



Containerboard Interlaboratory Testing Program

Participant Summary Report #640 - January 2023

[Introduction to the Containerboard Program](#)

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

Analysis	Sample	Analysis Name
<u>201</u>	<u>BX17</u>	<u>Top to Bottom Box Compression Strength, Corrugated Boxes</u>
<u>202</u>	<u>EC15</u>	<u>Edgewise Compressive Strength, by T811, Corrugated Board</u>
<u>203</u>	<u>EC15</u>	<u>Edgewise Compressive Strength by T839, Corrugated Board</u>
<u>205</u>	<u>42H2</u>	<u>Bursting Strength (Mullen), 42 lb Linerboard</u>
<u>206</u>	<u>56G3</u>	<u>Bursting Strength (Mullen), 56 lb Linerboard</u>
<u>215</u>	<u>42H2</u>	<u>Ring Crush, 42 lb Linerboard</u>
<u>216</u>	<u>56G3</u>	<u>Ring Crush, 56 lb Linerboard</u>
<u>223</u>	<u>42H2</u>	<u>STFI, 42 lb Linerboard</u>
<u>224</u>	<u>56G3</u>	<u>STFI, 56 lb Linerboard</u>
<u>228</u>	<u>42H2</u>	<u>Roughness - Stylus Method, 42 lb Linerboard</u>
<u>229</u>	<u>42H2</u>	<u>Roughness - Sheffield Method, 42 lb Linerboard</u>
<u>231</u>	<u>42H</u>	<u>Internal Bond, 42 lb Linerboard</u>
<u>234</u>	<u>42H</u>	<u>COF Inclined Plane (Slide Angle), 42 lb Linerboard</u>
<u>237</u>	<u>42H</u>	<u>Air Resistance, 42 lb Linerboard</u>
<u>240</u>	<u>CM12</u>	<u>Flat Crush Strength (CMT), 26 lb Corrugating Medium</u>
<u>250</u>	<u>CM12</u>	<u>Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium</u>
<u>255</u>	<u>CM12</u>	<u>Ring Crush (RCT), 26 lb Corrugating Medium</u>
<u>261</u>	<u>CM12</u>	<u>STFI, 26 lb Corrugating Medium</u>

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; 35 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# Corrugating Medium	CM12	July 2021 - Current
	CM11	April 2019 - June 2021
35# Corrugating Medium	35E3	June 2022 - Current
	35E2	June 2020 - April 2022
42# Corrugating Medium	42H2	December 2022 - Current
	42H1	April 2022 - November 2022
56# Corrugating Medium	56G3	July 2022 - Current
	56G2	May 2021 - May 2022

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, agriculture, hemp, 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 100 countries, currently participate in the CTS programs.

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EXPLANATION OF TABLES

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

Definitions of Terms Used

Weekly Results

Laboratory Data

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

Consensus Data

- Wk Mean - For each week, the average of the Means for all the participants, excluding those laboratories flagged with an 'X'.
- Avg SD - For each week, the average of the within-laboratory standard deviations (SD's) for all the participants, excluding those laboratories flagged with an 'X'. The Avg SD is an indication of the variation of measurements within an average laboratory.
- SD btwn Labs - For each week, the standard deviation of the laboratory Means about the Wk Mean, excluding those laboratories flagged with an 'X'. The SD LABS is an indication of the precision of measurement between the laboratories.
- Labs 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.
- SD - For each laboratory, the average of the weekly within-lab standard deviations (SD's) for all reported Weekly Means this month.
- SD Wk - The standard deviation among the laboratory's weekly Means, including those Means flagged with an 'X'. The SD Wks is an indication of that laboratory's ability to obtain constant results from week to week.

Consensus Data

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

Cumulative Results

Laboratory Data

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

Consensus Data

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

<u>Flag</u>	<u>Explanation</u>
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Data Flags "X" and "*" indicate a laboratory's performance on an average value differed from the consensus.

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

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

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

Flags assigned to Weekly Means:

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

Flags assigned to Monthly SD Wks and Cumulative SD Wks:

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



Containerboard Interlaboratory Testing Program
 Analysis 201
Top to Bottom Box Compression Strength, Corrugated Boxes - BX17
 TAPPI Official Test Method T804

Report #640
January 2023

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3D7ZKN	813.0	-0.25	38.55	813.0	-0.25	0.00	1	LN
44W23X	867.9	0.60	24.20	867.9	0.60	0.00	1	LL
4XPN6Z	811.0	-0.28	87.86	811.0	-0.28	0.00	1	LM
6YVDYW	816.6	-0.19	41.75	816.6	-0.19	0.00	1	XX
8PYE6T	860.2	0.48	53.61	860.2	0.48	0.00	1	TB
AEEMVA	866.2	0.57	52.31	866.2	0.57	0.00	1	ER
BMMGLV	715.9	-1.73	59.42	715.9	-1.73	0.00	1	LS
BXJQNB	814.5	-0.22	99.94	814.5	-0.22	0.00	1	ET
C7BM8Q	873.7	0.69	80.12	873.7	0.69	0.00	1	LH
C9GUQJ	890.0	0.94	96.34	890.0	0.94	0.00	1	EX
CVEERV	754.4	-1.14	69.77	754.4	-1.14	0.00	1	ER
DCRJ9J	797.0	-0.49	112.53	797.0	-0.49	0.00	1	EX
DPGC2Z	901.7	1.11	82.82	901.7	1.11	0.00	1	LO
F7G4WZ	866.0	0.57	74.81	866.0	0.57	0.00	1	ES
FU7F43	747.9	-1.24	89.67	747.9	-1.24	0.00	1	ER
GXLABM	913.3	1.29	65.63	913.3	1.29	0.00	1	LS
JUZB3B	776.2	-0.81	48.68	776.2	-0.81	0.00	1	LG
MT9FZX	879.5	0.77	34.63	879.5	0.77	0.00	1	LS
QTUFBQ	800.2	-0.44	111.58	800.2	-0.44	0.00	1	EX
RU8AN6	902.2	1.12	37.59	902.2	1.12	0.00	1	EX
U2WUPN	822.7	-0.10	83.14	822.7	-0.10	0.00	1	ER
U3U89A	794.1	-0.54	23.22	794.1	-0.54	0.00	1	LL
UKC4UV	670.2	-2.43 *	42.16	670.2	-2.43 *	0.00	1	LL
VJRRJ3	770.4	-0.90	30.58	770.4	-0.90	0.00	1	EX
VMDJKX	772.6	-0.86	76.62	772.6	-0.86	0.00	1	LG
WU9V8E	948.2	1.83	37.10	948.2	1.83	0.00	1	ER
XJ9F82	880.3	0.79	60.65	880.3	0.79	0.00	1	LM
YRFQJY	885.6	0.87	95.66	885.6	0.87	0.00	1	LG

Consensus (All Labs) Results			
Month Mean	828.99	Grand Mean	828.99
Avg SD	69.79	Avg SD Months	0.00
SD btwn Labs	65.24	SD btwn Labs	65.24
Labs Incl	28	Labs Incl	28



Containerboard Interlaboratory Testing Program
Analysis 201
Top to Bottom Box Compression Strength, Corrugated Boxes - BX17
TAPPI Official Test Method T804

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Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	846.51	49.53	17.52	10
Clip sealing	811.66	66.36	17.32	17
Staple sealing	948.22	0.00	119.23	1

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
LN	Lansmont 152-50k	LO	Lansmont 152-30k
LS	Lansmont Squeezer	TB	TMI Monitor/Compression Tester, Model 17-70
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
 Analysis 202
Edgewise Compressive Strength, by T811, Corrugated Board - EC15
 TAPPI Official Test Method T811

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WebCode	Monthly Results				Cumulative Results				
	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
6JHYL6	44.8	1.11	3.54	H	44.8	1.11	0.00	1	XX
6YVDYW	44.7	1.07	2.51		44.7	1.07	0.00	1	TS
AZEQTB	39.5	-1.20	1.46		39.5	-1.20	0.00	1	XX
C9GUQJ	43.7	0.62	1.56		43.7	0.62	0.00	1	LC
JUZB3B	42.6	0.14	2.82		42.6	0.14	0.00	1	LE
LYYMNY	38.7	-1.55	0.66	L	38.7	-1.55	0.00	1	TL
MT9FZX	45.5	1.40	2.55		45.5	1.40	0.00	1	LD
U2WUPN	41.3	-0.42	2.73		41.3	-0.42	0.00	1	EN
VJRRJ3	42.7	0.20	1.99		42.7	0.20	0.00	1	LC
W3ZBUW	39.9	-1.04	1.11		39.9	-1.04	0.00	1	XX
ZTGBlP	41.5	-0.33	0.53	L	41.5	-0.33	0.00	1	TD
ZZ8E6U	156.1	49.49 X	5.38	H	156.1	49.49 X	0.00	1	LD

Consensus (All Labs) Results			
Month Mean	42.25	Grand Mean	42.25
Avg SD	2.16	Avg SD Months	0.00
SD btwn Labs	2.30	SD btwn Labs	2.30
Labs Incd	11	Labs Incd	11

Key to Instrument Codes Reported by Participants

EN	Emerson 2200	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LE	L&W Crush Tester 840
TD	TMI Digital Crush Tester, Model 17-09	TL	Tech-Lab Systems Compression
TS	TMI Digital Crush Tester, Model 17-56	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
 Analysis 203
Edgewise Compressive Strength by T839, Corrugated Board - EC15
 TAPPI Official Test Method T839

Report #640
January 2023

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD	Months	Inst
4N3GKP	48.8	0.59	2.04	48.8	0.59	0.00	1	TD
4XPN6Z	42.6	-1.19	1.56	42.6	-1.19	0.00	1	TG
6YVDYW	52.4	1.63	2.03	52.4	1.63	0.00	1	TS
86ULEM	49.0	0.65	1.59	49.0	0.65	0.00	1	EM
8PYE6T	55.2	2.43 *	0.59 L	55.2	2.43 *	0.00	1	LD
AEEMVA	45.7	-0.30	1.04	45.7	-0.30	0.00	1	LD
AK2E2G	50.7	1.15	1.08	50.7	1.15	0.00	1	TG
AZEQTB	39.7	-2.02 *	1.67	39.7	-2.02 *	0.00	1	XX
BMMGLV	42.6	-1.18	2.21	42.6	-1.18	0.00	1	EM
BXJQNB	47.9	0.35	2.32	47.9	0.35	0.00	1	TD
C7BM8Q	48.4	0.49	2.01	48.4	0.49	0.00	1	EM
C9GUQJ	47.3	0.15	1.28	47.3	0.15	0.00	1	LC
CVEERV	44.5	-0.65	1.07	44.5	-0.65	0.00	1	EM
DPGC2Z	41.5	-1.50	1.85	41.5	-1.50	0.00	1	LD
EUP2VT	49.0	0.66	1.59	49.0	0.66	0.00	1	TH
F7G4WZ	44.5	-0.64	2.49	44.5	-0.64	0.00	1	LD
FU7F43	42.8	-1.13	1.04	42.8	-1.13	0.00	1	LD
GFKKZC	35.7	-3.15 X	3.74 H	35.7	-3.15 X	0.00	1	XX
HWMJLK	45.3	-0.41	1.88	45.3	-0.41	0.00	1	BU
JNQ4C7	46.8	0.01	0.88	46.8	0.01	0.00	1	LD
JUZB3B	44.1	-0.75	1.34	44.1	-0.75	0.00	1	LY
MDWYVG	48.6	0.54	1.67	48.6	0.54	0.00	1	TU
MT9FZX	46.4	-0.10	1.13	46.4	-0.10	0.00	1	LD
NEND27	45.2	-0.43	1.60	45.2	-0.43	0.00	1	EM
QTUFBQ	41.9	-1.37	1.18	41.9	-1.37	0.00	1	LD
RU8AN6	44.6	-0.62	2.08	44.6	-0.62	0.00	1	CT
U2WUPN	46.2	-0.14	1.60	46.2	-0.14	0.00	1	EN
U3U89A	47.4	0.19	1.31	47.4	0.19	0.00	1	BU
UKC4UV	49.5	0.78	1.89	49.5	0.78	0.00	1	LC
VJRRJ3	47.5	0.22	1.65	47.5	0.22	0.00	1	LC
VWL7M7	54.4	2.21 *	2.02	54.4	2.21 *	0.00	1	LC
WU9V8E	47.5	0.21	1.22	47.5	0.21	0.00	1	LD
XJ9F82	48.4	0.48	1.18	48.4	0.48	0.00	1	EM
YRFQJY	48.4	0.48	2.56	48.4	0.48	0.00	1	MK
ZTGBLP	44.1	-0.74	0.66 L	44.1	-0.74	0.00	1	TD



Containerboard Interlaboratory Testing Program
Analysis 203
Edgewise Compressive Strength by T839, Corrugated Board - EC15
TAPPI Official Test Method T839

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Consensus (All Labs) Results			
Month Mean	46.73	Grand Mean	46.73
Avg SD	1.65	Avg SD Months	0.00
SD btwn Labs	3.49	SD btwn Labs	3.49
Labs Incl	34	Labs Incl	34

Key to Instrument Codes Reported by Participants

BU	Buchel Digital Crush Tester	CT	Con-Ten
EM	Emerson 1200 Series	EN	Emerson 2200
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LY	L&W 830	MK	Mark-10 ESM303
TD	TMI Digital Crush Tester, Model 17-09	TG	TMI Digital Crush Tester, 17-76
TH	TMI Monitor/Compression Tester, Model 17-76	TS	TMI Digital Crush Tester, Model 17-56
TU	TMI Universal Crush Tester (TMI K440)	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
 Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42H2
 TAPPI Official Test Method T807

Report #640
January 2023

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
2CH9VD	126.0 *L	116.4	118.8	118.2	119.8	0.82	7.7	4.2	119.2	0.72	8.6	3.6	8	TB
2DQLCE	No DATA	No DATA	122.6	121.0	121.8	1.24	5.5	1.1	121.2	1.24	6.2	1.3	5	AH
4PX9FW_AL	117.7	116.5	113.6	114.8	115.6	-0.09	10.2	1.8	111.0	-1.35	9.2	9.0	H 8	AL
67WRMH	114.3	114.3	113.9	113.0	113.9	-0.47	6.1	0.6	114.2	-0.53	6.1	0.7	L 8	LJ
6AC6KK	117.9	120.2	116.6	120.3	118.8	0.58	10.7	1.8	117.4	0.28	10.0	2.7	8	LC
6RFMJW_AL	110.5	114.5	116.9	117.9	114.9	-0.24	10.5	3.3	115.8	-0.13	10.0	3.3	8	AL
6RWQC3	117.6	115.7	116.2	116.2	116.4	0.08	6.6	0.8	115.7	-0.16	6.9	1.2	8	AH
6UJCYX	111.4	106.8	117.2	108.5	111.0	-1.10	9.5	4.6	112.4	-1.00	9.0	3.9	8	LZ
87AVDF_AL	120.1	118.3	114.7	120.6	118.4	0.51	10.7	2.7	116.4	0.01	9.9	3.1	8	AL
8PYE6T	109.8 L	109.2	108.5	111.9	109.9	-1.34	8.6	1.4	109.9	-1.64	8.6	1.4	4	XX
8RA337	122.3	123.7	117.8	123.2	121.8	1.23	7.1	2.7	124.2	2.00 * 7.5	3.7	8	AX	
A8F6EC	112.3	113.2	115.4	116.1	114.3	-0.39	4.8	1.8	116.7	0.09	5.4	2.9	8	LA
AEEMVA	117.1	118.0	116.7	117.4	117.3	0.27	7.7	0.5 L	116.7	0.10	8.6	1.5	8	AH
AZEQTB	115.0	113.8 L	114.0	117.0	115.0	-0.24	5.2	1.4	114.3	-0.52	6.0	1.6	8	LC
B3EKLC	116.6	117.0	116.3 L	117.5	116.9	0.17	4.5	0.5 L	116.9	0.15	5.9	0.5 L	8	LA
BMP7UY	115.1	119.2	118.0	122.6	118.7	0.58	9.6	3.1	119.2	0.73	9.6	2.7	8	LA
BMP7UY_AL	117.5	114.7	117.4	119.0	117.2	0.24	7.4	1.8	117.5	0.30	7.0	1.7	8	AL
CQJKUT	122.1	114.9	122.4	118.0	119.4	0.71	10.3	3.6	118.7	0.60	10.3	2.9	8	LJ
DGM89Y	118.3	118.5	115.5	115.7	117.0	0.20	11.4	1.6	116.5	0.03	11.1	3.0	8	LZ
E9AEDU	116.1	116.4	114.4	116.0	115.7	-0.07	6.6	0.9	115.9	-0.10	6.8	0.8 L	8	TP
F2LAYY	105.8 *	113.3	105.3 *	95.3 XL	104.9	-2.40 *	8.8	7.4 H	108.2	-2.07 * 8.2	6.9	8	LC	
F7G4WZ	119.5	115.0	111.2	119.5	116.3	0.05	9.3	4.0	114.7	-0.41	9.0	3.6	8	LA
FJNZU9	125.2 L	125.0	125.4 L	125.4 L	125.3	1.99 *	3.1	0.2 L	125.5	2.32 * 3.6	0.5 L	8	AH	
FQP9JA_AL	116.9	117.4	114.9	114.8	116.0	-0.01	8.4	1.4	117.4	0.26	9.5	3.5	8	AL
FU7F43	109.4	107.1	105.7 *	110.7	108.2	-1.69	9.5	2.2	110.0	-1.60	9.4	4.2	8	LZ
FX7KYW	119.8	122.4	118.3	119.0 H	119.9	0.82	10.5	1.8	120.0	0.92	10.1	1.5	8	LA
GNXEDT	112.0	113.8 L	113.8	108.2	112.0	-0.89	6.0	2.6	111.6	-1.19	5.5	2.0	7	XX
GXJVRL	No DATA	No DATA	117.4	119.8	118.6	0.55	5.3	1.7	118.4	0.51	5.0	2.2	5	AX
GXJVRL_AL	No DATA	No DATA	114.0	114.9	114.5	-0.35	5.3	0.6	115.5	-0.21	6.1	1.9	5	AL
GZMD3A	110.4	114.9	118.2	110.8	113.6	-0.53	10.6	3.7	115.0	-0.34	9.1	3.3	8	LA
H6YVL4	111.1	113.5	109.1	110.7	111.1	-1.07	9.9	1.8	111.5	-1.24	10.2	2.9	8	LC
HFCZQD_AL	118.7	117.6	113.1	114.2	115.9	-0.04	8.5	2.7	115.3	-0.27	10.2	2.3	6	AL
JNQ4C7_AL	120.8	121.5	122.1	120.4	121.2	1.11	6.6	0.8	120.5	1.04	7.5	1.4	8	AK
JUZB3B	121.4	124.7	123.5	119.7	122.3	1.35	7.0	2.2	123.0	1.68	7.4	2.6	8	AH
K4EWHP_AL	121.8	123.9	122.9	121.8	122.6	1.41	7.6	1.0	120.9	1.16	7.0	2.2	8	AL



Containerboard Interlaboratory Testing Program
 Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42H2
 TAPPI Official Test Method T807

Report #640
January 2023

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
KPD37V	116.5	106.7	119.5	119.5	115.6	-0.11	8.6	6.1	118.1	0.44	9.3	5.3	8	LC
L24DVD	114.7	123.8	115.9	128.1 *	120.6	0.99	9.4	6.4	119.9	0.91	8.6	5.0	8	LC
L24DVD_AL	122.4	120.2	119.4	122.8	121.2	1.11	7.8	1.7	120.7	1.11	8.5	2.0	8	AL
LZQQBD_AL	102.2 X	111.4	106.6	113.7	108.5	-1.64	8.0	5.1	109.1	-1.84	7.7	5.6	8	AL
MJ827D	114.3	109.8	116.4	113.1	113.4	-0.57	7.5	2.8	112.8	-0.89	7.4	5.0	8	ME
MKH3RC	115.0	105.1 *	107.1	125.1	113.1	-0.65	12.3	9.1 H	117.3	0.24	11.2	7.6 H	8	LB
MT9FZX	122.8	119.9	113.8	115.2	117.9	0.41	9.6	4.2	116.6	0.07	9.3	3.6	8	LA
NAV9C9	121.9	116.2	119.0	116.1	118.3	0.48	7.5	2.8	116.3	-0.02	8.9	3.0	8	TP
NAV9C9_AL	114.4	114.9	110.1	112.6	113.0	-0.66	5.5	2.2	111.4	-1.25	5.4	2.5	8	XX
QKYMW6	114.1	109.1	119.7	107.0	112.5	-0.78	9.8	5.6	111.6	-1.20	9.7	4.0	8	LC
QTUFBQ	122.0	121.8	120.0	124.0	122.0	1.27	7.5	1.6	119.9	0.91	8.3	3.9	8	AH
RU8AN6	114.0	121.0	118.0	119.0	118.0	0.42	10.7	2.9	118.8	0.61	9.6	2.6	8	XX
TZTKHZ	112.0	111.6	115.8	110.5	112.5	-0.77	9.4	2.3	113.9	-0.61	8.3	2.6	8	LA
VJRRJ3	121.3	103.5 *	104.8 *	104.9 *	108.6	-1.60	8.0	8.5 H	114.2	-0.53	8.5	8.3 H	8	AH
VTLY4U_AL	122.4	115.5	115.0	121.3	118.6	0.54	9.5	3.8	118.7	0.60	8.8	3.3	8	AL
X6PX97	101.8 X	108.2	103.8 *	105.2 *	104.8	-2.44 *	10.5	2.7	107.6	-2.21 *	9.7	4.4	8	RE
XCMMRV	119.8	117.6	117.8	114.8	117.5	0.31	10.2	2.1	114.9	-0.38	8.9	3.6	8	AH
XCMMRV_AI	125.6	119.8	121.2	125.5	123.0	1.51	9.8	3.0	123.4	1.78	10.5	2.1	8	AL
XZVZHU_AL	116.3 H	112.6	117.5	116.3	115.7	-0.08	10.1	2.1	114.6	-0.44	9.6	2.6	8	AL
YL9BZ3_AL	116.9	117.5	116.4	117.2	117.0	0.20	6.1	0.5 L	117.6	0.33	8.0	1.3	8	AL
ZMLZ6Z	120.4	120.0	120.6	119.4	120.1	0.87	6.2	0.5 L	118.9	0.64	6.6	1.5	8	LA
ZNRNYW_AI	114.7	118.5	123.1	117.5	118.4	0.52	9.5	3.5	117.8	0.38	9.8	3.1	8	AL
ZZ8E6U	110.2	102.5 *	101.1 X	107.2	105.3	-2.33 *	8.3	4.2	104.1	-3.09 X	8.6	3.5	8	LA

Consensus (All Labs) Results															
Wk Mean	117.02	115.61	115.84	116.68	Month Mean	116.05			Grand Mean	116.35					
Avg SDr	8.42	8.61	8.92	8.26	Avg SD	8.49			Avg SD	8.47					
SD btwn Labs	4.62	5.41	4.97	5.23	SD btwn Labs	4.63			SD btwn Labs	3.95					
Labs Inclcd	53	55	57	57	SD btwn Wks	3.34			SD btwn Wks	3.56					
Labs Exclcd	2	0	1	1	Labs Inclcd	58			Labs Inclcd	57					
Labs not Rcvd	3	3	0	0											



Containerboard Interlaboratory Testing Program
Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42H2
TAPPI Official Test Method T807

Report #640
January 2023

Key to Instrument Codes Reported by Participants

AH	Perkins Model AH	AK	L & W Autoline 300
AL	L & W Autoline 400	AX	Perkins Mullen Tester (model not specified)
LA	L&W Bursting Strength Tester	LB	L&W Burst-O-Matic
LC	L&W Autoline (205 Enrollment)	LJ	L&W Bursting Strength Tester J-Type
LZ	L&W (model not specified)	ME	Messmer Automatic Burst Tester ME-06
RE	Regmed/Mullen Tester	TB	TMI Monitor/Burst 1000
TP	Technidyne PROFILE/Plus	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
 Analysis 206
Bursting Strength (Mullen), 56 lb Linerboard - 56G3
 TAPPI Official Test Method T807

Report #640
January 2023

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
2CH9VD	130.1 *	117.8	126.0 L	113.4	121.8	1.48	10.0	7.6	119.7	1.10	11.3	5.4	12	TB
2DQLCE	No DATA	No DATA	119.8 L	113.8	116.8	0.21	6.3	4.2	116.8	0.19	6.3	4.2	2	AH
4PX9FW_AL	116.3	119.4	118.1	119.3	118.3	0.59	10.7	1.5	118.3	0.67	10.0	3.2	11	AL
67WRMH	115.1 L	115.8	116.2	116.0	115.7	-0.06	5.2	0.4 L	116.1	-0.05	5.6	0.5 L	12	LJ
6AC6KK	127.3 *H	123.0	109.8	120.9	120.3	1.09	12.4	7.5	121.9	1.80	11.6	5.2	12	XX
6RFMJW_AL	123.5	120.3	105.1	117.9	116.7	0.19	11.6	8.1 H	117.2	0.31	11.2	6.2	11	AL
6RWQC3	115.0	116.7	114.3	115.7	115.4	-0.14	7.2	1.0	115.3	-0.27	7.6	1.5	10	AH
6UJCYX	111.6	115.2	109.4	118.0	113.5	-0.61	11.8	3.8	131.4	4.82 X	13.0	14.2 H	12	LZ
87AVDF_AL	117.6	116.5	123.1	117.7	118.7	0.70	11.9	3.0	117.2	0.32	11.6	4.0	12	AL
8RA337	125.1	128.6 X	126.0	124.9	126.2	2.59 *	7.7	1.7	123.4	2.26 *	8.1	4.1	12	XX
A8F6EC	117.1	115.1	119.3 L	118.4	117.5	0.38	4.8	1.8	118.7	0.77	5.0	3.3	12	LA
AEEMVA	117.6	118.9	117.3 H	119.4	118.3	0.59	11.4	1.0	118.6	0.76	10.1	4.6	12	AH
B3EKLC	116.8	116.9	116.2	117.2	116.8	0.21	6.3	0.4 L	116.7	0.15	6.3	0.8 L	12	LA
BMP7UY	121.2	116.6	127.6 *	128.9 *	123.6	1.94 *	10.7	5.8	119.9	1.16	11.1	5.8	8	LA
BMP7UY_AL	117.3	117.3	118.9 L	124.1	119.4	0.87	6.5	3.2	118.1	0.59	6.7	2.9	8	XX
CQJKUT	108.8	109.9	118.0	111.8	112.1	-0.97	12.8	4.1	116.3	0.04	13.3	4.7	12	LZ
DGM89Y	120.4	112.4	109.8	118.0	115.1	-0.21	10.6	4.9	115.1	-0.34	10.6	4.9	4	LZ
E9AEDU	115.4	115.0	114.6	114.9 L	115.0	-0.25	6.1	0.3 L	115.0	-0.40	7.6	0.9 L	10	TP
F2LAYY	109.0	110.2	109.0 L	108.5	109.2	-1.72	5.8	0.7	111.8	-1.40	9.1	3.4	12	LC
F7G4WZ	114.9	116.2	114.0	115.6	115.2	-0.20	9.1	0.9	114.8	-0.46	10.1	2.3	12	LA
FJNZU9	138.7 XL	138.2 XL	138.5 XL	138.4 X	138.5	5.71 X	3.7	0.2 L	139.6	7.38 X	3.6	0.9 L	12	AH
FQP9JA_AL	116.4	112.3	112.4	119.4	115.1	-0.21	10.5	3.4	114.0	-0.70	9.9	3.2	12	AL
FU7F43	109.2	113.2	103.4 *	105.0	107.7	-2.10 *	11.9	4.4	112.1	-1.30	11.1	5.3	12	LZ
FX7KYW	117.5	116.7	117.7	110.4	115.6	-0.10	10.8	3.5	117.7	0.48	10.0	4.7	12	LA
GNXEDT	113.8	110.1	108.5	105.5	109.5	-1.65	6.6	3.4	109.8	-2.03 *	7.7	2.3	12	XX
GXJVRL	No DATA	No DATA	117.8	121.2	119.5	0.90	6.2	2.4	119.5	1.04	6.2	2.4	2	AH
GXJVRL_AL	No DATA	No DATA	114.5	113.1	113.8	-0.55	8.7	1.0	113.8	-0.76	8.7	1.0	2	AL
GZMD3A	116.5	108.2	114.4	118.6	114.4	-0.39	11.9	4.5	112.8	-1.09	11.0	4.4	12	LA
H6YVL4	113.4	114.2	112.8	113.7	113.5	-0.62	8.2	0.6 L	114.8	-0.44	8.9	2.1	12	LA
HFCZQD_AL	120.6	111.3	116.4	117.8	116.5	0.14	12.4	3.9	116.7	0.15	11.7	3.6	12	AL
JNQ4C7_AL	118.8	120.6	119.0	119.0	119.4	0.86	8.2	0.8	119.7	1.09	7.9	2.1	12	AL
JUZB3B	120.7	119.1	122.3	119.8	120.5	1.15	8.1	1.4	120.3	1.31	8.5	3.4	12	AH
K4EWHP_AL	127.8 *	120.1	115.6	123.6	121.8	1.47	10.0	5.2	120.0	1.21	9.3	3.7	12	AL
KPD37V	118.2	116.6	112.4	113.4	115.1	-0.21	11.4	2.7	117.8	0.49	11.1	2.9	12	LC
L24DVD	125.0	119.1	127.6 *	113.6	121.3	1.36	10.3	6.3	121.3	1.62	10.3	6.3	4	LC



Containerboard Interlaboratory Testing Program
 Analysis 206
Bursting Strength (Mullen), 56 lb Linerboard - 56G3
 TAPPI Official Test Method T807

Report #640
January 2023

WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
L24DVD_AL	116.5	116.4	122.5	115.9	117.8	0.47	8.7	3.1	117.8	0.51	8.7	3.1	4	XX
LZQQBD_AL	112.5 L	117.4	115.1	120.7	116.4	0.12	10.2	3.5	114.4	-0.59	9.0	4.8	12	AL
MJ827D	111.3	117.4	116.9	111.7	114.3	-0.42	8.8	3.3	113.7	-0.80	10.1	4.1	12	LA
MKH3RC	116.5	118.8	116.1	124.1	118.9	0.74	11.6	3.7	116.2	-0.01	10.7	4.5	12	LB
MT9FZX	111.1	116.0	114.6	114.6	114.1	-0.48	10.5	2.1	116.4	0.08	10.2	2.7	12	LA
NAV9C9	118.3	116.0	114.5	119.6	117.1	0.29	11.8	2.3	117.6	0.44	11.1	3.1	12	TP
NAV9C9_AL	115.0	108.3	112.2	113.0	112.1	-0.97	7.0	2.8	110.7	-1.75	8.2	3.2	12	XX
QKYMW6	114.6	118.4	118.7	109.2	115.2	-0.19	9.8	4.4	115.4	-0.26	9.1	3.0	8	LC
QTUFBQ	112.0	116.8	120.4	115.2	116.1	0.03	8.9	3.5	118.0	0.58	9.2	3.2	10	AH
RU8AN6	107.5	117.0	116.0	115.5	114.0	-0.50	9.8	4.4	115.4	-0.26	10.1	3.8	12	XX
TZTKHZ	115.5	112.5	115.9	114.6	114.6	-0.34	10.8	1.5	113.5	-0.85	11.2	5.2	12	LA
VJRRJ3	121.8	106.8	103.4 *	102.3 *	108.6	-1.88	10.4	9.0 H	114.0	-0.70	10.7	6.6	12	AH
VTLY4U_AL	118.2	111.3	122.4	112.2	116.0	0.02	9.7	5.2	116.9	0.23	9.6	5.1	12	AL
X6PX97	104.2 *	103.1 *	104.0 *	101.4 *	103.2	-3.25 X	8.6	1.3	109.2	-2.21 *	9.6	6.1	12	RE
XCMMRV	120.2	113.4	117.2	113.8	116.2	0.05	10.2	3.2	116.1	-0.05	11.4	2.8	12	AH
XCMMRV_AI	111.6	114.6	114.6	116.2	114.3	-0.44	9.6	1.9	115.1	-0.34	9.9	3.0	12	AL
XZVZHU_AL	111.6	106.5 *	106.0	116.3	110.1	-1.49	9.8	4.8	111.8	-1.38	10.9	4.7	12	XX
YL9BZ3_AL	110.6	117.7	115.1	NO DATA	114.5	-0.38	9.7	3.6	114.2	-0.63	7.7	2.3	11	AL
ZMLZ6Z	125.2	122.2	121.6	116.8	121.5	1.39	8.5	3.5	120.1	1.23	8.2	4.2	12	LA
ZNRNYW_AI	114.3	112.7	111.4	123.8	115.5	-0.11	11.7	5.6	118.4	0.69	11.6	4.8	12	AL
ZZ8E6U	108.3	105.2 *	106.3	102.7 *	105.6	-2.63 *	11.4	2.3	109.2	-2.22 *	9.9	3.9	12	LA

Consensus (All Labs) Results														
Wk Mean	116.44	114.96	115.49	115.70	Month Mean	115.96			Grand Mean	116.21				
Avg SDr	9.52	9.52	10.17	9.85	Avg SD	9.73			Avg SD	9.65				
SD btwn Labs	5.48	4.38	5.84	5.69	SD btwn Labs	3.94			SD btwn Labs	3.16				
Labs Incd	52	51	55	54	SD btwn Wks	3.88			SD btwn Wks	3.97				
Labs Exclcd	1	2	1	1	Labs Incd	54			Labs Incd	54				
Labs not Rcvd	3	3	0	1										



Containerboard Interlaboratory Testing Program
Analysis 206
Bursting Strength (Mullen), 56 lb Linerboard - 56G3
TAPPI Official Test Method T807

Report #640
January 2023

Key to Instrument Codes Reported by Participants

AH	Perkins Model AH	AL	L & W Autoline 400
LA	L&W Bursting Strength Tester	LB	L&W Burst-O-Matic
LC	L&W Autoline (206 Enrollment)	LJ	L&W Bursting Strength Tester J-Type
LZ	L&W (model not specified)	RE	Regmed/Mullen Tester
TB	TMI Monitor/Burst 1000	TP	Technidyne PROFILE/Plus
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program

Analysis 215

Report #640

January 2023

Ring Crush, 42 lb Linerboard - 42H2

TAPPI Official Test Method T822

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst							
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks								
2CH9VD	96.8	96.1	95.5	95.8	L	96.1	0.09	2.0	0.6	96.4	0.18	2.8	1.6	8	LD						
3TAWWT	82.6	X	84.7	XH	91.9	83.5	X	85.7	-3.06	X	4.7	4.2	H	85.6	-2.59	*	5.0	5.0	H	8	LD
67WRMH	96.3	95.4	95.6	96.1		95.8	0.03	2.2	0.4	95.8	0.02	2.1	0.3	L	8	LD					
6AC6KK	100.7	96.8	99.2	98.4		98.8	0.92	3.5	1.6	99.2	0.88	3.3	1.6	8	MB						
6RFMJW	95.5	94.1	95.4	95.6		95.2	-0.18	4.3	0.7	97.5	0.46	4.4	2.6	8	LC						
86ULEM	98.3	96.3	96.1	96.9		96.9	0.34	3.2	1.0	97.6	0.49	3.3	1.2	8	EM						
87AVDF	92.5	91.3	91.0	94.6		92.3	-1.03	2.7	1.6	92.1	-0.94	3.1	1.5	8	LD						
8RA337	91.9	90.8	92.2	93.2		92.0	-1.13	3.6	1.0	91.5	-1.10	3.6	1.2	8	LD						
967XD4	93.5	93.0	94.2	91.9		93.1	-0.79	3.4	1.0	93.4	-0.59	3.0	0.9	8	TH						
A8F6EC	97.0	L	97.3	L	97.6	L	97.0	97.2	0.46	1.3	0.3	L	98.3	0.64	1.5	1.1	8	TU			
AEEMVA	95.3	98.1	100.3	97.8		97.9	0.64	2.5	2.0	95.4	-0.08	2.4	3.1	8	LD						
AK2E2G	97.4	97.1	96.6	95.1		96.6	0.25	2.9	1.0	98.2	0.62	2.7	2.0	8	TH						
BMP7UY	95.9	93.7	94.0	97.8		95.3	-0.13	3.5	1.9	95.1	-0.17	3.3	1.7	8	LD						
CHNL2Y	93.6	93.8	95.0	94.5		94.2	-0.46	2.8	0.6	93.8	-0.50	2.6	0.9	8	TH						
DGM89Y	87.7	*	94.4	89.6	90.8	90.6	-1.56	2.5	2.8	91.3	-1.14	2.8	2.6	8	LC						
E9AEDU	95.2	93.5	96.4	95.6		95.2	-0.17	2.5	1.2	94.9	-0.22	2.4	1.3	8	TH						
F2LAYY	96.1	H	94.1	99.1	99.5	97.2	0.44	4.5	2.6	97.7	0.51	5.0	1.8	8	LD						
FJNZU9	92.5	92.2	92.6	L	92.6	92.5	-0.99	2.0	0.2	L	96.0	0.07	2.2	3.8	8	LD					
FQP9JA	91.1	H	100.0	100.7	100.0	97.9	0.67	4.7	4.5	H	99.0	0.83	4.6	3.5	8	LZ					
FU7F43	99.6	98.4	97.8	97.0		98.2	0.74	2.5	1.1	96.9	0.30	2.5	1.7	8	LD						
GNXEDT	104.0	*	100.7	*	101.0	103.4	*	102.3	1.99	*	2.9	1.7	103.5	1.98	*	2.7	1.9	7	TU		
H6YVL4	95.7	95.7	94.8	93.8		95.0	-0.23	2.8	0.9	95.0	-0.19	2.9	0.8	8	LD						
HFCZQD	104.3	*	96.5	96.3	99.1	99.1	1.01	3.3	3.7	99.8	1.04	3.5	3.7	6	LD						
JNQC7	95.5	96.3	100.5	100.5		98.2	0.75	2.1	2.7	95.2	-0.14	2.4	3.7	8	LD						
JUZB3B	96.6	94.7	95.1	91.3		94.4	-0.41	2.3	2.2	88.9	-1.75	3.2	6.1	H	8	LG					
KPD37V	93.0	93.1	94.4	95.1		93.9	-0.56	2.6	1.0	93.4	-0.59	2.4	1.4	8	LD						
KQRPLN	91.7	96.6	95.5	96.5		95.1	-0.21	3.4	2.3	95.5	-0.05	3.2	1.9	8	LD						
L24DVD	88.5	90.5	89.5	93.1		90.4	-1.62	3.2	2.0	90.7	-1.28	3.2	3.0	8	LD						
LYYMNY	93.6	93.3	93.5	93.9		93.6	-0.66	1.7	0.2	L	94.1	-0.41	1.8	0.6	L	8	MB				
MJ827D	102.4	103.2	XH	100.8	NO DATA	102.2	1.95	*	4.7	1.2	102.7	1.78	4.7	1.9	7	LX					
MKH3RC	95.8	92.4	97.2	95.6		95.2	-0.15	3.1	2.0	96.0	0.08	3.0	2.5	8	LD						
MT9FZX	97.2	94.2	94.0	92.0		94.4	-0.42	2.6	2.1	94.8	-0.25	2.7	2.4	8	LD						
NAV9C9	96.3	97.6	97.6	95.0		96.6	0.28	2.7	1.2	96.4	0.17	2.7	1.3	8	LD						
QKYMW6	90.7	91.0	91.1	90.0	*	90.7	-1.53	2.5	0.5	90.8	-1.26	2.4	0.5	L	8	LZ					
U2WUPN	91.8	94.5	95.6	93.5		93.8	-0.58	3.4	1.6	93.3	-0.62	3.0	1.5	8	EN						



Containerboard Interlaboratory Testing Program
 Analysis 215
Ring Crush, 42 lb Linerboard - 42H2
 TAPPI Official Test Method T822

Report #640
January 2023

WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
VJRRJ3	98.5	96.1 L	96.2	98.6	97.4	0.49	2.0	1.4	97.2	0.37	2.5	1.0	8	LC
VRPCTB	97.1	99.1	102.3 *	98.8	99.3	1.09	2.8	2.2	99.4	0.94	2.8	2.5	8	LD
VWL7M7	93.2	91.8	93.4	93.6	93.0	-0.84	3.2	0.8	93.5	-0.57	3.3	1.1	8	LC
X6PX97	98.3	97.2	96.0 L	97.1	97.2	0.43	2.1	0.9	100.1	1.11	2.8	3.2	8	EX
XZVZHU	98.1	96.5	94.3 L	96.9	96.4	0.21	2.0	1.6	97.8	0.52	2.1	2.0	8	LD
YC2DCY	79.2 X	79.3 X	79.1 XH	80.9 XH	79.6	-4.90 X	4.8	0.9	79.7	-4.10 X	4.8	2.6	8	EM
Z6KANX	103.0	100.3	100.7 H	102.9 *H	101.7	1.81	5.9	1.4	103.2	1.91	5.1	2.5	8	TU
ZMLZ6Z	90.0	85.2 X	88.6 *	85.1 X	87.2	-2.59 *	3.6	2.5	89.1	-1.70	3.3	2.9	8	LC
ZNRNYW	93.9	95.2	95.1	94.0	94.6	-0.36	4.2	0.7	93.0	-0.70	4.3	1.7	8	LD
ZWLUTX	106.4 *	106.3 X	98.3	98.5	102.4	2.02 *	3.1	4.6 H	103.3	1.93 *	3.2	3.2	8	MB
ZZ8E6U	136.2XH	133.6 X	140.6XH	135.9 X	136.6	12.41 X	7.1	2.9	117.5	5.58 X	16.4	20.5 H	8	LB

Consensus (All Labs) Results									
Wk Mean	95.87	95.24	95.73	95.93	Month Mean	95.74	Grand Mean	95.74	
Avg SDr	3.13	2.94	3.25	3.06	Avg SD	3.12	Avg SD	3.19	
SD btwn Labs	4.15	2.64	3.30	3.07	SD btwn Labs	3.29	SD btwn Labs	3.91	
Labs Incl	43	40	44	41	SD btwn Wks	1.87	SD btwn Wks	2.42	
Labs Excl	3	6	2	4	Labs Incl	43	Labs Incl	44	
Labs not Rcvd	0	0	0	1					

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
EX	Emerson (model not specified)	LB	L&W Crush Tester 240
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LG	L&W 753	LX	L&W 506
LZ	L&W Crush Tester (model not specified)	MB	Messmer Buchel K440
TH	TMI Compression Tester, Model 17-76	TU	TMI Universal Crush Tester (TMI K440)



Containerboard Interlaboratory Testing Program
 Analysis 216
Ring Crush, 56 lb Linerboard - 56G3
 TAPPI Official Test Method T822

Report #640
January 2023

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
2CH9VD	147.2	140.4	135.6	136.3	139.9	0.88	3.8	5.3	137.2	0.48	3.4	4.0	12	LD
3TAWWT	118.5 *	119.9 X	120.2 *	114.4 X	118.3	-3.19 X	5.2	2.7	118.2	-2.58 *	5.0	3.2	12	LD
67WRMH	137.4	137.6	137.2	138.2	137.6	0.46	2.5	0.4 L	136.7	0.40	2.5	0.8 L	12	LD
6AC6KK	140.5	136.7	138.2	139.7	138.8	0.68	4.2	1.7	139.0	0.77	4.5	3.3	9	MB
6RFMJW	136.8	134.0	136.2	135.3	135.6	0.07	4.8	1.2	138.5	0.70	5.0	3.1	12	LC
86ULEM	135.9	134.7	133.7	136.2	135.1	-0.01	3.8	1.1	134.2	0.00	3.9	1.3 L	12	EM
87AVDF	131.2	134.1	131.3	133.5	132.5	-0.50	3.7	1.5	132.9	-0.22	4.0	2.1	12	LD
8RA337	132.0 H	132.9 H	132.4	136.5	133.4	-0.33	5.9	2.0	133.2	-0.17	5.6	2.2	12	LD
967XD4	132.7 L	134.3	132.2	131.4	132.6	-0.48	2.5	1.2	135.3	0.18	2.9	3.0	8	TH
A8F6EC	140.3	139.9	141.5 L	143.2	141.2	1.14	2.3	1.5	138.4	0.67	3.0	3.0	12	TU
AEEMVA	127.9	136.1	138.8	136.3	134.8	-0.08	4.0	4.7	133.2	-0.16	3.5	3.7	12	LD
AK2E2G	132.3	133.3	131.5	134.2	132.8	-0.44	2.9	1.1	134.7	0.08	3.6	2.1	12	TH
BMP7UY	131.3	130.8	131.6	134.0	131.9	-0.61	3.7	1.4	131.4	-0.45	4.2	1.4 L	8	LD
CHNL2Y	133.1	133.0	132.6	131.9	132.7	-0.47	2.7	0.5	135.1	0.14	2.5	2.8	8	TH
DGM89Y	123.3	128.1	127.1	126.9	126.3	-1.66	3.4	2.1	126.3	-1.27	3.4	2.1	4	LC
E9AEDU	134.2	136.1	136.3	134.5	135.3	0.02	4.5	1.1	135.3	0.17	4.8	2.3	10	TH
F2LAYY	136.5 H	133.5	143.0	141.6 H	138.6	0.65	7.2	4.4	138.3	0.66	5.8	4.0	12	LD
FJNZU9	128.6	126.8	127.5	126.7	127.4	-1.46	2.3	0.9	129.1	-0.83	2.5	1.4 L	12	LD
FQP9JA	130.6 H	127.5 H	134.0	130.2	130.6	-0.87	8.8	2.7	132.3	-0.31	8.6	2.3	12	LZ
FU7F43	134.7	138.1	134.6	134.4	135.5	0.05	3.2	1.8	134.6	0.06	3.4	3.3	12	LD
GNXEDT	147.2	143.1 *	145.0	146.2 *	145.4	1.92	2.9	1.7	142.5	1.33	4.1	5.2	12	TU
H6YVL4	133.7	136.4	136.7	131.8	134.7	-0.10	3.6	2.3	135.0	0.13	3.4	1.8	12	LD
HFCZQD	143.0	134.8	135.6	136.3	137.4	0.42	3.6	3.7	132.8	-0.24	4.0	5.7	11	LD
JNQC7	127.4	128.2	133.6	131.8	130.2	-0.93	3.8	2.9	128.9	-0.86	5.9	2.7	12	LD
JUZB3B	136.4	133.1	130.5	133.1	133.3	-0.36	3.4	2.4	134.2	0.00	3.3	1.8	12	LY
KPD37V	136.4	133.1 L	138.6	134.0	135.5	0.06	3.1	2.5	134.4	0.03	3.3	2.0	12	LD
KQRPLN	134.0	133.3	133.9	128.7	132.5	-0.51	4.3	2.5	133.5	-0.12	4.5	2.4	8	LD
L24DVD	123.1	120.8 X	123.9 *	124.8	123.2	-2.26 *	3.8	1.7	123.2	-1.79	3.8	1.7	4	LD
LYYMNY	135.4 L	135.5 L	135.5 L	135.6	135.5	0.06	1.7	0.1 L	136.4	0.36	1.7	1.4 L	12	MB
MJ827D	142.7	150.2 X	145.4	NO DATA	146.1	2.05 *	5.2	3.8	143.2	1.45	4.5	4.7	7	LY
MKH3RC	138.9	135.8	141.1	143.2	139.7	0.86	4.6	3.1	140.2	0.97	4.4	4.2	12	LD
MT9FZX	135.0	129.0	131.3	127.8	130.8	-0.82	3.9	3.2	129.3	-0.80	3.7	2.4	12	LD
NAV9C9	135.1	134.0	134.7	132.3	134.0	-0.22	3.8	1.2	135.2	0.15	3.7	2.6	12	LD
QKYMW6	127.0	129.6	128.2	129.0	128.4	-1.27	2.9	1.1	127.2	-1.13	3.8	1.8	8	LZ
U2WUPN	127.6	129.9	130.5	129.7	129.4	-1.08	3.2	1.3	127.8	-1.04	3.9	1.9	12	EN



Containerboard Interlaboratory Testing Program
 Analysis 216
Ring Crush, 56 lb Linerboard - 56G3
 TAPPI Official Test Method T822

Report #640
January 2023

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
VJRRJ3	136.6	139.5	137.8	137.9 L	138.0	0.52	2.5	1.2	137.9	0.59	3.4	1.2 L	12	LC
VRPCTB	140.4	141.9	148.1 *	140.0	142.6	1.39	3.3	3.8	142.1	1.26	3.6	2.7	12	LD
VWL7M7	136.7	136.7	137.0	137.7	137.0	0.35	3.8	0.5	130.0	-0.68	11.3	8.5	8	LC
X6PX97	139.5	140.2	140.7 L	139.4	139.9	0.90	2.6	0.6	143.2	1.45	4.6	3.7	12	EX
XZVZHU	133.7	136.9	133.8	138.8	135.8	0.12	3.5	2.5	134.4	0.02	3.1	2.8	12	LD
YC2DCY	112.0 XH	113.7 XH	115.2 XH	124.5	116.3	-3.54 X	9.5	5.6 H	121.7	-2.03 *	6.8	5.0	12	EM
Z6KANX	142.9	140.6	141.8 H	153.7 X	144.7	1.80	8.4	6.1 H	146.3	1.94 *	6.1	4.9	12	TU
ZMLZ6Z	132.1	130.8	133.0	128.1	131.0	-0.79	4.9	2.1	132.6	-0.26	4.7	4.1	12	LC
ZNRNYW	128.1	129.1	127.7	129.3	128.6	-1.25	4.7	0.8	121.4	-2.06 *	6.6	11.1 H	12	LD
ZWLUTX	151.2 *	153.8 X	140.2	140.6	146.4	2.12 *	4.2	7.1 H	142.6	1.36	4.3	5.2	12	MB
ZZ8E6U	154.9 XH	166.8 X	170.4 X	168.5 X	165.1	5.63 X	10.9	7.0 H	144.4	1.64	15.4	27.3 H	12	LB

Consensus (All Labs) Results													
Wk Mean	134.75	134.48	135.00	134.32	Month Mean	135.18			Grand Mean	134.22			
Avg SDr	4.13	4.24	4.54	3.73	Avg SD	4.16			Avg SD	5.11			
SD btwn Labs	6.54	4.15	5.65	5.17	SD btwn Labs	5.31			SD btwn Labs	6.20			
Labs Incl	44	40	44	42	SD btwn Wks	2.69			SD btwn Wks	5.44			
Labs Excl	2	6	2	3	Labs Incl	43			Labs Incl	46			
Labs not Rcvd	0	0	0	1									

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
EX	Emerson (model not specified)	LB	L&W Crush Tester 240
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LY	L&W Crush Tester 958	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	TH	TMI Compression Tester, Model 17-76
TU	TMI Universal Crush Tester (TMI K440)		



Containerboard Interlaboratory Testing Program
 Analysis 223
STFI, 42 lb Linerboard - 42H2
 TAPPI Official Test Method T826

Report #640
January 2023

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
2CH9VD	22.8	23.0	24.0	22.7	23.1	-0.61	2.1	0.6	23.3	-0.37	2.1	0.5	8	LW
2DQLCE	No DATA	No DATA	24.6	25.3	24.9	0.99	2.0	0.4	25.1	1.12	1.9	0.4	5	LU
6AC6KK	28.3 X	23.0	25.8	26.0	25.8	1.69	1.6	2.2 H	25.8	1.72	1.8	2.2 H	8	LA
6RFMJW	No DATA	24.1	22.9	23.7	23.5	-0.25	2.0	0.6	24.3	0.43	2.0	1.7 H	7	LU
6UJCYX	23.1	22.2 L	21.9	22.8	22.5	-1.16	1.4	0.5	22.6	-0.99	1.4	0.4	8	LH
87AVDF_AL	25.0	24.0	26.3	24.5 H	24.9	0.98	2.1	1.0	24.5	0.60	1.9	0.9	8	AL
8RA337	23.8 L	23.8 L	23.7 L	24.1 L	23.8	-0.01	0.7	0.2	23.7	-0.05	0.7	0.3	8	LH
967XD4	21.8	21.1 *	22.1	21.6 L	21.6	-1.91	1.3	0.4	22.4	-1.19	1.4	0.9	8	LZ
A8F6EC	21.1 *	20.6 *	21.6	21.3 *	21.2	-2.34 *	1.9	0.4	21.2	-2.25 *	1.9	0.4	4	XX
AEEMVA	23.2	24.2	22.9 H	23.6	23.5	-0.31	2.2	0.6	23.0	-0.67	2.0	0.7	8	LU
AZEQTB	23.0 L	24.6	25.3	24.7	24.4	0.50	1.4	1.0	24.6	0.69	1.5	1.3	8	LA
B3EKLC	24.5	24.2	24.3	24.2	24.3	0.42	1.9	0.1	24.3	0.47	1.9	0.2 L	8	LZ
BMP7UY_AL	23.7	23.8	23.8	23.3	23.7	-0.14	1.7	0.2	23.7	-0.11	1.8	0.3	8	AL
CHNL2Y	22.3	21.9	22.0 L	21.2 *	21.8	-1.73	1.3	0.5	22.2	-1.33	1.3	0.6	8	LZ
CQJKUT	25.4	26.1 *	27.4 *	26.7 *	26.4	2.25 *	1.6	0.8	26.5	2.34 *	1.9	0.7	8	LH
DGM89Y	19.9 X	19.8 X	20.2 *	20.5 *L	20.1	-3.29 X	1.5	0.3	21.3	-2.12 *	1.8	1.4	8	LY
DPGC2Z	23.6	24.7	23.8	23.8	24.0	0.13	1.7	0.5	24.2	0.35	2.2	0.5	8	LH
E9AEDU	23.4	23.2	23.0	22.4 L	23.0	-0.74	1.4	0.5	23.6	-0.16	1.5	0.8	8	TT
F2LAYY	22.6	21.6	23.8 H	24.9	23.2	-0.50	2.2	1.4 H	23.5	-0.23	1.9	1.3	8	LA
FQP9JA_AL	24.3	23.4	24.4	24.2	24.1	0.23	1.7	0.5	23.6	-0.14	1.7	0.8	8	AL
FU7F43	23.1	22.8	24.1 L	24.6 L	23.6	-0.15	0.9	0.9	23.4	-0.30	1.1	0.7	8	LY
FX7KYW	22.2	21.9	21.9	22.3	22.1	-1.53	1.6	0.2	22.4	-1.18	1.7	0.5	8	LU
GFKKZC	22.2	23.9	22.7	24.2	23.3	-0.48	1.5	0.9	23.5	-0.24	1.6	0.9	8	XX
GNXEDT	25.5 H	24.9	25.1	25.4	25.2	1.22	2.1	0.3	25.0	1.08	2.0	0.4	7	TT
GXJVRL	No DATA	No DATA	24.7	24.7	24.7	0.78	2.0	0.0	24.9	0.98	1.8	0.4	5	LU
GXJVRL_AL	No DATA	No DATA	24.4	24.0	24.2	0.30	1.3	0.3	24.2	0.33	1.4	0.3	5	AL
GZMD3A	23.1	23.1	23.2	22.9	23.1	-0.64	2.1	0.1 L	24.0	0.18	2.1	1.5	8	LH
H6YVL4	23.5 L	23.0	24.1 L	23.6 L	23.5	-0.24	0.9	0.5	23.2	-0.50	1.5	0.5	8	LA
HFCZQD_AL	24.7	28.1 XH	26.3 H	25.5 L	26.2	2.04 *	4.9	1.5 H	26.0	1.88	4.3	1.2	6	AL
JNQ4C7_AL	23.7	24.5	26.6 *	25.3	25.0	1.06	1.6	1.2	24.7	0.79	1.8	1.0	8	AK
JUZB3B	24.3	23.8	24.7	24.7	24.4	0.49	2.0	0.4	24.3	0.47	2.0	0.4	8	LU
K4EWHP_AL	23.8	24.5	23.6 L	23.8	23.9	0.08	1.8	0.4	24.0	0.22	1.9	0.3	8	AL
KPD37V	24.0	23.5	23.6	23.9	23.8	-0.05	1.8	0.2	23.8	0.00	1.7	0.3	8	LA
L24DVD	21.7	23.8	22.3	22.4	22.5	-1.12	1.6	0.9	21.7	-1.77	1.5	1.9 H	8	LZ
L24DVD_AL	45.4 XL	45.3 XL	47.5 XL	45.3 XL	45.9	19.35 X	0.0	1.1	45.4	18.53 X	0.0	1.1	8	AL



Containerboard Interlaboratory Testing Program

Analysis 223

Report #640

January 2023

STFI, 42 lb Linerboard - 42H2

TAPPI Official Test Method T826

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
LZQQBD_AL	24.1	23.9	24.1 H	25.5 L	24.4	0.50	1.9	0.7	24.0	0.17	2.1	0.7	8	AL
MJ827D	24.1	23.6	21.8	23.7 H	23.3	-0.46	3.0	1.0	23.7	-0.10	2.6	1.3	8	LZ
MKH3RC	21.8	22.8	22.7	22.9	22.6	-1.11	1.6	0.5	23.0	-0.64	1.7	0.8	8	LU
MT9FZX	23.5	23.1	23.4	23.2	23.3	-0.46	1.7	0.2	23.2	-0.53	1.8	0.3	8	LZ
MYF4JR	24.6	24.2	25.6	24.7	24.8	0.85	1.7	0.6	24.8	0.87	1.7	0.6	4	ID
NAV9C9_AL	23.8	23.9	24.5	24.2	24.1	0.26	2.1	0.3	23.9	0.08	1.9	0.4	8	XX
QC6EBD	25.1	25.0	25.6	24.8	25.1	1.12	1.4	0.3	25.2	1.26	1.4	0.3	8	LH
QKYMW6	23.0	21.1 *	23.2	22.7 L	22.5	-1.18	1.2	1.0	22.5	-1.05	1.3	1.0	8	LA
QR6ATE	23.8 H	24.0 H	23.6 H	24.1	23.9	0.04	2.7	0.2	23.8	-0.01	2.4	0.4	8	LY
QTRVEB	23.8	23.9	23.4	23.4	23.6	-0.19	1.6	0.3	23.6	-0.15	1.6	0.3	4	LU
T87VBR	22.8	23.9	22.9	23.5	23.3	-0.47	1.6	0.5	22.9	-0.71	1.7	0.6	8	LW
TZTKHZ	22.7	23.8	23.0	22.7	23.0	-0.70	1.9	0.5	22.4	-1.18	1.7	0.8	8	LY
U2WUPN	21.8	22.7	22.2	22.8	22.4	-1.26	1.6	0.5	22.3	-1.27	1.5	0.6	8	LY
V76PYP	23.4	23.3	24.6	24.6	24.0	0.12	1.6	0.7	24.0	0.23	1.6	0.7	8	LH
VJRRJ3	24.2	23.8	23.3	22.9	23.5	-0.26	1.7	0.6	23.7	-0.11	1.6	0.4	8	LU
VRPCTB	24.8	24.3	25.0	25.6	24.9	0.97	2.2	0.5	25.4	1.37	2.0	0.7	8	LH
VTLY4U_AL	26.4 *	26.4 *	26.4	26.4 *	26.4	2.24 *	1.9	0.0 L	26.4	2.21 *	1.9	0.1 L	8	AL
WU9V8E	23.7	24.0	23.8	23.4	23.7	-0.09	1.8	0.2	23.7	-0.03	1.8	0.2	8	LA
XCMMRV	22.9	22.7	22.8	22.5	22.7	-0.97	1.7	0.2	22.4	-1.18	1.7	0.4	8	LH
XCMMRV_AI	21.6 L	23.6	22.9	23.4	22.9	-0.83	1.6	0.9	22.5	-1.13	1.8	0.9	8	AL
XZVZHU_AL	23.2	23.5	23.7	24.1	23.6	-0.16	1.3	0.3	22.9	-0.78	1.3	1.6	8	AL
YL9BZ3	24.1	22.0	24.0	23.6	23.4	-0.35	1.5	1.0	23.4	-0.35	1.6	0.8	8	LU
Z6KANX	25.6	27.6 X	25.2	25.0	25.9	1.78	2.0	1.2	25.5	1.47	2.0	1.0	8	LA
ZMLZ6Z	23.6 H	23.9	23.4	24.5	23.9	0.03	2.0	0.5	23.8	-0.02	1.9	0.4	8	LA
ZNRNYW	22.1	23.6	22.3	22.8	22.7	-1.00	1.9	0.7	22.9	-0.74	2.0	0.5	8	LY
ZNRNYW_AI	23.7	25.0	24.2	23.9	24.2	0.31	1.7	0.6	23.7	-0.09	1.7	0.7	8	AL
ZWLUTX	24.7 L	26.2 *L	26.0	26.2	25.8	1.69	1.0	0.7	25.8	1.69	1.0	0.7	8	LA
ZZ8E6U	24.0	24.5	23.7	24.6	24.2	0.33	2.0	0.4	24.6	0.70	2.2	0.6	8	LH

Consensus (All Labs) Results														
Wk Mean	23.54	23.60	23.84	23.87	Month Mean	23.82	Grand Mean	23.78						
Avg SDr	1.67	1.76	1.77	1.86	Avg SD	1.87	Avg SD	1.84						
SD btwn Labs	1.11	1.16	1.40	1.27	SD btwn Labs	1.14	SD btwn Labs	1.17						
Labs Incl	56	56	62	62	SD btwn Wks	0.69	SD btwn Wks	0.83						
Labs Excl	3	4	1	1	Labs Incl	61	Labs Incl	62						
Labs not Rcvd	4	3	0	0										



Containerboard Interlaboratory Testing Program
Analysis 223
STFI, 42 lb Linerboard - 42H2
TAPPI Official Test Method T826

Report #640
January 2023

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
ID	IDM Compression Tester	LA	L&W Autoline (223 Enrollment)
LH	L&W 282	LU	L&W 52 without moisture correction(was 53)
LW	L&W 53 with moisture correction (was 53M)	LY	L&W 152 without moisture correction
LZ	L&W (model not specified)	TT	TMI Short Span Compression, 17-34 (MB K455)
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program

Analysis 224

Report #640

January 2023

STFI, 56 lb Linerboard - 56G3

TAPPI Official Test Method T826

WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2CH9VD	31.9	31.9	37.9	34.1	33.9	-0.27	2.7	2.8 H	34.1	-0.04	2.9	1.7	12	LW
2DQLCE	No DATA	No DATA	38.3 *	38.2	38.2	1.92	2.9	0.1	38.2	2.19 *	2.9	0.1	2	LU
6AC6KK	36.0	36.8 H	37.1	34.6	36.1	0.85	2.8	1.1	36.0	0.98	2.5	1.3	12	LA
6RFMJW	No DATA	35.3	35.3	35.8	35.5	0.52	2.1	0.3	34.3	0.06	2.5	1.2	10	LU
6UJCYX	32.4	31.3	32.4	31.9 L	32.0	-1.24	1.6	0.5	32.2	-1.09	1.9	0.6	12	LH
87AVDF_AL	35.3	34.8	35.5	35.9	35.4	0.47	2.3	0.5	35.2	0.55	1.9	0.6	12	AL
8RA337	33.5 L	34.4 L	34.7 L	35.0 L	34.4	-0.02	0.9	0.7	34.8	0.32	0.9	0.7	12	LH
967XD4	30.7	31.9	32.3	31.3 L	31.5	-1.47	2.0	0.7	31.4	-1.53	1.9	0.7	8	LZ
AEEMVA	31.9	33.1	34.7	33.1	33.2	-0.64	2.6	1.1	32.4	-0.94	2.5	0.9	12	LU
AZEQTB	37.4	36.9	34.7 L	35.4	36.1	0.84	2.0	1.3	34.7	0.28	1.8	2.0	12	LA
B3EKLC	35.3	35.1	35.4	35.1	35.2	0.39	3.0	0.1 L	35.2	0.54	3.0	0.1 L	12	LA
BMP7UY_AL	33.5	33.9	34.0	34.2	33.9	-0.27	2.7	0.3	34.2	0.01	2.5	0.6	8	AL
CHNL2Y	30.9	31.0	31.8	31.8	31.4	-1.57	2.2	0.5	31.7	-1.32	2.0	0.9	8	LZ
CQJKUT	41.6 X	41.0 X	29.2 X	40.2 *	38.0	1.80	2.5	5.9 H	39.0	2.59 *	2.4	3.3	12	LZ
DGM89Y	29.1 *	29.5 *	28.1 X	30.0 *	29.2	-2.68 *	1.7	0.8	29.2	-2.70 *	1.7	0.8	4	LW
DPGC2Z	36.9	36.3	35.4	34.5	35.8	0.68	2.7	1.0	35.4	0.64	2.6	1.1	12	LH
E9AEDU	34.9	34.0 L	33.5	35.2	34.4	-0.04	1.9	0.8	34.3	0.08	1.7	0.6	10	TT
F2LAYY	32.8	31.8	34.6	33.9	33.3	-0.59	1.6	1.2	34.5	0.18	2.2	1.6	12	LA
FQP9JA_AL	35.7	33.5	33.5	34.1	34.2	-0.14	2.0	1.1	33.5	-0.35	2.2	1.0	12	AL
FU7F43	33.1	33.4	34.1 L	34.0 L	33.6	-0.41	1.5	0.5	33.1	-0.59	1.9	0.7	12	LZ
FX7KYW	32.1	31.8	32.7	31.3	32.0	-1.26	2.5	0.6	32.5	-0.92	2.5	0.6	12	LU
GFKKZC	32.3	33.3	34.2	33.4	33.3	-0.58	2.2	0.8	33.8	-0.21	2.2	1.6	12	XX
GNXEDT	36.5	37.4	35.9	36.6	36.6	1.09	2.7	0.6	35.6	0.78	2.6	1.6	12	TT
GXJVRL	No DATA	No DATA	37.5	37.1	37.3	1.46	2.7	0.3	37.3	1.70	2.7	0.3	2	LA
GXJVRL_AL	No DATA	No DATA	34.7	36.0	35.3	0.44	2.0	0.9	35.3	0.62	2.0	0.9	2	AL
GZMD3A	33.2	36.0 H	36.5	34.5	35.1	0.30	2.7	1.5	35.5	0.70	2.7	1.4	12	LH
H6YVL4	32.4	33.0	33.9	33.6	33.2	-0.62	2.1	0.7	34.1	-0.07	2.0	1.0	12	LW
HFCZQD_AL	36.7	39.6 *	37.8	37.6	37.9	1.76	2.1	1.2	37.1	1.55	3.0	1.2	12	XX
JNQ4C7_AL	34.6	33.6	37.8	No DATA	35.3	0.45	1.6	2.2	35.1	0.48	1.9	1.2	11	XX
JUZB3B	36.0	34.6	35.1	35.6	35.3	0.45	2.5	0.6	34.3	0.06	2.3	1.5	12	LU
K4EWHP_AL	33.6	32.3	34.5	33.6	33.5	-0.50	2.3	0.9	33.8	-0.22	2.0	0.7	12	AL
KPD37V	35.7	34.5	35.0	35.5	35.2	0.36	2.3	0.5	34.9	0.41	2.1	0.7	12	LU
L24DVD	32.8	33.1	31.8	31.1	32.2	-1.14	2.4	0.9	32.2	-1.06	2.4	0.9	4	LZ
L24DVD_AL	42.3 XL	41.3 XL	42.5 XL	44.9 XL	42.7	4.21 X	0.0	1.5	42.7	4.63 X	0.0	1.5	4	XX
LZQQBD_AL	36.9	36.1	35.3	32.4	35.2	0.37	2.4	2.0	35.3	0.63	2.5	1.5	12	AL



Containerboard Interlaboratory Testing Program

Analysis 224

Report #640

January 2023

STFI, 56 lb Linerboard - 56G3

TAPPI Official Test Method T826

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
MJ827D	32.9 H	32.3	28.7 X	33.5 H	31.8	-1.33	3.3	2.2	33.3	-0.46	3.6	3.0	11	LZ
MKH3RC	32.6	32.3	34.1 L	33.0	33.0	-0.73	2.0	0.8	33.9	-0.16	2.1	1.3	12	LU
MT9FZX	33.9	34.1	33.9	33.3	33.8	-0.33	2.3	0.4	33.8	-0.19	2.2	0.3 L	12	LZ
MYF4JR	38.7 *	37.2	37.2	37.8	37.7	1.65	2.2	0.7	37.7	1.91	2.2	0.7	4	ID
NAV9C9_AL	33.8	33.5	33.4	34.0	33.7	-0.40	2.3	0.3	34.2	-0.01	2.1	0.7	12	XX
QC6EBD	36.9	36.1	36.6	37.8	36.8	1.22	2.0	0.7	37.1	1.57	1.8	0.6	12	LH
QKYMW6	33.7	32.2	32.3	33.0 L	32.8	-0.85	2.6	0.7	28.5	-3.05 X	2.1	10.1 H	8	LA
QR6ATE	34.2	30.2	34.8 H	34.2 H	33.3	-0.56	3.9	2.1	33.9	-0.13	3.3	1.7	8	LY
QTRVEB	35.8	34.8	35.0	34.3	35.0	0.26	2.6	0.6	33.8	-0.23	2.4	1.4	8	LU
T87VBR	33.6	33.1	32.9	33.1	33.2	-0.65	1.8	0.3	32.8	-0.72	1.8	0.7	12	LW
TZTKHZ	34.7	35.7 H	34.9 L	35.0	35.1	0.31	2.3	0.4	33.5	-0.37	2.1	2.2	12	LU
U2WUPN	33.1	31.7	32.0	31.2	32.0	-1.25	1.8	0.8	32.0	-1.20	2.1	0.7	12	LY
V76PYP	37.3	36.5	34.3	34.9	35.7	0.66	2.4	1.4	34.1	-0.04	2.2	2.0	8	LH
VJRRJ3	34.1	33.9	33.7	34.5	34.1	-0.20	2.0	0.4	33.7	-0.23	2.0	0.5	12	LU
VRPCTB	35.6	34.8	34.8	34.6	35.0	0.26	2.5	0.4	35.2	0.54	2.3	0.4 L	12	LH
VTLY4U_AL	40.0 *	35.5	37.1	37.1	37.4	1.50	2.2	1.9	37.0	1.51	2.5	1.9	12	AL
WU9V8E	36.3	36.2	36.7	38.1	36.8	1.21	2.5	0.9	34.3	0.09	2.1	2.5	12	XX
XCMMRV	32.1	34.2	32.9	34.8	33.5	-0.47	2.2	1.2	32.6	-0.85	2.4	1.8	12	LH
XCMMRV_AI	29.3 *	31.0	32.1 H	30.9	30.8	-1.84	2.6	1.2	31.0	-1.71	2.4	1.0	12	AL
XZVZHU_AL	32.0	35.7	33.3	33.4	33.6	-0.43	1.6	1.5	33.8	-0.22	1.4	0.9	12	XX
YL9BZ3	36.0	33.4	32.5	34.4	34.1	-0.19	2.3	1.5	34.1	-0.03	2.5	1.6	12	LU
Z6KANX	36.6	38.9 *	37.2	37.5 H	37.6	1.57	2.8	1.0	31.0	-1.70	2.2	6.8 H	12	LA
ZMLZ6Z	33.0	33.0	35.2	32.2	33.4	-0.56	2.3	1.3	33.6	-0.30	2.1	1.1	12	LA
ZNRNYW	32.6	32.5	32.8	33.3	32.8	-0.84	2.5	0.3	32.9	-0.71	2.2	0.3 L	12	LY
ZNRNYW_AI	34.5	33.6	33.6	34.3	34.0	-0.25	2.3	0.5	33.5	-0.34	2.2	0.5	12	AL
ZWLUTX	24.7 XL	26.2 XL	26.0 XL	26.2 XL	25.8	-4.41 X	1.0	0.7	31.5	-1.43	2.0	4.3 H	12	LA
ZZ8E6U	35.8	37.6	38.5 *	37.8	37.4	1.51	2.0	1.2	36.2	1.09	2.5	1.7	12	LH

Consensus (All Labs) Results														
Wk Mean	34.23	34.12	34.72	34.48	Month Mean	34.45			Grand Mean	34.18				
Avg SDr	2.40	2.33	2.27	2.34	Avg SD	2.34			Avg SD	2.30				
SD btwn Labs	2.23	2.15	1.81	2.10	SD btwn Labs	1.97			SD btwn Labs	1.85				
Labs Incl	55	56	57	59	SD btwn Wks	1.31			SD btwn Wks	1.65				
Labs Excl	3	3	5	2	Labs Incl	60			Labs Incl	60				
Labs not Rcvd	4	3	0	1										



Containerboard Interlaboratory Testing Program
Analysis 224
STFI, 56 lb Linerboard - 56G3
TAPPI Official Test Method T826

Report #640
January 2023

Key to Instrument Codes Reported by Participants

AL	L & W Autoline 400	ID	IDM Compression Tester
LA	L&W Autoline (224 Enrollment)	LH	L&W 282
LU	L&W 52 without moisture correction (was 53)	LW	L&W 53 with moisture correction (was 53M)
LY	L&W 152 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



Containerboard Interlaboratory Testing Program
 Analysis 228
Roughness - Stylus Method, 42 lb Linerboard - 42H
 TAPPI Official Test Method T575

Report #640
January 2023

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2CH9VD	118.3	-1.38	16.24	122.6	-1.21	5.14	4	XX
4XBZ7U	161.5	0.89	23.22	141.8	0.01	14.36	4	LS
6AC6KK	180.1	1.87	20.97	180.3	2.46 *	12.16	4	LA
6RFMJW	139.0	-0.29	17.80	152.5	0.69	13.49	4	EV
AEEMVA	147.1	0.13	15.23	152.2	0.67	4.27	4	EV
B3EKLC	138.7	-0.31	15.03	138.7	-0.19	3.12 L	4	LS
CQJKUT	190.1	2.40 *	22.37	205.5	4.07 X	27.22	4	LS
DGM89Y	136.6	-0.42	11.46	147.7	0.39	16.67	3	LS
F2LAYY	167.9	1.23	21.46	143.6	0.13	17.32	4	LA
FQP9JA_AL	124.8	-1.04	15.33	131.1	-0.67	10.55	4	XX
FU7F43	146.1	0.08	15.31	149.6	0.50	4.82	4	EV
FX7KYW	145.3	0.04	10.90	143.6	0.12	4.61	4	EV
GXJVRL_AL	114.0	-1.61	12.46	119.1	-1.43	5.31	3	AL
GZMD3A	141.9	-0.14	11.52	142.1	0.03	3.96	4	EV
H6YVL4	130.9	-0.72	15.41	143.8	0.14	25.31	4	LA
JNQ4C7	142.1	-0.13	25.36	147.0	0.34	4.53	4	EV
K4EWHP_AL	149.3	0.25	20.42	129.7	-0.76	21.49	4	AL
L24DVD	0.3	-7.59 X	0.02 L	111.8	-1.90	100.32 H	3	LA
L24DVD_AL	137.2	-0.38	13.56	140.3	-0.09	11.88	3	AL
LZQQBD_AL	115.3	-1.54	19.67	124.9	-1.07	6.48	4	AL
MT9FZX	139.1	-0.29	16.53	135.9	-0.37	10.13	4	LS
U2WUPN	144.1	-0.02	14.03	144.5	0.18	2.90 L	4	EV
VTLY4U_AL	122.3	-1.17	10.39	120.6	-1.34	4.82	4	AL
XCMMRV_AL	158.5	0.73	21.17	146.4	0.30	15.95	4	AL
YL9BZ3	153.8	0.49	22.37	168.3	1.70	15.74	4	EV
Z6KANX	212.5	3.58 X	35.74 H	213.8	4.59 X	20.59	4	LA
ZMLZ6Z	128.6	-0.84	10.01	125.7	-1.02	5.42	4	EV
ZNRNYW	166.6	1.16	27.27	150.4	0.56	11.16	4	XX
ZNRNYW_AL	137.1	-0.39	16.51	139.9	-0.11	4.72	4	AL
ZWLUTX	170.9	1.38	17.80	172.2	1.94 *	11.37	4	LA

Consensus (All Labs) Results			
Month Mean	144.54	Grand Mean	141.65
Avg SD	17.74	Avg SD Months	22.10
SD btwn Labs	19.00	SD btwn Labs	15.70
Labs Incd	28	Labs Incd	28



Containerboard Interlaboratory Testing Program
Analysis 228
Roughness - Stylus Method, 42 lb Linerboard - 42H
TAPPI Official Test Method T575

Report #640
January 2023

Key to Instrument Codes Reported by Participants

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



Containerboard Interlaboratory Testing Program
 Analysis 229
Roughness - Sheffield Method, 42 lb Linerboard - 42H2
 TAPPI Official Test Method T538

Report #640
January 2023

WebCode	Monthly Results				Cumulative Results				
	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
87AVDF_AL	371.0	-0.18	16.35	H	368.5	-0.34	3.65	2	AL
AZEQTB	387.6	1.10	3.78		385.3	1.15	3.32	2	XX
BMP7UY_AL	380.0	0.51	8.49		377.3	0.44	3.89	2	AL
HFCZQD	353.6	-1.53	6.38		351.1	-1.87	3.54	2	PP
JNQ4C7	372.0	-0.11	4.90		372.3	0.00	0.35	2	LA
JNQ4C7_AL	371.1	-0.18	8.01		369.7	-0.23	2.05	2	AK
L24DVD_AL	370.5	-0.22	6.31		373.0	0.06	3.54	2	AL
LZQQBD_AL	356.9	-1.27	4.48		362.8	-0.83	8.34	2	AL
MT9FZX	381.0	0.59	9.31		378.9	0.59	2.94	2	XX
NAV9C9	379.4	0.47	3.27	L	375.1	0.25	6.09	2	PP
NAV9C9_AL	383.7	0.79	5.05		383.7	1.01	0.08	2	XX
VJRRJ3	379.5	0.47	5.40		377.6	0.47	2.76	2	XX
VTLY4U_AL	368.3	-0.39	9.62		369.8	-0.22	2.12	2	AL
XCMMRV_AL	397.3	1.85	6.48		382.4	0.89	21.07	2	AL
XZVZHU_AL	384.7	0.87	9.15		389.1	1.48	6.15	2	AL
YC2DCY	422.4	3.78	4.65	X	429.4	5.04	9.95	2	TS
ZNRNYW_AL	364.4	-0.70	12.01		365.5	-0.60	1.56	2	AL
ZZ8E6U	346.8	-2.06	2.23	L	346.7	-2.26	0.15	2	HM

Consensus (All Labs) Results			
Month Mean	373.40	Grand Mean	372.27
Avg SD	7.90	Avg SD Months	6.33
SD btwn Labs	12.95	SD btwn Labs	11.34
Labs Incd	17	Labs Incd	17

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
HM	Technidyne - Hagerty Model	LA	L & W Autoline (229 Enrollment)
PP	Technidyne Profile/Plus	TS	TMI Monitor/Smoothness
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
 Analysis 231
Internal Bond, 42 lb Linerboard - 42H
 TAPPI Official Test Method T569

Report #640
January 2023

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
4XBZ7U	132.8	0.25	5.93	137.4	0.67	4.21	4	HY
6HBK GK	113.6	-0.96	8.41	120.3	-0.57	6.70	3	XX
6RFMJW	104.0	-1.57	10.93	100.7	-2.00 *	3.80	4	TM
7NU6YQ	125.6	-0.21	4.28	127.3	-0.06	2.53	4	XX
87AVDF	124.8	-0.26	7.98	121.8	-0.46	5.00	4	TM
AEEMVA	124.6	-0.27	10.53	124.3	-0.28	1.41	4	TM
AZEQTB	109.3	-1.24	3.18	105.4	-1.65	6.59	4	SC
BMP7UY	124.3	-0.29	3.32	122.5	-0.41	4.50	3	TM
FQP9JA	112.4	-1.04	6.58	120.0	-0.59	9.49	4	TM
FU7F43	148.2	1.22	4.82	140.9	0.93	6.43	4	HZ
GNXEDT	112.2	-1.05	4.89	110.3	-1.30	7.47	4	TM
GZMD3A	135.2	0.40	6.42	141.1	0.94	4.53	4	SC
H6YVL4	165.6	2.31 *	6.07	152.1	1.74	14.84 H	4	HY
HFCZQD	143.8	0.94	4.76	142.5	1.04	0.95 L	4	HY
JNQ4C7	110.4	-1.17	4.98	116.4	-0.86	6.24	4	TM
KGLMJC	147.4	1.17	5.98	141.9	1.00	4.27	4	TM
KPD37V	132.6	0.23	9.45	127.8	-0.02	3.43	4	HZ
LZQQBD	145.4	1.04	7.70	142.2	1.02	14.93 H	4	TM
NAV9C9	146.4	1.10	3.36	140.9	0.92	3.83	4	HY
VJRRJ3	148.7	1.25	6.93	149.9	1.58	2.03	4	HY
XBG6RE	121.9	-0.44	2.36	123.0	-0.38	2.22	4	SC
XZVZHU	57.3	-4.51 X	2.14	57.8	-5.11 X	0.76 L	4	LZ
YL9BZ3	115.8	-0.83	8.70	118.3	-0.72	4.11	4	TM
ZMLZ6Z	125.4	-0.22	6.73	119.9	-0.60	4.62	4	TM
ZNRNYW	123.2	-0.36	4.32	128.8	0.05	6.70	4	TM

Consensus (All Labs) Results			
Month Mean	128.90	Grand Mean	128.14
Avg SD	6.60	Avg SD Months	6.46
SD btwn Labs	15.87	SD btwn Labs	13.76
Labs Incl	24	Labs Incl	24

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	127.09	14.40	1.81	19
Modified Scott Bond Mechanics	157.16	11.94	28.26	2



Containerboard Interlaboratory Testing Program
Analysis 231
Internal Bond, 42 lb Linerboard - 42H
TAPPI Official Test Method T569

Report #640
January 2023

Analysis Notes

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

Key to Instrument Codes Reported by Participants

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



Containerboard Interlaboratory Testing Program
 Analysis 234
COF Inclined Plane (Slide Angle), 42 lb Linerboard - 42H
 TAPPI Official Test Method T815

Report #640
January 2023

WebCode	Monthly Results				Cumulative Results				
	Mean	CPV	SD		Mean	CPV	SD Months	Months	
2CH9VD	28.4	0.03	6.66	H	24.6	-1.25	4.80	H	4
2DQLCE	31.6	0.80	2.41		29.9	0.50	1.62		3
3EGWTY	24.8	-0.84	1.92		24.8	-1.18	0.43		4
4PX9FW	28.4	0.03	2.97		29.9	0.51	2.92		4
4XBZ7U	28.4	0.03	1.14		28.2	-0.05	0.16	L	4
6AC6KK	29.3	0.23	1.09		28.6	0.08	2.30		4
6RFMJW	27.4	-0.21	3.21		27.5	-0.29	2.62		4
87AVDF	27.0	-0.31	1.41		26.6	-0.58	1.26		4
8RA337	23.2	-1.22	0.76		26.3	-0.68	2.12		4
AEEMVA	29.4	0.27	3.05		27.2	-0.40	1.66		4
AZEQTB	28.4	0.03	0.55	L	28.5	0.03	0.10	L	4
B3EKLC	27.2	-0.26	0.84		27.5	-0.29	0.35		4
CQJKUT	21.7	-1.58	1.48		22.5	-1.96 *	1.17		4
DGM89Y	34.6	1.52	0.55	L	33.1	1.56	1.72		3
FQP9JA	31.4	0.75	2.43		31.4	1.02	1.22		4
FU7F43	18.3	-2.40 *	1.57		18.0	-3.44 X	0.87		4
FX7KYW	27.6	-0.16	1.52		26.8	-0.51	1.37		4
GXJVRL	38.0	2.34 *	2.74		34.7	2.09 *	3.00		3
GZMD3A	28.8	0.12	3.90		30.4	0.66	1.05		4
H6YVL4	26.6	-0.41	3.85		25.6	-0.93	1.51		4
HFCZQD	35.6	1.76	2.07		32.2	1.26	2.63		4
JNQ4C7	29.1	0.20	2.54		29.7	0.46	0.54		4
K4EWHP	26.8	-0.36	4.09		28.4	0.01	1.40		4
LZQQBD	34.6	1.52	4.22		31.2	0.93	2.34		4
MT9FZX	29.8	0.36	2.77		31.0	0.88	1.33		4
NAV9C9	27.8	-0.12	3.56		29.1	0.23	1.50		4
U2WUPN	29.8	0.36	0.71		29.4	0.33	1.79		4
VEKBZ8	25.0	-0.79	2.12		24.9	-1.15	1.57		4
VJRRJ3	24.6	-0.90	2.62		25.5	-0.96	2.00		4
VTLY4U	29.7	0.34	4.43		30.5	0.70	0.85		4
XZVZHU	21.0	-1.75	2.83		21.8	-2.18 *	1.86		4
YL9BZ3	33.0	1.13	6.04	H	32.7	1.42	1.34		4
ZNRNYW	26.2	-0.50	2.49		27.6	-0.25	1.62		4



Containerboard Interlaboratory Testing Program
Analysis 234
COF Inclined Plane (Slide Angle), 42 lb Linerboard - 42H
TAPPI Official Test Method T815

Report #640
January 2023

Consensus (All Labs) Results			
Month Mean	28.29	Grand Mean	28.36
Avg SD	2.95	Avg SD Months	1.88
SD btwn Labs	4.16	SD btwn Labs	3.01
Labs Incl	33	Labs Incl	32

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Containerboard Interlaboratory Testing Program
Analysis 237

Report #640
January 2023

Air Resistance, 42 Ib Linerboard - 42H

TAPPI Official Test Method T460

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2CH9VD	34.3	1.22	2.34	31.8	-0.11	2.06	4	LP
2DQLCE	32.8	0.33	2.07	33.7	1.48	0.95	3	GG
3EGWTY	28.4	-2.23 *	3.01	31.1	-0.72	1.87	4	XX
3H2UHP	32.2	-0.02	1.50	31.6	-0.31	0.58	4	LP
3TWAWT	31.7	-0.30	2.98	31.0	-0.78	0.59	3	GG
4PX9FW_AL	32.2	-0.02	2.71	24.7	-6.14 X	13.77 H	4	AL
4XBZ7U	31.0	-0.70	1.62	31.8	-0.15	0.84	4	LP
6AC6KK	31.7	-0.33	2.62	30.3	-1.39	1.21	4	LA
6RFMJW_AL	32.5	0.19	1.63	32.5	0.43	0.70	3	AL
87AVDF_AL	33.9	0.98	2.63	32.1	0.12	2.22	4	AL
AEEMVA	29.1	-1.87	4.18	32.2	0.22	2.83	4	GA
B3EKLK	32.0	-0.12	1.89	32.2	0.22	0.42	4	LA
BMP7UY_AL	33.8	0.96	1.54	32.6	0.55	1.06	3	AL
CQJKUT	25.5	-3.99 X	4.96 H	26.2	-4.85 X	1.05	4	TD
DGM89Y	32.2	0.00	3.77	30.5	-1.26	1.59	3	XX
F2LAYY	31.6	-0.37	3.19	31.8	-0.15	0.25 L	4	LA
FQP9JA_AL	34.7	1.49	2.76	33.7	1.50	0.77	4	XX
FU7F43	33.7	0.90	2.12	32.5	0.51	0.93	4	LP
FX7KYW	31.0	-0.70	1.69	31.7	-0.18	1.06	4	LP
GXJVRL	33.5	0.79	3.17	32.6	0.53	1.53	3	GG
GXJVRL_AL	31.7	-0.30	2.45	31.0	-0.78	0.70	3	AL
GZMD3A	31.1	-0.64	1.97	30.7	-1.02	0.64	4	LP
H6YVL4	34.2	1.18	2.66	32.8	0.74	1.11	4	LP
H7EV8D	32.8	0.37	3.61	31.4	-0.47	1.26	4	GG
HFCZQD	32.3	0.04	3.44	33.1	0.97	1.89	4	TP
JNQ4C7_AL	31.6	-0.39	1.08 L	31.5	-0.39	0.69	4	AK
K37LN8	44.5	7.26 X	3.63	34.7	2.29 *	6.65 H	4	LP
K4EWHP_AL	30.4	-1.07	2.04	31.0	-0.85	0.61	4	AL
L24DVD_AL	31.7	-0.29	2.34	31.0	-0.81	1.05	3	XX
LZQQBD_AL	31.3	-0.56	1.40	31.7	-0.18	1.02	4	AL
MT9FZX	34.3	1.25	3.62	33.3	1.16	1.00	4	GA
NAV9C9	32.8	0.36	3.22	31.0	-0.82	1.32	4	TP
NAV9C9_AL	31.8	-0.27	1.23	31.3	-0.52	0.45	4	XX
VJRRJ3	32.4	0.12	2.74	32.0	0.03	0.92	4	TP
VRPCTB	32.1	-0.06	3.63	29.3	-2.22 *	2.17	4	XX
VTLY4U_AL	30.0	-1.31	1.76	29.5	-2.05 *	2.00	4	AL
WU9V8E	31.7	-0.30	1.27	31.4	-0.50	0.94	4	LA
XCMRV_AL	34.6	1.43	2.07	33.3	1.12	1.44	4	AL
XZVZHU_AL	34.0	1.08	1.94	32.9	0.82	0.92	4	AL



Containerboard Interlaboratory Testing Program
Analysis 237

Report #640
January 2023

Air Resistance, 42 lb Linerboard - 42H2

TAPPI Official Test Method T460

WebCode	Monthly Results				Cumulative Results				
	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
YL9BZ3_AL	30.8	-0.81	6.25	H	32.6	0.58	1.56	4	AL
Z6KANX	34.7	1.50	5.41	H	32.7	0.62	1.42	4	LA
ZNRNYW	31.7	-0.33	2.60		31.2	-0.66	1.44	4	LP
ZNRNYW_AL	35.6	2.03 *	2.01		34.8	2.38 *	1.41	4	AL
ZWLUTX	31.3	-0.55	1.56		32.0	0.05	2.57	4	LA
ZZ8E6U	27.7	-2.65 *	1.19	L	22.6	-7.93 X	11.92 H	4	LA

Consensus (All Labs) Results			
Month Mean	32.21	Grand Mean	31.95
Avg SD	2.75	Avg SD Months	1.69
SD btwn Labs	1.69	SD btwn Labs	1.18
Labs Incd	43	Labs Incd	42

Key to Instrument Codes Reported by Participants

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



Containerboard Interlaboratory Testing Program
 Analysis 240
Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM12
 TAPPI Official Test Method T809

Report #640
January 2023

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
2CH9VD	57.1	61.9	64.4 *	60.7	61.0	1.15	2.9	3.0 H	61.3	1.32	3.6	1.9	16	LD
3EGWTY	58.3	56.2	56.0	58.0	57.1	-0.47	4.2	1.2	60.4	0.94	4.4	2.5	16	LZ
3H2UHP	56.4	58.5	58.2	55.3	57.1	-0.46	2.7	1.5	58.0	-0.12	3.3	1.6	16	LD
4XBZ7U	No DATA	No DATA	No DATA	58.4	58.4	0.05	2.0	0.0	56.8	-0.68	3.2	1.1	4	LD
67WRMH	59.3	58.9	58.8	59.4	59.1	0.36	2.7	0.3	58.7	0.16	2.7	0.4 L	16	LD
6AC6KK	52.8	53.6	51.5 *	55.9	53.4	-1.96 *	4.1	1.9	54.2	-1.81	4.0	2.5	16	MB
6RFMJW	61.9	57.8	59.2	56.9	59.0	0.29	2.9	2.2	58.3	0.01	3.4	2.0	16	LC
6UJCYX	56.7	55.8	57.4	57.2	56.8	-0.60	3.7	0.7	57.2	-0.51	3.0	0.9	16	EN
8RA337	63.8	61.1	60.8	62.1	61.9	1.51	3.8	1.3	61.9	1.60	3.8	1.3	16	LD
967XD4	60.3	60.0 L	60.1	58.5 L	59.7	0.61	1.8	0.8	58.4	0.03	2.5	1.4	12	TH
A8F6EC	56.2	57.4	57.6	57.7 L	57.3	-0.40	1.7	0.7	56.9	-0.63	1.9	0.9	16	TU
AEEMVA	60.9	57.2 H	60.5	61.0	59.9	0.69	5.0	1.8	57.7	-0.25	3.6	2.2	16	LD
B3EKLC	58.5 L	59.0	58.9 L	58.8	58.8	0.23	1.6	0.2 L	58.5	0.06	1.6	0.4 L	16	LD
CAV8HM	61.2 L	60.9	60.6	59.1	60.5	0.92	3.3	0.9	62.6	1.89	3.1	2.1	16	LC
DPGC2Z	65.2 *H	64.9 *	63.9 *	62.9 *	64.2	2.45 *	4.3	1.0	63.1	2.12 *	4.7	1.5	8	LD
E9AEDU	58.1 H	56.7 H	57.4 H	59.2 H	57.8	-0.16	6.6	1.1	57.8	-0.20	6.1	1.6	14	TH
FU7F43	55.3	53.4	55.8	56.1	55.1	-1.27	4.0	1.2	56.9	-0.63	3.5	2.6	16	LZ
GFKKZC	58.7 L	59.7 L	60.8 L	59.8 L	59.8	0.63	0.8	0.9	60.0	0.74	0.9	1.2	16	XX
H6YVL4	59.5	59.5	57.9	58.8	58.9	0.28	3.4	0.8	58.3	0.00	3.5	1.7	16	XX
HFCZQD	59.2	57.9	59.4	58.3	58.7	0.18	3.6	0.7	57.9	-0.16	3.5	1.6	13	LD
JUZB3B	59.0	59.8	57.1	58.3	58.5	0.13	3.9	1.1	58.9	0.25	3.8	1.6	16	LZ
K37LN8	57.9	57.5	55.3	63.5 *	58.6	0.13	3.7	3.5 H	56.8	-0.67	3.1	2.5	16	LD
K4EWHP	60.7	60.0	55.5	57.7	58.5	0.10	4.5	2.4	59.7	0.62	4.3	2.6	16	LZ
KPD37V	56.2	56.8	57.0	56.2	56.5	-0.69	3.1	0.4	56.8	-0.66	3.2	1.5	16	LD
KX9C8D	66.0 *	62.3	63.4	65.0 X	64.2	2.44 *	3.1	1.6	62.1	1.69	3.9	2.0	16	TX
L24DVD	60.3	56.9	60.6	59.6	59.3	0.44	3.7	1.7	57.4	-0.40	3.5	2.7	12	LD
LYYMNY	56.6	56.0	56.9	56.4	56.5	-0.72	1.8	0.4	56.8	-0.67	1.7	0.6	16	MB
LZQQBD	54.9	51.8 *	53.8	54.0	53.6	-1.89	3.8	1.3	56.4	-0.83	3.9	3.0	16	LD
MJ827D	63.4	62.1	60.1	57.6	60.8	1.05	3.5	2.5	59.3	0.42	3.7	2.3	15	LD
MKH3RC	57.7	58.7	62.8	61.1	60.1	0.75	4.4	2.3	60.2	0.81	3.6	1.4	16	LD
MT9FZX	61.6	59.3	56.4	59.6	59.2	0.40	3.1	2.2	58.7	0.18	3.1	1.5	16	LZ
MUGRGZ	55.6	53.4	54.6	57.4	55.2	-1.24	2.5	1.7	55.9	-1.07	2.9	1.5	8	TH
MYF4JR	56.9	56.7	57.1	57.2	57.0	-0.52	1.9	0.2 L	57.0	-0.59	1.9	0.2 L	4	RS
NAV9C9	57.3	58.8	58.4	55.5	57.5	-0.30	3.3	1.5	57.2	-0.49	3.2	1.6	16	LD
NXVPKF	58.2 L	58.2 L	58.1 L	58.1 L	58.2	-0.03	0.4	0.0 L	58.1	-0.09	0.4	0.1 L	16	LD



Containerboard Interlaboratory Testing Program
Analysis 240

Report #640
January 2023

Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM12

TAPPI Official Test Method T809

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
QC6EBD	55.0	53.7	56.2	55.4	55.1	-1.30	3.5	1.0	55.7	-1.16	3.7	1.7	16	LD
T9LR3Q	55.7	57.2	56.2	55.8 H	56.2	-0.82	4.9	0.7	55.9	-1.06	3.5	0.7	16	LD
TDHEWE	63.1	63.0	62.7	62.5	62.8	1.89	3.0	0.3	62.8	1.99 *	3.0	0.3 L	4	TB
TZTKHZ	58.2	57.0	59.1	58.8	58.3	0.02	4.0	0.9	58.2	-0.03	4.6	3.0	16	LD
U2WUPN	55.5	57.8	56.6 H	57.0	56.7	-0.62	5.0	0.9	59.0	0.29	4.1	2.2	16	EN
V6UKK2	59.1	59.2	61.6	59.3	59.8	0.64	4.4	1.2	59.2	0.41	3.9	2.1	16	LD
V76PYP	61.0	60.5	62.4	62.5	61.6	1.38	3.8	1.0	61.6	1.45	3.9	1.1	12	LD
VJRRJ3	60.3	58.0	54.3	59.8	58.1	-0.04	3.3	2.7	59.1	0.33	3.5	2.1	16	LC
VRPCTB	53.0	53.6	57.5	54.8	54.7	-1.45	3.0	2.0	55.4	-1.28	3.5	2.1	16	LD
WHDMMQ	56.5	54.2	57.8	56.4	56.2	-0.83	3.2	1.5	61.9	1.56	3.7	4.4 H	16	LD
X6PX97	54.1	55.8	57.0	56.7	55.9	-0.96	2.0	1.3	55.8	-1.12	2.9	2.4	16	EM
XBG6RE	58.1	54.2	56.0	56.6	56.2	-0.82	2.9	1.6	55.6	-1.17	3.9	2.3	16	LC
XZVZHU	54.4	55.9 L	57.5	56.9	56.2	-0.84	2.0	1.3	56.0	-1.02	2.6	1.6	16	LD
Z6KANX	60.5	60.6	61.3	60.7	60.8	1.04	3.7	0.4	59.6	0.58	3.7	2.5	16	TU
ZMLZ6Z	61.1	58.4	61.1	60.0	60.2	0.79	3.2	1.3	59.9	0.71	3.5	2.9	16	LC
ZNRNYW	54.1	54.3	54.4	56.1	54.7	-1.44	3.5	0.9	52.5	-2.56 *	3.3	1.7	16	LD
ZWLUTX	54.9	56.8	59.3	55.2	56.5	-0.70	3.4	2.0	57.7	-0.29	3.7	1.8	16	MB
ZZ8E6U	32.5 X	31.8 X	32.8 X	33.9 X	32.7	-10.47 X	2.5	0.9	42.5	-6.98 X	2.9	10.3 H	16	LD

Consensus (All Labs) Results													
Wk Mean	58.36	57.82	58.38	58.25	Month Mean	58.23			Grand Mean	58.31			
Avg SDr	3.62	3.47	3.46	3.38	Avg SD	3.46			Avg SD	3.46			
SD btwn Labs	3.06	2.78	2.80	2.25	SD btwn Labs	2.44			SD btwn Labs	2.27			
Labs Incl	51	51	51	51	SD btwn Wks	1.50			SD btwn Wks	1.94			
Labs Excl	1	1	1	2	Labs Incl	52			Labs Incl	52			
Labs not Rcvd	1	1	1	0									

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	EN	Emerson 2200 Series
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LZ	L&W Crush Tester (model not specified)	MB	Messmer Buchel K440
RS	Regmed Digital Crush Tester CT-2000	TB	TMI Monitor/Compression Tester, 17-70
TH	TMI Compression Tester, Model 17-76	TU	TMI Universal Crush Tester (TMI K440)
TX	TMI Crush Tester (model not specified)	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
Analysis 250

Report #640
January 2023

Fluted Edge Crush Strength (FCF), 26 lb Corrugating Medium - CM12

TAPPI Official Test Method T843

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
2CH9VD	66.7	70.4	69.2	68.7	68.7	-0.10	3.8	1.5	67.9	-0.33	3.7	1.4	16	LD
3H2UHP	67.8	67.2	66.3	69.0	67.6	-0.59	3.4	1.1	69.0	0.13	3.5	1.4	16	LD
6RFMJW	70.7	68.0	66.1	68.7	68.4	-0.25	3.3	1.9	70.3	0.66	5.1	2.3	16	LC
967XD4	63.5	65.0	64.9	65.0	64.6	-1.86	2.8	0.7	63.0	-2.38 *	2.5	1.6	12	TH
B3EKLC	68.5	69.1	68.5 L	69.0 L	68.8	-0.08	1.5	0.3	68.8	0.05	1.6	0.3 L	16	LD
GFKKZC	69.7 L	71.0 L	70.7 L	72.6 L	71.0	0.86	0.9	1.2	70.8	0.87	1.1	1.2	16	XX
H6YVL4	71.0	70.0	69.3	71.0	70.3	0.58	3.4	0.8	70.5	0.76	3.6	1.5	16	XX
HFCZQD	70.4	70.6	68.4	72.1 H	70.4	0.60	4.4	1.5	70.3	0.68	4.2	1.6	13	LD
JUZB3B	63.8	67.0	67.0	68.0 L	66.4	-1.08	3.6	1.8	67.0	-0.71	4.2	1.6	16	LZ
K37LN8	67.6	72.5	71.7	72.0	70.9	0.85	3.0	2.3	70.7	0.83	2.9	1.7	16	LD
K4EWHP	60.3 H	65.5	65.5	63.3 *	63.6	-2.27 *	4.7	2.5	64.7	-1.67	4.2	2.5	16	LZ
L24DVD	67.7	72.3 H	69.5	66.6	69.0	0.03	4.5	2.5	64.8	-1.63	4.0	3.9	12	XX
LYYMNY	68.9	68.7	68.8	68.3	68.7	-0.12	1.9	0.2 L	68.6	-0.04	1.8	0.2 L	16	MB
LZQQBD	69.8	71.9	71.3	71.8	71.2	0.95	3.2	1.0	70.7	0.84	3.5	2.5	16	LD
MKH3RC	62.1	65.2	72.0	70.5	67.4	-0.65	3.7	4.6 H	69.4	0.31	2.9	2.7	16	LD
NAV9C9	70.6	70.5	71.1	72.8	71.2	0.97	3.7	1.1	71.4	1.13	3.4	1.2	16	LD
VJRRJ3	72.4	71.4	72.0	70.5	71.6	1.11	3.0	0.8	70.6	0.82	3.3	2.0	16	LC
XZVZHU	73.7	71.7	70.0	70.4	71.4	1.05	3.0	1.7	69.5	0.35	2.8	2.0	16	LD
ZNRNYW	58.7 *H	57.2 X	57.9 X	57.6 X	57.9	-4.72 X	4.2	0.6	59.2	-4.01 X	5.0	5.7	16	LD
ZZ8E6U	90.2 X	92.4 X	91.6 X	87.2 XH	90.4	9.13 X	4.2	2.3	67.1	-0.68	6.3	14.7 H	16	LD

Consensus (All Labs) Results													
Wk Mean	67.56	69.32	69.00	69.46	Month Mean	68.96			Grand Mean	68.69			
Avg SDr	3.43	3.47	3.45	3.27	Avg SD	3.36			Avg SD	3.60			
SD btwn Labs	4.10	2.49	2.28	2.63	SD btwn Labs	2.35			SD btwn Labs	2.37			
Labs Includ	19	18	18	18	SD btwn Wks	1.83			SD btwn Wks	3.86			
Labs Exclcd	1	2	2	2	Labs Includ	18			Labs Includ	19			
Labs not Rcvd	0	0	0	0									

Key to Instrument Codes Reported by Participants

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



Containerboard Interlaboratory Testing Program
 Analysis 255
Ring Crush (RCT), 26 lb Corrugating Medium - CM12
 TAPPI Official Test Method T822

Report #640
January 2023

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
3H2UHP	41.6	41.7	41.4	40.4	41.3	-1.69	2.7	0.6	41.9	-1.20	3.2	1.4	16	LD
67WRMH	44.2	43.8	44.7	43.6	44.1	-0.29	2.8	0.5	43.8	-0.21	2.6	0.3	L 16	LD
6AC6KK	54.3 XH	43.1	43.4	45.3	46.5	0.93	3.3	5.3 H	47.6	1.71	3.7	4.4 H	16	MB
967XD4	43.8	43.8	43.5	42.5	43.4	-0.62	2.5	0.6	43.2	-0.54	2.3	1.2	12	TH
A8F6EC	44.9 L	45.0 L	44.6 L	44.8 L	44.8	0.07	0.9	0.2 L	43.6	-0.36	1.5	1.7	16	TU
AK2E2G	44.7	46.2 H	46.3	45.5	45.7	0.50	4.0	0.8	44.8	0.30	3.5	1.4	16	TH
CAV8HM	42.1	42.4	42.3	41.2	42.0	-1.32	2.7	0.5	40.6	-1.91 *	2.6	1.7	16	XX
DPGC2Z	43.2	44.1	45.5	46.3	44.8	0.05	2.8	1.4	44.4	0.09	3.1	2.0	16	LD
H6YVL4	45.0	44.7	44.3	42.5	44.1	-0.27	3.7	1.1	44.3	0.01	3.3	1.1	16	XX
HFCZQD	45.8	47.2	46.5	48.7	47.0	1.19	3.0	1.3	46.0	0.89	3.4	1.6	13	LD
K37LN8	44.9	42.5	44.5	46.5	44.6	-0.03	3.8	1.7	44.0	-0.12	2.9	2.0	16	LD
KPD37V	43.5	44.6	44.7	44.7	44.4	-0.15	3.1	0.6	44.2	-0.05	2.8	1.1	16	LD
KX9C8D	48.9 *	44.9	51.0 X	50.4 *	48.8	2.05 *	2.7	2.7	45.7	0.76	3.5	3.7 H	16	LZ
L24DVD	42.4	41.5 H	40.3 *	42.9	41.8	-1.44	4.5	1.1	40.5	-1.97 *	4.1	2.4	12	LD
LYYMNY	42.7 L	42.3	42.7	42.7 L	42.6	-1.02	1.5	0.2 L	42.5	-0.88	1.6	0.3 L	16	MB
MJ827D	47.8	47.1	45.6	51.1 *	47.9	1.61	3.0	2.3	46.0	0.92	3.5	2.0	16	LZ
MT9FZX	42.1	41.8	42.2	44.2	42.6	-1.05	2.6	1.1	42.5	-0.89	2.8	1.1	16	LD
MUGRGZ	32.5 X	31.8 X	36.7 X	34.1 X	33.8	-5.43 X	2.8	2.2	35.5	-4.52 X	2.3	2.5	8	TH
NAV9C9	45.8	46.9	46.5	46.2	46.3	0.82	2.6	0.5	47.3	1.57	3.0	2.1	16	LD
NXVPKF	44.6 L	44.6 L	44.5 L	44.6 L	44.6	-0.06	0.5	0.0 L	44.9	0.31	0.4	0.2 L	16	LD
T9LR3Q	46.8	46.6	44.7	46.1	46.0	0.68	2.9	0.9	45.2	0.51	2.8	1.1	16	LC
TDHEWE	39.6 *	41.3	41.9	39.2 *	40.5	-2.09 *	3.1	1.3	40.5	-1.95 *	3.1	1.3	4	XX
V6UKK2	43.5	45.6	44.7 H	41.7	43.9	-0.40	3.8	1.7	43.5	-0.39	4.2	2.2	16	LD
VJRRJ3	46.5	45.3	47.3	44.9	46.0	0.66	3.0	1.1	45.0	0.40	3.4	2.1	16	LC
VRPCTB	46.5	45.1	46.1	45.2	45.7	0.53	2.7	0.7	45.5	0.66	3.1	0.8	16	LD
WHDMMQ	49.1 *	44.7	47.9 *	46.7	47.1	1.21	3.8	1.9	47.1	1.49	3.8	2.4	16	EM
WU9V8E	42.0	44.4	44.0	47.5	44.5	-0.10	3.6	2.3	44.1	-0.06	3.1	2.0	16	LD
X6PX97	45.7	46.4	45.4	46.0	45.8	0.58	3.0	0.4	46.3	1.06	3.2	1.2	16	EM
XZVZHU	44.9	44.5	42.3	44.2	44.0	-0.36	2.6	1.2	43.9	-0.16	2.3	1.0	16	LD

Consensus (All Labs) Results														
Wk Mean	44.54	44.35	44.36	44.83	Month Mean	44.67			Grand Mean	44.25				
Avg SDr	2.79	3.11	2.90	3.23	Avg SD	3.03			Avg SD	3.07				
SD btwn Labs	2.25	1.75	1.87	2.73	SD btwn Labs	2.00			SD btwn Labs	1.93				
Labs Incl	27	28	27	28	SD btwn Wks	1.59			SD btwn Wks	1.87				
Labs Excl	2	1	2	1	Labs Incl	28			Labs Incl	28				
Labs not Rcvd	0	0	0	0										



Containerboard Interlaboratory Testing Program
Analysis 255
Ring Crush (RCT), 26 lb Corrugating Medium - CM12
TAPPI Official Test Method T822

Report #640
January 2023

Key to Instrument Codes Reported by Participants

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



Containerboard Interlaboratory Testing Program

Analysis 261

Report #640

January 2023

STFI, 26 lb Corrugating Medium - CM12

TAPPI Official Test Method T826

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
4XBZ7U	No DATA	No DATA	No DATA	13.3	13.3	-1.19	0.8	0.0	13.3	-1.06	0.8	0.0	1	XX
6AC6KK	14.0	15.1	14.8 H	12.3 *L	14.1	0.15	1.6	1.3 H	14.3	0.53	2.8	1.0	16	LA
6UJCXY	13.4	13.2 L	13.5	12.7	13.2	-1.40	0.9	0.4	13.5	-0.78	0.9	0.4	16	LH
7NU6YQ	13.4	14.0	14.2	14.2	13.9	-0.08	1.2	0.4	13.9	-0.06	1.1	0.5	16	LA
87AVDF	14.6	14.4	14.7	13.6	14.3	0.62	1.1	0.5	14.6	1.07	1.1	0.5	16	LA
8RA337	14.9	14.5 L	14.2 L	14.6 L	14.5	1.00	0.6	0.3	14.3	0.50	0.6	0.4	16	LH
967XD4	12.9 *L	13.2	13.1	12.7	13.0	-1.81	1.0	0.2	12.9	-1.75	1.0	0.5	12	LZ
AEEMVA	13.7	13.9	14.4	13.8	13.9	-0.09	1.3	0.3	13.6	-0.60	1.2	0.4	16	LU
B3EKLC	14.4	14.6	14.3	14.4	14.4	0.80	1.1	0.1	14.2	0.44	1.1	0.2 L	16	LB
DPGC2Z	14.3	14.0	13.8	14.6	14.2	0.35	0.9	0.4	14.5	0.78	1.2	0.4	16	XX
E9AEDU	14.1	13.0	13.1	13.3	13.4	-1.13	1.2	0.5	13.7	-0.39	1.2	0.5	14	TT
GFKKZC	13.9	12.9 L	13.6	13.4	13.4	-0.97	0.9	0.4	14.1	0.20	0.9	0.6	16	XX
HFCZQD	14.1	13.7 L	14.2	13.7	13.9	-0.13	1.1	0.3	13.7	-0.40	1.1	0.3	14	LB
L24DVD	13.3	12.8 H	13.4 L	13.2	13.2	-1.44	1.1	0.3	12.6	-2.24 *L	1.0	1.0	12	LZ
LZQQBD	14.9	13.5	14.9	13.2	14.1	0.26	1.2	0.9	14.4	0.65	1.1	0.7	16	LA
MT9FZX	13.9	13.5	14.1	13.7	13.8	-0.33	1.1	0.2	13.7	-0.38	1.1	0.3 L	16	LZ
MYF4JR	14.3	15.0	14.6	14.8	14.7	1.24	1.1	0.3	14.7	1.13	1.1	0.3	4	XX
QKYMW6	13.9	13.8	13.0 L	13.4 L	13.5	-0.85	0.9	0.4	14.0	0.06	1.3	0.7	12	LA
QTRVEB	14.3	14.0	13.5	14.2	14.0	0.00	0.8	0.4	13.5	-0.81	1.0	0.7	8	LU
T2ZYP7	15.1	15.0 L	14.8	14.4	14.8	1.52	0.7	0.3	16.3	3.82 *X	0.7	3.6 H	8	XX
T9LR3Q	14.1	14.2	13.7	14.7	14.2	0.32	1.2	0.4	14.2	0.37	1.1	0.5	16	LH
VJRRJ3	14.1	13.6	14.1	14.0	13.9	-0.10	1.1	0.3	14.1	0.19	1.1	0.2 L	16	LU
WU9V8E	12.9 *	15.3	15.4 L	15.1	14.7	1.25	1.0	1.2 H	14.8	1.30	1.2	0.7	16	LA
XZVZHU	13.9 L	13.8	14.7	14.2	14.1	0.27	0.7	0.4	13.9	-0.04	0.8	0.6	16	LA
Z6KANX	15.0 H	15.9 *H	15.4	15.1 L	15.4	2.46 *	1.8	0.4	13.7	-0.37	2.1	3.1 H	16	LA
ZNRNYW	13.8	13.3	14.0	13.7 H	13.7	-0.50	1.2	0.3	13.4	-0.88	1.1	0.4	16	LB
ZWLUTX	13.9 L	14.4	13.4	13.7	13.8	-0.24	1.0	0.4	15.6	2.58 *L	2.9	3.0 H	16	LA

Consensus (All Labs) Results														
Wk Mean	14.04	14.02	14.10	13.85	Month Mean	13.98			Grand Mean	13.98				
Avg SDr	1.13	1.22	1.03	1.00	Avg SD	1.10			Avg SD	1.33				
SD btwn Labs	0.58	0.80	0.69	0.73	SD btwn Labs	0.56			SD btwn Labs	0.62				
Labs Incl	26	26	26	27	SD btwn Wks	0.51			SD btwn Wks	1.01				
Labs Excl	0	0	0	0	Labs Incl	27			Labs Incl	26				
Labs not Rcvd	1	1	1	0										



Containerboard Interlaboratory Testing Program
Analysis 261
STFI, 26 lb Corrugating Medium - CM12
TAPPI Official Test Method T826

Report #640
January 2023

Key to Instrument Codes Reported by Participants

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

End of Report