



Collaborative Testing Services, Inc. Containerboard Interlaboratory Testing Program

Participant Summary Report #536 (E) - May 2014

[Introduction to the Containerboard Program](#)

[Explanation of Tables and Definitions of Terms](#)

Analysis	Sample Lot	Analysis Name
<u>201</u>	<u>BOX8</u>	<u>Box Compression Strength, Corrugated Boxes</u>
<u>202</u>	<u>ECT7</u>	<u>Edgewise Compressive Strength, Wax (T811), Corrugated board</u>
<u>203</u>	<u>ECT7</u>	<u>Edgewise Compressive Strength by Clamp (T839), Corrugated board</u>
<u>205</u>	<u>42B4</u>	<u>Mullen Burst of Linerboard, 42 lb Linerboard</u>
<u>206</u>	<u>69C1</u>	<u>Mullen Burst of Linerboard, 69 lb Linerboard</u>
<u>215</u>	<u>42B4</u>	<u>Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard</u>
<u>216</u>	<u>69C1</u>	<u>Ring Crush of Linerboard, Rigid Platen Type, 69 lb Linerboard</u>
<u>223</u>	<u>42B4</u>	<u>STFI of Linerboard, 42 lb Linerboard</u>
<u>224</u>	<u>69C1</u>	<u>STFI of Linerboard, 69 lb Linerboard</u>
<u>228</u>	<u>69C</u>	<u>Roughness - Stylus Method, 69 lb Linerboard</u>
<u>231</u>	<u>36Z</u>	<u>Internal Bond Strength, Linerboard, 36 lb Linerboard</u>
<u>234</u>	<u>36Z</u>	<u>Coefficient of Static Friction - Inclined Plane, 36 lb Linerboard</u>
<u>237</u>	<u>36Z</u>	<u>Air Resistance - Gurley Method, Linerboard, 36 lb Linerboard</u>
<u>240</u>	<u>CM73</u>	<u>Flat Crush Strength (CMT) of Medium, 26 lb Corrugating Medium</u>
<u>250</u>	<u>CM73</u>	<u>Fluted Crush of Medium, 26 lb Corrugating Medium</u>
<u>255</u>	<u>CM73</u>	<u>Ring Crush of Medium, 26 lb Corrugating Medium</u>
<u>261</u>	<u>CM73</u>	<u>STFI of Medium, 26 lb Corrugating Medium</u>

ABOUT CTS

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

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Collaborative Testing Services, Inc.
CONTAINERBOARD INTERLABORATORY TESTING PROGRAM

INTRODUCTION

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

For these tests samples of linerboard and corrugating medium, that each have been separately randomized from narrow rolls, are distributed for testing weekly. One weight of medium (26 lb.) is used for Concora Flat Crush Strength, Corrugated Fluted Crush Strength, Ring Crush Strength, and STFI Compression. Two weights of linerboard are tested each month for Mullen Burst, Ring Crush, and STFI Compression: 42 lb. - every month; 36 lb. and 69 lb. - alternate months. The participants return their test results for analysis and receive a monthly report.

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

USE OF AVERAGE MEAN AS A COLLABORATIVE REFERENCE VALUE

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

Material	Lot Code	Dates in Use
36# Linerboard	36Z1 36Z2	June 2010 - December 2011 February 2012 -
42# Linerboard	42B2 42B3	June 2012 - April 2013 June 2013 -
69# Linerboard	69A2 69C1	January 2013 - September 2013 November 2013 -
Corrugating Medium	CM73	December 2012 -

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 analysis 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 Incl - The number of laboratory Means included in the Wk Mean for that week.

Labs Excl - 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 Wks - 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 Wks - For the current month, the average of the laboratory between week standard deviations (SD Wks') for all the participants.

Labs Incl - The number of laboratory Means included in the Month Mean.

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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 Wks- 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.

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 Wks - For the cumulative period, the average of the laboratory between week standard deviations for all the participants.
- Labs Incl - 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 required.
- *** 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 variability between weekly means (high week-to-week variation).
- L** Indicates low variability between weekly means (low week-to-week variation).



WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
3899PR	853.9	1.76	17.4	841.4	1.12	27.5	4	LM
3AYDHY	808.4	0.52	39.4	796.0	-0.04	48.3	4	LG
6MRAB3	735.0	-1.49	23.4	760.4	-0.95	31.7	4	TB
72WRY9	785.4	-0.11	61.6	798.5	0.02	39.0	4	ER
BLGFXP	777.0	-0.34	53.5	828.8	0.80	32.9	4	LL
F6F6FM	806.4	0.46	3.6	797.2	-0.01	27.0	4	TE
FP9HD7	771.8	-0.48	40.3	777.3	-0.52	55.4	4	ER
GRQMDV	784.0	-0.15	40.7	835.6	0.97	29.3	4	LM
KDGHPI	781.2	-0.23	51.0	797.5	0.00	51.5	4	LG
M8J97Q	792.8	0.09	28.3	781.8	-0.40	43.8	4	LG
N8JZYW	757.4	-0.88	46.1	762.9	-0.89	40.1	4	ER
PDE32U	820.0	0.84	54.0	822.0	0.62	39.0	4	LH
PJ3WUK	846.9	1.57	57.7	889.2	2.34*	58.1	4	LH
PLR2MR	828.4	1.07	38.7	835.1	0.96	31.1	4	LN
R7A67M	753.3	-0.99	81.1	794.3	-0.09	77.3	4	LS
RX3EVW	774.8	-0.40	48.4	792.0	-0.14	45.3	4	LL
T9CC2J	835.3	1.26	118.7	807.8	0.26	80.9	4	EX
U2BE8E	723.8	-1.80	29.5	723.8	-1.89	29.5	1	TO
UNY8T2	807.8	0.50	52.0	785.9	-0.30	65.9	3	XX
XMJRPC	746.0	-1.19	36.9	724.5	-1.87	44.9	4	LG

Consensus (All Labs) Results			
Month Mean	789.48	Grand Mean	797.61
Avg SDr	51.74	Avg SDr	47.55
SD btwn Labs	36.48	SD btwn Labs	39.11
Labs Includ	20	Labs Includ	20

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Select sealing method from	807.84	0.00	18.36	1
Hot melt adhesive sealing	783.83	24.86	5.65	5
Clip sealing	793.44	41.43	3.96	12
Tape sealing	770.68	50.45	18.80	2

Containerboard Interlaboratory Testing Program
Analysis 201
Top to Bottom Box Compression Strength, Corrugated Boxes - BOX8
TAPPI Official Test Method T804



Instrument Code List as Reported by the Labs

(ER) - Emerson 6200 Series

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

(LL) - Lansmont 76-5K

(LN) - Lansmont 152-50k

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

(TO) - Tinius Olsen Model not specified

(EX) - Emerson Apparatus (Model not specified)

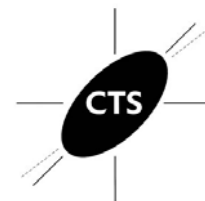
(LH) - L.A.B. Compression Tester Model #10610

(LM) - Lansmont 122-15k

(LS) - Lansmont Squeezer

(TE) - Testometric M500 - 25 KN

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



WebCode	Monthly Results			Cumulative Results				Inst
	Mean	CPV	SDr	Mean	CPV	SDr	Months	
3AYDHY	42.5	1.55	2.8	43.2	1.98	2.2	4	LC
4BJ8AE	39.6	0.19	1.0	38.7	-0.10	0.8	3	WK
FY824U	36.4	-1.27	0.9	37.2	-0.81	1.4	4	PC
NQTKD7	40.0	0.42	2.8	38.8	-0.04	2.4	4	XX
PDE32U	35.8	-1.58	1.1	35.5	-1.56	1.1	4	TC
PLR2MR	41.2	0.95	2.3	40.8	0.84	1.7	4	EN
R7A67M	39.2	0.03	1.3	38.8	-0.07	1.4	4	LC
YEN9LM	39.7	0.26	0.9	39.4	0.23	1.2	4	TB
YQETXK	38.0	-0.55	3.7	37.9	-0.47	3.0	4	TD

Consensus (All Labs) Results			
Month Mean	39.16	Grand Mean	38.92
Avg SDr	2.09	Avg SDr	1.82
SD btwn Labs	2.13	SD btwn Labs	2.18
Labs Incd	9	Labs Incd	9

Instrument Code List as Reported by the Labs

(EN) - Emerson 2200

(PC) - Prensa Digital Crush Tester 2000

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

(WK) - Zwick Z005 Crush Tester

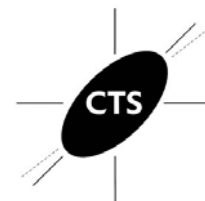
(LC) - L&W Crush Tester 48

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

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

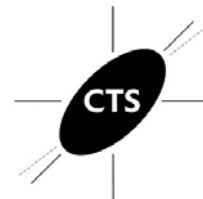
(XX) - Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program
Analysis 203
Edgewise Compressive Strength by T839, Corrugated board - ECT7
TAPPI T839



WebCode	Monthly Results			Cumulative Results				Inst
	Mean	CPV	SDr	Mean	CPV	SDr	Months	
3899PR	41.8	-0.12	1.4	42.6	0.32	1.3	4	EM
3AYDHY	44.7	1.52	1.1	42.2	0.04	2.0	4	LC
3EBF7F	43.6	0.90	0.8	43.8	1.12	1.3	4	LD
69JTNE	45.1	1.73	2.1	44.5	1.66	1.6	4	LD
6MRAB3	38.7	-1.93	1.0	41.6	-0.39	0.8	4	LC
72WRY9	40.2	-1.07	0.8	39.8	-1.65	1.0	3	EM
BLGFXP	42.6	0.30	1.1	41.9	-0.21	1.0	4	BU
DWP3YK	44.0	1.12	1.3	43.8	1.12	1.2	4	LC
EF3W97	40.5	-0.86	1.7	40.5	-1.19	1.5	4	TK
EQHPY2	41.9	-0.08	1.0	41.4	-0.57	2.2	4	LD
F2ZW49	41.9	-0.08	1.0	41.7	-0.32	1.1	4	TM
FP9HD7	40.3	-1.01	2.4	41.6	-0.39	1.7	4	EN
FY824U	39.8	-1.26	1.3	42.1	-0.06	1.5	4	LC
GRQMDV	42.3	0.16	1.3	42.0	-0.14	1.2	4	TC
JCM3DG	41.8	-0.14	1.0	42.2	0.00	1.1	4	TB
KX4T9Q	44.9	1.61	1.2	45.7	2.43*	1.3	4	CT
M8J97Q	39.9	-1.24	2.3	40.7	-1.05	2.5	4	EM
N8JZYW	43.4	0.77	1.4	44.2	1.43	1.4	4	LD
PDE32U	39.4	-1.50	1.3	39.9	-1.61	1.1	4	TC
PJ3WUK	42.0	0.00	1.9	42.1	-0.05	1.6	4	EM
PLR2MR	43.0	0.57	1.5	43.0	0.57	1.4	4	EN
QAEB8M	41.8	-0.11	1.0	41.9	-0.18	1.3	4	EX
QB6FZU	41.9	-0.11	1.3	42.1	-0.07	1.6	4	LC
QZA7HR	43.4	0.79	1.6	43.4	0.88	1.1	4	TG
R7A67M	41.9	-0.06	2.0	43.1	0.68	1.7	4	LC
RX3EVW	41.3	-0.41	2.1	42.2	0.03	2.4	4	LC
T9CC2J	41.7	-0.18	1.1	41.4	-0.55	1.2	4	TL
VCRVJX	43.1	0.58	1.0	42.7	0.39	1.5	4	LD
XKY8RF	45.1	1.75	1.8	43.4	0.86	2.0	4	XX
XMJRPC	39.2	-1.64	1.6	39.3	-2.02*	1.9	4	TB
YEN9LM	42.0	-0.02	1.2	40.7	-1.06	1.6	4	TG

Containerboard Interlaboratory Testing Program
 Analysis 203
Edgewise Compressive Strength by T839, Corrugated board - ECT7
 TAPPI T839



Consensus (All Labs) Results

Month Mean	42.04	Grand Mean	42.18
Avg SDr	1.47	Avg SDr	1.54
SD btwn Labs	1.75	SD btwn Labs	1.43
Labs Incd	31	Labs Incd	31

Instrument Code List as Reported by the Labs

(BU) - Buchel Digital Crush Tester	(CT) - Con-Ten
(EM) - Emerson 1200 Series	(EN) - Emerson 2200
(EX) - Emerson (model not specified)	(LC) - L&W Crush Tester 48
(LD) - L&W Crush Tester 248	(TB) - TMI Monitor/Compression Tester, Model 17-70
(TC) - TMI Monitor/Compression Tester, Model 17-37	(TG) - TMI Digital Crush Tester, 17-76
(TK) - TLS Compression Tester, Model 5184	(TL) - Tech-Lab Systems Compression
(TM) - TMI/Hinde & Dausch	(XX) - Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program
Analysis 205

Bursting Strength (Mullen), 42 lb Linerboard - 42B4

TAPPI Official Test Method T807



WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wk	Mean	CPV	SDr	SD Wk	Wks	Inst
3464Q7	101.8	105.5	99.2	96.6*	100.8	-1.27	10.6	3.8	100.8	-1.27	10.6	3.8	4	XX
3899PR	105.0	107.7	100.4	102.6	103.9	-0.17	6.3	3.1	103.9	-0.17	6.3	3.1	4	AH
3AYDHY	110.6	110.2	103.2	106.1	107.5	1.08	11.8	3.5	107.5	1.08	11.8	3.5	4	LZ
3QN6XC	109.0	106.2	107.5	106.5	107.3	1.01	7.1	1.2	107.3	1.01	7.1	1.2	4	LA
4ADNRB	107.4	107.4	105.1	105.3	106.3	0.65	9.7	1.3	106.3	0.65	9.7	1.3	4	LZ
63PTAJ	104.0	103.8	106.4	104.1	104.6	0.07	8.6	1.2	104.6	0.07	8.6	1.2	4	LA
69JTNE	100.5	105.4	107.3	105.5	104.7	0.09	10.4	2.9	104.7	0.09	10.4	2.9	4	LA
9XJZMK	116.0XL	117.0*	118.9X	129.5X	120.4	5.58X	8.5	6.2	120.4	5.58X	8.5	6.2H	4	XX
ADWPBY	100.8	99.5	104.2	100.7	101.3	-1.08	8.3	2.0	101.3	-1.08	8.3	2.0	4	LJ
B4279A	104.2	103.8	106.4	106.5	105.2	0.29	10.6	1.4	105.2	0.29	10.6	1.4	4	LC
B79YB2	104.4	104.8	106.3	104.2	104.9	0.19	8.5	0.9	104.9	0.19	8.5	0.9	4	LC
BLPUQX	99.9	102.9	102.6	95.7*	100.3	-1.45	11.8	3.3	100.3	-1.45	11.8	3.3	4	LA
CARDE2	109.1	114.3	112.9*	108.3	111.1	2.35*	11.3	2.9	111.1	2.35*	11.3	2.9	4	TB
D3YRKK	101.4	105.4	101.9	101.4	102.5	-0.66	11.0	1.9	102.5	-0.66	11.0	1.9	4	LA
E29NRD	106.2	106.9	101.9	103.4	104.6	0.07	11.4	2.4	104.6	0.07	11.4	2.4	4	AX
EJL9NG	99.1	102.8	104.7L	103.6	102.6	-0.65	7.6	2.4	102.6	-0.65	7.6	2.4	4	LA
ELM6PQ	104.0	106.9	105.8	104.5	105.3	0.31	7.9	1.3	105.3	0.31	7.9	1.3	4	TB
ENWGTR	107.5	100.4	101.4	101.9	102.8	-0.56	8.0	3.2	102.8	-0.56	8.0	3.2	4	LC
EQHPY2	104.5	108.2	106.9	105.2	106.2	0.63	8.0	1.7	106.2	0.63	8.0	1.7	4	AA
F6F6FM	No Data	No Data	100.5L	100.7L	100.6	-1.33	2.8	0.1L	100.6	-1.33	2.8	0.1L	2	AH
FHR2HB	101.4	105.4	106.5	103.2	104.1	-0.11	9.2	2.3	104.1	-0.11	9.2	2.3	4	TB
H3JLBQ	107.4	111.4L	106.4	No Data	108.4	1.40	5.0	2.6	108.4	1.40	5.0	2.6	3	XX
HLKMMH	105.2	112.5	107.0	107.6	108.1	1.28	8.9	3.1	108.1	1.28	8.9	3.1	4	LC
JHWQCX	102.8	94.2*	102.9	No Data	100.0	-1.54	9.3	5.0	100.0	-1.54	9.3	5.0	3	LC
JPVHH7	109.5	109.9	112.2*	85.5X	104.3	-0.05	8.8	12.6H	104.3	-0.05	8.8	12.6H	4	LA
K3LA6V	106.5	111.8H	109.9	102.9	107.8	1.18	13.4	3.9	107.8	1.18	13.4	3.9	4	LC
KBFEW	101.4	100.9	100.4	104.9	101.9	-0.88	11.5	2.0	101.9	-0.88	11.5	2.0	4	AH
KDGHPJ	106.0	107.6	105.6	104.8	106.0	0.56	10.2	1.2	106.0	0.56	10.2	1.2	4	AH
KJ9P9R	99.0L	97.7	98.8	101.0	99.1	-1.85	7.5	1.4	99.1	-1.85	7.5	1.4	4	LA
KU3PG4	102.4L	101.2L	100.3L	100.3L	101.0	-1.17	3.8	1.0	101.0	-1.17	3.8	1.0	4	XX
KX4T9Q	111.0*	114.6	100.4	102.2H	107.1	0.92	13.5	6.8	107.1	0.92	13.5	6.8H	4	XX
ME2UYU	104.2	108.6	101.8	104.8	104.9	0.16	7.9	2.8	104.9	0.16	7.9	2.8	4	LC
N8JZYW	101.2	103.8	104.7	98.0	101.9	-0.87	10.8	3.0	101.9	-0.87	10.8	3.0	4	AH
PDE32U	103.3	107.5	103.3	104.8	104.7	0.10	10.9	2.0	104.7	0.10	10.9	2.0	4	AA
PM6V6D	103.6	103.2	103.2	102.9L	103.2	-0.41	5.4	0.3L	103.2	-0.41	5.4	0.3L	4	AH

Containerboard Interlaboratory Testing Program
 Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42B4
 TAPPI Official Test Method T807



WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wk	Mean	CPV	SDr	SD Wk	Wks	
PUL3AX	105.8	102.5	103.2	107.8	104.8	0.15	9.1	2.4	104.8	0.15	9.1	2.4	4	LJ
PXNGW9	105.3	109.6 _L	114.2 [*]	109.6	109.6	1.83	8.5	3.7	109.6	1.83	8.5	3.7	4	TB
PZXLCH	101.9	102.6	102.3	101.4	102.0	-0.82	9.3	0.5 _L	102.0	-0.82	9.3	0.5 _L	4	LA
QVJBU8	106.3	106.1	106.1	104.0	105.6	0.42	8.6	1.1	105.6	0.42	8.6	1.1	4	AH
R7A67M	111.1 [*]	105.6	104.9	No Data	107.2	0.98	10.0	3.4	107.2	0.98	10.0	3.4	3	AH
U8J87W	103.8	104.6	106.9	102.3	104.4	0.00	10.7	1.9	104.4	0.00	10.7	1.9	4	LZ
UCTTAG	102.2	105.7	116.4 ^{XH}	105.1	107.3	1.03	14.0	6.2	107.3	1.03	14.0	6.2 ^H	4	LC
UEZEXG	124.0 ^X	115.2	118.5 ^X	113.7 ^X	117.9	4.70 ^X	5.9	4.6	117.9	4.70 ^X	5.9	4.6	4	LA
VCRVJX	105.7	103.3	106.3	107.8	105.8	0.48	6.3	1.9	105.8	0.48	6.3	1.9	4	TB
VGHT2G	119.7 ^X	99.9 ^H	120.6 ^X	115.7 ^X	114.0	3.34 ^X	13.4	9.6 ^H	114.0	3.34 ^X	13.4	9.6 ^H	4	TB
W4VFC7	99.4	108.0	104.6	103.9	104.0	-0.15	10.2	3.5	104.0	-0.15	10.2	3.5	4	AH
XKY8RF	94.2 ^X	93.2 [*]	95.7 [*]	93.0 ^X	94.0	-3.64 ^X	8.8	1.2	94.0	-3.64 ^X	8.8	1.2	4	LA
XMJRPC	99.7	96.1	No Data	98.7	98.2	-2.18 [*]	11.3	1.9	98.2	-2.18 [*]	11.3	1.9	3	LA

Consensus (All Labs) Results									
Wk Mean	104.31	105.57	104.47	103.52	Month Mean	104.41		Grand Mean	104.41
Avg SDr	10.33	9.01	8.82	9.82	Avg SDr	9.53		Avg SDr	9.53
SD btwn Labs	3.31	5.16	3.74	3.08	SD btwn Labs	2.86		SD btwn Labs	2.86
Labs Includ	43	47	43	40	SD btwn Wks	3.36		SD btwn Wks	3.36
Labs Exclud	4	0	4	5	Labs Includ	44		Labs Includ	44
Labs not rcvd	1	1	1	3					

Instrument Code List as Reported by the Labs

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

Containerboard Interlaboratory Testing Program
 Analysis 206
Bursting Strength (Mullen), 69 lb Linerboard - 69C1
 TAPPI Official Test Method T807



WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wk	Mean	CPV	SDr	SD Wk	Wks	
3464Q7	154.3	148.4*	146.3	147.0*	149.0	-2.15*	10.9	3.6	148.4	-2.09*	10.8	3.4	12	XX
3899PR	159.2	158.7	160.4	163.6 L	160.5	0.68	9.2	2.2	159.0	0.17	9.7	3.2	12	AH
3AYDHY	163.0	157.1	154.8	163.7 H	159.6	0.47	14.4	4.4	159.0	0.17	12.5	4.1	12	LZ
3QN6XC	168.7 L	166.6	169.1 L	168.6*	168.3	2.60*	7.1	1.1	168.2	2.11*	5.9	1.0	12	LA
4ADNRB	159.7	163.2	163.0	161.2	161.8	1.00	10.6	1.7	159.5	0.26	12.9	3.8	12	LZ
63PTAJ	160.4	159.2	149.9	157.1	156.6	-0.27	10.3	4.7	157.5	-0.15	10.7	3.0	12	LA
69JTNE	158.5	161.1	162.7	164.5	161.7	0.98	13.4	2.5	158.2	0.00	12.7	3.2	12	LA
9XJZMK	178.2 X	166.3	173.0*	164.9	170.6	3.18 X	9.1	6.2	170.1	2.51*	11.1	11.7 H	12	XX
ADWPBY	159.8	160.9	156.1	163.0	160.0	0.55	10.7	2.9	160.6	0.51	12.8	4.3	12	LJ
B4279A	159.9	157.2	157.6	155.0	157.4	-0.07	13.2	2.0	154.8	-0.73	11.7	4.4	11	LC
B79YB2	160.2	157.5	153.9	155.5	156.8	-0.23	13.4	2.7	157.7	-0.11	12.3	5.1	12	LC
BLPUQX	154.0	156.7	149.8	151.2	152.9	-1.18	12.5	3.1	151.6	-1.41	11.6	4.1	8	LA
CARDE2	169.7	162.7	159.6	164.9	164.2	1.60	11.6	4.3	166.1	1.66	11.9	4.2	10	TB
D3YRKK	151.3	153.9	150.5	161.4	154.3	-0.85	13.5	5.0	155.8	-0.52	12.1	3.2	12	LA
E29NRD	159.8	163.5	157.6	154.6	158.9	0.28	12.1	3.8	158.4	0.03	12.1	5.1	12	AX
EJL9NG	150.6	160.0	156.2	155.5	155.6	-0.53	11.5	3.9	155.7	-0.55	9.7	4.1	10	LA
ELM6PQ	152.8	162.8	155.6	153.3	156.1	-0.39	9.1	4.6	158.2	-0.01	9.4	4.4	12	TB
ENWGTR	152.3	153.4	150.0	156.0	152.9	-1.18	10.0	2.5	153.6	-0.99	9.9	3.4	12	LC
EQHPY2	150.1	155.7	159.8	161.6	156.8	-0.23	11.4	5.1	158.3	0.02	12.5	3.9	12	AA
F6F6FM	No Data	No Data	154.3	153.3 L	153.8	-0.97	6.7	0.7 L	155.2	-0.65	7.3	1.8	6	AH
FHR2HB	153.6	158.4	158.0	155.1	156.3	-0.36	10.7	2.3	155.1	-0.66	10.3	3.0	11	TB
H3JLBQ	154.6 L	156.8	155.8 L	No Data	155.7	-0.49	4.6	1.1	156.7	-0.33	4.9	1.1	11	XX
HLKMMH	158.1	158.4	161.1	161.2	159.7	0.49	11.9	1.7	159.7	0.32	12.1	2.4	12	LC
JHWQCX	160.8	153.9	155.3	No Data	156.7	-0.26	12.4	3.7	156.1	-0.44	13.2	4.1	11	LC
JPVHH7	169.6	165.2	161.5	147.5	160.9	0.80	10.1	9.6 H	164.3	1.29	10.4	5.9	12	LA
K3LA6V	148.7	169.7*	162.9	150.9	158.1	0.08	11.3	10.0 H	159.7	0.32	13.7	8.0 H	12	LC
KBFEW	161.2	162.7	159.0	155.8	159.7	0.48	12.2	3.0	159.5	0.28	12.2	4.0	11	AH
KDGHPJ	165.0	164.5	159.2	161.8	162.6	1.21	11.8	2.7	162.3	0.86	11.4	3.0	12	AH
KJ9P9R	156.1	158.7	144.6*	153.8	153.3	-1.09	9.3	6.1	155.3	-0.62	10.8	4.5	12	LA
KU3PG4	160.3	162.2	163.5	162.6	162.1	1.09	8.5	1.4	161.1	0.62	7.0	2.3	8	XX
KX4T9Q	166.0	159.9	164.8	160.2	162.7	1.24	12.7	3.1	161.2	0.63	11.1	3.8	12	XX
ME2UYU	171.0*	167.9	160.9 L	157.2	164.3	1.61	7.9	6.3	162.7	0.94	11.1	4.7	12	LC
N8JZYW	148.9	161.6	157.7	156.8	156.3	-0.36	12.8	5.3	156.5	-0.37	11.6	4.3	12	AH
PDE32U	157.0	151.5	160.8	157.8	156.8	-0.24	11.7	3.9	157.2	-0.22	11.4	5.0	12	AA
PM6V6D	159.8	158.7	159.5	156.5	158.6	0.22	8.6	1.5	158.4	0.03	8.7	2.2	12	AH



WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wk	Mean	CPV	SDr	SD Wk	Wks	Inst
PUL3AX	151.8	152.8	153.7	158.8	154.3	-0.85	10.8	3.1	156.7	-0.33	11.9	4.6	12	LJ
PXNGW9	177.3 X	165.9	170.6	173.0 X	171.7	3.45 X	12.2	4.7	169.0	2.29*	11.9	3.3	12	TB
PZXLCH	157.9	153.6	154.3	152.4	154.6	-0.78	11.2	2.4	155.7	-0.53	10.9	3.3	12	LA
QVJBU8	158.0	152.3 L	153.6	154.4	154.6	-0.77	6.6	2.4	154.7	-0.76	9.1	3.2	12	AH
R7A67M	166.4	152.9	155.9	No Data	158.4	0.16	13.3	7.1	160.9	0.57	12.1	4.6	11	AH
U8J87W	160.7	152.0	162.3	148.9	156.0	-0.43	10.1	6.5	154.7	-0.75	10.7	4.1	12	LZ
UCTTAG	154.9	154.0	143.2 *H	158.0	152.5	-1.28	17.8	6.4	158.8	0.13	14.5	6.1	12	LC
UEZEXG	168.9	168.4	174.2 *L	158.0	167.4	2.39*	6.8	6.8	166.1	1.67	10.1	6.2	12	LA
VCRVJX	159.6 L	157.0	157.5	154.2	157.1	-0.16	8.7	2.2	158.3	0.01	9.0	3.1	12	TB
VGHT2G	152.3	135.9 X	161.6	163.2	153.2	-1.11	13.6	12.5 H	148.3	-2.12*	12.4	9.6 H	10	TB
W4VFC7	156.2	157.2	155.9	162.4	157.9	0.05	11.5	3.0	155.5	-0.58	11.0	4.0	12	AH
XKY8RF	151.9	151.1	152.0	151.1	151.5	-1.53	11.8	0.5 L	149.4	-1.86	12.8	3.1	12	LA
XMJRPC	156.0	157.1	155.2	158.5	156.7	-0.26	11.7	1.4	155.4	-0.59	11.8	3.3	12	LA

Consensus (All Labs) Results

Wk Mean	158.43	158.90	157.81	157.56	Month Mean	157.72	Grand Mean	158.23
Avg SDr	11.06	11.09	11.26	11.26	Avg SDr	11.17	Avg SDr	11.16
SD btwn Labs	5.87	5.16	6.46	5.05	SD btwn Labs	4.05	SD btwn Labs	4.71
Labs Includ	45	46	48	44	SD btwn Wks	4.58	SD btwn Wks	4.52
Labs Exclud	2	1	0	1	Labs Includ	46	Labs Includ	48
Labs not rcvd	1	1	0	3				

Instrument Code List as Reported by the Labs

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



WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wk	Mean	CPV	SDr	SD Wk	Wks	Inst
3464Q7	107.6	105.0	102.8	105.2 H	105.2	0.80	5.1	2.0	105.2	0.80	5.1	2.0	4	LZ
3899PR	101.0	104.0	101.4	101.4	102.0	0.19	2.3	1.4	102.0	0.19	2.3	1.4	4	EM
3AYDHY	103.1	96.1	103.7 L	105.5	102.1	0.21	2.8	4.1	102.1	0.21	2.8	4.1	4	LC
3QN6XC	102.0	102.3	101.6 L	102.6	102.2	0.23	2.4	0.4 L	102.2	0.23	2.4	0.4 L	4	LZ
63PTAJ	103.4	101.9	105.0	99.5	102.5	0.29	3.8	2.3	102.5	0.29	3.8	2.3	4	LD
72WRY9	93.3	93.6	92.9 *	92.4	93.0	-1.49	3.7	0.5 L	93.0	-1.49	3.7	0.5 L	4	EM
7YNALQ	58.3 X	56.8 X	56.7 X	55.4 X	56.8	-8.33 X	4.4	1.2	56.8	-8.33 X	4.4	1.2	4	MB
9XJZMK	114.5 X	112.1	108.1	106.2	110.2	1.76	3.7	3.8	110.2	1.76	3.7	3.8	4	LZ
ADWPBY	101.8	100.1	99.2 H	97.5	99.6	-0.25	5.3	1.8	99.6	-0.25	5.3	1.8	4	LD
B79YB2	98.8	98.9	98.8	97.1	98.4	-0.48	3.7	0.9	98.4	-0.48	3.7	0.9	4	LC
CARDE2	97.4	91.3	99.9	97.7	96.6	-0.82	3.2	3.7	96.6	-0.82	3.2	3.7	4	LC
D3YRKK	95.6	96.1	95.4	94.1	95.3	-1.06	3.7	0.9	95.3	-1.06	3.7	0.9	4	LC
E29NRD	104.8	110.2	105.5	106.4	106.7	1.09	4.7	2.4	106.7	1.09	4.7	2.4	4	LX
EF3W97	85.9 X	84.6 *	88.8 XL	89.1	87.1	-2.62 *	3.0	2.2	87.1	-2.62 *	3.0	2.2	4	MB
EJL9NG	101.3	103.6	103.5	104.7	103.3	0.44	4.5	1.4	103.3	0.44	4.5	1.4	4	LC
ELM6PQ	98.2	99.5	99.2	98.7	98.9	-0.39	2.7	0.6	98.9	-0.39	2.7	0.6	4	TH
ENWGTR	93.5	86.9 *	97.0	88.9	91.6	-1.77	3.3	4.6	91.6	-1.77	3.3	4.6 H	4	LD
EQHPY2	97.1	97.0	96.8	97.0	97.0	-0.75	3.2	0.1 L	97.0	-0.75	3.2	0.1 L	4	LD
F6F6FM	99.0	100.4	100.6	99.5 L	99.8	-0.21	2.6	0.8	99.8	-0.21	2.6	0.8	4	LD
FCYJ3T	101.2	101.4	101.1	99.8	100.9	-0.01	5.2	0.7	100.9	-0.01	5.2	0.7	4	LC
FHR2HB	105.2	102.7	105.4	85.0 *	99.6	-0.26	4.5	9.8 H	99.6	-0.26	4.5	9.8 H	4	LZ
FP9HD7	100.1	97.4	97.0	97.0	97.9	-0.58	3.9	1.5	97.9	-0.58	3.9	1.5	4	EN
H3JLBQ	105.7	109.2	101.5	No Data	105.5	0.86	4.7	3.9	105.5	0.86	4.7	3.9	3	XX
H8X4KV	101.1	100.6	100.3	98.6	100.2	-0.14	3.5	1.1	100.2	-0.14	3.5	1.1	4	LC
JHWQCX	110.1 *	113.3	No Data	No Data	111.7	2.03 *	5.4	2.2	111.7	2.03 *	5.4	2.2	2	LC
JPVHH7	100.6	102.5	100.4	101.2	101.2	0.05	3.7	0.9	101.2	0.05	3.7	0.9	4	LZ
K3LA6V	104.4	108.0	106.8	111.0	107.6	1.25	3.9	2.7	107.6	1.25	3.9	2.7	4	LC
KJ9P9R	99.8	100.0	98.3	100.0	99.5	-0.27	3.7	0.8	99.5	-0.27	3.7	0.8	4	LC
KU3PG4	104.2	104.7	104.7	104.1	104.4	0.66	2.9	0.3 L	104.4	0.66	2.9	0.3 L	4	XX
LT6CDU	103.8	105.4	106.3	105.9	105.3	0.83	3.3	1.1	105.3	0.83	3.3	1.1	4	LD
M8J97Q	98.0	93.3	96.0	89.9	94.3	-1.25	3.5	3.5	94.3	-1.25	3.5	3.5	4	EM
N8JZYW	103.9	101.2	102.0	100.5 L	101.9	0.18	3.5	1.5	101.9	0.18	3.5	1.5	4	LD
PJ3WUK	103.5	102.3	104.0	102.5	103.1	0.41	4.4	0.8	103.1	0.41	4.4	0.8	4	EM
PUL3AX	91.4 *	84.8 *	87.9 X	88.9	88.3	-2.40 *	3.7	2.7	88.3	-2.40 *	3.7	2.7	4	LC
PXNGW9	110.7 *	110.2	107.3 H	109.4	109.4	1.60	5.2	1.5	109.4	1.60	5.2	1.5	4	LX



WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wk	Mean	CPV	SDr	SD Wk	Wks	Inst
PZXLCH	105.0	99.4	102.5	101.5	102.1	0.22	3.3	2.3	102.1	0.22	3.3	2.3	4	LD
QVJBU8	101.9	104.4	101.9	99.4	101.9	0.18	3.7	2.0	101.9	0.18	3.7	2.0	4	LC
QZA7HR	98.4	97.7	97.4	97.3 L	97.7	-0.61	3.1	0.5 L	97.7	-0.61	3.1	0.5 L	4	TH
R7A67M	98.7	98.4	101.9	100.4	99.9	-0.20	3.3	1.6	99.9	-0.20	3.3	1.6	4	LC
R7HVPR	102.4	101.1	No Data	No Data	101.8	0.16	3.4	0.9	101.8	0.16	3.4	0.9	2	EX
TRNWXM	98.3 H	98.5	100.5	99.1 H	99.1	-0.34	5.8	1.0	99.1	-0.34	5.8	1.0	4	MB
U8J87W	99.5	101.1	97.1	97.4	98.8	-0.41	4.4	1.9	98.8	-0.41	4.4	1.9	4	LC
UCTTAG	107.6	109.1	103.2	110.0	107.5	1.23	4.3	3.0	107.5	1.23	4.3	3.0	4	TC
UEZEXG	119.0 XH	110.2 L	108.5	109.3 L	111.8	2.04*	3.9	4.9	111.8	2.04*	3.9	4.9 H	4	LD
VCRVJX	102.0	100.7	101.5	104.1	102.0	0.21	2.9	1.4	102.0	0.21	2.9	1.4	4	LD
VGHT2G	107.9	92.4 H	107.3	104.2	102.9	0.38	6.0	7.2 H	102.9	0.38	6.0	7.2 H	4	LC
W4VFC7	104.2	107.4	110.1*	107.5	107.3	1.20	4.3	2.4	107.3	1.20	4.3	2.4	4	LC
W66VUR	93.8	98.3	98.9	99.5	97.6	-0.62	3.9	2.6	97.6	-0.62	3.9	2.6	4	XX
WDK7UR	101.4	103.0	102.8	102.9	102.5	0.30	3.6	0.8	102.5	0.30	3.6	0.8	4	LD
XKY8RF	93.6	92.9	99.3	94.2	95.0	-1.12	3.5	2.9	95.0	-1.12	3.5	2.9	4	LC
YQETXK	98.0	98.3	96.8	94.5	96.9	-0.76	3.6	1.7	96.9	-0.76	3.6	1.7	4	TD

Consensus (All Labs) Results

Wk Mean	101.15	100.66	101.57	99.96	Month Mean	100.93	Grand Mean	100.93
Avg SDr	3.96	4.00	3.74	3.85	Avg SDr	3.93	Avg SDr	3.93
SD btwn Labs	4.39	6.45	3.86	5.95	SD btwn Labs	5.29	SD btwn Labs	5.29
Labs Includ	47	50	46	47	SD btwn Wks	2.76	SD btwn Wks	2.76
Labs Exclud	4	1	3	1	Labs Includ	50	Labs Includ	50
Labs not rcvd	0	0	2	3				

Instrument Code List as Reported by the Labs

(EM) - Emerson 1200

(EX) - Emerson (model not specified)

(LD) - L&W Crush Tester 248

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

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

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

(EN) - Emerson 2200

(LC) - L & W Crush Tester 48

(LX) - L & W 506

(MB) - Messmer Buchel K440

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

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



WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wk	Mean	CPV	SDr	SD Wk	Wks	
3464Q7	136.9	137.8	129.2	139.1	135.7	0.45	4.4	4.5	141.4	1.07	4.2	5.5	12	LZ
3899PR	129.8 L	131.3	120.0	131.8	128.2	-0.56	2.6	5.6	125.6	-1.06	2.5	4.9	12	EM
3AYDHY	137.8	128.1	127.5	130.3	130.9	-0.20	2.4	4.7	129.2	-0.58	2.6	2.8	12	LC
3QN6XC	135.0 L	134.9	134.9 L	134.3	134.8	0.32	2.3	0.3 L	138.7	0.70	2.2	5.8	12	LZ
63PTAJ	125.5	126.5	128.6	125.2	126.5	-0.80	3.3	1.6	129.8	-0.50	4.0	3.0	11	LD
72WRY9	126.7	123.5	127.2	128.1	126.4	-0.81	2.9	2.0	126.2	-0.99	3.2	1.4	12	EM
7YNALQ	90.3 XH	87.8 X	86.2 XH	91.1 X	88.8	-5.89 X	7.4	2.3	109.5	-3.23 X	9.1	16.2 H	12	MB
9XJZMK	149.3 *	148.8	144.2	144.2	146.6	1.93	4.0	2.8	145.3	1.59	4.4	3.7	12	LZ
ADWPBY	132.4	133.6	131.4	135.4	133.2	0.11	4.4	1.7	132.4	-0.15	4.2	1.8	12	LD
B79YB2	129.3	126.7	127.7	128.1	128.0	-0.60	2.7	1.1	132.0	-0.20	3.1	4.3	12	LC
CARDE2	134.4	134.2	137.2	135.4	135.3	0.39	4.1	1.4	133.2	-0.04	3.6	3.0	10	LC
D3YRKK	126.9	124.0	126.3	127.2	126.1	-0.85	4.7	1.4	130.1	-0.46	4.5	4.4	12	LC
E29NRD	138.0	137.2	135.6 H	133.7	136.1	0.50	4.6	1.9	132.6	-0.12	5.7	6.0	12	LX
EF3W97	107.8 X	109.7 *	109.2 *	108.0 X	108.7	-3.21 X	3.6	0.9	118.4	-2.04 *	3.2	10.4 H	12	MB
EJL9NG	138.1	139.2	139.6	138.1 L	138.8	0.86	3.6	0.8	138.1	0.62	5.6	5.2	10	LC
ELM6PQ	132.2	132.4	131.4	131.0	131.8	-0.09	2.7	0.7	132.5	-0.14	3.9	2.2	12	TH
ENWGTR	128.1	130.8	125.2	134.0	129.5	-0.39	4.5	3.8	138.3	0.65	3.9	7.0	12	LD
EQHPY2	118.0	118.2	117.5	117.5	117.8	-1.98	2.7	0.4 L	119.1	-1.94	2.6	1.3	12	LD
F6F6FM	132.0	134.4	129.5	137.0	133.2	0.11	4.5	3.2	133.1	-0.06	4.4	1.7	12	LD
FCYJ3T	116.7 *	116.5 L	119.3	112.2 *	116.2	-2.19 *	3.5	3.0	116.9	-2.23 *	4.0	7.8 H	12	LC
FHR2HB	143.5	140.7	139.0	121.1 H	136.1	0.50	6.5	10.2 H	136.0	0.34	5.1	5.9	11	LZ
FP9HD7	129.0	128.2	128.6	129.1	128.7	-0.50	2.9	0.4 L	127.9	-0.75	3.8	1.9	12	EN
H3JLBQ	138.6	145.0	137.6	No Data	140.4	1.09	3.3	4.0	140.3	0.92	3.3	3.6	11	XX
H8X4KV	132.0	130.9	131.3	130.7	131.2	-0.16	3.3	0.6 L	130.8	-0.37	3.1	0.9	8	LC
JHWQCX	148.5	160.7 X	No Data	No Data	154.6	3.01 X	5.2	8.6 H	153.4	2.68 *	6.1	4.6	10	LC
JPVHH7	131.5	131.9	124.5	127.6	128.9	-0.47	4.7	3.5	130.3	-0.44	4.6	4.1	12	LZ
K3LA6V	143.5	144.2	145.1	145.9	144.7	1.66	5.0	1.0	145.3	1.59	4.1	2.1	12	LC
KJ9P9R	124.4	131.1	130.2	129.7	128.8	-0.48	4.5	3.1	132.4	-0.15	4.0	3.5	11	LC
KU3PG4	138.5	138.8	140.4	143.7	140.4	1.08	3.6	2.4	139.0	0.74	3.6	2.4	8	XX
LT6CDU	127.1	127.5	127.5	127.2	127.3	-0.69	3.3	0.2 L	129.0	-0.61	3.6	2.2	12	LD
M8J97Q	129.0	122.6	116.3	122.7	122.6	-1.32	3.1	5.2	126.5	-0.95	3.3	4.3	12	EM
N8JZYW	132.7	132.7	133.3 L	132.7	132.9	0.06	2.9	0.3 L	133.1	-0.05	3.2	2.1	12	LD
PJ3WUK	127.8	127.2	124.8	127.0	126.7	-0.77	3.2	1.3	134.9	0.18	3.5	6.2	12	EM
PUL3AX	127.5	115.6	121.8	123.8	122.2	-1.38	3.5	5.0	128.8	-0.63	3.4	7.3	12	LC
PXNGW9	144.7	149.7 *	146.6	149.0 *	147.5	2.05 *	4.0	2.3	145.7	1.65	4.0	2.3	12	LX



WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wk	Mean	CPV	SDr	SD Wk	Wks	Inst
PZXLCH	128.6 L	124.9	129.0	126.0	127.1	-0.71	2.7	2.0	129.8	-0.50	2.8	3.7	12	LD
QVJBU8	137.1	139.9	140.2	140.4	139.4	0.95	2.9	1.6	138.3	0.65	3.6	3.1	12	LC
QZA7HR	129.4	130.1 L	128.6 L	129.4 L	129.4	-0.41	1.4	0.6 L	124.7	-1.18	3.3	3.6	12	TH
R7A67M	133.0	131.0 H	133.8	133.8	132.9	0.07	4.6	1.3	134.2	0.10	3.8	1.9	12	LC
R7HVPR	147.9	145.5	No Data	No Data	146.7	1.93	4.1	1.7	139.5	0.81	3.8	10.3 H	6	EX
TRNWXM	134.5	132.4	139.6	124.2	132.7	0.04	2.7	6.4	135.1	0.21	3.2	6.6	12	MB
U8J87W	130.2	128.5	127.4	128.9	128.7	-0.49	3.9	1.2	129.4	-0.55	3.7	4.9	12	LC
UCTTAG	146.7	138.2	140.5	134.6	140.0	1.03	4.1	5.1	141.5	1.08	4.2	4.0	12	TC
UEZEXG	139.8	138.7 L	137.8 L	143.6	140.0	1.03	2.3	2.5	141.2	1.03	3.3	5.0	12	LD
VCRVJX	140.3	136.1	139.5	137.7	138.4	0.81	2.6	1.9	138.5	0.68	3.0	1.8	12	LD
VGHT2G	143.9	118.1 H	144.4	141.4	137.0	0.62	6.6	12.6 H	137.1	0.48	7.2	12.6 H	10	LC
W4VFC7	126.9 H	129.7	127.3	127.8	127.9	-0.60	5.8	1.2	131.3	-0.29	5.1	3.9	12	LC
W66VUR	122.2	121.8	122.5	121.2	121.9	-1.42	2.8	0.6 L	126.7	-0.92	3.5	4.1	12	XX
WDK7UR	128.0	123.5	123.7	127.2	125.6	-0.92	3.2	2.3	130.7	-0.37	3.7	4.2	12	LD
XKY8RF	127.3	124.3	130.3 H	131.8	128.4	-0.54	4.3	3.3	124.4	-1.22	3.7	4.2	12	LC
YQETXK	145.0	144.4	145.1 L	145.9 L	145.1	1.72	2.1	0.6 L	146.4	1.74	2.1	1.5	12	TD

Consensus (All Labs) Results

Wk Mean	133.59	131.45	131.21	131.88	Month Mean	132.38	Grand Mean	133.50
Avg SDr	3.72	3.89	3.59	3.92	Avg SDr	3.77	Avg SDr	3.93
SD btwn Labs	7.79	8.79	8.38	7.86	SD btwn Labs	7.39	SD btwn Labs	7.43
Labs Includ	49	49	48	46	SD btwn Wks	3.56	SD btwn Wks	4.87
Labs Exclud	2	2	1	2	Labs Includ	48	Labs Includ	50
Labs not rcvd	0	0	2	3				

Instrument Code List as Reported by the Labs

(EM) - Emerson 1200

(EX) - Emerson (model not specified)

(LD) - L&W Crush Tester 248

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

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

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

(EN) - Emerson 2200

(LC) - L & W Crush Tester 48

(LX) - L & W 506

(MB) - Messmer Buchel K440

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

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



WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wk	Mean	CPV	SDr	SD Wk	Wks	
3AYDHY	24.7	25.7	25.6	24.8	25.2	0.21	2.0	0.5	25.2	0.21	2.0	0.5	4	LW
4ADNRB	27.2	26.3	27.1	26.1	26.7	1.37	2.1	0.5	26.7	1.37	2.1	0.5	4	LZ
7YNALQ	26.2 L	34.2 XL	24.9 L	25.7 L	27.7	2.19*	0.6	4.4 H	27.7	2.19*	0.6	4.4 H	4	BK
ACD44F	23.4 L	25.2 L	25.1 L	25.6 L	24.8	-0.07	0.1	1.0	24.8	-0.07	0.1	1.0	4	LY
ADWPBY	24.4	24.4	24.7	26.0	24.9	-0.04	2.1	0.8	24.9	-0.04	2.1	0.8	4	LU
B4279A	26.2	26.3	26.1	26.2	26.2	0.99	2.6	0.1 L	26.2	0.99	2.6	0.1 L	4	LA
B79YB2	25.2 L	25.8 L	24.8 L	25.3 L	25.3	0.25	0.5	0.4	25.3	0.25	0.5	0.4	4	LA
BLPUQX	25.1	26.2	25.9	26.5	25.9	0.78	2.3	0.6	25.9	0.78	2.3	0.6	4	LW
CARDE2	25.6	23.8	24.1	23.8	24.3	-0.48	1.7	0.8	24.3	-0.48	1.7	0.8	4	LW
D3YRKK	23.7	22.9	24.0	23.3	23.5	-1.14	1.8	0.5	23.5	-1.14	1.8	0.5	4	XX
E29NRD	23.1	23.2	21.9*	29.1 X	24.3	-0.47	1.8	3.3 H	24.3	-0.47	1.8	3.3 H	4	XX
EJL9NG	26.3 L	25.4 L	23.9 L	26.7 L	25.6	0.49	0.6	1.2	25.6	0.49	0.6	1.2	4	XX
ELM6PQ	24.7	24.7	24.4	23.9 L	24.4	-0.39	1.1	0.4	24.4	-0.39	1.1	0.4	4	TT
ENWGTR	25.8 L	23.6 L	23.9 L	23.5 L	24.2	-0.58	0.5	1.1	24.2	-0.58	0.5	1.1	4	LA
EQHPY2	22.6	23.1	22.9	22.9	22.9	-1.59	1.9	0.2	22.9	-1.59	1.9	0.2	4	LW
F6F6FM	24.5	24.5	24.9	23.8	24.4	-0.39	1.9	0.4	24.4	-0.39	1.9	0.4	4	LY
FHR2HB	24.7	23.4	23.8	23.9	24.0	-0.76	1.7	0.6	24.0	-0.76	1.7	0.6	4	LZ
FP9HD7	23.7	23.2	22.0*	22.2	22.8	-1.69	2.1	0.8	22.8	-1.69	2.1	0.8	4	LU
H8X4KV	23.3	22.0	22.2	23.7	22.8	-1.68	1.5	0.8	22.8	-1.68	1.5	0.8	4	LU
HLKMMH	26.8	28.7*	25.8	27.4	27.2	1.76	2.1	1.2	27.2	1.76	2.1	1.2	4	LA
JHWQCX	27.5*	25.9	26.1 L	No Data	26.5	1.23	1.8	0.9	26.5	1.23	1.8	0.9	3	LA
JLDXXC	23.3 L	21.9* L	23.6 L	25.5	23.5	-1.09	0.8	1.5	23.5	-1.09	0.8	1.5	4	XX
JPVHH7	No Data	25.8	25.8	25.3	25.6	0.54	2.2	0.3	25.6	0.54	2.2	0.3	3	LW
K3LA6V	26.4 L	25.7 L	25.4 L	26.5 L	26.0	0.84	0.0	0.5	26.0	0.84	0.0	0.5	4	LA
KBFEXW	27.1	27.7	30.0 X	27.5*	28.1	2.46*	2.6	1.3	28.1	2.46*	2.6	1.3	4	LU
KDGHPJ	24.1	23.7	23.6	23.8	23.8	-0.89	2.2	0.2 L	23.8	-0.89	2.2	0.2 L	4	LW
KJ9P9R	25.4	24.4	25.0	23.9	24.7	-0.20	1.6	0.7	24.7	-0.20	1.6	0.7	4	LW
MDAKJY	24.6 L	25.5 L	24.7 L	24.2 L	24.7	-0.17	0.0	0.6	24.7	-0.17	0.0	0.6	4	LU
ME2UYU	24.3 L	24.8 L	23.8 L	24.5 L	24.3	-0.47	0.4	0.4	24.3	-0.47	0.4	0.4	4	LA
N8JZYW	24.2	25.0	23.7	24.6	24.4	-0.43	1.7	0.6	24.4	-0.43	1.7	0.6	4	LU
PM6V6D	23.9	25.0	24.4	23.8	24.3	-0.51	1.1	0.6	24.3	-0.51	1.1	0.6	4	TT
QVJBU8	25.1	25.2	25.1	24.4	25.0	0.02	1.2	0.4	25.0	0.02	1.2	0.4	4	LW
R7A67M	24.9	25.2	24.0	24.2	24.6	-0.26	1.9	0.6	24.6	-0.26	1.9	0.6	4	LU
R7HVPR	26.5 L	26.2 L	No Data	No Data	26.3	1.10	0.0	0.2 L	26.3	1.10	0.0	0.2 L	2	LZ
TRNWXM	25.2 L	25.7 L	26.0 L	25.2 L	25.5	0.48	0.1	0.4	25.5	0.48	0.1	0.4	4	LA



WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wk	Mean	CPV	SDr	SD Wk	Wks	
U8J87W	24.9	25.1	25.0	25.6	25.1	0.16	1.8	0.3	25.1	0.16	1.8	0.3	4	LW
UCTTAG	24.9 _L	27.2 _L	25.3 _L	25.9 _L	25.8	0.70	0.6	1.0	25.8	0.70	0.6	1.0	4	LA
VCRVJX	24.5	23.7	25.6	23.6	24.3	-0.46	1.3	1.0	24.3	-0.46	1.3	1.0	4	BK
W4VFC7	26.1	25.3	27.5 [*]	26.9	26.4	1.17	1.3	1.0	26.4	1.17	1.3	1.0	4	LY
W66VUR	24.2	24.7	24.1	23.3	24.1	-0.67	1.8	0.6	24.1	-0.67	1.8	0.6	4	XX
XKY8RF	23.7	23.9	23.2	24.7	23.8	-0.85	2.6	0.6	23.8	-0.85	2.6	0.6	4	LU
XMJRPC	24.0	22.2	23.1	23.0	23.1	-1.44	1.6	0.7	23.1	-1.44	1.6	0.7	4	LU

Consensus (All Labs) Results											
Wk Mean	24.91	24.84	24.57	24.81	Month Mean	24.93				Grand Mean	24.93
Avg SDr	1.53	1.79	1.65	1.63	Avg SDr	1.66				Avg SDr	1.66
SD btwn Labs	1.21	1.49	1.28	1.33	SD btwn Labs	1.28				SD btwn Labs	1.28
Labs Includ	41	41	40	39	SD btwn Wks	1.10				SD btwn Wks	1.10
Labs Exclud	0	1	1	1	Labs Includ	42				Labs Includ	42
Labs not rcvd	1	0	1	2							

Instrument Code List as Reported by the Labs

(BK) - Buchel Strip Compression Tester BK-155

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

(LY) - L & W 152 without moisture correction

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

(LA) - L & W Autoline

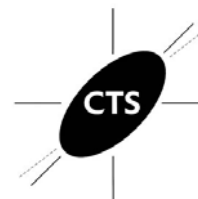
(LW) - L & W 53 with moisture correction (was 53M)

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

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



WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wk	Mean	CPV	SDr	SD Wk	Wks	
3AYDHY	31.6	31.9	30.9	32.2	31.6	-0.48	1.6	0.6	31.6	-0.52	1.5	0.6	12	LW
4ADNRB	35.7	33.9	32.9	34.5	34.2	0.94	1.9	1.2	34.1	0.66	1.9	1.2	12	LZ
7YNALQ	35.0 L	61.8 X	35.4 L	35.5 L	41.9	5.15 X	1.1	13.3 H	38.4	2.68*	0.9	7.4 H	12	BK
ACD44F	32.5 L	33.5 L	32.3 L	34.9 L	33.3	0.44	0.1	1.2	32.5	-0.07	1.4	1.0	12	LY
ADWPBY	34.4	34.0	34.0	34.0	34.1	0.87	1.8	0.2	33.8	0.52	1.8	0.9	12	LU
B4279A	34.8	35.9	33.1	35.0	34.7	1.20	1.6	1.2	34.9	1.03	1.8	1.3	11	LA
B79YB2	30.1 L	31.8 L	31.2 L	32.4	31.4	-0.63	0.6	1.0	31.1	-0.73	0.5	0.6	12	LA
BLPUQX	32.7	33.1	No Data	32.7	32.8	0.18	2.1	0.2	34.3	0.73	2.1	1.4	7	LW
CARDE2	32.3	31.7	32.4	31.6	32.0	-0.28	1.5	0.4	32.0	-0.34	1.7	0.5	10	LW
D3YRKK	31.4	31.9	30.9	31.1	31.3	-0.65	1.6	0.4	31.3	-0.65	1.6	0.7	12	XX
E29NRD	28.0*	28.3*	28.8	27.1 X	28.1	-2.43*	1.8	0.7	27.5	-2.43*	1.7	1.0	8	XX
EJL9NG	36.2	35.8	36.5*	37.0*H	36.4	2.12*	2.9	0.5	35.8	1.46	2.6	1.1	10	XX
ELM6PQ	32.3	31.4	32.0	31.7	31.9	-0.36	1.3	0.4	32.4	-0.14	1.5	1.1	12	TT
ENWGTR	33.7 L	32.1 L	31.5 L	30.5 L	32.0	-0.30	0.4	1.3	33.6	0.42	0.6	1.9	12	LA
EQHPY2	30.6	31.8	31.8	31.8	31.5	-0.55	1.6	0.6	31.8	-0.42	1.6	0.4	12	LW
F6F6FM	31.4	30.8	31.1	31.0	31.1	-0.78	1.5	0.3	31.1	-0.72	1.7	0.2 L	12	LY
FHR2HB	29.9	30.6	30.2	31.6	30.6	-1.06	1.5	0.7	31.2	-0.68	1.7	0.9	11	LZ
FP9HD7	32.3	33.0	32.7	31.5	32.4	-0.08	2.5	0.6	32.6	-0.02	2.1	0.5	12	LU
H8X4KV	30.3	29.3	28.8	28.4*	29.2	-1.80	1.6	0.8	29.1	-1.67	1.6	0.6	8	LU
HLKMMH	33.8	34.2	33.9	34.9	34.2	0.93	1.9	0.5	35.1	1.11	1.7	0.8	12	LA
JHWQCX	35.5	33.6 L	35.0	33.4 L	34.4	1.01	1.9	1.0	34.1	0.67	1.1	1.3	12	LA
JLDXXC	33.3	33.8	33.0	34.3	33.6	0.59	1.9	0.6	32.1	-0.27	1.8	1.4	10	XX
JPVHH7	No Data	34.1	33.1	32.7	33.3	0.43	1.7	0.7	33.7	0.45	1.7	0.8	11	LW
K3LA6V	34.6 L	34.5 L	34.7 L	35.6 L	34.8	1.27	0.0	0.5	35.4	1.25	0.0	0.7	12	LA
KBFEXW	34.3	33.9	31.6	33.7	33.4	0.47	1.8	1.2	34.2	0.68	1.7	1.3	11	LU
KDGHPJ	32.5	29.9	29.1	31.1	30.6	-1.03	2.4	1.5	30.5	-1.04	2.4	0.9	12	LW
KJ9P9R	30.9	31.1	31.8	32.3	31.5	-0.53	1.4	0.7	30.7	-0.91	1.5	0.7	12	LW
MDAKJY	32.1 L	33.4 L	31.3 L	31.2 L	32.0	-0.28	0.0	1.0	31.4	-0.59	0.0	1.1	12	LU
ME2UYU	32.2 L	31.9 L	32.3 L	32.7 L	32.3	-0.12	0.4	0.3	32.1	-0.29	0.5	0.7	12	LA
N8JZYW	31.2	31.5	31.1	32.5	31.6	-0.51	1.8	0.6	31.4	-0.61	1.7	0.6	12	LU
PM6V6D	31.9	32.0	32.2	31.7	32.0	-0.29	1.3	0.2	32.7	-0.01	1.3	1.3	12	TT
QVJBU8	32.9	33.9	33.6	32.9	33.3	0.45	1.8	0.5	35.0	1.08	1.4	1.3	12	LW
R7A67M	32.2	31.5	31.2	31.5	31.6	-0.51	1.2	0.4	31.7	-0.45	1.4	0.4	12	LU
R7HVPR	35.6 L	35.5 L	No Data	No Data	35.6	1.67	0.0	0.1 L	44.2	5.37 X	0.0	12.4 H	6	LZ
TRNWXM	32.7 L	33.2 L	33.8 L	33.1 L	33.2	0.37	0.1	0.5	34.3	0.75	0.1	1.1	12	LA



WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wk	Mean	CPV	SDr	SD Wk	Wks	
U8J87W	32.9	34.0	33.7	34.0	33.7	0.63	1.9	0.5	33.3	0.29	2.1	1.4	12	LW
UCTTAG	34.3 L	33.9 L	33.8 L	33.4 L	33.9	0.74	0.4	0.4	34.5	0.86	0.7	1.3	12	LA
VCRVJX	31.1	30.8	31.6	32.1	31.4	-0.61	1.2	0.6	31.4	-0.62	1.5	0.5	12	BK
W4VFC7	36.7 *	36.1	36.1 *	36.6 *	36.4	2.12 *	1.2	0.3	36.3	1.69	1.4	1.0	12	LY
W66VUR	31.6	31.5	32.8	32.3	32.0	-0.26	1.6	0.6	32.2	-0.21	1.7	0.6	12	XX
XKY8RF	29.6	29.8	30.2	32.6	30.5	-1.07	1.8	1.4	29.7	-1.39	1.6	5.1 H	12	LU
XMJRPC	29.4	29.3	28.6	29.6	29.2	-1.81	1.6	0.4	29.4	-1.54	1.6	0.6	11	LU

Consensus (All Labs) Results											
Wk Mean	32.60	32.53	32.27	32.78	Month Mean	32.51				Grand Mean	32.68
Avg SDr	1.56	1.50	1.58	1.68	Avg SDr	1.60				Avg SDr	1.58
SD btwn Labs	2.00	1.89	1.89	1.81	SD btwn Labs	1.83				SD btwn Labs	2.14
Labs Includ	41	41	40	40	SD btwn Wks	0.74				SD btwn Wks	1.70
Labs Exclud	0	1	0	1	Labs Includ	41				Labs Includ	41
Labs not rcvd	1	0	2	1							

Instrument Code List as Reported by the Labs

(BK) - Buchel Strip Compression Tester BK-155

(LA) - L & W Autoline

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

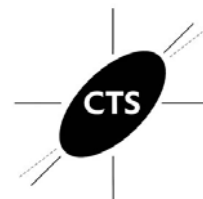
(LW) - L & W 53 with moisture correction (was 53M)

(LY) - L & W 152 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



WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
4ADNRB	127.8	-0.17	12.2	159.0	1.06	63.5	4	EV
6H6LRH	110.1	-1.14	7.2	128.2	-0.33	10.9	4	EV
B4279A	116.3	-0.80	9.4	117.1	-0.84	12.8	4	LA
B79YB2	156.9	1.42	28.7	153.9	0.83	21.2	4	EV
EJL9NG	138.4	0.41	13.5	187.8	2.36*	17.8	4	XX
FP9HD7	153.9	1.26	11.7	149.7	0.64	13.6	4	EV
JHWQCX	147.9	0.93	28.1	147.9	0.56	21.1	4	LA
JPVHH7	145.6	0.81	9.8	144.8	0.42	12.6	4	EV
K3LA6V	130.4	-0.03	13.9	127.2	-0.38	17.0	4	LA
KDGHPJ	99.9	-1.70	10.4	98.9	-1.66	8.7	4	EV
KJ9P9R	128.2	-0.14	6.2	135.8	0.01	12.8	4	XX
ME2UYU	115.6	-0.84	6.9	116.5	-0.86	7.0	4	EV
N8JZYW	144.4	0.74	9.9	139.6	0.18	11.2	4	EV
TRNWXM	146.6	0.86	22.9	129.9	-0.25	15.4	4	LA
UEZEXG	116.7	-0.78	3.9	125.4	-0.46	8.7	4	EV
W4VFC7	101.1	-1.63	4.2	98.5	-1.67	7.2	4	EV
XMJRPC	144.9	0.77	12.8	144.0	0.38	10.4	4	EV

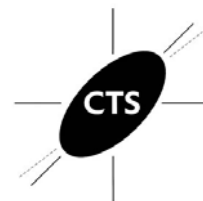
Consensus (All Labs) Results			
Month Mean	130.86	Grand Mean	135.54
Avg SDr	14.40	Avg SDr	20.35
SD btwn Labs	18.26	SD btwn Labs	22.09
Labs Incd	17	Labs Incd	17

Instrument Code List as Reported by the Labs

(EV) - Emveco Microgage Model 210-R

(LA) - L & W Autoline

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



WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
4ADNRB	158.0	-0.36	10.3	146.5	-0.78	9.9	4	TM
63PTAJ	167.6	0.01	3.7	173.6	0.41	5.8	4	SC
7GK7X9	158.6	-0.34	4.3	155.3	-0.39	5.2	4	TM
ADWPBY	114.2	-2.05 *	10.9	124.4	-1.75	16.3	4	HZ
B79YB2	201.0	1.30	41.3	195.5	1.37	32.0	4	HY
E29NRD	141.9	-0.98	12.0	138.9	-1.11	13.2	4	SC
EJL9NG	215.0	1.84	22.6	200.5	1.59	19.7	4	SC
ENWGTR	56.0	-4.30 X	1.0	38.2	-5.53 X	0.6	3	XX
EQHPY2	177.2	0.38	6.3	177.1	0.56	5.4	4	TM
H8X4KV	179.0	0.45	19.6	177.3	0.57	12.2	4	XX
KJ9P9R	199.8	1.26	11.9	191.7	1.21	9.1	4	HY
N8JZYW	154.4	-0.50	8.1	153.5	-0.47	5.0	4	TM
PZXLCH	170.4	0.12	5.8	166.1	0.08	5.8	4	SC
R7A67M	171.0	0.14	6.1	171.0	0.30	6.7	4	HY
UCTTAG	163.0	-0.17	2.9	159.2	-0.22	3.6	4	SC
UEZEXG	138.6	-1.11	4.4	132.7	-1.38	4.4	4	HY

Consensus (All Labs) Results			
Month Mean	167.32	Grand Mean	164.20
Avg SDr	14.95	Avg SDr	12.67
SD btwn Labs	25.86	SD btwn Labs	22.80
Labs Incd	15	Labs Incd	15

Instrument Code List as Reported by the Labs

(HY) - Huygen Digitized Scott Internal Bond Tester

(HZ) - Huygen Internal Bond Tester with AccuPress

(SC) - Scott Internal Bond Tester (Manual)

(TM) - TMI Monitor/Internal Bond Tester

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

Containerboard Interlaboratory Testing Program
 Analysis 234
COF Inclined Plane (Slide Angle), 36 lb Linerboard - 36Z
 TAPPI Official Test Method T815



WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
4ADNRB	24.2	-1.13	1.5	25.1	-0.97	2.3	4	ZZ
B79YB2	29.2	0.67	2.9	27.9	0.53	2.9	4	ZZ
CARDE2	28.2	0.31	1.5	27.8	0.42	2.6	4	ZZ
EJL9NG	25.6	-0.62	1.1	26.1	-0.44	1.9	4	ZZ
ENWGTR	32.4	1.82	1.1	30.6	1.92	2.4	4	ZZ
EQHPY2	31.8	1.59	5.8	26.8	-0.08	3.6	4	ZZ
FP9HD7	26.5	-0.31	1.5	25.6	-0.72	1.3	4	ZZ
KDGHPJ	28.1	0.26	0.9	28.1	0.62	1.2	4	ZZ
KJ9P9R	25.4	-0.70	2.5	26.1	-0.44	2.0	4	ZZ
L7FFPX	28.5	0.42	3.2	27.6	0.32	2.5	4	ZZ
N8JZYW	30.2	1.03	0.8	29.2	1.16	1.7	4	ZZ
R7A67M	25.0	-0.84	0.7	23.4	-1.89	1.2	4	ZZ
U8J87W	24.6	-0.98	1.1	25.5	-0.74	1.4	3	ZZ
UCTTAG	29.0	0.60	1.9	29.8	1.48	1.4	4	ZZ
VGHT2G	22.6	-1.70	2.7	25.3	-0.87	2.6	4	ZZ
XMJRPC	26.2	-0.41	2.6	26.4	-0.29	1.8	4	ZZ

Consensus (All Labs) Results			
Month Mean	27.34	Grand Mean	26.94
Avg SDr	2.36	Avg SDr	2.15
SD btwn Labs	2.78	SD btwn Labs	1.90
Labs Incd	16	Labs Incd	16

Instrument Code List as Reported by the Labs

(ZZ) - Instruments No Longer Tracked

Containerboard Interlaboratory Testing Program
Analysis 237

Air Resistance, 36 lb Linerboard - 36Z
TAPPI Official Test Method T460



WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SDr	Mean	CPV	SDr	Months	Inst
3QN6XC	52.4	0.55	5.6	50.7	-0.17	3.5	3	XX
4ADNRB	44.7	-4.44 X	2.7	49.6	-0.67	3.4	4	XX
63PTAJ	51.1	-0.29	2.4	51.5	0.18	2.0	4	LP
B79YB2	54.8	2.13 *	1.0	55.0	1.68	2.0	4	LA
CARDE2	48.6	-1.92	2.7	46.9	-1.80	1.7	4	LP
EJL9NG	50.9	-0.43	2.0	51.8	0.30	2.6	4	HG
ENWGTR	51.6	0.00	1.0	53.5	1.02	1.4	4	XX
EQHPY2	51.9	0.24	3.2	51.3	0.11	2.4	4	HG
F6F6FM	49.9	-1.07	0.3	49.7	-0.59	1.2	4	LP
H3JLBQ	50.6	-0.62	3.5	50.8	-0.12	2.7	4	GG
JHWQCX	49.9	-1.07	1.8	50.6	-0.22	1.5	4	LA
K3LA6V	52.7	0.71	2.4	53.2	0.88	6.6	4	TL
KJ9P9R	53.7	1.36	1.8	52.8	0.73	1.7	4	XX
L7FFPX	40.6	-7.11 X	2.1	45.4	-2.45*	2.0	4	GA
R7A67M	52.0	0.28	3.4	51.8	0.29	3.0	4	HG
WYZLE6	51.9	0.24	1.2	52.7	0.71	1.8	4	XX
XMJRPC	51.4	-0.10	2.5	51.4	0.11	2.1	4	LP

Consensus (All Labs) Results

Month Mean	51.56	Grand Mean	51.10
Avg SDr	2.64	Avg SDr	2.73
SD btwn Labs	1.54	SD btwn Labs	2.32
Labs Incd	15	Labs Incd	17

Instrument Code List as Reported by the Labs

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



WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wk	Mean	CPV	SDr	SD Wk	Wks	
3899PR	66.0*	64.5	65.2	64.1	65.0	1.46	2.9	0.9	64.9	1.70	2.6	1.1	16	EM
3AYDHY	67.5X	67.1*	67.1	65.6	66.8	2.41*	2.1	0.8	65.4	2.01*	2.6	1.3	15	LC
643K3Z	61.0	62.7	61.2	62.4	61.8	-0.15	3.0	0.8	61.2	-0.35	2.6	1.1	16	LD
7YNALQ	64.3	62.4	60.9	62.5	62.5	0.22	3.0	1.4	59.1	-1.58	2.9	2.4	16	MB
AW3D83	61.0	62.4	63.9	59.6	61.7	-0.18	2.5	1.8	62.2	0.20	2.8	1.3	16	LC
BLPUQX	No Data	59.9	62.7	64.2	62.3	0.08	2.6	2.2	60.7	-0.67	1.7	1.8	11	LC
BUJYKY	62.8	60.8	60.9	62.7	61.8	-0.16	2.6	1.1	61.6	-0.17	2.5	1.2	16	EM
CARDE2	62.9	64.1	64.2	66.2	64.3	1.14	3.4	1.4	64.3	1.35	3.1	1.5	13	LC
CTWGVD	62.3	60.8	60.5	58.4	60.5	-0.82	3.0	1.6	60.5	-0.78	3.0	1.6	4	TD
D3YRKK	65.0	61.0	61.7	63.6	62.8	0.37	3.3	1.8	63.1	0.68	3.1	1.4	16	LC
DXD663	64.9	65.9H	67.0	66.8	66.1	2.07*	3.8	1.0	65.1	1.83	6.7	2.6	16	LC
E29NRD	60.1	62.4	56.8	58.7	59.5	-1.33	3.9	2.3	59.5	-1.35	3.4	1.3	16	LX
EF3W97	65.8*H	64.2	60.6	61.7	63.0	0.49	3.9	2.3	60.9	-0.55	2.9	7.3H	12	MB
ELM6PQ	61.0	60.5	60.7	61.1	60.8	-0.67	2.3	0.3L	61.2	-0.36	2.5	0.6	16	TH
EUGAHR	62.6	65.5H	64.7	64.4	64.3	1.13	4.2	1.2	64.5	1.46	3.2	1.2	16	TM
F6F6FM	61.1L	60.8	60.4	60.9	60.8	-0.68	1.6	0.3	60.9	-0.55	1.6	0.4	16	LD
FHR2HB	62.5H	65.1H	65.0H	58.6	62.8	0.37	5.0	3.0	62.1	0.14	4.0	2.6	16	LZ
H8X4KV	62.6	61.4	61.3	58.2	60.9	-0.62	3.1	1.9	61.5	-0.23	3.4	3.6H	16	LC
HLKMMH	64.0	62.0	62.8	60.9	62.4	0.16	3.6	1.3	63.5	0.90	3.3	1.5	16	XX
JEN72X	60.5	62.9	58.8	62.9	61.3	-0.42	3.4	2.0	62.5	0.36	3.0	2.8	16	XX
KDGHPJ	59.6L	59.8	59.5	60.1	59.8	-1.20	1.9	0.3	59.7	-1.24	1.7	0.5	16	TH
KJ9P9R	61.5H	62.5	65.9	65.7	63.9	0.91	4.2	2.2	63.4	0.88	3.4	1.4	12	LC
KU3PG4	62.9	63.9	63.0	65.0	63.7	0.84	3.2	1.0	64.8	1.64	2.7	1.1	12	XX
LPMGVQ	62.6	62.3	62.8L	61.8	62.4	0.14	1.6	0.4	62.7	0.48	1.7	0.6	16	LC
LQZM9Z	62.7	63.1	62.4	62.0	62.6	0.23	2.2	0.5	62.6	0.38	2.3	0.4	16	LD
LT6CDU	62.9	65.8	65.4	63.4	64.4	1.17	2.9	1.4	62.9	0.59	2.9	1.6	16	LD
N8JZYW	63.5	62.3	62.1	60.7	62.1	0.02	2.7	1.1	61.7	-0.07	3.0	1.0	16	LD
PM6V6D	59.4	60.9	59.6	60.4	60.1	-1.03	3.9	0.7	59.9	-1.10	4.0	1.1	16	TG
PUL3AX	60.3	60.8	63.7	62.1	61.7	-0.18	3.1	1.5	61.4	-0.26	2.9	1.3	16	LC
PXNGW9	59.1	56.4*	57.0	57.2	57.4	-2.39*	2.5	1.2	59.6	-1.30	2.4	2.5	16	LD
PZXLCH	64.6	64.5	65.5	66.1	65.2	1.58	3.4	0.8	64.4	1.45	4.4	1.7	16	LD
QVJBU8	61.5	61.5	61.6	61.1L	61.4	-0.35	2.0	0.2L	61.3	-0.33	1.9	0.9	16	LC
R7A67M	60.6	62.4	62.9	61.1	61.7	-0.18	3.3	1.1	61.3	-0.34	3.4	1.3	16	LC
R7HVPR	60.9	59.4	No Data	No Data	60.2	-0.99	3.3	1.1	59.7	-1.22	3.1	2.9	6	LZ
TRCUCU	62.6	61.8	61.9	57.0	60.8	-0.65	2.9	2.6	60.8	-0.60	2.9	2.8	15	LC



WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wk	Mean	CPV	SDr	SD Wk	Wks	Inst
TRNWXM	62.7	56.4*	54.7*	61.7	58.9	-1.65	3.0	3.9 H	58.6	-1.84	3.1	2.8	16	MB
UK6HW9	61.9	61.6	61.1	61.8	61.6	-0.27	2.4	0.3	61.8	-0.02	2.3	0.7	16	LD
WYZLE6	62.2	61.5	60.2	62.5	61.6	-0.27	3.0	1.0	61.5	-0.23	2.8	0.9	16	LD
XMJRPC	68.1 X	61.7	No Data	62.0	63.9	0.94	3.5	3.6 H	62.3	0.23	3.1	1.9	15	LZ
YNRTVN	62.4	62.8	62.2	63.1	62.6	0.27	2.4	0.4	62.5	0.34	2.2	0.4	16	LD
YQETXK	61.5	60.6	61.3	63.0	61.6	-0.24	1.7	1.0	62.1	0.10	1.6	0.8	16	TD
ZWUY4P	60.3	59.4	58.8	57.7 L	59.0	-1.57	2.5	1.1	59.0	-1.60	2.5	1.1	4	LC

Consensus (All Labs) Results									
Wk Mean	62.21	62.08	61.95	61.92	Month Mean	62.10		Grand Mean	61.87
Avg SDr	3.07	3.21	3.00	2.94	Avg SDr	3.06		Avg SDr	3.02
SD btwn Labs	1.71	2.24	2.71	2.51	SD btwn Labs	1.95		SD btwn Labs	1.78
Labs Includ	39	42	40	41	SD btwn Wks	1.61		SD btwn Wks	2.02
Labs Exclud	2	0	0	0	Labs Includ	42		Labs Includ	42
Labs not rcvd	1	0	2	1					

Instrument Code List as Reported by the Labs

- (EM) - Emerson 1200 Series
- (LD) - L&W Crush Tester 248
- (LZ) - L & W Crush Tester (model not specified)
- (TD) - TMI Digital Crush Tester, Model 17-09
- (TH) - TMI Compression Tester, Model 17-76
- (XX) - Instrument make/model not specified by lab
- (LC) - L & W Crush Tester 48
- (LX) - L & W 506
- (MB) - Messmer Buchel K440
- (TG) - TMI Compression Tester, Model 17-10
- (TM) - TMI/Hinde & Dauch



WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wk	Mean	CPV	SDr	SD Wk	Wks	Inst
3AYDHY	76.9	73.2	74.0	77.2	75.3	1.01	2.5	2.0	75.0	0.95	2.5	1.7	15	LC
3QN6XC	73.0 L	73.2	73.2 L	73.3	73.2	0.16	1.4	0.1 L	72.6	-0.26	1.4	0.9	12	XX
AW3D83	76.4	78.9	79.0	77.2	77.9	2.03*	2.8	1.3	76.3	1.57	3.1	4.6	16	LC
CARDE2	72.2	78.3	78.3	72.7	75.4	1.04	2.9	3.4	73.9	0.36	3.0	2.1	13	XX
EF3W97	68.8	71.4	71.1	69.0	70.1	-1.08	3.1	1.4	69.0	-2.06*	2.6	2.2	12	MB
FHR2HB	73.1 H	68.2 H	69.5 H	77.9 L	72.2	-0.24	5.5	4.4	76.0	1.44	4.1	4.3	16	LZ
JEN72X	73.6	73.1	63.9	64.6	68.8	-1.60	3.9	5.3	72.1	-0.52	3.3	5.3 H	16	TU
QVJBU8	73.2	72.2	72.3	72.3	72.5	-0.13	1.9	0.5 L	71.5	-0.80	1.8	3.2	16	LC
R7A67M	74.7	72.1	62.9	77.5	71.8	-0.40	3.1	6.3 H	72.4	-0.38	2.7	3.1	16	XX
TRCUCU	68.8	75.9	70.0	67.6 H	70.6	-0.89	3.4	3.7	72.9	-0.12	3.6	3.0	16	LZ
UK6HW9	72.5	72.5	73.6	72.4	72.7	-0.02	2.2	0.5 L	73.0	-0.04	2.2	0.5 L	16	LD
YQETXK	72.5	73.8	73.4 L	72.7	73.1	0.13	2.1	0.6	72.8	-0.15	2.1	0.6	16	TD

Consensus (All Labs) Results														
Wk Mean	72.97	73.57	71.76	72.87	Month Mean	72.79			Grand Mean	73.12				
Avg SDr	3.10	2.52	3.75	2.80	Avg SDr	3.08			Avg SDr	2.79				
SD btwn Labs	2.45	2.94	4.84	4.23	SD btwn Labs	2.50			SD btwn Labs	2.00				
Labs Includ	12	12	12	12	SD btwn Wks	3.17			SD btwn Wks	3.03				
Labs Exclud	0	0	0	0	Labs Includ	12			Labs Includ	12				
Labs not rcvd	0	0	0	0										

Instrument Code List as Reported by the Labs

(LC) - L & W Crush Tester 48

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

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

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

(LD) - L&W Crush Tester 248

(MB) - Messmer Buchel K440

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

Containerboard Interlaboratory Testing Program
Analysis 255

Ring Crush (RCT), 26 lb Corrugating Medium - CM73
TAPPI Official Test Method T822



WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wk	Mean	CPV	SDr	SD Wk	Wks	Inst
4BJ8AE	41.3	41.7 L	41.4	41.2 L	41.4	-0.58	1.1	0.2 L	41.3	-0.65	1.4	1.9	12	WK
643K3Z	44.7	45.7	46.2	45.7	45.6	0.80	2.4	0.6	44.3	0.36	2.3	1.6	16	LD
ADWPBY	42.2	41.9	40.7	41.5	41.6	-0.53	2.8	0.6	41.5	-0.59	2.5	0.7	16	LD
BUJYKY	41.1	40.8	39.8	43.0	41.2	-0.66	1.9	1.3	41.0	-0.77	2.1	0.9	16	LC
CARDE2	37.8	42.2	43.5	45.0	42.1	-0.34	2.1	3.1 H	42.2	-0.36	2.1	2.1	13	LC
EF3W97	38.0	37.3	35.8 *	37.6	37.2	-1.97	2.1	1.0	36.9	-2.14 *	2.1	1.5	12	MB
EUGAHR	47.6	49.4	48.3	47.9	48.3	1.71	1.9	0.8	48.1	1.63	2.5	1.4	16	LZ
KU3PG4	45.8	46.9	43.4	45.5	45.4	0.74	2.4	1.4	45.8	0.84	2.6	1.3	12	XX
LPMGVQ	48.7	48.3	47.6 L	47.6	48.1	1.62	1.3	0.5	48.3	1.70	1.3	0.8	16	LC
PUL3AX	41.4	36.9	39.7	39.8	39.5	-1.22	2.5	1.9	41.6	-0.55	2.7	2.0	16	LC
PXNGW9	46.7	44.0	44.2	45.1	45.0	0.61	2.1	1.2	46.4	1.07	3.3	1.3	16	LZ
QZA7HR	40.3	39.8	40.0	40.3	40.1	-1.01	2.1	0.2	40.8	-0.83	1.9	0.7	16	TH
R7A67M	44.8	45.3	44.2	42.2	44.1	0.32	2.9	1.3	43.6	0.13	3.1	1.2	16	LC
R7HVPR	42.9	43.3	No Data	No Data	43.1	-0.02	2.3	0.3	41.7	-0.51	2.9	3.5 H	6	LZ
WYZLE6	43.1 H	43.3	42.6 H	41.6	42.7	-0.17	3.7	0.8	42.5	-0.24	3.4	0.7	16	LD
XQUZFV	42.8	40.8	41.5	43.4	42.1	-0.33	2.3	1.2	42.9	-0.11	2.8	2.7 H	12	LD
ZWUY4P	47.5	45.0	46.4	46.2	46.3	1.04	2.5	1.0	46.3	1.02	2.5	1.0	4	XX

Consensus (All Labs) Results

Wk Mean	43.33	43.10	42.83	43.35	Month Mean	43.15	Grand Mean	43.26
Avg SDr	2.26	2.29	2.58	2.16	Avg SDr	2.33	Avg SDr	2.51
SD btwn Labs	3.25	3.49	3.34	2.96	SD btwn Labs	3.02	SD btwn Labs	2.96
Labs Includ	17	17	16	16	SD btwn Wks	1.24	SD btwn Wks	1.66
Labs Exclud	0	0	0	0	Labs Includ	17	Labs Includ	17
Labs not rcvd	0	0	1	1				

Instrument Code List as Reported by the Labs

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



WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SDr	SD Wk	Mean	CPV	SDr	SD Wk	Wks	
7YNALQ	15.3 L	15.1 L	15.8 L	15.5 L	15.4	1.39	0.2	0.3	15.6	1.41	0.2	0.3	16	BK
BLPUQX	14.4	14.5	14.9	14.8	14.6	-0.15	1.3	0.3	15.4	1.07	1.3	0.6	12	LW
BUJYKY	14.2	13.9	14.3	13.8	14.1	-1.29	1.0	0.2	14.2	-1.16	1.1	0.4	16	LB
ELM6PQ	14.6	14.7	14.8	14.6 L	14.7	-0.09	0.8	0.1	14.5	-0.60	0.8	0.3	16	TT
EUGAHR	15.8	15.5	15.6	15.4	15.6	1.66	1.2	0.2	15.5	1.25	1.2	0.6	16	LZ
KDGHPJ	15.3	14.8	14.8	14.9	14.9	0.38	1.3	0.2	14.8	0.05	1.3	0.2	16	LW
LPMGVQ	14.3	14.4	15.0	15.1	14.7	-0.03	0.7	0.4	15.2	0.71	0.8	0.6	16	XX
LQZM9Z	14.9	14.9	15.0	14.5	14.8	0.20	1.2	0.2	14.8	-0.03	1.2	0.2	16	LB
R7A67M	15.2	15.0	15.6	15.3	15.3	1.05	1.1	0.2	15.2	0.67	1.2	0.2	16	LU
UK6HW9	13.9	14.4	14.2	14.0	14.1	-1.17	0.8	0.2	14.5	-0.58	0.8	0.4	16	LA
XKY8RF	14.7	13.9	15.3	14.4	14.6	-0.32	1.1	0.6	14.0	-1.49	1.3	0.7	16	LB
XMJRPC	13.8	13.5	13.7	14.0	13.7	-1.89	1.0	0.2	13.8	-1.93	1.1	0.3	16	LU
XQUZFV	14.5	13.9	14.0	14.9	14.3	-0.78	1.3	0.5	14.9	0.10	1.2	0.8 H	12	LA
YNRTVN	14.9	15.1	14.7	14.7	14.8	0.24	1.0	0.2	14.8	-0.04	1.2	0.2	16	LB
ZWUY4P	15.3	14.9	15.4	14.9	15.1	0.79	1.2	0.3	15.1	0.58	1.2	0.3	4	LA

Consensus (All Labs) Results								
Wk Mean	14.74	14.56	14.87	14.71	Month Mean	14.72	Grand Mean	14.81
Avg SDr	1.09	1.05	1.06	1.02	Avg SDr	1.05	Avg SDr	1.10
SD btwn Labs	0.57	0.56	0.63	0.52	SD btwn Labs	0.52	SD btwn Labs	0.55
Labs Includ	15	15	15	15	SD btwn Wks	0.30	SD btwn Wks	0.46
Labs Exclud	0	0	0	0	Labs Includ	15	Labs Includ	15
Labs not rcvd	0	0	0	0				

Instrument Code List as Reported by the Labs

(BK) - Buchel Strip Compression Tester BK-155

(LA) - L & W Autoline

(LB) - L & W Model 152

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

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

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

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

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