mean	43.75
Avg SDr	3.45	3.90	3.32	3.16	Avg SD	3.44	Avg SD	3.27
SD btwn Labs	1.89	2.20	2.89	3.03	SD btwn Labs	3.20	SD btwn Labs	1.94
Labs Incld	23	25	27	25	SD btwn Wks	2.67	SD btwn Wks	2.38
Labs Excld	4	2	0	2	Labs Incld	27	Labs Incld	25
Labs not Rcvd	0	0	0	0				

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	TH	TMI Compression Tester, Model 17-76
TX	TMI Digital Crush Tester (model not specified)	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
2NAKZH	13.2	14.2	13.6	13.8	13.7	0.00	0.9	0.4	13.7	-0.01	0.9	0.4	12	LB
32BHF3	13.3	14.2	13.4	13.8	13.7	-0.06	1.0	0.4	12.8	-1.35	1.2	1.7	16	XX
3JQRF3	13.6	13.4	13.4	13.0 *	13.3	-0.65	1.0	0.3	13.5	-0.23	1.0	0.3	16	LU
4BV9EZ	13.1	13.7	13.2	13.9	13.5	-0.43	1.0	0.4	15.8	3.35 X	1.2	9.0 H	15	LA
6AG3TH	14.6	14.0	13.9	14.4	14.2	0.90	1.1	0.3	14.4	1.07	1.1	0.4	16	LA
A6A6BD	12.5	14.6 H	14.6	13.8	13.9	0.28	1.1	1.0 H	15.1	2.19 *	1.2	3.4 H	12	LA
ATV87A	12.0 *	12.2 *	12.2 *	14.0	12.6	-2.03 *	1.1	0.9	12.8	-1.48	1.1	0.7	12	LH
BVFGQU	13.9	14.2	14.2	14.2	14.1	0.74	1.0	0.1	13.3	-0.66	0.9	0.7	15	LB
BYYABA	13.4	13.7	14.1	13.3	13.6	-0.22	1.0	0.3	13.4	-0.38	1.2	0.4	16	LU
CNWDJR	14.6	14.7	14.5	14.2	14.5	1.38	1.0	0.2	14.1	0.61	1.1	0.5	16	LA
CXZQH8	13.1	13.8	12.8	13.5	13.3	-0.71	1.2	0.4	13.2	-0.84	1.3	0.8	16	LA
DL36V9	12.0	12.5 *	12.4	12.2 X	12.3	-2.58 *	1.0	0.2	12.1	-2.54 *	1.0	0.3	16	TT
HZPZY2	14.1	13.7	13.4	13.1 *	13.6	-0.26	1.0	0.4	13.6	-0.15	0.9	0.4	16	LB
L67KP7	14.0	13.6	14.4	14.3	14.1	0.64	0.8	0.4	14.2	0.85	0.9	0.5	16	LH
P3BZCX	12.9	14.1	13.2	13.3	13.4	-0.60	1.1	0.5	13.7	0.04	1.1	0.4	16	LZ
Q4DGLD	8.6 X	7.9 X	9.4 X	8.9 X	8.7	-8.91 X	1.2	0.6	10.7	-4.78 X	1.2	2.4 H	16	LZ
R8VWXQ	13.4	13.5	13.5	13.8	13.6	-0.29	1.2	0.1	13.5	-0.36	1.1	0.4	16	LA
RWDDDU	13.6 L	13.7 L	13.6 L	13.7 L	13.6	-0.14	0.4	0.1 L	13.8	0.17	0.5	0.7	16	LA
TFNPJP	14.1	14.7	14.9	14.2	14.5	1.34	1.0	0.4	14.0	0.55	1.1	0.4	16	LH
VNRHQM	14.8	14.9	14.3	14.2	14.6	1.48	1.0	0.3	14.4	1.15	1.1	0.7	16	LA
X34KGA	14.1	14.2	14.8	15.2 XH	14.6	1.53	1.1	0.5	14.3	0.92	1.1	0.4	16	LH
YHPNEP	12.9	13.7	14.5 H	14.1	13.8	0.14	1.4	0.7	13.8	0.14	1.1	0.6	16	LA
YND9H7	12.9	13.3	13.2	14.2	13.4	-0.57	0.9	0.5	13.6	-0.22	0.9	0.4	16	TT
YRF9KN	13.6	13.7	13.6	13.8	13.7	-0.11	1.1	0.1	13.6	-0.14	1.2	0.2 L	8	LB
YYYB8R	15.3 *	12.7	13.6	13.9	13.9	0.25	1.0	1.1 H	14.1	0.68	1.2	0.7	16	LA

Consensus (All Labs) Results

Wk Mean	13.54	13.79	13.72	13.83	Month Mean	13.72	Grand Mean	13.69
Avg SDr	1.11	1.01	1.01	0.98	Avg SD	1.03	Avg SD	1.05
SD btwn Labs	0.83	0.67	0.72	0.40	SD btwn Labs	0.56	SD btwn Labs	0.63
Labs Incld	24	24	24	22	SD btwn Wks	0.50	SD btwn Wks	0.93
Labs Excld	1	1	1	3	Labs Incld	24	Labs Incld	23
Labs not Rcvd	0	0	0	0				

Key to Instrument Codes Reported by Participants

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

End of Report