



Rubber Interlaboratory Testing Program

Summary Report #193- 3rd Qtr 2017

[About the Rubber Program, About CTS](#)

[Key for Web Summary Report](#)

Analysis	Analysis Name	Analysis	Analysis Name
605	Tensile Strength: Precured Rubber Samples	691	RPA Rheological Properties: Part A - G'' at 20Hz
606	Ultimate Elongation: Precured Rubber Samples	695	RPA Rheological Properties: Part B - G' at 1.0Hz
607	Stress at 300% Elongation: Precured Samples	696	RPA Rheological Properties: Part B - G'' at 1.0Hz
608	Stress at 100% Elongation: Precured Samples		
620	Hardness (Type A): Precured Rubber Samples		
621	Density: Precured Rubber Samples @ 25C		
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630	Tensile Strength: Participant-Cured Rubber		
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685	MDR Vulcanization Charac.: Scorch Time, Ts1		
686	MDR Vulcanization Charac.: Cure Time 50%		
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688	MDR Vulcanization Charac.: Minimum Torque		
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690	RPA Rheological Properties: Part A - G' at 20Hz		

ABOUT THE PROGRAM

The Collaborative Reference Program for RUBBER, which was initiated in 1969, is operated and maintained by Collaborative Testing Services, Inc. (CTS), with technical guidance provided by the Rubber Division of the American Chemical Society. The program allows laboratories to compare periodically the level and uniformity of their testing with that of other participating laboratories. It also provides a realistic assessment of the state of rubber testing proficiency.

For each test there are summary statistics and a graphical representation of the data. Also shown are notes concerning specific laboratory results, as well as significant findings related to instrument types or other testing variations. Please refer to the section KEY TO TABLES AND GRAPHS for an explanation of terms and guidelines to interpreting the results.

ABOUT CTS

Founded in 1971, CTS is a privately-owned company that specializes in interlaboratory tests for a wide variety of industrial sectors, including rubber, plastics, fasteners and metals, containerboard, paper and color, 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 CTS programs.

If there are any questions on the report or testing program, please contact:

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WebCode	Assigned laboratory identification number (temporary) used to ensure lab confidentiality while permitting a lab to locate its data in the Rubber Report published on the CTS Web site. The WebCode for each analysis can be found in the Performance Analysis Report mailed to each participant.
Lab Mean	Tensile & Hardness: the average of the median values obtained for each sample. All other tests: the average of the test results obtained by the participant.
Grand Mean	The average of the LAB MEANS for all included participants. Laboratories flagged with an X or an M (see DATA FLAG column) are excluded from the GRAND MEAN.
Difference from Grand Mean	The difference of the LAB MEAN from the GRAND MEAN.
Between-Lab Standard Deviation	An indication of the precision of measurement between the laboratories. The greater the spread of the LAB MEANS about the GRAND MEAN, the larger the BETWEEN-LAB STANDARD DEVIATION (and vice versa).
Comparative Performance Value	An indication of how well a laboratory's results agree with the other participants. The CPV is a ratio indicating the number of standard deviations from the GRAND MEAN. The closer a laboratory's COMPARATIVE PERFORMANCE VALUE is to zero, the more consistent its results are with the other participants' data (and vice versa). The critical value for each CPV will vary depending on the number of labs participating in a test.
Inst Code	If instruments are tracked in a test, a code indicating the manufacturer of the instrument used to perform the test (see separate INSTRUMENT CODE LIST for each test section).
Data Flag	DATA FLAGS are assigned based on the simultaneous analysis of both samples tested. Refer to the following chart for an explanation of each symbol:

<u>DATA FLAG</u>	<u>STATISTICALLY INCLUDED/EXCLUDED</u>	<u>ACTION REQUIRED</u>
*	INCLUDED	CAUTION - review testing procedure and monitor future results. Results fall outside 95% ellipse but within a 99% ellipse that is calculated but not drawn.
X	EXCLUDED	STOP - immediate review of data and/or testing procedure is required. Results fall outside the 99% ellipse. See specific notes following each table for more information on why the data is excluded.
M	EXCLUDED	PROCEED - lab was unable to report data for at least one sample. However, a lab receiving two of more M flags for a test may need to stop and review its testing procedures.

Graph - For each laboratory, the LAB MEAN for the first sample (x-axis) is plotted against the LAB MEAN for the second sample (y-axis) with each point representing a laboratory. The horizontal and vertical cross-hairs are the GRAND MEANS for each sample. When 20 or more laboratories are in the statistics, an ellipse is also drawn so that 95% of the time a randomly selected laboratory will be included inside the ellipse. Plotted data flags are explained above.

Common Problems Highlighted in Footnotes

1. **Extreme data** - The laboratory's results for one or both samples are so inconsistent with those of the other participants that the lab mean(s) fall outside the plot. (The data usually vary by more than three standard deviations from the grand mean.) The participant is advised to immediately review his data and/or testing procedure.
2. **Systematic bias** - The laboratory's results are either consistently high or low for both samples when compared to the other participants (the plotted point falls near the top or bottom of the ellipse). This indicates that the participant is performing the test with a constant bias. Causes of systematic errors include improper calibration, the particular make/model of equipment or a modification to the testing procedure.
3. **Inconsistency in testing between samples/sample sets** - The laboratory's results indicate that there are differences in the way the two samples tested (the plotted point falls to the side of the ellipse). This type of error may be attributed to the analyst deviating from the procedure when testing one of the samples or a material interaction occurrence with the instrument or room conditions. The inconsistency is reflected in the CPVs for the two samples, such as a +1.5 CPV for sample A and a -2.2 CPV for sample B. CTS also will specify if the laboratory's data for one sample are high/low compared to the other participants. If this inconsistency is slight, the lab's plotted point will be an * that falls on the edge of the ellipse.
4. **Inconsistency in testing within a sample** - The laboratory's within-lab standard deviation for a specified sample is high when compared to the other participants, often causing the lab's plotted point to fall outside of the ellipse.
5. **Data appeared to be off by a factor of # and was corrected by CTS** - In tests that involve computations, the results reported to CTS may be off by a factor. If this factor can easily be determined, CTS may correct the data and flag the participant. Occasionally CTS will correct a laboratory's results even though the data are still high or low when compared to the other participants. This is done so that the laboratory may be alerted to other possible errors in its testing procedure.
6. **Data for two samples (or two tests) appeared to be switched by the lab, and the error was corrected by CTS.**

Labs flagged with an * are not typically included in the footnotes of a data table. These labs may locate their position in the control ellipse and use the definitions above to help identify the type of testing error. An * should serve as a caution flag, a "yellow light", to a lab. If this error is repeated in future rounds, a lab may need to stop and review its testing procedures. The initial data flag is not cause for alarm. Interlaboratory tests conducted at regular intervals permit a lab to recognize trends in testing.



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample C71-C72			Sample C73-C74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
26LTED		2,997.4	-80.6	-0.65	3,018.9	-68.5	-0.57
28PEV7		3,246.1	168.1	1.35	3,173.2	85.8	0.72
29GMAU		3,205.4	127.4	1.03	3,161.9	74.5	0.62
2GTACP	X	3,025.5	-52.5	-0.42	3,277.9	190.5	1.59
3CY8R3		2,771.5	-306.5	-2.47	2,843.0	-244.4	-2.04
3N6FAK		3,258.3	180.3	1.45	3,202.5	115.1	0.96
3NQJX9		3,153.9	75.9	0.61	3,045.3	-42.1	-0.35
3WF7QP		3,176.5	98.5	0.79	3,192.5	105.1	0.88
42RC7W	X	3,136.5	58.5	0.47	2,824.5	-262.9	-2.20
4TFP3F		3,126.2	48.2	0.39	3,152.6	65.2	0.54
4UBX27		3,116.0	38.0	0.31	3,185.0	97.6	0.82
6677K9		3,199.5	121.5	0.98	3,241.0	153.6	1.28
6UQGL3		3,106.0	28.0	0.23	3,143.0	55.6	0.47
6XN2M2		3,152.5	74.5	0.60	3,065.0	-22.4	-0.19
6ZAEWN		2,975.0	-103.0	-0.83	2,915.0	-172.4	-1.44
7AYTQ2		2,917.5	-160.5	-1.29	2,956.6	-130.8	-1.09
7F3WCT		3,015.5	-62.5	-0.50	2,930.5	-156.9	-1.31
7MYQCD		3,105.3	27.3	0.22	3,155.4	68.0	0.57
7NWCBQ		2,910.2	-167.8	-1.35	2,998.0	-89.4	-0.75
82Y3RP		3,070.5	-7.5	-0.06	2,976.9	-110.5	-0.92
88JHX8		3,035.5	-42.5	-0.34	3,112.0	24.6	0.21
8EPW2X		2,956.6	-121.4	-0.98	2,963.9	-123.5	-1.03
9DNJWG		3,062.1	-15.9	-0.13	2,959.6	-127.8	-1.07
9JBYDF		3,205.4	127.4	1.03	3,198.1	110.7	0.93
9JY37P		2,943.5	-134.5	-1.08	2,882.5	-204.9	-1.71
9QDHKX		3,285.0	207.0	1.67	3,217.0	129.6	1.08
9WKCW2		2,960.5	-117.5	-0.95	2,884.5	-202.9	-1.70
9Z38K7		3,165.0	87.0	0.70	3,136.0	48.6	0.41
A9V7MK		3,151.8	73.8	0.59	3,135.9	48.6	0.41
AFAM4E		3,126.0	48.0	0.39	3,189.0	101.6	0.85
ATWKZP		2,898.1	-179.9	-1.45	2,871.0	-216.4	-1.81
BD3MJ8	X	3,264.1	186.1	1.50	2,195.3	-892.0	-7.46
BDXX83	X	2,641.5	-436.5	-3.52	2,734.4	-353.0	-2.95
BJMMYK		3,120.0	42.0	0.34	3,005.0	-82.4	-0.69
CKY494		3,134.0	56.0	0.45	3,159.0	71.6	0.60
CP9ZDD		2,849.4	-228.6	-1.84	2,890.2	-197.2	-1.65
CUN3BP	X	2,579.0	-499.0	-4.02	2,530.0	-557.4	-4.66
CX7UBB		3,126.3	48.3	0.39	3,178.5	91.1	0.76



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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3rd Qtr 2017

WebCode	Data Flag	Sample C71-C72			Sample C73-C74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
CXKJAG		2,890.5	-187.5	-1.51	2,932.5	-154.9	-1.30
D8PNZD		3,283.0	205.0	1.65	3,149.4	62.0	0.52
DPLJNG		3,040.5	-37.5	-0.30	2,985.0	-102.4	-0.86
DWPKNB		3,180.0	102.0	0.82	3,168.0	80.6	0.67
EFF2QJ		3,100.0	22.0	0.18	3,055.0	-32.4	-0.27
ETXFFG		3,149.5	71.5	0.58	3,090.1	2.7	0.02
EUUU3A		3,082.9	4.9	0.04	3,167.1	79.8	0.67
EXU6YA		3,027.0	-51.0	-0.41	3,036.0	-51.4	-0.43
F3MYMH		2,995.8	-82.2	-0.66	3,017.5	-69.9	-0.58
FBG3VK		3,311.2	233.2	1.88	3,242.3	155.0	1.30
FCBPBV		3,066.0	-12.0	-0.10	3,053.5	-33.9	-0.28
FDPEB2		3,200.0	122.0	0.98	3,273.0	185.6	1.55
FHGWX7		2,992.0	-86.0	-0.69	2,977.5	-109.9	-0.92
FZZRCE		3,037.2	-40.8	-0.33	3,169.8	82.4	0.69
G4F8AR		3,108.0	30.0	0.24	3,057.5	-29.9	-0.25
G8VCQE		3,133.0	55.0	0.44	3,138.0	50.6	0.42
GAHFCD		3,189.6	111.6	0.90	3,173.9	86.5	0.72
GZUX6D		3,055.0	-23.0	-0.19	3,005.0	-82.4	-0.69
HB6E4G		2,946.0	-132.0	-1.06	2,966.5	-120.9	-1.01
HC7ART		3,141.0	63.0	0.51	3,214.5	127.1	1.06
HCNZZD		3,006.0	-72.0	-0.58	2,875.5	-211.9	-1.77
HFLK6X	X	3,713.0	635.0	5.11	3,517.2	429.8	3.59
HKG4TU		3,070.5	-7.5	-0.06	3,090.1	2.7	0.02
HQLKNA		2,986.0	-92.0	-0.74	3,013.0	-74.4	-0.62
JGB7BT	X	47,687.9	44,609.9	359.33	47,500.1	44,412.7	371.40
JL43JX		2,972.0	-106.0	-0.85	3,022.3	-65.1	-0.54
JP4H99		3,116.3	38.3	0.31	3,167.6	80.2	0.67
KMC4YN		3,200.8	122.8	0.99	3,266.5	179.1	1.50
KQDKG6		2,968.9	-109.1	-0.88	3,024.1	-63.3	-0.53
KW23W2		3,038.9	-39.1	-0.32	3,107.5	20.1	0.17
LBUCVR	*	3,416.0	338.0	2.72	3,322.0	234.6	1.96
MAZFW6		3,212.5	134.5	1.08	3,183.0	95.6	0.80
MMLTBY		3,146.6	68.6	0.55	3,179.3	91.9	0.77
NKHRW2		3,062.4	-15.6	-0.13	3,160.5	73.1	0.61
NLP848		3,193.5	115.5	0.93	3,154.5	67.1	0.56
NXMF3W	X	3,495.4	417.4	3.36	3,292.4	205.0	1.71
NYWX7E		3,155.5	77.5	0.62	3,167.5	80.1	0.67



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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3rd Qtr 2017

WebCode	Data Flag	Sample C71-C72			Sample C73-C74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
P3E29P		2,986.5	-91.5	-0.74	2,912.0	-175.4	-1.47
PL8FQF		3,217.5	139.5	1.12	3,211.5	124.1	1.04
PP3U9J		3,107.0	29.0	0.23	3,071.5	-15.9	-0.13
PQZ8R6		2,952.1	-125.9	-1.01	2,983.7	-103.7	-0.87
Q84B32		3,089.1	11.1	0.09	3,160.5	73.1	0.61
Q9AJYL	X	2,670.2	-407.8	-3.29	2,624.1	-463.3	-3.87
QE22LQ	*	2,835.5	-242.5	-1.95	2,776.0	-311.4	-2.60
QWLWXI		3,298.5	220.5	1.78	3,270.5	183.1	1.53
QXYQVL		2,878.0	-200.0	-1.61	3,034.2	-53.2	-0.45
QY84DM		3,169.1	91.1	0.73	3,240.9	153.5	1.28
RCR67Y		2,985.3	-92.7	-0.75	3,132.3	44.9	0.38
RHHDQT		3,294.5	216.5	1.74	3,288.5	201.1	1.68
RPU424		3,109.9	31.9	0.26	3,145.8	58.4	0.49
RU9ATQ		2,874.7	-203.3	-1.64	2,939.2	-148.2	-1.24
T27YAV		3,194.0	116.0	0.93	3,150.0	62.6	0.52
TDKFGT		2,929.1	-148.9	-1.20	2,961.0	-126.4	-1.06
TEYHQL		2,987.2	-90.8	-0.73	3,056.7	-30.7	-0.26
TLFTNZ		3,100.5	22.5	0.18	3,070.0	-17.4	-0.15
TZTY2K		2,948.3	-129.7	-1.05	2,989.0	-98.4	-0.82
U4AL9X		2,850.0	-228.0	-1.84	2,908.0	-179.4	-1.50
UAEAGD	X	2,772.5	-305.5	-2.46	3,278.0	190.6	1.59
UFZ6FV		3,060.3	-17.7	-0.14	3,095.1	7.7	0.06
UXJ2U4		3,220.0	142.0	1.14	3,155.5	68.1	0.57
VHACJN	*	3,058.3	-19.7	-0.16	3,253.6	166.2	1.39
VHKCFH		2,949.4	-128.6	-1.04	2,979.1	-108.3	-0.91
VLKMBH		3,179.0	101.0	0.81	3,269.0	181.6	1.52
VMLVPP		2,929.8	-148.2	-1.19	3,045.8	-41.6	-0.35
VVXCCC	X	2,596.6	-481.4	-3.88	2,882.6	-204.8	-1.71
VW9UFU		3,067.0	-11.0	-0.09	3,016.5	-70.9	-0.59
VXECEQ		3,016.8	-61.2	-0.49	3,038.6	-48.8	-0.41
WTMWHI		2,951.5	-126.5	-1.02	2,953.1	-134.3	-1.12
X6BQCW		2,950.8	-127.2	-1.02	3,034.2	-53.2	-0.44
XCAZD3		2,844.9	-233.1	-1.88	2,947.9	-139.5	-1.17
XJ8WYJ		2,970.8	-107.2	-0.86	3,101.4	14.0	0.12
XR3A47		3,093.5	15.5	0.12	3,133.0	45.6	0.38
XWH8QF		3,304.0	226.0	1.82	3,342.4	255.0	2.13
XX7C7L		3,129.6	51.6	0.42	3,135.6	48.2	0.40
Y2TD62		3,282.2	204.2	1.65	3,353.3	265.9	2.22



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample C71-C72			Sample C73-C74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
YHVR8U		3,099.5	21.5	0.17	3,108.5	21.1	0.18
YJNB3M		2,979.1	-98.9	-0.80	3,063.9	-23.4	-0.20
YTEUHG		3,117.5	39.5	0.32	3,171.0	83.6	0.70
YVKE7G	X	2,729.8	-348.2	-2.80	2,681.3	-406.1	-3.40
ZE66RC		3,222.5	144.5	1.16	3,163.0	75.6	0.63
ZNXNHZ		3,136.0	58.0	0.47	3,087.5	0.1	0.00
ZTRHJ9		3,058.5	-19.5	-0.16	2,945.5	-141.9	-1.19

		Summary Statistics	
Grand Means		3,078.00 psi	3,087.39 psi
Std Dev Btwn Labs		124.15 psi	119.58 psi
Statistics based on 108 of 120 reporting participants			

		Summary Statistics in SI Units	
Grand Means		21.222 MPa	21.29 MPa
Std Dev Btwn Labs		0.856 MPa	0.82 MPa
Statistics based on 108 of 120 reporting participants			

Samples C71-C72: Polyisoprene compound, batch #1 & C73-C74: Polyisoprene compound, batch #2



Comments on Assigned Data Flags for Test #605

- 2GTACP (X) - Inconsistent in testing between sample groups.
- 42RC7W (X) - Inconsistent in testing between sample groups.
- BD3MJ8 (X) - Inconsistent in testing between sample groups. Data for Sample group C73-C74 are low. Inconsistent within the determinations of Sample group C73-C74.
- BDXX83 (X) - Data for all samples are low. Possible Systematic Error.
- CUN3BP (X) - Data for all samples are low. Possible Systematic Error.
- HFLK6X (X) - Data for all samples are high. Possible Systematic Error. Inconsistent within the determinations of Sample group C73-C74.
- JGB7BT (X) - Extreme Data.
- NXMF3W (X) - Inconsistent in testing between sample groups. Data for Sample group C71-C72 are high.
- Q9AJYL (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of both sample groups.
- UAEAGD (X) - Inconsistent in testing between sample groups.
- VXCCC (X) - Inconsistent in testing between sample groups. Data for Sample group C71-C72 are low. Inconsistent within the determinations of Sample group C71-C72.
- YVKE7G (X) - Data for all samples are low. Possible Systematic Error.

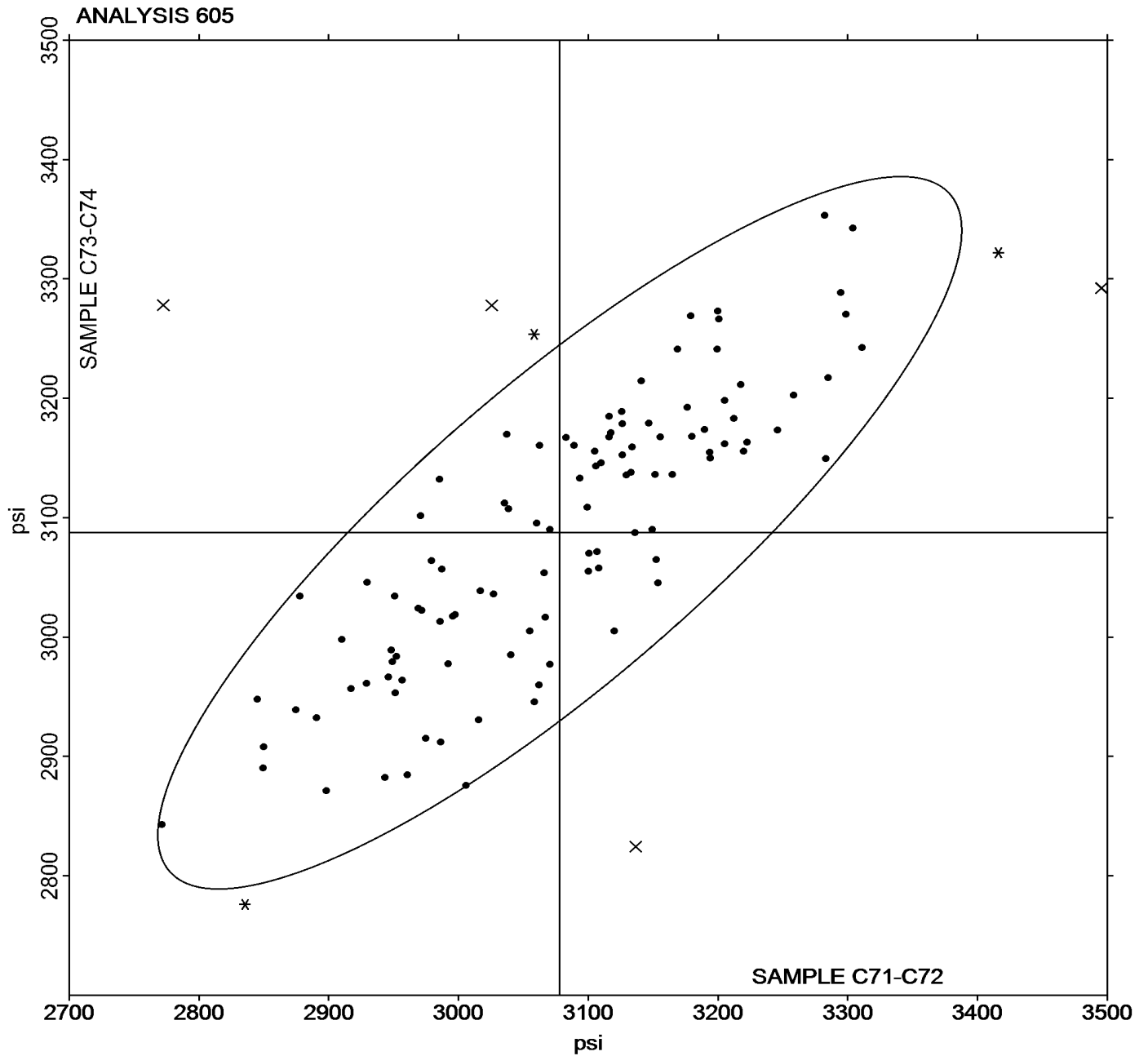


Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

Report #193
3rd Qtr 2017

Grand Mean Sample C71-C72 = 3,078.00 psi

Grand Mean Sample C73-C74 = 3,087.39 psi





Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample C71-C72			Sample C73-C74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
26LTED		610.6	21.0	0.81	587.5	-3.9	-0.15
28PEV7	X	1,783.2	1,193.6	46.27	1,742.1	1,150.7	45.41
29GMAU		591.5	1.9	0.07	576.3	-15.2	-0.60
2GTACP		589.2	-0.5	-0.02	603.6	12.1	0.48
3CY8R3		552.5	-37.1	-1.44	554.5	-36.9	-1.46
3N6FAK		570.0	-19.6	-0.76	570.5	-20.9	-0.83
3NQJX9		550.0	-39.6	-1.54	565.5	-25.9	-1.02
3WF7QP		613.0	23.4	0.91	610.0	18.6	0.73
42RC7W		564.7	-24.9	-0.96	547.2	-44.3	-1.75
4TFP3F		596.4	6.8	0.26	608.4	16.9	0.67
4UBX27		570.0	-19.6	-0.76	571.5	-19.9	-0.79
6677K9		611.0	21.4	0.83	615.0	23.6	0.93
6UQGL3		603.5	13.9	0.54	611.5	20.1	0.79
6XN2M2		610.5	20.9	0.81	623.5	32.1	1.27
7AYTQ2		584.5	-5.2	-0.20	594.0	2.6	0.10
7F3WCT		609.5	19.9	0.77	595.5	4.1	0.16
7MYQCD		542.6	-47.0	-1.82	553.7	-37.8	-1.49
7NWCBQ		617.0	27.4	1.06	619.5	28.1	1.11
82Y3RP	*	603.5	13.9	0.54	633.5	42.1	1.66
88JHX8		585.0	-4.6	-0.18	586.0	-5.4	-0.21
8EPW2X		544.5	-45.1	-1.75	541.5	-49.9	-1.97
9DNJWG		593.1	3.5	0.14	591.9	0.5	0.02
9JBYDF		628.5	38.9	1.51	608.0	16.6	0.65
9JY37P		598.7	9.1	0.35	587.4	-4.1	-0.16
9QDHXX		609.5	19.9	0.77	610.5	19.1	0.75
9WKCW2	X	668.5	78.9	3.06	677.0	85.6	3.38
9Z38K7		554.5	-35.1	-1.36	551.5	-39.9	-1.58
A9V7MK		586.2	-3.4	-0.13	600.6	9.2	0.36
AFAM4E		581.5	-8.1	-0.31	563.5	-27.9	-1.10
ATWKZP	X	767.0	177.4	6.88	766.4	174.9	6.90
BD3MJ8		612.0	22.3	0.87	605.4	14.0	0.55
BDXX83		584.5	-5.1	-0.20	597.5	6.1	0.24
BJMMYK		583.0	-6.6	-0.26	571.5	-19.9	-0.79
CKY494		571.0	-18.6	-0.72	577.5	-13.9	-0.55
CP9ZDD		565.0	-24.6	-0.95	570.0	-21.4	-0.85
CX7UBB		622.2	32.6	1.26	607.6	16.2	0.64
CXKJAG		560.0	-29.6	-1.15	540.0	-51.4	-2.03
D8PNZD		612.8	23.1	0.90	613.7	22.3	0.88



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Ultimate Elongation (percent)

WebCode	Data Flag	Sample C71-C72			Sample C73-C74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
DPLJNG		606.0	16.4	0.64	615.5	24.1	0.95
DWPKNB		586.5	-3.1	-0.12	592.5	1.1	0.04
EFF2QJ		635.0	45.4	1.76	611.5	20.1	0.79
ETXFFG		593.5	3.9	0.15	595.0	3.6	0.14
EUUU3A		582.5	-7.1	-0.28	577.0	-14.4	-0.57
EXU6YA		580.0	-9.6	-0.37	579.0	-12.4	-0.49
F3MYMH		591.0	1.4	0.05	600.0	8.6	0.34
FBG3VK		613.2	23.5	0.91	621.2	29.7	1.17
FCBPBV		595.5	5.9	0.23	591.5	0.1	0.00
FDPEB2		571.0	-18.6	-0.72	560.5	-30.9	-1.22
FHGWX7		627.5	37.9	1.47	626.0	34.6	1.36
FZZRCE		588.7	-0.9	-0.04	597.2	5.7	0.23
G4F8AR		632.0	42.4	1.64	618.0	26.6	1.05
G8VCQE		609.0	19.4	0.75	594.5	3.1	0.12
GAHFCD	*	652.6	63.0	2.44	663.1	71.7	2.83
HB6E4G		578.5	-11.1	-0.43	598.0	6.6	0.26
HC7ART		618.0	28.4	1.10	611.0	19.6	0.77
HCNZZD		626.0	36.4	1.41	613.0	21.6	0.85
HFLK6X		555.0	-34.6	-1.34	575.0	-16.4	-0.65
HKG4TU		567.0	-22.7	-0.88	574.4	-17.1	-0.67
HQLKNA		580.5	-9.1	-0.35	587.0	-4.4	-0.17
JGB7BT		598.0	8.4	0.33	599.8	8.3	0.33
JL43JX		566.2	-23.4	-0.91	563.7	-27.8	-1.10
JP4H99		578.4	-11.2	-0.44	569.0	-22.4	-0.88
KMC4YN		606.7	17.0	0.66	620.7	29.2	1.15
KQDKG6		612.0	22.4	0.87	601.0	9.6	0.38
KW23W2		598.4	8.8	0.34	625.0	33.6	1.33
LBUCVR		563.5	-26.1	-1.01	556.0	-35.4	-1.40
MAZFW6		560.5	-29.1	-1.13	583.0	-8.4	-0.33
MMLTBY	*	663.5	73.9	2.86	643.0	51.6	2.04
NKHRW2		568.8	-20.8	-0.81	602.3	10.9	0.43
NLP848		606.5	16.9	0.65	604.5	13.1	0.52
NXMF3W	X	716.5	126.9	4.92	733.0	141.6	5.59
NYWX7E		610.9	21.3	0.82	625.3	33.8	1.33
P3E29P		539.5	-50.1	-1.94	541.0	-50.4	-1.99
PL8FQF		605.5	15.9	0.62	623.0	31.6	1.25
PP3U9J		585.5	-4.1	-0.16	585.5	-5.9	-0.23



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WebCode	Data Flag	Sample C71-C72			Sample C73-C74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
PQZ8R6		603.8	14.1	0.55	591.6	0.2	0.01
Q84B32		615.9	26.2	1.02	626.8	35.4	1.40
Q9AJYL		619.0	29.3	1.14	590.0	-1.5	-0.06
QE22LQ		545.0	-44.6	-1.73	568.5	-22.9	-0.90
QWLWXI		589.0	-0.6	-0.02	576.5	-14.9	-0.59
QXYQVL		568.5	-21.1	-0.82	576.5	-14.9	-0.59
QY84DM		590.0	0.4	0.01	606.0	14.6	0.58
RCR67Y		585.0	-4.6	-0.18	594.0	2.6	0.10
RHHDQT		590.0	0.4	0.01	584.5	-6.9	-0.27
RPU424		585.5	-4.1	-0.16	600.5	9.1	0.36
RU9ATQ		561.4	-28.3	-1.10	564.4	-27.0	-1.06
T27YAV		596.5	6.9	0.27	610.0	18.6	0.73
TDKFGT		596.5	6.9	0.27	602.5	11.1	0.44
TEYHQL		581.5	-8.1	-0.31	590.0	-1.4	-0.06
TLFTNZ		602.0	12.4	0.48	585.0	-6.4	-0.25
TZTY2K		582.8	-6.9	-0.27	584.0	-7.4	-0.29
U4AL9X	*	521.0	-68.6	-2.66	521.5	-69.9	-2.76
UAEAGD	X	557.0	-32.6	-1.26	614.0	22.6	0.89
UFZ6FV		608.0	18.4	0.71	616.0	24.6	0.97
UXJ2U4		615.5	25.9	1.00	607.5	16.1	0.63
VHACJN		609.9	20.3	0.79	616.9	25.5	1.01
VLKMBH		606.1	16.5	0.64	610.6	19.2	0.76
VMLVPP		569.5	-20.1	-0.78	571.5	-19.9	-0.79
VVXCCC	X	529.0	-60.6	-2.35	569.5	-21.9	-0.86
VW9UFU		597.0	7.4	0.29	587.0	-4.4	-0.17
VXECEQ		586.4	-3.3	-0.13	593.6	2.2	0.09
WTMWHI		597.4	7.8	0.30	628.0	36.6	1.44
X6BQCW		600.0	10.4	0.40	605.0	13.6	0.54
XCAZD3		588.0	-1.6	-0.06	612.0	20.6	0.81
XJ8WYJ		587.7	-2.0	-0.08	593.5	2.1	0.08
XR3A47		597.5	7.9	0.31	596.5	5.1	0.20
XWH8QF		562.0	-27.6	-1.07	574.0	-17.4	-0.69
XX7C7L		580.8	-8.9	-0.34	577.5	-13.9	-0.55
Y2TD62	X	328.0	-261.6	-10.14	333.5	-257.9	-10.18
YHVR8U		544.5	-45.1	-1.75	536.0	-55.4	-2.19
YJNB3M	*	515.0	-74.6	-2.89	536.5	-54.9	-2.17
YTEUHG		554.0	-35.6	-1.38	555.5	-35.9	-1.42
YVKE7G	X	517.1	-72.6	-2.81	504.1	-87.3	-3.45



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Ultimate Elongation (percent)

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WebCode	Data Flag	Sample C71-C72			Sample C73-C74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
ZE66RC		569.5	-20.1	-0.78	561.5	-29.9	-1.18
ZNXNHZ		592.5	2.9	0.11	603.0	11.6	0.46
ZTRHJ9		629.5	39.9	1.55	610.5	19.1	0.75

Grand Means		Summary Statistics	
	589.62 percent		591.42 percent
Stnd Dev Btwn Labs	25.80 percent		25.34 percent
Statistics based on 108 of 116 reporting participants			

Samples C71-C72: Polyisoprene compound, batch #1 & C73-C74: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #606

- 28PEV7 (X) - Extreme Data.
- 9WKCW2 (X) - Data for all samples are high. Possible Systematic Error.
- ATWKZP (X) - Data for all samples are high. Possible Systematic Error.
- NXMF3W (X) - Data for all samples are high. Possible Systematic Error.
- UAEAGD (X) - Inconsistent in testing between sample groups. Inconsistent within the determinations of Sample group C71-C72.
- VXCCC (X) - Inconsistent in testing between samples. Inconsistent within the determinations of Sample group C71-C72.
- Y2TD62 (X) - Data for all samples are low.
- YVKE7G (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of Sample group C73-C74.

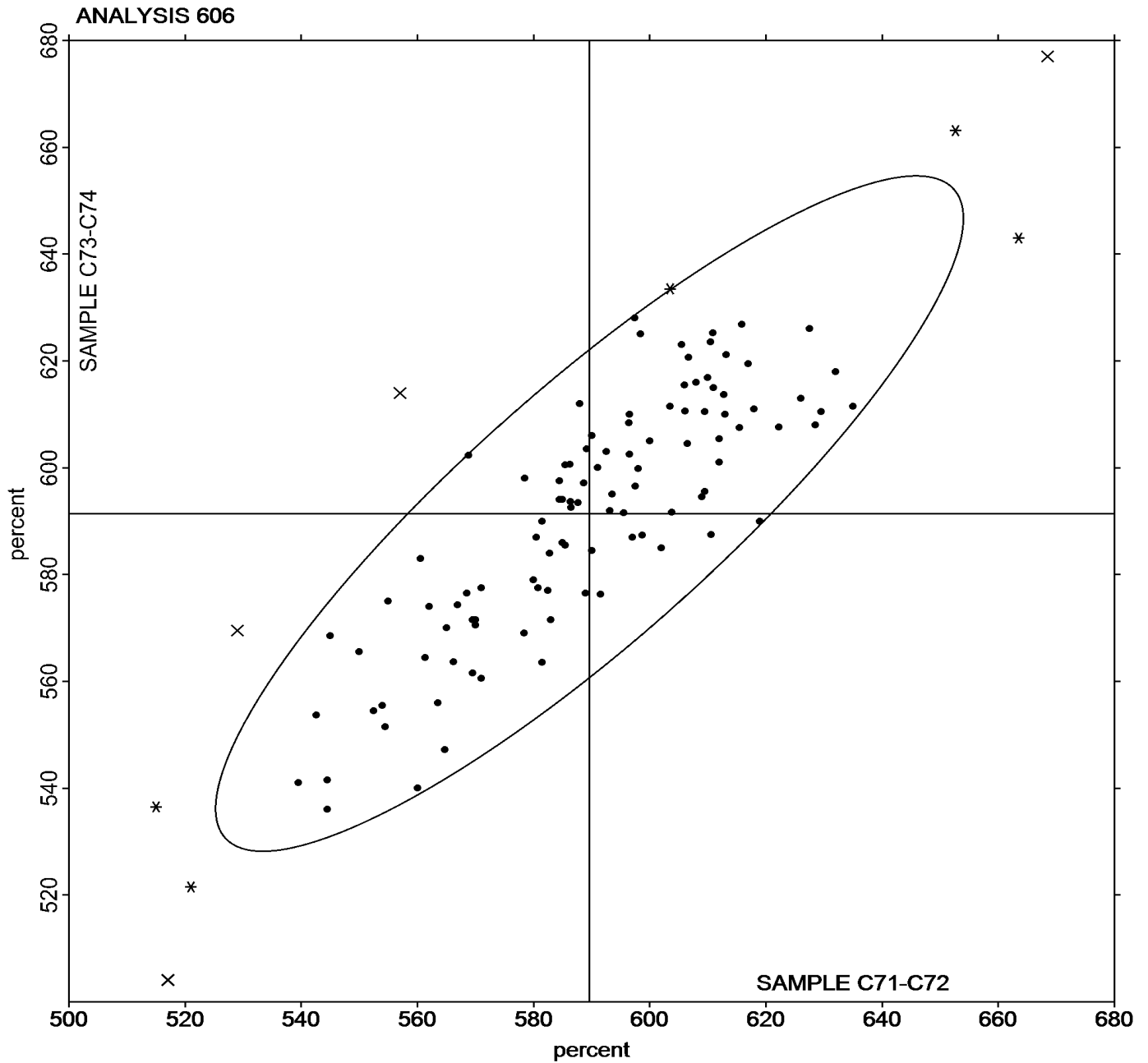


Rubber Interlaboratory Testing Program
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Grand Mean Sample C71-C72 = 589.62 percent

Grand Mean Sample C73-C74 = 591.42 percent





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Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample C71-C72			Sample C73-C74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
26LTED		965.9	-98.6	-1.42	1,048.2	-15.8	-0.21
28PEV7	X	324.4	-740.1	-10.67	313.2	-750.7	-10.13
29GMAU		1,116.1	51.6	0.74	1,088.5	24.6	0.33
2GTACP		1,117.5	53.0	0.76	1,151.6	87.6	1.18
3CY8R3		1,108.5	44.0	0.63	1,075.0	11.0	0.15
3N6FAK		1,116.1	51.6	0.74	1,119.0	55.0	0.74
3NQJX9		1,117.6	53.1	0.77	1,104.4	40.5	0.55
3WF7QP		1,041.0	-23.5	-0.34	1,075.0	11.0	0.15
42RC7W		1,146.2	81.7	1.18	1,063.3	-0.7	-0.01
4TFP3F		1,072.8	8.3	0.12	1,005.3	-58.6	-0.79
4UBX27		1,135.0	70.5	1.02	1,157.0	93.0	1.25
6677K9		1,019.0	-45.5	-0.66	1,058.0	-6.0	-0.08
6UQGL3		1,082.5	18.0	0.26	1,040.5	-23.5	-0.32
6XN2M2		1,008.0	-56.5	-0.81	991.0	-73.0	-0.98
7AYTQ2		1,038.5	-26.0	-0.37	1,042.8	-21.1	-0.29
7F3WCT		1,003.5	-61.0	-0.88	1,002.5	-61.5	-0.83
7MYQCD		1,234.8	170.3	2.45	1,212.5	148.5	2.00
7NWCBQ		934.1	-130.4	-1.88	955.1	-108.9	-1.47
82Y3RP	X	1,023.3	-41.2	-0.59	845.6	-218.4	-2.95
88JHX8		1,050.5	-14.0	-0.20	1,071.0	7.0	0.09
8EPW2X		1,139.3	74.8	1.08	1,140.7	76.8	1.04
9DNJWG		1,068.1	3.6	0.05	999.7	-64.2	-0.87
9JBYDF		988.4	-76.0	-1.10	1,011.6	-52.3	-0.71
9JY37P		972.3	-92.2	-1.33	934.5	-129.5	-1.75
9QDHKX		1,161.5	97.0	1.40	1,103.5	39.5	0.53
9WKCW2	X	634.0	-430.5	-6.20	627.0	-437.0	-5.89
A9V7MK		1,087.1	22.6	0.33	1,037.4	-26.6	-0.36
AFAM4E		1,106.0	41.5	0.60	1,151.0	87.0	1.17
ATWKZP	X	796.5	-268.0	-3.86	789.5	-274.4	-3.70
BD3MJ8		1,053.8	-10.7	-0.15	1,077.8	13.8	0.19
BJMMYK		1,065.0	0.5	0.01	1,095.0	31.0	0.42
CKY494		1,098.5	34.0	0.49	1,142.0	78.0	1.05
CP9ZDD		986.5	-78.0	-1.12	959.0	-105.0	-1.42
CX7UBB		1,006.0	-58.5	-0.84	1,046.3	-17.6	-0.24
CXKJAG		1,087.0	22.5	0.32	1,186.5	122.5	1.65
D8PNZD		1,071.6	7.1	0.10	1,009.8	-54.2	-0.73
DPLJNG		1,045.0	-19.5	-0.28	1,010.0	-54.0	-0.73
DWPKNB		1,081.0	16.5	0.24	1,097.0	33.0	0.45



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Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample C71-C72			Sample C73-C74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
EFF2QJ		967.5	-97.0	-1.40	1,000.5	-63.5	-0.86
ETXFFG		1,063.1	-1.3	-0.02	1,076.9	13.0	0.17
EUUU3A		1,113.4	48.9	0.70	1,130.0	66.0	0.89
EXU6YA		1,126.5	62.0	0.89	1,094.0	30.0	0.41
F3MYMH		1,055.9	-8.6	-0.12	1,049.4	-14.6	-0.20
FBG3VK		1,057.3	-7.1	-0.10	1,025.4	-38.5	-0.52
FCBPBV		1,099.0	34.5	0.50	1,094.0	30.0	0.41
FDPEB2		1,159.5	95.0	1.37	1,213.0	149.0	2.01
FZZRCE		1,093.2	28.7	0.41	1,031.4	-32.6	-0.44
G4F8AR		966.5	-98.0	-1.41	987.5	-76.5	-1.03
G8VCQE		1,039.5	-25.0	-0.36	1,077.5	13.5	0.18
GAHFCD		996.0	-68.5	-0.99	964.9	-99.0	-1.34
HB6E4G		1,041.0	-23.5	-0.34	1,012.5	-51.5	-0.69
HC7ART		1,012.0	-52.5	-0.76	1,084.0	20.0	0.27
HCNZZD		923.0	-141.5	-2.04	917.5	-146.5	-1.98
HFLK6X	X	1,399.6	335.1	4.83	1,269.1	205.1	2.77
HKG4TU		1,115.9	51.4	0.74	1,121.2	57.2	0.77
HQLKNA		1,027.5	-37.0	-0.53	1,059.5	-4.5	-0.06
JGB7BT	X	16,145.7	15,081.2	217.35	15,745.5	14,681.6	198.03
JL43JX		1,081.6	17.1	0.25	1,085.3	21.3	0.29
JP4H99		1,084.4	20.0	0.29	1,091.1	27.1	0.37
KMC4YN		1,007.3	-57.2	-0.82	1,001.2	-62.8	-0.85
KQDKG6		982.6	-81.8	-1.18	1,007.3	-56.7	-0.76
KW23W2		1,005.1	-59.4	-0.86	981.4	-82.5	-1.11
LBUCVR		1,227.0	162.5	2.34	1,232.0	168.0	2.27
MAZFW6		1,175.2	110.7	1.60	1,109.2	45.2	0.61
MMLTBY	*	905.0	-159.4	-2.30	987.7	-76.2	-1.03
NKHRW2		1,145.6	81.2	1.17	1,052.8	-11.2	-0.15
NLP848		1,065.0	0.5	0.01	1,041.0	-23.0	-0.31
NXMF3W	*	963.1	-101.4	-1.46	885.5	-178.5	-2.41
NYWX7E		1,051.8	-12.7	-0.18	1,027.2	-36.8	-0.50
P3E29P		1,138.5	74.0	1.07	1,156.5	92.5	1.25
PL8FQF		1,085.0	20.5	0.30	1,022.5	-41.5	-0.56
PP3U9J		1,103.5	39.0	0.56	1,102.5	38.5	0.52
PQZ8R6		1,010.7	-53.8	-0.78	1,078.6	14.6	0.20
Q84B32		1,038.5	-26.0	-0.37	1,013.5	-50.5	-0.68
Q9AJYL	X	830.6	-233.9	-3.37	865.8	-198.1	-2.67



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Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample C71-C72			Sample C73-C74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
QE22LQ	*	1,139.0	74.5	1.07	1,006.0	-58.0	-0.78
QWLWXI		1,154.0	89.5	1.29	1,166.0	102.0	1.38
QXYQVL		1,002.5	-62.0	-0.89	1,040.9	-23.1	-0.31
RCR67Y		989.0	-75.5	-1.09	1,004.5	-59.5	-0.80
RHHDQT		1,119.0	54.5	0.79	1,183.0	119.0	1.61
RPU424		1,063.2	-1.3	-0.02	1,045.4	-18.6	-0.25
RU9ATQ		1,087.4	23.0	0.33	1,135.5	71.5	0.96
T27YAV		1,079.0	14.5	0.21	1,008.5	-55.5	-0.75
TDKFGT		960.2	-104.3	-1.50	1,008.7	-55.2	-0.74
TEYHQL		1,031.7	-32.8	-0.47	1,053.5	-10.5	-0.14
TLFTNZ		1,021.0	-43.5	-0.63	1,034.0	-30.0	-0.40
TZTY2K		981.8	-82.7	-1.19	1,023.5	-40.5	-0.55
UAEAGD		1,046.5	-18.0	-0.26	1,053.5	-10.5	-0.14
UFZ6FV		984.1	-80.4	-1.16	1,029.8	-34.2	-0.46
UXJ2U4		1,054.0	-10.5	-0.15	1,052.5	-11.5	-0.15
VHACJN		996.4	-68.1	-0.98	1,027.4	-36.5	-0.49
VLKMBH		1,066.0	1.5	0.02	1,045.5	-18.5	-0.25
VMLVPP		1,067.8	3.3	0.05	1,071.3	7.3	0.10
VVXCCC		1,060.0	-4.5	-0.06	1,027.3	-36.7	-0.49
VW9UFU		995.5	-69.0	-0.99	1,034.5	-29.5	-0.40
VXECEQ		1,068.9	4.5	0.06	1,065.3	1.3	0.02
WTMWHI	*	1,040.5	-24.0	-0.35	926.1	-137.8	-1.86
XCAZD3		974.7	-89.8	-1.29	921.0	-143.0	-1.93
XJ8WYJ		1,038.5	-26.0	-0.37	1,074.0	10.0	0.14
XR3A47		1,147.5	83.0	1.20	1,151.5	87.5	1.18
XWH8QF		1,211.8	147.3	2.12	1,248.1	184.1	2.48
XX7C7L		1,110.2	45.7	0.66	1,102.6	38.6	0.52
Y2TD62		1,080.5	16.1	0.23	1,148.7	84.7	1.14
YHVR8U		1,213.0	148.5	2.14	1,223.5	159.5	2.15
YJNB3M	X	1,248.1	183.6	2.65	1,129.9	65.9	0.89
YTEUHG		1,151.5	87.0	1.25	1,201.5	137.5	1.86
YVKE7G		1,178.0	113.6	1.64	1,204.9	140.9	1.90
ZE66RC		1,194.0	129.5	1.87	1,155.0	91.0	1.23
ZNXNHZ		1,068.0	3.5	0.05	1,012.5	-51.5	-0.69
ZTRHJ9		951.0	-113.5	-1.64	961.5	-102.5	-1.38



Rubber Interlaboratory Testing Program
Analysis 607
Stress at 300% Elongation (psi)

Report #193
3rd Qtr 2017

		Summary Statistics	
Grand Means	1,064.48 psi		1,063.96 psi
Std Dev Btwn Labs	69.39 psi		74.14 psi
Statistics based on 102 of 110 reporting participants			

		Summary Statistics in SI Units	
Grand Means	7.3393 MPa		7.34 MPa
Std Dev Btwn Labs	0.4784 MPa		0.51 MPa
Statistics based on 102 of 110 reporting participants			

Samples C71-C72: Polyisoprene compound, batch #1 & C73-C74: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #607

- 28PEV7 (X) - Data for all samples are low.
- 82Y3RP (X) - Inconsistent in testing between sample groups. Data for Sample group C73-C74 are low. Inconsistent within the determinations of Sample group C73-C74.
- 9WKCW2 (X) - Data for all samples are low. Possible Systematic Error.
- ATWKZP (X) - Data for all samples are low. Possible Systematic Error.
- HFLK6X (X) - Data for all samples are high. Possible Systematic Error. Inconsistent within the determinations of Sample group C73-C74.
- JGB7BT (X) - Extreme Data.
- Q9AJYL (X) - Inconsistent in testing between sample groups. Data for Sample group C71-C72 are low.
- YJNB3M (X) - Inconsistent in testing between sample groups.

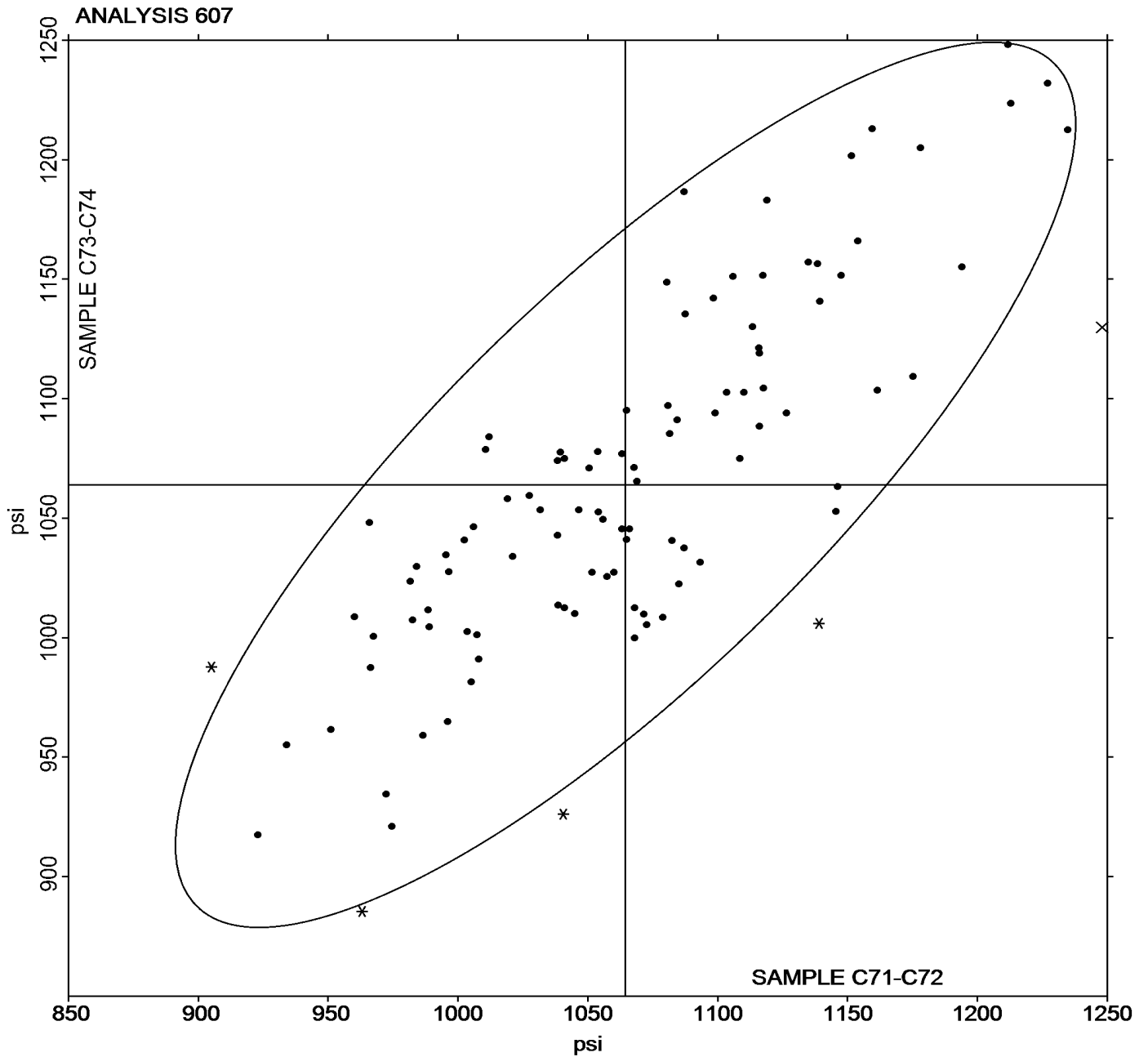


Rubber Interlaboratory Testing Program
Analysis 607
Stress at 300% Elongation (psi)

Report #193
3rd Qtr 2017

Grand Mean Sample **C71-C72** = 1,064.48 psi

Grand Mean Sample **C73-C74** = 1,063.96 psi





Rubber Interlaboratory Testing Program

Report #193

Analysis 608

3rd Qtr 2017

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample C71-C72			Sample C73-C74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
26LTED		228.4	-14.9	-0.94	242.4	-0.1	-0.01
28PEV7	X	139.4	-103.8	-6.55	133.7	-108.9	-6.83
29GMAU		244.4	1.2	0.07	241.5	-1.0	-0.07
2GTACP	X	303.9	60.6	3.83	311.8	69.3	4.35
3CY8R3		251.0	7.8	0.49	248.0	5.5	0.34
3N6FAK		256.7	13.5	0.85	261.8	19.3	1.21
3NQJX9	X	298.3	55.1	3.48	268.5	26.0	1.63
3WF7QP		241.0	-2.2	-0.14	253.0	10.5	0.66
42RC7W		259.8	16.6	1.05	239.2	-3.3	-0.21
4TFP3F		256.7	13.5	0.85	234.7	-7.8	-0.49
4UBX27		251.5	8.3	0.52	259.0	16.5	1.03
6677K9		231.5	-11.7	-0.74	245.0	2.5	0.15
6UQGL3		246.0	2.8	0.18	241.0	-1.5	-0.10
6XN2M2		215.5	-27.7	-1.75	207.5	-35.0	-2.20
7AYTQ2		238.6	-4.6	-0.29	244.4	1.9	0.12
7F3WCT		240.0	-3.2	-0.20	233.5	-9.0	-0.57
7MYQCD		259.6	16.4	1.04	256.6	14.1	0.89
7NWCBQ		217.6	-25.7	-1.62	225.5	-17.0	-1.07
82Y3RP	X	237.1	-6.1	-0.38	195.8	-46.7	-2.93
88JHX8		244.0	0.8	0.05	246.5	4.0	0.25
8EPW2X		271.9	28.7	1.81	251.6	9.1	0.57
9DNJWG		252.0	8.8	0.56	231.9	-10.6	-0.67
9JBYDF		232.8	-10.4	-0.66	230.6	-11.9	-0.75
9JY37P		228.5	-14.7	-0.93	221.8	-20.7	-1.30
9QDHKX		250.0	6.8	0.43	230.5	-12.0	-0.75
9WKCW2		222.0	-21.2	-1.34	225.0	-17.5	-1.10
A9V7MK		251.0	7.8	0.49	250.1	7.5	0.47
AFAM4E		244.0	0.8	0.05	246.0	3.5	0.22
ATWKZP		207.6	-35.6	-2.25	204.9	-37.6	-2.36
BD3MJ8		247.0	3.8	0.24	250.0	7.5	0.47
BJMMYK		250.0	6.8	0.43	261.0	18.5	1.16
CKY494		251.0	7.8	0.49	252.5	10.0	0.63
CP9ZDD		221.5	-21.7	-1.37	231.0	-11.5	-0.72
CX7UBB		232.2	-11.0	-0.69	237.0	-5.5	-0.35
CXKJAG		237.5	-5.7	-0.36	232.5	-10.0	-0.63
D8PNZD		238.1	-5.1	-0.32	232.1	-10.5	-0.66
DPLJNG		241.0	-2.2	-0.14	235.5	-7.0	-0.44
DWPKNB		253.5	10.3	0.65	253.5	11.0	0.69



Rubber Interlaboratory Testing Program

Report #193

Analysis 608

3rd Qtr 2017

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample C71-C72			Sample C73-C74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
EFF2QJ		226.0	-17.2	-1.09	225.5	-17.0	-1.07
ETXFFG		245.8	2.6	0.17	248.7	6.2	0.39
EUUU3A		248.3	5.1	0.32	250.5	8.0	0.50
EXU6YA		245.5	2.3	0.14	238.0	-4.5	-0.28
F3MYMH		254.5	11.3	0.72	256.0	13.5	0.84
FBG3VK		240.8	-2.4	-0.15	236.4	-6.1	-0.38
FCBPBV		270.0	26.8	1.69	268.0	25.5	1.60
FDPEB2	*	267.5	24.3	1.53	282.0	39.5	2.48
FHGWX7		218.0	-25.2	-1.59	215.0	-27.5	-1.73
FZZRCE		247.6	4.4	0.28	239.3	-3.3	-0.21
G4F8AR		224.0	-19.2	-1.21	224.5	-18.0	-1.13
G8VCQE		252.0	8.8	0.55	260.0	17.5	1.10
GAHFCD		255.8	12.5	0.79	252.7	10.2	0.64
HB6E4G		257.5	14.3	0.90	254.5	12.0	0.75
HC7ART		235.5	-7.7	-0.49	256.0	13.5	0.84
HCNZZD		220.0	-23.2	-1.46	217.0	-25.5	-1.60
HFLK6X	X	304.6	61.4	3.87	282.8	40.3	2.53
HKG4TU		257.4	14.2	0.90	265.7	23.2	1.45
HQLKNA		232.0	-11.2	-0.71	241.5	-1.0	-0.06
JGB7BT	X	3,734.3	3,491.1	220.34	3,627.7	3,385.1	212.36
JL43JX		244.2	0.9	0.06	240.7	-1.8	-0.11
JP4H99		237.7	-5.5	-0.35	242.0	-0.5	-0.03
KMC4YN		231.4	-11.8	-0.75	242.1	-0.5	-0.03
KQDKG6		218.3	-24.9	-1.57	227.0	-15.5	-0.98
KW23W2		239.3	-3.9	-0.25	235.5	-7.1	-0.44
LBUCVR		279.5	36.3	2.29	274.0	31.5	1.97
MAZFW6		262.0	18.8	1.19	249.0	6.5	0.41
MMLTBY	*	255.3	12.1	0.76	278.5	35.9	2.25
NKHRW2		257.9	14.7	0.93	232.2	-10.4	-0.65
NLP848		242.0	-1.2	-0.08	232.5	-10.0	-0.63
NXMF3W		271.2	28.0	1.77	252.4	9.8	0.62
NYWX7E		241.9	-1.4	-0.09	249.4	6.8	0.43
P3E29P		241.5	-1.7	-0.11	237.0	-5.5	-0.35
PL8FQF		250.0	6.8	0.43	236.5	-6.0	-0.38
PP3U9J		254.0	10.8	0.68	258.5	16.0	1.00
PQZ8R6		222.9	-20.4	-1.28	234.2	-8.3	-0.52
Q84B32		244.1	0.8	0.05	239.3	-3.3	-0.21



Rubber Interlaboratory Testing Program

Report #193

Analysis 608

3rd Qtr 2017

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample C71-C72			Sample C73-C74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
Q9AJYL	*	203.3	-40.0	-2.52	213.0	-29.6	-1.86
QE22LQ		263.0	19.8	1.25	239.0	-3.5	-0.22
QWLWXI		273.0	29.8	1.88	273.0	30.5	1.91
QXYQVL		238.2	-5.0	-0.32	246.6	4.1	0.26
RCR67Y		220.0	-23.2	-1.46	226.0	-16.5	-1.04
RHHDQT		252.5	9.3	0.59	257.5	15.0	0.94
RPU424		239.2	-4.1	-0.26	235.5	-7.1	-0.44
RU9ATQ		245.7	2.5	0.16	256.4	13.8	0.87
T27YAV		246.5	3.3	0.21	237.0	-5.5	-0.35
TDKFGT	*	206.7	-36.5	-2.31	203.1	-39.5	-2.48
TEYHQL		225.7	-17.5	-1.11	237.9	-4.7	-0.29
TLFTNZ		241.5	-1.7	-0.11	247.0	4.5	0.28
TZTY2K		235.0	-8.2	-0.52	233.5	-9.0	-0.57
UAEAGD		250.5	7.3	0.46	250.0	7.5	0.47
UFZ6FV		233.5	-9.7	-0.61	241.5	-1.0	-0.07
UXJ2U4		265.5	22.3	1.41	262.5	20.0	1.25
VHACJN		220.7	-22.5	-1.42	229.7	-12.8	-0.81
VLKMBH		249.0	5.8	0.37	242.0	-0.5	-0.03
VMLVPP		238.6	-4.6	-0.29	235.7	-6.8	-0.43
VVXCCC		233.4	-9.8	-0.62	231.4	-11.2	-0.70
VW9UFU		231.5	-11.7	-0.74	238.5	-4.0	-0.25
VXECEQ		235.0	-8.2	-0.52	239.3	-3.2	-0.20
WTMWHI	*	245.1	1.9	0.12	218.1	-24.5	-1.53
XCAZD3		230.6	-12.6	-0.80	219.7	-22.8	-1.43
XJ8WYJ		237.9	-5.3	-0.34	245.1	2.6	0.16
XR3A47	*	283.5	40.3	2.54	279.0	36.5	2.29
XWH8QF		270.5	27.3	1.72	279.2	36.7	2.30
XX7C7L		255.1	11.9	0.75	252.4	9.8	0.62
Y2TD62		237.9	-5.3	-0.34	255.3	12.7	0.80
YHVR8U		258.0	14.8	0.93	251.5	9.0	0.56
YJNB3M		256.0	12.8	0.81	236.4	-6.1	-0.38
YTEUHG		234.0	-9.2	-0.58	244.0	1.5	0.09
YVKE7G		258.5	15.2	0.96	266.4	23.8	1.49
ZE66RC		256.5	13.3	0.84	250.5	8.0	0.50
ZNXNHZ		240.5	-2.7	-0.17	221.5	-21.0	-1.32
ZTRHJ9		220.0	-23.2	-1.46	222.0	-20.5	-1.29



Rubber Interlaboratory Testing Program

Report #193

Analysis 608

3rd Qtr 2017

Stress at 100% Elongation (psi)

		Summary Statistics	
Grand Means	243.21 psi	242.53 psi	
Stnd Dev Btwn Labs	15.84 psi	15.94 psi	
Statistics based on 105 of 111 reporting participants			

		Summary Statistics in SI Units	
Grand Means	1.6769 MPa	1.67 MPa	
Stnd Dev Btwn Labs	0.1092 MPa	0.11 MPa	
Statistics based on 105 of 111 reporting participants			

Samples C71-C72: Polyisoprene compound, batch #1 & C73-C74: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #608

28PEV7 (X) - Data for all samples are low. Possible Systematic Error.

2GTACP (X) - Data for all samples are high. Possible Systematic Error.

3NQJX9 (X) - Inconsistent in testing between sample groups. Data for Sample group C71-C72 are high.

82Y3RP (X) - Inconsistent in testing between sample groups. Data for Sample group C73-C74 are low. Inconsistent within the determinations of Sample group C73-C74.

HFLK6X (X) - Inconsistent in testing between sample groups. Data for Sample group C71-C72 are high. Inconsistent within the determinations of Sample group C73-C74.

JGB7BT (X) - Extreme Data.



Rubber Interlaboratory Testing Program

Report #193

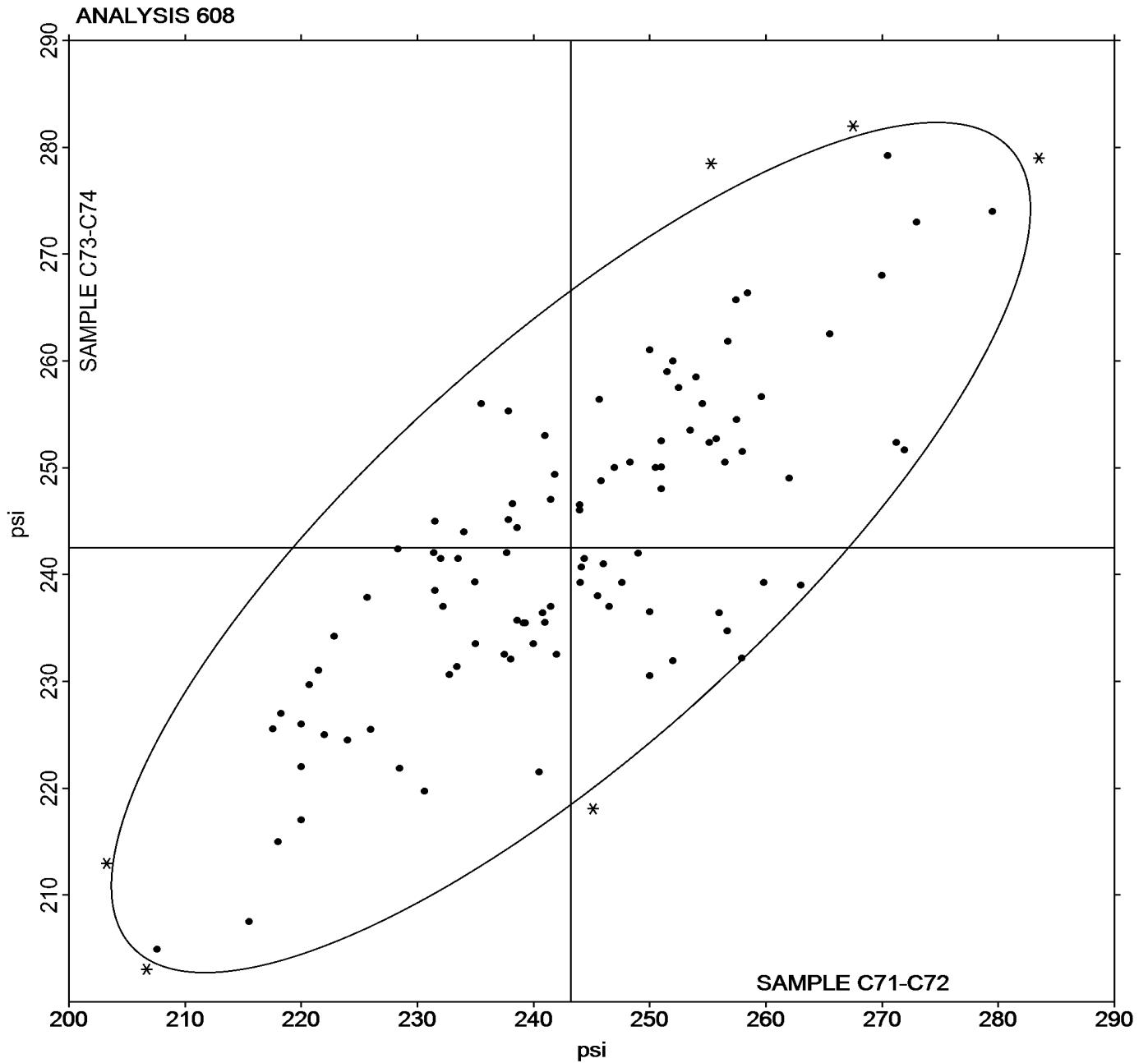
Analysis 608

3rd Qtr 2017

Stress at 100% Elongation (psi)

Grand Mean Sample **C71-C72** = 243.21 psi

Grand Mean Sample **C73-C74** = 242.53 psi





Rubber Interlaboratory Testing Program
Analysis 620
Hardness (Shore A/Type A)

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample C71-C72			Sample C73-C74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
26LTED		53.00	1.57	1.02	54.00	2.57	1.73	BT
28PEV7		49.00	-2.43	-1.58	50.00	-1.43	-0.96	BT
29GMAU		54.00	2.57	1.67	54.00	2.57	1.73	HH
2GTACP		49.95	-1.48	-0.96	49.80	-1.63	-1.10	BT
3CY8R3		53.30	1.87	1.21	53.05	1.62	1.09	BT
3N6FAK		51.35	-0.08	-0.05	50.60	-0.83	-0.56	BT
3NQJX9		48.75	-2.68	-1.74	48.25	-3.18	-2.14	BT
3WF7QP	*	47.50	-3.93	-2.55	48.00	-3.43	-2.31	BT
42RC7W		50.00	-1.43	-0.93	50.00	-1.43	-0.96	HH
4TFP3F		49.00	-2.43	-1.58	50.00	-1.43	-0.96	HH
4UBX27		51.00	-0.43	-0.28	52.00	0.57	0.38	HH
6677K9		52.25	0.82	0.53	51.50	0.07	0.05	HH
6UQGL3		50.50	-0.93	-0.61	50.50	-0.93	-0.62	BT
6XN2M2		52.00	0.57	0.37	53.50	2.07	1.39	HH
7AYTQ2		50.45	-0.98	-0.64	49.90	-1.53	-1.03	BT
7CLA6F		48.50	-2.93	-1.90	48.00	-3.43	-2.31	BT
7F3WCT		51.00	-0.43	-0.28	52.00	0.57	0.38	HH
7MYQCD		50.60	-0.83	-0.54	51.60	0.17	0.11	BT
7NWCBQ		52.00	0.57	0.37	52.00	0.57	0.38	BT
82Y3RP		51.50	0.07	0.04	52.00	0.57	0.38	BT
88JHX8	*	53.50	2.07	1.34	51.50	0.07	0.05	HH
8EPW2X		53.00	1.57	1.02	52.00	0.57	0.38	BT
92UURN		51.50	0.07	0.04	51.00	-0.43	-0.29	BT
9DNJWG		53.50	2.07	1.34	52.50	1.07	0.72	BT
9JBYDF		51.00	-0.43	-0.28	51.00	-0.43	-0.29	BT
9JY37P		50.35	-1.08	-0.70	50.20	-1.23	-0.83	BT
9QDHKX		53.25	1.82	1.18	53.50	2.07	1.39	HH
9WKCW2		53.50	2.07	1.34	54.00	2.57	1.73	BT
9Z38K7		51.50	0.07	0.04	51.00	-0.43	-0.29	BT
A9V7MK		52.20	0.77	0.50	52.80	1.37	0.92	BT
AFAM4E		53.00	1.57	1.02	52.50	1.07	0.72	HH
ATWKZP		51.55	0.12	0.08	51.60	0.17	0.11	XX
B72DCE		50.30	-1.13	-0.73	49.60	-1.83	-1.23	BT
BD3MJ8		52.60	1.17	0.76	51.20	-0.23	-0.15	BT
BJANVH		50.00	-1.43	-0.93	50.00	-1.43	-0.96	XX
BJMMYK		53.75	2.32	1.51	52.50	1.07	0.72	HH
CKY494		50.10	-1.33	-0.86	50.20	-1.23	-0.83	BT
CP9ZDD		49.95	-1.48	-0.96	50.65	-0.78	-0.52	BT



Rubber Interlaboratory Testing Program
Analysis 620
Hardness (Shore A/Type A)

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample C71-C72			Sample C73-C74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
CUN3BP		50.00	-1.43	-0.93	49.50	-1.93	-1.30	BT
CX7UBB		53.00	1.57	1.02	53.00	1.57	1.06	HH
D8PNZD		52.25	0.82	0.53	52.05	0.62	0.42	BT
DPLJNG		49.55	-1.88	-1.22	50.65	-0.78	-0.52	BT
DWPKNB		51.20	-0.23	-0.15	51.40	-0.03	-0.02	BT
EFF2QJ		51.75	0.32	0.21	50.75	-0.68	-0.46	BT
ETXFFG		53.15	1.72	1.12	52.80	1.37	0.92	BT
EUUU3A		51.50	0.07	0.04	52.00	0.57	0.38	HH
EXU6YA		51.50	0.07	0.04	50.50	-0.93	-0.62	BT
F3MYMH		52.00	0.57	0.37	52.30	0.87	0.59	BT
FBG3VK	*	48.10	-3.33	-2.16	47.40	-4.03	-2.71	BT
FCBPBV		50.40	-1.03	-0.67	49.90	-1.53	-1.03	XX
FDPEB2		51.50	0.07	0.04	52.25	0.82	0.55	HH
FHGWX7		52.05	0.62	0.40	51.95	0.52	0.35	XX
FKP4ZY		53.00	1.57	1.02	52.50	1.07	0.72	BT
FZZRCE		52.00	0.57	0.37	52.00	0.57	0.38	BT
G4F8AR		51.50	0.07	0.04	51.00	-0.43	-0.29	BT
G8VCQE		51.00	-0.43	-0.28	52.00	0.57	0.38	HH
GAHFCD		52.75	1.32	0.86	53.10	1.67	1.12	BT
HB6E4G		51.50	0.07	0.04	51.50	0.07	0.05	HH
HC7ART		52.95	1.52	0.99	53.10	1.67	1.12	XX
HCNZZD		49.95	-1.48	-0.96	50.15	-1.28	-0.86	BT
HFLK6X		51.00	-0.43	-0.28	50.00	-1.43	-0.96	BT
HKG4TU		50.20	-1.23	-0.80	50.15	-1.28	-0.86	BT
HQLKNA		50.50	-0.93	-0.61	50.00	-1.43	-0.96	HH
JGB7BT	*	53.00	1.57	1.02	54.50	3.07	2.06	XX
JL43JX		49.00	-2.43	-1.58	49.50	-1.93	-1.30	BT
JP4H99		52.00	0.57	0.37	52.50	1.07	0.72	HH
KMC4YN		54.00	2.57	1.67	54.50	3.07	2.06	HH
KQDKG6		50.50	-0.93	-0.61	50.80	-0.63	-0.42	BT
KW23W2		51.00	-0.43	-0.28	51.00	-0.43	-0.29	BT
LBUCVR		54.60	3.17	2.06	54.05	2.62	1.76	BT
MAZFW6		50.50	-0.93	-0.61	51.00	-0.43	-0.29	BT
MMLTBY		54.35	2.92	1.89	54.00	2.57	1.73	HH
NBMEN8	X	58.00	6.57	4.26	58.00	6.57	4.42	XX
NKHRW2		51.00	-0.43	-0.28	50.00	-1.43	-0.96	BT
NLP848		51.00	-0.43	-0.28	51.00	-0.43	-0.29	BT



Rubber Interlaboratory Testing Program
Analysis 620
Hardness (Shore A/Type A)

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample C71-C72			Sample C73-C74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
NXMF3W		49.35	-2.08	-1.35	50.70	-0.73	-0.49	BT
NYWX7E		52.50	1.07	0.69	53.25	1.82	1.22	BT
P3E29P	X	43.50	-7.93	-5.15	45.00	-6.43	-4.32	BT
PL8FQF		54.00	2.57	1.67	52.50	1.07	0.72	BT
PP3U9J		51.00	-0.43	-0.28	51.00	-0.43	-0.29	BT
PQZ8R6		50.55	-0.88	-0.57	50.60	-0.83	-0.56	XX
Q84B32		52.05	0.62	0.40	51.25	-0.18	-0.12	BT
Q9AJYL		49.50	-1.93	-1.25	51.00	-0.43	-0.29	HH
QE22LQ	*	48.00	-3.43	-2.23	49.50	-1.93	-1.30	BT
QWLWXI		51.00	-0.43	-0.28	50.50	-0.93	-0.62	BT
QXYQVL		52.00	0.57	0.37	51.00	-0.43	-0.29	HH
QY84DM		49.50	-1.93	-1.25	50.00	-1.43	-0.96	BT
RCR67Y	X	59.00	7.57	4.91	57.50	6.07	4.08	HH
RHHDQT		51.00	-0.43	-0.28	50.00	-1.43	-0.96	BT
RPU424		51.00	-0.43	-0.28	50.00	-1.43	-0.96	BT
RU9ATQ		51.20	-0.23	-0.15	51.30	-0.13	-0.09	BT
T27YAV		51.00	-0.43	-0.28	52.00	0.57	0.38	BT
TDKFGT		50.75	-0.68	-0.44	50.50	-0.93	-0.62	BT
TEYHQL		49.60	-1.83	-1.19	50.30	-1.13	-0.76	BT
TLFTNZ	*	52.00	0.57	0.37	50.00	-1.43	-0.96	HH
TZTY2K		53.00	1.57	1.02	52.50	1.07	0.72	HH
U4AL9X		50.50	-0.93	-0.61	51.00	-0.43	-0.29	HH
UAEAGD		49.50	-1.93	-1.25	50.00	-1.43	-0.96	XX
UFZ6FV		50.00	-1.43	-0.93	51.00	-0.43	-0.29	BT
UX6FMM		50.15	-1.28	-0.83	50.70	-0.73	-0.49	HH
UXJ2U4		51.75	0.32	0.21	52.25	0.82	0.55	HH
VHACJN		51.00	-0.43	-0.28	52.00	0.57	0.38	BT
VHKCFH	*	50.00	-1.43	-0.93	48.50	-2.93	-1.97	BT
VLKMBH		53.10	1.67	1.08	54.10	2.67	1.80	XX
VMLVPP		50.90	-0.53	-0.35	50.95	-0.48	-0.32	BT
VVXCCC		50.25	-1.18	-0.77	49.60	-1.83	-1.23	BT
VW9UFU		53.00	1.57	1.02	52.50	1.07	0.72	BT
VXECEQ		52.35	0.92	0.60	52.30	0.87	0.59	BT
WTMWHI	X	50.45	-0.98	-0.64	47.75	-3.68	-2.47	XX
X6BQCW		55.00	3.57	2.32	55.00	3.57	2.40	HH
X8WUMF		53.00	1.57	1.02	53.50	2.07	1.39	BT
XCAZD3	*	55.50	4.07	2.64	54.50	3.07	2.06	HH
XJ8WYJ		50.40	-1.03	-0.67	50.90	-0.53	-0.36	BT



Rubber Interlaboratory Testing Program
Analysis 620
Hardness (Shore A/Type A)

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample C71-C72			Sample C73-C74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XR3A47		55.00	3.57	2.32	54.00	2.57	1.73	HH
XWH8QF		50.50	-0.93	-0.61	51.00	-0.43	-0.29	HH
XX7C7L		52.20	0.77	0.50	52.15	0.72	0.48	BT
Y28248		52.50	1.07	0.69	52.00	0.57	0.38	BT
Y2TD62		51.30	-0.13	-0.09	52.00	0.57	0.38	BT
YHVR8U		52.50	1.07	0.69	52.00	0.57	0.38	BT
YJNB3M		51.00	-0.43	-0.28	51.60	0.17	0.11	BT
YTEUHG		52.50	1.07	0.69	52.00	0.57	0.38	BT
YVKE7G		51.50	0.07	0.04	52.75	1.32	0.89	HH
ZE66RC		50.55	-0.88	-0.57	51.15	-0.28	-0.19	BT
ZNXNHZ		52.00	0.57	0.37	51.50	0.07	0.05	HH
ZTRHJ9		50.85	-0.58	-0.38	50.85	-0.58	-0.39	BT
ZYXGTC	X	44.00	-7.43	-4.83	47.00	-4.43	-2.98	HH

Grand Means		Summary Statistics	
	51.432 Type A		51.429 Type A
Stnd Dev Btwn Labs	1.540 Type A		1.487 Type A
Statistics based on 121 of 126 reporting participants			

Samples C71-C72: Polyisoprene compound, batch #1 & C73-C74: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #620

- NBMEN8 (X) - Data for all samples are high. Possible Systematic Error.
- P3E29P (X) - Data for all samples are low. Possible Systematic Error.
- RCR67Y (X) - Data for all samples are high. Possible Systematic Error.
- WTMWHB (X) - Inconsistent in testing between sample groups. Inconsistent within the determinations of Sample group C73-C74.
- ZYXGTC (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of Sample group C73-C74.

Key to Instrument Codes Reported by Participants

- BT Benchtop
- HH Handheld
- XX Specify Benchtop or Handheld Instrument



Rubber Interlaboratory Testing Program
Analysis 620
Hardness (Shore A/Type A)

Report #193
3rd Qtr 2017

Results by Reading Time (as reported by laboratory)

Reading Time	Sample C71-C72 <i>Polyisoprene compound, batch #1</i>			Sample C73-C74 <i>Polyisoprene compound, batch #2</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Select from list below	52.25	0.99	0.82	52.35	1.06	0.92	2	4
Readings taken within 0 - 5 seconds	51.63	1.36	0.19	51.67	1.28	0.24	80	88
Readings taken at 5 seconds	50.47	0.97	-0.96	50.55	1.07	-0.87	11	12
Readings taken after 5+ seconds	50.83	1.83	-0.60	50.76	1.89	-0.67	9	9
Maximum hardness indicator used	51.68	1.39	0.25	51.65	1.24	0.22	11	13

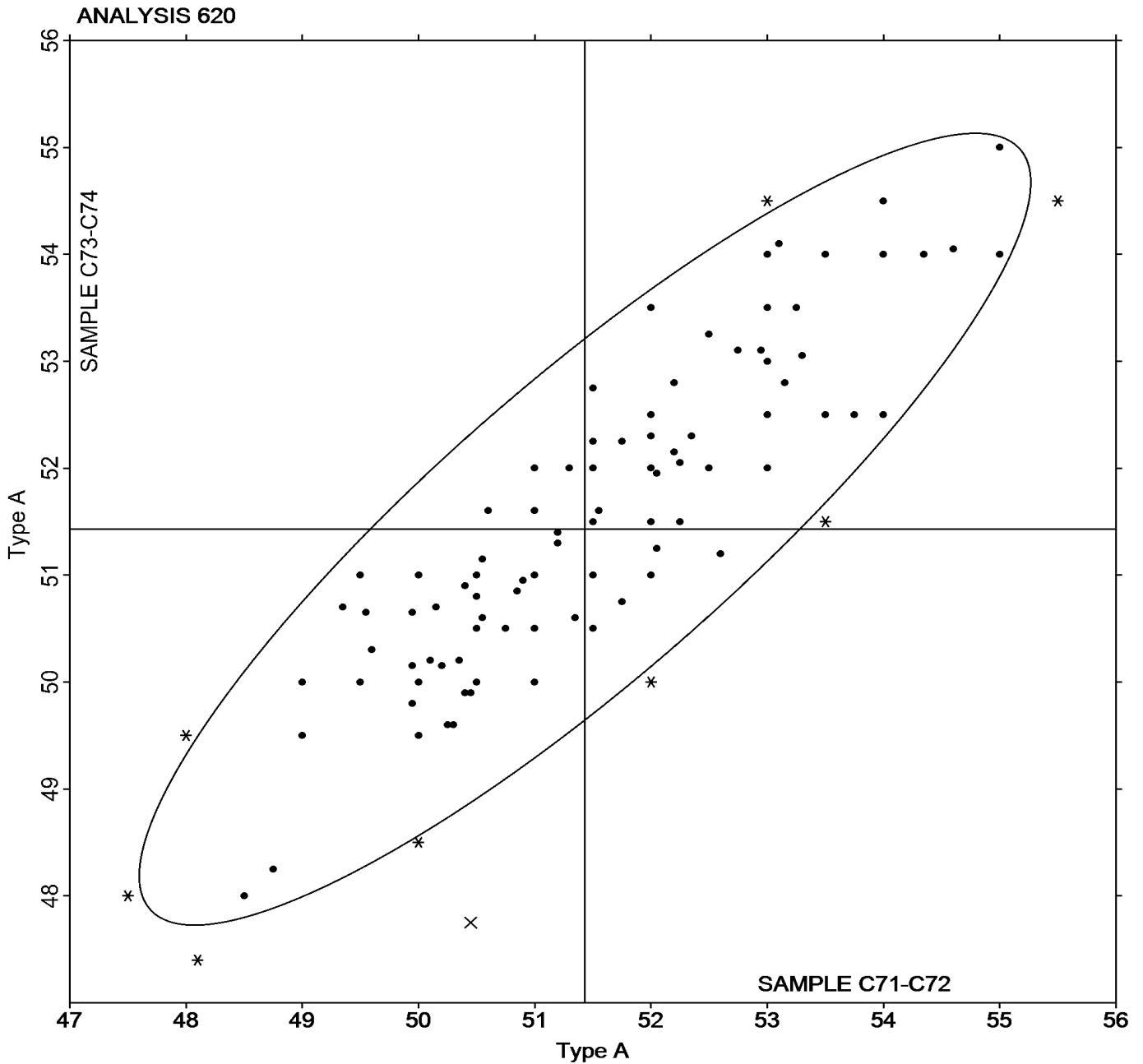


Rubber Interlaboratory Testing Program
Analysis 620
Hardness (Shore A/Type A)

Report #193
3rd Qtr 2017

Grand Mean Sample C71-C72 = 51.432 Type A

Grand Mean Sample C73-C74 = 51.429 Type A





Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample C71-C72			Sample C73-C74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
26LTED		1.146	0.005	1.31	1.146	0.006	1.62
28PEV7		1.142	0.000	0.12	1.141	0.000	0.13
2GTACP		1.139	-0.002	-0.63	1.138	-0.002	-0.64
3CY8R3		1.142	0.001	0.27	1.142	0.001	0.27
3N6FAK		1.139	-0.002	-0.48	1.139	-0.002	-0.55
3NQJX9		1.142	0.001	0.35	1.142	0.002	0.53
3WF7QP		1.144	0.003	0.74	1.143	0.002	0.62
42RC7W		1.136	-0.005	-1.56	1.136	-0.004	-1.27
4TFP3F	*	1.149	0.008	2.18	1.144	0.003	0.95
4UBX27		1.139	-0.002	-0.55	1.139	-0.001	-0.42
6677K9		1.142	0.000	0.12	1.143	0.002	0.55
6UQGL3		1.142	0.001	0.30	1.141	0.001	0.20
6XN2M2		1.141	0.000	-0.02	1.141	0.000	0.13
7AYTQ2		1.134	-0.007	-1.96	1.135	-0.005	-1.54
7F3WCT		1.145	0.004	1.12	1.144	0.003	0.84
7MYQCD		1.145	0.004	1.05	1.142	0.002	0.50
82Y3RP		1.139	-0.002	-0.59	1.141	0.000	0.13
88JHX8	X	1.112	-0.029	-8.25	1.140	0.000	-0.13
8EPW2X		1.140	-0.001	-0.30	1.140	-0.001	-0.15
9DNJWG		1.144	0.003	0.77	1.141	0.000	0.09
9JBYDF		1.140	-0.001	-0.30	1.138	-0.003	-0.72
9JY37P		1.137	-0.004	-1.13	1.137	-0.004	-1.15
9WKCW2		1.140	-0.001	-0.38	1.138	-0.002	-0.59
9Z38K7		1.138	-0.003	-0.88	1.139	-0.002	-0.44
A9V7MK		1.141	0.000	0.04	1.141	0.000	0.11
AFAM4E		1.143	0.002	0.60	1.143	0.003	0.78
ATWKZP		1.140	-0.001	-0.32	1.138	-0.002	-0.69
B72DCE		1.140	-0.002	-0.45	1.139	-0.002	-0.44
CKY494		1.138	-0.004	-1.02	1.138	-0.003	-0.86
CP9ZDD		1.143	0.002	0.48	1.139	-0.001	-0.42
D8PNZD	*	1.140	-0.001	-0.30	1.144	0.003	0.92
DWPKNB		1.143	0.002	0.61	1.141	0.001	0.17
ETXFFG		1.140	-0.001	-0.30	1.139	-0.002	-0.44
EUUU3A		1.137	-0.005	-1.31	1.137	-0.003	-0.91
F3MYMH		1.147	0.006	1.58	1.145	0.005	1.28
FBG3VK	X	1.133	-0.008	-2.35	1.153	0.012	3.40
FDPEB2	*	1.132	-0.009	-2.63	1.131	-0.009	-2.68



Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample C71-C72			Sample C73-C74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
FHGWX7		1.145	0.003	0.98	1.144	0.003	0.84
FKP4ZY		1.142	0.001	0.24	1.142	0.001	0.34
FZZRCE		1.140	-0.001	-0.28	1.141	0.000	0.02
G4F8AR		1.143	0.002	0.65	1.143	0.002	0.55
GAHFCD		1.139	-0.002	-0.59	1.141	0.001	0.23
HC7ART		1.141	0.000	0.04	1.143	0.003	0.72
HCNZZD		1.140	-0.001	-0.41	1.141	0.001	0.17
HFLK6X		1.139	-0.002	-0.68	1.140	-0.001	-0.20
HQLKNA		1.146	0.005	1.41	1.145	0.004	1.26
JGB7BT	*	1.132	-0.010	-2.73	1.131	-0.010	-2.85
JL43JX	X	0.899	-0.242	-69.18	0.899	-0.242	-68.46
JP4H99		1.135	-0.006	-1.62	1.133	-0.007	-2.01
KMC4YN		1.140	-0.001	-0.42	1.140	0.000	-0.04
KW23W2		1.143	0.001	0.41	1.141	0.000	-0.01
LBUCVR		1.144	0.003	0.87	1.144	0.003	0.94
MAZFW6		1.145	0.003	0.98	1.144	0.003	0.84
MMLTBY		1.145	0.004	1.12	1.142	0.001	0.41
NKHRW2		1.141	0.000	-0.02	1.142	0.001	0.41
NXMF3W	*	1.135	-0.006	-1.81	1.132	-0.009	-2.42
P3E29P		1.141	0.000	-0.02	1.137	-0.004	-1.15
PL8FQF		1.145	0.004	1.24	1.144	0.004	0.99
PP3U9J		1.142	0.001	0.38	1.141	0.001	0.16
PQZ8R6	*	1.137	-0.005	-1.31	1.141	0.000	-0.01
Q84B32		1.146	0.005	1.32	1.145	0.005	1.39
Q9AJYL		1.142	0.000	0.12	1.143	0.002	0.70
QXYQVL		1.141	0.000	0.04	1.141	0.000	0.11
QY84DM		1.141	-0.001	-0.16	1.140	-0.001	-0.15
RCR67Y		1.140	-0.001	-0.29	1.143	0.002	0.67
RHHDQT		1.143	0.001	0.41	1.142	0.001	0.27
RU9ATQ		1.140	-0.001	-0.28	1.139	-0.001	-0.37
TDKFGT		1.142	0.000	0.12	1.141	0.000	0.13
TEYHQL		1.140	-0.001	-0.38	1.139	-0.002	-0.51
TLFTNZ		1.142	0.001	0.27	1.142	0.001	0.41
TZTY2K		1.144	0.003	0.80	1.144	0.003	0.87
UAEAGD	*	1.152	0.011	3.12	1.150	0.009	2.68
UFZ6FV		1.142	0.001	0.30	1.142	0.002	0.47
UXJ2U4		1.144	0.003	0.82	1.144	0.003	0.91
VHACJN		1.137	-0.004	-1.05	1.138	-0.003	-0.78



Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample C71-C72			Sample C73-C74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
VVXCCC		1.139	-0.002	-0.71	1.142	0.001	0.36
VW9UFU		1.140	-0.001	-0.30	1.140	-0.001	-0.15
WTMWHI		1.139	-0.002	-0.55	1.137	-0.003	-0.98
X6BQCW	*	1.136	-0.005	-1.41	1.132	-0.009	-2.48
X8WUMF		1.143	0.002	0.52	1.142	0.002	0.43
XJ8WYJ		1.144	0.002	0.71	1.142	0.002	0.43
XR3A47	*	1.135	-0.006	-1.79	1.131	-0.010	-2.71
XX7C7L		1.146	0.005	1.30	1.146	0.006	1.62
Y2TD62		1.145	0.004	1.18	1.145	0.004	1.16
YHVR8U	X	8.226	7.085	2,024.81	8.369	7.229	2,048.82
YJNB3M		1.142	0.001	0.27	1.142	0.001	0.27
YTEUHG		1.144	0.003	0.84	1.141	0.000	0.13
ZTRHJ9		1.142	0.001	0.25	1.142	0.002	0.51
ZYXGTC		1.140	-0.002	-0.45	1.139	-0.002	-0.44

Summary Statistics			
Grand Means	1.1411	g/cm ³ (Mg/m ³)	1.1405
			g/cm ³ (Mg/m ³)
Stnd Dev Btwn Labs	0.0035	g/cm ³ (Mg/m ³)	0.0035
			g/cm ³ (Mg/m ³)
Statistics based on 85 of 89 reporting participants			

Samples C71-C72: Polyisoprene compound, batch #1 & C73-C74: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #621

- 88JHX8 (X) - Inconsistent in testing between sample groups. Data for Sample group C71-C72 are low. Inconsistent within the determinations of Sample group C71-C72.
- FBG3VK (X) - Inconsistent in testing between sample groups. Data for Sample group C73-C74 are high. Inconsistent within the determinations of Sample group C73-C74.
- JL43JX (X) - Extreme Data.
- YHVR8U (X) - Extreme Data.

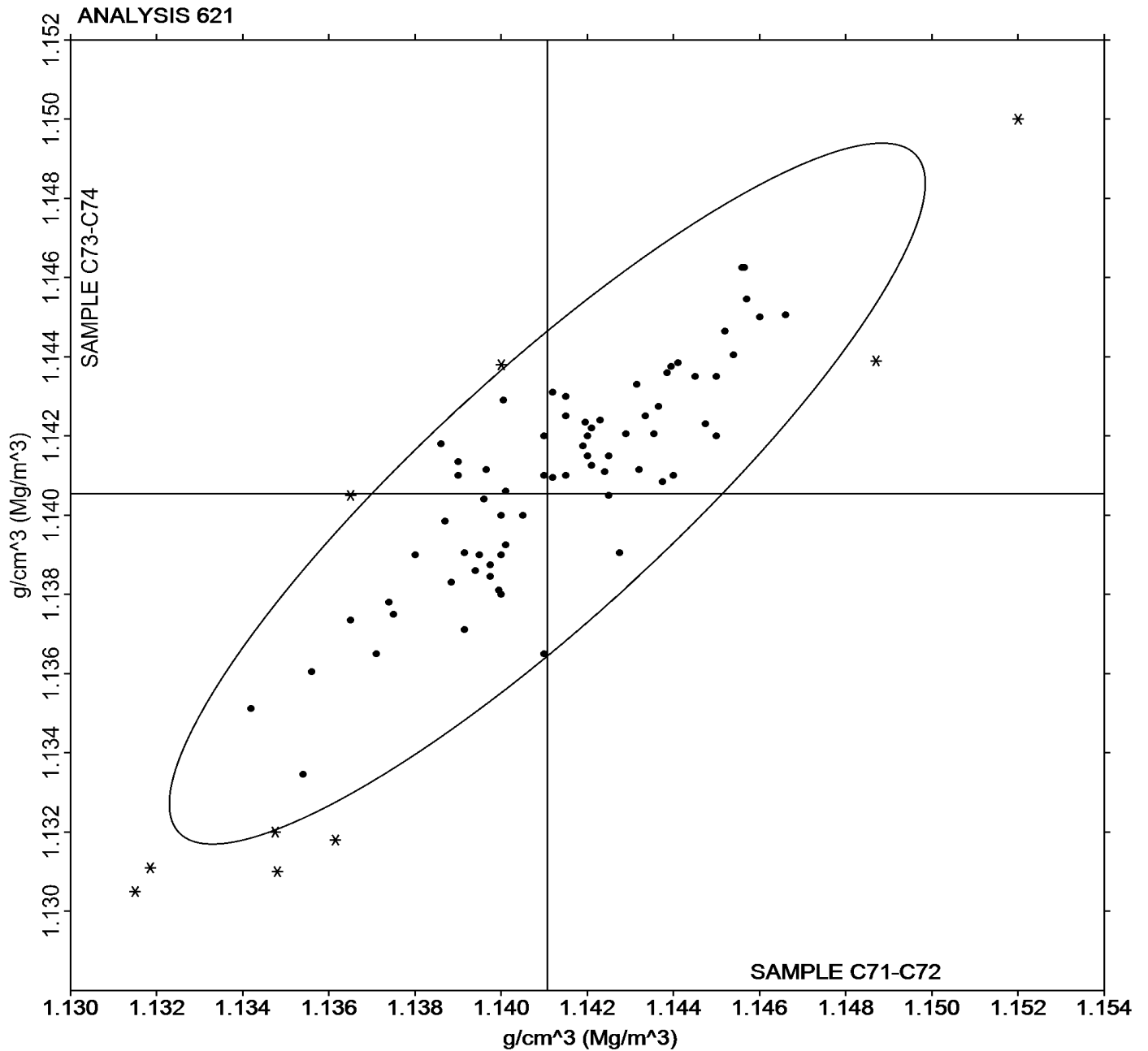


Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #193
3rd Qtr 2017

Grand Mean Sample **C71-C72** = 1.1411 g/cm³
(Mg/m³)

Grand Mean Sample **C73-C74** = 1.1405 g/cm³
(Mg/m³)





Rubber Interlaboratory Testing Program
Analysis 625
Hardness (Shore D/Type D)

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample HC71-HC72			Sample HC73-HC74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2RVPY9		77.25	0.89	0.21	86.25	0.74	0.21	HH
2WL2YC		77.50	1.14	0.27	86.50	0.99	0.28	HH
AJ92PH		72.50	-3.86	-0.93	84.50	-1.01	-0.29	BT
APX7DZ		74.00	-2.36	-0.57	85.00	-0.51	-0.14	XX
D6G466		75.50	-0.86	-0.21	84.00	-1.51	-0.43	BT
GWGKG7		78.45	2.09	0.50	85.50	-0.01	0.00	BT
JABKTB		78.50	2.14	0.52	87.00	1.49	0.42	HH
MJT2CV		70.00	-6.36	-1.53	79.00	-6.51	-1.84	BT
NBMEN8		88.00	11.64	2.80	95.50	9.99	2.82	XX
NEREXX		80.00	3.64	0.88	88.00	2.49	0.70	HH
TBDXKH		74.75	-1.61	-0.39	85.75	0.24	0.07	BT
TBF36D		74.00	-2.36	-0.57	81.50	-4.01	-1.13	BT
VXECEQ		74.00	-2.36	-0.57	84.15	-1.36	-0.38	BT
WGNVM1		77.00	0.64	0.15	86.00	0.49	0.14	HH
YJNB3M		73.95	-2.41	-0.58	84.03	-1.49	-0.42	BT

Summary Statistics	
Grand Means	76.360 Type D 85.512 Type D
Stnd Dev Btwn Labs	4.152 Type D 3.547 Type D
Statistics based on 15 of 15 reporting participants	

Samples HC71-HC72: Hardness Disc, batch #1 & HC73-HC74: Hardness Disc, batch #2

Key to Instrument Codes Reported by Participants

- BT Benchtop
- HH Handheld
- XX Specify Benchtop or Handheld Instrument

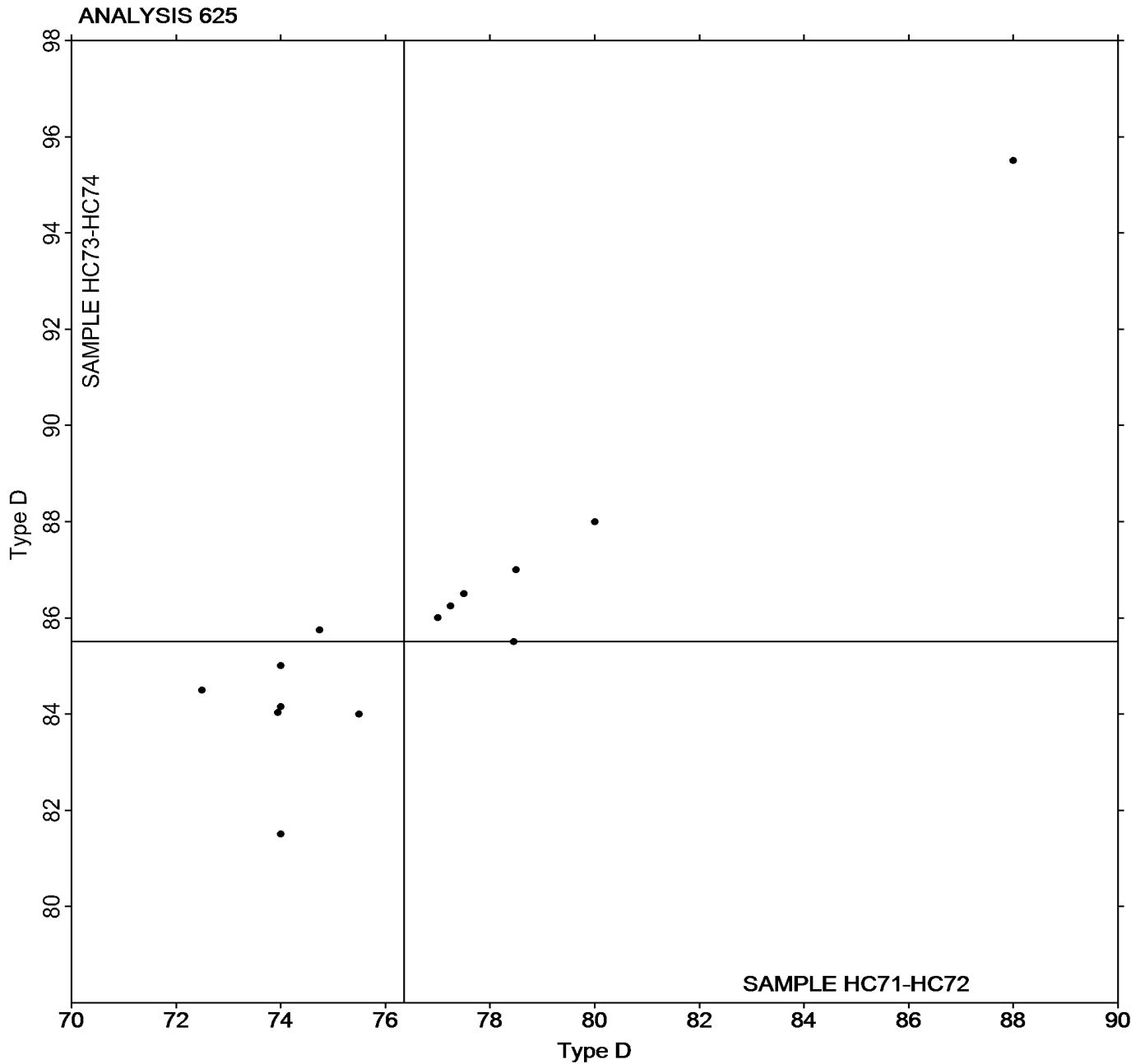


Rubber Interlaboratory Testing Program
Analysis 625
Hardness (Shore D/Type D)

Report #193
3rd Qtr 2017

Grand Mean Sample **HC71-HC72** = 76.360 Type D

Grand Mean Sample **HC73-HC74** = 85.512 Type D



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.



Rubber Interlaboratory Testing Program

Report #193

Analysis 630

3rd Qtr 2017

Tensile Strength: Precured vs. Lab-Cured Samples (psi)

WebCode	Data Flag	Sample C71-C72			Sample L71-L72		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
28PEV7		3,246.1	143.3	1.13	3,118.0	230.3	1.05
3N6FAK		3,258.3	155.5	1.22	3,153.9	266.2	1.22
3NQJX9		3,153.9	51.1	0.40	3,005.1	117.5	0.54
4TFP3F		3,126.2	23.4	0.18	3,005.0	117.4	0.54
6677K9		3,199.5	96.7	0.76	3,169.5	281.9	1.29
7F3WCT	*	3,015.5	-87.3	-0.69	2,226.5	-661.1	-3.02
88JHX8		3,035.5	-67.3	-0.53	2,438.0	-449.6	-2.06
9DNJWG		3,062.1	-40.7	-0.32	2,932.5	44.8	0.20
9JBYDF		3,205.4	102.6	0.81	2,937.0	49.4	0.23
A9V7MK		3,151.8	49.0	0.39	3,057.5	169.9	0.78
ATWKZP		2,898.1	-204.7	-1.61	2,816.7	-70.9	-0.32
CX7UBB		3,126.3	23.5	0.18	2,826.3	-61.3	-0.28
D8PNZD		3,283.0	180.2	1.42	3,009.3	121.6	0.56
DWPKNB		3,180.0	77.2	0.61	3,103.5	215.9	0.99
ETXFFG		3,149.5	46.7	0.37	2,944.3	56.7	0.26
EUUU3A		3,082.9	-19.9	-0.16	2,912.9	25.3	0.12
FBG3VK		3,311.2	208.4	1.64	3,069.0	181.4	0.83
FCBPBV		3,066.0	-36.8	-0.29	2,988.0	100.4	0.46
GAHFCD		3,189.6	86.8	0.68	2,570.2	-317.4	-1.45
HC7ART		3,141.0	38.2	0.30	2,928.0	40.4	0.18
HCNZZD		3,006.0	-96.8	-0.76	2,603.0	-284.6	-1.30
HQLKNA		2,986.0	-116.8	-0.92	2,868.0	-19.6	-0.09
JGB7BT	X	47,687.9	44,585.1	350.82	47,262.6	44,375.0	202.91
JL43JX		2,972.0	-130.8	-1.03	2,996.6	108.9	0.50
JP4H99		3,116.3	13.5	0.11	3,109.6	221.9	1.01
KMC4YN		3,200.8	98.0	0.77	2,915.0	27.3	0.12
MAZFW6		3,212.5	109.7	0.86	2,914.0	26.4	0.12
P3E29P		2,986.5	-116.3	-0.92	2,847.0	-40.6	-0.19
Q84B32		3,089.1	-13.7	-0.11	2,977.2	89.5	0.41
Q9AJYL	X	2,670.2	-432.6	-3.40	1,883.2	-1,004.4	-4.59
QXYQVL		2,878.0	-224.8	-1.77	2,750.2	-137.5	-0.63
RCR67Y		2,985.3	-117.5	-0.92	2,921.1	33.5	0.15
T27YAV		3,194.0	91.2	0.72	2,985.5	97.9	0.45
UAEAGD	*	2,772.5	-330.3	-2.60	2,430.2	-457.4	-2.09
UXJ2U4	*	3,220.0	117.2	0.92	2,505.0	-382.6	-1.75
VHACJN	X	3,058.3	-44.5	-0.35	2,000.1	-887.5	-4.06
VXECEQ		3,016.8	-86.0	-0.68	2,835.5	-52.1	-0.24
XCAZD3		2,844.9	-257.9	-2.03	2,588.9	-298.7	-1.37



Rubber Interlaboratory Testing Program

Report #193

Analysis 630

3rd Qtr 2017

Tensile Strength: Precured vs. Lab-Cured Samples (psi)

WebCode	Data Flag	Sample C71-C72			Sample L71-L72		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
XX7C7L		3,129.6	26.8	0.21	3,099.0	211.3	0.97
Y2TD62		3,282.2	179.4	1.41	3,066.1	178.5	0.82
YJNB3M		2,979.1	-123.7	-0.97	2,848.6	-39.1	-0.18
ZE66RC		3,222.5	119.7	0.94	3,022.0	134.4	0.61
ZNXNHZ		3,136.0	33.2	0.26	3,012.0	124.4	0.57

Summary Statistics	
Grand Means	
	3,102.79 psi
Std Dev Btwn Labs	218.69 psi
	127.09 psi
Statistics based on 40 of 43 reporting participants	

Summary Statistics in SI Units	
Grand Means	
	21.393 MPa
Std Dev Btwn Labs	1.51 MPa
	0.876 MPa
Statistics based on 40 of 43 reporting participants	

Samples C71-C72: Polyisoprene compound, batch #1 & L71-L72: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #630

JGB7BT (X) - Extreme Data.

Q9AJYL (X) - Data for all samples are low. Inconsistent within the determinations of Sample group C71-C72.

VHACJN (X) - Data for Sample group L71-L72 are low.

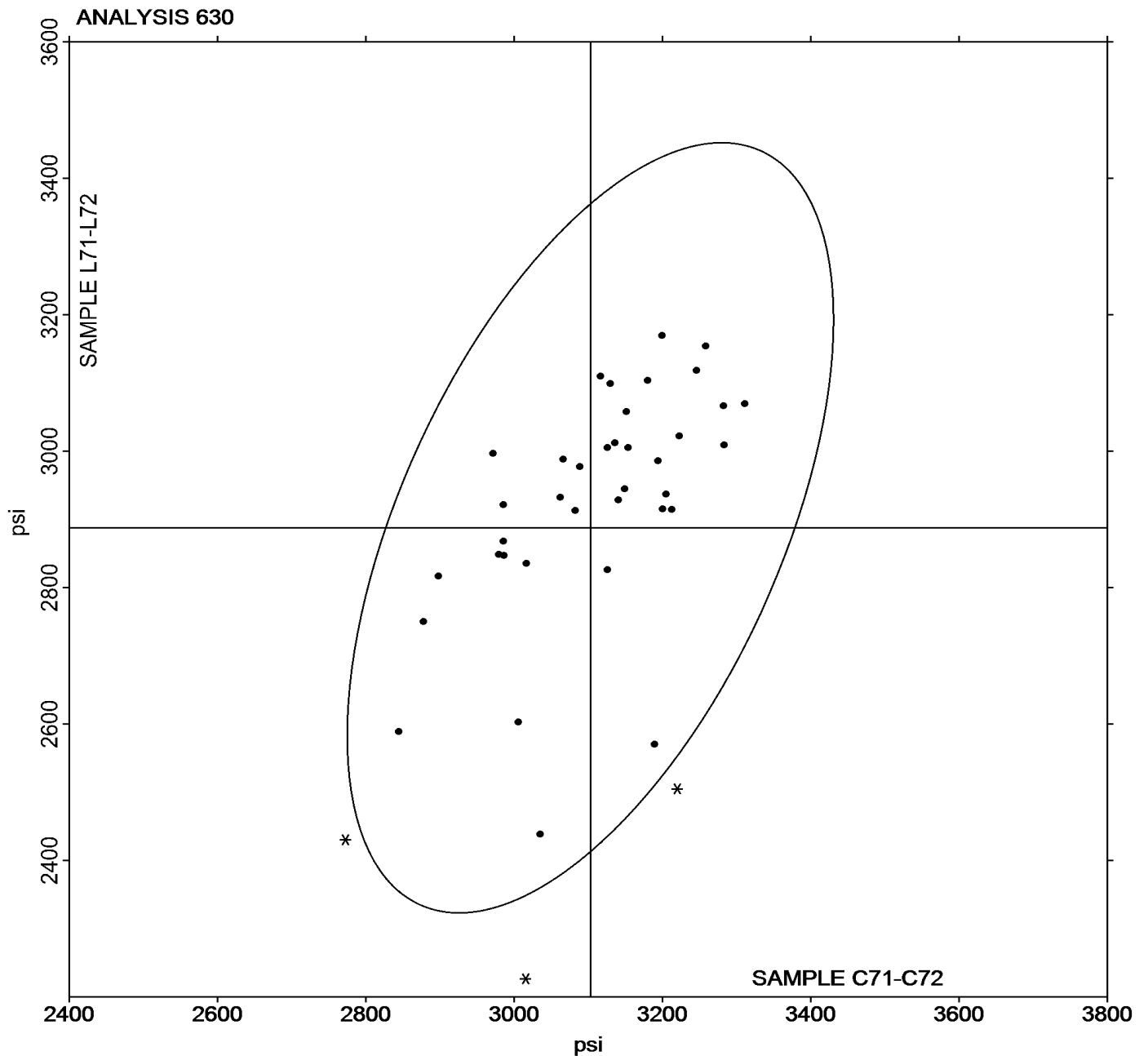


Rubber Interlaboratory Testing Program
Analysis 630
Tensile Strength: Precured vs. Lab-Cured Samples (psi)

Report #193
3rd Qtr 2017

Grand Mean Sample **C71-C72** = 3,102.79 psi

Grand Mean Sample **L71-L72** = 2,887.64 psi





Rubber Interlaboratory Testing Program

Report #193

Analysis 631

3rd Qtr 2017

Ultimate Elongation: Precured vs. Lab-Cured Samples (percent)

WebCode	Data Flag	Sample C71-C72			Sample L71-L72		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
28PEV7	X	1,783.2	1,191.7	44.97	1,810.0	1,240.5	49.62
3N6FAK		570.0	-21.5	-0.81	543.5	-26.0	-1.04
3NQJX9		550.0	-41.5	-1.57	570.8	1.2	0.05
4TFP3F		596.4	4.9	0.18	588.1	18.6	0.74
6677K9		611.0	19.5	0.73	617.5	48.0	1.92
7F3WCT	*	609.5	18.0	0.68	537.0	-32.5	-1.30
88JHX8		585.0	-6.5	-0.25	564.0	-5.5	-0.22
9DNJWG		593.1	1.6	0.06	574.2	4.6	0.19
9JBYDF		628.5	37.0	1.39	591.5	22.0	0.88
A9V7MK		586.2	-5.3	-0.20	558.2	-11.3	-0.45
ATWKZP	X	767.0	175.5	6.62	741.1	171.6	6.86
CX7UBB		622.2	30.7	1.16	579.7	10.2	0.41
D8PNZD		612.8	21.2	0.80	591.9	22.4	0.90
DWPKNB		586.5	-5.0	-0.19	582.5	13.0	0.52
ETXFFG		593.5	2.0	0.07	569.0	-0.5	-0.02
EUUU3A		582.5	-9.0	-0.34	561.0	-8.5	-0.34
FBG3VK		613.2	21.6	0.82	578.4	8.8	0.35
FCBPBV		595.5	4.0	0.15	580.5	11.0	0.44
GAHFCD		652.6	61.1	2.31	619.2	49.7	1.99
HC7ART		618.0	26.5	1.00	592.5	23.0	0.92
HCNZZD		626.0	34.5	1.30	568.0	-1.5	-0.06
HQLKNA		580.5	-11.0	-0.42	557.5	-12.0	-0.48
JGB7BT		598.0	6.5	0.25	594.0	24.5	0.98
JL43JX		566.2	-25.3	-0.96	563.4	-6.2	-0.25
JP4H99		578.4	-13.2	-0.50	554.4	-15.1	-0.60
KMC4YN		606.7	15.1	0.57	597.1	27.5	1.10
MAZFW6		560.5	-31.0	-1.17	536.5	-33.0	-1.32
P3E29P		539.5	-52.0	-1.96	550.0	-19.5	-0.78
Q84B32		615.9	24.3	0.92	576.1	6.5	0.26
Q9AJYL		619.0	27.4	1.03	625.3	55.8	2.23
QXYQVL		568.5	-23.0	-0.87	548.0	-21.5	-0.86
RCR67Y		585.0	-6.5	-0.25	568.0	-1.5	-0.06
T27YAV		596.5	5.0	0.19	560.0	-9.5	-0.38
UAEAGD		557.0	-34.5	-1.30	544.6	-25.0	-1.00
UXJ2U4		615.5	24.0	0.90	570.5	1.0	0.04
VHACJN		609.9	18.4	0.69	545.9	-23.7	-0.95
VXECEQ		586.4	-5.2	-0.20	555.8	-13.8	-0.55
XCAZD3		588.0	-3.5	-0.13	589.5	20.0	0.80



Rubber Interlaboratory Testing Program

Report #193

Analysis 631

3rd Qtr 2017

Ultimate Elongation: Precured vs. Lab-Cured Samples (percent)

WebCode	Data Flag	Sample C71-C72			Sample L71-L72		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
XX7C7L		580.8	-10.8	-0.41	568.5	-1.0	-0.04
Y2TD62	X	328.0	-263.5	-9.95	318.0	-251.5	-10.06
YJNB3M	*	515.0	-76.5	-2.89	498.0	-71.5	-2.86
ZE66RC		569.5	-22.0	-0.83	532.5	-37.0	-1.48
ZNXNHZ		592.5	1.0	0.04	578.5	9.0	0.36

Grand Means		Summary Statistics	
	591.54 percent		569.53 percent
Stnd Dev Btwn Labs	26.50 percent		25.00 percent
Statistics based on 40 of 43 reporting participants			

Samples C71-C72: Polyisoprene compound, batch #1 & L71-L72: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #631

28PEV7 (X) - Extreme Data.

ATWKZP (X) - Data for all samples are high.

Y2TD62 (X) - Data for all samples are low.



Rubber Interlaboratory Testing Program

Analysis 631

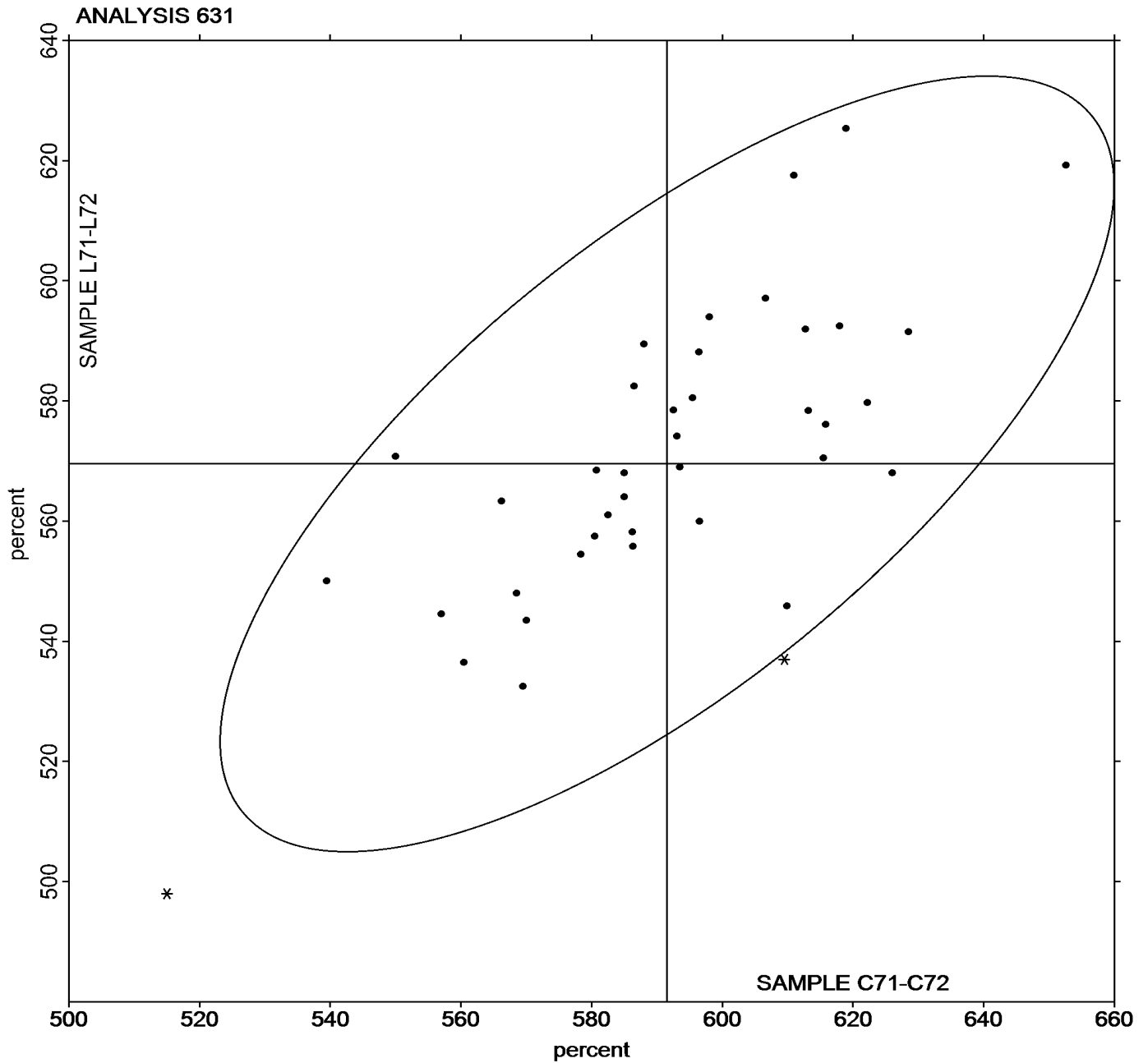
Report #193

3rd Qtr 2017

Ultimate Elongation: Precured vs. Lab-Cured Samples (percent)

Grand Mean Sample C71-C72 = 591.54 percent

Grand Mean Sample L71-L72 = 569.53 percent





Rubber Interlaboratory Testing Program

Report #193

Analysis 632

3rd Qtr 2017

Stress at 300% Elongation: Precured vs. Lab-Cured Samples (psi)

WebCode	Data Flag	Sample C71-C72			Sample L71-L72		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
28PEV7	X	324.4	-735.5	-11.56	265.0	-690.2	-5.87
3N6FAK		1,116.1	56.2	0.88	1,111.0	155.9	1.33
3NQJX9		1,117.6	57.7	0.91	942.5	-12.6	-0.11
4TFP3F		1,072.8	12.9	0.20	925.4	-29.7	-0.25
6677K9		1,019.0	-40.8	-0.64	904.5	-50.6	-0.43
7F3WCT		1,003.5	-56.3	-0.89	810.5	-144.6	-1.23
88JHX8		1,050.5	-9.3	-0.15	765.5	-189.6	-1.61
9DNJWG		1,068.1	8.2	0.13	964.8	9.6	0.08
9JBYDF		988.4	-71.4	-1.12	981.2	26.1	0.22
A9V7MK		1,087.1	27.3	0.43	1,081.8	126.7	1.08
ATWKZP	X	796.5	-263.4	-4.14	758.0	-197.1	-1.68
CX7UBB		1,006.0	-53.8	-0.85	877.7	-77.5	-0.66
D8PNZD		1,071.6	11.7	0.18	949.1	-6.0	-0.05
DWPKNB		1,081.0	21.2	0.33	979.0	23.9	0.20
ETXFFG		1,063.1	3.3	0.05	955.1	0.0	0.00
EUUU3A		1,113.4	53.5	0.84	1,038.0	82.9	0.70
FBG3VK	X	1,057.3	-2.5	-0.04	3,069.0	2,113.9	17.98
FCBPBV		1,099.0	39.2	0.62	966.0	10.9	0.09
GAHFCD		996.0	-63.8	-1.00	783.7	-171.4	-1.46
HC7ART		1,012.0	-47.8	-0.75	909.0	-46.1	-0.39
HCNZZD		923.0	-136.8	-2.15	874.0	-81.1	-0.69
HQLKNA		1,027.5	-32.3	-0.51	966.0	10.9	0.09
JGB7BT	X	16,145.7	15,085.9	237.02	14,813.7	13,858.6	117.87
JL43JX		1,081.6	21.7	0.34	1,005.5	50.4	0.43
JP4H99		1,084.4	24.6	0.39	1,113.8	158.7	1.35
KMC4YN		1,007.3	-52.5	-0.83	878.6	-76.6	-0.65
MAZFW6		1,175.2	115.4	1.81	1,045.1	90.0	0.77
P3E29P	X	241.5	-818.3	-12.86	994.5	39.4	0.34
Q84B32		1,038.5	-21.3	-0.34	1,030.8	75.7	0.64
Q9AJYL	X	830.6	-229.2	-3.60	471.3	-483.8	-4.12
QXYQVL		1,002.5	-57.4	-0.90	869.4	-85.8	-0.73
RCR67Y		989.0	-70.8	-1.11	977.5	22.4	0.19
T27YAV		1,079.0	19.2	0.30	1,006.0	50.9	0.43
UAEAGD		1,046.5	-13.3	-0.21	814.4	-140.8	-1.20
UXJ2U4		1,054.0	-5.8	-0.09	822.0	-133.1	-1.13
VHACJN		996.4	-63.4	-1.00	727.2	-227.9	-1.94
VXECEQ		1,068.9	9.1	0.14	1,011.6	56.5	0.48



Stress at 300% Elongation: Precured vs. Lab-Cured Samples (psi)

WebCode	Data Flag	Sample C71-C72			Sample L71-L72		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
XCAZD3		974.7	-85.2	-1.34	747.7	-207.4	-1.76
XX7C7L		1,110.2	50.3	0.79	1,084.4	129.2	1.10
Y2TD62		1,080.5	20.7	0.33	1,157.8	202.7	1.72
YJNB3M	*	1,248.1	188.2	2.96	1,187.1	232.0	1.97
ZE66RC		1,194.0	134.2	2.11	1,150.5	195.4	1.66
ZNXNHZ		1,068.0	8.2	0.13	925.0	-30.1	-0.26

Summary Statistics	
Grand Means	1,059.85 psi
Std Dev Btwn Labs	63.65 psi
	955.10 psi
	117.57 psi
Statistics based on 37 of 43 reporting participants	

Summary Statistics in SI Units	
Grand Means	7.3073 MPa
Std Dev Btwn Labs	0.4388 MPa
	6.59 MPa
	0.81 MPa
Statistics based on 37 of 43 reporting participants	

Samples C71-C72: Polyisoprene compound, batch #1 & L71-L72: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #632

28PEV7 (X) - Data for all samples are low.

ATWKZP (X) - Data for Sample group C71-C72 are low.

FBG3VK (X) - Data for Sample group L71-L72 are high.

JGB7BT (X) - Extreme Data.

P3E29P (X) - Data for Sample group C71-C72 are low.

Q9AJYL (X) - Data for all samples are low.



Rubber Interlaboratory Testing Program

Analysis 632

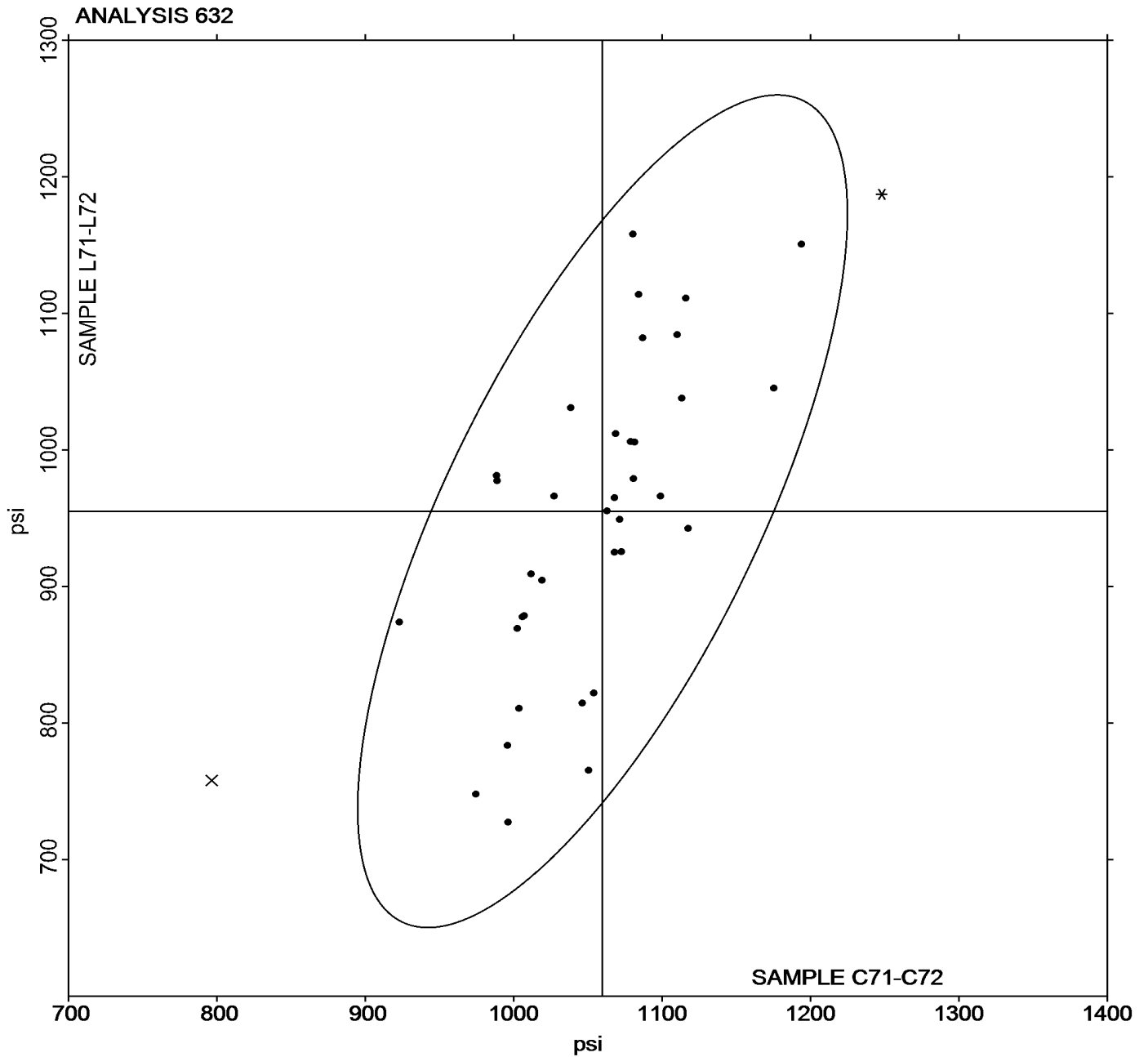
Report #193

3rd Qtr 2017

Stress at 300% Elongation: Precured vs. Lab-Cured Samples (psi)

Grand Mean Sample C71-C72 = 1,059.85 psi

Grand Mean Sample L71-L72 = 955.10 psi





Rubber Interlaboratory Testing Program

Report #193

Analysis 633

3rd Qtr 2017

Stress at 100% Elongation: Precured vs. Lab-Cured Samples (psi)

WebCode	Data Flag	Sample C71-C72			Sample L71-L72		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
28PEV7	X	139.4	-103.3	-7.53	118.6	-83.1	-4.42
3N6FAK		256.7	14.1	1.02	230.6	28.9	1.54
3NQJX9	X	298.3	55.7	4.06	210.8	9.1	0.48
4TFP3F		256.7	14.0	1.02	210.1	8.4	0.44
6677K9		231.5	-11.2	-0.81	193.5	-8.2	-0.44
7F3WCT		240.0	-2.7	-0.19	170.5	-31.2	-1.66
88JHX8		244.0	1.3	0.10	167.0	-34.7	-1.85
9DNJWG		252.0	9.3	0.68	206.6	4.9	0.26
9JBYDF		232.8	-9.9	-0.72	211.0	9.3	0.50
A9V7MK		251.0	8.3	0.61	237.5	35.8	1.91
ATWKZP	*	207.6	-35.1	-2.55	187.5	-14.2	-0.76
CX7UBB		232.2	-10.5	-0.76	190.9	-10.8	-0.57
D8PNZD		238.1	-4.6	-0.34	199.1	-2.6	-0.14
DWPKNB		253.5	10.8	0.79	207.0	5.3	0.28
ETXFFG		245.8	3.2	0.23	200.2	-1.5	-0.08
EUUU3A		248.3	5.6	0.41	214.4	12.7	0.68
FBG3VK		240.8	-1.9	-0.14	201.6	-0.1	0.00
FCBPBV		270.0	27.3	1.99	230.0	28.3	1.51
GAHFCD		255.8	13.1	0.95	206.1	4.4	0.23
HC7ART		235.5	-7.2	-0.52	200.0	-1.7	-0.09
HCNZZD		220.0	-22.7	-1.65	189.5	-12.2	-0.65
HQLKNA		232.0	-10.7	-0.78	198.5	-3.2	-0.17
JGB7BT	X	3,734.3	3,491.7	254.45	3,085.7	2,884.0	153.50
JL43JX		244.2	1.5	0.11	198.0	-3.7	-0.20
JP4H99		237.7	-5.0	-0.36	222.6	20.9	1.11
KMC4YN		231.4	-11.3	-0.82	192.0	-9.7	-0.52
MAZFW6		262.0	19.3	1.41	208.0	6.3	0.34
P3E29P	X	1,138.5	895.8	65.28	184.0	-17.7	-0.94
Q84B32		244.1	1.4	0.10	208.0	6.3	0.33
Q9AJYL	X	203.3	-39.4	-2.87	123.4	-78.3	-4.17
QXYQVL		238.2	-4.5	-0.33	197.6	-4.1	-0.22
RCR67Y		220.0	-22.7	-1.65	198.0	-3.7	-0.20
T27YAV		246.5	3.8	0.28	213.5	11.8	0.63
UAEAGD		250.5	7.8	0.57	181.2	-20.5	-1.09
UXJ2U4		265.5	22.8	1.66	195.5	-6.2	-0.33
VHACJN	*	220.7	-22.0	-1.60	151.3	-50.4	-2.68
VXECEQ		235.0	-7.7	-0.56	201.6	-0.1	0.00
XCAZD3		230.6	-12.1	-0.88	174.0	-27.7	-1.47



Rubber Interlaboratory Testing Program

Report #193

Analysis 633

3rd Qtr 2017

Stress at 100% Elongation: Precured vs. Lab-Cured Samples (psi)

WebCode	Data Flag	Sample C71-C72			Sample L71-L72		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
XX7C7L		255.1	12.5	0.91	225.2	23.5	1.25
Y2TD62	X	237.9	-4.8	-0.35	260.3	58.6	3.12
YJNB3M		256.0	13.3	0.97	231.3	29.6	1.58
ZE66RC		256.5	13.8	1.01	224.5	22.8	1.21
ZNXNHZ		240.5	-2.2	-0.16	189.0	-12.7	-0.68

Summary Statistics	
Grand Means	
	242.67 psi
Std Dev Btw Labs	
	13.72 psi
	201.70 psi
	18.79 psi
Statistics based on 37 of 43 reporting participants	

Summary Statistics in SI Units	
Grand Means	
	1.6731 MPa
Std Dev Btw Labs	
	0.0946 MPa
	1.39 MPa
	0.13 MPa
Statistics based on 37 of 43 reporting participants	

Samples C71-C72: Polyisoprene compound, batch #1 & L71-L72: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #633

- 28PEV7 (X) - Data for all samples are low.
- 3NQJX9 (X) - Data for Sample group C71-C72 are high.
- JGB7BT (X) - Extreme Data.
- P3E29P (X) - Extreme Data for Sample group C71-C72.
- Q9AJYL (X) - Data for all samples are low.
- Y2TD62 (X) - Data for Sample group L71-L72 are high.



Rubber Interlaboratory Testing Program

Report #193

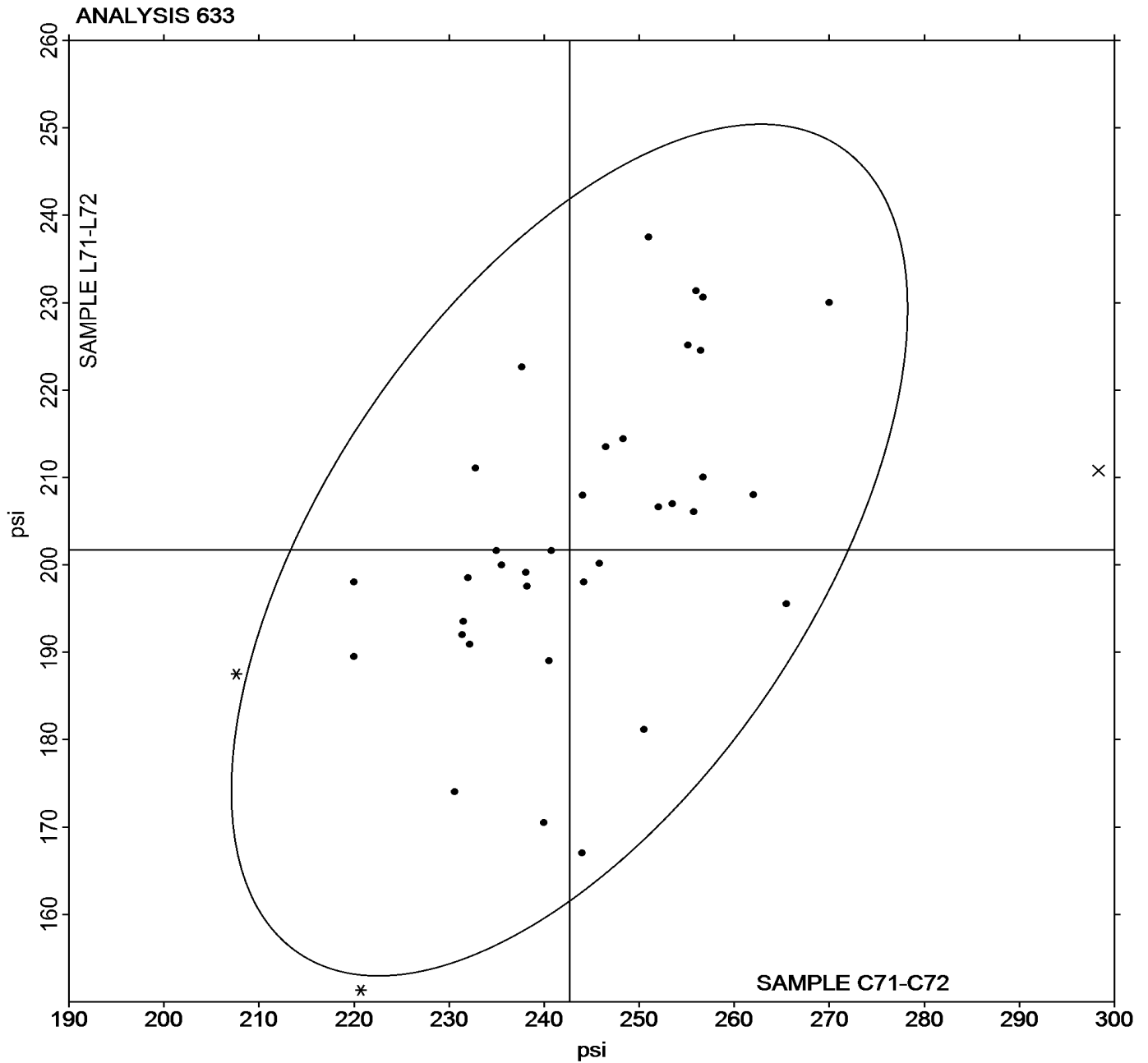
Analysis 633

3rd Qtr 2017

Stress at 100% Elongation: Precured vs. Lab-Cured Samples (psi)

Grand Mean Sample C71-C72 = 242.67 psi

Grand Mean Sample L71-L72 = 201.70 psi





Rubber Interlaboratory Testing Program

Report #193

Analysis 660

3rd Qtr 2017

Mooney Viscosity: 4-minute readings (ML 1 + 4)

WebCode	Data Flag	Sample U71-U72			Sample U73-U74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
28PEV7		46.53	0.36	0.38	56.30	0.67	0.58	XX
2GTACP		47.72	1.55	1.61	57.14	1.50	1.30	TA
32X2FF		46.98	0.81	0.84	56.30	0.67	0.58	MR
3N6FAK		45.57	-0.60	-0.63	54.94	-0.69	-0.60	MV
3NPNAW		47.88	1.71	1.78	57.00	1.37	1.19	MR
3NQJX9		47.28	1.11	1.15	56.51	0.87	0.76	MV
4QV9XW		46.98	0.81	0.84	56.37	0.73	0.64	MR
4TFP3F	X	45.71	-0.46	-0.48	57.93	2.29	1.99	TA
4UBZNP		45.58	-0.59	-0.61	55.38	-0.25	-0.22	MR
6677K9		45.56	-0.61	-0.63	53.91	-1.72	-1.49	MV
6CP7KX		46.72	0.55	0.57	55.92	0.28	0.25	MR
7AYTQ2		46.50	0.33	0.34	55.47	-0.17	-0.14	MR
9DNJWG		45.57	-0.60	-0.62	55.43	-0.20	-0.18	MR
9JY37P		46.05	-0.12	-0.12	55.06	-0.58	-0.50	MR
A9V7MK		46.40	0.23	0.24	56.73	1.10	0.95	MR
BJMMYK		46.80	0.63	0.65	56.81	1.17	1.02	MR
D8PNZD		45.38	-0.79	-0.82	53.93	-1.71	-1.48	MR
DWPKNB		45.20	-0.97	-1.00	54.68	-0.95	-0.82	MR
ETXFFG		47.22	1.05	1.09	56.45	0.82	0.71	MR
EUUU3A		46.62	0.45	0.46	57.25	1.62	1.40	MR
F69BA8		46.90	0.73	0.76	56.62	0.98	0.85	MP
FKP4ZY		47.25	1.08	1.12	55.97	0.33	0.29	MR
HC7ART		45.48	-0.69	-0.71	54.25	-1.38	-1.20	XX
HQLKNA	*	46.42	0.25	0.26	54.45	-1.18	-1.02	MR
JDFE3W		44.27	-1.90	-1.97	53.62	-2.02	-1.75	MR
JGB7BT		44.80	-1.37	-1.42	53.84	-1.79	-1.55	XX
KAAF6A		44.89	-1.28	-1.33	54.70	-0.93	-0.81	MV
KW23W2		47.33	1.16	1.21	57.02	1.38	1.20	MR
LHZQYG		46.08	-0.09	-0.09	56.78	1.15	1.00	MR
NKHRW2		46.99	0.82	0.85	56.35	0.72	0.63	MR
NYWX7E		44.65	-1.52	-1.58	53.72	-1.92	-1.66	MR
Q9AJYL		46.83	0.66	0.69	56.00	0.37	0.32	MR
QXYQVL		47.73	1.56	1.62	57.93	2.30	1.99	MR
RCR67Y		46.27	0.10	0.10	55.30	-0.33	-0.29	MR
T27YAV		45.83	-0.34	-0.35	55.47	-0.17	-0.14	MR
UAEAGD		43.98	-2.19	-2.27	53.68	-1.95	-1.69	XX
VHACJN		46.14	-0.03	-0.03	56.14	0.51	0.44	TV



Rubber Interlaboratory Testing Program

Report #193

Analysis 660

3rd Qtr 2017

Mooney Viscosity: 4-minute readings (ML 1 + 4)

WebCode	Data Flag	Sample U71-U72			Sample U73-U74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
VLKMBH		45.65	-0.52	-0.54	55.15	-0.49	-0.42	MR
VVXCCC		46.37	0.20	0.21	55.62	-0.02	-0.01	MR
VXECEQ		45.18	-0.99	-1.02	54.70	-0.93	-0.81	MR
X6BQCW	X	42.06	-4.11	-4.26	52.07	-3.57	-3.09	XX
XCAZD3		45.63	-0.54	-0.56	55.25	-0.38	-0.33	MV
XH2CBJ		47.28	1.11	1.16	57.73	2.10	1.82	MR
Y2TD62	M	45.82	-0.35	-0.36	No data reported for this sample			MR
YJNB3M		45.77	-0.40	-0.42	55.50	-0.13	-0.11	MR
ZYXGTC		45.00	-1.17	-1.21	54.83	-0.80	-0.69	MR

Grand Means		Summary Statistics	
	46.169 ML 1 + 4		55.632 ML 1 + 4
Stnd Dev Btwn Labs	0.965 ML 1 + 4		1.154 ML 1 + 4
Statistics based on 43 of 46 reporting participants			

Samples U71-U72: NBR & U73-U74: Butyl

Comments on Assigned Data Flags for Test #660

4TFP3F (X) - Inconsistent in testing between samples.

X6BQCW (X) - Data for all samples are low.

Y2TD62 (M) - Participant did not submit data for sample group U73-U74.

Key to Instrument Codes Reported by Participants

MP	Monsanto Compact Mooney Viscometer	MR	Alpha Technologies Model MV2000/MV2000E
MV	MonTech	TA	TA Instruments (any model)
TV	Tech Pro Visc Tech (any model)	XX	Instrument make/model not specified by lab

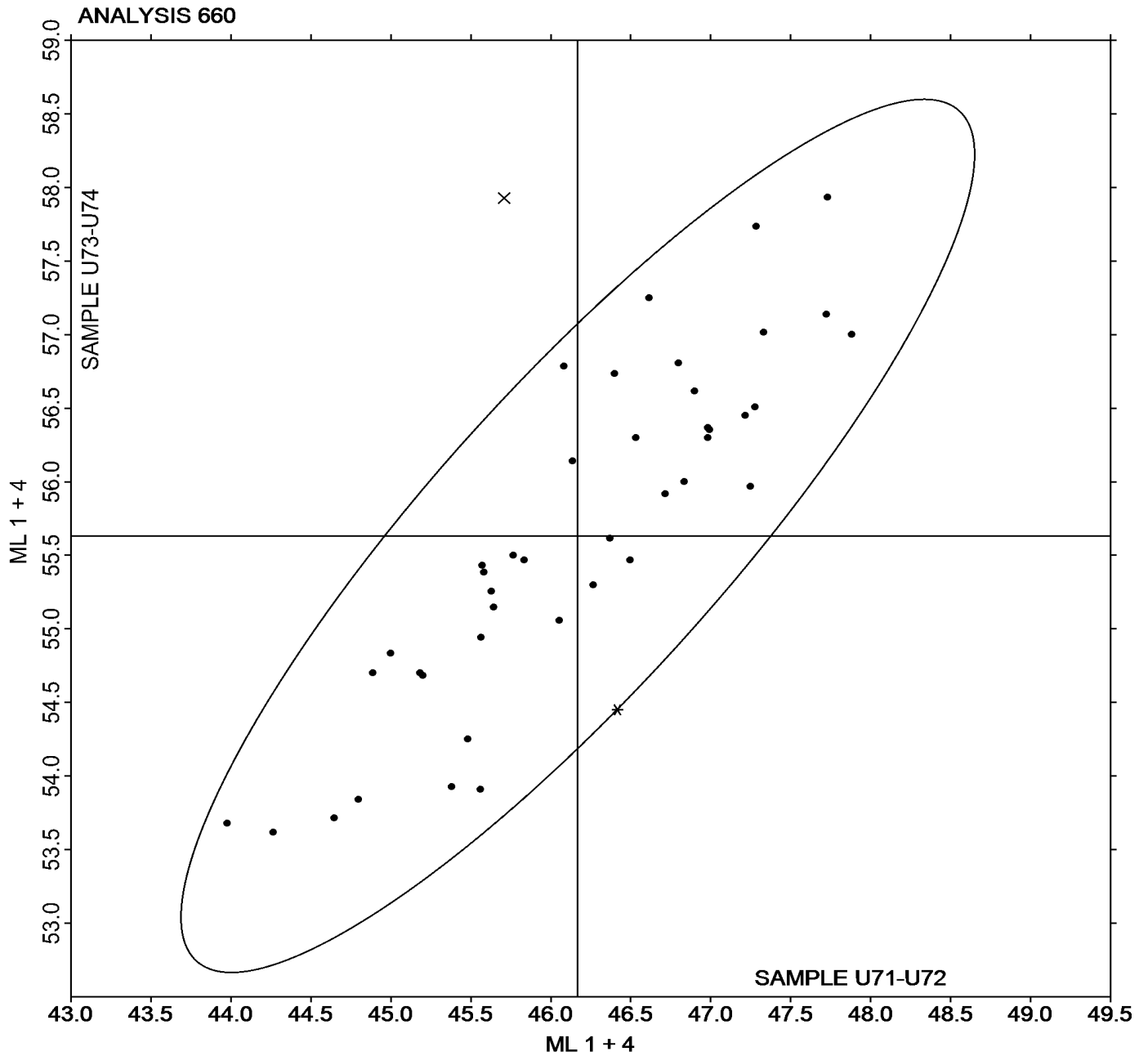


Rubber Interlaboratory Testing Program
Analysis 660
Mooney Viscosity: 4-minute readings (ML 1 + 4)

Report #193
3rd Qtr 2017

Grand Mean Sample **U71-U72** = 46.169 ML 1 + 4

Grand Mean Sample **U73-U74** = 55.632 ML 1 + 4





Rubber Interlaboratory Testing Program

Report #193

Analysis 661

3rd Qtr 2017

Mooney Viscosity: 4-min NBR/SBR & 8-min butyl readings (ML)

WebCode	Data Flag	Sample U71-U72			Sample U73-U74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
28PEV7		46.53	0.43	0.45	54.70	1.58	1.46	XX
2GTACP		47.72	1.62	1.72	54.12	1.00	0.93	TA
32X2FF		46.98	0.88	0.93	54.55	1.43	1.32	MR
3N6FAK		45.57	-0.54	-0.57	52.59	-0.53	-0.49	MV
3NPNAW		47.88	1.78	1.89	53.72	0.60	0.55	MR
3NQJX9		47.28	1.17	1.24	53.04	-0.08	-0.08	MV
4TFP3F		45.71	-0.40	-0.42	54.58	1.46	1.35	TA
4UBZNP		45.58	-0.52	-0.55	53.10	-0.02	-0.02	MR
6677K9		45.56	-0.54	-0.58	52.34	-0.78	-0.72	MV
6CP7KX		46.72	0.61	0.65	53.00	-0.12	-0.11	MR
7AYTQ2		46.50	0.39	0.41	52.80	-0.32	-0.29	MR
9DNJWG		45.57	-0.53	-0.56	52.84	-0.28	-0.26	MR
9JY37P		46.05	-0.05	-0.05	52.68	-0.44	-0.41	MR
A9V7MK		46.40	0.29	0.31	54.40	1.28	1.18	MR
BJMMYK		46.80	0.69	0.74	53.76	0.64	0.59	MR
D8PNZD		45.38	-0.72	-0.77	51.43	-1.69	-1.55	MR
DWPKNB		45.20	-0.91	-0.96	51.68	-1.44	-1.32	MR
ETXFFG		47.22	1.11	1.18	53.98	0.86	0.80	MR
EUUU3A		46.62	0.51	0.54	54.12	1.00	0.92	MR
F69BA8		46.90	0.79	0.84	53.37	0.25	0.23	MP
FKP4ZY		47.25	1.14	1.21	53.43	0.31	0.29	MR
HC7ART		45.48	-0.62	-0.66	51.67	-1.45	-1.34	XX
HQLKNA		46.42	0.31	0.33	52.07	-1.05	-0.97	MP
JDFE3W	*	44.27	-1.84	-1.95	53.30	0.18	0.17	MR
JGB7BT		44.80	-1.31	-1.39	50.83	-2.29	-2.11	XX
KAAF6A		44.89	-1.22	-1.29	53.47	0.35	0.32	MV
KW23W2		47.33	1.23	1.30	54.99	1.87	1.73	MR
LHZQYG		46.08	-0.02	-0.02	53.72	0.60	0.55	MR
NKHRW2		46.99	0.89	0.94	53.79	0.67	0.62	MR
NYWX7E		44.65	-1.46	-1.55	51.56	-1.56	-1.43	MR
Q9AJYL		46.83	0.73	0.77	53.47	0.35	0.32	MR
QXYQVL		47.73	1.62	1.72	55.52	2.40	2.21	MR
RCR67Y		46.27	0.16	0.17	52.62	-0.50	-0.46	MR
T27YAV		45.83	-0.27	-0.29	53.03	-0.09	-0.08	MR
UAEAGD	*	43.98	-2.13	-2.26	50.32	-2.80	-2.59	XX
VHACJN		46.14	0.03	0.03	53.45	0.33	0.31	TV
VLKMBH		45.65	-0.46	-0.49	53.12	0.00	0.00	MR
VVXCCC		46.37	0.27	0.28	52.62	-0.50	-0.46	XX



Rubber Interlaboratory Testing Program

Report #193

Analysis 661

3rd Qtr 2017

Mooney Viscosity: 4-min NBR/SBR & 8-min butyl readings (ML)

WebCode	Data Flag	Sample U71-U72			Sample U73-U74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
VXECEQ		45.18	-0.92	-0.98	52.38	-0.74	-0.68	MR
XCAZD3		45.63	-0.48	-0.51	53.43	0.31	0.29	MV
Y2TD62		45.82	-0.29	-0.31	52.48	-0.64	-0.59	MR
YJNB3M		45.77	-0.34	-0.36	53.47	0.35	0.32	MR
ZYXGTC		45.00	-1.11	-1.17	52.57	-0.55	-0.51	MR

Grand Means		Summary Statistics	
	46.105 ML 1 + 8		53.118 ML 1 + 8
Stnd Dev Btwn Labs	0.943 ML 1 + 8		1.084 ML 1 + 8
Statistics based on 43 of 43 reporting participants			

Samples U71-U72: NBR & U73-U74: Butyl

Key to Instrument Codes Reported by Participants

MP	Monsanto Compact Mooney Viscometer	MR	Alpha Technologies Model MV2000/MV2000E
MV	Montech	TA	TA Instruments (any model)
TV	Tech Pro Visc Tech (any model)	XX	Instrument make/model not specified by lab



Rubber Interlaboratory Testing Program

Report #193

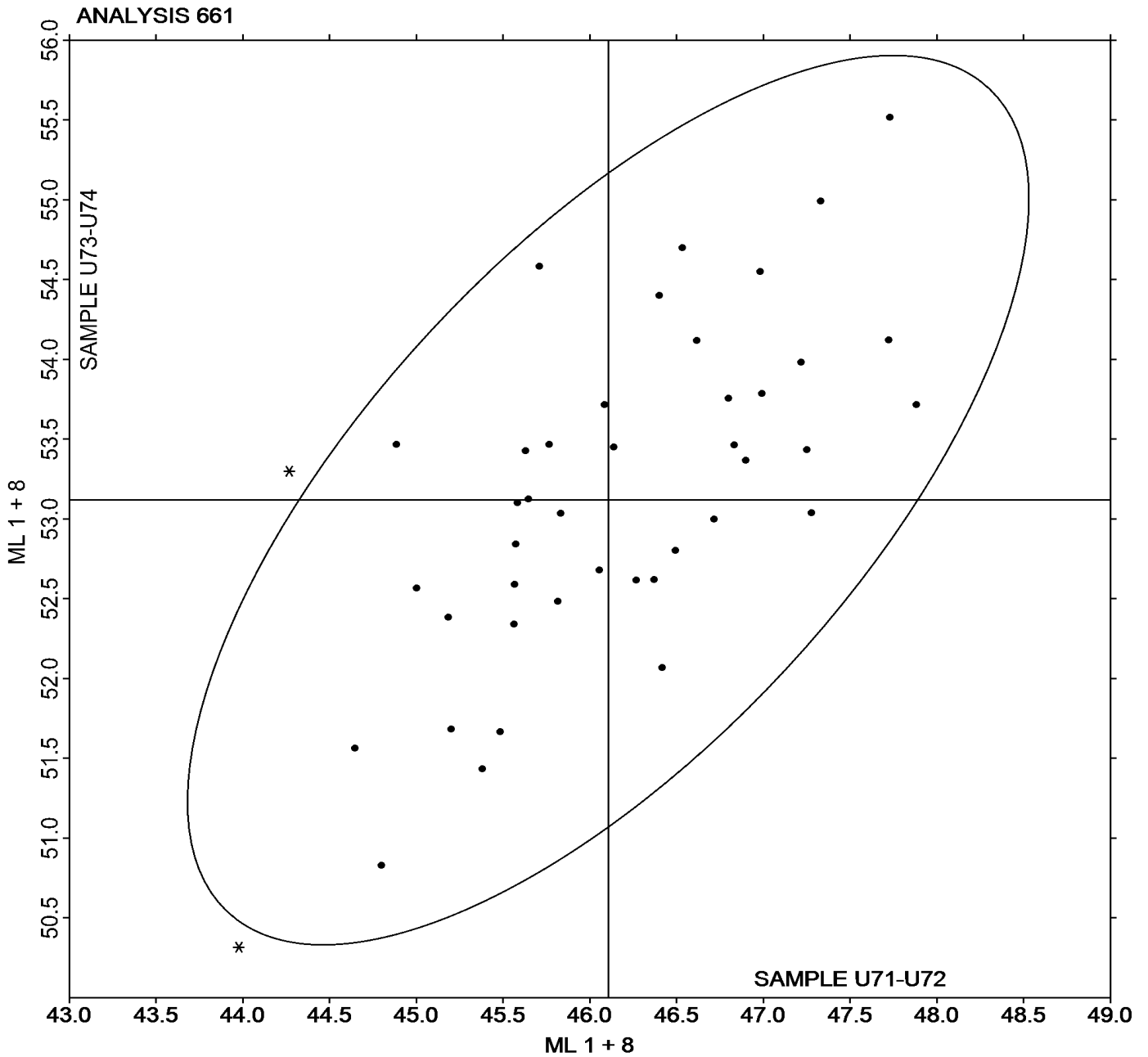
Analysis 661

3rd Qtr 2017

Mooney Viscosity: 4-min NBR/SBR & 8-min butyl readings (ML)

Grand Mean Sample **U71-U72** = 46.105 ML 1 + 8

Grand Mean Sample **U73-U74** = 53.118 ML 1 + 8





Rubber Interlaboratory Testing Program

Report #193

Analysis 662

3rd Qtr 2017

Mooney Stress Relaxation: t80 (seconds)

WebCode	Data Flag	Sample U71-U72			Sample U73-U74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2GTACP		4.233	-1.206	-0.73	10.067	1.717	1.24	TA
3N6FAK		5.050	-0.389	-0.24	5.120	-3.230	-2.34	MV
3NPNAW		4.940	-0.499	-0.30	8.127	-0.223	-0.16	MR
3NQJX9		5.167	-0.273	-0.17	7.667	-0.683	-0.49	MV
4QV9XW		4.800	-0.639	-0.39	9.600	1.250	0.90	MR
4TFP3F		5.068	-0.371	-0.23	5.158	-3.191	-2.31	TA
6677K9		4.333	-1.106	-0.67	8.567	0.217	0.16	MV
6CP7KX		5.933	0.494	0.30	8.767	0.417	0.30	MR
7AYTQ2		4.932	-0.508	-0.31	8.222	-0.128	-0.09	MR
9DNJWG	X	32.508	27.069	16.49	13.402	5.052	3.66	MR
A9V7MK		4.690	-0.749	-0.46	8.693	0.344	0.25	MR
DWPKNB		4.783	-0.656	-0.40	7.907	-0.443	-0.32	MR
ETXFFG		5.268	-0.171	-0.10	8.550	0.200	0.14	MR
HC7ART		4.950	-0.489	-0.30	7.967	-0.383	-0.28	XX
JGB7BT	X	543.267	537.827	327.63	546.167	537.817	389.17	XX
Q9AJYL		9.045	3.606	2.20	9.108	0.759	0.55	MR
QXYQVL		5.672	0.232	0.14	9.345	0.995	0.72	MR
RCR67Y		5.927	0.487	0.30	9.363	1.014	0.73	MR
T27YAV		4.720	-0.719	-0.44	8.160	-0.190	-0.14	MR
VHACJN	*	11.060	5.621	3.42	11.140	2.790	2.02	TV
VXECEQ		5.000	-0.439	-0.27	8.500	0.150	0.11	MR
XCAZD3		3.900	-1.539	-0.94	7.200	-1.150	-0.83	MV
ZYXGTC		4.753	-0.686	-0.42	8.117	-0.233	-0.17	MR

Grand Means		Summary Statistics	
	5.4393 seconds		8.3497 seconds
Std Dev Btwn Labs	1.6416 seconds		1.3820 seconds
Statistics based on 21 of 23 reporting participants			

Samples U71-U72: NBR & U73-U74: Butyl

Comments on Assigned Data Flags for Test #662

9DNJWG (X) - Data for all samples are high.

JGB7BT (X) - Extreme Data.



Rubber Interlaboratory Testing Program
Analysis 662
Mooney Stress Relaxation: t80 (seconds)

Report #193
3rd Qtr 2017

Key to Instrument Codes Reported by Participants

MR	Alpha Technologies Model MV2000/MV2000E	MV	MonTech
TA	TA Instruments (any model)	TV	Tech Pro Visc Tech (any model)
XX	Instrument make/model not specified by lab		

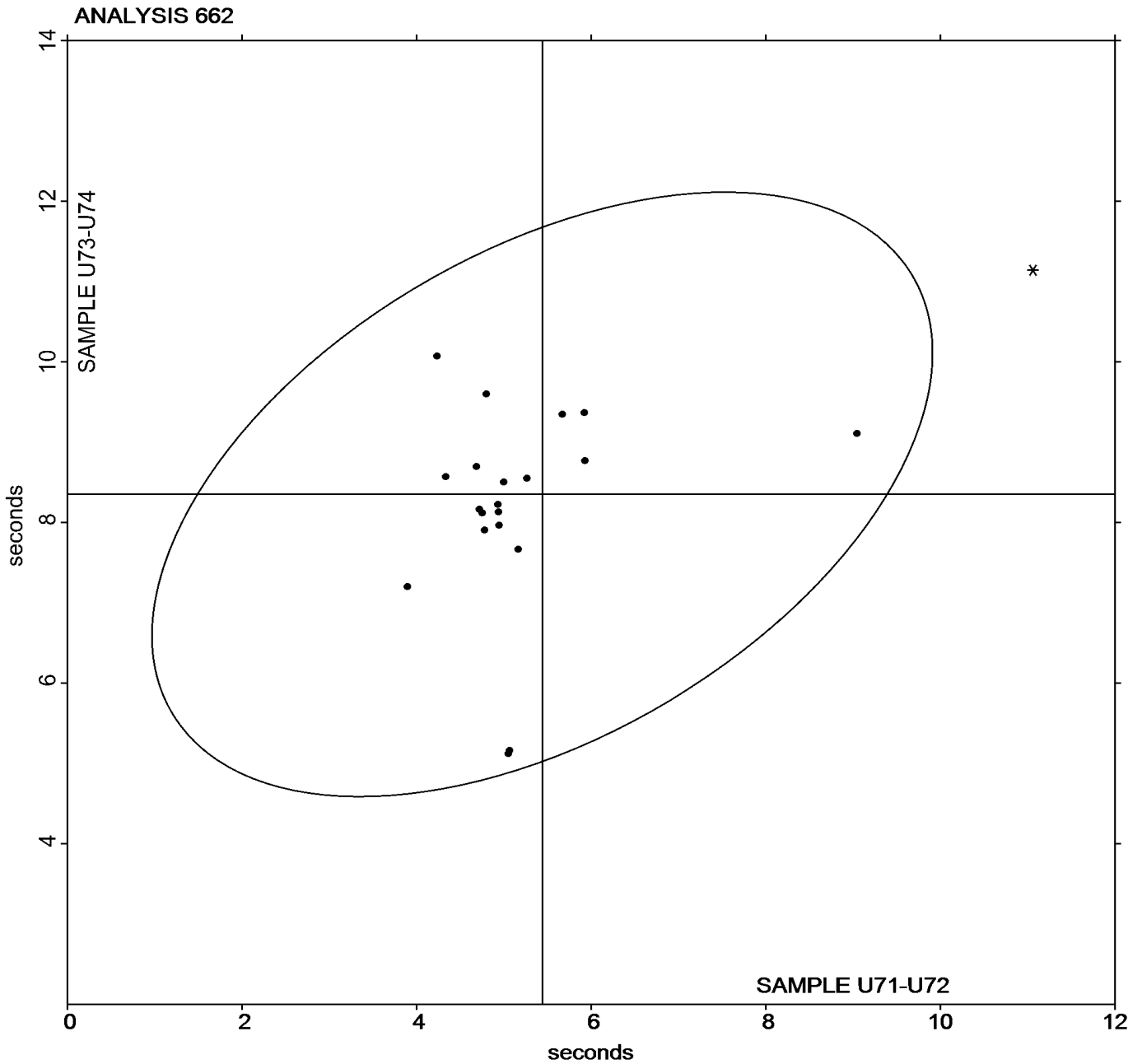


Rubber Interlaboratory Testing Program
Analysis 662
Mooney Stress Relaxation: t80 (seconds)

Report #193
3rd Qtr 2017

Grand Mean Sample **U71-U72** = 5.4393 seconds

Grand Mean Sample **U73-U74** = 8.3497 seconds





Rubber Interlaboratory Testing Program

Report #193

Analysis 663

3rd Qtr 2017

Mooney Stress Relaxation: X30 (percent)

WebCode	Data Flag	Sample U71-U72			Sample U73-U74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2GTACP		93.40	2.53	0.51	90.60	-0.43	-0.21	TA
3N6FAK		94.91	4.04	0.82	93.11	2.08	1.00	MV
3NPNAW		90.97	0.10	0.02	91.16	0.13	0.06	MR
3NQJX9		90.94	0.06	0.01	92.42	1.39	0.67	MV
4TFP3F		93.95	3.07	0.62	90.55	-0.47	-0.23	TA
6677K9		91.85	0.98	0.20	90.75	-0.28	-0.13	MV
6CP7KX		89.48	-1.39	-0.28	90.53	-0.49	-0.24	MR
7AYTQ2		91.27	0.39	0.08	91.26	0.24	0.11	MR
9DNJWG	*	79.26	-11.62	-2.36	87.87	-3.16	-1.52	MR
A9V7MK		91.38	0.51	0.10	90.54	-0.49	-0.24	MR
DWPKNB		91.70	0.82	0.17	91.70	0.67	0.32	MR
ETXFFG		90.20	-0.68	-0.14	90.56	-0.47	-0.23	MR
HC7ART		91.20	0.33	0.07	91.60	0.57	0.27	XX
JGB7BT		97.73	6.86	1.39	95.17	4.15	1.99	XX
Q9AJYL		96.46	5.58	1.14	94.03	3.00	1.44	MR
QXYQVL	*	74.51	-16.37	-3.33	84.30	-6.72	-3.23	MR
RCR67Y		89.09	-1.79	-0.36	89.35	-1.67	-0.80	MR
T27YAV		91.27	0.40	0.08	91.12	0.09	0.04	MR
VHACJN		92.64	1.77	0.36	91.20	0.17	0.08	TV
VLKMBH		91.31	0.44	0.09	90.59	-0.43	-0.21	MR
VXECEQ		91.51	0.64	0.13	91.19	0.17	0.08	MR
XCAZD3		93.50	2.63	0.53	92.59	1.56	0.75	MV
ZYXGTC		91.56	0.69	0.14	91.46	0.43	0.21	MR

Grand Means		Summary Statistics	
	90.873 percent		91.028 percent
Std Dev Btwn Labs	4.918 percent		2.082 percent
Statistics based on 23 of 23 reporting participants			

Samples U71-U72: NBR & U73-U74: Butyl

Key to Instrument Codes Reported by Participants

MR	Alpha Technologies Model MV2000/MV2000E	MV	Montech
TA	TA Instruments (any model)	TV	Tech Pro Visc Tech (any model)
XX	Instrument make/model not specified by lab		

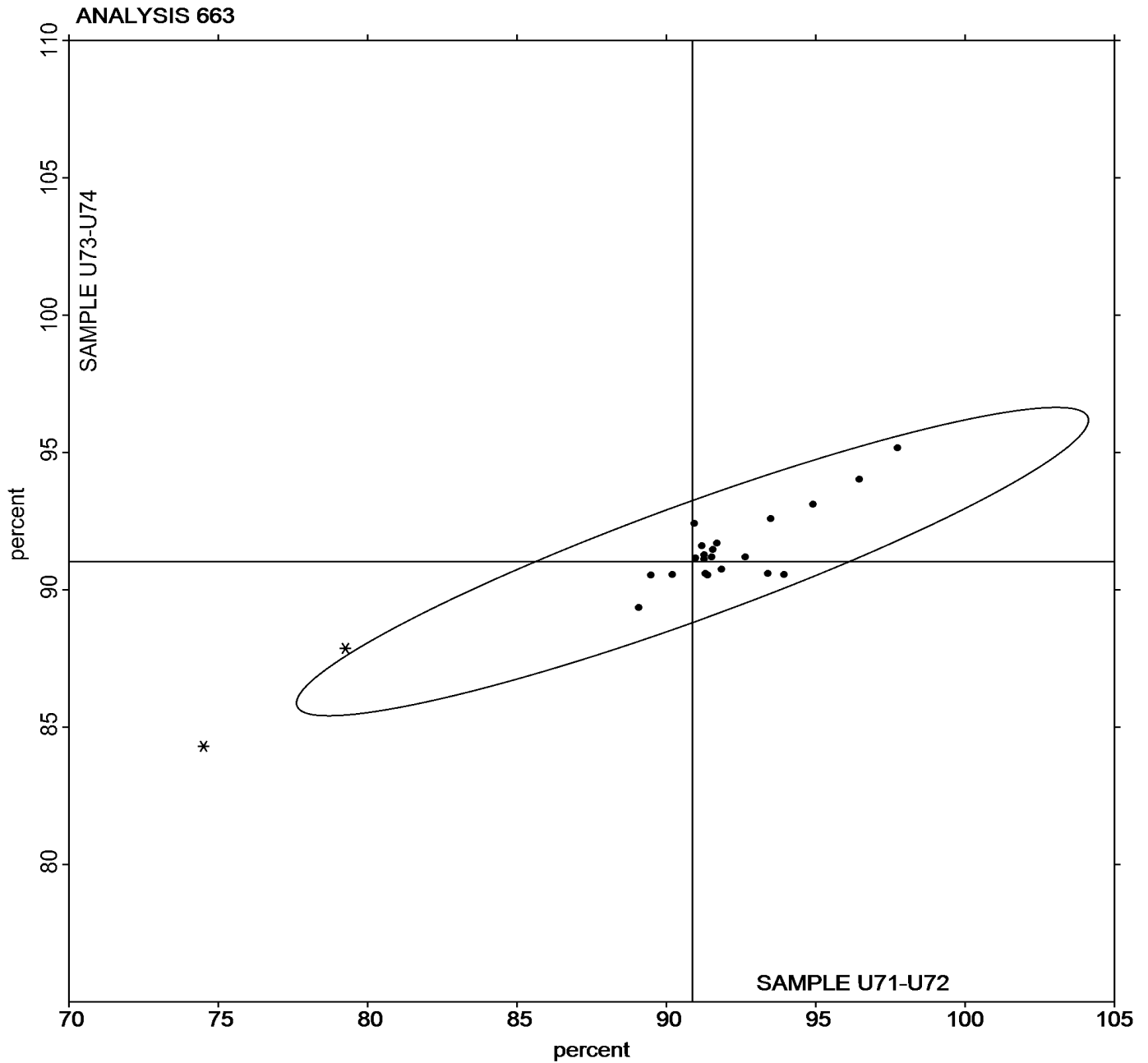


Rubber Interlaboratory Testing Program
Analysis 663
Mooney Stress Relaxation: X30 (percent)

Report #193
3rd Qtr 2017

Grand Mean Sample **U71-U72** = 90.873 percent

Grand Mean Sample **U73-U74** = 91.028 percent





Rubber Interlaboratory Testing Program

Report #193

Analysis 664

3rd Qtr 2017

Mooney Stress Relaxation: Area under curve (M-s)

WebCode	Data Flag	Sample U71-U72			Sample U73-U74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2GTACP		262.0	-123.4	-1.03	467.9	-33.3	-0.37	TA
3N6FAK		234.7	-150.7	-1.25	398.7	-102.5	-1.13	MV
3NPNAW		465.5	80.1	0.67	527.7	26.5	0.29	MR
3NQJX9		466.3	80.8	0.67	454.5	-46.6	-0.51	MV
4TFP3F	*	282.8	-102.6	-0.85	584.4	83.3	0.92	TA
6677K9		399.2	13.8	0.11	524.3	23.1	0.25	MV
6CP7KX		540.7	155.2	1.29	563.7	62.5	0.69	MR
7AYTQ2		438.8	53.4	0.44	515.9	14.7	0.16	MR
9DNJWG		413.3	27.9	0.23	511.1	9.9	0.11	MR
A9V7MK		433.6	48.2	0.40	573.3	72.1	0.79	MR
DWPKNB		402.2	16.7	0.14	481.3	-19.8	-0.22	MR
ETXFFG		502.0	116.6	0.97	568.8	67.6	0.75	MR
HC7ART		431.7	46.3	0.38	491.7	-9.5	-0.10	XX
JGB7BT		101.3	-284.1	-2.36	259.6	-241.6	-2.66	XX
Q9AJYL		163.5	-221.9	-1.84	341.7	-159.4	-1.76	MR
QXYQVL		518.3	132.9	1.10	645.9	144.7	1.60	MR
RCR67Y		539.8	154.3	1.28	627.4	126.2	1.39	MR
T27YAV		430.7	45.2	0.38	526.2	25.0	0.28	MR
VHACJN		347.0	-38.4	-0.32	520.7	19.5	0.21	TV
VXECEQ		413.3	27.9	0.23	517.2	16.0	0.18	XX
XCAZD3		307.2	-78.2	-0.65	422.8	-78.4	-0.86	MV

Summary Statistics	
Grand Means	385.42 M-s
Std Dev Btwn Labs	120.32 M-s
	501.18 M-s
	90.69 M-s
Statistics based on 21 of 21 reporting participants	

Samples U71-U72: NBR & U73-U74: Butyl

Key to Instrument Codes Reported by Participants

- MR Alpha Technologies Model MV2000/MV2000E
- TA TA Instruments (any model)
- XX Instrument make/model not specified by lab
- MV MonTech
- TV Tech Pro Visc Tech (any model)

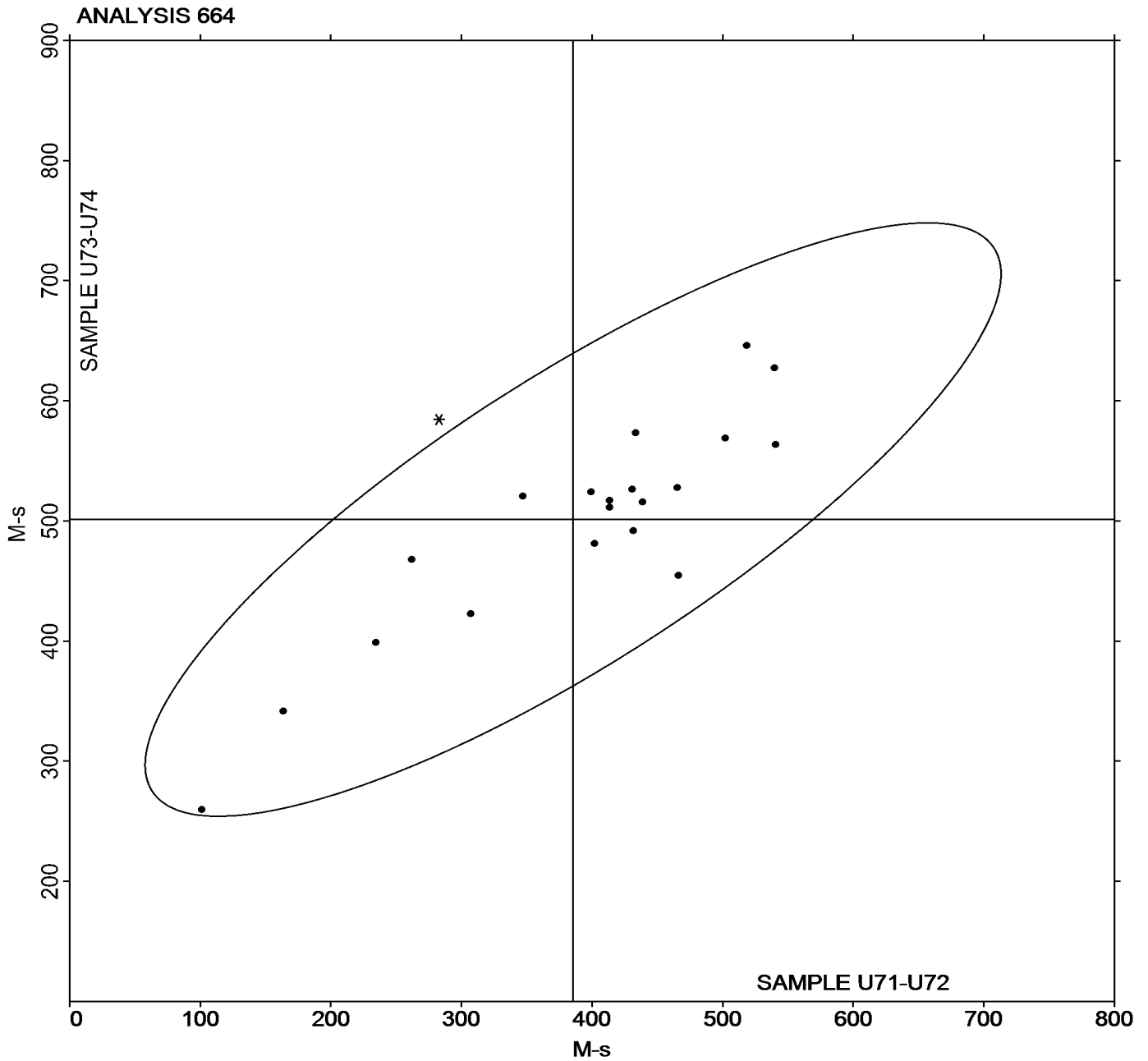


Rubber Interlaboratory Testing Program
Analysis 664
Mooney Stress Relaxation: Area under curve (M-s)

Report #193
3rd Qtr 2017

Grand Mean Sample **U71-U72** = 385.42 M-s

Grand Mean Sample **U73-U74** = 501.18 M-s





Rubber Interlaboratory Testing Program
Analysis 669
ODR Vulcanization-Cure Time 10% (minutes)

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample Y71-Y72			Sample Y73-Y74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
9DNJWG		1.667	0.036	0.30	2.462	0.043	0.28
9JY37P		1.500	-0.130	-1.07	2.293	-0.126	-0.84
CX7UBB		1.595	-0.035	-0.29	2.343	-0.076	-0.51
EUUU3A		1.722	0.091	0.75	2.442	0.023	0.15
F69BA8		1.587	-0.044	-0.36	2.530	0.111	0.74
HQLKNA		1.763	0.133	1.09	2.570	0.151	1.01
KW23W2		1.548	-0.082	-0.67	2.328	-0.091	-0.61
NYWX7E		1.855	0.225	1.85	2.665	0.246	1.64
VHACJN		1.465	-0.165	-1.36	2.147	-0.273	-1.82
VVXCCC		1.602	-0.029	-0.24	2.412	-0.008	-0.05

		Summary Statistics	
Grand Means	1.6303 minutes	2.4192 minutes	
Std Dev Btwn Labs	0.1215 minutes	0.1498 minutes	
Statistics based on 10 of 10 reporting participants			

Samples Y71-Y72: EPDM compound #1 & Y73-Y74: EPDM compound #2

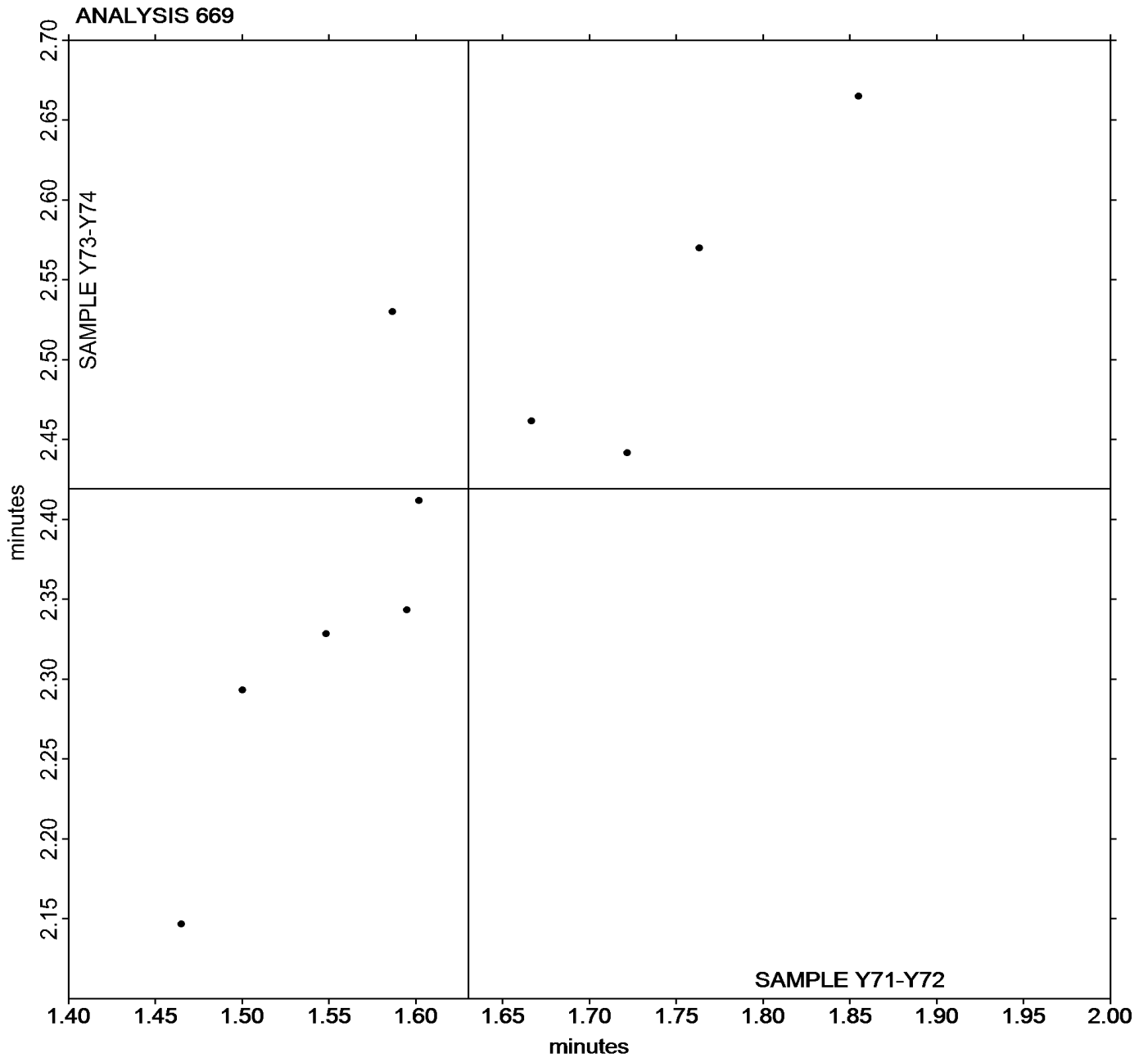


Rubber Interlaboratory Testing Program
Analysis 669
ODR Vulcanization-Cure Time 10% (minutes)

Report #193
3rd Qtr 2017

Grand Mean Sample Y71-Y72 = 1.6303 minutes

Grand Mean Sample Y73-Y74 = 2.4192 minutes



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.



Rubber Interlaboratory Testing Program
Analysis 670
ODR Vulcanization-Scorch Time, Ts1 (minutes)

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample Y71-Y72			Sample Y73-Y74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
9DNJWG		1.218	0.035	0.34	1.867	0.058	0.36
9JY37P		1.050	-0.134	-1.30	1.633	-0.175	-1.09
CX7UBB		1.158	-0.026	-0.25	1.730	-0.078	-0.49
EUUU3A		1.195	0.011	0.11	1.742	-0.067	-0.42
F69BA8		1.207	0.023	0.22	2.082	0.273	1.70
HQLKNA		1.285	0.101	0.98	1.848	0.040	0.25
KW23W2		1.095	-0.089	-0.86	1.638	-0.170	-1.06
NYWX7E		1.398	0.215	2.08	2.058	0.250	1.56
VHACJN		1.088	-0.096	-0.93	1.670	-0.138	-0.86
VVXCCC		1.143	-0.041	-0.39	1.815	0.007	0.04

		Summary Statistics	
Grand Means	1.1838 minutes	1.8083 minutes	
Std Dev Btwn Labs	0.1029 minutes	0.1604 minutes	
Statistics based on 10 of 10 reporting participants			

Samples Y71-Y72: EPDM compound #1 & Y73-Y74: EPDM compound #2

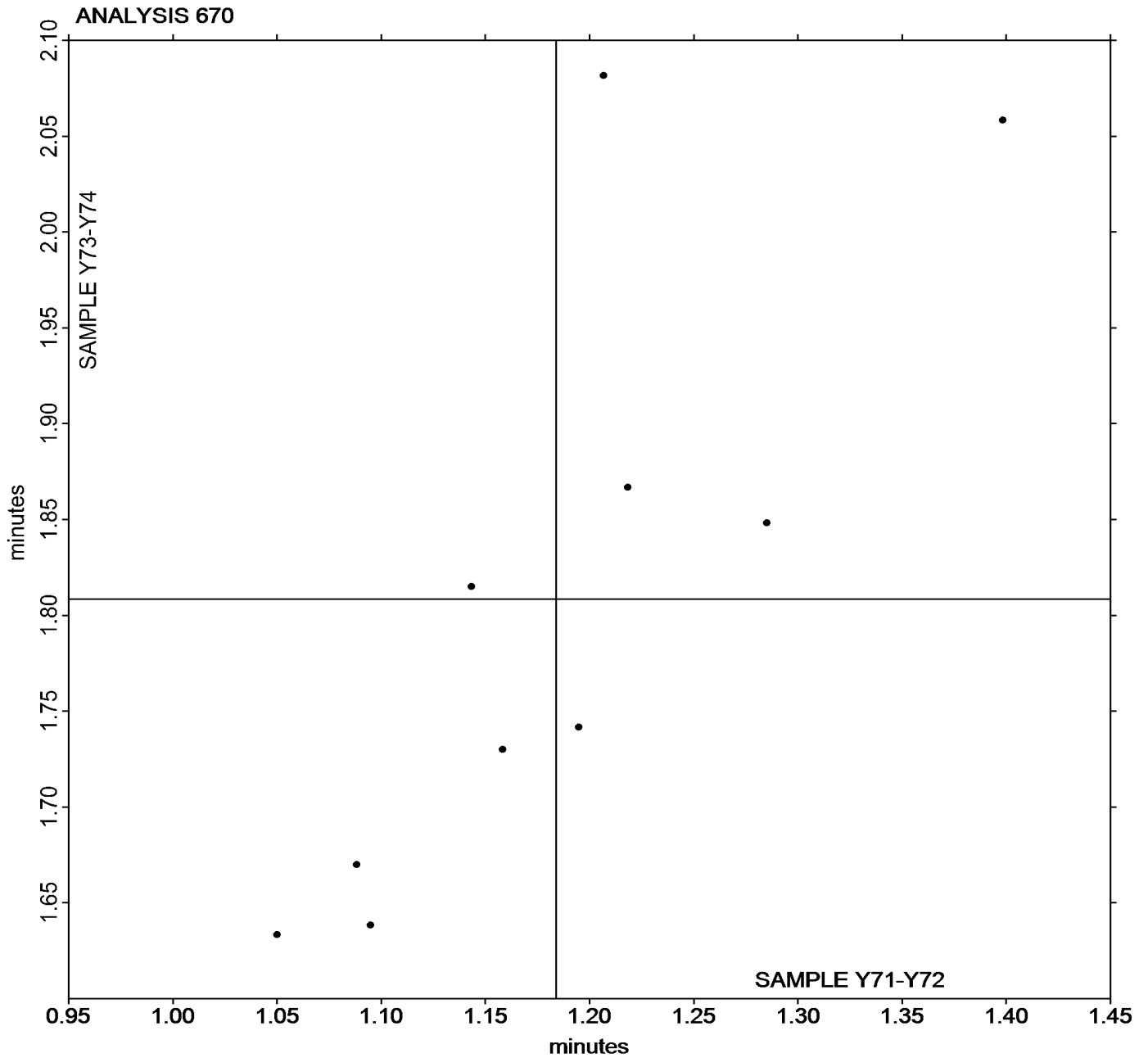


Rubber Interlaboratory Testing Program
Analysis 670
ODR Vulcanization-Scorch Time, Ts1 (minutes)

Report #193
3rd Qtr 2017

Grand Mean Sample Y71-Y72 = 1.1838 minutes

Grand Mean Sample Y73-Y74 = 1.8083 minutes



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.



Rubber Interlaboratory Testing Program
Analysis 671
ODR Vulcanization-Cure Time 50% (minutes)

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample Y71-Y72			Sample Y73-Y74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
9DNJWG		3.133	0.031	0.17	4.332	0.079	0.37
9JY37P		2.892	-0.210	-1.15	4.145	-0.108	-0.51
CX7UBB		2.983	-0.119	-0.65	4.242	-0.011	-0.05
EUUU3A		3.383	0.281	1.53	4.298	0.046	0.21
F69BA8		2.890	-0.212	-1.15	4.147	-0.106	-0.50
HQLKNA		3.303	0.201	1.10	4.600	0.347	1.64
KW23W2		3.027	-0.075	-0.41	4.227	-0.026	-0.12
NYWX7E		3.348	0.246	1.34	4.490	0.237	1.12
VHACJN		2.993	-0.109	-0.59	3.812	-0.441	-2.08
VVXCCC		3.067	-0.035	-0.19	4.237	-0.016	-0.08

		Summary Statistics	
Grand Means	3.1020 minutes	4.2528 minutes	
Std Dev Btwn Labs	0.1836 minutes	0.2118 minutes	
Statistics based on 10 of 10 reporting participants			

Samples Y71-Y72: EPDM compound #1 & Y73-Y74: EPDM compound #2

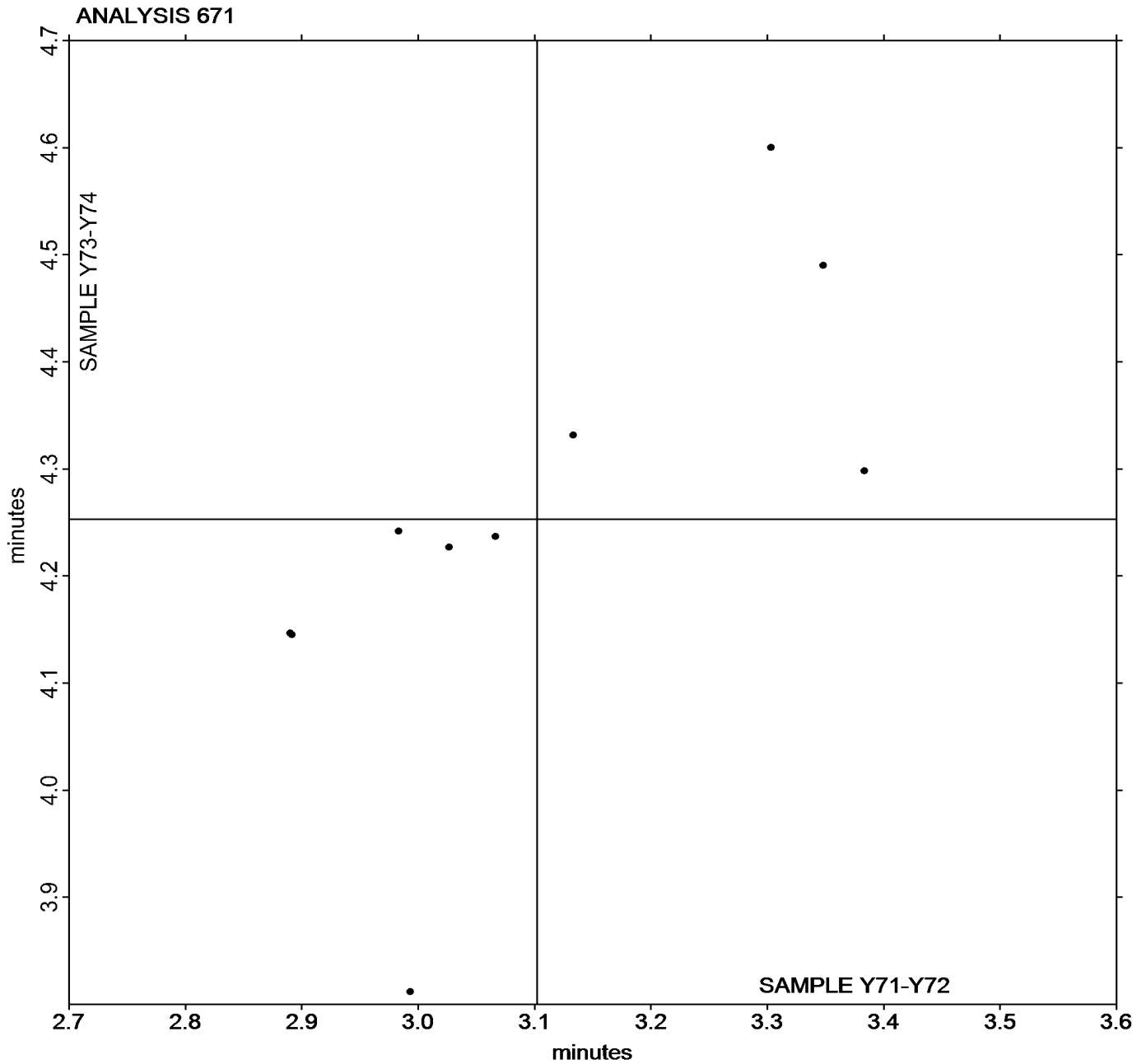


Rubber Interlaboratory Testing Program
Analysis 671
ODR Vulcanization-Cure Time 50% (minutes)

Report #193
3rd Qtr 2017

Grand Mean Sample **Y71-Y72** = 3.1020 minutes

Grand Mean Sample **Y73-Y74** = 4.2528 minutes



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.



Rubber Interlaboratory Testing Program
Analysis 672
ODR Vulcanization-Cure Time 90% (minutes)

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample Y71-Y72			Sample Y73-Y74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
9DNJWG		12.48	-1.27	-0.87	8.87	-1.52	-0.98
9JY37P		13.07	-0.67	-0.46	11.98	1.60	1.03
CX7UBB		12.10	-1.65	-1.13	9.45	-0.93	-0.60
EUUU3A		15.17	1.43	0.98	8.55	-1.84	-1.19
F69BA8		12.49	-1.26	-0.86	9.07	-1.31	-0.85
HQLKNA		14.51	0.76	0.52	11.63	1.25	0.81
KW23W2		13.27	-0.47	-0.32	9.21	-1.17	-0.76
NYWX7E		13.80	0.05	0.03	11.68	1.30	0.84
VHACJN		16.91	3.16	2.17	10.57	0.19	0.12
VVXCCC		13.66	-0.09	-0.06	12.83	2.44	1.58

		Summary Statistics	
Grand Means		13.747 minutes	10.384 minutes
Std Dev Btwn Labs		1.461 minutes	1.543 minutes
Statistics based on 10 of 10 reporting participants			

Samples Y71-Y72: EPDM compound #1 & Y73-Y74: EPDM compound #2

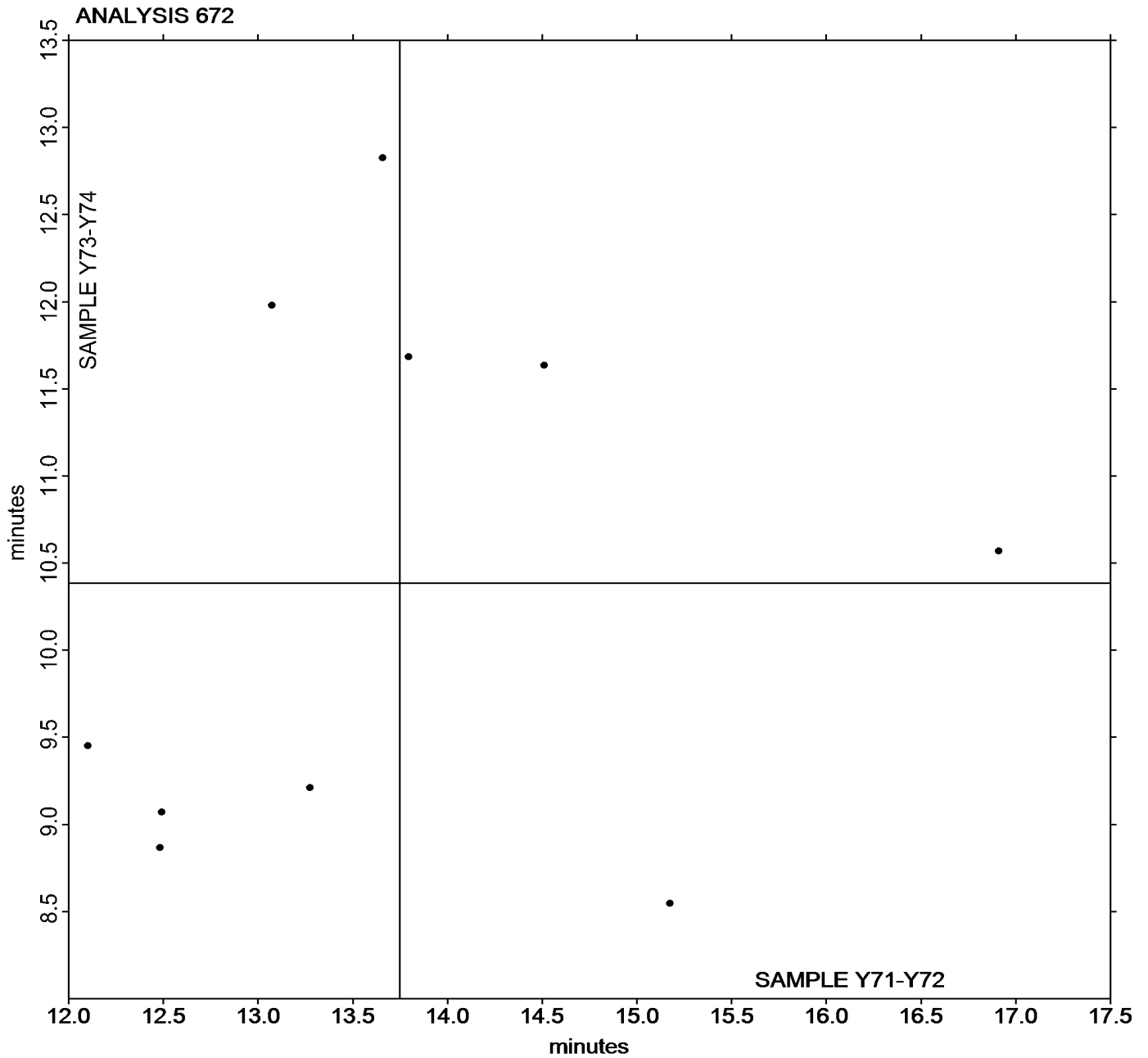


Rubber Interlaboratory Testing Program
Analysis 672
ODR Vulcanization-Cure Time 90% (minutes)

Report #193
3rd Qtr 2017

Grand Mean Sample Y71-Y72 = 13.747 minutes

Grand Mean Sample Y73-Y74 = 10.384 minutes



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.



Rubber Interlaboratory Testing Program
Analysis 673
ODR Vulcanization: Minimum Torque (lbf.in)

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample Y71-Y72			Sample Y73-Y74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
9DNJWG		8.253	0.059	0.07	8.127	0.017	0.01
9JY37P		7.298	-0.897	-1.04	7.202	-0.908	-0.78
CX7UBB		8.102	-0.093	-0.11	7.747	-0.363	-0.31
EUUU3A		7.190	-1.005	-1.17	6.752	-1.358	-1.17
F69BA8		8.897	0.702	0.82	9.045	0.936	0.80
HQLKNA		8.582	0.387	0.45	8.198	0.089	0.08
KW23W2		7.565	-0.630	-0.73	7.513	-0.596	-0.51
NYWX7E		9.447	1.252	1.45	8.358	0.249	0.21
VHACJN		9.360	1.165	1.35	10.842	2.732	2.35
VVXCCC		7.255	-0.940	-1.09	7.312	-0.798	-0.69

		Summary Statistics	
Grand Means		8.1948 lbf.in	8.1095 lbf.in
Stnd Dev Btwn Labs		0.8610 lbf.in	1.1644 lbf.in
Statistics based on 10 of 10 reporting participants			

		Summary Statistics in SI Units	
Grand Means		9.2589 dN.m	9.1625 dN.m
Stnd Dev Btwn Labs		0.9728 dN.m	1.3155 dN.m
Statistics based on 10 of 10 reporting participants			

Samples Y71-Y72: EPDM compound #1 & Y73-Y74: EPDM compound #2

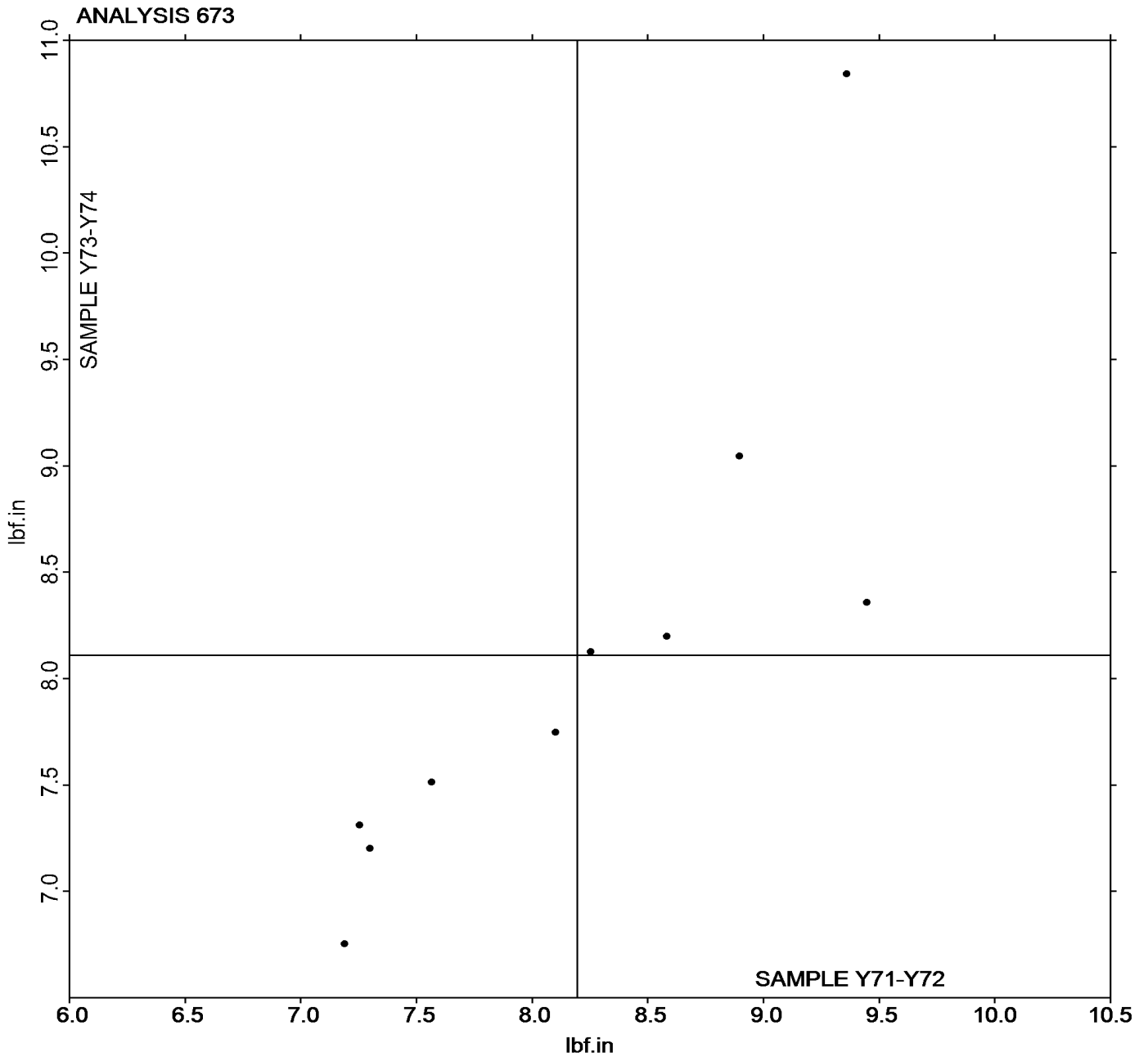


Rubber Interlaboratory Testing Program
Analysis 673
ODR Vulcanization: Minimum Torque (lbf.in)

Report #193
3rd Qtr 2017

Grand Mean Sample **Y71-Y72** = 8.1948 lbf.in

Grand Mean Sample **Y73-Y74** = 8.1095 lbf.in



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.



Rubber Interlaboratory Testing Program
Analysis 674
ODR Vulcanization: Maximum Torque (lbf.in)

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample Y71-Y72			Sample Y73-Y74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
9DNJWG		44.03	-0.98	-0.45	35.16	-1.90	-1.03
9JY37P		46.88	1.87	0.85	38.47	1.41	0.76
CX7UBB		42.87	-2.13	-0.97	36.75	-0.32	-0.17
EUUU3A		48.21	3.20	1.46	35.90	-1.16	-0.63
F69BA8		44.95	-0.05	-0.02	36.60	-0.46	-0.25
HQLKNA		44.09	-0.92	-0.42	38.96	1.90	1.03
KW23W2		48.54	3.53	1.61	40.28	3.22	1.75
NYWX7E		42.89	-2.12	-0.97	35.40	-1.67	-0.91
VHACJN		45.07	0.06	0.03	38.29	1.23	0.67
VVXCCC		42.55	-2.46	-1.12	34.83	-2.23	-1.21

		Summary Statistics	
Grand Means		45.006 lbf.in	37.065 lbf.in
Std Dev Btwn Labs		2.189 lbf.in	1.840 lbf.in
Statistics based on 10 of 10 reporting participants			

		Summary Statistics in SI Units	
Grand Means		50.850 dN.m	41.878 dN.m
Std Dev Btwn Labs		2.473 dN.m	2.079 dN.m
Statistics based on 10 of 10 reporting participants			

Samples Y71-Y72: EPDM compound #1 & Y73-Y74: EPDM compound #2

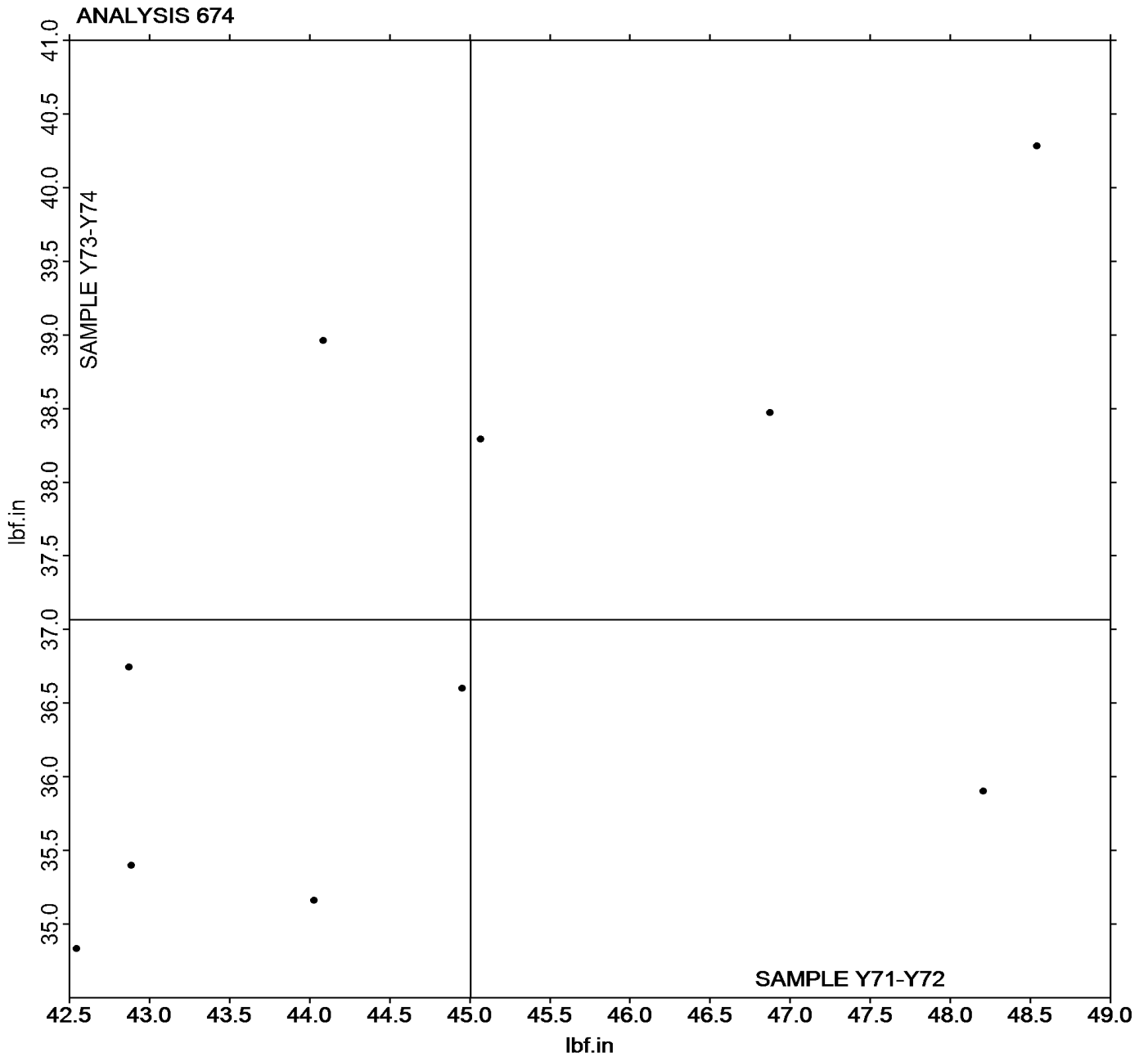


Rubber Interlaboratory Testing Program
Analysis 674
ODR Vulcanization: Maximum Torque (lbf.in)

Report #193
3rd Qtr 2017

Grand Mean Sample Y71-Y72 = 45.006 lbf.in

Grand Mean Sample Y73-Y74 = 37.065 lbf.in



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.



Rubber Interlaboratory Testing Program

Report #193

Analysis 684

3rd Qtr 2017

MDR Vulcanization-Cure Time 10% (minutes)

WebCode	Data Flag	Sample Y75-Y76			Sample Y77-Y78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
28PEV7		1.508	0.006	0.07	1.542	-0.024	-0.28	XX
2GTACP		1.602	0.099	1.15	1.662	0.096	1.14	MD
3N6FAK		1.672	0.169	1.97	1.760	0.195	2.30	MR
3NQJX9	X	1.927	0.424	4.95	1.923	0.358	4.24	MC
6677K9		1.608	0.106	1.23	1.628	0.063	0.74	MM
7AYTQ2		1.457	-0.046	-0.54	1.562	-0.004	-0.04	MC
7F3WCT		1.563	0.061	0.71	1.578	0.013	0.15	TP
9DNJWG		1.448	-0.054	-0.64	1.518	-0.047	-0.56	TP
9JBYDF		1.667	0.164	1.91	1.708	0.143	1.69	MC
9JY37P		1.522	0.019	0.22	1.587	0.021	0.25	MC
A9V7MK		1.513	0.011	0.12	1.603	0.038	0.45	MD
D8PNZD	*	1.277	-0.226	-2.64	1.335	-0.230	-2.73	MC
DWPKNB		1.505	0.002	0.03	1.592	0.026	0.31	MC
ETXFFG		1.560	0.057	0.67	1.632	0.066	0.78	MC
F3MYMH		1.475	-0.028	-0.32	1.535	-0.030	-0.36	MC
FCBPBV	X	1.455	-0.048	-0.56	1.415	-0.150	-1.78	MC
FKP4ZY		1.370	-0.133	-1.55	1.442	-0.124	-1.47	MC
GAHFCD		1.392	-0.111	-1.30	1.458	-0.107	-1.27	ME
HC7ART		1.423	-0.079	-0.93	1.495	-0.070	-0.83	XX
HCNZZD		1.447	-0.056	-0.65	1.488	-0.077	-0.91	ME
HTR6CA		1.447	-0.056	-0.65	1.523	-0.042	-0.50	MC
J46MJ8		1.503	0.001	0.01	1.570	0.005	0.05	ME
JGB7BT	X	1.437	-0.066	-0.77	1.373	-0.192	-2.27	XX
KAAF6A		1.348	-0.154	-1.80	1.398	-0.167	-1.98	MC
KW23W2		1.657	0.154	1.80	1.708	0.143	1.69	MC
MAZFW6		1.489	-0.014	-0.16	1.542	-0.024	-0.28	MC
NKHRW2		1.538	0.036	0.42	1.625	0.060	0.71	MC
NYWX7E		1.518	0.016	0.18	1.603	0.038	0.45	MC
P3E29P		1.553	0.051	0.59	1.647	0.081	0.96	MC
PQZ8R6		1.460	-0.043	-0.50	1.532	-0.034	-0.40	MC
Q84B32		1.525	0.022	0.26	1.603	0.038	0.45	MC
Q9AJYL		1.608	0.106	1.23	1.655	0.090	1.06	MC
QXYQVL		1.382	-0.121	-1.41	1.455	-0.110	-1.31	MC
RCR67Y		1.540	0.037	0.43	1.577	0.011	0.13	MM
RHHDQT		1.523	0.021	0.24	1.587	0.021	0.25	MD
T27YAV		1.390	-0.113	-1.32	1.453	-0.112	-1.33	MC
UAEAGD		1.520	0.017	0.20	1.578	0.013	0.15	MC
VLKMBH		1.547	0.044	0.51	1.582	0.016	0.19	MC



Rubber Interlaboratory Testing Program
Analysis 684
MDR Vulcanization-Cure Time 10% (minutes)

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample Y75-Y76			Sample Y77-Y78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
VVXCCC		1.417	-0.086	-1.01	1.492	-0.074	-0.87	MC
WTMWHI		1.553	0.051	0.59	1.640	0.075	0.88	MD
XCAZD3		1.563	0.061	0.71	1.617	0.051	0.61	MC
XH2CBJ		1.488	-0.014	-0.17	1.587	0.021	0.25	MP
XX7C7L		1.495	-0.008	-0.09	1.533	-0.032	-0.38	MC
YJNB3M		1.465	-0.038	-0.44	1.507	-0.059	-0.70	MD
ZYXGTC		1.577	0.074	0.86	1.610	0.045	0.53	MC

Grand Means		Summary Statistics	
	1.5028 minutes		1.5654 minutes
Std Dev Btwn Labs	0.0857 minutes		0.0844 minutes
Statistics based on 42 of 45 reporting participants			

Samples Y75-Y76: EPDM compound, batch #1 & Y77-Y78: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #684

- 3NQJX9 (X) - Data for all samples are high. Possible Systematic Error. Inconsistent within the determinations of sample group Y77-Y78.
- FCBPBV (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group Y77-Y78.
- JGB7BT (X) - Inconsistent in testing between samples.

Key to Instrument Codes Reported by Participants

MC	Alpha Technologies [Monsanto] MDR 2000 or 2000E	MD	Alpha Tech. Rubber Process Analyzer (RPA 2000)
ME	Alpha Tech. MDR Premiere	MM	MonTech MDR 3000
MP	Alpha Technologies [Monsanto] MDR 2000P	MR	MonTech D-RPA 3000
TP	Tech Pro MDR model MDPT	XX	Instrument model not specified by lab

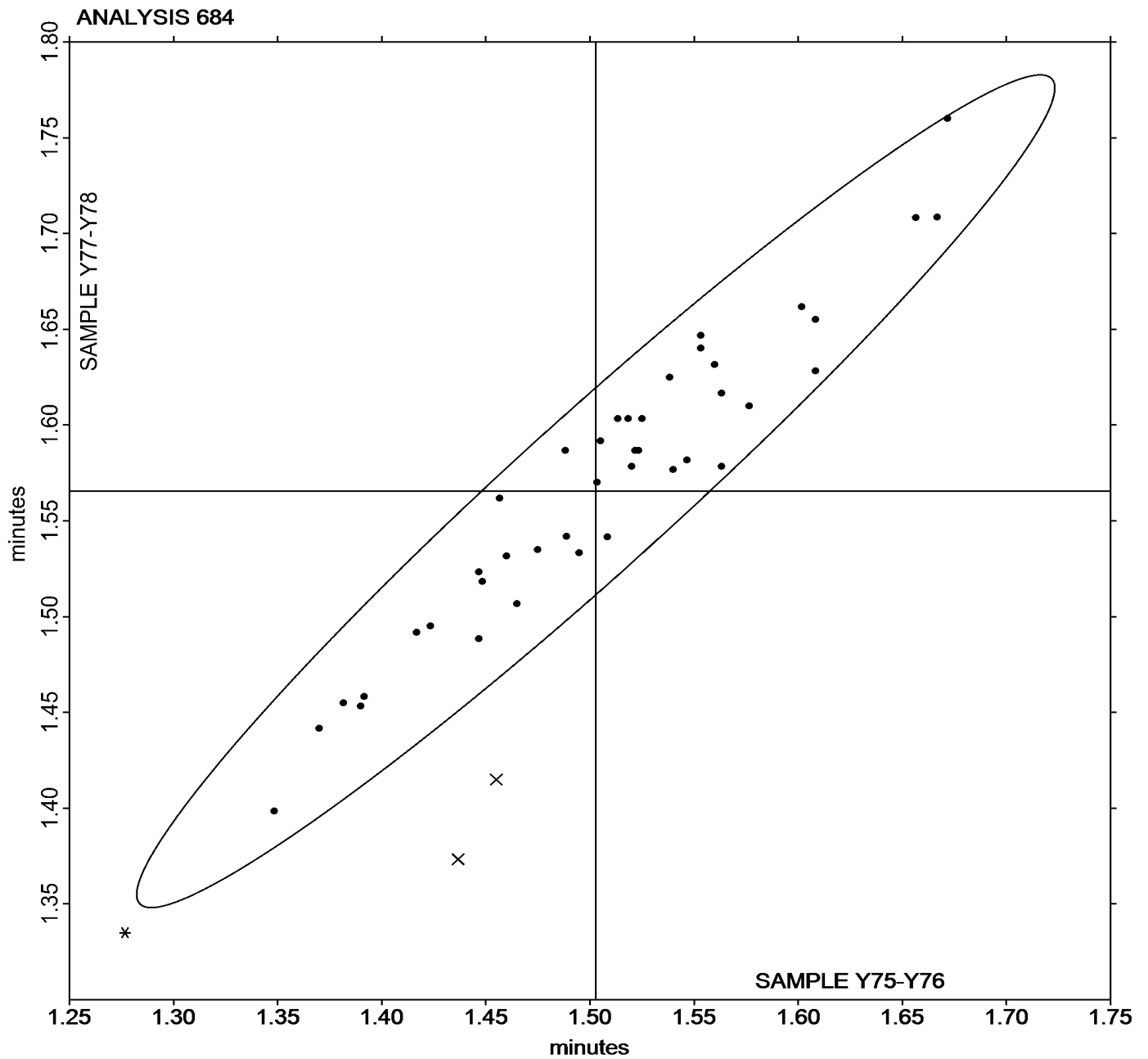


Rubber Interlaboratory Testing Program
Analysis 684
MDR Vulcanization-Cure Time 10% (minutes)

Report #193
3rd Qtr 2017

Grand Mean Sample **Y75-Y76** = 1.5028 minutes

Grand Mean Sample **Y77-Y78** = 1.5654 minutes





Rubber Interlaboratory Testing Program

Report #193

Analysis 685

3rd Qtr 2017

MDR Vulcanization-Scorch Time, Ts1 (minutes)

WebCode	Data Flag	Sample Y75-Y76			Sample Y77-Y78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
28PEV7		1.477	0.010	0.11	1.530	0.030	0.35	XX
2GTACP		1.392	-0.075	-0.84	1.438	-0.062	-0.72	MD
3N6FAK		1.328	-0.138	-1.56	1.377	-0.123	-1.45	MR
3NPNAW		1.350	-0.117	-1.31	1.380	-0.120	-1.41	MC
4QV9XW		1.443	-0.023	-0.26	1.492	-0.008	-0.10	MC
6677K9		1.577	0.110	1.24	1.597	0.097	1.14	MM
7AYTQ2		1.388	-0.078	-0.88	1.442	-0.058	-0.68	XX
7F3WCT		1.610	0.143	1.61	1.605	0.105	1.23	TP
7MYQCD		1.487	0.020	0.23	1.485	-0.015	-0.18	MC
9DNJWG		1.628	0.162	1.82	1.642	0.142	1.66	TP
9JBYDF		1.636	0.169	1.91	1.639	0.139	1.63	MC
9JY37P		1.488	0.022	0.24	1.532	0.032	0.37	MC
A9V7MK		1.488	0.022	0.24	1.522	0.022	0.26	MD
D8PNZD		1.263	-0.203	-2.29	1.295	-0.205	-2.41	MC
DWPKNB		1.495	0.028	0.32	1.547	0.047	0.55	MC
ETXFFG	*	1.488	0.022	0.24	1.470	-0.030	-0.35	MC
F3MYMH		1.460	-0.007	-0.07	1.500	0.000	0.00	MC
FCBPBV	*	1.377	-0.090	-1.01	1.363	-0.137	-1.61	MC
FKP4ZY	*	1.372	-0.095	-1.07	1.463	-0.037	-0.43	MC
GAHFCD		1.312	-0.155	-1.74	1.340	-0.160	-1.88	ME
HC7ART		1.437	-0.030	-0.34	1.480	-0.020	-0.23	XX
HCNZZD		1.463	-0.003	-0.04	1.507	0.007	0.08	ME
HTR6CA		1.490	0.023	0.26	1.532	0.032	0.37	MC
J46MJ8		1.490	0.023	0.26	1.518	0.018	0.22	ME
JGB7BT		1.592	0.125	1.41	1.623	0.123	1.45	XX
KAAF6A		1.285	-0.182	-2.04	1.302	-0.198	-2.33	MC
KW23W2		1.602	0.135	1.52	1.612	0.112	1.31	MC
MAZFW6		1.467	0.000	0.00	1.497	-0.003	-0.03	MC
NKHRW2		1.505	0.038	0.43	1.548	0.048	0.57	MC
NYWX7E		1.523	0.057	0.64	1.572	0.072	0.84	MC
P3E29P		1.533	0.067	0.75	1.558	0.058	0.69	MC
PQZ8R6		1.490	0.023	0.26	1.537	0.037	0.43	MC
Q84B32		1.485	0.018	0.21	1.522	0.022	0.26	MC
Q9AJYL		1.560	0.093	1.05	1.592	0.092	1.08	MC
QXYQVL		1.385	-0.082	-0.92	1.422	-0.078	-0.92	MC
RCR67Y		1.512	0.045	0.51	1.525	0.025	0.29	MM
RHHDQT		1.550	0.083	0.94	1.567	0.067	0.78	MD
T27YAV		1.428	-0.038	-0.43	1.472	-0.028	-0.33	MC



Rubber Interlaboratory Testing Program
Analysis 685
MDR Vulcanization-Scorch Time, Ts1 (minutes)

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample Y75-Y76			Sample Y77-Y78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
UAEAGD		1.597	0.130	1.46	1.650	0.150	1.76	MC
VLKMBH		1.465	-0.002	-0.02	1.513	0.013	0.16	MC
VVXCCC		1.402	-0.065	-0.73	1.458	-0.042	-0.49	MC
VXECEQ		1.330	-0.137	-1.54	1.369	-0.131	-1.54	MC
WTMWHI		1.478	0.012	0.13	1.513	0.013	0.16	MD
XCAZD3		1.532	0.065	0.73	1.568	0.068	0.80	MC
XH2CBJ		1.382	-0.085	-0.96	1.430	-0.070	-0.82	MP
XX7C7L		1.432	-0.035	-0.39	1.478	-0.022	-0.25	MC
Y2TD62		1.495	0.028	0.32	1.517	0.017	0.20	MC
YJNB3M		1.415	-0.052	-0.58	1.440	-0.060	-0.70	MD
ZYXGTC		1.483	0.017	0.19	1.518	0.018	0.22	MC

Grand Means		Summary Statistics	
	1.4667 minutes		1.4999 minutes
Std Dev Btwn Labs	0.0888 minutes		0.0852 minutes
Statistics based on 49 of 49 reporting participants			

Samples Y75-Y76: EPDM compound, batch #1 & Y77-Y78: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

MC	Alpha Technologies [Monsanto] MDR 2000 or 2000E	MD	Alpha Tech. Rubber Process Analyzer (RPA 2000)
ME	Alpha Tech. MDR Premiere	MM	MonTech MDR 3000
MP	Alpha Technologies [Monsanto] MDR 2000P	MR	MonTech D-RPA 3000
TP	Tech Pro MDR model MDPT	XX	Instrument model not specified by lab

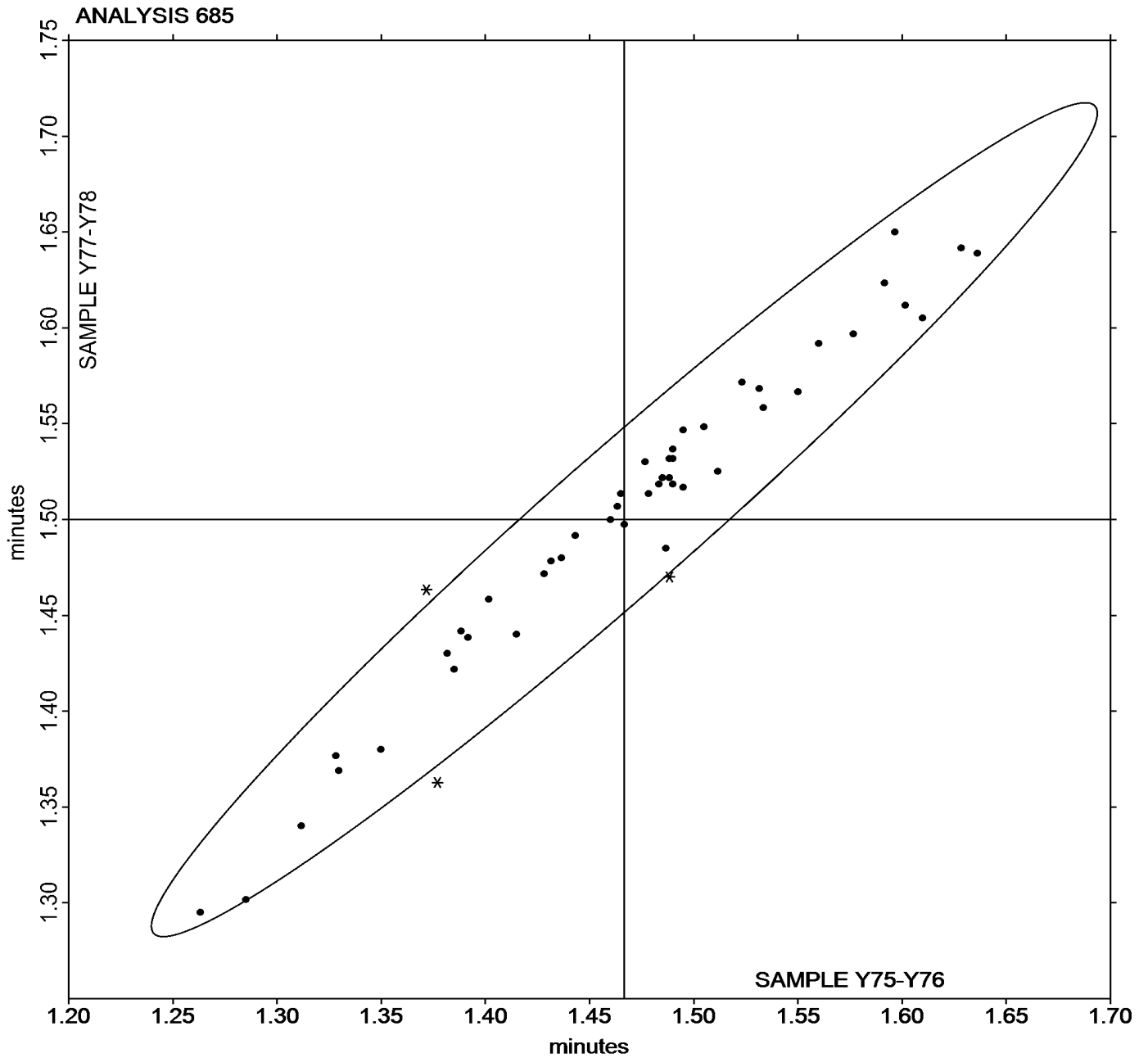


Rubber Interlaboratory Testing Program
Analysis 685
MDR Vulcanization-Scorch Time, Ts1 (minutes)

Report #193
3rd Qtr 2017

Grand Mean Sample **Y75-Y76** = 1.4667 minutes

Grand Mean Sample **Y77-Y78** = 1.4999 minutes





Rubber Interlaboratory Testing Program
Analysis 686
MDR Vulcanization-Cure Time 50% (minutes)

Report #193
3rd Qtr 2017

WebCode	Data Flag	Sample Y75-Y76			Sample Y77-Y78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
28PEV7		3.347	-0.078	-0.51	3.475	-0.099	-0.65	XX
2GTACP		3.338	-0.087	-0.57	3.468	-0.105	-0.69	MD
3N6FAK		3.785	0.360	2.36	3.950	0.376	2.46	MR
3NPNAW		3.377	-0.048	-0.32	3.497	-0.077	-0.50	MC
3NQJX9	*	3.515	0.090	0.59	3.523	-0.050	-0.33	MC
4QV9XW		3.375	-0.050	-0.33	3.530	-0.044	-0.29	MC
6677K9		3.727	0.302	1.97	3.808	0.235	1.53	MM
7AYTQ2		3.423	-0.002	-0.01	3.680	0.106	0.69	XX
7F3WCT		3.445	0.020	0.13	3.590	0.016	0.11	TP
7MYQCD		3.288	-0.137	-0.90	3.392	-0.182	-1.19	MC
9DNJWG		3.608	0.183	1.20	3.772	0.198	1.29	TP
9JBYDF		3.667	0.242	1.58	3.845	0.271	1.77	MC
9JY37P		3.423	-0.002	-0.01	3.593	0.020	0.13	MC
A9V7MK		3.413	-0.012	-0.08	3.585	0.011	0.07	MD
D8PNZD		3.157	-0.268	-1.76	3.318	-0.255	-1.67	MC
DWPKNB		3.510	0.085	0.56	3.700	0.126	0.83	MC
ETXFFG		3.567	0.142	0.93	3.677	0.103	0.67	MC
F3MYMH		3.390	-0.035	-0.23	3.555	-0.019	-0.12	MC
FCBPBV	X	3.298	-0.127	-0.83	3.240	-0.334	-2.18	MC
FKP4ZY		3.128	-0.297	-1.94	3.285	-0.289	-1.89	MC
GAHFCD		3.400	-0.025	-0.16	3.543	-0.030	-0.20	ME
HC7ART		3.182	-0.243	-1.59	3.333	-0.240	-1.57	XX
HCNZZD		3.287	-0.138	-0.91	3.413	-0.160	-1.05	ME
HTR6CA		3.372	-0.053	-0.35	3.590	0.016	0.11	MC
J46MJ8		3.440	0.015	0.10	3.597	0.023	0.15	ME
JGB7BT	X	2.287	-1.138	-7.45	2.123	-1.450	-9.48	XX
KAAF6A		3.213	-0.212	-1.39	3.340	-0.234	-1.53	MC
KW23W2		3.705	0.280	1.83	3.763	0.190	1.24	MC
MAZFW6		3.475	0.050	0.33	3.592	0.018	0.12	MC
NKHRW2		3.547	0.122	0.80	3.748	0.175	1.14	MC
NYWX7E		3.518	0.093	0.61	3.702	0.128	0.84	MC
P3E29P		3.503	0.078	0.51	3.743	0.170	1.11	MC
PQZ8R6		3.325	-0.100	-0.66	3.505	-0.069	-0.45	MC
Q84B32		3.522	0.097	0.63	3.677	0.103	0.67	MC
Q9AJYL		3.563	0.138	0.90	3.707	0.133	0.87	MC
QXYQVL		3.193	-0.232	-1.52	3.363	-0.210	-1.38	MC
RCR67Y		3.553	0.128	0.84	3.608	0.035	0.23	MM



Rubber Interlaboratory Testing Program

Report #193

Analysis 686

3rd Qtr 2017

MDR Vulcanization-Cure Time 50% (minutes)

WebCode	Data Flag	Sample Y75-Y76			Sample Y77-Y78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
RHHDQT		3.470	0.045	0.29	3.622	0.048	0.31	MD
T27YAV		3.157	-0.268	-1.76	3.280	-0.294	-1.92	MC
UAEAGD		3.378	-0.047	-0.31	3.500	-0.074	-0.48	MC
VLKMBH		3.532	0.107	0.70	3.643	0.070	0.45	MC
VVXCCC		3.253	-0.172	-1.12	3.428	-0.145	-0.95	MC
VXECEQ		3.428	0.002	0.02	3.642	0.068	0.45	MC
WTMWHI		3.560	0.135	0.88	3.757	0.183	1.20	MD
XCAZD3		3.567	0.142	0.93	3.698	0.125	0.81	MC
XH2CBJ		3.347	-0.078	-0.51	3.523	-0.050	-0.33	MC
XX7C7L		3.352	-0.073	-0.48	3.473	-0.100	-0.66	MC
Y2TD62		3.260	-0.165	-1.08	3.468	-0.105	-0.69	MC
YJNB3M		3.340	-0.085	-0.56	3.470	-0.104	-0.68	XX
ZYXGTC		3.482	0.057	0.37	3.568	-0.005	-0.04	MC

Grand Means		Summary Statistics	
	3.4251 minutes		3.5738 minutes
Std Dev Btwn Labs	0.1528 minutes		0.1529 minutes
Statistics based on 48 of 50 reporting participants			

Samples Y75-Y76: EPDM compound, batch #1 & Y77-Y78: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #686

FCBPBV (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group Y77-Y78.

JGB7BT (X) - Data for all samples are low.

Key to Instrument Codes Reported by Participants

MC	Alpha Technologies [Monsanto] MDR 2000 or 2000E	MD	Alpha Tech. Rubber Process Analyzer (RPA 2000)
ME	Alpha Tech. MDR Premiere	MM	MonTech MDR 3000
MR	MonTech D-RPA 3000	TP	Tech Pro MDR model MDPT
XX	Instrument model not specified by lab		

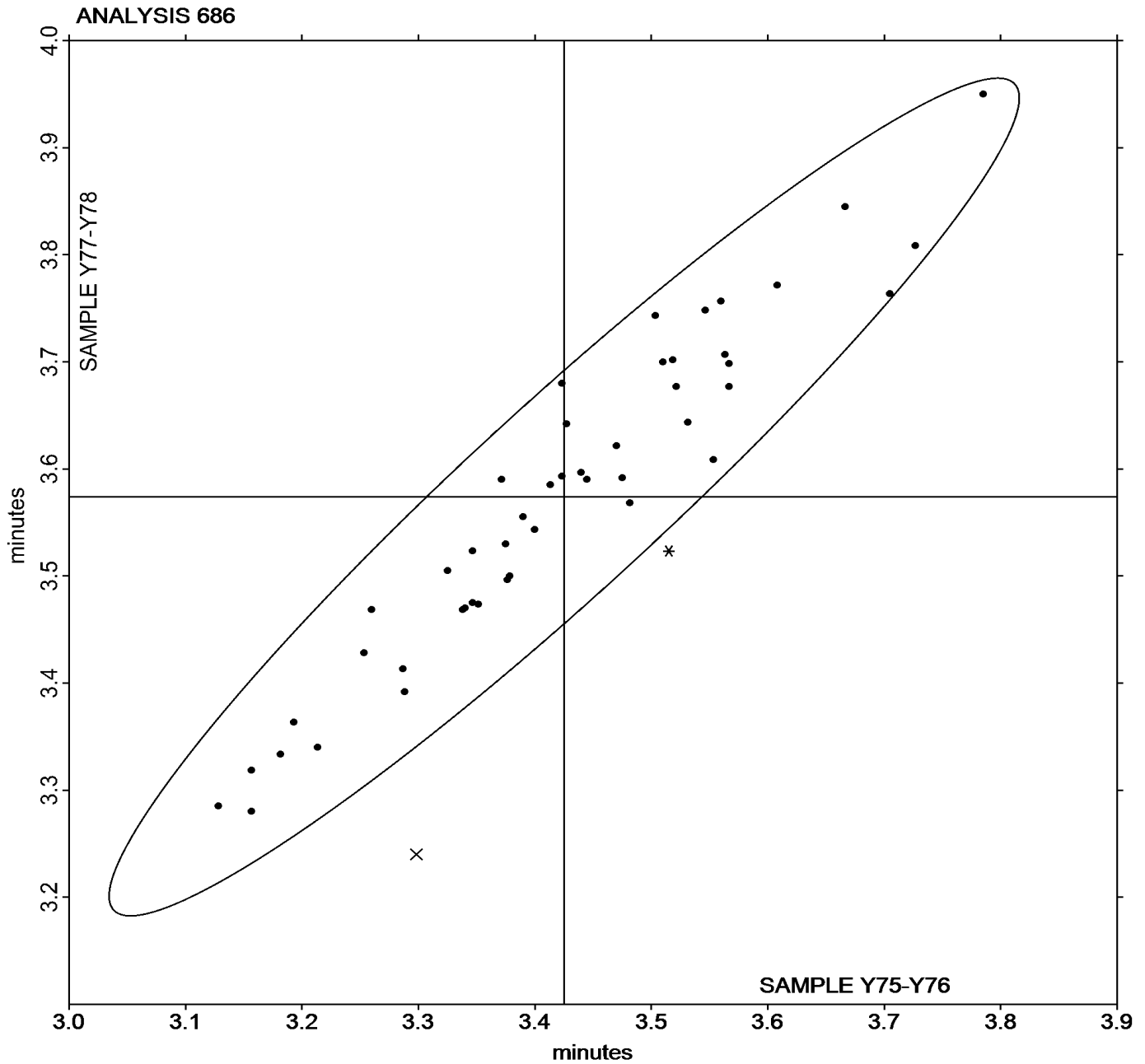


Rubber Interlaboratory Testing Program
Analysis 686
MDR Vulcanization-Cure Time 50% (minutes)

Report #193
3rd Qtr 2017

Grand Mean Sample **Y75-Y76** = 3.4251 minutes

Grand Mean Sample **Y77-Y78** = 3.5738 minutes





Rubber Interlaboratory Testing Program

Report #193

Analysis 687

3rd Qtr 2017

MDR Vulcanization-Cure Time 90% (minutes)

WebCode	Data Flag	Sample Y75-Y76			Sample Y77-Y78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
28PEV7		6.628	0.161	0.51	6.550	0.047	0.15	XX
2GTACP		6.695	0.228	0.72	6.762	0.259	0.79	MD
3N6FAK	X	7.718	1.251	3.97	7.853	1.351	4.14	MR
3NPNAW		6.070	-0.397	-1.26	6.025	-0.478	-1.47	MP
3NQJX9	*	5.535	-0.932	-2.96	5.570	-0.933	-2.86	MC
4QV9XW		6.515	0.048	0.15	6.397	-0.106	-0.33	MC
6677K9		6.845	0.378	1.20	6.812	0.309	0.95	MM
7AYTQ2		6.842	0.374	1.19	6.910	0.407	1.25	XX
7F3WCT		6.287	-0.181	-0.57	6.358	-0.144	-0.44	TP
7MYQCD		6.157	-0.311	-0.99	6.283	-0.219	-0.67	MC
9DNJWG		6.265	-0.202	-0.64	6.262	-0.241	-0.74	TP
9JBYDF		6.750	0.283	0.90	7.003	0.500	1.53	MC
9JY37P		6.603	0.136	0.43	6.500	-0.003	-0.01	MC
A9V7MK		6.445	-0.022	-0.07	6.525	0.022	0.07	MD
D8PNZD		6.217	-0.251	-0.80	6.098	-0.404	-1.24	MC
DWPKNB		6.542	0.074	0.24	6.597	0.094	0.29	MC
ETXFFG		6.525	0.058	0.18	6.655	0.152	0.47	MC
F3MYMH		6.220	-0.247	-0.79	6.350	-0.153	-0.47	MC
FCBPBV		6.510	0.043	0.14	6.394	-0.109	-0.33	MC
FKP4ZY		6.258	-0.209	-0.66	6.160	-0.343	-1.05	MC
GAHFCD		6.513	0.046	0.15	6.462	-0.041	-0.13	ME
HC7ART		6.350	-0.117	-0.37	6.345	-0.158	-0.48	XX
HCNZZD	*	7.170	0.703	2.23	7.025	0.522	1.60	ME
HTR6CA		6.018	-0.449	-1.43	6.152	-0.351	-1.08	MC
J46MJ8		6.657	0.189	0.60	6.705	0.202	0.62	ME
JGB7BT	X	0.545	-5.922	-18.80	0.637	-5.866	-17.99	XX
KAAF6A		5.877	-0.591	-1.88	5.978	-0.524	-1.61	MC
KW23W2		6.878	0.411	1.30	6.885	0.382	1.17	MC
MAZFW6		6.675	0.208	0.66	6.625	0.123	0.38	MC
NKHRW2		6.748	0.281	0.89	6.768	0.266	0.82	MC
NYWX7E		6.543	0.076	0.24	6.688	0.186	0.57	MC
P3E29P		6.303	-0.164	-0.52	6.482	-0.021	-0.06	MC
PQZ8R6		6.178	-0.289	-0.92	6.277	-0.226	-0.69	MC
Q84B32		6.435	-0.032	-0.10	6.508	0.006	0.02	MC
Q9AJYL		6.725	0.258	0.82	6.800	0.297	0.91	MC
QXYQVL		5.952	-0.516	-1.64	6.083	-0.419	-1.29	MC
RCR67Y		6.722	0.254	0.81	6.733	0.231	0.71	MM



Rubber Interlaboratory Testing Program

Report #193

Analysis 687

3rd Qtr 2017

MDR Vulcanization-Cure Time 90% (minutes)

WebCode	Data Flag	Sample Y75-Y76			Sample Y77-Y78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
RHHDQT		6.558	0.091	0.29	6.655	0.152	0.47	MD
T27YAV		6.113	-0.354	-1.12	6.037	-0.466	-1.43	MC
UAEAGD		6.135	-0.332	-1.05	6.053	-0.449	-1.38	MC
VLKMBH		6.950	0.483	1.53	6.893	0.391	1.20	MC
VVXCCC		6.300	-0.167	-0.53	6.327	-0.176	-0.54	MC
VXECEQ		6.501	0.034	0.11	6.744	0.241	0.74	MC
WTMWHI		6.802	0.334	1.06	7.072	0.569	1.75	MD
XCAZD3		6.882	0.414	1.32	6.955	0.452	1.39	MC
XH2CBJ		6.365	-0.102	-0.32	6.518	0.016	0.05	MP
XX7C7L		6.268	-0.199	-0.63	6.190	-0.313	-0.96	MC
Y2TD62		6.605	0.138	0.44	6.848	0.346	1.06	MC
YJNB3M		6.633	0.166	0.53	6.453	-0.049	-0.15	MD
ZYXGTC		6.665	0.198	0.63	6.653	0.151	0.46	MC

Summary Statistics	
Grand Means	6.4673 minutes
Std Dev Btwn Labs	0.3150 minutes
	6.5026 minutes
	0.3260 minutes
Statistics based on 48 of 50 reporting participants	

Samples Y75-Y76: EPDM compound, batch #1 & Y77-Y78: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #687

3N6FAK (X) - Data for all samples are high. Possible Systematic Error.

JGB7BT (X) - Data for all samples are low.

Key to Instrument Codes Reported by Participants

MC	Alpha Technologies [Monsanto] MDR 2000 or 2000E	MD	Alpha Tech. Rubber Process Analyzer (RPA 2000)
ME	Alpha Tech. MDR Premiere	MM	MonTech MDR 3000
MP	Alpha Technologies [Monsanto] MDR 2000P	MR	MonTech D-RPA 3000
TP	Tech Pro MDR model MDPT	XX	Instrument model not specified by lab

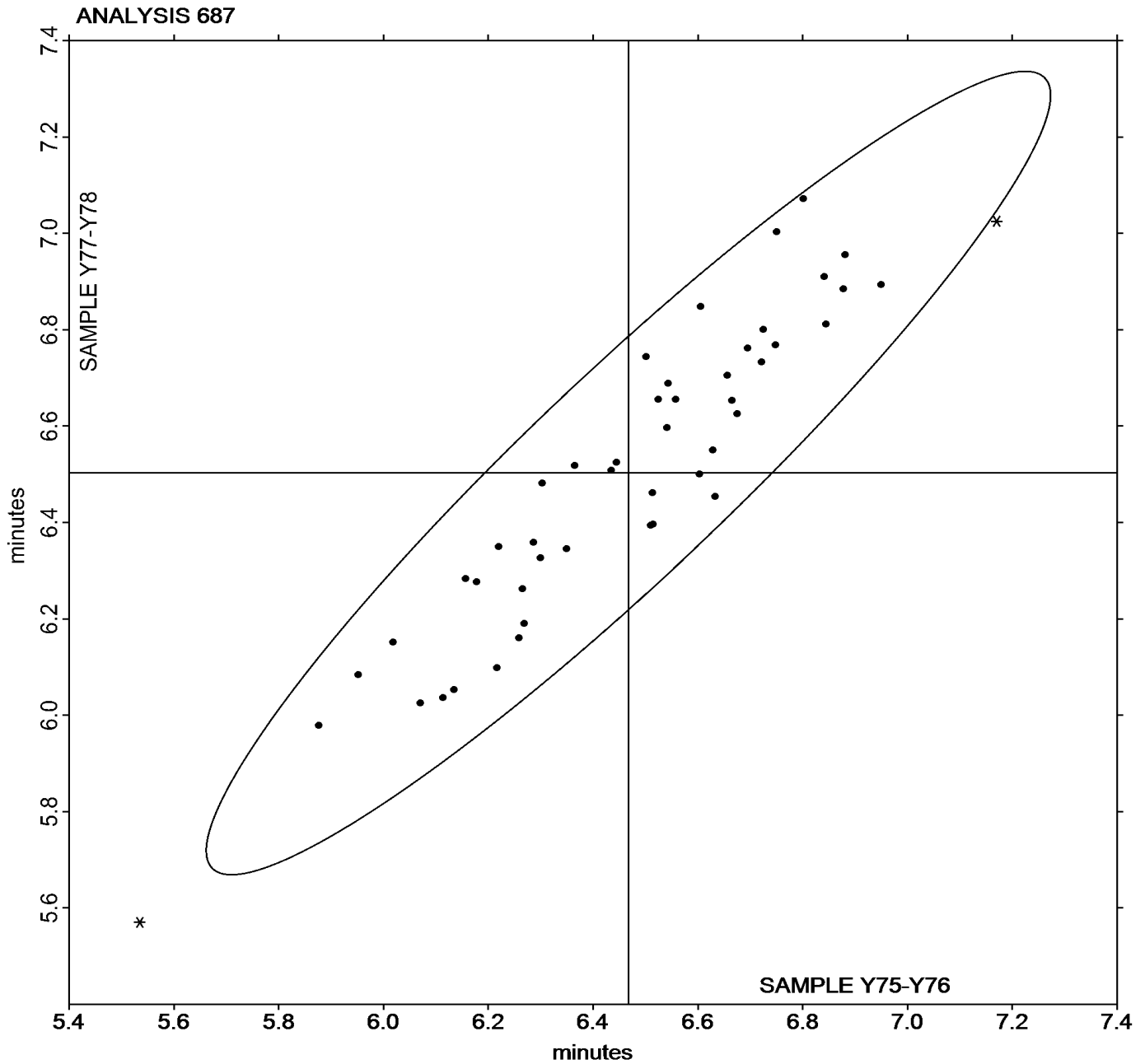


Rubber Interlaboratory Testing Program
Analysis 687
MDR Vulcanization-Cure Time 90% (minutes)

Report #193
3rd Qtr 2017

Grand Mean Sample Y75-Y76 = 6.4673 minutes

Grand Mean Sample Y77-Y78 = 6.5026 minutes





Rubber Interlaboratory Testing Program

Report #193

Analysis 688

3rd Qtr 2017

MDR Vulcanization: Minimum Torque (lbf.in)

WebCode	Data Flag	Sample Y75-Y76			Sample Y77-Y78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
28PEV7		2.237	0.195	0.96	2.078	0.203	0.96	XX
2GTACP		2.450	0.408	2.01	2.301	0.426	2.01	MD
3N6FAK		1.948	-0.094	-0.46	1.800	-0.075	-0.35	MR
3NPNAW		2.081	0.039	0.19	1.907	0.032	0.15	MP
3NQJX9		2.490	0.448	2.20	2.325	0.450	2.13	MC
4QV9XW		2.123	0.081	0.40	2.008	0.133	0.63	MC
6677K9		1.903	-0.139	-0.68	1.732	-0.143	-0.68	MM
7AYTQ2		1.789	-0.253	-1.24	1.657	-0.218	-1.03	XX
7F3WCT		2.047	0.005	0.02	1.857	-0.018	-0.09	TP
7MYQCD		2.227	0.185	0.91	1.960	0.085	0.40	MC
9DNJWG		1.642	-0.400	-1.97	1.483	-0.392	-1.85	TP
9JBYDF	*	2.317	0.275	1.35	2.028	0.153	0.72	MC
9JY37P		2.028	-0.014	-0.07	1.810	-0.065	-0.31	MC
A9V7MK		1.907	-0.135	-0.66	1.710	-0.165	-0.78	MD
D8PNZD		1.880	-0.162	-0.80	1.708	-0.167	-0.79	MC
DWPKNB	*	2.250	0.208	1.02	2.222	0.347	1.64	MC
ETXFFG		1.789	-0.253	-1.24	1.572	-0.303	-1.43	MC
F3MYMH		1.901	-0.140	-0.69	1.744	-0.131	-0.62	MC
FCBPBV	*	1.991	-0.051	-0.25	1.981	0.106	0.50	MC
FKP4ZY	*	2.462	0.420	2.06	2.377	0.502	2.37	MC
GAHFCD		2.263	0.221	1.09	2.120	0.245	1.16	ME
HC7ART		2.382	0.340	1.67	2.267	0.392	1.85	XX
HCNZZD		2.167	0.125	0.61	1.960	0.085	0.40	ME
HTR6CA		2.080	0.038	0.19	1.857	-0.018	-0.09	MC
J46MJ8		1.855	-0.187	-0.92	1.700	-0.175	-0.83	ME
JGB7BT		1.948	-0.094	-0.46	1.803	-0.072	-0.34	XX
KAAF6A		2.093	0.051	0.25	1.873	-0.002	-0.01	MC
KW23W2		1.825	-0.217	-1.07	1.588	-0.287	-1.35	MC
MAZFW6		2.028	-0.014	-0.07	1.842	-0.033	-0.16	MC
NKHRW2		1.850	-0.192	-0.94	1.677	-0.198	-0.94	MC
NYWX7E		1.882	-0.160	-0.79	1.698	-0.177	-0.83	MC
P3E29P		2.037	-0.005	-0.03	1.795	-0.080	-0.38	MC
PQZ8R6		1.856	-0.186	-0.92	1.730	-0.145	-0.68	MC
Q84B32		1.998	-0.044	-0.21	1.807	-0.068	-0.32	MC
Q9AJYL		2.168	0.126	0.62	1.977	0.102	0.48	MC
QXYQVL		1.847	-0.195	-0.96	1.662	-0.213	-1.01	MC
RCR67Y		1.903	-0.139	-0.68	1.723	-0.152	-0.72	MM



Rubber Interlaboratory Testing Program

Report #193

Analysis 688

3rd Qtr 2017

MDR Vulcanization: Minimum Torque (lbf.in)

WebCode	Data Flag	Sample Y75-Y76			Sample Y77-Y78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
RHHDQT		2.003	-0.039	-0.19	1.805	-0.070	-0.33	MD
T27YAV		2.277	0.235	1.15	2.093	0.218	1.03	MC
UAEAGD		2.013	-0.029	-0.14	1.887	0.012	0.06	MC
VLKMBH		2.310	0.268	1.32	2.117	0.242	1.14	MC
VVXCCC		1.795	-0.247	-1.21	1.665	-0.210	-0.99	MC
VXECEQ		1.913	-0.129	-0.63	1.747	-0.128	-0.61	MC
WTMWHI		1.970	-0.072	-0.36	1.817	-0.058	-0.28	MD
XCAZD3		2.217	0.175	0.86	2.072	0.197	0.93	MC
XH2CBJ		1.959	-0.083	-0.41	1.797	-0.078	-0.37	MP
XX7C7L		2.313	0.271	1.33	2.177	0.302	1.42	MC
Y2TD62		1.747	-0.295	-1.45	1.601	-0.274	-1.30	MC
YJNB3M		2.095	0.053	0.26	1.938	0.063	0.30	MD
ZYXGTC		1.840	-0.202	-0.99	1.698	-0.177	-0.83	MC

Summary Statistics	
Grand Means	2.0419 lbf.in 1.8750 lbf.in
Std Dev Btwn Labs	0.2033 lbf.in 0.2117 lbf.in
Statistics based on 50 of 50 reporting participants	

Summary Statistics in SI Units	
Grand Means	2.3071 dN.m 2.1185 dN.m
Std Dev Btwn Labs	0.2298 dN.m 0.2392 dN.m
Statistics based on 50 of 50 reporting participants	

Samples Y75-Y76: EPDM compound, batch #1 & Y77-Y78: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

MC Alpha Technologies [Monsanto] MDR 2000 or 2000E	MD Alpha Tech. Rubber Process Analyzer (RPA 2000)
ME Alpha Tech. MDR Premiere	MM MonTech MDR 3000
MP Alpha Technologies [Monsanto] MDR 2000P	MR MonTech D-RPA 3000
TP Tech Pro MDR model MDPT	XX Instrument model not specified by lab

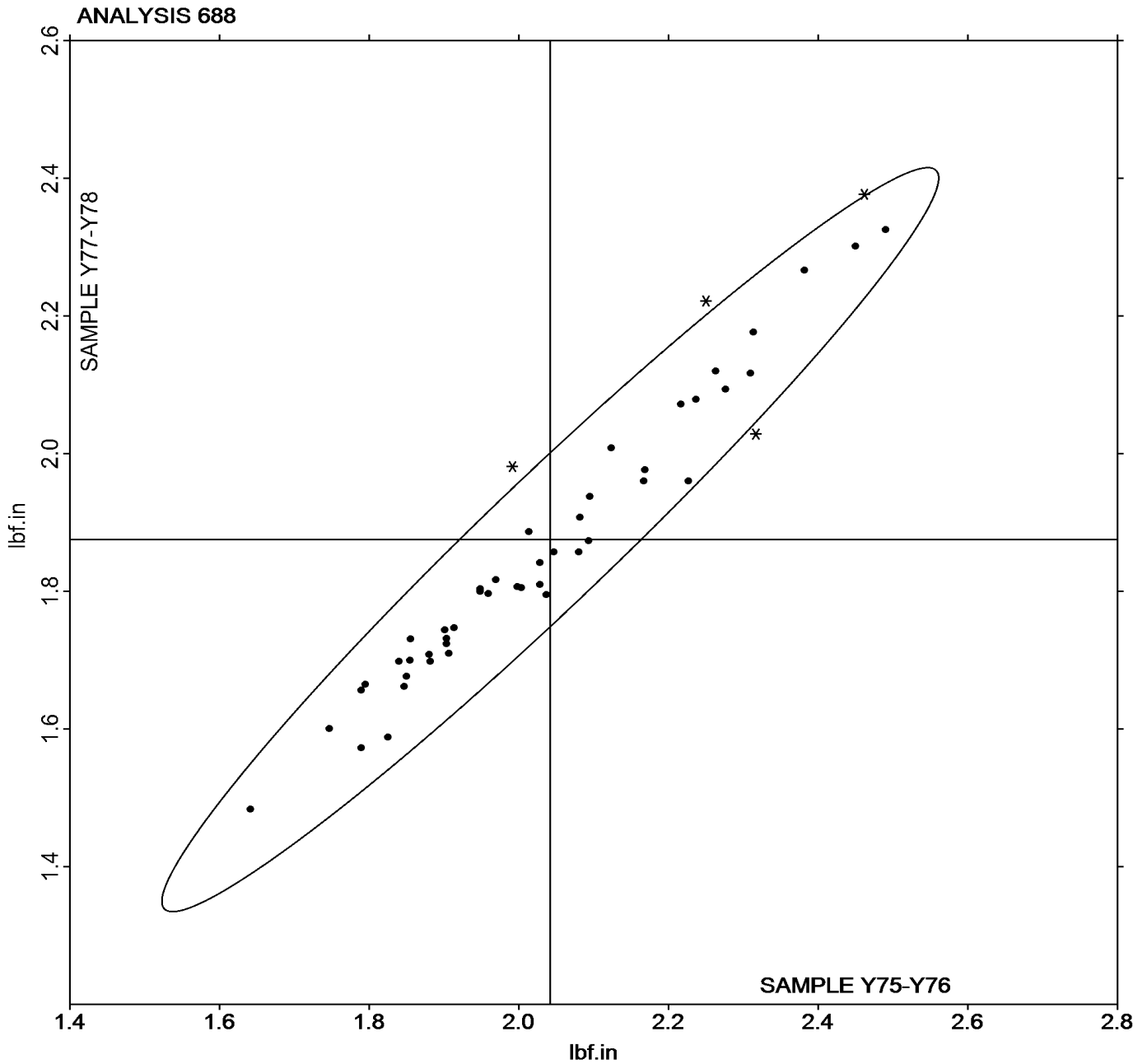


Rubber Interlaboratory Testing Program
Analysis 688
MDR Vulcanization: Minimum Torque (lbf.in)

Report #193
3rd Qtr 2017

Grand Mean Sample **Y75-Y76** = 2.0419 lbf.in

Grand Mean Sample **Y77-Y78** = 1.8750 lbf.in





Rubber Interlaboratory Testing Program

Report #193

Analysis 689

3rd Qtr 2017

MDR Vulcanization: Maximum Torque (lbf.in)

WebCode	Data Flag	Sample Y75-Y76			Sample Y77-Y78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
28PEV7		12.77	0.56	0.71	12.31	-0.01	-0.01	XX
2GTACP	*	14.73	2.52	3.16	14.56	2.24	3.08	MD
3N6FAK	X	16.76	4.55	5.71	16.95	4.63	6.35	MR
3NPNAW		12.58	0.37	0.47	12.45	0.13	0.18	MP
3NQJX9		13.36	1.15	1.45	12.93	0.61	0.84	MC
4QV9XW		12.38	0.17	0.22	12.39	0.07	0.10	MC
6677K9		12.35	0.14	0.18	12.25	-0.07	-0.09	MM
7AYTQ2		11.52	-0.69	-0.86	11.95	-0.37	-0.51	XX
7F3WCT		11.39	-0.82	-1.03	11.58	-0.74	-1.02	TP
7MYQCD		12.14	-0.07	-0.09	12.15	-0.17	-0.24	MC
9DNJWG	*	10.09	-2.12	-2.65	10.41	-1.91	-2.62	TP
9JBYDF		12.78	0.57	0.71	13.01	0.69	0.95	MC
9JY37P		12.44	0.23	0.28	12.39	0.07	0.10	MC
A9V7MK		12.30	0.09	0.12	12.76	0.45	0.61	MD
D8PNZD		12.01	-0.20	-0.26	12.24	-0.08	-0.10	MC
DWPKNB		12.04	-0.17	-0.21	12.31	-0.01	-0.02	MC
ETXFFG		12.12	-0.09	-0.11	12.38	0.06	0.08	MC
F3MYMH		11.75	-0.46	-0.58	11.91	-0.41	-0.56	MC
FCBPBV		11.87	-0.34	-0.42	11.46	-0.86	-1.17	MC
FKP4ZY		12.47	0.26	0.33	12.10	-0.22	-0.31	MC
GAHFCD		12.30	0.09	0.11	12.61	0.29	0.40	ME
HC7ART		12.29	0.08	0.10	12.46	0.14	0.19	XX
HCNZZD		12.01	-0.20	-0.26	11.74	-0.58	-0.80	ME
HTR6CA		11.47	-0.74	-0.92	11.72	-0.60	-0.82	MC
J46MJ8		12.02	-0.19	-0.24	12.34	0.02	0.03	ME
JGB7BT		12.47	0.26	0.32	12.35	0.03	0.05	XX
KAAF6A		13.05	0.84	1.06	13.16	0.84	1.16	MC
KW23W2		12.86	0.65	0.81	12.86	0.54	0.74	MC
MAZFW6		12.43	0.22	0.28	12.49	0.17	0.24	MC
NKHRW2		12.22	0.01	0.01	12.62	0.30	0.42	MC
NYWX7E		11.84	-0.37	-0.46	12.12	-0.20	-0.28	MC
P3E29P		12.37	0.16	0.20	12.92	0.60	0.82	MC
PQZ8R6		10.35	-1.86	-2.33	10.53	-1.79	-2.45	MC
Q84B32		12.59	0.38	0.47	12.92	0.60	0.82	MC
Q9AJYL		12.96	0.75	0.94	12.98	0.66	0.91	MC
QXYQVL		11.78	-0.43	-0.54	12.15	-0.17	-0.23	MC
RCR67Y		12.40	0.19	0.23	12.50	0.18	0.25	MM



Rubber Interlaboratory Testing Program

Report #193

Analysis 689

3rd Qtr 2017

MDR Vulcanization: Maximum Torque (lbf.in)

WebCode	Data Flag	Sample Y75-Y76			Sample Y77-Y78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
RHHDQT		11.66	-0.55	-0.69	12.04	-0.28	-0.39	MD
T27YAV		11.79	-0.42	-0.53	11.85	-0.47	-0.64	MC
UAEAGD		10.98	-1.23	-1.54	10.91	-1.41	-1.94	MC
VLKMBH		13.55	1.34	1.68	13.08	0.76	1.05	MC
VVXCCC		11.96	-0.25	-0.31	12.06	-0.26	-0.35	MC
VXECEQ	*	12.76	0.56	0.70	13.54	1.22	1.68	MC
WTMWHI		11.78	-0.43	-0.54	12.24	-0.07	-0.10	MD
XCAZD3		12.66	0.45	0.56	12.73	0.41	0.57	MC
XH2CBJ		12.20	-0.01	-0.01	12.65	0.33	0.45	MC
XX7C7L		13.25	1.04	1.31	12.94	0.62	0.85	MC
Y2TD62		10.53	-1.68	-2.11	10.99	-1.32	-1.82	MC
YJNB3M		11.65	-0.56	-0.70	11.66	-0.65	-0.90	MD
ZYXGTC		13.02	0.81	1.02	12.93	0.61	0.83	MC

Summary Statistics	
Grand Means	12.209 lbf.in 12.319 lbf.in
Std Dev Btwn Labs	0.797 lbf.in 0.728 lbf.in
Statistics based on 49 of 50 reporting participants	

Summary Statistics in SI Units	
Grand Means	13.794 dN.m 13.918 dN.m
Std Dev Btwn Labs	0.901 dN.m 0.823 dN.m
Statistics based on 49 of 50 reporting participants	

Samples Y75-Y76: EPDM compound, batch #1 & Y77-Y78: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #689

3N6FAK (X) - Data for all samples are high. Possible Systematic Error.

Key to Instrument Codes Reported by Participants

MC	Alpha Technologies [Monsanto] MDR 2000 or 2000E	MD	Alpha Tech. Rubber Process Analyzer (RPA 2000)
ME	Alpha Tech. MDR Premiere	MM	MonTech MDR 3000
MP	Alpha Technologies [Monsanto] MDR 2000P	MR	MonTech D-RPA 3000
TP	Tech Pro MDR model MDPT	XX	Instrument model not specified by lab

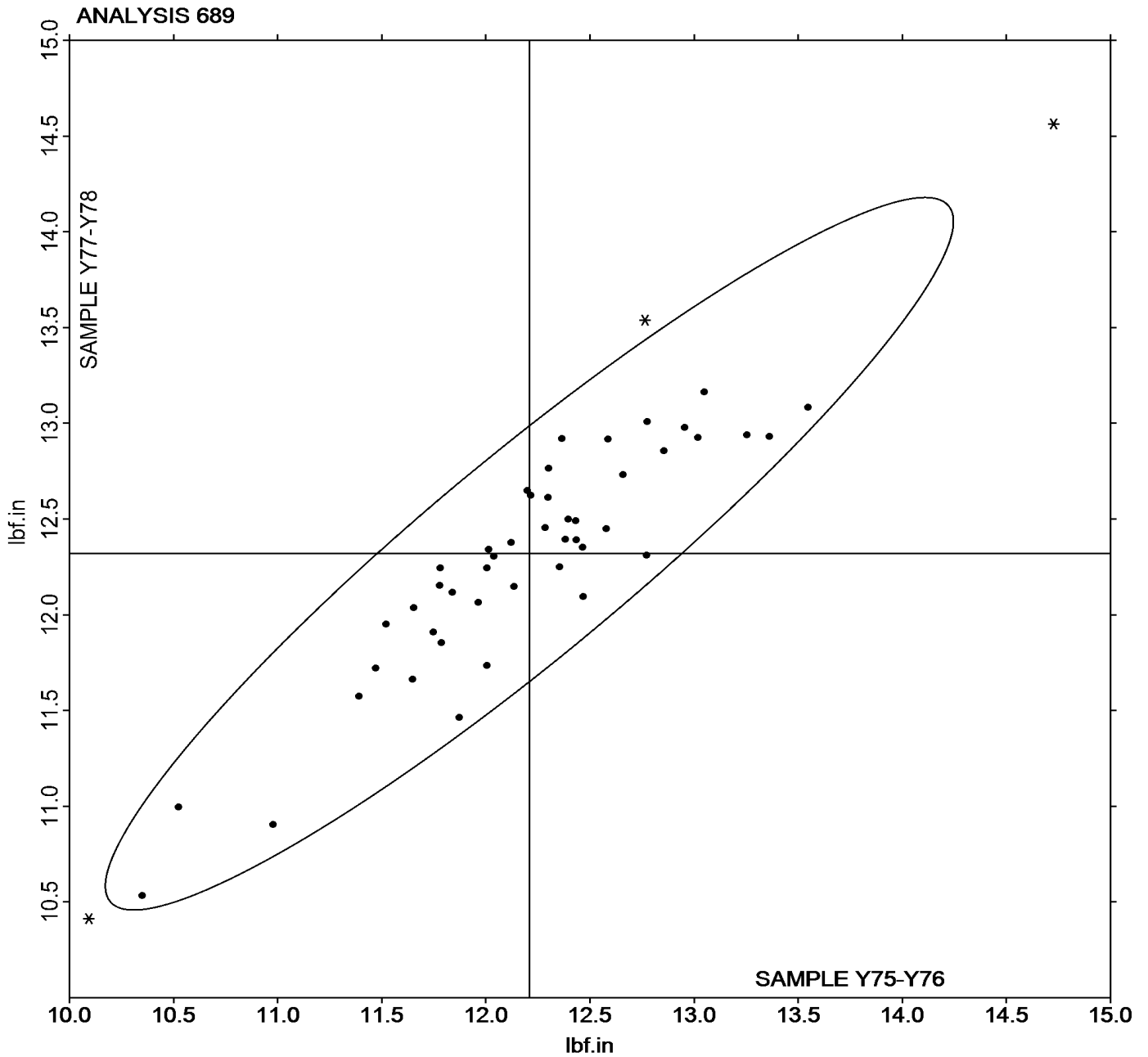


Rubber Interlaboratory Testing Program
Analysis 689
MDR Vulcanization: Maximum Torque (lbf.in)

Report #193
3rd Qtr 2017

Grand Mean Sample **Y75-Y76** = 12.209 lbf.in

Grand Mean Sample **Y77-Y78** = 12.319 lbf.in





Rubber Interlaboratory Testing Program

Report #193

Analysis 690

3rd Qtr 2017

RPA Rheological Properties: Part A - G' at 20Hz (kPa)

WebCode	Data Flag	Sample G71-G72			Sample G73-G74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3NPNW		471.3	-16.2	-0.57	448.3	-17.4	-0.66	RP
7AYTQ2		480.1	-7.4	-0.26	458.3	-7.4	-0.28	RP
DWPKNB		466.0	-21.5	-0.75	448.8	-16.8	-0.64	PP
ETXFFG		506.7	19.2	0.67	478.8	13.2	0.50	RP
FCBPBV		536.5	49.0	1.72	513.6	47.9	1.81	XX
VXECEQ		464.4	-23.1	-0.81	446.2	-19.5	-0.74	RP

Summary Statistics	
Grand Means	
	487.50 kPa
	465.66 kPa
Stnd Dev Btwn Labs	
	28.58 kPa
	26.42 kPa
Statistics based on 6 of 6 reporting participants	

Samples G71-G72: EPDM compound, batch #1 & G73-G74: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

- PP PPA 2000
- RP RPA 2000
- XX Instrument model not specified by lab

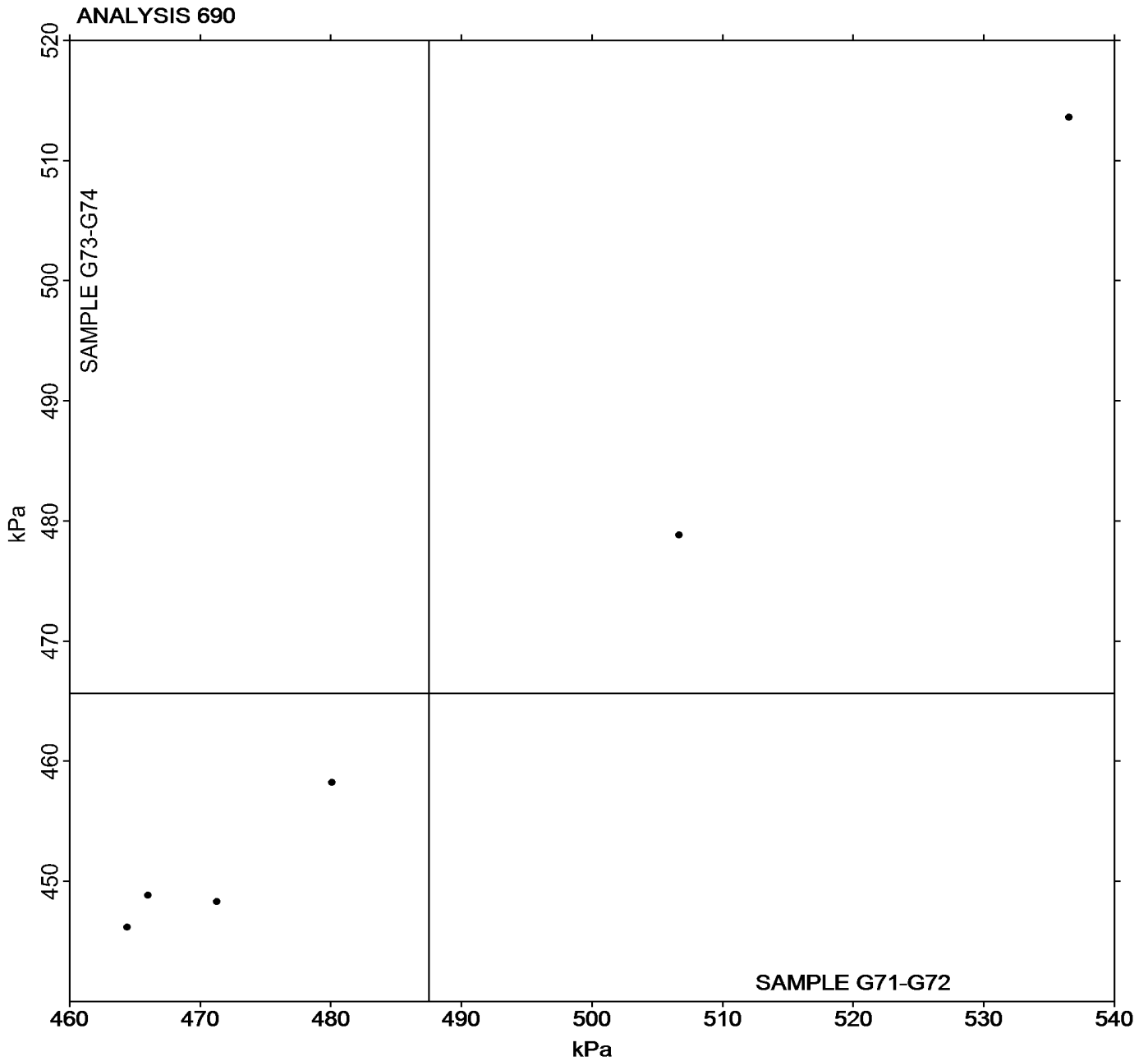


Rubber Interlaboratory Testing Program
Analysis 690
RPA Rheological Properties: Part A - G' at 20Hz (kPa)

Report #193
3rd Qtr 2017

Grand Mean Sample **G71-G72** = 487.50 kPa

Grand Mean Sample **G73-G74** = 465.66 kPa



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.



Rubber Interlaboratory Testing Program

Report #193

Analysis 691

3rd Qtr 2017

RPA Rheological Properties: Part A - G'' at 20Hz (kPa)

WebCode	Data Flag	Sample G71-G72			Sample G73-G74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3NPNAW		215.0	0.1	0.02	213.8	-0.6	-0.16	RP
7AYTQ2		216.7	1.8	0.36	214.9	0.4	0.10	XX
DWPKNB		213.5	-1.4	-0.28	214.3	-0.1	-0.03	PP
ETXFFG		218.8	3.9	0.77	217.0	2.6	0.64	XX
FCBPBV		219.8	4.9	0.95	219.2	4.8	1.20	XX
VXECEQ		205.6	-9.3	-1.82	207.4	-7.0	-1.76	RP

Summary Statistics	
Grand Means	214.92 kPa
Std Dev Btwn Labs	5.12 kPa
	214.43 kPa
	3.98 kPa
Statistics based on 6 of 6 reporting participants	

Samples G71-G72: EPDM compound, batch #1 & G73-G74: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

- PP PPA 2000
- XX Instrument model not specified by lab
- RP RPA 2000

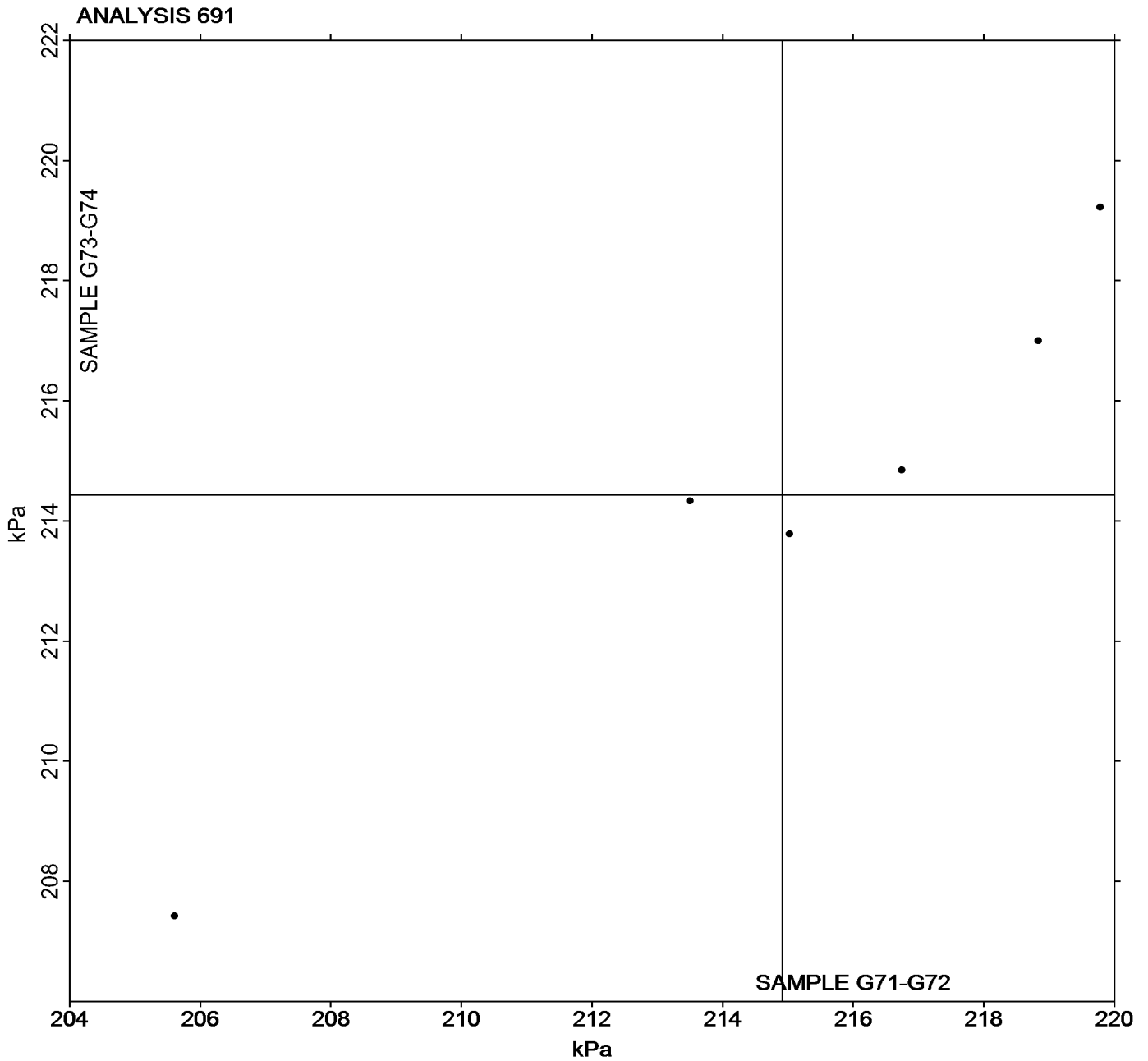


Rubber Interlaboratory Testing Program
Analysis 691
RPA Rheological Properties: Part A - G'' at 20Hz (kPa)

Report #193
3rd Qtr 2017

Grand Mean Sample **G71-G72** = 214.92 kPa

Grand Mean Sample **G73-G74** = 214.43 kPa



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.



Rubber Interlaboratory Testing Program

Report #193

Analysis 695

3rd Qtr 2017

RPA Rheological Properties: Part B - G' at 1.0Hz (kPa)

WebCode	Data Flag	Sample G71-G72			Sample G73-G74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3NPNAW		74.93	-5.46	-0.49	66.64	-5.71	-0.56	RP
7AYTQ2		77.09	-3.30	-0.29	69.67	-2.68	-0.26	XX
DWPKNB		76.01	-4.37	-0.39	69.80	-2.55	-0.25	PR
ETXFFG		88.08	7.70	0.68	78.80	6.45	0.63	XX
FCBPBV		98.88	18.50	1.65	89.14	16.79	1.64	XX
VXECEQ		67.32	-13.07	-1.16	60.05	-12.30	-1.20	RP

Summary Statistics	
Grand Means	
	80.386 kPa
	72.350 kPa
Std Dev Btwn Labs	
	11.242 kPa
	10.210 kPa
Statistics based on 6 of 6 reporting participants	

Samples G71-G72: EPDM compound, batch #1 & G73-G74: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

- PR PRPA 2000
- RP RPA 2000
- XX Instrument model not specified by lab

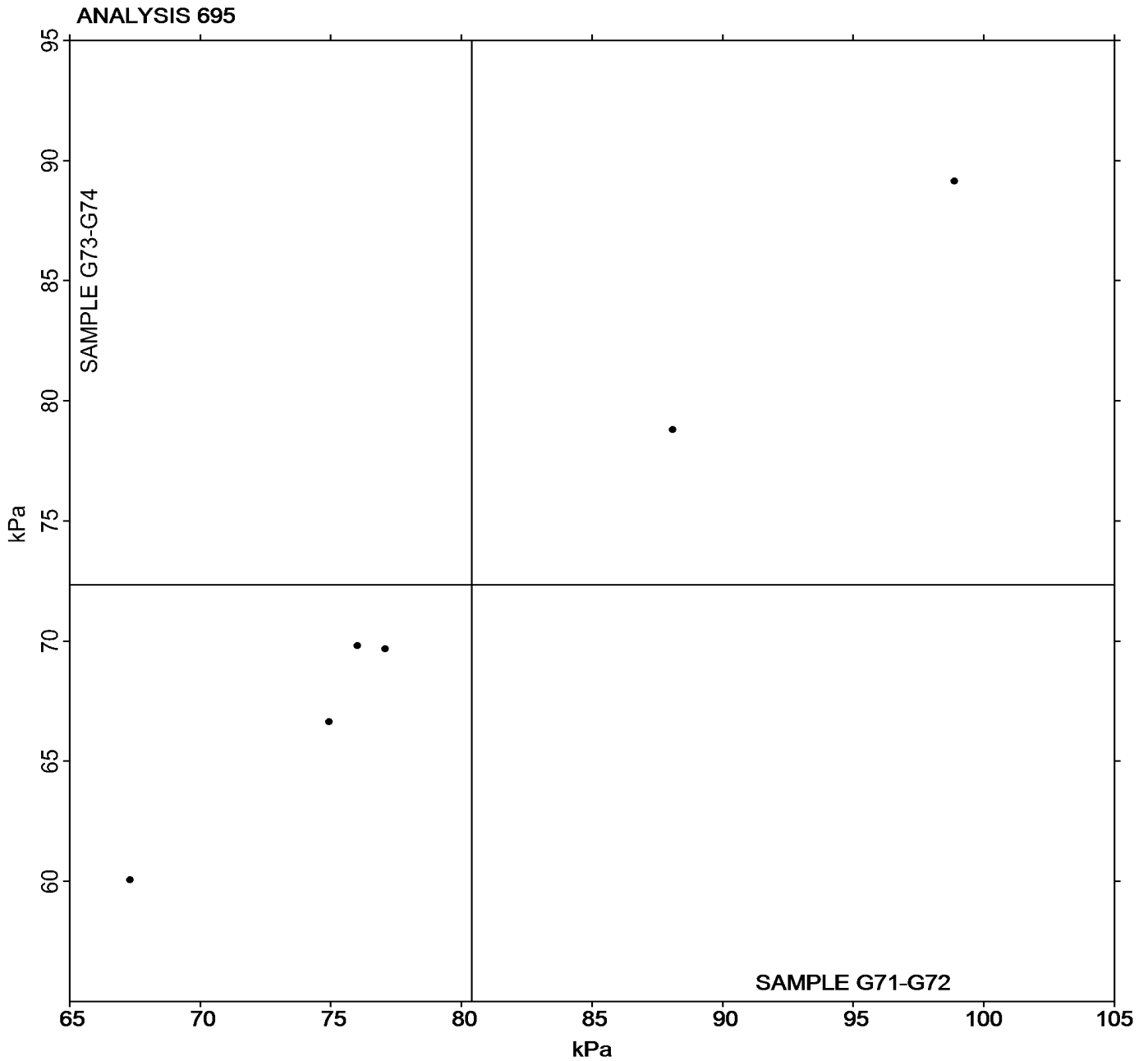


Rubber Interlaboratory Testing Program
Analysis 695
RPA Rheological Properties: Part B - G' at 1.0Hz (kPa)

Report #193
3rd Qtr 2017

Grand Mean Sample **G71-G72** = 80.386 kPa

Grand Mean Sample **G73-G74** = 72.350 kPa



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.



Rubber Interlaboratory Testing Program

Report #193

Analysis 696

3rd Qtr 2017

RPA Rheological Properties: Part B - G'' at 1.0Hz (kPa)

WebCode	Data Flag	Sample G71-G72			Sample G73-G74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3NPNAW		65.32	-1.20	-0.36	63.06	-1.22	-0.35	RP
7AYTQ2		66.94	0.42	0.13	64.25	-0.03	-0.01	XX
DWPKNB		64.45	-2.07	-0.62	62.54	-1.75	-0.49	PP
ETXFFG		68.32	1.80	0.54	65.97	1.68	0.48	XX
FCBPBV		71.82	5.30	1.59	70.15	5.87	1.66	XX
VXECEQ		62.27	-4.25	-1.28	59.74	-4.54	-1.29	RP

Summary Statistics			
Grand Means	66.520 kPa	64.284 kPa	
Std Dev Btwn Labs	3.324 kPa	3.535 kPa	
Statistics based on 6 of 6 reporting participants			

Samples G71-G72: EPDM compound, batch #1 & G73-G74: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

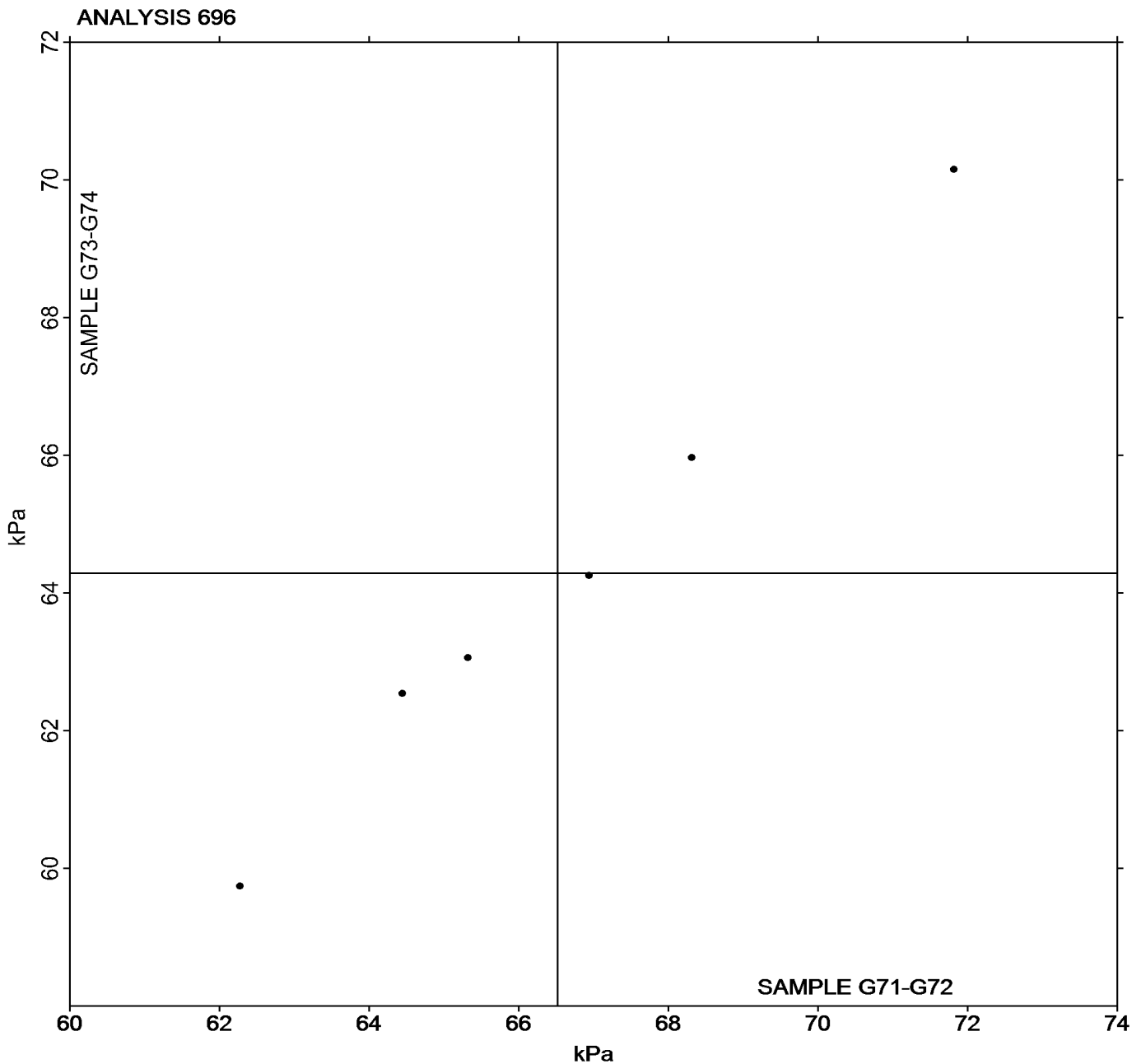
- PP PPA 2000
- XX Instrument model not specified by lab
- RP RPA 2000



RPA Rheological Properties: Part B - G'' at 1.0Hz (kPa)

Grand Mean Sample **G71-G72** = 66.520 kPa

Grand Mean Sample **G73-G74** = 64.284 kPa



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.