Collaborative Testing Services, Inc.

Containerboard Interlaboratory Testing Program

Participant Summary Report #566 (M) - November 2016

Revision Notice:

CTS discovered that some flags on the Monthly Results CPV and SD Wks were incorrectly assigned for this cycle. The statistical calculations are correct, only the flag was displayed in error. CTS notified all affected laboratories. If you have any questions, please do not hesitate to contact Kyle Kruger at containerboard@cts-interlab.com or (571) 434-1925 (ext. 115)

Introduction to the Containerboard Program

Explanation of Tables and Definitions of Terms

Analysis	Sample	Analysis Name
201	BX10	Box Compression Strength, Corrugated Boxes
202	ECT9	Edgewise Compressive Strength, Wax (T811), Corrugated board
203	ECT9	Edgewise Compressive Strength by Clamp (T839), Corrugated board
205	42D2	Mullen Burst of Linerboard, 42 lb Linerboard
206	56A1	Mullen Burst of Linerboard, 56 lb Linerboard
215	42D2	Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard
216	56A1	Ring Crush of Linerboard, Rigid Platen Type, 56 lb Linerboard
223	42D2	STFI of Linerboard, 42 lb Linerboard
224	56A1	STFI of Linerboard, 56 lb Linerboard
228	56A	Roughness - Stylus Method, 56 lb Linerboard
229	42D2	Roughness - Sheffield Method, 42 lb Linerboard
231	42B	Internal Bond Strength, Linerboard, 42 lb Linerboard
234	42B	Coefficient of Static Friction - Inclined Plane, 42 lb Linerboard
237	42B	Air Resistance - Gurley Method, Linerboard, 42 lb Linerboard
240	CM91	Flat Crush Strength (CMT) of Medium, 26 lb Corrugating Medium
250	CM91	Fluted Crush of Medium, 26 lb Corrugating Medium
255	CM91	Ring Crush of Medium, 26 lb Corrugating Medium
261	CM91	STFI of Medium, 26 lb Corrugating Medium

Collaborative Testing Services, Inc.
CONTAINERBOARD INTERLABORATORY TESTING PROGRAM

INTRODUCTION

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

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

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

USE OF AVERAGE MEAN AS A COLLABORATIVE REFERENCE VALUE

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

Material	Lot Code	Dates in Use
26 lb Corrugating Medium	CM91	October 2016-Current
	CM81	October 2015-September 2016
36 lb Linerboard	36Z3	December 2014-Current
	36Z2	February 2012-October 2014
42 lb Linerboard	42D2	August 2016-Current
	42D1	April 2015-July 2016
56 lb Linerboard	56A1	July 2016-Current

ABOUT CTS

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

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EXPLANATION OF TABLES

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

Definitions of Terms Used

Weekly Results

Laboratory Data

WebCode	- A six character laboratory identifier used to maintain information on a confidential basis. The WebCode is unique for each cycle and will change for each report. Your WebCode can be found in your Individual Report (Current Month Performance Report) and your datasheet.
Weekly Means	- The average of the test results obtained by the participant for each week that data were reported.

Consensus Data

Wk Mean	- For each week, the average of the Means for all the participants, excluding those laboratories flagged with an 'X'.
Avg SDr	- For each week, the average of the within-laboratory standard deviations (SDr's) for all the participants, excluding those laboratories flagged with an 'X'. The Avg SDr is an indication of the variation of measurements within an average laboratory.
SD btwn Labs	- For each week, the standard deviation of the laboratory Means about the Wk Mean, excluding those laboratories flagged with an 'X'. The SD LABS is an indication of the precision of measurement between the laboratories.
Labs Incld	- The number of laboratory Means included in the Wk Mean for that week.
Labs Excld	- The number of laboratory Means reported but excluded from the Wk Mean for that week because of outlying results ('X' following Mean).
Labs not rcvd	- The number of laboratories failing to report for that week.

Monthly Results

Laboratory Data

Mean	- For each laboratory, the average of all the weekly Means reported for this month.
CPV	- Comparative Performance Value, an indication of how well a laboratory's Mean agrees with the other participants. The CPV is a ratio indicating the number of standard deviations from the consensus mean (Monthly Mean). The closer a laboratory's CPV is to zero, the more consistent its results are with the other participants' data.
SDr	- For each laboratory, the average of the weekly within-lab standard deviations (SDr's) for all reported Weekly Means this month.
SD Wk	- The standard deviation among the laboratory's weekly Means, including those Means flagged with an 'X'. The SD Wks is an indication of that laboratory's ability to obtain constant results from week to week.

Consensus Data

Month Mean	- The average of the Means for all the participants, excluding those laboratories flagged with an 'X,' reporting data for this month.
Avg SDr	- For the current month, the average of the within-laboratory standard deviations (SDr's) for all the participants, excluding those laboratories flagged with an 'X'.
SD btwn Labs	- For the current month, the standard deviation of the laboratory Means about the Month Mean, excluding those laboratories flagged with an 'X'.
SD btwn Group	- For the current month, the standard deviation of the laboratory Means within the group about the Month Mean, excluding those laboratories flagged with an 'X'.
SD btwn Wks	- For the current month, the average of the laboratory between week standard deviations (SD Wks') for all the participants.

Cumulative Results

Laboratory Data

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

Consensus Data

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

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

Flag	Explanation

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

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

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

Flags assigned to Weekly Means:

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

Flags assigned to Monthly SD Wks and Cumulative SD Wks:

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

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
2UT8M7	619.5	-0.88	29.9	659.4	-0.33	46.2	4	LS
39JM3Q	796.4	1.24	47.2	739.3	0.73	45.8	4	LL
3AF6ZL	663.8	-0.35	26.6	603.3	-1.07	133.2	4	EX
3BATMM	832.6	1.67	33.1	835.4	1.99	39.3	4	TB
679NJT	649.2	-0.52	32.7	635.8	-0.64	46.8	4	LS
6CX4AL	805.0	1.34	58.6	683.2	-0.01	42.1	4	LH
7RM9FU	510.4	-2.18 *	80.2	510.1	-2.30 *	72.2	3	EX
94666G	761.8	0.82	33.8	760.3	1.00	29.3	4	ER
ARADXH	693.2	0.00	54.1	645.8	-0.51	51.3	4	ER
B836HJ	532.8	-1.91	20.9	589.4	-1.25	36.7	4	LG
DTVU7G	760.3	0.81	36.6	780.4	1.27	37.9	4	TE
F3TG8C	644.0	-0.58	10.7	693.3	0.12	49.0	4	ER
GV8ZVE	747.0	0.65	46.0	769.0	1.12	33.9	4	LH
M2H3LP	660.0	-0.39	48.4	681.3	-0.04	49.6	4	LG
PNJAMP	655.9	-0.44	43.8	687.1	0.04	33.4	4	LM
QQ2RHF	659.5	-0.40	47.6	636.5	-0.63	41.3	4	ET
QZ97M3	707.2	0.17	60.9	666.9	-0.23	49.2	4	ES
TCUKEU	714.7	0.26	70.5	699.9	0.21	45.2	4	LM
TPGPNC	791.0	1.17	24.6	760.5	1.01	35.6	4	XX
XMDMMN	620.6	-0.86	44.4	606.5	-1.03	34.5	4	LL
XRXDDT	746.7	0.64	31.1	761.8	1.02	37.2	4	LG
ZRKXTN	670.0	-0.27	31.9	649.1	-0.46	28.2	4	ER

Consensus (All Labs) Results

Month Mean	692.80	Grand Mean	684.28
Avg SDr	44.57	Avg SDr	50.85
SD btwn Labs	83.67	SD btwn Labs	75.73
Labs Incld	22	Labs Incld	22

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	663.93	88.84	28.87	5
Clip sealing	701.33	63.78	8.53	14
Tape sealing	701.10	169.06	8.30	3

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Key to Instrument Codes Reported by Participants

ER	Emerson 6200 Series	ES	Emerson 8510
ET	Emerson 7200	EX	Emerson Apparatus (Model not specified)
LG	TLS / L.A.B. Validator Series	LH	L.A.B. Compression Tester Model #10610
LL	Lansmont 76-5K	LM	Lansmont 122-15k
LS	Lansmont Squeezer	TB	TMI Monitor/Compression Tester, Model 17-70
TE	Testometric M500 - 25 KN	XX	Instrument make/model not specified by lab

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	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
2UT8M7	40.8	-0.29	2.1	41.0	-0.20	2.3	4	EM
679NJT	45.5	0.84	1.8	44.6	0.93	1.5	4	LC
6DN84T	37.2	-1.16	1.4	38.1	-1.12	1.1	4	WK
B6C2PC	44.6	0.62	1.0	45.1	1.09	1.0	4	TB
D9PJZR	35.8	-1.51	1.0	37.7	-1.26	0.9	3	XX
GV8ZVE	44.6	0.62	1.2	40.4	-0.40	0.9	4	TC
M2H3LP	45.8	0.90	2.7	44.6	0.95	2.6	4	LE

Consensus (All Labs) Results

Month Mean	42.05	Grand Mean	41.63
Avg SDr	1.72	Avg SDr	1.61
SD btwn Labs	4.14	SD btwn Labs	3.16
Labs Incld	7	Labs Incld	7

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	LC	L&W Crush Tester 48
LE	L&W Crush Tester 840	TB	TMI Monitor/Compression Tester, Model 17-70
TC	TMI Monitor/Compression Tester, Model 17-37	WK	Zwick Z005 Crush Tester
XX	Instrument make/model not specified by lab		

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	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
2UT8M7	46.2	-0.15	1.6	46.7	0.39	1.6	4	EM
39JM3Q	46.0	-0.22	1.3	45.1	-0.29	1.2	4	BU
3AF6ZL	43.3	-1.34	2.0	43.3	-1.08	1.7	4	LD
3BATMM	46.7	0.09	0.6	50.3	1.99	1.9	4	LD
46EGZP	50.7	1.77	2.2	44.4	-0.59	1.6	4	TB
4LN8YN	45.3	-0.51	1.3	45.5	-0.13	1.3	4	LD
679NJT	47.4	0.37	1.8	47.2	0.63	1.6	4	LC
6CX4AL	46.9	0.16	1.9	45.7	-0.02	1.6	4	EM
6DN84T	37.7	-3.72 X	1.1	37.7	-3.55 X	1.1	1	WK
6FF4P2	43.7	-1.20	3.3	43.8	-0.87	2.7	2	XX
7RM9FU	44.8	-0.72	1.7	45.2	-0.25	2.7	4	CT
897RJE	46.6	0.02	1.2	45.4	-0.14	1.7	4	TM
8F6EDZ	47.9	0.59	1.7	48.7	1.29	1.5	4	EM
93ZAQK	46.7	0.09	2.1	47.2	0.63	1.8	4	LD
94666G	44.3	-0.93	1.8	42.5	-1.44	1.4	4	EM
ARADXH	46.6	0.04	1.2	46.8	0.45	1.2	4	LD
B6C2PC	45.2	-0.56	1.3	46.1	0.17	1.0	4	TG
D9PJZR	36.6	-4.18 X	1.0	38.0	-3.41 X	0.8	3	XX
DRGP9H	46.7	0.09	1.4	44.1	-0.75	1.5	3	LC
EQZXT7	48.5	0.84	1.7	49.0	1.42	2.0	4	LC
F3TG8C	42.5	-1.70	3.2	41.4	-1.93	3.5	4	EX
GV8ZVE	49.7	1.35	0.6	44.9	-0.40	0.8	4	TC
HA829E	47.7	0.48	1.3	44.9	-0.37	1.3	4	TK
JMQ7RV	44.7	-0.77	1.4	45.3	-0.21	1.5	4	LD
LRTUL9	44.2	-0.97	2.4	45.0	-0.33	1.7	4	LC
M2H3LP	44.9	-0.67	2.3	45.0	-0.33	2.3	4	XX
NG2HZ7	42.4	-1.75	2.2	41.8	-1.76	1.8	4	TD
PNJAMP	49.8	1.39	1.9	47.9	0.92	1.6	4	EM
QQ2RHF	51.0	1.88	1.2	51.3	2.44 *	1.5	4	TD
QTTKG6	46.9	0.17	1.5	45.6	-0.09	1.5	4	LD
QZ97M3	46.0	-0.21	1.4	46.0	0.11	1.3	4	LD
T849JX	50.3	1.59	1.2	49.2	1.51	1.4	3	LC
TCUKEU	45.4	-0.48	1.6	47.3	0.69	1.4	4	TG
TP29QX	45.5	-0.41	1.9	43.8	-0.84	1.4	4	LD
WYEQGY	50.2	1.55	2.3	47.3	0.69	1.7	4	TG
XMDMMN	50.5	1.69	2.5	46.5	0.31	2.3	4	LC
XRXDDT	45.7	-0.34	3.8	45.5	-0.14	3.0	4	EM
ZRKXTN	43.5	-1.26	1.4	42.0	-1.68	2.4	4	TB

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Consensus (All Labs) Results

Month Mean	46.51	Grand Mean	45.76
Avg SDr	1.90	Avg SDr	1.82
SD btwn Labs	2.37	SD btwn Labs	2.27
Labs Incld	36	Labs Incld	36

Key to Instrument Codes Reported by Participants

BU	Buchel Digital Crush Tester	CT	Con-Ten
EM	Emerson 1200 Series	EX	Emerson (model not specified)
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
TB	TMI Monitor/Compression Tester, Model 17-70	TC	TMI Monitor/Compression Tester, Model 17-37
TD	TMI Digital Crush Tester, Model 17-09	TG	TMI Digital Crush Tester, 17-76
TK	TLS Compression Tester, Model 5184	TM	TMI/Hinde & Dausch
WK	Zwick Z005 Crush Tester	XX	Instrument make/model not specified by lab

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	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2KZWBQ	111.4	107.1	108.5	109.0	109.0	0.16	9.6	1.8	108.1	-0.22	10.4	3.1	16	LC
2RD6CR	101.1	102.9	105.6	102.3	103.0	-1.51	9.6	1.9	106.1	-0.84	10.1	3.6	16	XX
2UT8M7	99.5	100.1 *	102.1	97.2 *	99.7	-2.41 *	12.0	2.0	103.7	-1.62	11.4	4.9	16	LA
2WV6UT	107.5	103.6	105.3	104.2	105.2	-0.91	11.6	1.7	102.7	-1.93	11.5	2.0	16	LA
34QMNV	121.0 *	117.5	112.7	111.6	115.7	2.01 *	13.1	4.4	111.2	0.75	12.7	4.0	16	XX
3AF6ZL	110.5	110.0	109.0	109.5	109.8	0.36	11.5	0.6	111.1	0.73	10.2	3.3	16	AH
4NDGBB	118.4 *	117.3	113.0	116.5	116.3	2.17 *	10.8	2.3	116.0	2.28 *	11.3	2.4	16	LA
679NJT	105.1	109.1	104.7	106.3	106.3	-0.59	9.8	2.0	107.6	-0.38	9.5	3.8	16	AH
7PX6JF	114.6	113.0	108.6	110.8	111.8	0.92	11.7	2.6	108.1	-0.22	10.6	4.3	16	AH
7RM9FU	105.3	98.7 *	100.9 *	102.9	102.0	-1.79	12.1	2.8	100.9	-2.48 *	13.7	3.0	14	XX
8NYJ6F	114.8	112.5	112.8	111.0	112.8	1.20	9.8	1.6	111.4	0.81	8.9	2.5	16	LC
8WCDKH	107.3	110.5	110.0	106.1	108.5	0.01	12.9	2.1	108.9	0.05	11.4	2.6	16	LA
93ZAQK	107.3	105.0	106.7	106.1	106.3	-0.59	12.0	1.0	109.2	0.12	10.5	2.0	16	LA
9RCJZL	105.7	106.5	108.1	105.3	106.4	-0.57	11.9	1.2	106.7	-0.65	11.9	3.0	16	LC
A3RNT3	110.4	112.3	109.1	120.0 *	113.0	1.25	10.1	4.9	112.6	1.21	9.6	4.2	16	LC
ARADXH	110.5	110.8	108.9	108.9	109.8	0.37	10.9	1.0	109.8	0.32	11.9	2.0	16	AH
B836HJ	105.8	111.3	111.0	109.5	109.4	0.27	10.4	2.5	110.8	0.64	11.3	3.6	16	AH
C28VNB	118.3 *	114.2	114.4	111.0	114.5	1.67	13.5	3.0	114.5	1.79	13.5	3.0	4	LA
CFPLMD	106.9	108.9	111.0	108.1	108.7	0.08	10.4	1.7	109.6	0.26	11.8	2.0	16	LZ
DK4JUZ	114.6	114.9	107.0	113.6	112.5	1.12	10.2	3.7	112.8	1.26	11.1	3.3	16	AX
E4B6VY	106.0	111.1	104.6	110.7	108.1	-0.10	13.0	3.3	109.6	0.26	12.4	3.0	16	TB
EQZXT7	109.6	107.1	112.7	110.6	110.0	0.43	10.3	2.3	112.2	1.08	11.0	3.5	16	LA
ERHN4C	105.4	117.0	104.1	115.2	110.4	0.55	10.5	6.6 H	109.5	0.22	11.6	4.1	16	LC
FCZDQA	107.1	107.4	111.3	106.8	108.1	-0.08	12.2	2.1	110.3	0.49	11.6	3.1	16	LC
FEPKFC	101.6	108.1 L	97.3 X	98.7 *	101.4	-1.94	6.1	4.8	105.0	-1.19	7.9	5.3	16	AX
FYBGPB	110.0	111.4	103.2	110.3	108.7	0.08	12.2	3.7	109.7	0.29	12.2	3.8	16	TB
GV8ZVE	109.8	115.0	104.0	113.0	110.4	0.55	11.1	4.8	111.3	0.79	11.6	3.4	16	AA
HMV7GC	104.6	104.8 L	107.8 L	105.0 L	105.6	-0.80	4.4	1.5	105.2	-1.13	5.2	1.4	16	RE
JAYE9D	109.3	109.4 L	109.3	109.4	109.3	0.25	6.8	0.1 L	109.5	0.23	7.4	0.4 L	16	LJ
JMQ7RV	106.5	103.9	105.8	104.6	105.2	-0.89	8.2	1.2	105.1	-1.17	7.7	1.0	16	LA
JZCFH8	108.4	108.5	108.6	109.6	108.8	0.09	7.6	0.6	109.0	0.05	7.5	1.0	16	AH
LDPRKR	112.8	114.3	116.9 *	114.3	114.6	1.70	12.1	1.7	109.0	0.06	9.9	3.8	16	LA
LRUTH3	100.1	107.4	100.8 *	100.0	102.1	-1.75	10.8	3.6	103.4	-1.71	9.7	4.9	10	LA
M2H3LP	110.1	112.0	113.8	115.5	112.8	1.21	11.7	2.3	112.0	1.01	11.7	8.5 H	15	LZ
M77NB4	108.5	111.3	107.6	109.3	109.2	0.21	12.1	1.6	108.1	-0.23	11.6	3.2	16	AH

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Containerboard Interlaboratory Testing Program

Analysis 205

Bursting Strength (Mullen), 42 lb Linerboard - 42D2

TAPPI Official Test Method T807

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
MJVN27	109.2	106.2	108.6	109.3	108.3	-0.03	10.3	1.5	106.6	-0.68	10.3	3.2	16	LC
PNJAMP	105.3	107.5	107.6	109.2	107.4	-0.29	8.4	1.6	105.1	-1.18	10.1	3.3	16	AH
PYX63P	No Data	No Data	109.7	110.2	110.0	0.42	15.5	0.4 L	110.1	0.42	12.8	2.6	14	LA
Q4RGGL	108.4	108.4	104.2	100.8	105.5	-0.82	12.0	3.7	107.1	-0.54	12.0	5.0	16	LC
QTTKG6	110.2	111.4	110.1	108.5	110.1	0.45	10.1	1.2	108.6	-0.05	9.1	2.3	16	AA
QZ97M3	112.9	111.0	109.2	108.9	110.5	0.57	11.0	1.8	110.6	0.56	10.8	2.9	16	LA
RXE39L	114.6	111.5	113.9	106.6	111.6	0.89	11.9	3.6	111.4	0.82	11.4	7.9 H	16	LZ
TP29QX	104.9	110.1	104.7	107.9	106.9	-0.42	12.2	2.6	107.7	-0.35	11.3	3.3	16	LC
TPHLU2	106.0	111.3	110.4	105.1	108.2	-0.07	11.2	3.1	109.6	0.24	11.5	2.6	16	LA
TQCBG3	111.2	105.5	108.1	No Data	108.3	-0.04	10.9	2.8	110.2	0.43	10.9	3.1	11	LJ
UFB63V	117.3	105.5	106.6 L	104.5 L	108.5	0.01	8.9	5.9 H	109.5	0.23	9.8	4.9	16	LC
X2WBWM	101.7	107.6	107.2	106.3	105.7	-0.76	11.2	2.7	106.3	-0.79	10.8	4.4	16	LC
XGRQ48	109.1	108.0	107.5	106.8	107.9	-0.16	9.0	1.0	107.5	-0.40	8.9	2.9	16	TB
XMFDWR	109.0	102.5	103.9	106.8	105.6	-0.80	6.3	2.9	109.2	0.13	7.0	3.5	16	TP
XWPKW2	112.6 L	113.0 L	110.5 L	113.1 L	112.3	1.07	3.9	1.2	112.0	1.02	4.5	1.1	16	XX
XWQJRV	103.9	107.6	104.1	108.3	106.0	-0.68	9.9	2.3	107.5	-0.41	11.7	3.2	16	LA
YEG8FW	109.2 L	112.8	105.9 L	109.8 L	109.4	0.27	4.6	2.8	112.3	1.11	7.9	5.2	16	LC
YJY8XW	111.6	114.7	118.4 XL	113.2	114.5	1.67	10.5	2.9	114.0	1.62	9.5	3.5	16	LJ
YK6PXE	109.3	108.4	106.7	103.6	107.0	-0.39	9.2	2.5	105.9	-0.91	9.7	2.7	16	LB
ZRKXTN	100.4	101.6	102.6	100.5	101.3	-1.97	10.3	1.1	102.1	-2.12 *	11.8	3.5	16	XX

Consensus (All Labs) Results

Wk Mean	108.68	109.15	107.78	108.07	Month Mean	108.43	Grand Mean	108.80
Avg SDr	10.74	10.71	10.19	10.58	Avg SDr	10.58	Avg SDr	10.61
SD btwn Labs	4.72	4.23	3.39	4.49	SD btwn Labs	3.62	SD btwn Labs	3.17
Labs Incld	53	53	52	53	SD btwn Wks	2.77	SD btwn Wks	3.63
Labs Excld	0	0	2	0	Labs Incld	54	Labs Incld	54
Labs not Rcvd	1	1	0	1				

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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

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	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2KZWBQ	125.9 *	116.8	109.4	116.8	117.2	0.69	8.0	6.7	119.1	1.35	9.0	4.8	12	LC
2RD6CR	105.6	108.9	107.7	113.4	108.9	-1.15	8.5	3.3	109.3	-1.33	9.6	2.4	12	LA
2UT8M7	103.3 *	106.8	112.2	107.5	107.4	-1.47	8.7	3.7	111.5	-0.74	11.5	5.9	12	RE
2WV6UT	107.6	114.1	109.7	105.9	109.3	-1.05	7.6	3.5	110.4	-1.02	9.9	2.6	12	LA
34QMNV	121.3	113.6	122.9	117.1	118.7	1.02	9.9	4.2	115.5	0.36	10.5	4.8	12	XX
3AF6ZL	119.0	109.5	113.5	111.0	113.3	-0.19	8.1	4.2	115.3	0.30	9.3	3.6	12	AH
4NDGBB	124.4	124.6 *	119.7	120.8 L	122.4	1.83	9.0	2.5	120.7	1.79	9.3	4.6	12	LA
679NJT	114.2	110.1	100.8 *	114.3	109.9	-0.94	9.9	6.3	113.5	-0.19	8.3	4.9	12	AH
7PX6JF	116.3 L	107.9	117.1	115.8	114.3	0.04	9.4	4.3	113.7	-0.12	10.2	4.0	12	AH
7RM9FU	107.8 H	101.5 *	102.1	98.9 X	102.6	-2.54 *	12.5	3.8	102.6	-3.19 X	13.8	4.2	10	XX
8WCDKH	111.7	106.5	108.4	115.1	110.4	-0.81	11.9	3.8	111.8	-0.65	11.8	5.7	12	LA
93ZAQK	113.2	115.3	113.6	114.0	114.0	-0.01	7.0	0.9	113.0	-0.31	8.4	1.5	12	LA
9RCJZL	113.1	108.2	101.3 *	103.4 *	106.5	-1.68	10.1	5.3	109.1	-1.38	11.5	5.6	12	LC
A3RNT3	118.0	120.7	116.8	118.4	118.4	0.96	10.6	1.6	116.2	0.56	10.1	3.2	12	LC
ARADXH	116.9	113.7	117.7	117.1	116.4	0.50	6.9	1.8	115.5	0.37	8.9	1.8	12	AH
B836HJ	120.1	112.5	115.7	116.0	116.1	0.44	9.6	3.1	115.3	0.32	9.7	4.4	12	AH
C28VNB	127.2 *	117.4	125.3	115.9	121.5	1.62	11.6	5.6	121.5	2.01 *	11.6	5.6	4	LA
CFPLMD	113.3	111.6	116.6	111.4	113.2	-0.19	11.5	2.4	112.7	-0.40	11.6	3.9	12	LZ
DK4JUZ	124.2	116.8	123.3	106.8	117.8	0.82	9.8	8.0 H	117.2	0.85	10.2	5.5	12	AX
E4B6VY	116.0	116.3	121.2	111.9 H	116.4	0.50	12.8	3.8	115.3	0.30	11.6	3.6	12	TB
EQZXT7	117.0	115.1	116.8	116.8	116.4	0.51	10.7	0.9	117.5	0.91	10.5	2.9	12	LA
ERHN4C	113.2	122.2	118.8	115.4	117.4	0.73	9.3	3.9	114.9	0.21	11.0	4.4	12	LC
FCZDQA	114.8	117.3	113.0	115.0	115.0	0.20	10.6	1.8	115.5	0.36	10.5	3.1	12	XX
FEPKFC	107.9	107.6	110.2	115.0	110.2	-0.86	10.4	3.4	113.6	-0.14	10.3	4.6	12	AX
FYBGPB	118.7	114.0	112.8	113.0	114.6	0.11	7.9	2.8	114.4	0.06	8.9	5.2	12	TB
GV8ZVE	112.0	113.0	117.5	114.8	114.3	0.05	11.2	2.4	113.4	-0.22	10.5	4.0	12	AA
HMV7GC	115.4	118.8	117.0	115.6	116.7	0.58	6.2	1.6	116.3	0.59	7.1	2.4	12	RE
JAYE9D	121.5	121.2	121.4	121.4	121.4	1.61	10.9	0.1 L	112.4	-0.48	8.8	7.3	12	LJ
JMQ7RV	111.9	110.8	103.7	111.3 L	109.4	-1.03	6.8	3.9	111.1	-0.83	8.0	4.3	12	LA
JZCFH8	114.5	115.1	115.6	111.8	114.3	0.03	6.9	1.7	117.4	0.88	6.2	5.3	12	AH
LDPRKR	115.2	113.6	117.2	115.9	115.5	0.30	10.9	1.5	113.8	-0.10	9.3	2.3	12	LA
LRUTH3	111.0	109.3	117.0	112.3	112.4	-0.38	9.9	3.3	112.8	-0.38	9.7	16.9 H	8	LA
M2H3LP	125.4 L	116.6	122.1	119.3	120.9	1.49	10.0	3.8	119.5	1.48	11.1	4.6	12	LZ
M77NB4	114.4	111.6	109.0	112.8	112.0	-0.47	10.8	2.3	112.4	-0.49	11.1	2.4	12	AH
MJVN27	106.3	113.2	107.9	110.1	109.4	-1.04	9.1	3.0	109.5	-1.27	9.6	3.0	12	LC

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Containerboard Interlaboratory Testing Program

Analysis 206

Bursting Strength (Mullen), 56 lb Linerboard - 56A1

TAPPI Official Test Method T807

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
PNJAMP	113.1	117.5	115.5	114.6 L	115.2	0.24	7.6	1.9	111.5	-0.74	9.1	3.9	12	AH
PYX63P	No Data	No Data	113.2	111.5	112.4	-0.38	7.6	1.2	114.2	0.02	9.4	3.2	10	LA
Q4RGGL	110.6	106.8	109.1	107.6	108.5	-1.23	11.7	1.7	107.4	-1.86	11.9	1.9	8	LC
QTTKG6	115.9	110.7	112.0	118.9	114.4	0.06	10.6	3.7	115.4	0.33	9.2	3.3	12	AA
QZ97M3	111.7	114.8	113.1	121.0	115.2	0.23	9.8	4.1	115.9	0.48	11.7	3.7	12	LA
RXE39L	115.6	118.2	117.1	123.7	118.7	1.01	11.1	3.5	118.6	1.22	12.0	3.3	12	LZ
TP29QX	107.8	113.0	111.6	121.1	113.4	-0.15	9.9	5.6	112.8	-0.39	10.8	3.9	12	LC
TPHLU2	115.6	117.0	110.4	106.3	112.3	-0.39	12.1	4.9	113.1	-0.30	11.3	3.8	12	LA
TQCBG3	115.4	116.9	117.2	No Data	116.5	0.53	11.3	1.0	114.9	0.19	11.6	4.0	10	LJ
UFB63V	114.8	112.3	104.1 L	104.5 L	108.9	-1.14	6.8	5.4	108.7	-1.50	9.0	3.5	11	LC
X2WBWM	118.1	112.4	114.6	110.3	113.9	-0.05	10.9	3.3	113.0	-0.32	11.2	4.5	12	LC
XGRQ48	118.9	125.5 *	123.5	116.8	121.2	1.56	9.5	4.0	119.4	1.45	9.8	2.9	12	TB
XMFDWR	112.1	107.2	111.6	110.6	110.4	-0.82	8.2	2.2	116.4	0.60	7.1	8.1	12	TP
XWPKW2	125.1	122.7 L	124.0 L	125.4 *L	124.3	2.25 *	4.4	1.2	125.1	3.01 X	4.8	1.7	12	XX
XWQJRV	113.3	106.1	110.3	111.2	110.2	-0.85	11.1	3.0	111.5	-0.74	11.2	3.4	12	LA
YEG8FW	116.7 L	119.4 L	115.2	119.4	117.7	0.79	5.4	2.1	123.8	2.64 *	7.5	15.1 H	12	LC
YJY8XW	110.1	118.6	120.3	121.3	117.6	0.77	9.4	5.1	114.2	0.00	8.7	4.8	12	LJ
YK6PXE	112.4	108.1	108.8	109.0	109.6	-0.99	9.9	1.9	109.0	-1.43	10.0	2.9	12	LB
ZRKXTN	114.1	112.0	108.8	96.8 X	107.9	-1.36	9.2	7.7 H	105.6	-2.36 *	11.3	5.2	12	LA

Consensus (All Labs) Results

Wk Mean	115.08	113.80	113.93	114.21	Month Mean	114.09	Grand Mean	114.16
Avg SDr	9.53	10.03	9.78	9.09	Avg SDr	9.62	Avg SDr	10.09
SD btwn Labs	5.39	5.17	5.97	4.99	SD btwn Labs	4.53	SD btwn Labs	3.64
Labs Incld	52	52	53	50	SD btwn Wks	3.76	SD btwn Wks	5.24
Labs Excld	0	0	0	2	Labs Incld	53	Labs Incld	51
Labs not Rcvd	1	1	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

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	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2KZWBQ	95.1	91.1	93.4	94.5	93.5	0.99	4.2	1.8	93.2	1.15	4.0	1.6	16	LC
2RD6CR	80.7 H	94.3	79.5 H	85.7 H	85.1	-0.92	6.8	6.7 H	86.6	-0.36	5.1	3.7	16	LZ
2UT8M7	85.4	87.3	88.8	90.9	88.1	-0.24	4.2	2.3	86.7	-0.33	3.5	2.5	16	EM
2WV6UT	85.9	82.8	87.0	87.3	85.7	-0.77	3.6	2.1	85.3	-0.66	3.5	1.5	12	LD
34QMNV	82.7	88.9	80.8	82.7	83.8	-1.21	4.8	3.5	82.5	-1.32	5.9	2.2	16	LC
4NDGBB	90.4	91.3	88.2	88.7	89.7	0.12	3.9	1.4	90.5	0.54	3.8	1.5	16	LZ
679NJT	89.0	89.6	89.4	87.6	88.9	-0.05	3.8	0.9	89.2	0.23	3.9	1.1	16	LC
6CX4AL	91.6	92.9	90.7	89.7	91.2	0.47	4.6	1.4	85.1	-0.70	3.9	4.5	16	EM
7PX6JF	91.8	91.1	96.3	96.0	93.8	1.05	4.8	2.7	87.6	-0.13	4.9	5.3	16	LC
8WD3TL	94.8	98.3	91.1	95.5	94.9	1.31	4.3	3.0	94.9	1.55	4.3	3.0	4	TH
93ZAQK	93.7	93.2	93.6	94.1	93.6	1.02	3.7	0.4 L	93.3	1.19	3.1	1.6	16	LD
94666G	79.4	79.1 *	80.8	79.1	79.6	-2.15 *	3.5	0.8	81.3	-1.59	3.0	1.6	16	EM
9RCJZL	86.9	89.6	89.5	86.7	88.2	-0.22	3.5	1.6	89.9	0.39	4.0	1.5	16	LC
ARADXH	87.3	87.2	89.2	87.1	87.7	-0.32	3.5	1.0	86.6	-0.37	3.8	2.2	16	LD
C28VNB	95.1	96.2	102.0 *	97.3	97.6	1.92	3.4	3.1	97.6	2.18 *	3.4	3.1	4	LD
D7LQ7T	93.1	90.6	89.6	86.7	90.0	0.19	3.2	2.6	89.2	0.24	4.3	2.5	16	MB
D9PJZR	53.8 XL	53.5 XL	53.4 X	54.5 XL	53.8	-7.99 X	1.6	0.5 L	56.3	-7.36 X	1.5	3.4	12	XX
DK4JUZ	85.3	85.4	84.5	80.6	83.9	-1.17	4.4	2.3	79.5	-2.00 *	5.6	9.3 H	16	LC
DTVU7G	92.0	92.4	90.8	90.2	91.3	0.50	2.8	1.0	91.3	0.72	3.2	1.3	16	LD
E4B6VY	82.1	86.1	78.7	78.5 *	81.3	-1.76	4.6	3.6	82.0	-1.43	4.3	3.1	16	LZ
EQZXT7	97.5	96.1	93.7	86.1	93.4	0.95	5.7	5.1	91.2	0.70	6.8	5.9	16	LC
ERHN4C	94.5	94.4	90.0	83.9	90.7	0.35	4.1	5.0	92.5	1.00	6.0	3.6	16	LC
F3TG8C	81.2	84.4	79.2	80.9	81.4	-1.74	4.4	2.2	82.6	-1.28	4.1	1.6	16	EN
F6EKEA	89.5	90.8	88.5	89.8	89.7	0.12	3.5	1.0	91.0	0.65	3.4	1.8	16	LD
FEPKFC	95.9	100.9 *	102.3 *	96.8	99.0	2.23 *	4.2	3.1	92.4	0.96	4.7	6.4 H	16	LZ
FYBGPB	89.2	87.7	92.8	88.7	89.6	0.11	3.9	2.2	88.7	0.12	3.9	2.2	16	LC
G862DN	85.9	84.4	84.7	85.7	85.2	-0.90	2.6	0.7	85.5	-0.63	3.5	1.4	16	MB
GXYYAC	89.8	91.2	91.3	89.1	90.3	0.27	4.3	1.1	89.3	0.25	4.7	6.5 H	16	XX
HA829E	86.6 L	86.1 L	86.4	86.2	86.4	-0.63	2.3	0.2 L	80.6	-1.75	3.2	5.7	16	MB
HMV7GC	88.5	87.1	87.2	88.1	87.7	-0.32	3.0	0.7	84.7	-0.81	3.3	2.6	16	LZ
HZHF2V	89.7	90.4	88.1	88.2	89.1	-0.01	4.0	1.1	88.8	0.15	4.1	1.6	16	LD
JAYE9D	87.1 H	87.1 H	87.1 H	87.1 H	87.1	-0.46	7.8	0.0 L	87.0	-0.26	5.7	0.7 L	16	LD
JMQ7RV	90.4	90.8	90.4	91.8	90.8	0.39	3.6	0.6	90.1	0.44	3.2	1.0	16	LD
JPT7UD	90.5 H	90.1	No Data	88.8 H	89.8	0.15	6.8	0.8	92.3	0.94	6.4	4.8	14	MB
LDPRKR	90.2	92.0	86.0	88.7	89.2	0.02	4.4	2.5	89.3	0.25	4.2	1.7	16	LD

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Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42D2

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
LRUTH3	89.9	94.7	94.4	98.6 *	94.4	1.19	3.8	3.6	90.6	0.55	4.8	8.8 H	10	LC
M2H3LP	90.2	88.2	88.2	86.0	88.1	-0.23	2.8	1.7	86.9	-0.30	3.4	2.4	15	LC
MJVN27	90.2	87.8	89.8	89.2	89.3	0.03	3.7	1.0	88.3	0.02	4.1	1.6	16	LD
NG2HZ7	91.1 L	93.9 L	91.7 L	94.7 L	92.8	0.84	1.0	1.7	92.3	0.96	1.5	1.9	16	TD
NPF4AA	91.3	94.6	90.3	86.9	90.8	0.37	3.6	3.2	89.8	0.37	4.1	2.3	16	EM
PNJAMP	93.2	92.2	92.6	92.7	92.7	0.80	3.0	0.4 L	90.4	0.52	3.8	1.9	16	EM
PYX63P	No Data	No Data	101.2 *	83.2 H	92.2	0.69	6.2	12.7 H	95.1	1.61	6.4	4.7	14	LC
Q4RGGL	86.2	89.0	91.1	91.4	89.4	0.07	3.4	2.4	88.9	0.17	3.7	2.0	16	LC
QTTKG6	84.6	85.7	86.1	89.4	86.4	-0.61	2.7	2.0	84.9	-0.76	3.2	2.1	15	LD
R7BUGF	90.1	90.8	90.9 L	88.8	90.2	0.23	2.6	1.0	91.3	0.72	2.5	1.7	16	WK
RXE39L	89.3	88.8	93.8	92.5	91.1	0.44	5.1	2.4	87.4	-0.17	5.4	9.0 H	16	LC
TP29QX	85.8	88.6	83.9	87.2	86.4	-0.62	4.1	2.0	86.6	-0.36	4.2	1.7	16	LD
UFB63V	89.5	89.9	91.5	90.5	90.3	0.27	3.4	0.9	89.0	0.19	3.8	2.4	16	LD
WT83YQ	82.4	80.3	85.2	83.4	82.8	-1.43	3.8	2.0	82.1	-1.41	3.7	2.2	16	LD
WYEQGY	89.4	87.9	88.3	89.2	88.7	-0.09	4.0	0.7	90.8	0.59	3.1	3.9	16	TH
XGRQ48	101.2 *	100.7 *	99.0	98.6 *	99.9	2.42 *	4.5	1.3	99.8	2.69 *	4.8	1.8	16	LX
XMFDWR	87.7	85.3	88.0	87.1	87.0	-0.47	3.3	1.2	87.0	-0.28	3.6	1.3	16	TH
XRXDDT	85.9	84.7	83.9	84.9	84.9	-0.97	4.5	0.8	83.9	-0.98	3.7	1.6	16	EM
XWPKW2	82.0	85.8	83.5	90.5	85.5	-0.83	4.8	3.7	84.1	-0.95	4.4	4.0	16	LD
XWQJRV	96.6	97.3	96.7	95.7	96.6	1.68	3.9	0.7	88.3	0.02	3.7	7.9 H	16	LD
YJY8XW	78.4 *	81.8	80.9	78.8 *	80.0	-2.07 *	3.7	1.6	79.6	-1.97	3.3	2.7	16	LC
YK6PXE	91.2	87.0	85.1	82.7	86.5	-0.60	4.4	3.6	87.7	-0.10	4.6	2.8	16	LC
ZRKXTN	86.7	87.7	87.2	88.4	87.5	-0.37	3.6	0.7	84.9	-0.75	4.1	2.9	16	LD

Consensus (All Labs) Results

Wk Mean	88.91	89.65	89.28	88.58	Month Mean	89.14	Grand Mean	88.18
Avg SDr	4.29	3.93	3.76	4.43	Avg SDr	4.15	Avg SDr	4.24
SD btwn Labs	4.76	4.68	5.44	4.90	SD btwn Labs	4.42	SD btwn Labs	4.33
Labs Incld	54	54	54	55	SD btwn Wks	2.89	SD btwn Wks	3.75
Labs Excld	1	1	1	1	Labs Incld	55	Labs Incld	55
Labs not Rcvd	1	1	1	0				

Analysis Notes

GXYYAC - Data appears to be switched between Analysis 215 and Analysis 216 for Week 3. Data switched by CTS.

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Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LX	L&W 506	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	TD	TMI Digital Crush Tester, Model 17-09
TH	TMI Compression Tester, Model 17-76	WK	Zwick Z005 Crush Tester
XX	Instrument make/model not specified by lab		

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	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2KZWBQ	147.7	150.0	149.6	142.2	147.4	1.50	4.6	3.6	145.1	1.72	4.6	3.1	12	LC
2RD6CR	142.2	140.1	118.7 *H	142.1 H	135.8	-0.35	10.2	11.4	136.0	0.05	7.5	7.1	12	LZ
2UT8M7	132.2	135.7	134.2	136.9	134.7	-0.51	4.1	2.0	133.9	-0.34	4.8	2.9	12	EM
2WV6UT	130.2	131.6	137.0	135.7	133.6	-0.69	3.5	3.2	134.3	-0.27	4.0	2.0	12	LD
34QMNV	137.2	144.1	140.6	141.9	140.9	0.48	3.8	2.9	138.8	0.56	4.2	3.6	12	LC
4NDGBB	139.2	143.0	140.8	138.7	140.4	0.39	3.5	1.9	139.8	0.73	4.4	2.1	12	LZ
679NJT	138.3	142.0	138.8	142.7	140.4	0.39	5.4	2.2	138.8	0.56	4.5	3.1	12	LC
6CX4AL	143.9 L	142.3	142.6	140.4	142.3	0.69	3.6	1.4	132.1	-0.67	4.7	7.7	12	EM
7PX6JF	137.0	138.0	144.2	143.2	140.6	0.42	5.0	3.6	133.5	-0.41	5.9	6.4	12	LC
8WD3TL	149.8	145.1	147.0	144.5	146.6	1.38	5.4	2.4	143.4	1.39	5.4	4.4	8	TH
93ZAQK	142.6	139.7	142.4	141.0	141.4	0.55	4.9	1.3	146.0	1.87	4.2	3.7	12	LD
94666G	127.5 L	129.0	130.6	128.0	128.8	-1.47	3.1	1.4	128.8	-1.27	3.3	1.7	12	EM
9RCJZL	136.7	134.8	136.7	136.2	136.1	-0.30	3.6	0.9 L	138.8	0.55	4.0	2.4	12	LC
ARADXH	137.0	136.6 L	135.8	134.3	135.9	-0.33	3.0	1.2	134.2	-0.28	4.3	2.3	12	LD
C28VNB	149.9	154.3 *	152.5	156.1 X	153.2	2.43 *	4.3	2.6	153.2	3.20 X	4.3	2.6	4	LD
D7LQ7T	143.0	138.0	134.0	137.4	138.1	0.02	4.7	3.7	135.9	0.03	4.9	3.1	12	MB
D9PJZR	95.0 X	93.9 XL	93.2 XL	94.6 XL	94.2	-6.99 X	2.0	0.8 L	99.2	-6.70 X	2.2	4.1	12	XX
DK4JUZ	133.1	132.3	134.7	131.6	132.9	-0.80	4.5	1.3	125.1	-1.96	10.6	11.0 H	12	LC
DTVU7G	140.0	140.7	142.5	142.4	141.4	0.55	2.5	1.3	140.1	0.80	3.8	1.9	12	LD
E4B6VY	126.2	118.2 X	119.3 *	126.3	122.5	-2.47 *	5.0	4.4	127.8	-1.46	4.7	6.0	12	LZ
EQZXT7	155.0 *	152.4 *	145.0	147.0 H	149.9	1.90	7.8	4.6	143.9	1.49	10.3	10.5 H	12	LC
F3TG8C	127.0	127.7	123.4	129.4	126.9	-1.77	4.0	2.5	128.2	-1.38	3.8	2.3	12	EN
F6EKEA	145.3	136.7	138.0	134.9	138.7	0.12	4.7	4.6	139.5	0.69	4.8	3.1	12	LD
FEPKFC	149.4	149.2	150.0	148.9	149.4	1.82	5.9	0.5 L	142.6	1.25	5.7	7.5	12	LZ
FYBGPB	143.9	142.3	144.7	145.1	144.0	0.96	5.3	1.2	142.1	1.15	5.6	3.0	12	LC
G862DN	130.1	129.9	128.9	133.6 H	130.6	-1.18	7.7	2.0	126.9	-1.62	9.1	4.7	8	MB
GXYYAC	145.9	145.8	143.3	138.8	143.4	0.87	3.8	3.3	141.2	0.99	4.2	4.7	11	XX
HA829E	134.7	134.2	134.1 L	134.3 L	134.3	-0.58	2.2	0.3 L	122.6	-2.41 *	3.6	10.1 H	12	MB
HMV7GC	134.9	135.3	135.6	135.7	135.4	-0.42	4.4	0.4 L	132.3	-0.64	3.9	2.6	12	LZ
HZHF2V	140.1	141.3	140.3	143.9	141.4	0.55	5.1	1.8	137.1	0.24	3.8	4.9	12	LD
JAYE9D	135.2 H	135.2 H	135.2 H	135.3 H	135.3	-0.43	9.4	0.0 L	134.2	-0.29	7.2	1.6	12	LD
JMQ7RV	137.7	138.5	139.0	139.9	138.8	0.13	3.3	0.9 L	139.0	0.60	3.1	2.0	12	LD
JPT7UD	150.9	144.7	No Data	91.3 X	129.0	-1.43	5.3	32.8 H	142.3	1.20	5.5	17.1 H	11	MB
LDPRKR	142.9	139.2	139.8	140.4	140.6	0.42	5.4	1.6	137.9	0.39	3.8	5.0	12	LD
LRUTH3	142.0	143.5	153.6	146.4	146.4	1.34	3.7	5.1	141.7	1.08	5.1	13.4 H	8	LC

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Containerboard Interlaboratory Testing Program

Analysis 216

Ring Crush, 56 lb Linerboard - 56A1

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
M2H3LP	139.4	139.8	137.9	135.0	138.0	0.00	3.3	2.2	135.0	-0.14	4.2	3.3	12	LY
MJVN27	137.1	137.9	137.2	136.8 L	137.2	-0.12	3.4	0.5 L	138.2	0.44	4.3	3.1	12	LD
NG2HZ7	137.2 L	135.6 L	133.1	131.0 L	134.2	-0.60	1.6	2.7	134.3	-0.26	2.9	2.0	12	TD
NPF4AA	141.4 H	146.6	145.2	140.8	143.5	0.89	6.5	2.8	142.4	1.23	5.6	2.2	12	EM
PNJAMP	145.9	143.5	145.4	141.9	144.2	0.99	5.0	1.8	139.0	0.60	4.4	5.4	12	EM
PYX63P	No Data	No Data	161.5 *	129.7 H	145.6	1.22	11.1	22.5 H	142.7	1.28	7.7	10.4 H	10	LC
Q4RGGL	137.3	131.0	137.9	139.1	136.3	-0.26	4.3	3.6	136.3	0.10	3.7	3.2	8	LC
QTTKG6	130.8	133.6	129.6	132.0	131.5	-1.03	4.1	1.7	130.5	-0.95	4.1	2.2	12	LD
R7BUGF	140.1	137.5	139.7 L	137.5 L	138.7	0.12	2.4	1.4	134.9	-0.15	2.8	3.3	12	WK
RXE39L	137.9	135.8	143.0	140.0	139.2	0.19	5.9	3.1	132.4	-0.61	5.2	6.4	12	LC
TP29QX	135.8	140.0	134.0	132.6 L	135.6	-0.38	4.5	3.2	134.9	-0.16	4.5	2.0	12	LD
UFB63V	139.3	138.0	150.5	151.6 *L	144.8	1.10	3.9	7.2	136.8	0.20	4.4	8.5	12	LD
WT83YQ	133.4	131.6	133.9	133.8	133.2	-0.76	4.9	1.1 L	131.1	-0.85	4.5	2.0	12	LD
WYEQGY	135.1	134.8	135.7	134.5	135.0	-0.47	3.9	0.5 L	136.8	0.20	4.1	2.5	12	TH
XGRQ48	155.7 *	162.2 X	158.7 *	157.6 X	158.6	3.29 X	5.8	2.7	156.0	3.71 X	5.7	3.5	12	LX
XMFDWR	133.3	132.3	131.9	130.8	132.1	-0.94	3.4	1.0 L	132.2	-0.65	3.7	1.6	12	TH
XRXDDT	136.5	135.7	137.3	135.6	136.3	-0.27	4.7	0.8 L	133.7	-0.37	3.8	2.8	12	EM
XWPKW2	133.4 L	137.0	129.0	132.4	133.0	-0.80	4.3	3.3	133.0	-0.50	4.7	6.6	12	LD
XWQJRV	140.5 H	142.3	139.4	140.5	140.7	0.43	5.7	1.2	134.1	-0.30	5.2	5.2	12	LD
YJY8XW	125.9	127.5	128.8	122.3 *	126.1	-1.89	4.7	2.8	124.2	-2.11 *	4.5	4.8	12	LC
YK6PXE	144.8	132.8	133.4	130.8	135.5	-0.40	4.4	6.3	135.3	-0.08	4.5	4.0	12	LC
ZRKXTN	136.8	138.9	135.9	134.6	136.5	-0.23	4.5	1.8	132.4	-0.61	4.6	4.6	12	LD

Consensus (All Labs) Results

Wk Mean	138.93	138.52	138.71	137.22	Month Mean	137.97	Grand Mean	135.76
Avg SDr	4.70	4.45	4.85	5.66	Avg SDr	5.02	Avg SDr	5.17
SD btwn Labs	6.93	6.10	8.55	5.90	SD btwn Labs	6.27	SD btwn Labs	5.46
Labs Incld	53	51	53	51	SD btwn Wks	6.29	SD btwn Wks	5.72
Labs Excld	1	3	1	4	Labs Incld	53	Labs Incld	52
Labs not Rcvd	1	1	1	0				

Analysis Notes

GXYYAC - Data appears to be switched between Analysis 215 and Analysis 216 for Week 3. Data switched by CTS.

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Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LX	L&W 506	LY	L&W Crush Tester 958
LZ	L&W Crush Tester (model not specified)	MB	Messmer Buchel K440
TD	TMI Digital Crush Tester, Model 17-09	TH	TMI Compression Tester, Model 17-76
WK	Zwick Z005 Crush Tester	XX	Instrument make/model not specified by lab

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	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2KZWBQ	26.0 *L	22.6 L	24.8 L	25.0 L	24.6	1.63	0.0	1.4	24.3	1.90	0.0	1.0	16	LA
2RD6CR	24.0 L	21.8 L	22.8 L	23.0 L	22.9	0.30	0.6	0.9	22.0	-0.35	0.5	0.9	16	LA
2UT8M7	22.8	22.1	23.0	22.9	22.7	0.15	1.8	0.4	22.3	-0.06	2.0	0.8	16	LZ
2WV6UT	21.9	21.6	20.4	21.5	21.3	-0.92	1.5	0.6	21.9	-0.46	1.6	0.8	16	LW
34QMNV	20.8	22.5	22.5	22.0	21.9	-0.46	1.7	0.8	21.8	-0.55	1.9	0.8	16	LU
3NV7WC	No Data	No Data	21.9 L	19.1 *L	20.5	-1.56	0.2	1.9 H	20.6	-1.66	0.1	0.9	14	LW
4NDGBB	21.8	21.6	20.5	22.1	21.5	-0.80	1.9	0.7	21.5	-0.79	1.8	0.5	16	LW
679NJT	22.1	22.2	22.6	21.8	22.2	-0.28	1.6	0.3	22.0	-0.28	1.8	0.5	16	LU
7PX6JF	23.8	23.2	22.0	21.8	22.7	0.13	0.9	1.0	22.8	0.48	1.1	0.8	16	LY
8NYJ6F	23.5 L	22.9 L	23.6 L	22.1 L	23.0	0.41	0.5	0.7	23.2	0.83	0.5	0.9	16	LA
8WCDKH	23.9	23.6	24.4	24.4	24.1	1.22	2.1	0.4	24.4	1.99	2.1	0.9	16	LU
8WD3TL	23.2	20.8	20.9	21.3	21.6	-0.75	1.6	1.1	21.6	-0.76	1.6	1.1	4	TT
93ZAQK	22.8	22.5	22.3	22.0	22.4	-0.10	1.9	0.3	23.1	0.80	1.6	0.6	16	LA
9RCJZL	20.3 L	21.0 L	21.8 L	22.6 L	21.4	-0.88	0.4	1.0	22.0	-0.29	0.4	0.8	15	LA
A3RNT3	22.5	23.5	25.1	24.0	23.8	1.00	1.5	1.1	24.3	1.90	2.0	0.8	16	LA
ARADXH	21.2	21.9	21.4	21.4	21.5	-0.80	1.9	0.3	21.9	-0.38	2.0	0.6	16	LU
B836HJ	22.6	21.8	28.0 X	22.6	23.7	0.95	2.2	2.8 H	22.6	0.27	1.8	1.6 H	16	LU
CFPLMD	27.0 X	25.8 *	24.7	25.0	25.6	2.44 *	2.4	1.0	24.3	1.92	2.1	1.2	16	LZ
DK4JUZ	20.1	21.8	21.5	19.2	20.7	-1.45	1.9	1.2	20.4	-1.90	1.7	1.0	16	XX
DTVU7G	20.8	21.7	21.0	21.2	21.2	-1.04	2.0	0.4	21.7	-0.65	1.9	0.5	16	LY
E4B6VY	22.3	20.9	21.2	21.2	21.4	-0.87	1.9	0.6	21.6	-0.73	1.8	0.5	16	LZ
EQZXT7	24.7	24.2	24.2	24.7	24.5	1.51	2.1	0.3	23.7	1.40	1.9	1.0	16	LU
ERHN4C	No Data	22.8 L	23.8 L	21.8 L	22.8	0.25	0.5	1.0	29.4	6.97 X	1.8	9.8 H	15	LA
F3TG8C	20.0	21.0	19.9 *	20.1	20.3	-1.76	2.1	0.5	20.4	-1.89	1.9	0.5	16	LY
F6EKEA	22.0	21.9	22.3	21.7	22.0	-0.41	1.9	0.2	22.6	0.23	1.8	0.7	16	LY
FCZDQA	23.7	24.8	24.3	24.7	24.4	1.45	1.8	0.5	23.9	1.55	1.8	0.7	16	XX
FYBGPB	22.7	22.9	23.3	23.4	23.1	0.44	2.0	0.4	22.8	0.50	2.2	0.5	16	LW
G862DN	24.7 L	24.7 L	23.7 L	24.7 L	24.5	1.51	0.4	0.5	23.5	1.18	0.4	1.0	16	BK
GP34CE	20.8	21.5	22.0	18.2 *	20.6	-1.46	1.9	1.7	21.4	-0.91	1.9	1.1	16	XX
GXYYAC	23.7 L	24.0 L	23.4 L	24.2 L	23.8	1.02	0.1	0.3	22.8	0.48	0.1	0.9	16	XX
JMQ7RV	21.6	21.3	22.3	22.0	21.8	-0.57	1.5	0.4	21.8	-0.55	1.4	0.5	16	BK
JPT7UD	22.3 L	23.0 L	No Data	23.1 L	22.8	0.24	0.1	0.4	22.5	0.13	0.1	0.5	14	LA
JZCFH8	22.9	22.5	22.6	22.8	22.7	0.14	1.1	0.1 L	22.4	0.04	1.0	0.3	16	TT
M2H3LP	23.6	21.5	21.9	22.3	22.3	-0.14	2.0	0.9	22.1	-0.24	1.9	0.7	15	LW
M4GHQ8	21.5	20.8	21.7	21.3	21.3	-0.95	1.9	0.4	21.7	-0.58	1.8	0.5	12	LW

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	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
M77NB4	23.4	22.8	23.1	20.7	22.5	-0.01	2.3	1.3	22.6	0.30	2.0	0.8	16	LU
MJVN27	22.3	21.9	22.0	22.3	22.1	-0.31	2.2	0.2	22.5	0.13	1.9	0.5	16	LA
PYX63P	No Data	No Data	22.9 L	No Data	22.9	0.32	0.0	0.0 L	20.9	-1.43	0.0	1.4	13	LW
Q4RGGL	20.9	20.2	21.8	20.1	20.8	-1.38	1.4	0.8	20.9	-1.43	1.4	0.7	16	LA
QTTKG6	20.6 H	20.7	21.0	20.9	20.8	-1.34	3.7	0.2	20.4	-1.86	2.4	0.6	16	LW
R7BUGF	23.9 L	23.8	24.7	24.4 L	24.2	1.29	0.8	0.4	23.7	1.31	1.1	0.6	16	LZ
RXE39L	23.4	23.9	24.1	23.2	23.6	0.88	2.0	0.4	23.0	0.62	2.0	2.7 H	16	LW
TP29QX	20.9	23.5	22.8	22.8	22.5	-0.03	1.9	1.1	22.7	0.37	1.8	1.0	16	LA
TPHLU2	24.9	24.4	24.6	24.4	24.6	1.60	2.7	0.3	23.4	1.10	2.4	0.9	16	LW
TQCBG3	22.0 L	22.7 L	22.5 L	No Data	22.4	-0.11	0.0	0.4	23.2	0.83	0.0	1.2	12	LU
UFB63V	21.6	20.9	22.8	23.1	22.1	-0.31	1.5	1.0	21.9	-0.42	2.0	0.8	16	LZ
WT83YQ	22.4	22.0	22.0	21.4	22.0	-0.43	2.0	0.4	21.8	-0.50	1.9	0.5	16	LY
X2WBWM	23.1	22.0	23.6	21.2	22.5	-0.03	2.0	1.1	22.6	0.26	1.9	0.9	16	LA
XMFDWR	22.5	22.6	22.4	22.3	22.4	-0.06	1.1	0.1 L	22.2	-0.10	1.0	0.2	16	TT
XWQJRV	24.0	24.8	25.8 *	24.9	24.9	1.84	1.7	0.7	21.7	-0.58	1.9	2.5 H	16	LY
YEG8FW	21.0 L	20.3 L	20.5 L	20.5 L	20.6	-1.51	0.3	0.3	21.4	-0.87	0.3	1.0	16	LA
YK6PXE	22.6	22.5	22.7	22.8	22.6	0.10	1.9	0.2 L	22.5	0.14	1.8	0.4	16	LU
ZRKXTN	22.8	22.1 L	22.3	22.4	22.4	-0.09	1.8	0.3	21.9	-0.43	1.9	0.8	16	LY

Consensus (All Labs) Results

Wk Mean	22.50	22.43	22.65	22.32	Month Mean	22.51	Grand Mean	22.33
Avg SDr	1.91	1.76	1.68	1.58	Avg SDr	1.72	Avg SDr	1.64
SD btwn Labs	1.36	1.27	1.34	1.58	SD btwn Labs	1.28	SD btwn Labs	1.02
Labs Incld	49	51	51	51	SD btwn Wks	0.85	SD btwn Wks	0.95
Labs Excld	1	0	1	0	Labs Incld	53	Labs Incld	52
Labs not Rcvd	3	2	1	2				

Analysis Notes

UFB63V - Data appears to be switched between Analysis 223 (42 lb.) and Analysis 224 (56 lb.) for Week 4. Data switched by CTS.

Key to Instrument Codes Reported by Participants

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

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	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2KZWBQ	38.5 L	36.1 L	36.4 L	36.3 L	36.8	1.58	0.0	1.1	36.6	1.97	0.0	1.1	12	LA
2RD6CR	35.4 L	35.6 L	34.3	35.1 L	35.1	0.74	1.1	0.6	35.3	1.15	0.9	4.5 H	12	LA
2UT8M7	34.5	34.1	35.1	33.1	34.2	0.27	1.7	0.8	33.8	0.23	2.4	1.2	12	LZ
2WV6UT	32.4	32.5	30.1	30.0	31.3	-1.20	2.4	1.4	32.5	-0.58	2.5	1.3	12	LW
34QMNV	33.6	32.4	32.8	33.4	33.0	-0.31	2.5	0.5	33.1	-0.21	2.5	0.7	12	LY
3NV7WC	No Data	No Data	31.3 L	31.6	31.5	-1.10	0.8	0.2	31.0	-1.52	0.4	1.2	10	LW
4NDGBB	32.1	31.9	31.3	32.1	31.8	-0.92	2.3	0.3	32.2	-0.78	2.7	0.6	12	LW
679NJT	32.8	33.4	33.4	33.2	33.2	-0.24	2.3	0.3	32.9	-0.29	2.4	0.8	12	LU
7PX6JF	34.4	34.9	34.3	32.4	34.0	0.16	2.2	1.1	34.6	0.73	2.1	1.6	12	LY
8NYJ6F	30.5 L	30.3	33.2 L	No Data	31.3	-1.16	1.0	1.6	34.4	0.59	1.2	2.5 H	11	LA
8WCDKH	35.9	35.6	37.6	36.0	36.3	1.32	2.8	0.9	36.3	1.82	2.9	1.8	12	LU
8WD3TL	29.4	30.6	30.4	30.2	30.2	-1.76	2.1	0.5	32.6	-0.49	2.3	2.7 H	8	TT
93ZAQK	35.6	34.2	34.0	34.4	34.5	0.45	2.4	0.7	34.5	0.70	2.5	0.6	12	LA
9RCJZL	32.6 L	31.8 L	33.4 L	32.4 L	32.6	-0.56	0.8	0.7	32.5	-0.58	0.8	1.4	12	LA
A3RNT3	36.9	36.4	37.3	38.0 *	37.2	1.76	2.9	0.7	37.2	2.33 *	3.1	1.2	12	LA
ARADXH	32.3	31.9	32.3	30.9	31.8	-0.92	2.8	0.7	31.7	-1.07	2.8	0.6	12	LU
B836HJ	34.3	32.7	33.8	34.0	33.7	0.01	2.6	0.7	33.6	0.11	2.7	0.7	12	LU
CFPLMD	38.4	39.3 *	37.5	37.8	38.2	2.31 *	3.2	0.8	36.7	2.06 *	3.3	1.8	12	LZ
DK4JUZ	29.6	32.9	31.7	29.3	30.9	-1.40	2.6	1.7	30.3	-1.92	2.5	1.5	8	XX
DTVU7G	32.9	32.0	32.7	32.8	32.6	-0.53	2.8	0.4	32.2	-0.73	2.7	0.7	12	LY
E4B6VY	34.5	32.8	34.1	32.5	33.4	-0.11	2.7	1.0	32.9	-0.29	2.7	0.9	12	LZ
EQZXT7	35.6	35.7	34.3	38.3 *	36.0	1.16	3.0	1.7	35.7	1.45	3.0	1.4	12	LU
ERHN4C	33.7 L	51.7 X	36.3	53.3 X	43.7	5.06 X	3.4	10.1 H	39.0	3.47 X	2.3	7.5 H	12	LA
F3TG8C	31.0	29.6	30.3	31.3	30.5	-1.56	2.7	0.7	30.8	-1.64	2.6	0.6	12	LY
F6EKEA	34.4	32.9	34.4	33.8	33.9	0.11	3.1	0.7	33.5	0.03	3.0	1.0	12	LY
FCZDQA	35.4	36.8	36.0	34.3	35.6	0.97	3.4	1.1	36.0	1.64	3.1	1.3	12	LU
FYBGPB	33.9	33.4	35.4	33.7	34.1	0.22	3.0	0.9	33.6	0.15	2.9	0.9	12	LW
G862DN	36.0 L	35.5 L	36.6 L	37.7 L	36.4	1.39	0.9	0.9	35.8	1.52	0.9	1.2	8	BK
GP34CE	34.3	34.1	33.9	28.8 *	32.8	-0.45	3.0	2.7 H	32.1	-0.82	2.9	2.2	12	XX
GXYYAC	34.7 L	33.0 L	32.9 L	33.3 L	33.5	-0.10	0.1	0.8	33.8	0.26	0.1	0.9	12	XX
JMQ7RV	31.2	32.2	33.0	32.1	32.1	-0.76	2.2	0.7	32.5	-0.53	1.8	0.8	12	BK
JPT7UD	32.0 L	33.5 L	No Data	33.1 L	32.9	-0.39	0.2	0.8	33.8	0.26	0.1	1.3	10	LA
JZCFH8	34.0	33.6	33.5	33.8	33.7	0.03	1.3	0.2	32.6	-0.48	1.3	1.4	12	TT
M2H3LP	33.0	33.7	33.8	33.3	33.5	-0.10	2.5	0.4	32.6	-0.48	2.4	1.0	12	LW
M4GHQ8	30.8	29.8	31.5	31.2	30.8	-1.42	1.9	0.7	31.7	-1.04	2.1	1.0	12	LW

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Containerboard Interlaboratory Testing Program

Analysis 224

STFI, 56 lb Linerboard - 56A1

TAPPI Provisional Test Method T826

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
M77NB4	36.4	37.1	34.0	32.2	34.9	0.63	2.5	2.2 H	34.5	0.71	3.0	1.8	11	LU
MJVN27	33.2	31.5	32.9	32.1	32.4	-0.62	2.5	0.8	33.3	-0.06	2.5	1.0	12	LA
PYX63P	No Data	No Data	33.2 L	No Data	33.2	-0.25	0.0	0.0 L	31.9	-0.92	0.0	1.3	9	LW
Q4RGGL	30.3	31.1	33.2	31.4	31.5	-1.08	2.5	1.2	31.7	-1.06	2.6	1.2	8	LA
QTTKG6	31.4	31.4	31.4	32.6	31.7	-1.00	2.7	0.6	31.1	-1.41	2.8	0.7	12	LW
R7BUGF	37.8	37.5	36.6	36.1	37.0	1.68	1.2	0.8	35.3	1.20	1.7	1.6	12	LZ
RXE39L	34.1	35.5	37.4	36.2	35.8	1.07	3.4	1.4	33.6	0.09	3.1	1.9	12	LW
TP29QX	35.1	31.4	33.7	32.9	33.3	-0.20	3.2	1.5	33.6	0.10	2.6	1.6	12	LA
TPHLU2	36.9	35.9	36.0	36.6	36.4	1.36	3.1	0.5	35.0	0.98	3.4	1.1	12	LW
TQCBG3	35.9 L	36.3 L	33.5 L	No Data	35.2	0.78	0.0	1.5	34.1	0.45	0.0	1.8	10	LU
UFB63V	32.9	32.1	34.3	34.0	33.3	-0.17	2.4	1.0	32.5	-0.55	2.3	1.4	12	LZ
WT83YQ	32.4	33.6	32.6	31.6	32.6	-0.56	2.4	0.8	32.5	-0.53	2.7	0.9	12	LY
X2WBWM	32.2	33.9	34.6	32.3	33.2	-0.21	3.5	1.2	33.4	0.01	3.3	1.1	12	LA
XMFDWR	33.6	33.3	33.7	33.6	33.5	-0.06	1.5	0.2 L	32.4	-0.64	1.5	1.3	12	TT
XWQJRV	39.4 *	38.1 *	36.2	37.0	37.7	2.01 *	2.2	1.4	32.9	-0.33	2.2	3.6 H	12	LU
YEG8FW	31.7 L	30.6 L	29.9 *L	31.2 L	30.8	-1.42	0.5	0.8	31.9	-0.95	0.6	1.3	12	LA
YK6PXE	34.9	34.8	35.1	34.8	34.9	0.62	2.8	0.2 L	33.3	-0.07	2.7	1.3	12	LU
ZRKXTN	33.9	33.0	34.0	33.1	33.5	-0.09	2.9	0.5	32.5	-0.58	2.7	1.0	12	LY

Consensus (All Labs) Results

Wk Mean	33.89	33.64	33.86	33.42	Month Mean	33.66	Grand Mean	33.40
Avg SDr	2.38	2.61	2.31	2.31	Avg SDr	2.39	Avg SDr	2.38
SD btwn Labs	2.29	2.22	1.96	2.27	SD btwn Labs	1.99	SD btwn Labs	1.61
Labs Incld	51	50	52	49	SD btwn Wks	1.03	SD btwn Wks	1.53
Labs Excld	0	1	0	1	Labs Incld	52	Labs Incld	52
Labs not Rcvd	2	2	1	3				

Analysis Notes

UFB63V - Data appears to be switched between Analysis 223 (42 lb.) and Analysis 224 (56 lb.) for Week 4. Data switched by CTS.

Key to Instrument Codes Reported by Participants

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

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	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
2KZWBQ	172.8	-0.28	22.7	164.4	-0.58	18.7	4	LA
2RD6CR	215.8	1.54	34.8	209.7	1.60	27.6	4	EV
2WV6UT	201.3	0.92	28.5	201.3	1.20	26.4	4	EV
4NDGBB	189.9	0.44	24.6	186.0	0.46	17.3	4	EV
7PX6JF	119.7	-2.52 *	11.6	128.2	-2.32 *	14.2	4	EV
8WCDKH	191.2	0.50	42.5	185.9	0.46	25.9	4	EV
93ZAQK	164.9	-0.61	14.0	157.7	-0.90	15.2	4	XX
9RCJZL	198.8	0.82	21.5	199.6	1.12	23.6	4	LA
ARADXH	195.5	0.68	17.6	189.5	0.63	19.3	4	EV
C28VNB	153.4	-1.10	14.3	153.4	-1.11	14.3	1	EV
CFPLMD	165.4	-0.59	15.9	163.9	-0.60	17.7	4	XX
EQZXT7	149.6	-1.26	22.6	143.4	-1.59	19.1	4	LA
ERHN4C	191.4	0.51	30.3	186.8	0.50	21.0	4	LA
F3TG8C	178.9	-0.02	9.2	172.1	-0.21	15.4	4	EV
G862DN	195.6	0.68	10.4	196.2	0.95	16.3	4	EV
GXYYAC	233.4	2.28 *	27.8	210.1	1.62	28.9	4	EV
JPT7UD	163.0	-0.69	29.9	183.0	0.32	27.9	4	LA
PXQPTX	162.9	-0.70	16.7	162.1	-0.69	17.3	4	EV
PYX63P	182.3	0.12	14.5	178.9	0.12	16.7	4	EV
RXE39L	181.6	0.09	12.1	175.3	-0.05	15.4	4	EV
UFB63V	178.9	-0.02	16.6	182.4	0.29	21.1	4	LA
X2WBWM	168.3	-0.47	18.6	163.3	-0.63	16.4	4	LA
YEG8FW	172.5	-0.29	99.5	164.2	-0.59	50.8	4	EV

Consensus (All Labs) Results

Month Mean	179.44	Grand Mean	176.40
Avg SDr	30.19	Avg SDr	22.54
SD btwn Labs	23.66	SD btwn Labs	20.76
Labs Incld	23	Labs Incld	23

Key to Instrument Codes Reported by Participants

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

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Containerboard Interlaboratory Testing Program
Analysis 229
Roughness - Sheffield Method, 42 lb Linerboard - 42D2
TAPPI Provisional Test Method T538

Report #566 (M)
November 2016

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
679NJT	362.9	-0.37	10.4	367.2	0.22	8.8	4	XX
8NYJ6F	356.4	-0.59	7.5	356.2	-1.16	8.0	4	XX
CRMGPE	385.6	0.39	9.5	379.5	1.76	8.8	3	XX
FEPKFC	350.8	-0.78	9.0	360.0	-0.69	7.0	4	XX
MJVN27	437.0	2.11 X	0.8	435.8	8.81 X	0.8	4	XX
TP29QX	362.9	-0.37	6.5	364.2	-0.16	8.1	4	LA
V66NQV	362.5	-0.39	7.8	365.7	0.03	8.7	4	LA

Consensus (All Labs) Results

Month Mean	374.02	Grand Mean	365.45
Avg SDr	7.92	Avg SDr	8.24
SD btwn Labs	29.80	SD btwn Labs	7.99
Labs Incld	7	Labs Incld	6

Key to Instrument Codes Reported by Participants

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

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	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
2RD6CR	149.8	0.61	7.5	149.8	0.61	7.5	1	TM
2WV6UT	181.0	1.84	12.0	181.0	1.84	12.0	1	HY
34QMNV	130.0	-0.18	8.0	130.0	-0.18	8.0	1	XX
679NJT	141.3	0.27	2.7	141.3	0.27	2.7	1	HY
8NYJ6F	152.2	0.70	11.0	152.2	0.70	11.0	1	SC
8WCDKH	82.4	-2.06 *	10.7	82.4	-2.06 *	10.7	1	TM
9RCJZL	150.0	0.62	5.3	150.0	0.62	5.3	1	HY
ARADXH	120.6	-0.55	6.1	120.6	-0.55	6.1	1	TM
C28VNB	137.6	0.13	9.4	137.6	0.13	9.4	1	HY
CFPLMD	141.2	0.27	9.3	141.2	0.27	9.3	1	TM
DK4JUZ	110.7	-0.94	11.4	110.7	-0.94	11.4	1	SC
EQZXT7	109.0	-1.01	7.2	109.0	-1.01	7.2	1	TM
LDPRKR	127.8	-0.26	8.2	127.8	-0.26	8.2	1	SC
MJVN27	67.5	-2.65 X	1.5	67.5	-2.65 X	1.5	1	LZ
PYX63P	134.0	-0.02	17.1	134.0	-0.02	17.1	1	SC
Q4RGGL	120.6	-0.55	6.5	120.6	-0.55	6.5	1	TM
QTTKG6	176.4	1.66	5.7	176.4	1.66	5.7	1	TM
Y2G9RY	114.0	-0.81	6.0	114.0	-0.81	6.0	1	TM

Consensus (All Labs) Results

Month Mean	134.42	Grand Mean	134.42
Avg SDr	9.14	Avg SDr	9.14
SD btwn Labs	25.25	SD btwn Labs	25.25
Labs Incld	16	Labs Incld	16

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	131.12	23.29	3.31	14
Modified Scott Bond Mechanics	161.16	28.06	26.74	2

Analysis Notes

MJVN27 - Method used is not covered in this test.

Key to Instrument Codes Reported by Participants

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

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	Monthly Results			Cumulative Results			
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months
2RD6CR	33.8	2.10 *	3.9	33.8	2.10 *	3.9	1
2UT8M7	22.5	-1.50	1.2	22.5	-1.50	1.2	1
2WV6UT	25.8	-0.45	1.9	25.8	-0.45	1.9	1
679NJT	26.6	-0.19	1.8	26.6	-0.19	1.8	1
8NYJ6F	30.0	0.89	1.9	30.0	0.89	1.9	1
8WCDKH	24.4	-0.90	0.9	24.4	-0.90	0.9	1
93ZAQK	24.8	-0.77	0.8	24.8	-0.77	0.8	1
9RCJZL	27.5	0.10	1.8	27.5	0.10	1.8	1
ARADXH	30.6	1.08	2.4	30.6	1.08	2.4	1
B836HJ	28.4	0.38	1.1	28.4	0.38	1.1	1
CFPLMD	22.8	-1.40	2.2	22.8	-1.40	2.2	1
CHER8A	27.9	0.22	2.6	27.9	0.22	2.6	1
EQZXT7	28.2	0.31	1.6	28.2	0.31	1.6	1
F3TG8C	23.4	-1.23	2.1	23.4	-1.23	2.1	1
FCZDQA	26.4	-0.26	1.1	26.4	-0.26	1.1	1
FYBGPB	32.6	1.71	2.2	32.6	1.71	2.2	1
LRUTH3	28.4	0.38	1.5	28.4	0.38	1.5	1
MJVN27	29.8	0.82	1.3	29.8	0.82	1.3	1
PYX63P	30.0	0.89	1.6	30.0	0.89	1.6	1
QTTKG6	27.0	-0.07	4.2	27.0	-0.07	4.2	1
RXE39L	24.8	-0.77	2.4	24.8	-0.77	2.4	1
ZRKXTN	23.0	-1.34	4.4	23.0	-1.34	4.4	1

Consensus (All Labs) Results

Month Mean	27.21	Grand Mean	27.21
Avg SDr	2.26	Avg SDr	2.26
SD btwn Labs	3.14	SD btwn Labs	3.14
Labs Incld	22	Labs Incld	22

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

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	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
2HBQQT	26.8	-0.86	1.1	26.8	-0.86	1.1	1	LA
2KZWBQ	27.1	-0.67	2.1	27.1	-0.67	2.1	1	TL
2RD6CR	28.4	0.00	0.8	28.4	0.00	0.8	1	LP
2WV6UT	30.2	0.95	1.5	30.2	0.95	1.5	1	LP
679NJT	28.6	0.10	2.4	28.6	0.10	2.4	1	TP
8WCDKH	25.2	-1.67	1.5	25.2	-1.67	1.5	1	LA
93ZAQK	28.1	-0.15	1.3	28.1	-0.15	1.3	1	LA
9RCJZL	29.7	0.68	2.0	29.7	0.68	2.0	1	LA
CFPLMD	29.2	0.43	4.6	29.2	0.43	4.6	1	TD
CHER8A	30.4	1.04	3.2	30.4	1.04	3.2	1	GA
DTVU7G	31.2	1.48	1.5	31.2	1.48	1.5	1	LP
EQZXT7	29.1	0.35	3.1	29.1	0.35	3.1	1	LA
ERHN4C	28.2	-0.13	2.0	28.2	-0.13	2.0	1	LA
FCZDQA	24.3	-2.17 *	1.6	24.3	-2.17 *	1.6	1	LA
FYBGPB	27.8	-0.31	2.9	27.8	-0.31	2.9	1	LP
G862DN	32.0	1.91	1.8	32.0	1.91	1.8	1	XX
GXYYAC	26.2	-1.18	1.0	26.2	-1.18	1.0	1	LW
K49NX2	30.2	0.94	2.7	30.2	0.94	2.7	1	XX
LDPRKR	27.3	-0.59	1.3	27.3	-0.59	1.3	1	LP
MJVN27	29.3	0.50	1.4	29.3	0.50	1.4	1	LA
PYX63P	28.0	-0.21	1.8	28.0	-0.21	1.8	1	HG
QTTKG6	27.0	-0.74	2.8	27.0	-0.74	2.8	1	HG
XWPKW2	26.5	-1.00	3.8	26.5	-1.00	3.8	1	GG
ZRKXTN	29.7	0.68	1.8	29.7	0.68	1.8	1	LP

Consensus (All Labs) Results

Month Mean	28.39	Grand Mean	28.39
Avg SDr	2.32	Avg SDr	2.32
SD btwn Labs	1.90	SD btwn Labs	1.90
Labs Incld	23	Labs Incld	23

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Key to Instrument Codes Reported by Participants

GA	Gurley Precision #4340 Automatic Densometer	GG	Gurley Precision #4320 Densometer
HG	Technidyne - Hagerty Model #1 and Profile System	LA	L&W Autoline
LP	L&W Air Permeance Tester SE 166	LW	L&W Gurley Densometer, Oil Flotation
TD	TMI Gurley Densometer	TL	Teledyne Gurley Densometer #4110, Oil Flotation
TP	Technidyne Profile/ plus Roughness & Porosity	XX	Instrument make/model not specified by lab

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	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2HBQQT	62.1	63.7	65.0	68.1 XL	64.7	2.35 *	2.5	2.6	63.7	1.92	2.9	2.2	8	LC
2LDQQQ	60.3	59.0	59.8	60.9	60.0	0.07	2.6	0.8	60.7	0.42	2.6	0.9	8	LC
2UT8M7	58.0	57.4	56.0	55.4 *	56.7	-1.53	3.0	1.2	57.6	-1.12	3.1	1.8	8	LZ
34QMNV	60.9	63.7	58.3	60.5	60.8	0.48	2.9	2.2	60.7	0.44	3.1	1.7	8	LC
47B2MP	58.3	58.8	58.1	59.3	58.6	-0.61	2.1	0.5	58.3	-0.76	2.1	0.5	8	LD
679NJT	59.9	61.6	57.3	65.2 *	61.0	0.56	3.9	3.3 H	60.9	0.53	3.5	2.3	8	LC
8J6KUQ	58.7	63.2	61.5 H	58.1	60.4	0.25	4.3	2.4	60.2	0.16	3.8	2.0	8	LX
8WCDKH	56.7 H	59.9	58.1	58.9	58.4	-0.70	4.3	1.4	59.1	-0.40	3.9	1.7	8	XX
8WD3TL	53.9	54.4 *	53.8 *	52.3 X	53.6	-3.02 X	3.6	0.9	53.6	-3.15 X	3.6	0.9	4	TH
93ZAQK	61.6	62.5	61.4	62.5	62.0	1.02	3.0	0.6	61.5	0.83	2.9	0.8	8	LD
ABAY4J	61.4	59.7	60.7	58.8	60.2	0.15	3.1	1.1	60.0	0.08	3.0	2.1	8	MB
ARADXH	58.7	59.7	59.5	58.2	59.0	-0.39	3.7	0.7	58.4	-0.73	3.2	1.1	8	LD
B836HJ	59.6	59.7 L	60.4	59.4	59.8	-0.04	1.7	0.5	59.6	-0.12	1.9	0.6	8	LZ
D7LQ7T	58.1	59.9	60.4	58.6	59.2	-0.29	2.8	1.1	60.0	0.05	2.7	1.6	8	MB
DGEAHD	59.9	59.5	60.2	60.9	60.1	0.13	2.6	0.6	60.9	0.54	2.5	1.0	8	LD
DK4JUZ	58.2	57.3	59.2	59.3	58.5	-0.65	3.8	1.0	59.2	-0.33	3.5	2.1	8	LC
E4B6VY	56.0	60.4	59.1	56.7 H	58.1	-0.87	4.0	2.1	57.6	-1.11	3.4	1.6	8	LZ
EQZXT7	55.9	60.7	60.2 H	58.9	58.9	-0.45	4.4	2.2	59.8	-0.02	4.4	2.2	8	LC
F6EKEA	60.5	61.4	61.8	59.9	60.9	0.48	3.1	0.9	61.1	0.64	2.9	0.7	8	LD
FYBGPB	63.7	63.2	63.9	60.7	62.9	1.45	3.1	1.5	63.0	1.57	2.9	1.2	8	LC
G862DN	59.5	59.8 L	60.0	59.9 L	59.8	-0.02	1.7	0.2 L	60.0	0.09	1.9	0.8	8	MB
GXYYAC	53.0 *	56.0	57.1	52.1 X	54.5	-2.57 *	3.0	2.4	55.7	-2.09 *	3.1	2.5	8	XX
HA829E	59.6	59.7	59.3	59.9 L	59.6	-0.11	2.4	0.3 L	58.9	-0.48	3.5	1.9	8	MB
HMV7GC	58.2	57.8	57.3	56.7	57.5	-1.15	2.9	0.6	59.3	-0.26	3.2	2.1	8	XX
JAYE9D	61.2	61.2	61.2	61.1	61.2	0.63	3.7	0.1 L	60.0	0.08	3.8	1.2	8	LD
JPT7UD	57.4	59.6 L	No Data	57.9	58.3	-0.75	3.6	1.1	56.2	-1.84	3.7	6.2 H	6	MB
JZCFH8	58.6 H	57.9 H	57.5 H	58.5	58.1	-0.83	5.5	0.5	58.1	-0.87	5.3	1.3	8	TG
K49NX2	59.1	60.9	59.9	59.2	59.8	-0.04	3.3	0.8	59.8	-0.01	3.1	1.1	8	LD
M2H3LP	65.6 *	65.1 *	65.0	61.1	64.2	2.09 *	2.5	2.1	65.0	2.59 *	2.4	4.0 H	8	LE
MJVN27	53.8 *	56.9	56.4	55.6 *	55.7	-2.02 *	2.7	1.4	55.3	-2.28 *	2.8	1.1	8	LD
NG2HZ7	61.7 L	60.3 L	63.8 L	63.5 L	62.3	1.18	0.9	1.6	62.2	1.20	0.9	1.6	8	TD
PNJAMP	62.9	63.7	63.7	64.2	63.6	1.81	2.8	0.5	63.8	1.98	2.8	1.1	8	EM
Q4RGGL	55.4	56.9	58.8	58.9	57.5	-1.13	3.0	1.7	58.0	-0.94	2.9	1.3	8	LC
Q9672U	46.0 X	45.9 X	46.0 X	45.3 X	45.8	-6.76 X	2.6	0.4	46.1	-6.94 X	3.4	0.6	7	TC
R7BUGF	59.6	60.8	60.3	60.5	60.3	0.23	2.3	0.5	58.9	-0.47	2.1	1.5	8	LC

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Containerboard Interlaboratory Testing Program

Analysis 240

Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM91

TAPPI Official Test Method T809

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
TPHLU2	57.9	59.7	55.0	61.8	58.6	-0.60	4.2	2.9	59.0	-0.42	6.0	2.9	8	LC
U2TGRC	56.9	59.1	57.9	59.2	58.3	-0.76	3.1	1.1	60.3	0.22	2.5	2.3	8	TH
UFB63V	59.3	58.2	64.2 L	63.1 L	61.2	0.64	2.1	2.9	59.3	-0.27	2.5	2.9	8	LD
XGRQ48	60.9	57.6	62.9	60.1	60.4	0.24	2.6	2.2	60.0	0.07	2.8	1.8	8	LD
XMFDWR	59.0	57.1	58.7	60.6	58.8	-0.50	3.2	1.4	58.2	-0.84	3.0	1.3	8	TH
XWQJRV	62.6	61.7	60.4	60.5	61.3	0.70	3.5	1.0	61.1	0.62	3.3	1.3	8	LD
XYV6K2	59.2	59.0	60.7	60.4	59.8	-0.01	1.7	0.9	60.3	0.23	1.6	0.9	8	LC
Y2EJJV	59.3	60.2	59.3	60.1	59.7	-0.07	2.1	0.5	58.8	-0.52	2.1	1.1	8	EM
YJY8XW	58.1	58.3	61.7	57.4	58.9	-0.48	2.2	1.9	59.3	-0.26	2.1	2.3	8	LC
YK6PXE	60.4	62.8	61.4	62.4	61.7	0.91	2.6	1.1	61.5	0.85	2.3	0.9	8	LD
Z4BPDR	65.3 *	62.1	62.0	62.6	63.0	1.52	3.2	1.6	62.7	1.42	3.5	1.3	8	LD
ZRKXTN	58.4	59.3	58.8	60.5	59.2	-0.29	4.0	0.9	59.1	-0.38	3.8	0.7	8	LZ

Consensus (All Labs) Results

Wk Mean	59.24	59.94	59.94	59.94	Month Mean	59.86	Grand Mean	59.85
Avg SDr	3.28	3.09	3.12	3.13	Avg SDr	3.14	Avg SDr	3.13
SD btwn Labs	2.67	2.28	2.52	2.11	SD btwn Labs	2.08	SD btwn Labs	1.98
Labs Incld	46	46	45	43	SD btwn Wks	1.53	SD btwn Wks	1.94
Labs Excld	1	1	1	4	Labs Incld	45	Labs Incld	45
Labs not Rcvd	0	0	1	0				

Analysis Notes

YJY8XW - Data appears to be switched between Analysis 240 and Analysis 255 for Week 3. Data switched by CTS.

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LE	L&W CRUSH TESTER 275
LX	L&W 506	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	XX	Instrument make/model not specified by lab

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Containerboard Interlaboratory Testing Program

Analysis 250

Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium - CM91

TAPPI Official Method T824

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2LDQQQ	72.2	72.4	72.8	71.8	72.3	-0.44	3.4	0.4	71.6	-0.61	3.2	0.8	8	XX
47B2MP	69.6	69.9	69.6	70.1	69.8	-1.58	2.1	0.3	68.9	-1.76	2.1	1.0	8	LD
679NJT	77.6	77.1	76.4	77.1	77.0	1.70	2.2	0.5	76.7	1.57	2.3	0.6	8	LC
8J6KUQ	76.2	74.6	74.5	74.3	74.9	0.73	2.2	0.9	74.7	0.73	2.2	0.8	8	LD
93ZAQK	69.3	70.7	71.1	71.3	70.6	-1.20	3.0	0.9	70.3	-1.18	2.8	0.8	8	LD
DGEAHD	71.8	72.2	72.9	72.5	72.4	-0.41	3.0	0.5	72.0	-0.45	3.2	0.6	8	XX
E4B6VY	73.6 H	71.4 H	75.7	75.2	74.0	0.32	4.2	1.9	71.1	-0.82	4.9	5.7 H	8	LZ
FYBGPB	75.7	74.6	73.9	73.7	74.5	0.55	2.9	0.9	74.7	0.72	2.9	1.0	8	XX
HA829E	69.9	68.6	69.0	70.3	69.5	-1.72	2.0	0.8	70.6	-1.04	2.3	1.4	8	MB
K49NX2	74.5	72.2	73.7	75.3	73.9	0.30	2.2	1.3	74.0	0.44	2.5	1.0	8	XX
M2H3LP	76.3	75.0	73.5	74.8	74.9	0.74	2.4	1.1	73.2	0.09	2.5	3.6 H	8	LE
MJVN27	75.0	71.4	73.5	73.2	73.3	0.00	3.2	1.5	74.9	0.79	2.7	2.1	8	LD
NG2HZ7	74.1	75.0 L	72.0 L	71.7 L	73.2	-0.03	1.2	1.6	73.0	0.01	1.0	1.4	8	TD
YK6PXE	70.8	73.8 L	72.7	72.2	72.4	-0.41	1.8	1.2	72.6	-0.17	2.1	1.2	8	LD
Z4BPDR	76.1	77.4	76.6	75.7	76.5	1.45	2.9	0.8	76.9	1.68	3.1	0.8	8	LD

Consensus (All Labs) Results

Wk Mean	73.52	73.08	73.19	73.27	Month Mean	73.27	Grand Mean	73.02
Avg SDr	2.58	3.11	2.58	2.39	Avg SDr	2.68	Avg SDr	2.78
SD btwn Labs	2.74	2.55	2.19	2.08	SD btwn Labs	2.21	SD btwn Labs	2.33
Labs Incld	15	15	15	15	SD btwn Wks	1.08	SD btwn Wks	2.02
Labs Excld	0	0	0	0	Labs Incld	15	Labs Incld	15
Labs not Rcvd	0	0	0	0				

Key to Instrument Codes Reported by Participants

LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LE	L&W CRUSH TESTER 275	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	TD	TMI Digital Crush Tester, Model 17-09
XX	Instrument make/model not specified by lab		

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Containerboard Interlaboratory Testing Program

Analysis 255

Ring Crush (RCT), 26 lb Corrugating Medium - CM91

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2HBQQT	48.2	50.0 L	49.8 L	50.6 *	49.6	2.04 *	1.4	1.0	47.3	1.36	2.3	2.8	8	LD
2UT8M7	41.2	39.5	42.7 H	42.9	41.6	-0.39	3.4	1.6	42.1	-0.10	2.8	1.3	8	EM
679NJT	44.0	44.6	45.5	45.7	44.9	0.62	2.5	0.8	44.8	0.66	2.5	0.8	8	LC
6DN84T	43.1 L	42.9 L	42.9 L	42.7	42.9	0.01	1.0	0.1 L	43.0	0.14	1.0	0.7	8	WK
93ZAQK	45.4	47.5	45.9	45.8	46.1	0.98	2.7	0.9	45.7	0.91	2.4	1.0	8	LD
FYBGPB	45.1	45.1	47.2	41.9	44.8	0.58	2.8	2.2	43.3	0.23	2.5	3.0	8	LC
GXYYAC	49.7	47.1	47.9	45.8	47.6	1.43	2.7	1.6	47.8	1.51	2.7	1.6	8	XX
HA829E	35.7 *	38.1	37.4	38.7	37.5	-1.62	2.1	1.3	37.8	-1.33	2.9	1.0	8	MB
JAYE9D	41.1	41.2	41.2	41.1	41.1	-0.53	3.2	0.0 L	40.0	-0.70	3.3	1.2	8	LD
JXMAXB	42.9	43.3	43.4	46.8	44.1	0.37	2.5	1.8	44.1	0.46	2.5	1.8	4	LZ
K49NX2	41.7	42.8	42.4 H	44.3 H	42.8	-0.03	3.8	1.1	42.7	0.06	3.7	0.8	8	LD
MJVN27	44.3 H	45.6	44.6	44.5	44.7	0.56	3.4	0.6	43.3	0.24	3.3	1.7	8	LD
Q9672U	31.4 X	31.6 X	49.2	36.1	37.1	-1.75	1.8	8.4 H	33.7	-2.49 *	1.9	7.3 H	7	TC
R7BUGF	43.2	43.8	44.2 L	42.2	43.4	0.15	1.4	0.9	43.3	0.23	1.6	0.9	8	WK
U2TGRC	36.0 *L	34.7 *	35.9 *	36.8	35.8	-2.13 *	1.5	0.9	34.3	-2.30 *	1.3	1.7	8	TH
UFB63V	44.5	42.3	42.7 L	42.7	43.1	0.05	1.9	1.0	42.8	0.09	2.1	0.8	8	LD
VQNNZW	41.9	40.0 H	41.1	41.9 H	41.2	-0.50	4.3	0.9	41.9	-0.16	4.1	1.0	8	LZ
WYEQGY	43.2 L	42.3	41.5	41.1	42.0	-0.26	2.4	0.9	42.3	-0.04	2.2	0.7	8	TH
XGRQ48	46.5	46.1	42.8	44.2	44.9	0.61	2.5	1.7	44.0	0.44	2.2	1.5	8	LZ
XYV6K2	43.0	43.9	44.0	45.2	44.0	0.34	1.7	0.9	44.8	0.67	1.7	1.8	8	LC
Y2EJJV	43.1	41.7	41.6	41.3	41.9	-0.30	2.3	0.8	42.9	0.11	2.8	1.2	8	LC
YJY8XW	38.2	40.5	40.0	38.0	39.2	-1.12	2.4	1.3	39.2	-0.92	2.4	1.0	8	LC
Z4BPDR	46.1	46.1	46.1	45.3	45.9	0.91	2.1	0.4	45.8	0.95	1.9	0.4	8	LD

Consensus (All Labs) Results

Wk Mean	43.09	43.14	43.48	42.85	Month Mean	42.89	Grand Mean	42.48
Avg SDr	2.40	2.55	2.78	2.45	Avg SDr	2.54	Avg SDr	2.54
SD btwn Labs	3.41	3.43	3.38	3.39	SD btwn Labs	3.31	SD btwn Labs	3.54
Labs Incld	22	22	23	23	SD btwn Wks	2.08	SD btwn Wks	2.09
Labs Excld	1	1	0	0	Labs Incld	23	Labs Incld	23
Labs not Rcvd	0	0	0	0				

Analysis Notes

YJY8XW - Data appears to be switched between Analysis 240 and Analysis 255 for Week 3. Data switched by CTS.

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Key to Instrument Codes Reported by Participants

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

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Containerboard Interlaboratory Testing Program

Analysis 261

STFI, 26 lb Corrugating Medium - CM91

TAPPI Provisional Test Method T826

Report #566 (M)
November 2016

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wks	Mean	CPV	SDr	SD Wks	Wks	Inst
2HBQQT	15.1	15.4	15.7	15.5	15.4	2.00	0.7	0.3	15.4	1.54	0.8	0.3	8	LZ
2LDQQQ	14.2	14.1	13.8	14.7	14.2	-0.30	0.8	0.4	13.7	-0.98	0.8	0.6	8	LB
2UT8M7	13.1	13.5	13.8	13.9	13.6	-1.43	0.8	0.4	13.5	-1.35	0.9	0.4	8	LZ
47B2MP	13.9	14.0	14.3	14.0	14.0	-0.57	0.7	0.2	13.5	-1.26	0.7	0.6	8	LA
679NJT	14.6	14.3	14.2	14.5	14.4	0.14	0.9	0.2	14.4	0.01	1.0	0.2	8	LU
8J6KUQ	14.9	14.8	15.0	14.8	14.9	0.96	0.9	0.1	15.0	0.90	0.9	0.4	8	LB
8WD3TL	11.7 X	12.4 *	12.5 *	12.2 X	12.2	-3.93 X	0.8	0.4	12.2	-3.25 X	0.8	0.4	4	TT
93ZAQK	14.0	14.7	14.1	14.0	14.2	-0.30	0.9	0.3	14.3	-0.03	0.9	0.3	8	LB
ARADXH	13.8	13.7	13.7	13.9	13.8	-1.02	1.2	0.1	13.9	-0.69	1.1	0.2	8	LU
B836HJ	14.1	14.4	14.0	14.9	14.3	-0.05	1.0	0.4	14.3	-0.09	1.1	0.4	8	LU
DGEAHD	14.2	13.8	13.6	14.6	14.1	-0.53	0.8	0.4	13.7	-0.99	0.8	0.5	8	LB
G862DN	16.7 XL	16.1 *L	15.9 L	16.1 *L	16.2	3.40 X	0.2	0.4	16.0	2.50 *	0.2	0.4	8	BK
GXYYAC	14.4 L	14.7 L	14.7 L	14.5 L	14.6	0.44	0.0	0.1	14.8	0.62	0.0	0.3	8	XX
JPT7UD	13.7 L	14.2 L	No Data	14.4 L	14.1	-0.42	0.0	0.4	14.2	-0.31	0.0	0.3	6	LA
MJVN27	14.5	14.0	14.8	14.0	14.3	-0.07	0.9	0.4	14.3	-0.03	1.0	0.3	8	LA
Q9672U	14.1 L	13.8 L	13.8 L	13.9 L	13.9	-0.82	0.0	0.2	13.9	-0.76	0.0	0.2	7	TS
R7BUGF	15.2	15.2	15.5	14.6	15.1	1.39	0.7	0.4	15.0	0.92	0.7	0.4	8	LZ
TP29QX	13.2	15.1	14.6	14.1	14.2	-0.20	0.6	0.8 H	14.5	0.26	1.1	0.8 H	8	LA
TPHLU2	15.4	15.7	15.6	16.0 *	15.7	2.44 *	1.2	0.2	15.3	1.50	1.2	0.4	8	LW
UFB63V	14.0	13.9	14.4	14.2	14.1	-0.44	1.0	0.2	14.2	-0.31	1.2	0.4	8	LZ
VQNNZW	14.3	14.7	14.4	14.3	14.4	0.09	1.0	0.2	14.6	0.31	1.0	0.3	8	LA
XMFDWR	14.2	13.7	14.0	14.5	14.1	-0.46	0.7	0.3	13.6	-1.09	0.7	0.6	8	TT
XYV6K2	13.3	12.9	13.8	13.7	13.4	-1.73	0.6	0.4	13.5	-1.24	0.6	0.4	8	XX
Y2EJJV	14.9	14.7	14.5	15.3	14.9	0.92	1.2	0.4	14.9	0.75	1.2	0.4	4	LB
ZRKXTN	14.3	14.1	14.4	14.5	14.3	-0.02	1.1	0.2	14.3	-0.15	1.0	0.5	8	LB

Consensus (All Labs) Results

Wk Mean	14.23	14.31	14.37	14.54	Month Mean	14.35	Grand Mean	14.36
Avg SDr	0.84	0.82	0.85	0.83	Avg SDr	0.84	Avg SDr	0.86
SD btwn Labs	0.61	0.83	0.77	0.64	SD btwn Labs	0.54	SD btwn Labs	0.66
Labs Incld	23	25	24	24	SD btwn Wks	0.34	SD btwn Wks	0.41
Labs Excld	2	0	0	1	Labs Incld	23	Labs Incld	24
Labs not Rcvd	0	0	1	0				

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Key to Instrument Codes Reported by Participants

BK	Buchel Strip Compression Tester BK-155	LA	L&W Autoline
LB	L&W Model 152	LU	L&W 52 without moisture correction (was 53)
LW	L&W 53 with moisture correction (was 53M)	LZ	L&W (model not specified)
TS	TMI Monitor/STFI Compression Tester, 17-33	TT	TMI Short Span Compression, 17-34 (MB K455)
XX	Instrument make/model not specified by lab		

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