



Rubber Interlaboratory Testing Program

Summary Report #191- 1st Qtr 2017

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

[Key for Web Summary Report](#)

Analysis	Analysis Name
605	Tensile Strength: Precured Rubber Samples
606	Ultimate Elongation: Precured Rubber Samples
607	Stress at 300% Elongation: Precured Samples
608	Stress at 100% Elongation: Precured Samples
620	Hardness (Type A): Precured Rubber Samples
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633	Tensile Stress at 100% Elongation: Lab-Cured
660	Mooney Viscosity (4-minute readings)
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685	MDR Vulcanization Charac.: Scorch Time, Ts1
686	MDR Vulcanization Charac.: Cure Time 50%
687	MDR Vulcanization Charac.: Cure Time 90%
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690	RPA Rheological Properties: Part A - G' at 20Hz

- [691](#) [RPA Rheological Properties: Part A - \$G''\$ at 20Hz](#)
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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)

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WebCode	Data Flag	Sample A71-A72			Sample A73-A74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
29U4R8		2,958.5	-174.4	-1.15	3,075.0	-145.9	-0.98
2A7GUJ		3,319.4	186.4	1.23	3,431.0	210.1	1.42
2LEJV8		3,240.0	107.1	0.71	3,260.0	39.1	0.26
2QVNT3	X	2,579.5	-553.4	-3.65	2,647.0	-573.9	-3.87
337GW3		3,163.1	30.1	0.20	3,121.4	-99.5	-0.67
3GZAYV	X	2,447.5	-685.4	-4.52	2,956.6	-264.2	-1.78
3HWJD7		3,168.0	35.1	0.23	3,165.5	-55.4	-0.37
3WE9C9		3,075.5	-57.4	-0.38	3,316.0	95.1	0.64
4C42CZ		2,980.0	-152.9	-1.01	2,940.0	-280.9	-1.89
4VFNX8		3,194.5	61.6	0.41	3,335.5	114.6	0.77
6DWVQV		3,066.0	-66.9	-0.44	3,185.0	-35.9	-0.24
6WTEN4		3,272.8	139.9	0.92	3,503.4	282.6	1.91
7GABFD		3,114.1	-18.8	-0.12	3,261.9	41.0	0.28
7RP2F4		2,965.0	-167.9	-1.11	3,119.5	-101.4	-0.68
7UVQHD		3,422.9	290.0	1.91	3,379.4	158.6	1.07
843KD7		3,068.2	-64.7	-0.43	3,306.9	86.0	0.58
8YQMYR		3,328.0	195.1	1.29	3,344.5	123.6	0.83
8ZE9DZ		3,087.0	-45.9	-0.30	3,078.5	-142.4	-0.96
9CQV3R		3,065.9	-67.0	-0.44	3,194.0	-26.8	-0.18
9PAP8P		3,276.5	143.6	0.95	3,321.5	100.6	0.68
9YHZYP		3,153.5	20.6	0.14	3,180.0	-40.9	-0.28
A4ANVM	*	2,952.5	-180.4	-1.19	3,321.0	100.1	0.68
AA2NHU		3,100.0	-32.9	-0.22	3,200.0	-20.9	-0.14
AAJZVT		2,994.0	-138.9	-0.92	3,039.0	-181.9	-1.23
AJ72C4		3,362.3	229.4	1.51	3,513.8	292.9	1.98
B46QZG		3,141.9	8.9	0.06	3,015.5	-205.3	-1.38
B7C2X7		3,320.0	187.1	1.23	3,552.5	331.6	2.24
BNDTXL		3,156.0	23.1	0.15	3,175.6	-45.2	-0.31
BPA3CX		3,060.0	-72.9	-0.48	3,070.0	-150.9	-1.02
BW7ZYZ		2,865.0	-267.9	-1.77	3,012.5	-208.4	-1.41
DEYNZL		3,127.0	-5.9	-0.04	3,128.5	-92.4	-0.62
DJARUU		3,061.8	-71.1	-0.47	3,196.3	-24.6	-0.17
DP3WNY		3,111.5	-21.4	-0.14	3,257.0	36.1	0.24
EVLEJL		3,074.8	-58.1	-0.38	3,241.6	20.8	0.14
EXRZ7L		3,157.5	24.6	0.16	3,432.0	211.1	1.42
FCZDY4		3,234.4	101.5	0.67	3,480.9	260.1	1.75
FKGVCB		2,921.1	-211.8	-1.40	3,073.4	-147.5	-0.99
GCHQWE		3,054.5	-78.4	-0.52	3,016.5	-204.4	-1.38



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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WebCode	Data Flag	Sample A71-A72			Sample A73-A74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
GUGNJG	*	2,736.3	-396.6	-2.62	2,919.6	-301.2	-2.03
H6E2ZT		3,180.5	47.6	0.31	3,282.1	61.2	0.41
HH6TLW		3,066.5	-66.4	-0.44	3,328.5	107.6	0.73
HRQ22D		3,085.0	-47.9	-0.32	3,110.4	-110.5	-0.75
J34LXE	*	2,665.1	-467.8	-3.09	2,846.8	-374.1	-2.52
JAQ8CT		3,162.0	29.1	0.19	3,257.0	36.1	0.24
JP2VGG		3,168.0	35.1	0.23	3,213.5	-7.4	-0.05
JW28LQ		3,236.0	103.1	0.68	3,275.7	54.8	0.37
K7JC7V		3,182.5	49.6	0.33	3,189.0	-31.9	-0.21
K9BC37		3,124.5	-8.4	-0.06	3,295.0	74.1	0.50
KPD8FX		3,109.0	-23.9	-0.16	3,201.0	-19.9	-0.13
KQ8TAN	*	2,758.0	-374.9	-2.47	2,873.0	-347.9	-2.35
KQU2JT		3,113.0	-19.9	-0.13	3,231.0	10.2	0.07
KWY3JM		3,053.5	-79.4	-0.52	3,341.5	120.6	0.81
KYLG9W		3,182.0	49.0	0.32	3,079.6	-141.3	-0.95
L4D74U		3,098.0	-34.9	-0.23	3,268.5	47.6	0.32
L8TKPF		3,216.5	83.6	0.55	3,190.0	-30.9	-0.21
LAY26X		3,229.2	96.2	0.64	3,271.9	51.0	0.34
LHD8JG		2,965.5	-167.4	-1.11	2,941.5	-279.4	-1.88
LLTJDC		3,182.5	49.6	0.33	3,246.0	25.1	0.17
LNXC8B		3,314.5	181.6	1.20	3,343.5	122.6	0.83
MAVV6F		3,002.3	-130.6	-0.86	3,140.1	-80.8	-0.54
MJYBPT		3,243.0	110.1	0.73	3,294.5	73.6	0.50
MNGB7U		3,369.3	236.3	1.56	3,279.7	58.8	0.40
MNVWHC		3,119.8	-13.1	-0.09	3,099.5	-121.4	-0.82
NFGB9D		3,154.3	21.4	0.14	3,242.3	21.4	0.14
NV8DPG		3,201.5	68.6	0.45	3,202.5	-18.4	-0.12
PA3YLB		3,282.0	149.1	0.98	3,368.0	147.1	0.99
PH2EGB		3,198.8	65.9	0.44	3,254.7	33.8	0.23
PMA3UC		3,159.5	26.6	0.18	3,336.5	115.6	0.78
PV3BDH		3,015.3	-117.6	-0.78	3,031.4	-189.4	-1.28
Q4YBPP		3,089.3	-43.6	-0.29	3,248.9	28.0	0.19
Q4Z6BF		3,314.5	181.6	1.20	3,435.0	214.1	1.44
QCN3T9		3,416.0	283.1	1.87	3,352.0	131.1	0.88
RDWV6M		3,095.0	-37.9	-0.25	3,175.0	-45.9	-0.31
RUK7RP		3,273.5	140.6	0.93	3,355.0	134.1	0.90
TBL86M		2,889.0	-243.9	-1.61	3,016.0	-204.9	-1.38



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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WebCode	Data Flag	Sample A71-A72			Sample A73-A74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
TFG26A		3,239.0	106.1	0.70	3,288.5	67.6	0.46
U4L887		2,955.0	-177.9	-1.17	3,090.0	-130.9	-0.88
UEKTQX		3,295.3	162.4	1.07	3,359.8	139.0	0.94
UPLAJA		3,168.5	35.6	0.23	3,262.5	41.6	0.28
UQUJAL		3,073.5	-59.4	-0.39	3,136.3	-84.6	-0.57
UYPLEH	*	2,689.5	-443.4	-2.93	2,861.5	-359.4	-2.42
V3838M	*	3,361.5	228.5	1.51	3,208.2	-12.7	-0.09
VG7U77		3,264.7	131.8	0.87	3,387.0	166.1	1.12
VNMKEJ		3,301.1	168.2	1.11	3,354.8	133.9	0.90
VURAA6		3,232.5	99.6	0.66	3,278.0	57.1	0.39
VZGYEF		3,109.9	-23.0	-0.15	3,140.2	-80.7	-0.54
W8W3YM		3,251.2	118.3	0.78	3,370.9	150.0	1.01
WBVDW9		3,284.0	151.1	1.00	3,376.0	155.1	1.05
WDG8P3		3,295.0	162.1	1.07	3,374.0	153.1	1.03
WDMCB7		2,994.5	-138.4	-0.91	3,214.5	-6.4	-0.04
WPV262		3,276.5	143.6	0.95	3,321.5	100.6	0.68
WTV73F		3,094.6	-38.3	-0.25	3,218.5	-2.4	-0.02
XBQ4VV		3,327.6	194.7	1.29	3,438.7	217.8	1.47
XKWZLK		3,352.5	219.6	1.45	3,448.5	227.6	1.54
YN2TFH		2,973.3	-159.6	-1.05	3,169.1	-51.8	-0.35
XPTUDU		3,086.3	-46.6	-0.31	3,183.4	-37.5	-0.25
XYW327		2,980.0	-152.9	-1.01	3,105.0	-115.9	-0.78
YDW2N4		2,963.9	-169.0	-1.12	3,151.7	-69.2	-0.47
YRFNX2		2,958.5	-174.4	-1.15	3,109.0	-111.9	-0.75
Z6XV98		3,191.5	58.6	0.39	3,106.0	-114.9	-0.77
ZQXWKB		3,042.9	-90.0	-0.59	2,995.1	-225.8	-1.52
ZXVNQJ		3,264.6	131.7	0.87	3,356.3	135.4	0.91

Summary Statistics	
Grand Means	3,132.92 psi 3,220.86 psi
Std Dev Btwn Labs	151.49 psi 148.25 psi
Statistics based on 100 of 102 reporting participants	



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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		Summary Statistics in SI Units	
Grand Means	21.601 MPa	22.21	MPa
Std Dev Btwn Labs	1.044 MPa	1.02	MPa
Statistics based on 100 of 102 reporting participants			

Samples A71-A72: Polyisoprene compound, batch #1 & A73-A74: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #605

2QVNT3 (X) - Data for all samples are low. Possible Systematic Error.

3GZAYV (X) - Inconsistent in testing between sample groups. Data for sample group A71-A72 are low.

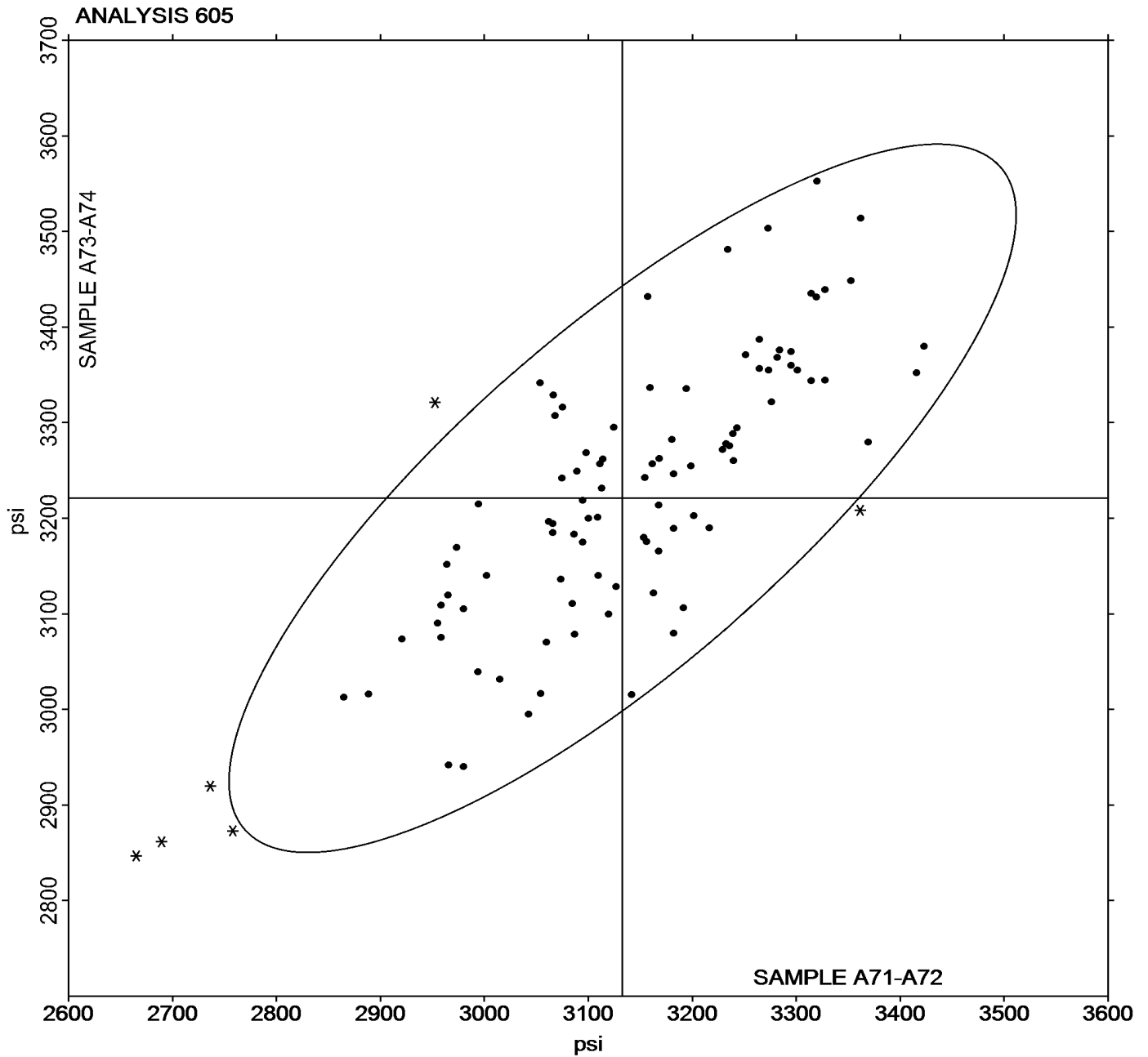


Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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Grand Mean Sample A71-A72 = 3,132.92 psi

Grand Mean Sample A73-A74 = 3,220.86 psi





Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #191
1st Qtr 2017

WebCode	Data Flag	Sample A71-A72			Sample A73-A74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
29U4R8		572.5	-18.5	-0.66	568.0	-22.1	-0.73
2A7GUJ		619.0	28.0	1.00	620.0	29.9	0.98
2LEJV8		613.6	22.6	0.81	601.9	11.8	0.39
2QVNT3		549.0	-42.0	-1.50	561.5	-28.6	-0.94
337GW3		624.7	33.6	1.20	611.0	20.8	0.69
3GZAYV		637.0	46.0	1.64	648.0	57.9	1.90
3HWJD7		599.0	8.0	0.28	594.0	3.9	0.13
3WE9C9		598.0	7.0	0.25	607.0	16.9	0.56
4C42CZ	X	564.0	-27.0	-0.96	523.5	-66.6	-2.19
4VFNX8		618.5	27.5	0.98	614.5	24.4	0.80
6DWVQV		618.0	27.0	0.96	618.5	28.4	0.93
6WTEN4		565.0	-26.0	-0.93	575.5	-14.6	-0.48
7GABFD		595.4	4.3	0.15	608.3	18.2	0.60
7RP2F4		581.0	-10.0	-0.36	587.0	-3.1	-0.10
7UVQHD		571.5	-19.5	-0.70	591.0	0.9	0.03
843KD7		559.5	-31.5	-1.12	567.4	-22.7	-0.75
8YQMYR		615.5	24.5	0.87	612.5	22.4	0.74
8ZE9DZ	X	593.5	2.5	0.09	537.5	-52.6	-1.73
9PAP8P		551.0	-40.0	-1.43	544.5	-45.6	-1.50
9YHZYP		567.5	-23.5	-0.84	563.0	-27.1	-0.89
A4ANVM		583.5	-7.5	-0.27	593.5	3.4	0.11
AAJZVT		540.0	-51.0	-1.82	535.0	-55.1	-1.81
AJ72C4		618.6	27.6	0.98	619.4	29.3	0.96
B46QZG		553.7	-37.3	-1.33	564.0	-26.2	-0.86
B7C2X7		603.5	12.5	0.44	615.5	25.4	0.83
BNDTXL		597.5	6.5	0.23	603.0	12.9	0.42
BPA3CX		540.0	-51.0	-1.82	546.0	-44.1	-1.45
BW7ZYZ		584.5	-6.5	-0.23	597.0	6.9	0.23
DJARUU		593.5	2.5	0.09	592.5	2.4	0.08
DP3WNY		587.0	-4.0	-0.14	591.5	1.4	0.05
EVLEJL		600.5	9.5	0.34	613.0	22.9	0.75
EXRZ7L		587.5	-3.5	-0.13	600.5	10.4	0.34
FCZDY4	X	694.5	103.5	3.69	664.0	73.9	2.43
FKGVCB		631.5	40.5	1.44	617.5	27.4	0.90
GCHQWE	X	691.5	100.5	3.58	672.0	81.9	2.69
GUGNJK		552.0	-39.0	-1.39	555.0	-35.2	-1.16
H6E2ZT		622.8	31.8	1.13	632.2	42.1	1.38
HH6TLW		605.0	14.0	0.50	604.5	14.4	0.47



Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

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WebCode	Data Flag	Sample A71-A72			Sample A73-A74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
HRQ22D		604.0	13.0	0.46	597.0	6.9	0.23
J34LXE		560.8	-30.2	-1.08	545.2	-45.0	-1.48
JAQ8CT		601.0	10.0	0.36	598.0	7.9	0.26
JP2VGG		605.0	14.0	0.50	606.5	16.4	0.54
JW28LQ		619.9	28.8	1.03	603.2	13.0	0.43
K7JC7V		626.5	35.5	1.26	617.5	27.4	0.90
K9BC37		609.0	18.0	0.64	604.5	14.4	0.47
KPD8FX		622.5	31.5	1.12	622.0	31.9	1.05
KQ8TAN	X	576.5	-14.5	-0.52	537.5	-52.6	-1.73
KQU2JT		586.0	-5.0	-0.18	598.0	7.9	0.26
KWY3JM		633.0	42.0	1.50	635.5	45.4	1.49
KYLG9W	*	629.3	38.3	1.36	598.3	8.1	0.27
L4D74U		564.3	-26.8	-0.95	565.1	-25.0	-0.82
L8TKPF		609.5	18.5	0.66	605.0	14.9	0.49
LAY26X		579.5	-11.5	-0.41	566.5	-23.6	-0.78
LHD8JG		534.0	-57.0	-2.03	519.5	-70.6	-2.32
LLTJDC		600.5	9.5	0.34	603.5	13.4	0.44
LNXC8B		574.0	-17.0	-0.61	579.0	-11.1	-0.37
MAVV6F		559.0	-32.0	-1.14	548.5	-41.6	-1.37
MJYBPT		618.5	27.5	0.98	626.0	35.9	1.18
MNGB7U	*	567.0	-24.0	-0.86	533.0	-57.1	-1.88
MNVWHC		618.0	27.0	0.96	619.5	29.4	0.97
NFGB9D		616.5	25.5	0.91	603.1	13.0	0.43
NV8DPG		629.5	38.5	1.37	638.0	47.9	1.58
PA3YLB		638.5	47.5	1.69	650.0	59.9	1.97
PH2EGB		589.5	-1.5	-0.05	589.5	-0.6	-0.02
PMA3UC		560.0	-31.0	-1.11	571.0	-19.1	-0.63
PV3BDH		590.0	-1.0	-0.04	570.0	-20.1	-0.66
Q4YBPP		550.0	-41.0	-1.46	558.5	-31.6	-1.04
Q4Z6BF		618.0	27.0	0.96	633.0	42.9	1.41
QCN3T9		597.5	6.5	0.23	601.5	11.4	0.37
RDWV6M		618.0	27.0	0.96	624.0	33.9	1.11
RUK7RP		634.5	43.5	1.55	646.0	55.9	1.84
TBL86M		579.0	-12.0	-0.43	566.0	-24.1	-0.79
TFG26A		548.0	-43.0	-1.53	558.5	-31.6	-1.04
U4L887	*	558.5	-32.5	-1.16	524.0	-66.1	-2.18
UEKTQX		576.5	-14.5	-0.52	574.0	-16.1	-0.53



Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #191
1st Qtr 2017

WebCode	Data Flag	Sample A71-A72			Sample A73-A74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
UPLAJA	X	554.5	-36.5	-1.30	607.0	16.9	0.56
UQUJAL		573.5	-17.5	-0.62	573.3	-16.9	-0.56
V3838M		588.0	-3.1	-0.11	587.5	-2.6	-0.09
VNMKEJ		604.5	13.5	0.48	591.5	1.4	0.05
VURAA6		634.0	43.0	1.53	619.5	29.4	0.97
VZGYEF		568.5	-22.5	-0.80	571.0	-19.1	-0.63
W8W3YM		628.0	37.0	1.32	636.5	46.4	1.53
WBVDW9		575.0	-16.0	-0.57	575.0	-15.1	-0.50
WDG8P3		581.5	-9.5	-0.34	585.5	-4.6	-0.15
WDMCB7		556.5	-34.5	-1.23	566.5	-23.6	-0.78
WPV262		551.0	-40.0	-1.43	544.5	-45.6	-1.50
WTV73F	*	507.7	-83.4	-2.97	501.0	-89.1	-2.93
XBQ4VV		580.5	-10.5	-0.37	553.8	-36.4	-1.20
XKWZLK		609.5	18.5	0.66	611.5	21.4	0.70
XN2TFH		577.3	-13.7	-0.49	597.2	7.0	0.23
XPTUDU		602.0	11.0	0.39	602.5	12.4	0.41
YDW2N4		595.0	4.0	0.14	590.5	0.4	0.01
YRFNX2		597.0	6.0	0.21	580.0	-10.1	-0.33
Z6XV98		591.5	0.5	0.02	567.0	-23.1	-0.76
ZQXWKB		596.0	5.0	0.18	592.0	1.9	0.06
ZXVNQJ		592.8	1.7	0.06	593.6	3.4	0.11

Grand Means		Summary Statistics	
	591.02 percent		590.13 percent
Std Dev Btwn Labs	28.06 percent		30.39 percent
Statistics based on 90 of 96 reporting participants			

Samples A71-A72: Polyisoprene compound, batch #1 & A73-A74: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #606

- 4C42CZ (X) - Inconsistent in testing between sample groups.
- 8ZE9DZ (X) - Inconsistent in testing between sample groups.
- FCZDY4 (X) - Inconsistent in testing between sample groups. Data for sample group A71-A72 are high.
- GCHQWE (X) - Inconsistent in testing between sample groups. Data for sample group A71-A72 are high.
- KQ8TAN (X) - Inconsistent in testing between sample groups.
- UPLAJA (X) - Inconsistent in testing between sample groups.



Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #191
1st Qtr 2017

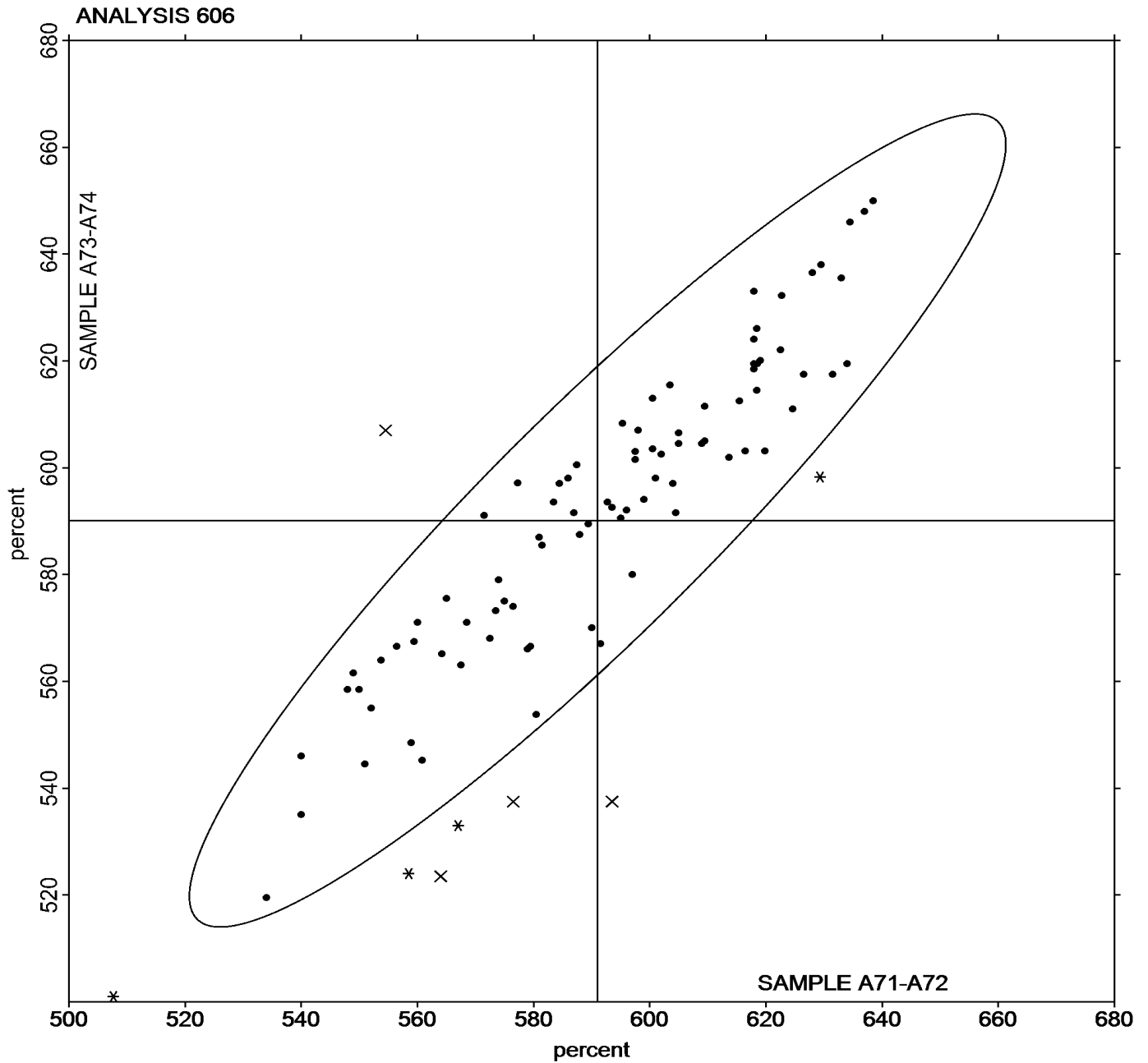


Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

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Grand Mean Sample A71-A72 = 591.02 percent

Grand Mean Sample A73-A74 = 590.13 percent





Rubber Interlaboratory Testing Program

Report #191

Analysis 607

1st Qtr 2017

Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample A71-A72			Sample A73-A74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
29U4R8		1,049.0	8.2	0.10	1,105.0	23.3	0.28
2A7GUJ		1,025.9	-15.0	-0.18	1,069.8	-11.8	-0.14
2LEJV8		1,030.3	-10.5	-0.13	1,058.3	-23.3	-0.28
2QVNT3		991.0	-49.8	-0.59	949.0	-132.7	-1.58
337GW3		984.2	-56.7	-0.68	1,031.0	-50.7	-0.60
3GZAYV	*	782.5	-258.4	-3.08	833.2	-248.4	-2.96
3HWJD7		1,056.0	15.2	0.18	1,086.0	4.3	0.05
3WE9C9		989.5	-51.3	-0.61	1,048.5	-33.2	-0.40
4C42CZ		1,057.5	16.7	0.20	1,104.0	22.3	0.27
4VFNX8		984.5	-56.3	-0.67	1,071.5	-10.2	-0.12
6DWVQV		912.5	-128.3	-1.53	1,006.5	-75.2	-0.90
6WTEN4		1,107.4	66.5	0.79	1,149.4	67.8	0.81
7GABFD		1,036.3	-4.6	-0.05	1,047.3	-34.4	-0.41
7RP2F4		994.0	-46.8	-0.56	1,020.5	-61.2	-0.73
7UVQHD		1,090.0	49.2	0.59	1,055.0	-26.7	-0.32
843KD7	*	1,087.9	47.0	0.56	1,235.1	153.4	1.83
8YQMYR		950.0	-90.8	-1.08	1,020.0	-61.7	-0.73
8ZE9DZ	X	1,070.5	29.7	0.35	1,301.0	219.3	2.61
9PAP8P		1,166.5	125.7	1.50	1,208.0	126.3	1.51
9YHZYP		1,148.0	107.2	1.28	1,174.0	92.3	1.10
A4ANVM		1,041.0	0.2	0.00	1,171.5	89.8	1.07
AAJZVT		1,170.5	129.7	1.55	1,248.0	166.3	1.98
AJ72C4		1,015.4	-25.5	-0.30	1,048.9	-32.8	-0.39
B46QZG	*	1,136.2	95.3	1.14	1,051.4	-30.3	-0.36
B7C2X7		1,028.0	-12.8	-0.15	1,073.0	-8.7	-0.10
BNDTXL		1,045.7	4.9	0.06	1,026.9	-54.8	-0.65
BPA3CX		1,125.0	84.2	1.00	1,150.0	68.3	0.81
BW7ZYZ		972.5	-68.3	-0.82	950.0	-131.7	-1.57
DJARUU		1,015.2	-25.6	-0.31	1,078.8	-2.9	-0.03
DP3WNY		1,046.5	5.7	0.07	1,075.0	-6.7	-0.08
EVLEJL		1,023.3	-17.6	-0.21	1,026.9	-54.8	-0.65
EXRZ7L		1,082.0	41.2	0.49	1,138.5	56.8	0.68
FCZDY4	X	754.2	-286.6	-3.42	863.0	-218.7	-2.61
FKGVCB		914.5	-126.4	-1.51	1,032.0	-49.7	-0.59
GCHQWE	*	833.5	-207.3	-2.47	851.0	-230.7	-2.75
GUGNJK		1,043.6	2.7	0.03	1,083.2	1.6	0.02
H6E2ZT		951.9	-89.0	-1.06	985.3	-96.4	-1.15



Rubber Interlaboratory Testing Program

Report #191

Analysis 607

1st Qtr 2017

Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample A71-A72			Sample A73-A74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
HH6TLW		953.5	-87.3	-1.04	1,064.0	-17.7	-0.21
HRQ22D		978.3	-62.6	-0.75	1,033.4	-48.3	-0.58
J34LXE	X	883.7	-157.1	-1.87	1,098.3	16.6	0.20
JAQ8CT		1,003.0	-37.8	-0.45	1,058.0	-23.7	-0.28
JP2VGG		1,023.0	-17.8	-0.21	1,004.0	-77.7	-0.93
JW28LQ		1,037.1	-3.7	-0.04	1,072.9	-8.8	-0.10
K7JC7V		966.0	-74.8	-0.89	1,007.5	-74.2	-0.88
K9BC37		955.5	-85.3	-1.02	1,039.5	-42.2	-0.50
KPD8FX		943.5	-97.3	-1.16	1,007.5	-74.2	-0.88
KQ8TAN	X	891.0	-149.8	-1.79	1,097.0	15.3	0.18
KQU2JT		1,017.5	-23.3	-0.28	1,067.2	-14.5	-0.17
KWY3JM		1,010.5	-30.3	-0.36	1,080.5	-1.2	-0.01
KYLG9W		926.6	-114.2	-1.36	1,046.4	-35.3	-0.42
L4D74U		1,112.3	71.5	0.85	1,156.1	74.4	0.89
L8TKPF		1,019.0	-21.8	-0.26	1,043.0	-38.7	-0.46
LAY26X		1,077.1	36.2	0.43	1,146.8	65.1	0.78
LHD8JG		1,078.0	37.2	0.44	1,156.0	74.3	0.89
LLTJDC		1,048.5	7.7	0.09	1,066.5	-15.2	-0.18
LNXC8B		1,122.0	81.2	0.97	1,124.0	42.3	0.50
MJYBPT		1,006.0	-34.8	-0.42	1,015.0	-66.7	-0.79
MNGB7U	*	1,266.1	225.3	2.69	1,298.4	216.8	2.58
NFGB9D		1,028.8	-12.0	-0.14	1,100.4	18.7	0.22
NV8DPG		1,032.5	-8.3	-0.10	1,038.0	-43.7	-0.52
PA3YLB		940.0	-100.8	-1.20	955.0	-126.7	-1.51
PH2EGB		1,036.3	-4.5	-0.05	1,095.0	13.4	0.16
PMA3UC		1,163.4	122.6	1.46	1,177.6	95.9	1.14
PV3BDH		971.0	-69.8	-0.83	1,055.0	-26.7	-0.32
Q4YBPP		1,095.0	54.2	0.65	1,089.2	7.6	0.09
Q4Z6BF		1,025.5	-15.3	-0.18	1,034.5	-47.2	-0.56
QCN3T9		1,152.5	111.7	1.33	1,175.0	93.3	1.11
RDWV6M		989.5	-51.3	-0.61	985.5	-96.2	-1.15
RUK7RP		961.5	-79.3	-0.95	1,019.0	-62.7	-0.75
TFG26A		1,170.0	129.2	1.54	1,128.5	46.8	0.56
U4L887	X	1,070.0	29.2	0.35	1,340.0	258.3	3.08
UEKTQX		1,249.0	208.2	2.48	1,253.9	172.2	2.05
UPLAJA	*	1,156.5	115.7	1.38	1,078.0	-3.7	-0.04
UQUJAL		1,051.5	10.7	0.13	1,074.5	-7.2	-0.09
V3838M		1,079.3	38.5	0.46	1,065.0	-16.7	-0.20



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

Report #191
1st Qtr 2017

WebCode	Data Flag	Sample A71-A72			Sample A73-A74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
VNMKEJ		1,072.6	31.7	0.38	1,142.2	60.5	0.72
VURAA6		959.0	-81.8	-0.98	1,024.5	-57.2	-0.68
VZGYEF		1,103.5	62.7	0.75	1,142.0	60.3	0.72
W8W3YM		986.3	-54.6	-0.65	1,009.7	-72.0	-0.86
WBVDW9		1,020.0	-20.8	-0.25	1,090.0	8.3	0.10
WDG8P3		1,198.0	157.2	1.88	1,244.5	162.8	1.94
WDMCB7		1,070.5	29.7	0.35	1,139.5	57.8	0.69
WPV262		1,166.5	125.7	1.50	1,208.0	126.3	1.51
WTV73F	X	1,372.6	331.8	3.96	1,475.3	393.7	4.69
XBQ4VV	*	1,196.5	155.7	1.86	1,316.8	235.1	2.80
XKWZLK		1,098.0	57.2	0.68	1,120.0	38.3	0.46
XN2TFH		1,019.6	-21.2	-0.25	1,068.9	-12.7	-0.15
XPTUDU		1,053.2	12.3	0.15	1,085.7	4.0	0.05
YDW2N4		956.5	-84.3	-1.01	1,053.0	-28.7	-0.34
YRFNX2		981.0	-59.8	-0.71	1,101.0	19.3	0.23
Z6XV98		1,100.0	59.2	0.71	1,172.5	90.8	1.08
ZQXWKB		960.9	-80.0	-0.95	981.9	-99.8	-1.19
ZXVNQJ		1,077.5	36.7	0.44	1,131.4	49.7	0.59

		Summary Statistics	
Grand Means		1,040.84 psi	1,081.66 psi
Stnd Dev Btwn Labs		83.80 psi	83.91 psi
Statistics based on 87 of 93 reporting participants			

		Summary Statistics in SI Units	
Grand Means		7.1763 MPa	7.46 MPa
Stnd Dev Btwn Labs		0.5778 MPa	0.58 MPa
Statistics based on 87 of 93 reporting participants			

Samples A71-A72: Polyisoprene compound, batch #1 & A73-A74: Polyisoprene compound, batch #2



Comments on Assigned Data Flags for Test #607

8ZE9DZ (X) - Inconsistent in testing between sample groups.

FCZDY4 (X) - Inconsistent in testing between sample groups. Data for sample group A71-A72 are low.

J34LXE (X) - Inconsistent in testing between sample groups.

KQ8TAN (X) - Inconsistent in testing between sample groups.

U4L887 (X) - Inconsistent in testing between sample groups. Data for sample group A73-A74 are high.

WTV73F (X) - Data for all samples are high. Possible Systematic Error.

UEKTQX - Data appear to be report as kg/sq cm, and not MPa, as indicated on datasheet. Corrected by CTS.



Rubber Interlaboratory Testing Program

Report #191

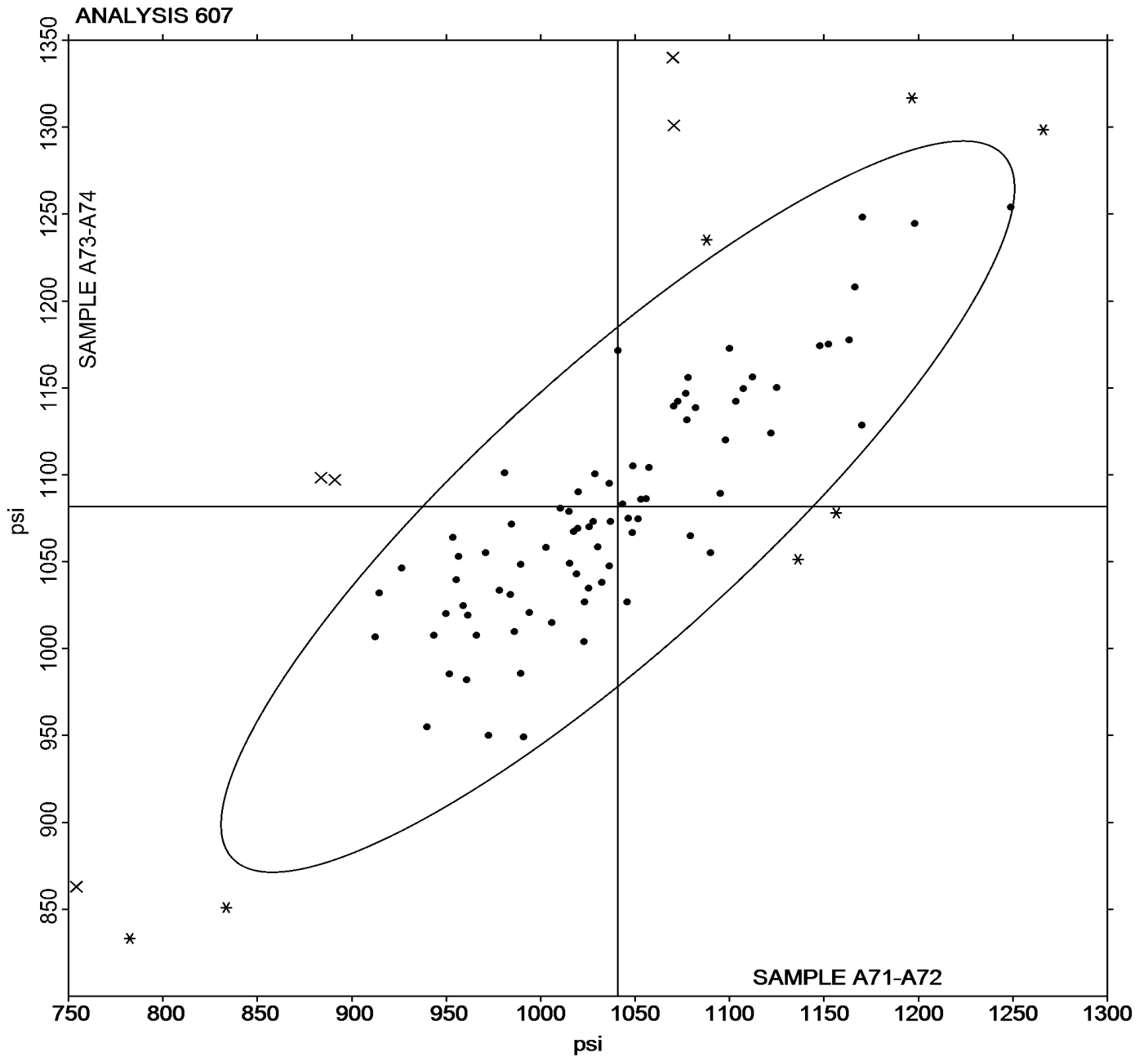
Analysis 607

1st Qtr 2017

Stress at 300% Elongation (psi)

Grand Mean Sample **A71-A72** = 1,040.84 psi

Grand Mean Sample **A73-A74** = 1,081.66 psi





Rubber Interlaboratory Testing Program

Report #191

Analysis 608

1st Qtr 2017

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample A71-A72			Sample A73-A74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
29U4R8		221.0	-2.1	-0.15	231.0	-0.2	-0.01
2A7GUJ		221.6	-1.4	-0.10	230.8	-0.4	-0.03
2LEJV8		220.3	-2.8	-0.20	226.7	-4.5	-0.32
2QVNT3		212.0	-11.1	-0.78	209.0	-22.2	-1.59
337GW3		225.8	2.7	0.19	235.0	3.8	0.27
3GZAYV		236.4	13.3	0.94	237.1	6.0	0.43
3HWJD7		227.5	4.4	0.31	231.0	-0.2	-0.01
3WE9C9		236.0	12.9	0.91	246.5	15.3	1.10
4C42CZ		217.0	-6.1	-0.43	228.5	-2.7	-0.19
4VFNX8		216.0	-7.1	-0.50	234.0	2.8	0.20
6DWVQV		199.5	-23.6	-1.65	214.0	-17.2	-1.23
6WTEN4		235.7	12.6	0.88	245.1	13.9	1.00
7GABFD		233.0	9.9	0.69	223.5	-7.7	-0.55
7RP2F4		212.5	-10.6	-0.74	223.5	-7.7	-0.55
7UVQHD		227.0	3.9	0.28	225.5	-5.7	-0.41
843KD7		219.7	-3.3	-0.23	247.0	15.8	1.14
8YQMYR		205.0	-18.1	-1.27	221.0	-10.2	-0.73
8ZE9DZ	X	240.0	16.9	1.19	291.5	60.3	4.33
9PAP8P		213.5	-9.6	-0.67	224.5	-6.7	-0.48
9YHZYP		237.5	14.4	1.01	231.0	-0.2	-0.01
A4ANVM	*	246.5	23.4	1.64	269.0	37.8	2.71
AAJZVT		224.5	1.4	0.10	223.5	-7.7	-0.55
AJ72C4		226.1	3.0	0.21	231.8	0.6	0.05
B46QZG	X	247.7	24.6	1.73	224.8	-6.3	-0.45
B7C2X7		226.0	2.9	0.21	236.0	4.8	0.35
BNDTXL		229.9	6.8	0.48	224.8	-6.4	-0.46
BPA3CX		232.5	9.4	0.66	242.0	10.8	0.78
BW7ZYZ		250.0	26.9	1.89	242.5	11.3	0.81
DJARUU		225.0	1.9	0.13	233.0	1.8	0.13
DP3WNY		206.0	-17.1	-1.20	223.0	-8.2	-0.59
EVLEJL		204.5	-18.6	-1.30	203.8	-27.4	-1.96
EXRZ7L		227.0	3.9	0.28	240.0	8.8	0.63
FCZDY4	*	181.3	-41.8	-2.93	195.8	-35.4	-2.54
FKGVCB		216.8	-6.2	-0.44	237.1	6.0	0.43
GCHQWE		207.0	-16.1	-1.13	210.5	-20.7	-1.48
GUGNJK		238.5	15.4	1.08	245.4	14.2	1.02
H6E2ZT		206.6	-16.4	-1.15	214.3	-16.9	-1.21
HH6TLW		208.5	-14.6	-1.02	228.5	-2.7	-0.19



Rubber Interlaboratory Testing Program

Report #191

Analysis 608

1st Qtr 2017

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample A71-A72			Sample A73-A74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
HRQ22D		198.7	-24.4	-1.71	216.1	-15.1	-1.08
J34LXE	X	167.2	-55.8	-3.92	202.8	-28.4	-2.04
JAQ8CT		218.0	-5.1	-0.36	229.5	-1.7	-0.12
JP2VGG		222.5	-0.6	-0.04	217.0	-14.2	-1.02
JW28LQ		223.9	0.8	0.06	233.0	1.8	0.13
K7JC7V		210.0	-13.1	-0.92	216.0	-15.2	-1.09
K9BC37		216.0	-7.1	-0.50	230.0	-1.2	-0.08
KPD8FX		206.0	-17.1	-1.20	215.5	-15.7	-1.12
KQ8TAN	X	186.0	-37.1	-2.60	230.5	-0.7	-0.05
KQU2JT		231.9	8.8	0.62	233.9	2.8	0.20
KWY3JM		210.0	-13.1	-0.92	226.5	-4.7	-0.33
KYLG9W	X	362.4	139.3	9.77	227.8	-3.4	-0.25
L4D74U		241.9	18.8	1.32	256.2	25.0	1.80
L8TKPF		219.0	-4.1	-0.29	225.5	-5.7	-0.41
LAY26X		232.5	9.4	0.66	245.8	14.6	1.05
LHD8JG		214.5	-8.6	-0.60	230.0	-1.2	-0.08
LLTJDC		222.0	-1.1	-0.08	228.5	-2.7	-0.19
LNXC8B		229.0	5.9	0.42	228.0	-3.2	-0.23
MJYBPT		231.0	7.9	0.56	228.0	-3.2	-0.23
MNGB7U	X	283.0	59.9	4.20	278.5	47.3	3.39
NFGB9D		210.2	-12.9	-0.90	228.7	-2.5	-0.18
NV8DPG		225.0	1.9	0.14	238.5	7.3	0.53
PA3YLB		212.5	-10.6	-0.74	220.0	-11.2	-0.80
PH2EGB		212.5	-10.6	-0.74	233.5	2.3	0.17
PMA3UC		234.9	11.8	0.83	241.6	10.4	0.74
PV3BDH		214.0	-9.1	-0.64	226.5	-4.7	-0.33
Q4YBPP		198.0	-25.1	-1.76	200.2	-31.0	-2.22
Q4Z6BF		235.0	11.9	0.84	238.0	6.8	0.49
QCN3T9		247.0	23.9	1.68	258.0	26.8	1.92
RDWV6M		214.5	-8.6	-0.60	215.5	-15.7	-1.12
RUK7RP		213.5	-9.6	-0.67	227.0	-4.2	-0.30
TBL86M		218.0	-5.1	-0.36	231.5	0.3	0.02
TFG26A		242.0	18.9	1.33	238.5	7.3	0.53
U4L887	X	227.0	3.9	0.28	288.5	57.3	4.11
UEKTQX	*	265.3	42.2	2.96	259.3	28.1	2.02
UPLAJA		236.5	13.4	0.94	226.5	-4.7	-0.33
UQUJAL		224.5	1.4	0.10	228.8	-2.4	-0.17



Rubber Interlaboratory Testing Program

Report #191

Analysis 608

1st Qtr 2017

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample A71-A72			Sample A73-A74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
V3838M		229.5	6.4	0.45	229.2	-2.0	-0.14
VNMKEJ	*	254.5	31.5	2.21	268.3	37.2	2.66
VURAA6		209.0	-14.1	-0.99	219.0	-12.2	-0.87
VZGYEF		241.5	18.4	1.29	248.5	17.3	1.24
W8W3YM		224.2	1.1	0.08	230.0	-1.2	-0.08
WBVDW9		225.0	1.9	0.14	235.0	3.8	0.27
WDG8P3	X	381.5	158.4	11.11	391.0	159.8	11.46
WDMCB7		233.5	10.4	0.73	241.0	9.8	0.70
WPV262		213.5	-9.6	-0.67	224.5	-6.7	-0.48
WTV73F	X	322.3	99.3	6.96	350.1	118.9	8.53
XKWZLK		239.0	15.9	1.12	242.5	11.3	0.81
XN2TFH		215.4	-7.7	-0.54	223.4	-7.8	-0.56
XPTUDU		246.7	23.6	1.66	257.9	26.7	1.91
YDW2N4		206.0	-17.1	-1.20	224.8	-6.4	-0.46
YRFNX2		226.5	3.4	0.24	242.0	10.8	0.78
Z6XV98		229.0	5.9	0.42	243.5	12.3	0.88
ZQXWKB		206.7	-16.4	-1.15	202.3	-28.8	-2.07
ZXVNQJ		234.4	11.3	0.80	249.2	18.1	1.30

Grand Means		Summary Statistics	
	223.07 psi		231.17 psi
Std Dev Btwn Labs	14.26 psi		13.95 psi
Statistics based on 84 of 93 reporting participants			

Grand Means		Summary Statistics in SI Units	
	1.5380 MPa		1.59 MPa
Std Dev Btwn Labs	0.0983 MPa		0.10 MPa
Statistics based on 84 of 93 reporting participants			

Samples A71-A72: Polyisoprene compound, batch #1 & A73-A74: Polyisoprene compound, batch #2



Comments on Assigned Data Flags for Test #608

8ZE9DZ (X) - Inconsistent in testing between sample groups. Data for sample group A73-A74 are high.

B46QZG (X) - Inconsistent in testing between sample groups.

J34LXE (X) - Inconsistent in testing between sample groups. Data for sample group A71-A72 are low.

KQ8TAN (X) - Inconsistent in testing between sample groups.

KYLG9W (X) - Extreme Data for sample group A71-A72.

MNGB7U (X) - Data for all samples are high. Possible Systematic Error.

U4L887 (X) - Inconsistent in testing between sample groups. Data for sample group A73-A74 are high.

WDG8P3 (X) - Extreme Data.

WTV73F (X) - Data for all samples are high. Possible Systematic Error.

UEKTQX - Data appear to be report as kg/sq cm, and not MPa, as indicated on datasheet. Corrected by CTS.



Rubber Interlaboratory Testing Program

Report #191

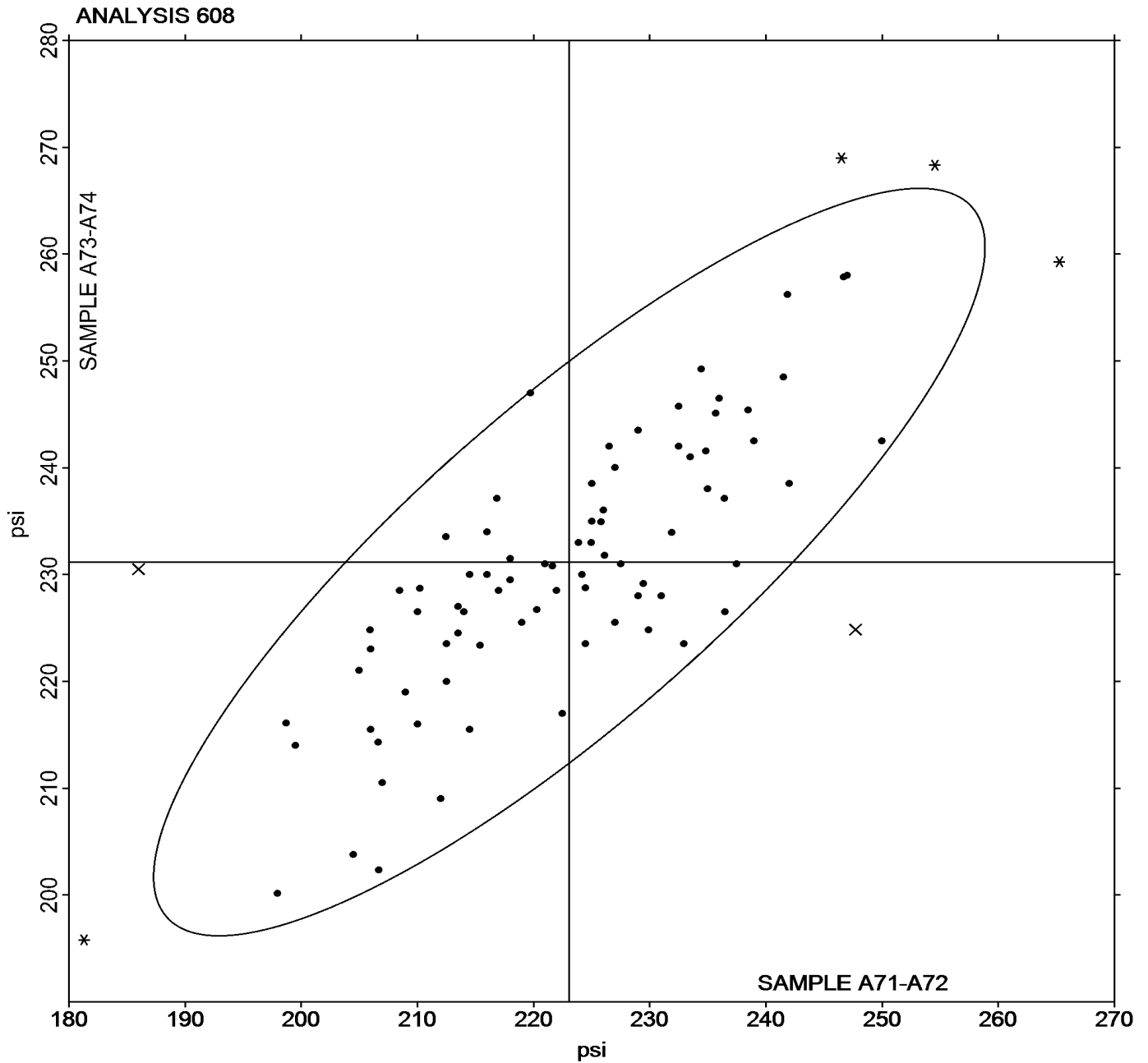
Analysis 608

1st Qtr 2017

Stress at 100% Elongation (psi)

Grand Mean Sample **A71-A72** = 223.07 psi

Grand Mean Sample **A73-A74** = 231.17 psi





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

Report #191
1st Qtr 2017

WebCode	Data Flag	Sample A71-A72			Sample A73-A74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
29U4R8		51.50	2.04	1.18	52.50	2.29	1.34	BT
2A7GUJ		48.65	-0.81	-0.47	49.90	-0.31	-0.18	BT
2LEJV8		51.15	1.69	0.98	50.90	0.69	0.40	BT
2QVNT3		48.35	-1.11	-0.64	48.70	-1.51	-0.88	BT
337GW3		49.50	0.04	0.02	50.85	0.64	0.37	BT
3GZAYV		53.75	4.29	2.48	54.10	3.89	2.27	HH
3HWJD7		48.00	-1.46	-0.85	48.50	-1.71	-1.00	BT
3WE9C9		50.40	0.94	0.54	50.05	-0.16	-0.09	HH
4VFNX8	*	46.00	-3.46	-2.00	48.50	-1.71	-1.00	BT
6DWVQV		49.00	-0.46	-0.27	49.00	-1.21	-0.71	BT
6WTEN4		49.05	-0.41	-0.24	50.25	0.04	0.02	BT
7FGHKV		51.50	2.04	1.18	51.50	1.29	0.75	HH
7GABFD	*	53.00	3.54	2.05	54.50	4.29	2.51	HH
7RP2F4		49.00	-0.46	-0.27	49.50	-0.71	-0.41	HH
7UVQHD		48.50	-0.96	-0.56	48.00	-2.21	-1.29	BT
843KD7		48.50	-0.96	-0.56	51.40	1.19	0.70	XX
8AMP4K		48.50	-0.96	-0.56	50.00	-0.21	-0.12	BT
8YQMYR		51.50	2.04	1.18	51.50	1.29	0.75	BT
8ZE9DZ		50.50	1.04	0.60	53.00	2.79	1.63	BT
9CQV3R		49.70	0.24	0.14	51.65	1.44	0.84	BT
9PAP8P		51.20	1.74	1.01	52.50	2.29	1.34	HH
9YHZYP		49.50	0.04	0.02	51.00	0.79	0.46	BT
A4ANVM		49.30	-0.16	-0.09	50.40	0.19	0.11	XX
AJ72C4		50.00	0.54	0.31	51.50	1.29	0.75	BT
B46QZG		52.00	2.54	1.47	52.00	1.79	1.05	XX
B7C2X7		51.35	1.89	1.09	51.80	1.59	0.93	BT
BELD9H	*	54.00	4.54	2.63	54.00	3.79	2.21	HH
BNDTXL		49.00	-0.46	-0.27	48.50	-1.71	-1.00	BT
BPA3CX	X	45.25	-4.21	-2.44	49.00	-1.21	-0.71	HH
BW7ZYZ		49.00	-0.46	-0.27	49.00	-1.21	-0.71	HH
DEYNZL		46.50	-2.96	-1.71	46.50	-3.71	-2.16	BT
DJARUU		51.00	1.54	0.89	52.00	1.79	1.05	HH
DP3WNY		48.50	-0.96	-0.56	49.50	-0.71	-0.41	HH
EG4R83		51.00	1.54	0.89	50.00	-0.21	-0.12	BT
EVLEJL		50.50	1.04	0.60	50.50	0.29	0.17	HH
EXRZ7L		47.50	-1.96	-1.13	49.50	-0.71	-0.41	BT
FCZDY4		51.00	1.54	0.89	51.00	0.79	0.46	XX



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

Report #191
1st Qtr 2017

WebCode	Data Flag	Sample A71-A72			Sample A73-A74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
FKGVCB		48.00	-1.46	-0.85	49.50	-0.71	-0.41	HH
GCHQWE		50.50	1.04	0.60	50.50	0.29	0.17	BT
GUGNJK		49.00	-0.46	-0.27	50.25	0.04	0.02	HH
H6E2ZT		47.95	-1.51	-0.87	48.70	-1.51	-0.88	BT
HH6TLW		49.00	-0.46	-0.27	51.00	0.79	0.46	HH
HRE4DW		46.95	-2.51	-1.45	47.85	-2.36	-1.38	HH
HRQ22D		49.75	0.29	0.17	50.25	0.04	0.02	BT
J34LXE	*	54.50	5.04	2.92	55.25	5.04	2.94	XX
JAQ8CT		48.50	-0.96	-0.56	49.50	-0.71	-0.41	BT
JP2VGG		49.95	0.49	0.28	49.30	-0.91	-0.53	BT
JW28LQ		48.75	-0.71	-0.41	50.85	0.64	0.37	BT
K7JC7V		48.85	-0.61	-0.35	49.95	-0.26	-0.15	BT
K9BC37		48.50	-0.96	-0.56	49.95	-0.26	-0.15	XX
KPD8FX		46.70	-2.76	-1.60	47.85	-2.36	-1.38	BT
KQ8TAN		47.50	-1.96	-1.13	49.50	-0.71	-0.41	HH
KQU2JT		49.35	-0.11	-0.06	49.65	-0.56	-0.33	BT
KWY3JM		50.25	0.79	0.46	51.75	1.54	0.90	HH
KYLG9W		50.00	0.54	0.31	51.50	1.29	0.75	BT
L2PWUT	*	46.50	-2.96	-1.71	45.50	-4.71	-2.75	BT
L4D74U		49.40	-0.06	-0.04	49.35	-0.86	-0.50	BT
L8TKPF		49.00	-0.46	-0.27	50.00	-0.21	-0.12	BT
LAY26X		50.85	1.39	0.80	51.70	1.49	0.87	BT
LHD8JG		48.50	-0.96	-0.56	49.50	-0.71	-0.41	BT
LLTJDC		49.45	-0.01	-0.01	49.35	-0.86	-0.50	BT
LNXC8B		50.00	0.54	0.31	50.00	-0.21	-0.12	HH
MAVV6F	X	46.00	-3.46	-2.00	49.50	-0.71	-0.41	HH
MJYBPT		49.00	-0.46	-0.27	50.00	-0.21	-0.12	BT
MNGB7U		50.00	0.54	0.31	49.00	-1.21	-0.71	BT
MNVWHC	*	53.75	4.29	2.48	53.50	3.29	1.92	HH
NFGB9D		51.00	1.54	0.89	53.00	2.79	1.63	HH
NV8DPG		50.50	1.04	0.60	51.00	0.79	0.46	HH
PA3YLB		47.50	-1.96	-1.13	48.50	-1.71	-1.00	XX
PH2EGB		50.00	0.54	0.31	51.00	0.79	0.46	BT
PMA3UC		48.50	-0.96	-0.56	49.50	-0.71	-0.41	BT
PV3BDH		50.20	0.74	0.43	50.80	0.59	0.35	BT
Q4YBPP		46.80	-2.66	-1.54	46.95	-3.26	-1.90	BT
Q4Z6BF		50.45	0.99	0.57	51.60	1.39	0.81	BT
QCN3T9		47.65	-1.81	-1.05	49.30	-0.91	-0.53	BT



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

Report #191
1st Qtr 2017

WebCode	Data Flag	Sample A71-A72			Sample A73-A74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
RDWV6M		49.25	-0.21	-0.12	49.50	-0.71	-0.41	BT
RUK7RP		49.60	0.14	0.08	50.30	0.09	0.05	BT
TBL86M		49.50	0.04	0.02	51.00	0.79	0.46	XX
TFG26A		52.00	2.54	1.47	52.00	1.79	1.05	HH
U4L887		49.50	0.04	0.02	49.50	-0.71	-0.41	HH
UEKTQX		49.00	-0.46	-0.27	49.00	-1.21	-0.71	HH
UPLAJA		48.50	-0.96	-0.56	48.75	-1.46	-0.85	BT
UQUJAL		51.00	1.54	0.89	51.50	1.29	0.75	HH
UYPLEH		46.00	-3.46	-2.00	48.00	-2.21	-1.29	BT
V3838M	*	45.00	-4.46	-2.58	46.50	-3.71	-2.16	BT
VG7U77		48.00	-1.46	-0.85	47.50	-2.71	-1.58	BT
VNMKEJ		49.35	-0.11	-0.06	51.50	1.29	0.75	BT
VURAA6		49.00	-0.46	-0.27	50.50	0.29	0.17	BT
VZGYEF		49.50	0.04	0.02	50.50	0.29	0.17	HH
WBUJBG		49.00	-0.46	-0.27	48.50	-1.71	-1.00	BT
WBVDW9		49.00	-0.46	-0.27	48.00	-2.21	-1.29	BT
WDG8P3		50.00	0.54	0.31	51.00	0.79	0.46	BT
WDMCB7		48.00	-1.46	-0.85	49.00	-1.21	-0.71	BT
WPV262		48.60	-0.86	-0.50	49.60	-0.61	-0.35	BT
WTV73F		48.50	-0.96	-0.56	49.50	-0.71	-0.41	HH
XBQ4VV	*	53.00	3.54	2.05	51.50	1.29	0.75	XX
XKWZLK		51.50	2.04	1.18	52.00	1.79	1.05	BT
XN2TFH		50.15	0.69	0.40	50.85	0.64	0.37	BT
XPTUDU		47.25	-2.21	-1.28	48.25	-1.96	-1.14	BT
YDW2N4		49.50	0.04	0.02	51.50	1.29	0.75	BT
YRFNX2		48.50	-0.96	-0.56	50.00	-0.21	-0.12	HH
Z6XV98		49.05	-0.41	-0.24	50.50	0.29	0.17	BT
ZQXWKB		48.25	-1.21	-0.70	48.05	-2.16	-1.26	BT
ZXVNQJ		49.10	-0.36	-0.21	50.25	0.04	0.02	BT

		Summary Statistics	
Grand Means	49.461 Type A	50.208 Type A	
Std Dev Btw Labs	1.728 Type A	1.713 Type A	
Statistics based on 102 of 104 reporting participants			

Samples A71-A72: Polyisoprene compound, batch #1 & A73-A74: Polyisoprene compound, batch #2



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

Report #191
1st Qtr 2017

Comments on Assigned Data Flags for Test #620

- BPA3CX (X) - Inconsistent in testing between sample groups.
- MAVV6F (X) - Inconsistent in testing between sample groups.

Key to Instrument Codes Reported by Participants

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

Results by Reading Time (as reported by laboratory)

Reading Time	Sample A71-A72 <i>Polyisoprene compound, batch #1</i>			Sample A73-A74 <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	48.50	0.00	-0.96	49.95	0.00	-0.26	1	1
Readings taken within 0 - 5 seconds	49.41	1.26	-0.05	50.24	1.30	0.03	70	73
Readings taken at 5 seconds	49.03	1.28	-0.43	49.58	1.66	-0.62	9	10
Readings taken after 5+ seconds	48.38	1.29	-1.09	49.45	1.30	-0.76	6	9
Maximum hardness indicator used	50.11	1.99	0.64	50.29	2.15	0.09	8	11

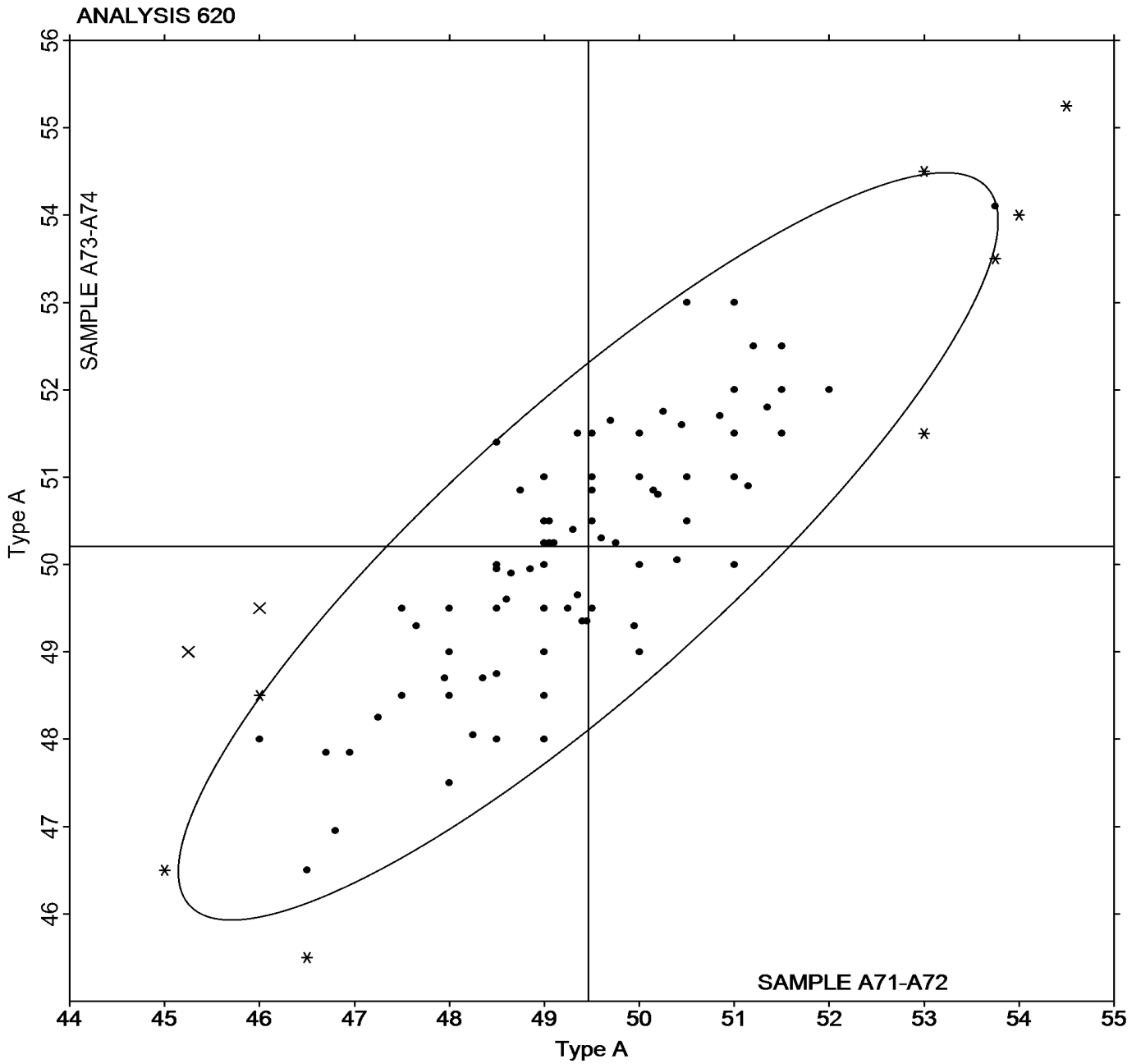


Rubber Interlaboratory Testing Program
Analysis 620
Hardness (Shore A/Type A)

Report #191
1st Qtr 2017

Grand Mean Sample **A71-A72** = 49.461 Type A

Grand Mean Sample **A73-A74** = 50.208 Type A





Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #191
1st Qtr 2017

WebCode	Data Flag	Sample A71-A72			Sample A73-A74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2LEJV8	X	1.150	0.010	2.91	1.140	-0.001	-0.19
2QVNT3		1.141	0.001	0.20	1.142	0.001	0.23
337GW3		1.140	-0.001	-0.24	1.140	-0.001	-0.28
3GZAYV		1.142	0.002	0.50	1.143	0.002	0.51
3WE9C9		1.143	0.002	0.70	1.145	0.004	1.11
4VFNX8		1.142	0.002	0.55	1.144	0.003	0.93
6DWVQV		1.141	0.000	0.05	1.142	0.001	0.35
7FGHKV		1.143	0.002	0.68	1.143	0.002	0.51
7GABFD	X	1.164	0.024	7.18	1.154	0.013	3.58
7RP2F4		1.140	0.000	-0.10	1.143	0.002	0.51
7UVQHD		1.142	0.002	0.50	1.142	0.001	0.37
843KD7	*	1.149	0.008	2.55	1.150	0.009	2.56
8ZE9DZ		1.141	0.000	0.06	1.144	0.003	0.87
9CQV3R		1.138	-0.002	-0.70	1.139	-0.002	-0.61
9PAP8P		1.136	-0.005	-1.46	1.135	-0.006	-1.59
9YHZYP		1.141	0.000	0.12	1.144	0.004	1.05
AJ72C4		1.135	-0.006	-1.76	1.135	-0.005	-1.49
B46QZG		1.143	0.003	0.80	1.143	0.003	0.72
B7C2X7		1.145	0.004	1.32	1.146	0.006	1.61
BELD9H	X	1.453	0.312	94.13	1.450	0.309	86.24
BNDTXL		1.142	0.001	0.45	1.142	0.002	0.42
BPA3CX		1.144	0.003	0.95	1.142	0.001	0.37
DJARUU	X	1.133	-0.007	-2.12	1.138	-0.002	-0.62
EG4R83		1.146	0.005	1.56	1.147	0.006	1.62
GCHQWE		1.141	0.001	0.29	1.142	0.001	0.34
H6E2ZT	*	1.132	-0.008	-2.53	1.133	-0.008	-2.15
HH6TLW		1.138	-0.002	-0.70	1.140	-0.001	-0.33
HRQ22D		1.141	0.000	0.05	1.141	0.000	-0.05
HYL46A		1.143	0.002	0.65	1.144	0.003	0.79
J34LXE		1.134	-0.006	-1.84	1.133	-0.008	-2.29
JAQ8CT		1.145	0.004	1.26	1.142	0.001	0.37
JP2VGG		1.142	0.002	0.55	1.143	0.003	0.74
JW28LQ		1.144	0.004	1.13	1.145	0.004	1.16
K9BC37		1.141	0.000	0.11	1.141	0.000	0.00
KPD8FX		1.138	-0.002	-0.61	1.140	-0.001	-0.23
KQ8TAN		1.144	0.004	1.10	1.145	0.004	1.07
KQU2JT		1.138	-0.003	-0.86	1.139	-0.002	-0.61



Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #191
1st Qtr 2017

WebCode	Data Flag	Sample A71-A72			Sample A73-A74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
KYLG9W		1.142	0.002	0.56	1.142	0.001	0.34
L8TKPF		1.142	0.002	0.64	1.142	0.001	0.35
LAY26X		1.142	0.002	0.50	1.140	-0.001	-0.33
LHD8JG		1.136	-0.005	-1.46	1.135	-0.006	-1.59
LLTJDC		1.138	-0.002	-0.70	1.139	-0.002	-0.58
LNXC8B		1.138	-0.003	-0.84	1.137	-0.003	-0.95
MJYBPT		1.134	-0.006	-1.91	1.135	-0.006	-1.73
MNGB7U		1.141	0.001	0.20	1.139	-0.002	-0.47
MNVWHC		1.135	-0.005	-1.53	1.135	-0.005	-1.52
NV8DPG		1.141	0.001	0.25	1.140	-0.001	-0.21
PA3YLB		1.142	0.002	0.50	1.142	0.001	0.23
PH2EGB		1.138	-0.003	-0.86	1.141	0.000	0.09
PV3BDH		1.140	0.000	-0.07	1.141	0.000	-0.01
QCN3T9	X	1.139	-0.001	-0.40	1.134	-0.007	-1.87
TBL86M		1.144	0.004	1.10	1.145	0.004	1.20
TFG26A		1.143	0.003	0.80	1.141	0.000	-0.05
UPLAJA		1.137	-0.004	-1.16	1.139	-0.002	-0.61
UQUJAL		1.143	0.003	0.86	1.143	0.003	0.73
V3838M		1.141	0.000	0.05	1.139	-0.002	-0.61
VG7U77		1.140	-0.001	-0.25	1.137	-0.004	-1.03
VNMKEJ		1.140	0.000	-0.06	1.141	0.000	0.09
VURAA6		1.141	0.001	0.25	1.142	0.001	0.41
VZGYEF		1.136	-0.004	-1.25	1.138	-0.003	-0.85
WDG8P3		1.138	-0.003	-0.86	1.137	-0.004	-1.17
WPV262	X	1.131	-0.009	-2.82	1.136	-0.005	-1.45
WTV73F		1.135	-0.006	-1.76	1.133	-0.008	-2.26
XKWZLK		1.145	0.005	1.51	1.145	0.004	1.20
XPTUDU		1.142	0.002	0.62	1.143	0.003	0.72
Z6XV98		1.140	0.000	-0.10	1.142	0.001	0.23
ZXVNQJ		1.139	-0.001	-0.39	1.140	-0.001	-0.19

Summary Statistics			
Grand Means	1.1403	g/cm ³	(Mg/m ³)
	1.1407	g/cm ³	(Mg/m ³)
Std Dev Btwn Labs	0.0033	g/cm ³	(Mg/m ³)
	0.0036	g/cm ³	(Mg/m ³)
Statistics based on 61 of 67 reporting participants			



Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #191
1st Qtr 2017

Samples A71-A72: Polyisoprene compound, batch #1 & A73-A74: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #621

- 2LEJV8 (X) - Inconsistent in testing between sample groups. Data for sample group A71-A72 are high.
- 7GABFD (X) - Data for all samples are high. Possible Systematic Error.
- BELD9H (X) - Extreme Data.
- DJARUU (X) - Inconsistent in testing between sample groups.
- QCN3T9 (X) - Inconsistent in testing between sample groups. Inconsistent within the determinations of both sample groups.
- WPV262 (X) - Inconsistent in testing between sample groups. Data for sample group A71-A72 are low.

- B46QZG - Data not reported for Sample A74.

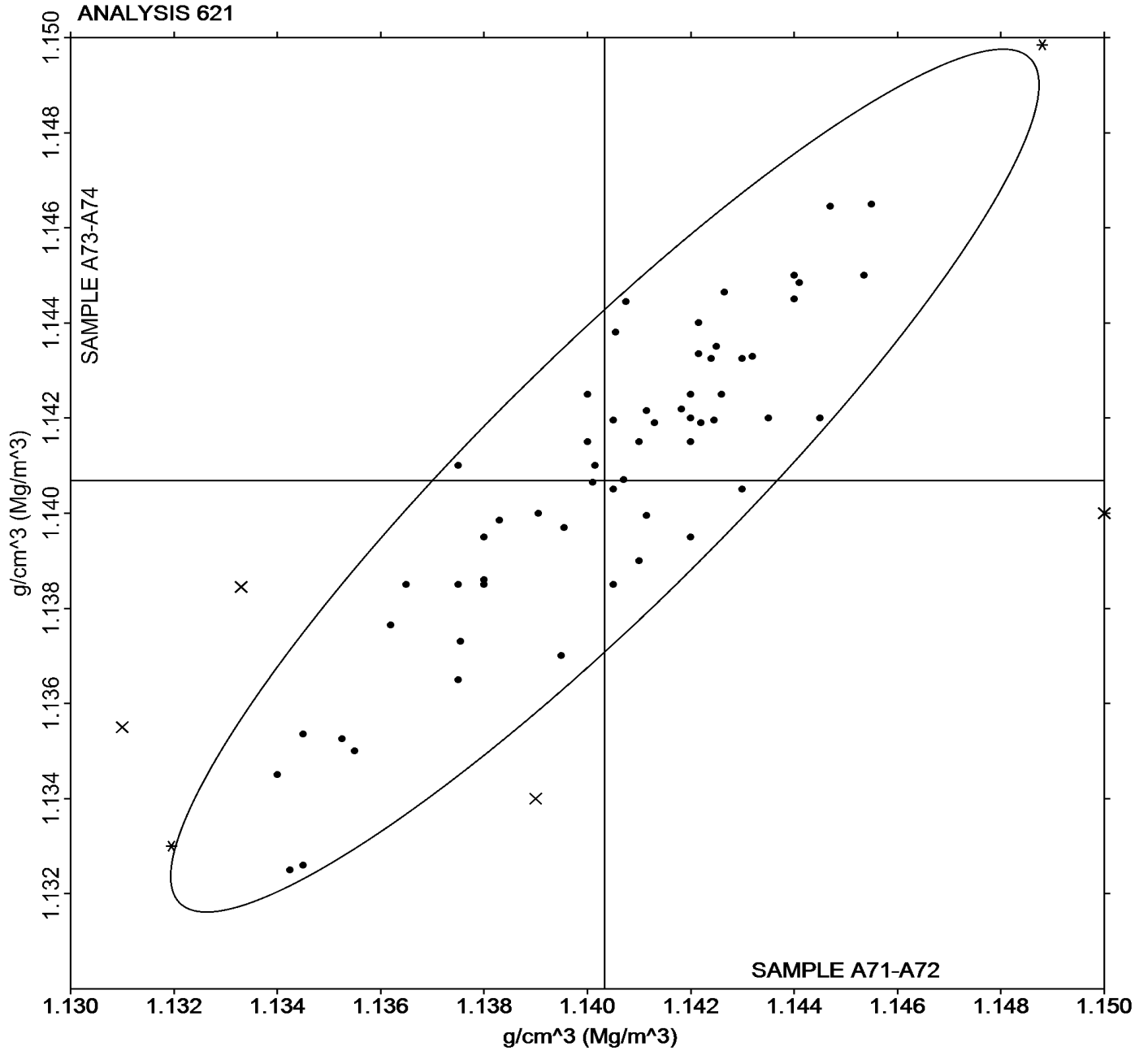


Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #191
1st Qtr 2017

Grand Mean Sample **A71-A72** = 1.1403 g/cm³
(Mg/m³)

Grand Mean Sample **A73-A74** = 1.1407 g/cm³
(Mg/m³)





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

Report #191
1st Qtr 2017

WebCode	Data Flag	Sample HA71-HA72			Sample HA73-HA74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2XEYYQ		52.50	-0.23	-0.07	67.00	-0.94	-0.31	BT
7H3CCP		46.00	-6.73	-2.00	61.00	-6.94	-2.28	BT
8AMP4K		51.80	-0.93	-0.28	66.50	-1.44	-0.47	BT
8X9VNL		54.90	2.17	0.64	69.20	1.26	0.41	HH
JNJ47B		51.50	-1.23	-0.36	69.50	1.56	0.51	HH
L3FYG9		58.00	5.27	1.56	72.00	4.06	1.33	HH
NH2628		52.40	-0.33	-0.10	67.90	-0.04	-0.01	BT
VQXCMZ		55.50	2.77	0.82	70.50	2.56	0.84	HH
XN2TFH		49.70	-3.03	-0.90	66.30	-1.64	-0.54	BT
YM4MTW		55.00	2.27	0.67	69.50	1.56	0.51	XX

Summary Statistics			
Grand Means	52.730	Type D	67.940
Std Dev Btw Labs	3.372	Type D	3.042
Statistics based on 10 of 10 reporting participants			

Samples HA71-HA72: Hardness Disc, batch #1 & HA73-HA74: Hardness Disc, batch #2

Key to Instrument Codes Reported by Participants

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

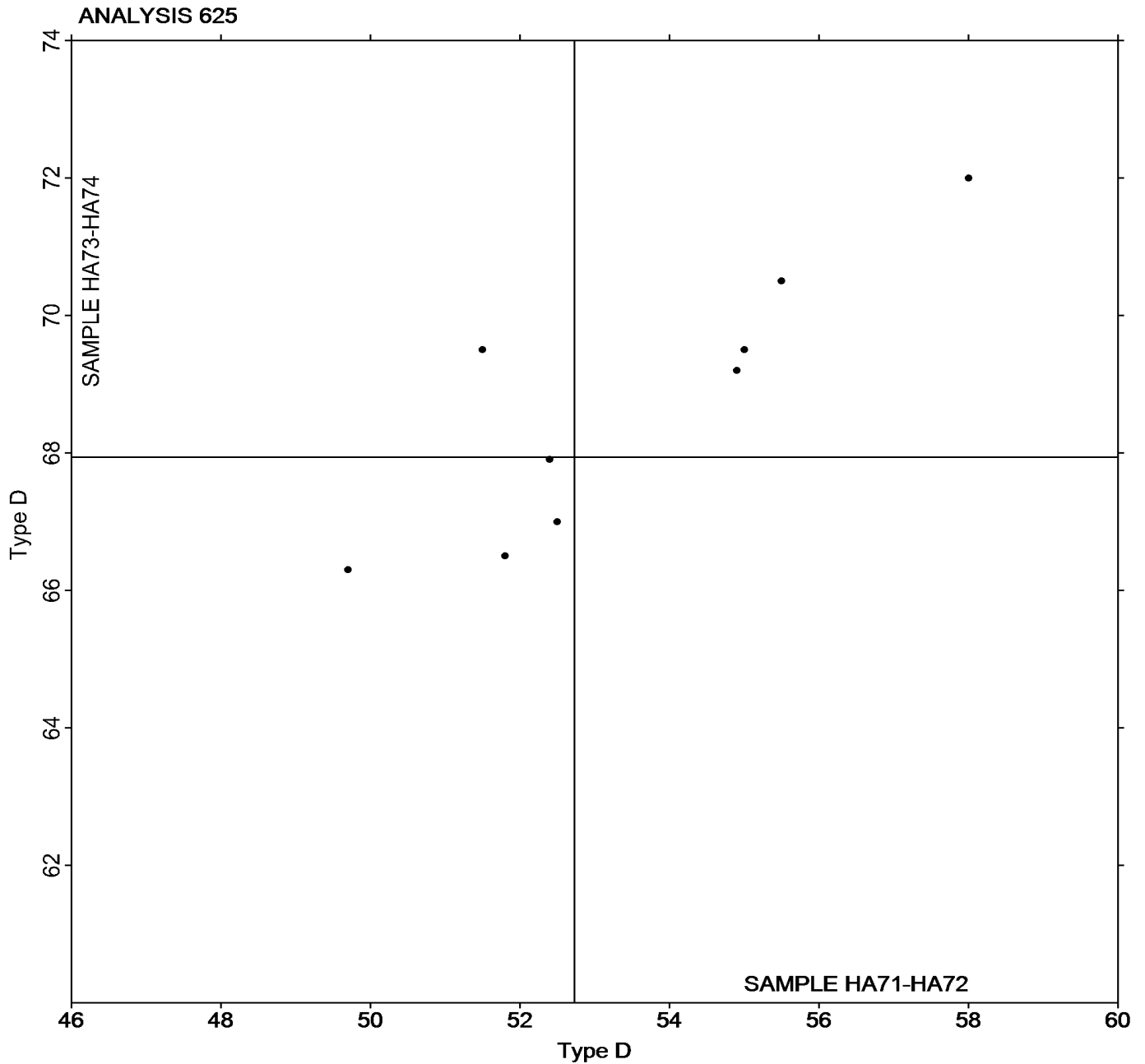


Rubber Interlaboratory Testing Program
Analysis 625
Hardness (Shore D/Type D)

Report #191
1st Qtr 2017

Grand Mean Sample HA71-HA72 = 52.730 Type D

Grand Mean Sample HA73-HA74 = 67.940 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 #191

Analysis 630

1st Qtr 2017

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

WebCode	Data Flag	Sample A71-A72			Sample J71-J72		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2LEJV8		3,240.0	88.8	0.67	3,266.6	105.7	0.56
2QVNT3	X	2,579.5	-571.7	-4.33	2,716.5	-444.4	-2.35
3WE9C9		3,075.5	-75.7	-0.57	2,800.5	-360.4	-1.91
6WTEN4		3,272.8	121.6	0.92	3,469.3	308.4	1.63
7GABFD		3,114.1	-37.1	-0.28	3,218.5	57.6	0.30
7RP2F4		2,965.0	-186.2	-1.41	2,748.0	-412.9	-2.19
8YQMYR		3,328.0	176.8	1.34	3,212.5	51.6	0.27
8ZE9DZ		3,087.0	-64.2	-0.49	3,162.0	1.1	0.01
9CQV3R		3,065.9	-85.3	-0.65	3,071.4	-89.5	-0.47
A4ANVM	*	2,952.5	-198.7	-1.50	3,255.5	94.6	0.50
AJ72C4	X	3,362.3	211.0	1.60	2,620.7	-540.2	-2.86
B46QZG		3,141.9	-9.4	-0.07	3,131.8	-29.0	-0.15
DJARUU		3,061.8	-89.4	-0.68	3,155.3	-5.6	-0.03
DP3WNY		3,111.5	-39.7	-0.30	3,053.0	-107.9	-0.57
FCZDY4		3,234.4	83.1	0.63	3,314.1	153.3	0.81
FKGVCB		2,921.1	-230.2	-1.74	2,787.6	-373.2	-1.98
HYL46A	M	No data reported for this sample			3,509.5	348.6	1.85
JAQ8CT		3,162.0	10.8	0.08	3,196.0	35.1	0.19
JW28LQ		3,236.0	84.8	0.64	3,372.2	211.3	1.12
K7JC7V		3,182.5	31.3	0.24	3,242.5	81.6	0.43
K9BC37		3,124.5	-26.7	-0.20	2,979.5	-181.4	-0.96
KPD8FX		3,109.0	-42.2	-0.32	2,959.0	-201.9	-1.07
KQ8TAN	*	2,758.0	-393.2	-2.98	2,885.0	-275.9	-1.46
LAY26X		3,229.2	77.9	0.59	3,369.1	208.2	1.10
LLTJDC		3,182.5	31.3	0.24	3,341.0	180.1	0.95
NFGB9D		3,154.3	3.1	0.02	3,097.8	-63.1	-0.33
PA3YLB		3,282.0	130.8	0.99	3,012.5	-148.4	-0.79
RUK7RP		3,273.5	122.3	0.93	3,083.0	-77.9	-0.41
V3838M		3,361.5	210.2	1.59	3,460.0	299.1	1.58
VG7U77		3,264.7	113.5	0.86	3,294.8	134.0	0.71
VZGYEF		3,109.9	-41.4	-0.31	3,175.7	14.8	0.08
W8W3YM		3,251.2	100.0	0.76	3,361.0	200.1	1.06
WDG8P3		3,295.0	143.8	1.09	3,286.0	125.1	0.66
WTV73F		3,094.6	-56.7	-0.43	3,024.7	-136.2	-0.72
XBQ4VV		3,327.6	176.4	1.34	3,316.1	155.2	0.82
XN2TFH		2,973.3	-177.9	-1.35	3,089.3	-71.6	-0.38
XPTUDU		3,086.3	-64.9	-0.49	3,019.4	-141.5	-0.75
ZXVNQJ		3,264.6	113.4	0.86	3,420.3	259.4	1.37



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

Report #191
1st Qtr 2017

		Summary Statistics	
Grand Means			
	3,151.25 psi		3,160.89 psi
Stnd Dev Btwn Labs			
	132.08 psi		188.91 psi
Statistics based on 35 of 38 reporting participants			

		Summary Statistics in SI Units	
Grand Means			
	21.727 MPa		21.79 MPa
Stnd Dev Btwn Labs			
	0.911 MPa		1.30 MPa
Statistics based on 35 of 38 reporting participants			

Samples A71-A72: Polyisoprene compound, batch #1 & J71-J72: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #630

2QVNT3 (X) - Data for sample group A71-A72 are low.

AJ72C4 (X) - Data for sample group J71-J72 are low.

HYL46A (M) - Participant did not submit data for sample group A71-A72.

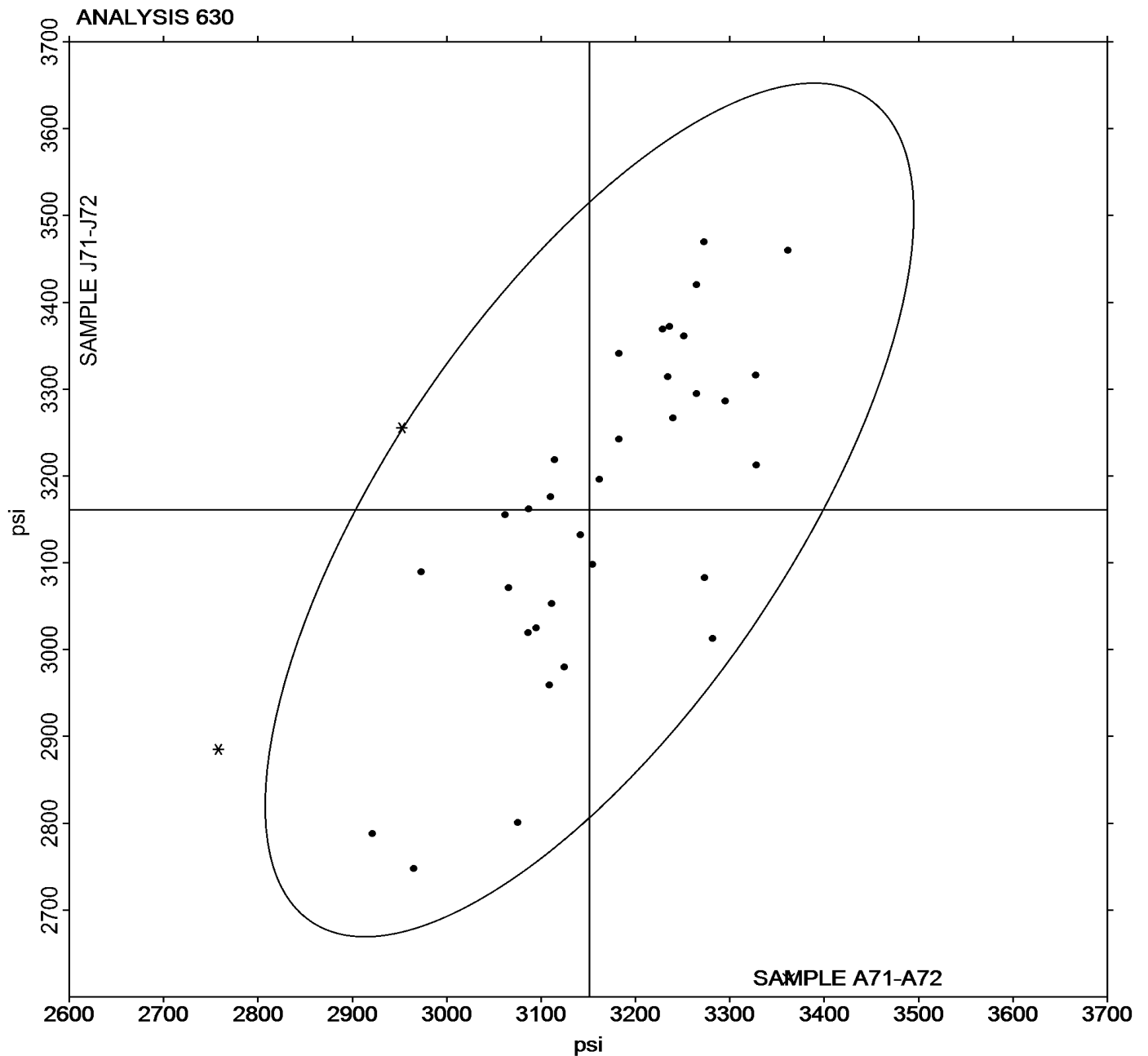


Rubber Interlaboratory Testing Program
Analysis 630
Tensile Strength: Precured vs. Lab-Cured Samples (psi)

Report #191
1st Qtr 2017

Grand Mean Sample **A71-A72** = 3,151.25 psi

Grand Mean Sample **J71-J72** = 3,160.89 psi





Rubber Interlaboratory Testing Program

Report #191

Analysis 631

1st Qtr 2017

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

WebCode	Data Flag	Sample A71-A72			Sample J71-J72		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2LEJV8		613.6	16.0	0.69	587.7	-1.9	-0.08
2QVNT3		549.0	-48.6	-2.09	532.0	-57.7	-2.33
3WE9C9		598.0	0.4	0.02	589.5	-0.2	-0.01
6WTEN4		565.0	-32.6	-1.40	573.0	-16.7	-0.67
7GABFD		595.4	-2.3	-0.10	577.5	-12.2	-0.49
7RP2F4		581.0	-16.6	-0.72	602.5	12.8	0.52
8YQMYR		615.5	17.9	0.77	593.5	3.8	0.16
8ZE9DZ		593.5	-4.1	-0.18	589.5	-0.2	-0.01
A4ANVM		583.5	-14.1	-0.61	589.0	-0.7	-0.03
AJ72C4		618.6	20.9	0.90	605.3	15.6	0.63
B46QZG		553.7	-43.9	-1.89	573.2	-16.5	-0.66
DJARUU		593.5	-4.1	-0.18	591.0	1.3	0.05
DP3WNY		587.0	-10.6	-0.46	579.0	-10.7	-0.43
FCZDY4	X	694.5	96.9	4.17	678.5	88.8	3.59
FKGVCB		631.5	33.9	1.46	613.5	23.8	0.96
HYL46A	M	No data reported for this sample			595.5	5.8	0.24
JAQ8CT		601.0	3.4	0.14	580.5	-9.2	-0.37
JW28LQ		619.9	22.2	0.96	583.6	-6.1	-0.24
K7JC7V		626.5	28.9	1.24	603.0	13.3	0.54
K9BC37		609.0	11.4	0.49	614.0	24.3	0.98
KPD8FX		622.5	24.9	1.07	619.0	29.3	1.18
KQ8TAN	*	576.5	-21.1	-0.91	525.5	-64.2	-2.59
LAY26X		579.5	-18.1	-0.78	567.5	-22.2	-0.89
LLTJDC		600.5	2.9	0.12	596.0	6.3	0.26
NFGB9D		616.5	18.8	0.81	592.5	2.9	0.12
PA3YLB		638.5	40.9	1.76	632.5	42.8	1.73
RUK7RP		634.5	36.9	1.59	647.0	57.3	2.31
V3838M		588.0	-9.7	-0.42	604.6	14.9	0.60
VZGYEF		568.5	-29.1	-1.25	565.5	-24.2	-0.98
W8W3YM		628.0	30.4	1.31	604.5	14.8	0.60
WDG8P3		581.5	-16.1	-0.69	561.5	-28.2	-1.14
WTV73F	X	507.7	-90.0	-3.87	476.5	-113.2	-4.57
XBQ4VV		580.5	-17.1	-0.74	617.4	27.7	1.12
XN2TFH		577.3	-20.3	-0.88	571.0	-18.7	-0.75
XPTUDU		602.0	4.4	0.19	584.5	-5.2	-0.21
ZXVNQJ		592.8	-4.9	-0.21	592.5	2.8	0.11



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

		Summary Statistics	
Grand Means	597.64 percent		589.66 percent
Stnd Dev Btwn Labs	23.23 percent		24.77 percent
Statistics based on 33 of 36 reporting participants			

Samples A71-A72: Polyisoprene compound, batch #1 & J71-J72: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #631

FCZDY4 (X) - Data for all samples are high. Possible Systematic Error.

HYL46A (M) - Participant did not submit data for sample group A71 - A72.

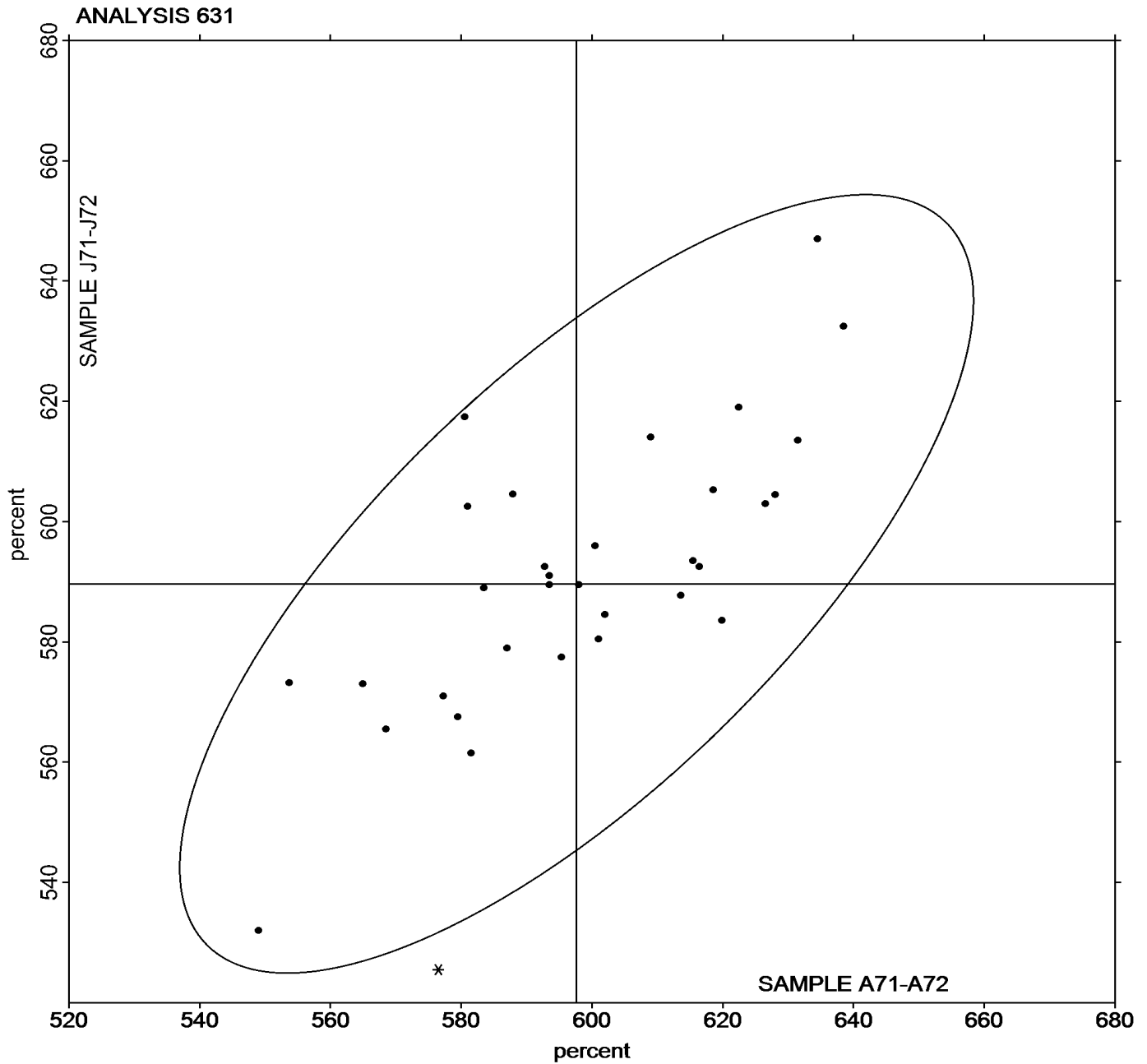
WTV73F (X) - Data for all samples are low. Possible Systematic Error.



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

Grand Mean Sample A71-A72 = 597.64 percent

Grand Mean Sample J71-J72 = 589.66 percent





Rubber Interlaboratory Testing Program

Report #191

Analysis 632

1st Qtr 2017

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

WebCode	Data Flag	Sample A71-A72			Sample J71-J72		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2LEJV8		1,030.3	11.0	0.13	1,052.9	20.7	0.17
2QVNT3		991.0	-28.3	-0.33	1,095.0	62.8	0.50
3WE9C9		989.5	-29.8	-0.35	921.5	-110.7	-0.89
6WTEN4		1,107.4	88.0	1.04	1,140.0	107.8	0.86
7GABFD		1,036.3	16.9	0.20	1,072.4	40.2	0.32
7RP2F4		994.0	-25.3	-0.30	842.0	-190.2	-1.52
8YQMYR		950.0	-69.3	-0.82	992.0	-40.2	-0.32
8ZE9DZ		1,070.5	51.2	0.60	1,127.5	95.3	0.76
A4ANVM		1,041.0	21.7	0.26	1,175.0	142.8	1.14
AJ72C4		1,015.4	-4.0	-0.05	837.1	-195.1	-1.56
B46QZG		1,136.2	116.8	1.38	1,028.1	-4.1	-0.03
DJARUU		1,015.2	-4.1	-0.05	993.2	-39.0	-0.31
DP3WNY		1,046.5	27.2	0.32	1,061.5	29.3	0.23
FCZDY4	*	754.2	-265.1	-3.13	754.2	-278.0	-2.22
FKGVCB		914.5	-104.9	-1.24	864.4	-167.8	-1.34
HYL46A	M	No data reported for this sample			1,115.0	82.8	0.66
JAQ8CT		1,003.0	-16.3	-0.19	1,053.0	20.8	0.17
JW28LQ		1,037.1	17.8	0.21	1,222.4	190.2	1.52
K7JC7V		966.0	-53.3	-0.63	1,051.5	19.3	0.15
K9BC37		955.5	-63.8	-0.75	894.5	-137.7	-1.10
KPD8FX		943.5	-75.8	-0.89	892.5	-139.7	-1.12
KQ8TAN	*	891.0	-128.3	-1.51	1,176.0	143.8	1.15
LAY26X		1,077.1	57.7	0.68	1,169.2	137.0	1.10
LLTJDC		1,048.5	29.2	0.34	1,079.5	47.3	0.38
NFGB9D		1,028.8	9.5	0.11	1,051.9	19.7	0.16
PA3YLB		940.0	-79.3	-0.94	871.0	-161.2	-1.29
RUK7RP		961.5	-57.8	-0.68	820.5	-211.7	-1.69
V3838M		1,079.3	60.0	0.71	1,060.8	28.6	0.23
VZGYEF		1,103.5	84.2	0.99	1,165.0	132.8	1.06
W8W3YM		986.3	-33.1	-0.39	1,131.7	99.5	0.80
WDG8P3		1,198.0	178.7	2.11	1,227.5	195.3	1.56
WTV73F	X	1,372.6	353.3	4.17	1,477.0	444.8	3.56
XBQ4VV	*	1,196.5	177.2	2.09	1,018.9	-13.3	-0.11
XN2TFH		1,019.6	0.3	0.00	1,105.2	73.0	0.58
XPTUDU		1,053.2	33.8	0.40	1,006.2	-26.0	-0.21
ZXVNQJ		1,077.5	58.2	0.69	1,140.8	108.6	0.87



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

		Summary Statistics	
Grand Means			
	1,019.35 psi		1,032.20 psi
Stnd Dev Btwn Labs			
	84.81 psi		125.02 psi
Statistics based on 34 of 36 reporting participants			

		Summary Statistics in SI Units	
Grand Means			
	7.0281 MPa		7.12 MPa
Stnd Dev Btwn Labs			
	0.5847 MPa		0.86 MPa
Statistics based on 34 of 36 reporting participants			

Samples A71-A72: Polyisoprene compound, batch #1 & J71-J72: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #632

- HYL46A (M) - Participant did not submit data for sample group A71 - A72 .
- WTV73F (X) - Data for all samples are high.



Rubber Interlaboratory Testing Program

Report #191

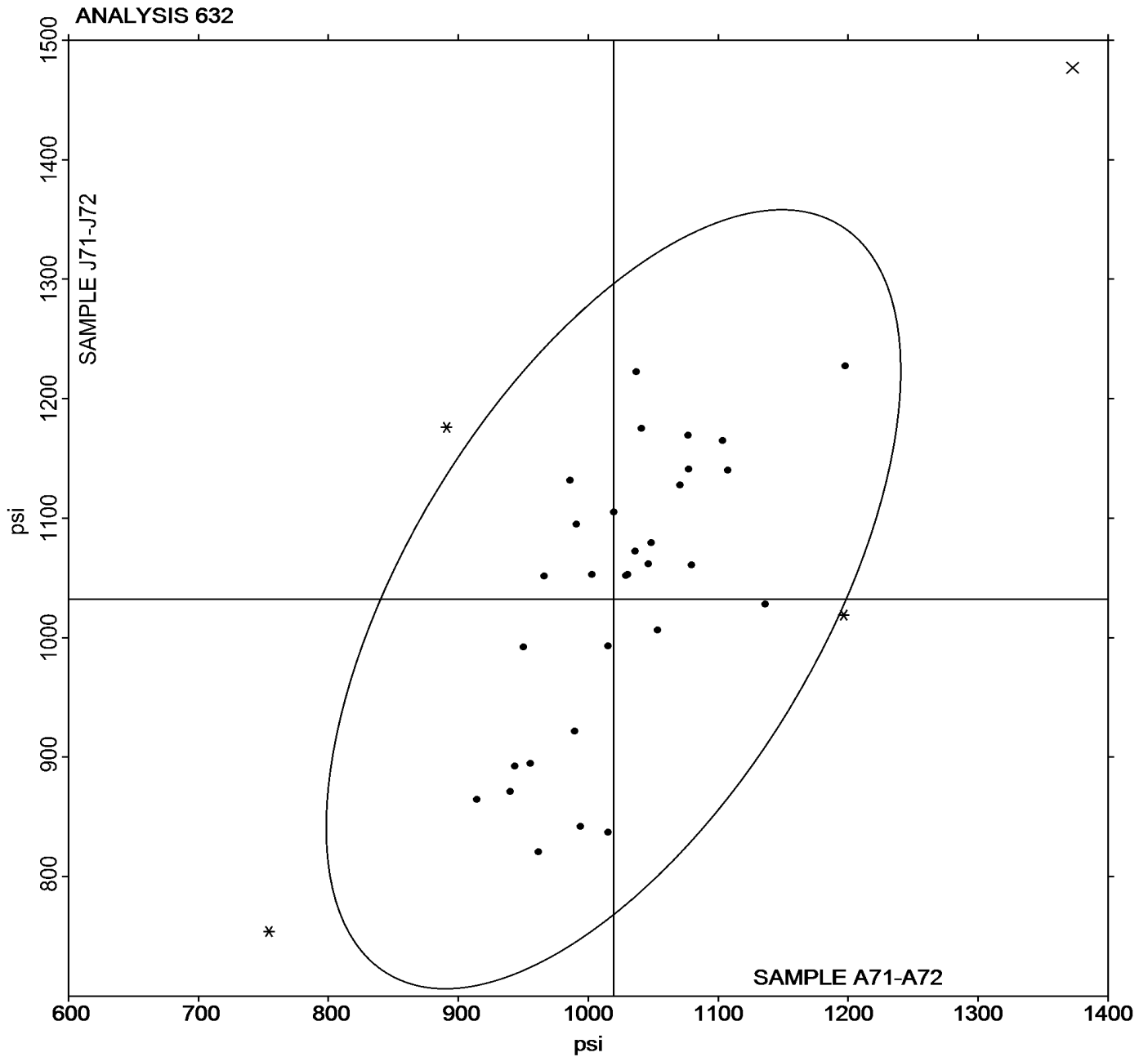
Analysis 632

1st Qtr 2017

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

Grand Mean Sample **A71-A72** = 1,019.35 psi

Grand Mean Sample **J71-J72** = 1,032.20 psi





Rubber Interlaboratory Testing Program

Report #191

Analysis 633

1st Qtr 2017

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

WebCode	Data Flag	Sample A71-A72			Sample J71-J72		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2LEJV8		220.3	-1.2	-0.07	232.3	1.0	0.04
2QVNT3		212.0	-9.4	-0.59	249.0	17.7	0.76
3WE9C9		236.0	14.6	0.91	221.5	-9.8	-0.42
6WTEN4		235.7	14.2	0.89	248.0	16.7	0.72
7GABFD		233.0	11.5	0.72	247.8	16.4	0.71
7RP2F4		212.5	-8.9	-0.56	217.0	-14.3	-0.62
8YQMYR		205.0	-16.4	-1.03	221.0	-10.3	-0.44
8ZE9DZ		240.0	18.6	1.16	257.0	25.7	1.11
A4ANVM		246.5	25.1	1.57	278.0	46.7	2.02
AJ72C4		226.1	4.7	0.29	198.4	-32.9	-1.42
B46QZG		247.7	26.3	1.64	233.7	2.4	0.10
DJARUU		225.0	3.5	0.22	222.3	-9.0	-0.39
DP3WNY		206.0	-15.4	-0.96	231.0	-0.3	-0.01
FCZDY4	*	181.3	-40.1	-2.51	181.3	-50.0	-2.16
FKGVCB		216.8	-4.6	-0.29	203.1	-28.2	-1.22
HYL46A	M	No data reported for this sample			241.5	10.2	0.44
JAQ8CT		218.0	-3.4	-0.21	229.5	-1.8	-0.08
JW28LQ		223.9	2.5	0.15	242.6	11.2	0.49
K7JC7V		210.0	-11.4	-0.71	235.0	3.7	0.16
K9BC37		216.0	-5.4	-0.34	202.5	-28.8	-1.24
KPD8FX		206.0	-15.4	-0.96	200.0	-31.3	-1.35
KQ8TAN	*	186.0	-35.4	-2.21	251.5	20.2	0.87
LAY26X		232.5	11.1	0.69	253.4	22.0	0.95
LLTJDC		222.0	0.6	0.03	241.0	9.7	0.42
NFGB9D		210.2	-11.2	-0.70	230.6	-0.7	-0.03
PA3YLB		212.5	-8.9	-0.56	209.5	-21.8	-0.94
RUK7RP		213.5	-7.9	-0.50	187.5	-43.8	-1.89
V3838M		229.5	8.0	0.50	226.9	-4.4	-0.19
VZGYEF		241.5	20.1	1.25	260.0	28.7	1.24
W8W3YM		224.2	2.8	0.17	257.0	25.6	1.11
WDG8P3	X	381.5	160.1	10.00	396.5	165.2	7.13
WTV73F	X	322.3	100.9	6.31	353.0	121.7	5.25
XN2TFH		215.4	-6.1	-0.38	238.6	7.3	0.31
XPTUDU		246.7	25.3	1.58	229.4	-2.0	-0.08
ZXVNQJ		234.4	13.0	0.81	265.6	34.2	1.48



Rubber Interlaboratory Testing Program

Report #191

Analysis 633

1st Qtr 2017

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

		Summary Statistics	
Grand Means	221.44 psi		231.30 psi
Stnd Dev Btwn Labs	16.00 psi		23.17 psi
Statistics based on 32 of 35 reporting participants			

		Summary Statistics in SI Units	
Grand Means	1.5268 MPa		1.59 MPa
Stnd Dev Btwn Labs	0.1103 MPa		0.16 MPa
Statistics based on 32 of 35 reporting participants			

Samples A71-A72: Polyisoprene compound, batch #1 & J71-J72: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #633

HYL46A (M) - Participant did not submit data for sample group A71 - A72.

WDG8P3 (X) - Extreme Data.

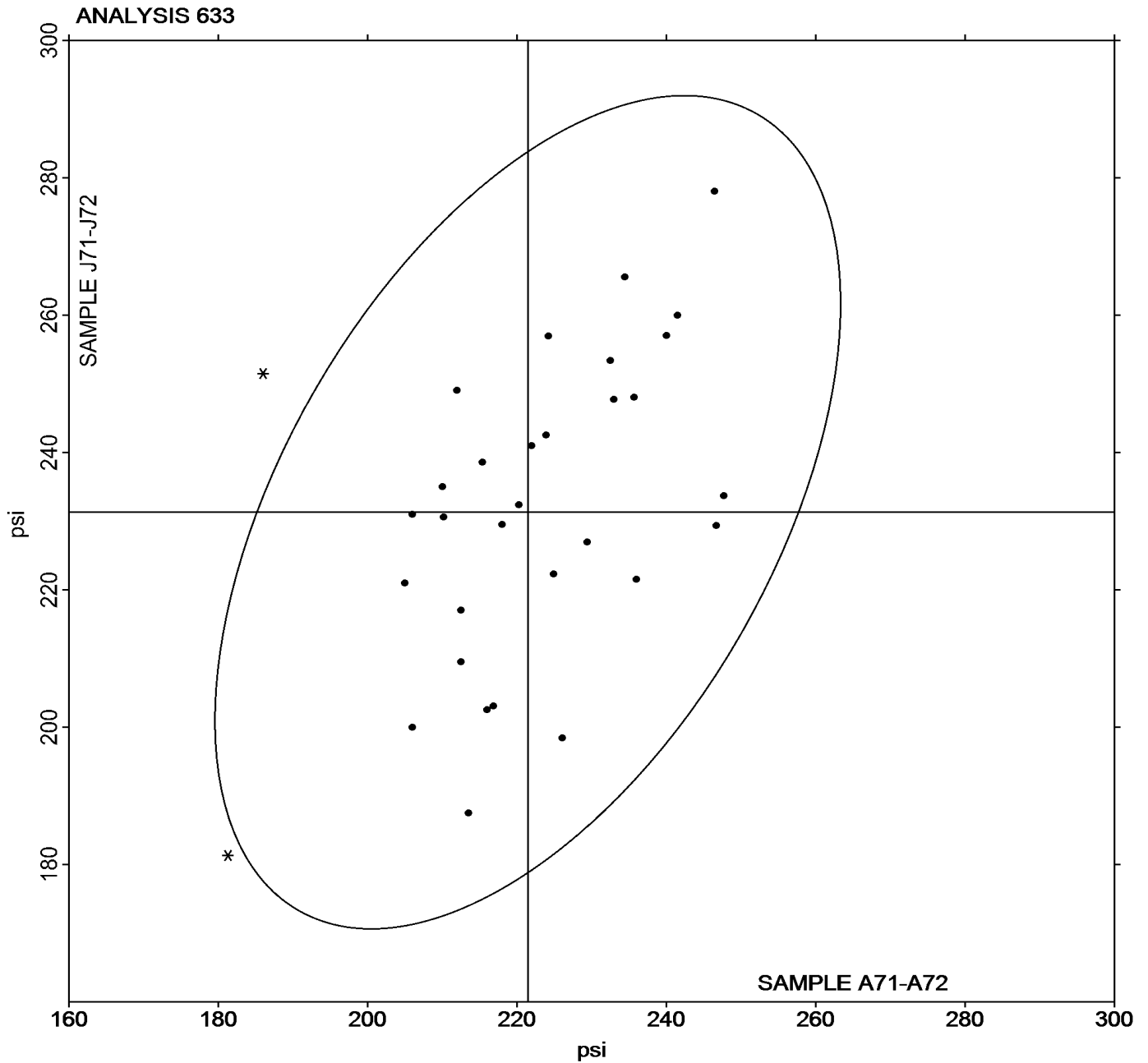
WTV73F (X) - Data for all samples are high.



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

Grand Mean Sample A71-A72 = 221.44 psi

Grand Mean Sample J71-J72 = 231.30 psi





Rubber Interlaboratory Testing Program

Report #191

Analysis 660

1st Qtr 2017

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

WebCode	Data Flag	Sample S71-S72			Sample S73-S74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2LEJV8		46.78	1.45	1.27	55.59	-0.03	-0.02	MR
2QVNT3		45.58	0.25	0.22	54.93	-0.68	-0.62	MR
6WTEN4		46.05	0.72	0.63	56.43	0.81	0.74	MV
7GABFD		44.11	-1.22	-1.07	55.41	-0.20	-0.18	TA
8YQMYR		44.80	-0.53	-0.47	55.57	-0.05	-0.04	MR
8ZE9DZ		44.87	-0.46	-0.41	56.01	0.40	0.36	MR
9CQV3R		46.08	0.75	0.66	57.17	1.55	1.42	MR
9DKNXB		45.23	-0.11	-0.10	54.76	-0.85	-0.78	MR
AJ72C4		44.81	-0.53	-0.46	55.47	-0.14	-0.13	TV
B46QZG	*	48.00	2.67	2.33	58.83	3.22	2.95	MV
BELD9H		46.78	1.45	1.27	56.02	0.40	0.37	MR
BPPLWV		44.22	-1.12	-0.98	56.03	0.42	0.39	MR
CDR6KY		44.87	-0.47	-0.41	55.77	0.15	0.14	MR
DJARUU		46.02	0.68	0.60	56.08	0.47	0.43	MR
FCZDY4		44.27	-1.07	-0.93	56.03	0.42	0.39	MR
FKGVCB	X	55.74	10.40	9.11	66.98	11.37	10.41	MV
H6E2ZT		44.10	-1.24	-1.08	54.73	-0.88	-0.81	MR
HYL46A		46.25	0.92	0.80	54.90	-0.71	-0.65	MV
K9BC37		43.43	-1.90	-1.66	54.18	-1.43	-1.31	XX
KQ8TAN		44.68	-0.65	-0.57	54.73	-0.88	-0.81	MR
LLTJDC		45.02	-0.32	-0.28	54.93	-0.68	-0.62	MR
MJYBPT		46.23	0.89	0.78	56.44	0.83	0.76	MR
MNVWHC	X	43.64	-1.70	-1.48	51.03	-4.59	-4.20	XX
MT9HRN		46.37	1.03	0.90	55.07	-0.55	-0.50	MR
NYR8HB		43.85	-1.48	-1.30	55.53	-0.08	-0.07	MR
PA3YLB		43.20	-2.13	-1.87	53.65	-1.97	-1.80	XX
PRNHMP		46.53	1.20	1.05	57.38	1.77	1.62	MR
Q4Z6BF		45.50	0.17	0.15	55.00	-0.61	-0.56	MR
QA4A2E		45.32	-0.02	-0.01	56.03	0.42	0.39	MR
TXL9GQ		43.97	-1.37	-1.20	54.88	-0.73	-0.67	MR
U4L887		46.55	1.22	1.07	56.35	0.74	0.68	MR
VG7U77		46.92	1.58	1.39	55.45	-0.16	-0.15	XX
VZGYEF		47.43	2.10	1.84	57.88	2.27	2.08	MR
W8W3YM		45.28	-0.05	-0.04	55.62	0.00	0.00	MR
WXUKP7		45.78	0.45	0.39	55.50	-0.11	-0.10	MP
XBQ4VV	*	44.44	-0.90	-0.78	52.91	-2.70	-2.47	XX
XKWZLK		45.43	0.10	0.09	55.00	-0.61	-0.56	MR
XN2TFH		43.78	-1.55	-1.36	54.80	-0.81	-0.74	MR



Rubber Interlaboratory Testing Program

Report #191

Analysis 660

1st Qtr 2017

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

WebCode	Data Flag	Sample S71-S72			Sample S73-S74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XPTUDU		45.23	-0.10	-0.09	55.70	0.09	0.08	XX
ZXVNQJ		44.92	-0.42	-0.36	56.50	0.89	0.81	MR

Grand Means		Summary Statistics	
	45.334 ML 1 + 4		55.613 ML 1 + 4
Std Dev Btwn Labs	1.142 ML 1 + 4		1.092 ML 1 + 4
Statistics based on 38 of 40 reporting participants			

Samples S71-S72: NBR & S73-S74: Butyl

Comments on Assigned Data Flags for Test #660

FKGVCB (X) - Extreme Data.

MNVWHG (X) - Data for sample group S73-S74 are low. Inconsistent within the determinations of sample group S73-S74.

XBQ4W - Data not reported for Sample S71 or Sample S73.

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

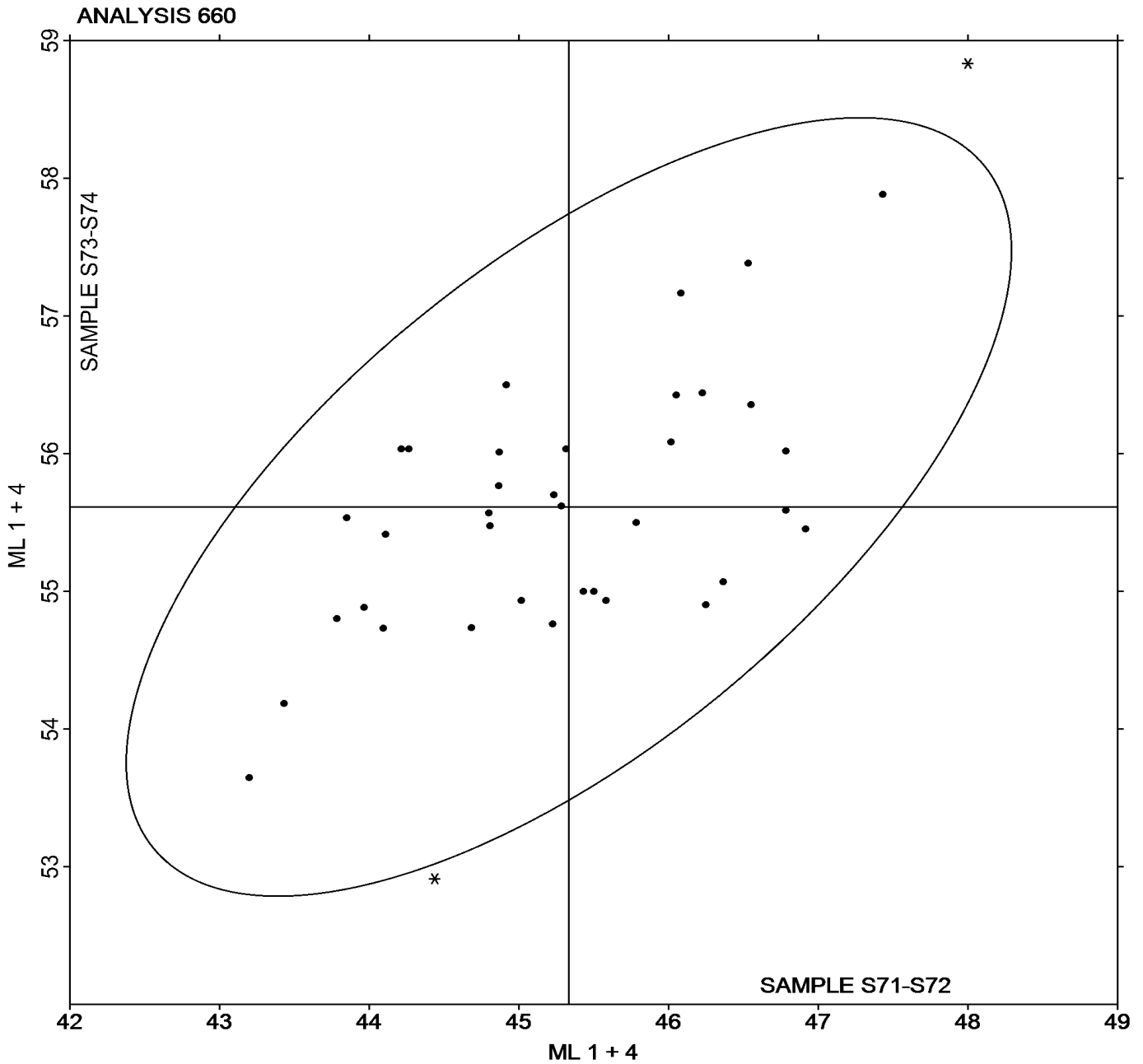


Rubber Interlaboratory Testing Program
Analysis 660
Mooney Viscosity: 4-minute readings (ML 1 + 4)

Report #191
1st Qtr 2017

Grand Mean Sample **S71-S72** = 45.334 ML 1 + 4

Grand Mean Sample **S73-S74** = 55.613 ML 1 + 4





Rubber Interlaboratory Testing Program

Report #191

Analysis 661

1st Qtr 2017

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

WebCode	Data Flag	Sample S71-S72			Sample S73-S74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2LEJV8		46.78	1.51	1.32	53.41	0.30	0.28	MR
2QVNT3		45.58	0.31	0.27	52.97	-0.14	-0.13	MR
6WTEN4		46.05	0.78	0.68	54.19	1.08	0.99	MV
7GABFD		44.11	-1.16	-1.02	53.24	0.13	0.12	TA
8YQMYR		44.80	-0.47	-0.41	53.17	0.06	0.05	MR
8ZE9DZ		44.87	-0.40	-0.35	53.32	0.21	0.20	MR
9CQV3R		46.08	0.81	0.71	54.13	1.02	0.94	MR
9DKNXB		45.23	-0.05	-0.04	53.50	0.39	0.35	MR
AJ72C4		44.81	-0.46	-0.41	53.04	-0.07	-0.06	MZ
B46QZG	*	48.00	2.73	2.39	56.17	3.06	2.80	MV
BELD9H		46.78	1.51	1.32	53.82	0.71	0.65	MR
BPPLWV		44.22	-1.05	-0.92	53.03	-0.08	-0.07	MR
CDR6KY		44.87	-0.40	-0.35	53.38	0.27	0.25	MR
DJARUU		46.02	0.75	0.65	53.45	0.34	0.31	MR
FCZDY4		44.27	-1.00	-0.88	53.85	0.74	0.68	MR
FKGVCB	X	55.74	10.47	9.17	65.00	11.89	10.91	MV
H6E2ZT		44.10	-1.18	-1.03	52.58	-0.53	-0.49	MR
HYL46A		46.25	0.98	0.86	52.38	-0.73	-0.67	MV
K9BC37		43.43	-1.84	-1.61	52.22	-0.89	-0.82	XX
KQ8TAN		44.68	-0.59	-0.52	52.03	-1.08	-0.99	MP
LLTJDC		45.02	-0.25	-0.22	51.97	-1.14	-1.05	MR
MJYBPT		46.23	0.95	0.84	54.33	1.22	1.12	MR
NYR8HB		43.85	-1.42	-1.24	52.47	-0.64	-0.59	MR
PA3YLB	*	43.20	-2.07	-1.81	50.22	-2.89	-2.65	XX
Q4Z6BF		45.50	0.23	0.20	52.52	-0.59	-0.54	MR
QA4A2E		45.32	0.05	0.04	53.15	0.04	0.04	MR
TXL9GQ		43.97	-1.30	-1.14	52.38	-0.73	-0.67	MR
U4L887		46.55	1.28	1.12	53.24	0.13	0.12	MR
VG7U77		46.92	1.65	1.44	54.12	1.01	0.92	XX
VZGYEF		47.43	2.16	1.89	55.17	2.06	1.89	MR
W8W3YM		45.28	0.01	0.01	53.52	0.41	0.37	MR
WXUKP7		45.78	0.51	0.45	52.17	-0.94	-0.87	MP
XBQ4VV		44.44	-0.83	-0.73	52.91	-0.20	-0.18	XX
XKWZLK		45.43	0.16	0.14	52.38	-0.73	-0.67	MR
XN2TFH		43.78	-1.49	-1.30	52.37	-0.74	-0.68	MR
XPTUDU		45.23	-0.04	-0.03	50.97	-2.14	-1.97	XX
ZXVNQJ		44.92	-0.35	-0.31	54.22	1.11	1.01	MR



Rubber Interlaboratory Testing Program

Report #191

Analysis 661

1st Qtr 2017

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

		Summary Statistics	
Grand Means	45.272 ML 1 + 8	53.110 ML 1 + 8	
Stnd Dev Btwn Labs	1.142 ML 1 + 8	1.090 ML 1 + 8	
Statistics based on 36 of 37 reporting participants			

Samples S71-S72: NBR & S73-S74: Butyl

Comments on Assigned Data Flags for Test #661

FKGVCB (X) - Extreme Data.

XBQ4VW - Data not reported for Sample S74.

Key to Instrument Codes Reported by Participants

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



Rubber Interlaboratory Testing Program

Report #191

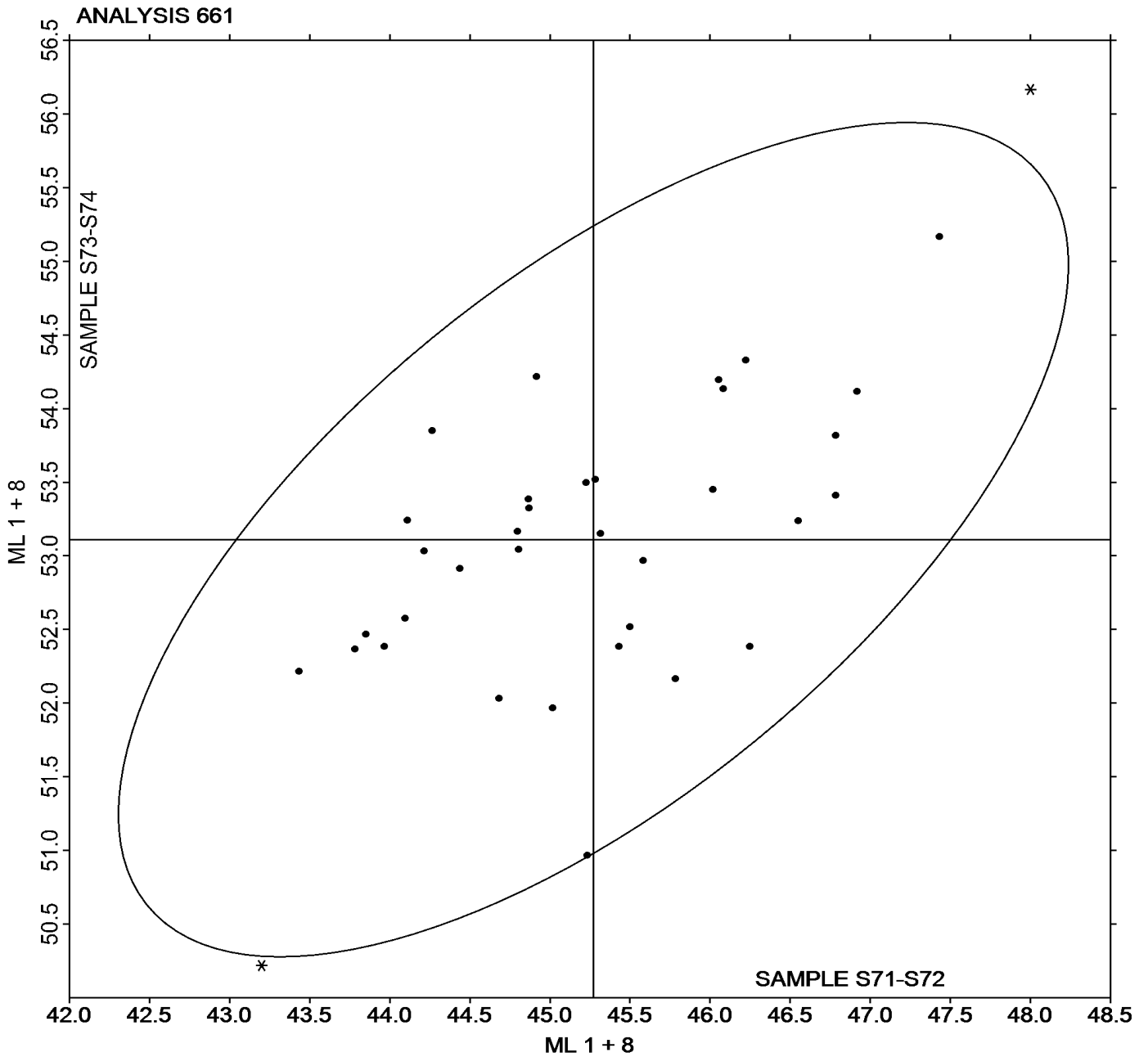
Analysis 661

1st Qtr 2017

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

Grand Mean Sample **S71-S72** = 45.272 ML 1 + 8

Grand Mean Sample **S73-S74** = 53.110 ML 1 + 8





Rubber Interlaboratory Testing Program

Report #191

Analysis 662

1st Qtr 2017

Mooney Stress Relaxation: t80 (seconds)

WebCode	Data Flag	Sample S71-S72			Sample S73-S74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
7GABFD	X	303.600	298.698	1,304.25	308.000	299.378	732.54	TA
8YQMYR		4.813	-0.089	-0.39	8.493	-0.129	-0.32	MR
8ZE9DZ		5.038	0.136	0.59	8.448	-0.174	-0.43	MR
9CQV3R		4.782	-0.121	-0.53	8.680	0.058	0.14	MR
AJ72C4	X	663.600	658.698	2,876.17	668.200	659.578	1,613.91	TV
B46QZG	X	542.400	537.498	2,346.96	546.000	537.378	1,314.90	MV
CDR6KY		4.717	-0.186	-0.81	7.910	-0.712	-1.74	MR
HYL46A	X	304.200	299.298	1,306.87	548.100	539.478	1,320.04	MV
K9BC37		4.850	-0.052	-0.23	9.150	0.528	1.29	XX
LLTJDC		4.747	-0.156	-0.68	8.097	-0.526	-1.29	MR
MT9HRN		4.700	-0.202	-0.88	8.800	0.178	0.43	MR
QA4A2E		4.850	-0.052	-0.23	8.600	-0.022	-0.05	MR
VZGYEF		5.047	0.144	0.63	9.293	0.671	1.64	MR
XBQ4VV	M	No data reported for this sample			8.800	0.178	0.43	XX
XN2TFH		5.500	0.598	2.61	8.870	0.248	0.61	MR
ZXVNQJ		4.883	-0.019	-0.08	8.503	-0.119	-0.29	MR

Grand Means		Summary Statistics	
	4.9024 seconds		8.6223 seconds
Std Dev Btwn Labs	0.2290 seconds		0.4087 seconds
Statistics based on 11 of 16 reporting participants			

Samples S71-S72: NBR & S73-S74: Butyl

Comments on Assigned Data Flags for Test #662

7GABFD (X) - Extreme Data.

AJ72C4 (X) - Extreme Data.

B46QZG (X) - Extreme Data.

HYL46A (X) - Extreme Data.

XBQ4VV (M) - Participant did not submit data for samples S71, S72, or S74 .

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		

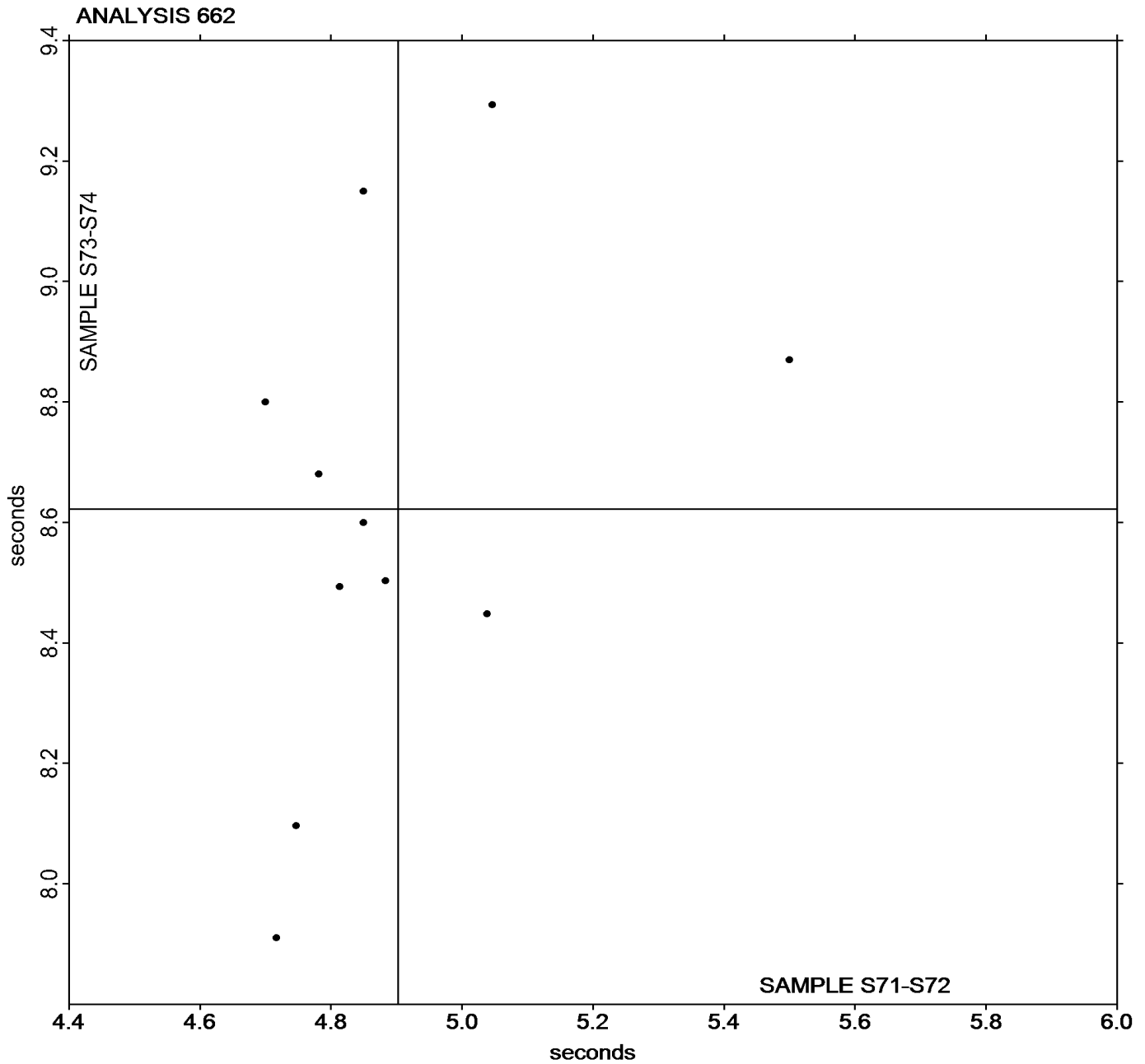


Rubber Interlaboratory Testing Program
Analysis 662
Mooney Stress Relaxation: t80 (seconds)

Report #191
1st Qtr 2017

Grand Mean Sample **S71-S72** = 4.9024 seconds

Grand Mean Sample **S73-S74** = 8.6223 seconds



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 #191

Analysis 663

1st Qtr 2017

Mooney Stress Relaxation: X30 (percent)

WebCode	Data Flag	Sample S71-S72			Sample S73-S74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
7GABFD		96.55	4.54	2.18	93.43	2.34	1.80	TA
8YQMYR		91.03	-0.98	-0.47	90.69	-0.40	-0.31	MR
8ZE9DZ		91.48	-0.53	-0.25	91.46	0.37	0.28	MR
9CQV3R		91.14	-0.87	-0.41	90.67	-0.42	-0.32	MR
AJ72C4		92.68	0.68	0.32	91.25	0.16	0.12	TV
B46QZG		97.12	5.11	2.45	94.20	3.11	2.39	MV
CDR6KY		91.27	-0.74	-0.35	91.26	0.17	0.13	MR
FCZDY4		89.57	-2.44	-1.17	88.95	-2.14	-1.65	XX
FKGVCB	X	29.21	-62.80	-30.12	26.91	-64.19	-49.35	MV
HYL46A		92.34	0.33	0.16	91.02	-0.07	-0.06	MV
K9BC37		91.50	-0.51	-0.24	90.55	-0.54	-0.42	XX
LLTJDC		91.62	-0.39	-0.19	91.45	0.35	0.27	MR
QA4A2E		91.15	-0.86	-0.41	90.45	-0.64	-0.49	MR
VZGYEF		90.68	-1.33	-0.64	89.58	-1.52	-1.17	MR
XN2TFH		90.79	-1.22	-0.59	90.68	-0.41	-0.32	MR
ZXVNQJ		91.20	-0.80	-0.39	90.75	-0.35	-0.27	MR

Grand Means		Summary Statistics	
	92.007 percent		91.092 percent
Std Dev Btwn Labs	2.085 percent		1.301 percent
Statistics based on 15 of 16 reporting participants			

Samples S71-S72: NBR & S73-S74: Butyl

Comments on Assigned Data Flags for Test #663

FKGVCB (X) - Extreme Data.

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

Report #191

Analysis 664

1st Qtr 2017

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

WebCode	Data Flag	Sample S71-S72			Sample S73-S74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
7GABFD		148.7	-236.9	-2.02	364.5	-163.6	-1.73	TA
8YQMYR		435.5	49.8	0.43	553.5	25.4	0.27	MR
8ZE9DZ		415.5	29.8	0.25	513.9	-14.2	-0.15	MR
9CQV3R		441.6	55.9	0.48	563.1	35.0	0.37	MR
AJ72C4		338.6	-47.1	-0.40	511.4	-16.7	-0.18	TV
B46QZG		123.7	-262.0	-2.24	340.0	-188.1	-1.99	XX
CDR6KY		424.9	39.2	0.33	516.9	-11.2	-0.12	MR
FCZDY4		505.6	119.9	1.02	692.1	164.0	1.74	XX
LLTJDC		405.8	20.2	0.17	500.2	-27.9	-0.30	MR
QA4A2E		437.7	52.0	0.44	568.2	40.1	0.42	MR
VZGYEF		473.6	87.9	0.75	637.0	109.0	1.15	MR
XN2TFH		437.2	51.5	0.44	547.0	18.9	0.20	XX
ZXVNQJ		425.6	39.9	0.34	557.2	29.1	0.31	MR

Grand Means		Summary Statistics	
	385.68 M-s		528.07 M-s
Stnd Dev Btwn Labs	117.08 M-s		94.42 M-s
Statistics based on 13 of 13 reporting participants			

Samples S71-S72: NBR & S73-S74: Butyl

Key to Instrument Codes Reported by Participants

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

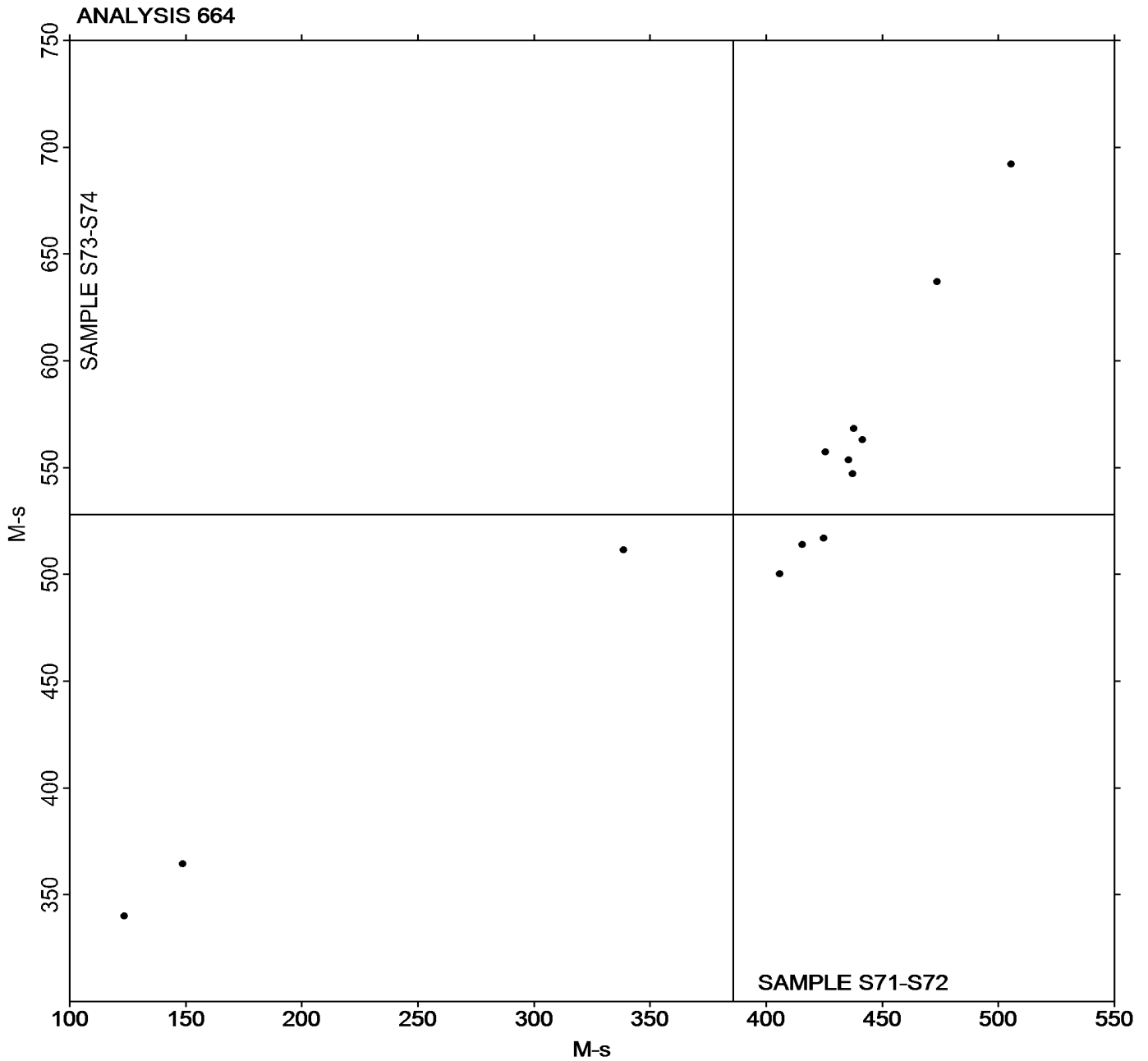


Rubber Interlaboratory Testing Program
Analysis 664
Mooney Stress Relaxation: Area under curve (M-s)

Report #191
1st Qtr 2017

Grand Mean Sample **S71-S72** = 385.68 M-s

Grand Mean Sample **S73-S74** = 528.07 M-s



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 669
ODR Vulcanization-Cure Time 10% (minutes)

Report #191
1st Qtr 2017

WebCode	Data Flag	Sample W71-W72			Sample W73-W74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2QVNT3		0.9217	-0.0730	-1.26	2.847	-0.134	-0.85
8ZE9DZ	X	0.9167	-0.0780	-1.35	1.975	-1.006	-6.38
AJ72C4		0.9933	-0.0013	-0.02	2.840	-0.141	-0.89
DJARUU		1.0850	0.0903	1.56	3.068	0.088	0.55
FCZDY4		0.9750	-0.0197	-0.34	3.062	0.081	0.51
H6E2ZT		0.9317	-0.0630	-1.09	2.795	-0.186	-1.18
KQ8TAN		1.0033	0.0087	0.15	3.085	0.104	0.66
MJYBPT		0.9600	-0.0347	-0.60	2.813	-0.168	-1.06
NFGB9D		0.9533	-0.0413	-0.71	2.927	-0.054	-0.34
Q4Z6BF		1.0767	0.0820	1.41	3.110	0.129	0.82
WXUKP7		1.0467	0.0520	0.90	3.262	0.281	1.78

Summary Statistics	
Grand Means	
0.99467 minutes	2.9808 minutes
Std Dev Btwn Labs	
0.05798 minutes	0.1577 minutes
Statistics based on 10 of 11 reporting participants	

Samples W71-W72: EPDM compound #1 & W73-W74: EPDM compound #2

Comments on Assigned Data Flags for Test #669

8ZE9DZ (X) - Data for sample group W73-W74 are low.

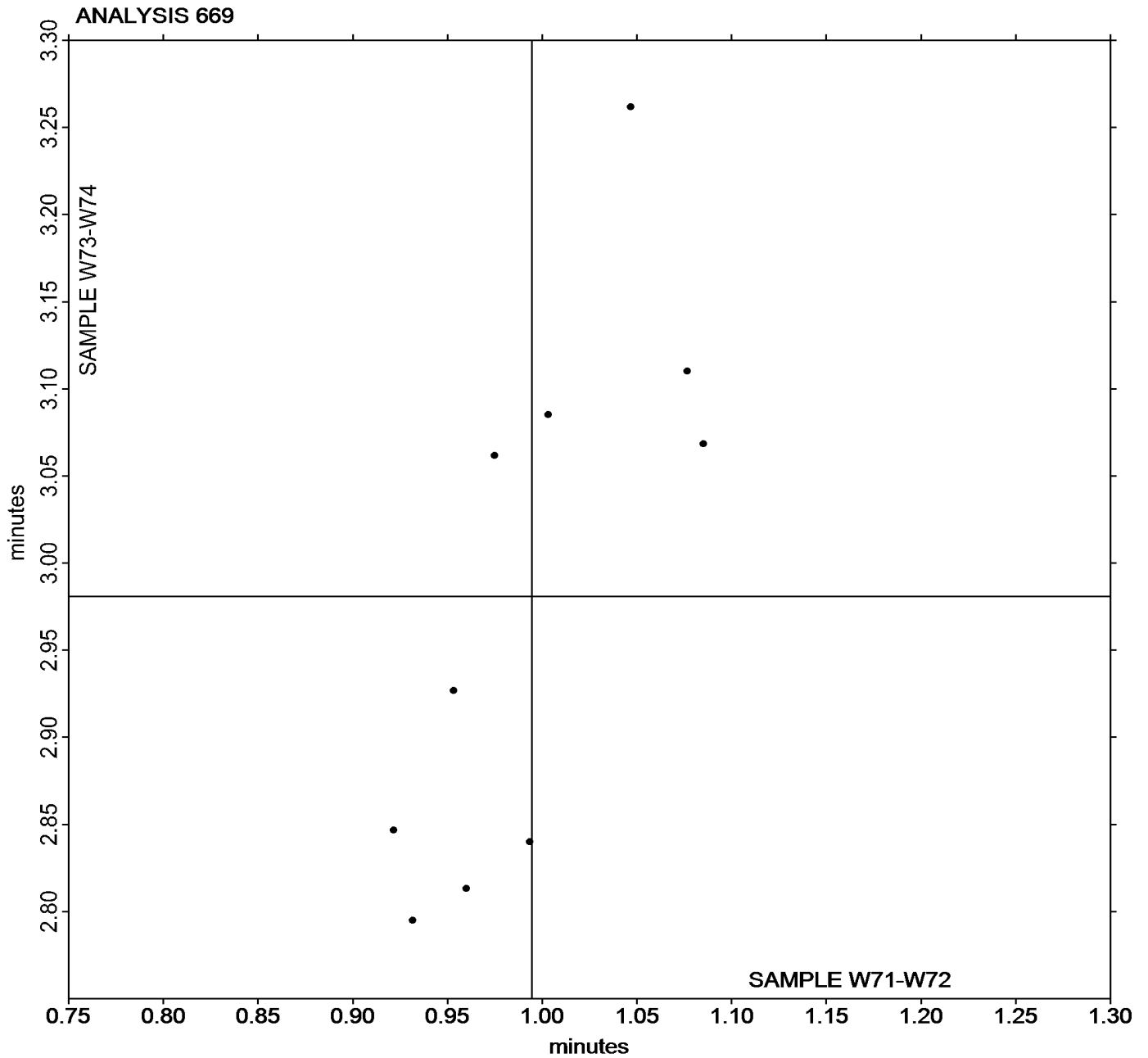


Rubber Interlaboratory Testing Program
Analysis 669
ODR Vulcanization-Cure Time 10% (minutes)

Report #191
1st Qtr 2017

Grand Mean Sample **W71-W72** = 0.99467 minutes

Grand Mean Sample **W73-W74** = 2.9808 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 #191
1st Qtr 2017

WebCode	Data Flag	Sample W71-W72			Sample W73-W74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2QVNT3		0.6167	-0.0565	-1.15	1.863	-0.095	-0.79
8ZE9DZ		0.6300	-0.0432	-0.88	1.975	0.017	0.14
AJ72C4		0.7250	0.0518	1.06	2.073	0.115	0.96
DJARUU		0.7383	0.0652	1.33	2.018	0.060	0.50
FCZDY4		0.6583	-0.0148	-0.30	2.017	0.058	0.48
H6E2ZT		0.6317	-0.0415	-0.85	1.770	-0.189	-1.57
KQ8TAN		0.6950	0.0218	0.45	2.102	0.143	1.19
MJYBPT		0.6350	-0.0382	-0.78	1.768	-0.190	-1.59
NFGB9D		0.6550	-0.0182	-0.37	1.952	-0.007	-0.06
Q4Z6BF		0.7467	0.0735	1.50	2.047	0.088	0.74
WXUKP7	X	0.7183	0.0452	0.92	2.525	0.567	4.72

Summary Statistics	
Grand Means	
	0.67317 minutes
	1.9585 minutes
Std Dev Btwn Labs	
	0.04899 minutes
	0.1199 minutes
Statistics based on 10 of 11 reporting participants	

Samples W71-W72: EPDM compound #1 & W73-W74: EPDM compound #2

Comments on Assigned Data Flags for Test #670

WXUKP7 (X) - Data for sample group W73-W74 are high.

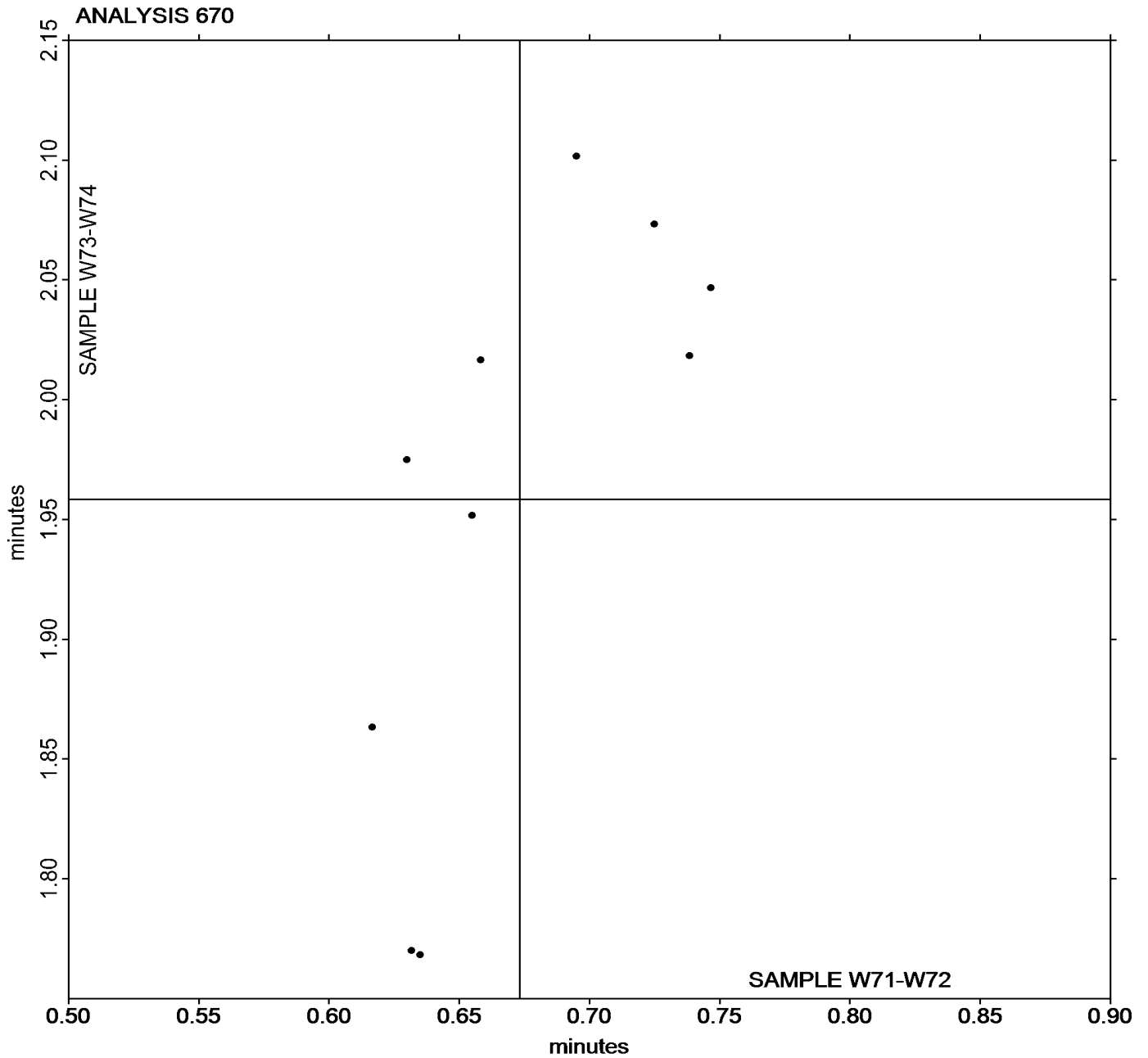


Rubber Interlaboratory Testing Program
Analysis 670
ODR Vulcanization-Scorch Time, Ts1 (minutes)

Report #191
1st Qtr 2017

Grand Mean Sample **W71-W72** = 0.67317 minutes

Grand Mean Sample **W73-W74** = 1.9585 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 #191
1st Qtr 2017

WebCode	Data Flag	Sample W71-W72			Sample W73-W74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2QVNT3		2.602	0.018	0.12	5.677	-0.106	-0.73
8ZE9DZ		2.423	-0.161	-1.09	5.622	-0.161	-1.11
AJ72C4	X	3.093	0.509	3.47	5.410	-0.372	-2.57
DJARUU		2.787	0.203	1.38	5.915	0.133	0.92
FCZDY4		2.583	-0.001	0.00	5.817	0.034	0.24
H6E2ZT		2.390	-0.194	-1.32	5.550	-0.232	-1.60
KQ8TAN		2.653	0.069	0.47	5.958	0.176	1.21
MJYBPT		2.540	-0.044	-0.30	5.652	-0.131	-0.90
NFGB9D		2.393	-0.191	-1.30	5.878	0.096	0.66
Q4Z6BF		2.757	0.173	1.18	5.833	0.051	0.35
WXUKP7		2.712	0.128	0.87	5.922	0.139	0.96

		Summary Statistics	
Grand Means		2.5840 minutes	5.7823 minutes
Stnd Dev Btwn Labs		0.1468 minutes	0.1449 minutes
Statistics based on 10 of 11 reporting participants			

Samples W71-W72: EPDM compound #1 & W73-W74: EPDM compound #2

Comments on Assigned Data Flags for Test #671

AJ72C4 (X) - Data for sample group W71-W72 are high and data for sample group W73-W74 are low.

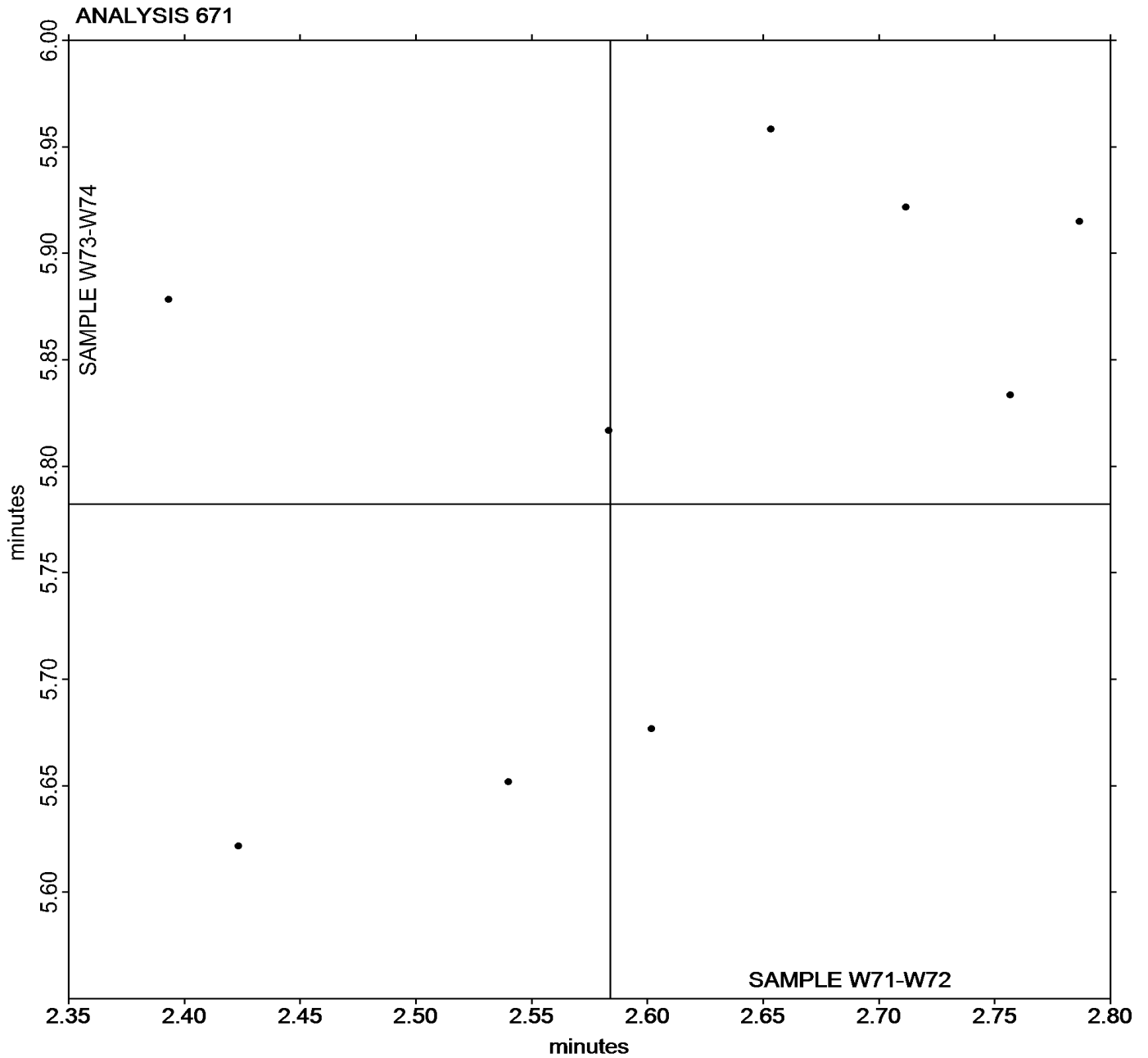


Rubber Interlaboratory Testing Program
Analysis 671
ODR Vulcanization-Cure Time 50% (minutes)

Report #191
1st Qtr 2017

Grand Mean Sample **W71-W72** = 2.5840 minutes

Grand Mean Sample **W73-W74** = 5.7823 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 #191
1st Qtr 2017

WebCode	Data Flag	Sample W71-W72			Sample W73-W74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2QVNT3		14.29	1.35	0.93	13.96	2.78	2.53
8ZE9DZ		12.34	-0.60	-0.42	10.69	-0.49	-0.45
AJ72C4		16.67	3.72	2.58	12.22	1.04	0.94
DJARUU		12.93	-0.02	-0.01	11.48	0.30	0.27
FCZDY4		12.07	-0.88	-0.61	10.18	-1.00	-0.91
H6E2ZT		11.97	-0.98	-0.68	10.38	-0.80	-0.73
KQ8TAN		13.07	0.12	0.08	11.28	0.10	0.09
MJYBPT		11.85	-1.09	-0.76	10.29	-0.90	-0.82
NFGB9D		11.88	-1.06	-0.74	10.74	-0.44	-0.40
Q4Z6BF		12.13	-0.82	-0.57	10.63	-0.55	-0.51
WXUKP7		13.20	0.26	0.18	11.15	-0.03	-0.03

Summary Statistics	
Grand Means	12.944 minutes
Std Dev Btwn Labs	1.444 minutes
	11.182 minutes
	1.099 minutes
Statistics based on 11 of 11 reporting participants	

Samples W71-W72: EPDM compound #1 & W73-W74: EPDM compound #2

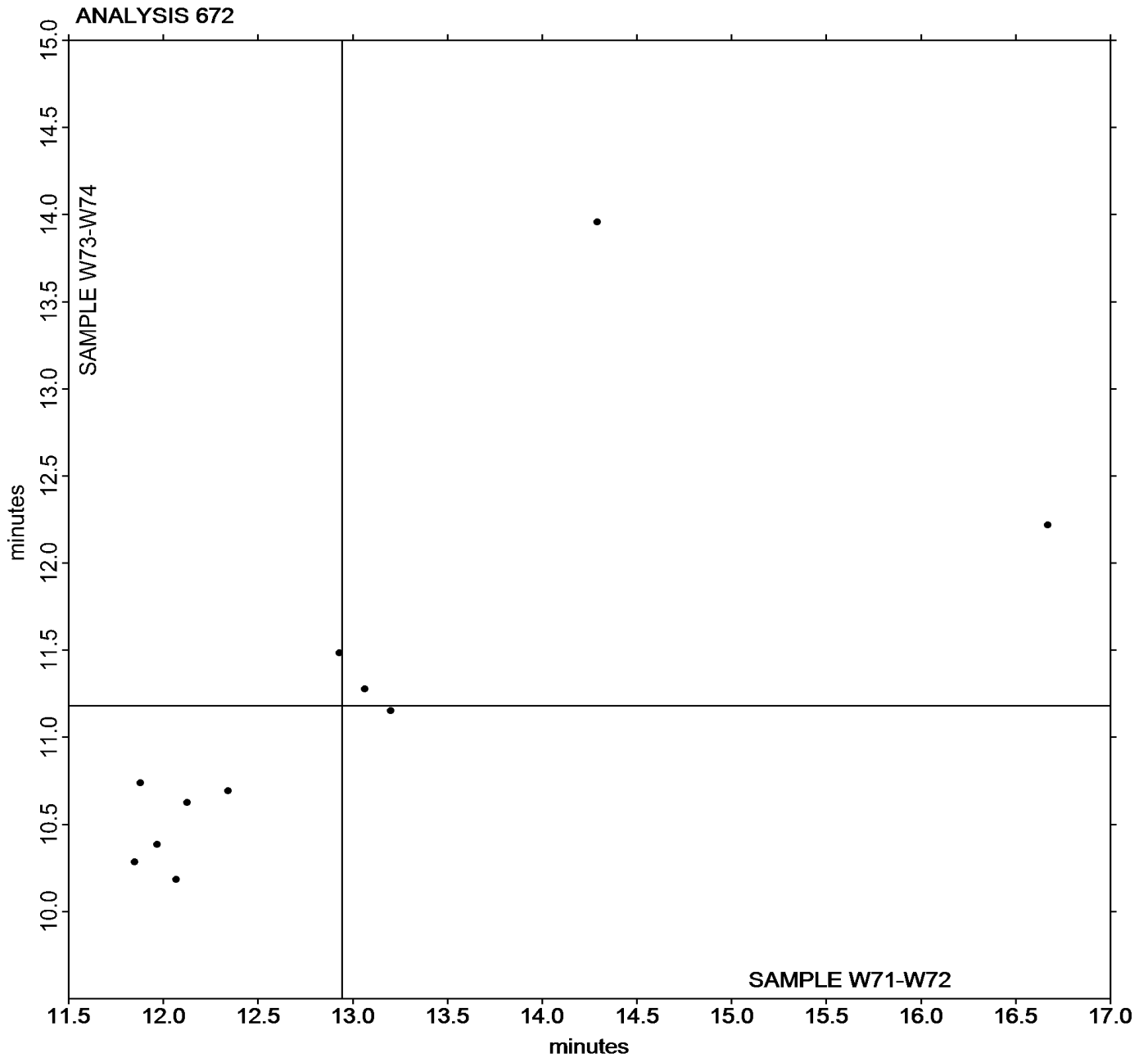


Rubber Interlaboratory Testing Program
Analysis 672
ODR Vulcanization-Cure Time 90% (minutes)

Report #191
1st Qtr 2017

Grand Mean Sample **W71-W72** = 12.944 minutes

Grand Mean Sample **W73-W74** = 11.182 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 #191
1st Qtr 2017

WebCode	Data Flag	Sample W71-W72			Sample W73-W74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2QVNT3		10.84	-0.81	-0.76	5.610	-0.876	-0.64
8ZE9DZ		11.81	0.16	0.15	7.290	0.804	0.59
AJ72C4		13.92	2.26	2.14	9.033	2.547	1.86
DJARUU		10.63	-1.02	-0.96	5.390	-1.096	-0.80
FCZDY4		12.07	0.42	0.39	7.300	0.814	0.59
H6E2ZT		10.42	-1.23	-1.16	5.420	-1.066	-0.78
KQ8TAN		12.18	0.52	0.49	7.097	0.610	0.45
MJYBPT		11.45	-0.21	-0.20	5.592	-0.895	-0.65
NFGB9D		11.38	-0.27	-0.26	6.088	-0.398	-0.29
Q4Z6BF		10.68	-0.98	-0.92	4.470	-2.016	-1.47
WXUKP7		12.80	1.15	1.09	8.060	1.574	1.15

		Summary Statistics	
Grand Means		11.652 lbf.in	6.4864 lbf.in
Std Dev Btwn Labs		1.058 lbf.in	1.3702 lbf.in
Statistics based on 11 of 11 reporting participants			

		Summary Statistics in SI Units	
Grand Means		13.165 dN.m	7.3286 dN.m
Std Dev Btwn Labs		1.195 dN.m	1.5482 dN.m
Statistics based on 11 of 11 reporting participants			

Samples W71-W72: EPDM compound #1 & W73-W74: EPDM compound #2

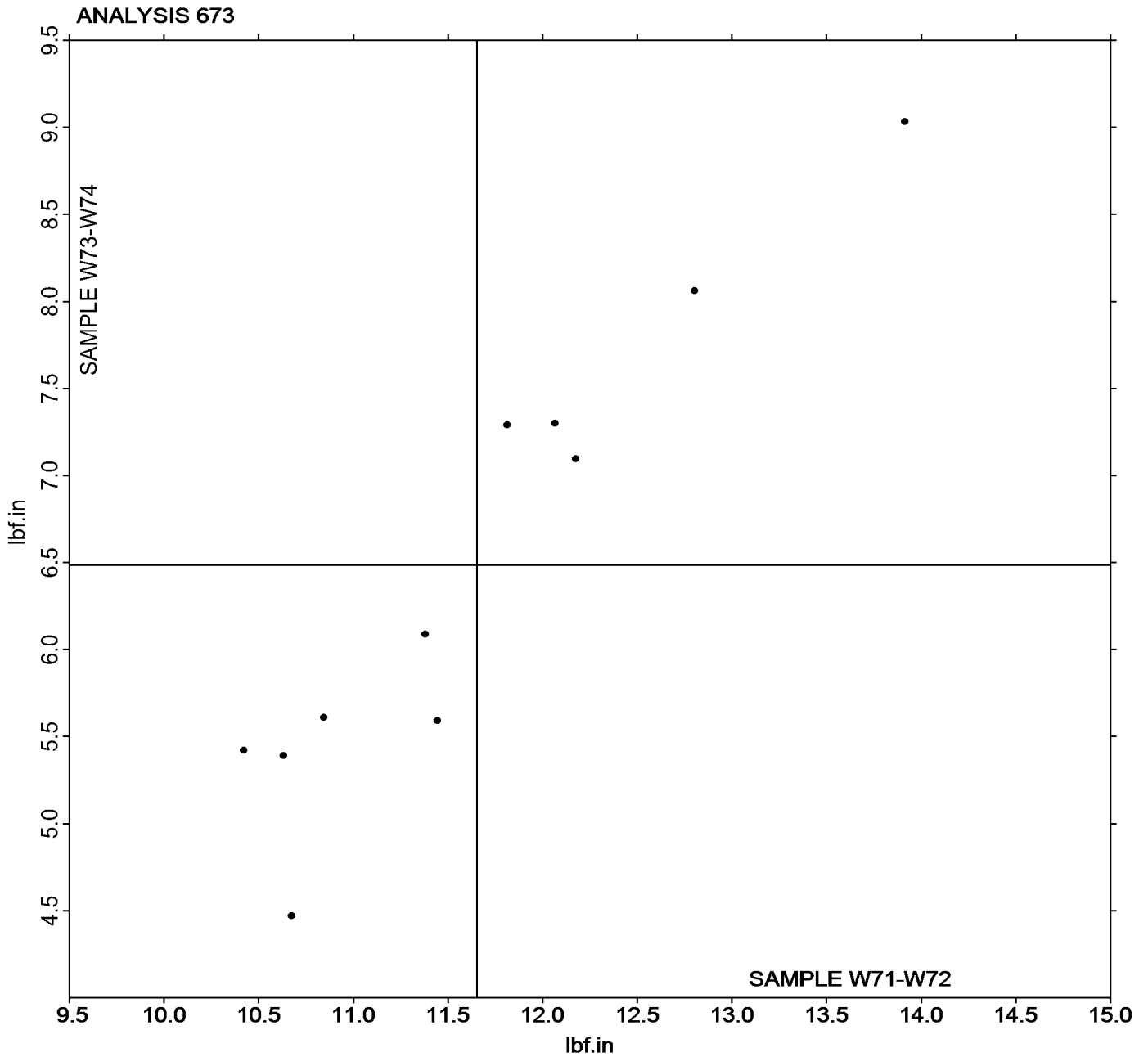


Rubber Interlaboratory Testing Program
Analysis 673
ODR Vulcanization: Minimum Torque (lbf.in)

Report #191
1st Qtr 2017

Grand Mean Sample **W71-W72** = 11.652 lbf.in

Grand Mean Sample **W73-W74** = 6.4864 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 #191
1st Qtr 2017

WebCode	Data Flag	Sample W71-W72			Sample W73-W74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2QVNT3		48.47	1.66	0.64	36.58	-0.16	-0.11
8ZE9DZ		43.50	-3.31	-1.28	34.47	-2.27	-1.60
AJ72C4		42.80	-4.01	-1.55	37.29	0.55	0.38
DJARUU		47.52	0.71	0.28	34.65	-2.09	-1.47
FCZDY4		47.78	0.98	0.38	37.08	0.35	0.24
H6E2ZT		47.20	0.39	0.15	37.49	0.75	0.53
KQ8TAN		44.70	-2.11	-0.81	35.96	-0.78	-0.55
MJYBPT		50.49	3.69	1.42	38.61	1.88	1.32
NFGB9D		44.28	-2.53	-0.98	36.17	-0.57	-0.40
Q4Z6BF		49.75	2.95	1.14	39.03	2.29	1.61
WXUKP7		48.39	1.58	0.61	36.81	0.07	0.05

		Summary Statistics	
Grand Means		46.806 lbf.in	36.738 lbf.in
Std Dev Btwn Labs		2.589 lbf.in	1.423 lbf.in
Statistics based on 11 of 11 reporting participants			

		Summary Statistics in SI Units	
Grand Means		52.884 dN.m	41.508 dN.m
Std Dev Btwn Labs		2.925 dN.m	1.607 dN.m
Statistics based on 11 of 11 reporting participants			

Samples W71-W72: EPDM compound #1 & W73-W74: EPDM compound #2

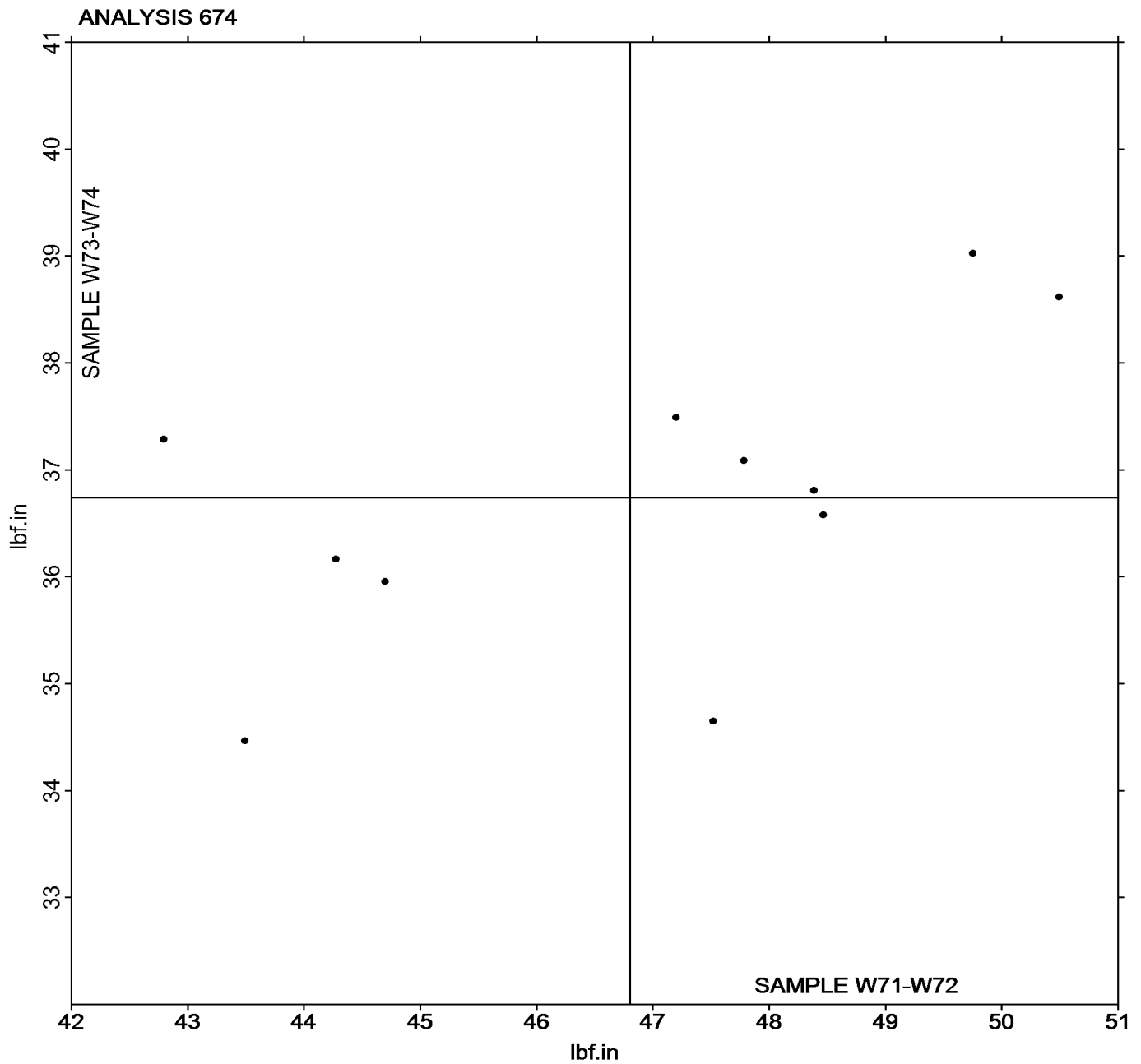


Rubber Interlaboratory Testing Program
Analysis 674
ODR Vulcanization: Maximum Torque (lbf.in)

Report #191
1st Qtr 2017

Grand Mean Sample **W71-W72** = 46.806 lbf.in

Grand Mean Sample **W73-W74** = 36.738 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 #191

Analysis 684

1st Qtr 2017

MDR Vulcanization-Cure Time 10% (minutes)

WebCode	Data Flag	Sample W75-W76			Sample W77-W78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2LEJV8		1.860	-0.128	-1.29	1.913	-0.093	-0.98	MC
6WTEN4		2.157	0.168	1.70	2.125	0.118	1.25	MR
7RP2F4		1.990	0.002	0.02	2.047	0.040	0.42	TP
843KD7		1.778	-0.210	-2.12	1.783	-0.223	-2.36	MC
8YQMYR		1.967	-0.022	-0.22	2.022	0.015	0.16	MC
9CQV3R		2.073	0.085	0.86	2.077	0.070	0.74	MC
9DKNXB		1.770	-0.218	-2.20	1.778	-0.228	-2.41	MC
A4ANVM		1.897	-0.092	-0.92	1.900	-0.107	-1.13	MC
B46QZG		1.967	-0.022	-0.22	2.043	0.037	0.39	XX
BELD9H		2.022	0.033	0.34	2.052	0.045	0.47	MC
FKGVCB		2.023	0.035	0.35	2.072	0.065	0.69	MC
H6E2ZT		1.947	-0.042	-0.42	1.978	-0.028	-0.30	MC
HH6TLW		2.018	0.030	0.30	2.018	0.012	0.12	XX
HYL46A	X	1.592	-0.397	-4.00	1.688	-0.318	-3.36	MM
JAQ8CT		2.056	0.067	0.68	2.072	0.066	0.69	MC
JW28LQ		1.990	0.002	0.02	1.983	-0.023	-0.25	MC
K9BC37		2.038	0.050	0.50	2.020	0.013	0.14	XX
KPD8FX		1.953	-0.035	-0.35	2.007	0.000	0.00	MC
L8BMGN		1.788	-0.200	-2.02	1.820	-0.187	-1.97	ME
LAY26X		2.013	0.025	0.25	2.045	0.038	0.40	MC
LLTJDC		2.092	0.103	1.04	2.050	0.043	0.46	MC
MJYBPT		2.152	0.163	1.65	2.152	0.145	1.53	MC
PA3YLB		2.083	0.095	0.96	2.128	0.122	1.28	MC
PRNHMP		1.992	0.003	0.03	1.980	-0.027	-0.28	MP
Q4Z6BF		2.073	0.085	0.86	2.050	0.043	0.46	MC
TFKLRC		1.902	-0.087	-0.87	1.925	-0.082	-0.86	MC
VG7U77		1.932	-0.057	-0.57	1.913	-0.093	-0.98	XX
VNMKEJ		2.005	0.017	0.17	2.035	0.028	0.30	MC
VZGYEF		2.090	0.102	1.03	2.082	0.075	0.79	MM
WDG8P3		1.984	-0.004	-0.04	1.998	-0.008	-0.09	MC
XKWZLK		1.907	-0.082	-0.82	1.963	-0.043	-0.46	MC
XPTUDU		2.115	0.127	1.28	2.153	0.147	1.55	MC
ZXVNQJ		1.995	0.007	0.07	2.028	0.022	0.23	MD



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

Report #191
1st Qtr 2017

		Summary Statistics	
Grand Means	1.9884 minutes	2.0067 minutes	
Stnd Dev Btwn Labs	0.0991 minutes	0.0948 minutes	
Statistics based on 32 of 33 reporting participants			

Samples W75-W76: EPDM compound, batch #1 & W77-W78: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #684

HYL46A (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of sample group W75-W76.

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

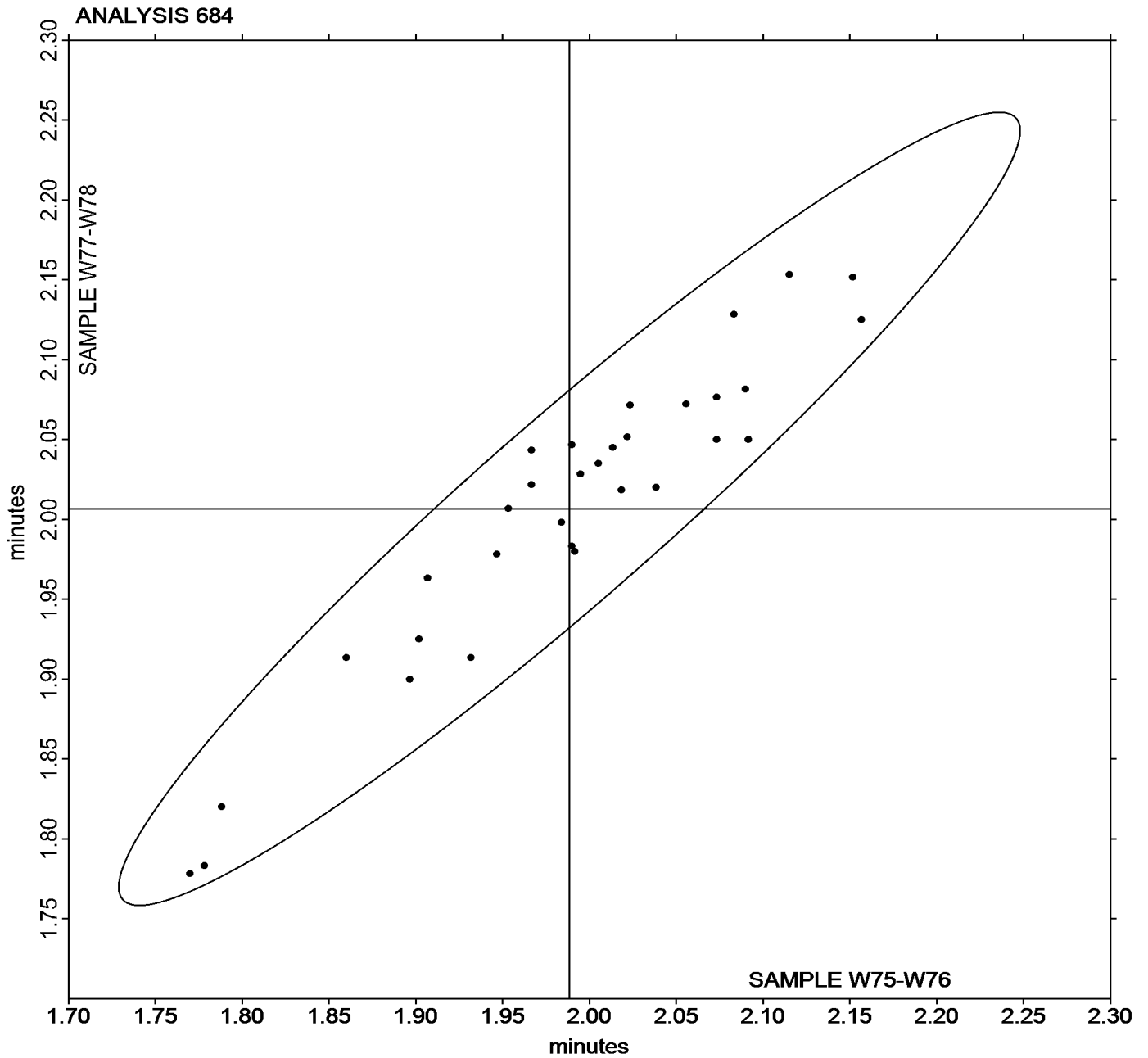


Rubber Interlaboratory Testing Program
Analysis 684
MDR Vulcanization-Cure Time 10% (minutes)

Report #191
1st Qtr 2017

Grand Mean Sample **W75-W76** = 1.9884 minutes

Grand Mean Sample **W77-W78** = 2.0067 minutes





Rubber Interlaboratory Testing Program

Report #191

Analysis 685

1st Qtr 2017

MDR Vulcanization-Scorch Time, Ts1 (minutes)

WebCode	Data Flag	Sample W75-W76			Sample W77-W78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2LEJV8		1.827	0.036	0.31	1.852	0.055	0.45	MC
6WTEN4		1.638	-0.153	-1.34	1.642	-0.155	-1.27	MR
7RP2F4		1.848	0.057	0.50	1.892	0.095	0.78	TP
843KD7		1.778	-0.013	-0.11	1.783	-0.014	-0.11	MC
8YQMYR		1.872	0.081	0.71	1.910	0.113	0.93	MC
9CQV3R		1.705	-0.086	-0.75	1.713	-0.084	-0.69	MC
9DKNXB		1.527	-0.264	-2.31	1.515	-0.282	-2.31	MC
A4ANVM		1.532	-0.259	-2.27	1.542	-0.255	-2.09	MC
B46QZG		1.813	0.022	0.19	1.843	0.046	0.38	XX
BELD9H		1.810	0.019	0.17	1.805	0.008	0.07	MC
CDR6KY		1.627	-0.164	-1.44	1.595	-0.202	-1.66	MC
FKGVCB		1.893	0.102	0.89	1.930	0.133	1.09	MC
H6E2ZT		1.773	-0.018	-0.16	1.795	-0.002	-0.02	MC
HH6TLW	*	1.940	0.149	1.30	1.895	0.098	0.80	XX
HYL46A	X	1.390	-0.401	-3.51	1.508	-0.289	-2.37	MM
JAQ8CT		1.831	0.039	0.35	1.825	0.028	0.23	MC
JW28LQ		1.805	0.014	0.12	1.803	0.006	0.05	MC
K9BC37		1.785	-0.006	-0.05	1.782	-0.015	-0.13	XX
KPD8FX		1.752	-0.039	-0.35	1.795	-0.002	-0.02	MC
L8BMGN		1.677	-0.114	-1.00	1.697	-0.100	-0.82	ME
LAY26X		1.780	-0.011	-0.10	1.790	-0.007	-0.06	MC
LLTJDC		1.783	-0.008	-0.07	1.773	-0.024	-0.19	MC
MJYBPT		1.948	0.157	1.38	1.915	0.118	0.97	MC
MT9HRN		1.798	0.007	0.06	1.817	0.020	0.16	MC
PA3YLB		2.055	0.264	2.31	2.078	0.281	2.31	MC
PRNHMP		1.683	-0.108	-0.94	1.650	-0.147	-1.20	MP
Q4Z6BF		1.835	0.044	0.38	1.812	0.015	0.12	MC
TFKLRC		1.937	0.146	1.27	1.965	0.168	1.38	MC
VG7U77		1.813	0.022	0.19	1.822	0.025	0.20	XX
VNMKEJ		1.755	-0.036	-0.32	1.770	-0.027	-0.22	MC
VZGYEF		1.872	0.081	0.71	1.852	0.055	0.45	MM
WDG8P3		1.760	-0.031	-0.27	1.763	-0.034	-0.28	MC
XKWZLK		1.822	0.031	0.27	1.848	0.051	0.42	MC
XN2TFH		1.628	-0.163	-1.42	1.596	-0.201	-1.65	MC
XPTUDU		1.908	0.117	1.03	1.957	0.160	1.31	MC
ZXVNQJ		1.878	0.087	0.76	1.875	0.078	0.64	MD



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

Report #191
1st Qtr 2017

		Summary Statistics	
Grand Means	1.7911 minutes	1.7970 minutes	
Stnd Dev Btwn Labs	0.1142 minutes	0.1220 minutes	
Statistics based on 35 of 36 reporting participants			

Samples W75-W76: EPDM compound, batch #1 & W77-W78: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #685

HYL46A (X) - Inconsistent in testing between sample groups. Data for sample group W75-W76 are low. Inconsistent within the determinations of sample group W75-W76.

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

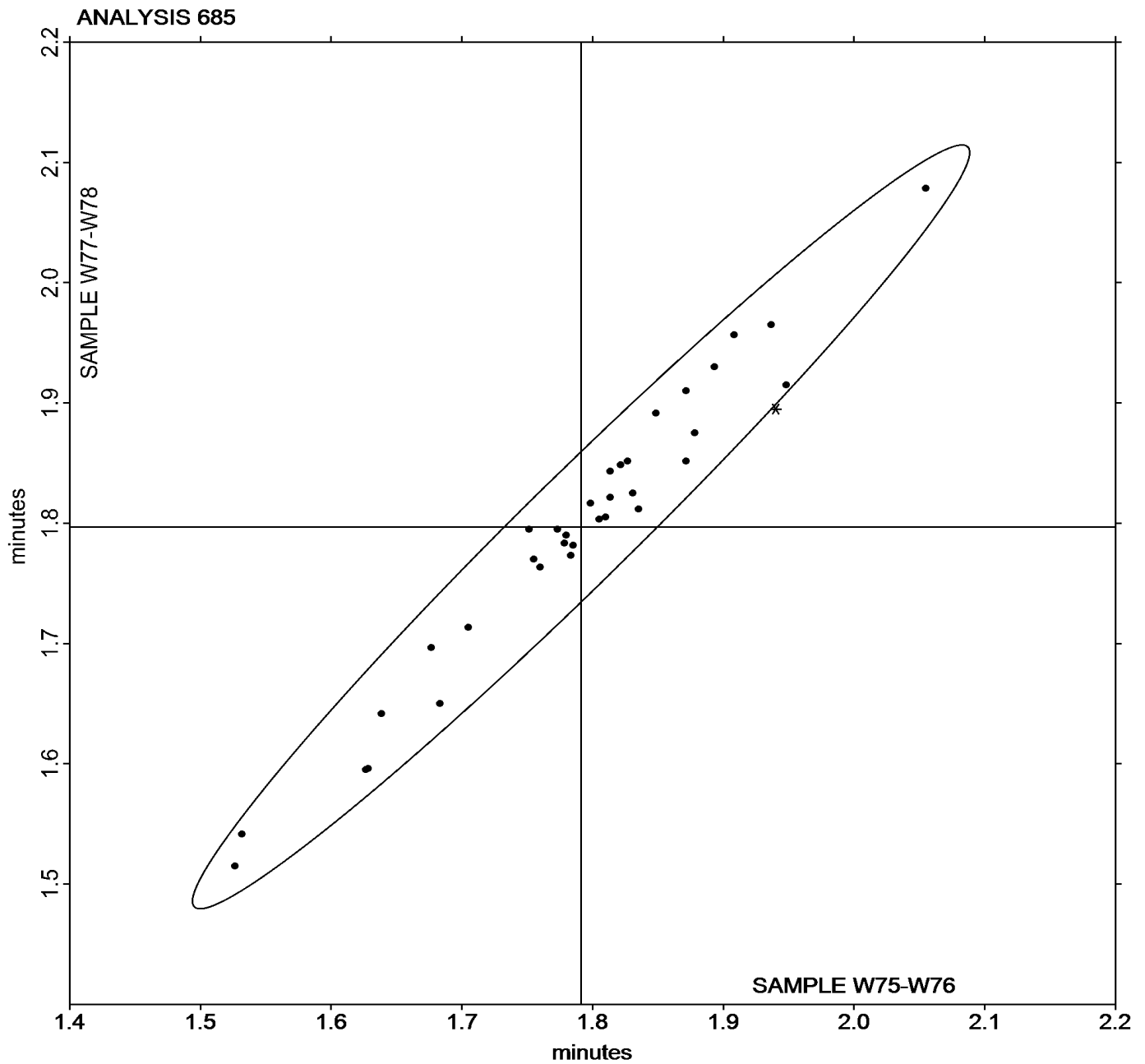


Rubber Interlaboratory Testing Program
Analysis 685
MDR Vulcanization-Scorch Time, Ts1 (minutes)

Report #191
1st Qtr 2017

Grand Mean Sample **W75-W76** = 1.7911 minutes

Grand Mean Sample **W77-W78** = 1.7970 minutes





Rubber Interlaboratory Testing Program

Report #191

Analysis 686

1st Qtr 2017

MDR Vulcanization-Cure Time 50% (minutes)

WebCode	Data Flag	Sample W75-W76			Sample W77-W78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2LEJV8		4.312	-0.410	-1.61	4.267	-0.453	-1.81	MC
6WTEN4	*	5.402	0.680	2.67	5.407	0.687	2.75	MR
7RP2F4		4.875	0.153	0.60	4.895	0.175	0.70	TP
843KD7		4.420	-0.302	-1.18	4.468	-0.251	-1.01	MC
8YQMYR		4.630	-0.092	-0.36	4.643	-0.076	-0.31	MC
9CQV3R		4.922	0.200	0.79	4.910	0.190	0.76	MC
9DKNXB		4.672	-0.050	-0.20	4.622	-0.098	-0.39	MC
A4ANVM		4.572	-0.150	-0.59	4.612	-0.108	-0.43	MC
B46QZG		4.493	-0.228	-0.90	4.493	-0.226	-0.91	XX
BELD9H		4.805	0.083	0.33	4.918	0.199	0.80	MC
CDR6KY		4.813	0.092	0.36	4.742	0.022	0.09	MC
FKGVCB		4.690	-0.032	-0.12	4.723	0.004	0.01	MC
H6E2ZT		4.628	-0.093	-0.37	4.753	0.034	0.14	MC
HH6TLW		4.760	0.038	0.15	4.698	-0.021	-0.09	XX
HYL46A	X	3.608	-1.113	-4.37	3.795	-0.925	-3.70	MM
JAQ8CT		4.978	0.256	1.01	4.942	0.222	0.89	MC
JW28LQ		4.832	0.110	0.43	4.713	-0.006	-0.03	MC
K9BC37		4.598	-0.123	-0.48	4.587	-0.133	-0.53	XX
KPD8FX		4.638	-0.083	-0.33	4.752	0.032	0.13	MC
L8BMGN		4.143	-0.578	-2.27	4.110	-0.610	-2.44	ME
LAY26X		4.692	-0.030	-0.12	4.742	0.022	0.09	MC
LLTJDC		4.653	-0.068	-0.27	4.593	-0.126	-0.51	MC
MJYBPT		5.095	0.373	1.47	5.082	0.362	1.45	MC
MT9HRN		4.768	0.047	0.18	4.835	0.115	0.46	MC
PA3YLB		4.473	-0.248	-0.97	4.550	-0.170	-0.68	MC
PRNHMP		4.767	0.045	0.18	4.717	-0.003	-0.01	MC
Q4Z6BF		5.072	0.350	1.37	4.960	0.240	0.96	MC
TFKLRC		4.328	-0.393	-1.54	4.302	-0.418	-1.67	MC
VG7U77		4.488	-0.233	-0.92	4.425	-0.295	-1.18	XX
VNMKEJ		4.750	0.028	0.11	4.800	0.080	0.32	MC
VZGYEF		5.103	0.382	1.50	5.045	0.325	1.30	MM
WDG8P3		4.826	0.104	0.41	4.845	0.125	0.50	MC
XKWZLK		4.452	-0.270	-1.06	4.485	-0.235	-0.94	MC
XN2TFH		4.959	0.237	0.93	4.879	0.160	0.64	MC
XPTUDU		4.938	0.217	0.85	4.903	0.184	0.74	MC
ZXVNQJ		4.708	-0.013	-0.05	4.768	0.049	0.20	MD



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

Report #191
1st Qtr 2017

		Summary Statistics	
Grand Means	4.7216 minutes	4.7196 minutes	
Stnd Dev Btwn Labs	0.2548 minutes	0.2497 minutes	
Statistics based on 35 of 36 reporting participants			

Samples W75-W76: EPDM compound, batch #1 & W77-W78: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #686

HYL46A (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of sample group W75-W76.

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 | |

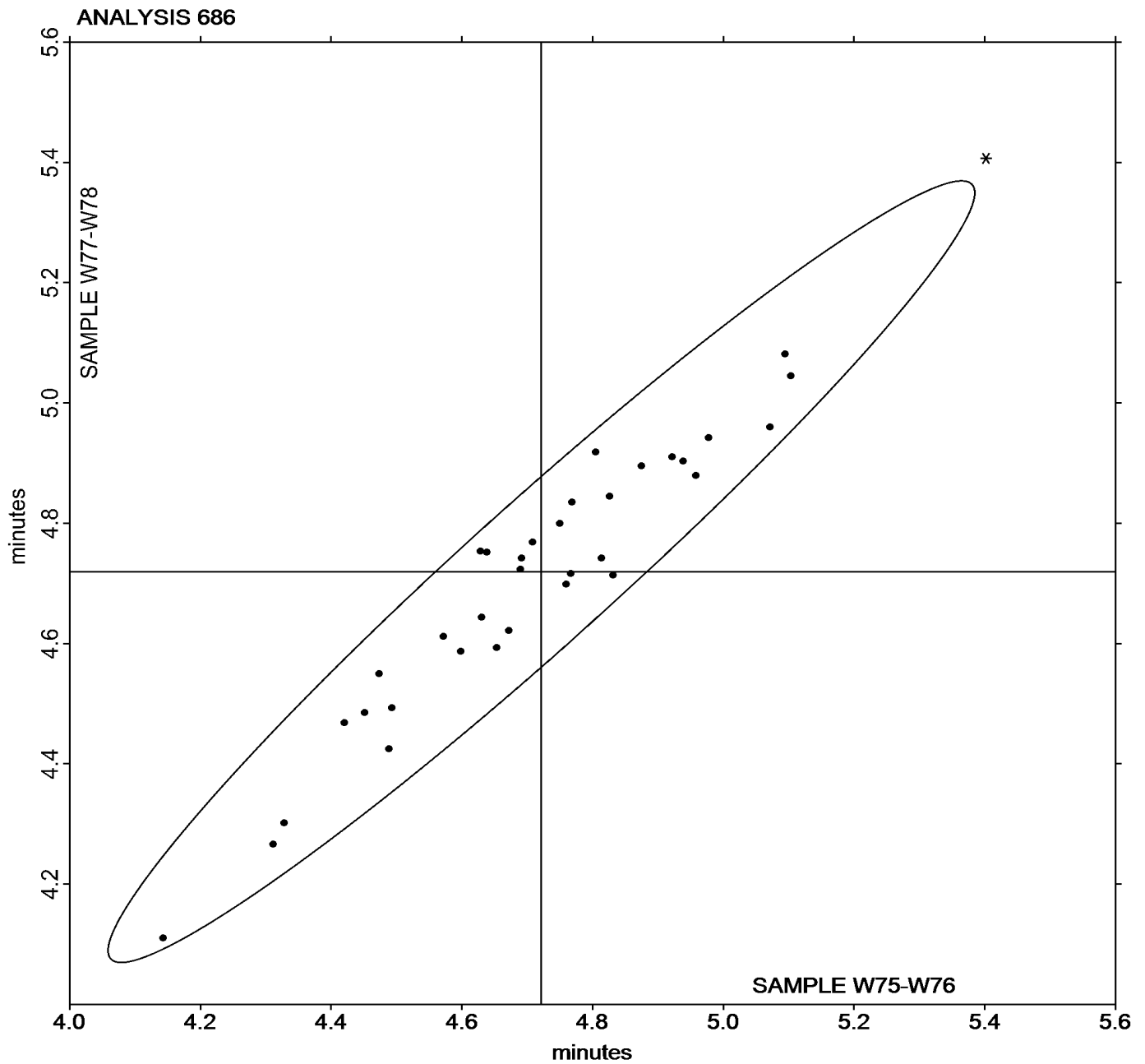


Rubber Interlaboratory Testing Program
Analysis 686
MDR Vulcanization-Cure Time 50% (minutes)

Report #191
1st Qtr 2017

Grand Mean Sample **W75-W76** = 4.7216 minutes

Grand Mean Sample **W77-W78** = 4.7196 minutes





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

Report #191
1st Qtr 2017

WebCode	Data Flag	Sample W75-W76			Sample W77-W78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2LEJV8		7.637	-0.798	-1.56	7.545	-1.022	-1.91	MC
6WTEN4	*	9.920	1.485	2.90	10.003	1.436	2.68	MR
7RP2F4		8.428	-0.006	-0.01	8.797	0.229	0.43	TP
843KD7		8.118	-0.316	-0.62	8.047	-0.521	-0.97	MC
8YQMYR		8.115	-0.320	-0.62	8.597	0.029	0.05	MC
9CQV3R		8.843	0.409	0.80	9.057	0.489	0.91	MC
9DKNXB		8.337	-0.098	-0.19	8.107	-0.461	-0.86	MC
A4ANVM		8.304	-0.131	-0.26	8.202	-0.365	-0.68	MC
B46QZG		8.162	-0.273	-0.53	8.712	0.144	0.27	XX
BELD9H		8.947	0.512	1.00	9.240	0.673	1.26	MC
CDR6KY		8.253	-0.181	-0.35	8.440	-0.127	-0.24	MP
FKGVCB		8.573	0.139	0.27	8.900	0.333	0.62	MC
H6E2ZT		8.407	-0.028	-0.05	8.565	-0.002	0.00	MC
HH6TLW		8.277	-0.158	-0.31	8.442	-0.126	-0.23	XX
HYL46A	X	6.673	-1.761	-3.44	7.265	-1.302	-2.43	MM
JAQ8CT		8.897	0.463	0.90	9.056	0.488	0.91	MC
JW28LQ		8.497	0.062	0.12	8.600	0.033	0.06	MC
K9BC37		8.535	0.100	0.20	8.542	-0.026	-0.05	XX
KPD8FX		8.265	-0.170	-0.33	8.403	-0.164	-0.31	MC
L8BMGN		7.482	-0.953	-1.86	7.630	-0.937	-1.75	ME
LAY26X		8.415	-0.020	-0.04	8.643	0.076	0.14	MC
LLTJDC		8.630	0.195	0.38	8.557	-0.011	-0.02	MC
MJYBPT		9.068	0.634	1.24	9.190	0.623	1.16	MC
MT9HRN		8.595	0.160	0.31	8.602	0.034	0.06	MC
PA3YLB		7.675	-0.760	-1.48	7.980	-0.587	-1.10	MC
PRNHMP		8.405	-0.030	-0.06	8.515	-0.052	-0.10	MP
Q4Z6BF		9.040	0.605	1.18	8.860	0.293	0.55	MC
TFKLRC		7.588	-0.846	-1.65	7.558	-1.009	-1.88	MC
VG7U77		7.948	-0.486	-0.95	7.775	-0.792	-1.48	XX
VNMKEJ		8.645	0.210	0.41	8.735	0.168	0.31	MC
VZGYEF		9.148	0.714	1.39	9.418	0.851	1.59	MM
WDG8P3		8.198	-0.237	-0.46	8.363	-0.204	-0.38	MC
XKWZLK		7.727	-0.708	-1.38	8.047	-0.521	-0.97	MC
XN2TFH		9.064	0.629	1.23	9.028	0.461	0.86	MC
XPTUDU		8.868	0.434	0.85	9.037	0.469	0.88	MC
ZXVNQJ		8.202	-0.233	-0.45	8.665	0.098	0.18	MD



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

Report #191
1st Qtr 2017

		Summary Statistics	
Grand Means	8.4347 minutes	8.5673 minutes	
Stnd Dev Btwn Labs	0.5125 minutes	0.5358 minutes	
Statistics based on 35 of 36 reporting participants			

Samples W75-W76: EPDM compound, batch #1 & W77-W78: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #687

HYL46A (X) - Inconsistent in testing between sample groups. Data for sample group W75-W76 are low. Inconsistent within the determinations of sample group W77-W78.

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

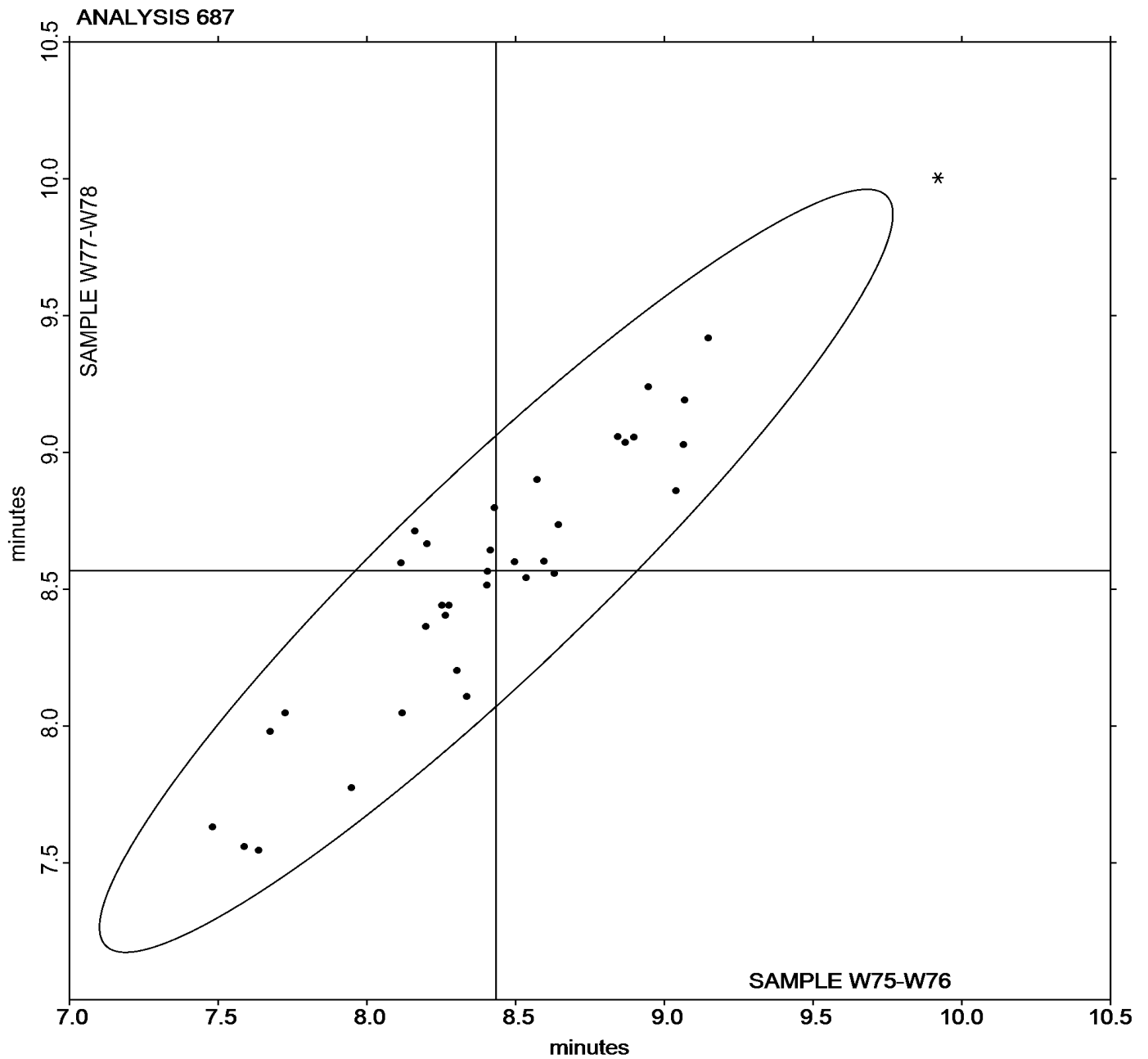


Rubber Interlaboratory Testing Program
Analysis 687
MDR Vulcanization-Cure Time 90% (minutes)

Report #191
1st Qtr 2017

Grand Mean Sample **W75-W76** = 8.4347 minutes

Grand Mean Sample **W77-W78** = 8.5673 minutes





Rubber Interlaboratory Testing Program

Report #191

Analysis 688

1st Qtr 2017

MDR Vulcanization: Minimum Torque (lbf.in)

WebCode	Data Flag	Sample W75-W76			Sample W77-W78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2LEJV8		2.248	0.360	1.08	2.192	0.351	1.03	MC
6WTEN4		1.643	-0.245	-0.74	1.638	-0.203	-0.60	MR
7RP2F4		1.672	-0.217	-0.65	1.640	-0.201	-0.59	TP
843KD7		2.195	0.307	0.92	2.088	0.247	0.73	MC
8YQMYR		1.887	-0.002	-0.01	1.858	0.017	0.05	MC
9CQV3R		1.574	-0.314	-0.94	1.544	-0.297	-0.88	MC
9DKNXB		1.900	0.012	0.03	1.833	-0.008	-0.02	MC
A4ANVM		1.807	-0.081	-0.24	1.705	-0.136	-0.40	MC
B46QZG		2.302	0.413	1.24	2.283	0.442	1.31	XX
BELD9H		1.557	-0.332	-1.00	1.533	-0.308	-0.91	MC
CDR6KY		1.758	-0.130	-0.39	1.755	-0.086	-0.25	MP
FKGVCB		2.488	0.600	1.80	2.422	0.581	1.71	MC
H6E2ZT		1.638	-0.250	-0.75	1.520	-0.321	-0.95	MC
HH6TLW		1.985	0.097	0.29	1.877	0.036	0.10	XX
HYL46A	X	2.612	0.723	2.17	2.240	0.399	1.18	MM
JAQ8CT		1.613	-0.275	-0.83	1.515	-0.326	-0.96	MC
JW28LQ		1.742	-0.147	-0.44	1.750	-0.091	-0.27	MC
K9BC37		2.132	0.243	0.73	2.027	0.186	0.55	XX
KPD8FX		1.539	-0.350	-1.05	1.453	-0.388	-1.15	MC
L8BMGN		2.088	0.200	0.60	2.108	0.267	0.79	ME
LAY26X		1.877	-0.012	-0.04	1.773	-0.068	-0.20	MC
LLTJDC		2.277	0.388	1.17	2.263	0.422	1.25	MC
MJYBPT		1.523	-0.365	-1.10	1.467	-0.374	-1.11	MC
MT9HRN		1.743	-0.145	-0.44	1.650	-0.191	-0.56	MC
PA3YLB	X	2.755	0.867	2.60	2.580	0.739	2.18	MC
PRNHMP		1.533	-0.356	-1.07	1.513	-0.328	-0.97	MP
Q4Z6BF		1.565	-0.323	-0.97	1.543	-0.298	-0.88	MC
TFKLRC		2.662	0.773	2.32	2.653	0.812	2.40	MC
VG7U77		2.335	0.447	1.34	2.335	0.494	1.46	XX
VNMKEJ		1.599	-0.289	-0.87	1.528	-0.313	-0.92	MC
VZGYEF		1.707	-0.182	-0.55	1.697	-0.144	-0.43	MM
WDG8P3		1.590	-0.298	-0.90	1.552	-0.289	-0.85	MC
XKWZLK		2.355	0.467	1.40	2.297	0.456	1.34	MC
XN2TFH		1.770	-0.118	-0.35	1.723	-0.118	-0.35	MC
XPTUDU		2.398	0.510	1.53	2.380	0.539	1.59	MC
ZXVNQJ		1.504	-0.385	-1.15	1.482	-0.360	-1.06	MD



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

Report #191
1st Qtr 2017

		Summary Statistics	
Grand Means			
	1.8884 lbf.in		1.8412 lbf.in
Std Dev Btwn Labs			
	0.3332 lbf.in		0.3387 lbf.in
Statistics based on 34 of 36 reporting participants			

		Summary Statistics in SI Units	
Grand Means			
	2.1336 dN.m		2.0802 dN.m
Std Dev Btwn Labs			
	0.3765 dN.m		0.3827 dN.m
Statistics based on 34 of 36 reporting participants			

Samples W75-W76: EPDM compound, batch #1 & W77-W78: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #688

- HYL46A (X) - Inconsistent in testing between sample groups. Inconsistent within the determinations of sample group W75-W76.
- PA3YLB (X) - Inconsistent in testing between sample groups. Inconsistent within the determinations of both sample groups.

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

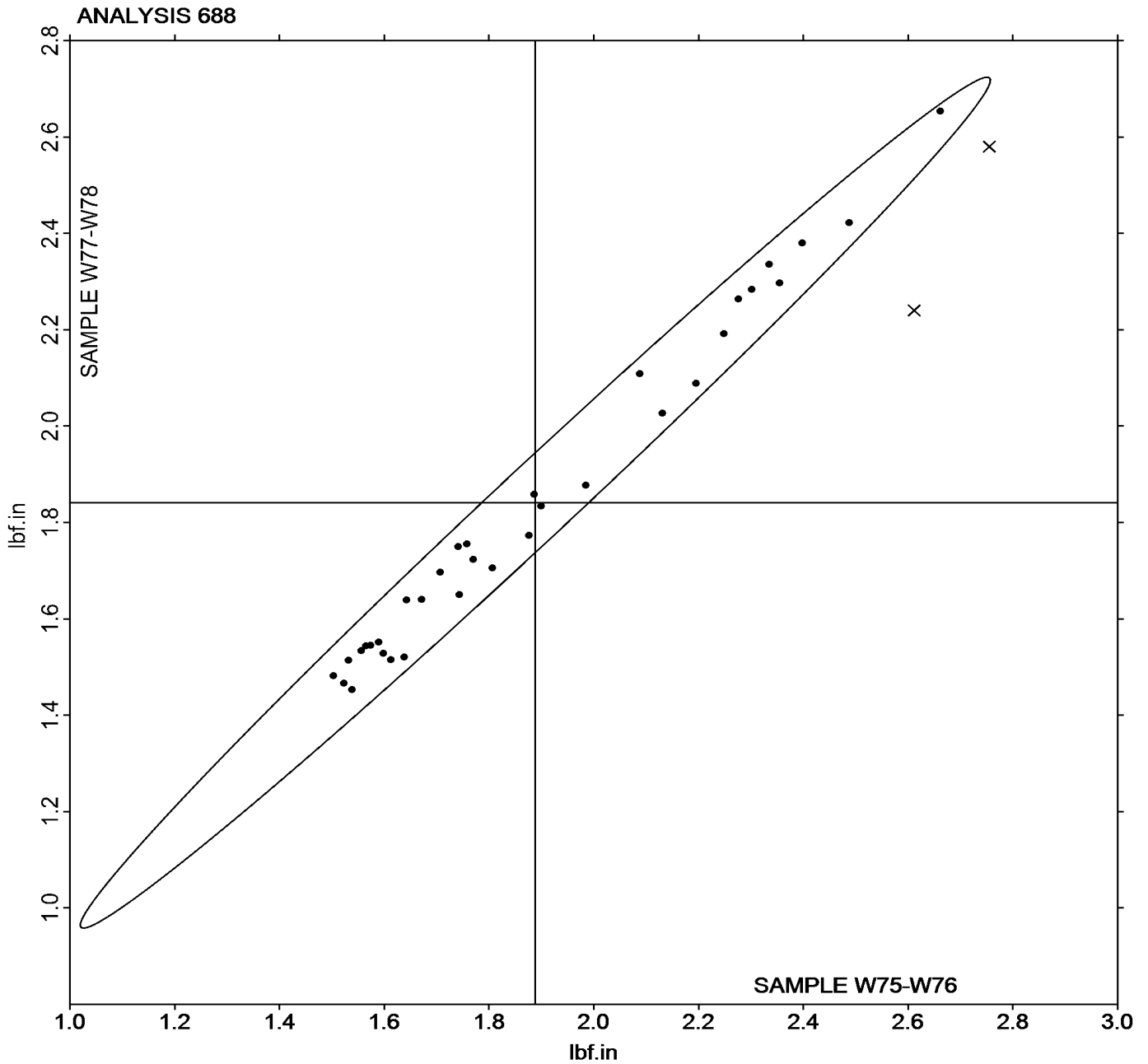


Rubber Interlaboratory Testing Program
Analysis 688
MDR Vulcanization: Minimum Torque (lbf.in)

Report #191
1st Qtr 2017

Grand Mean Sample **W75-W76** = 1.8884 lbf.in

Grand Mean Sample **W77-W78** = 1.8412 lbf.in





Rubber Interlaboratory Testing Program

Report #191

Analysis 689

1st Qtr 2017

MDR Vulcanization: Maximum Torque (lbf.in)

WebCode	Data Flag	Sample W75-W76			Sample W77-W78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2LEJV8		12.59	-1.12	-1.24	12.84	-0.86	-1.11	MC
6WTEN4	*	16.43	2.71	3.01	16.07	2.36	3.05	MR
7RP2F4		12.88	-0.84	-0.93	13.00	-0.70	-0.91	TP
843KD7		13.59	-0.12	-0.13	13.47	-0.24	-0.31	MC
8YQMYR		12.75	-0.96	-1.06	12.95	-0.75	-0.97	MC
9CQV3R		13.77	0.06	0.07	13.70	-0.01	-0.01	MC
9DKNXB		14.23	0.51	0.57	14.43	0.73	0.94	MC
A4ANVM		14.26	0.54	0.60	14.03	0.33	0.42	MC
B46QZG	*	14.10	0.39	0.43	14.65	0.95	1.22	XX
BELD9H		13.52	-0.20	-0.22	13.78	0.08	0.10	MC
CDR6KY		14.11	0.40	0.44	14.43	0.73	0.94	MP
FKGVCB		13.75	0.04	0.04	13.80	0.10	0.13	MC
H6E2ZT		13.30	-0.42	-0.46	13.25	-0.45	-0.58	MC
HH6TLW		12.73	-0.99	-1.09	13.01	-0.69	-0.89	XX
HYL46A	*	15.64	1.93	2.13	14.89	1.19	1.53	MM
JAQ8CT		13.73	0.01	0.01	13.80	0.10	0.12	MC
JW28LQ		13.55	-0.16	-0.18	13.44	-0.27	-0.34	MC
K9BC37		14.90	1.19	1.32	14.47	0.77	0.99	XX
KPD8FX		12.17	-1.54	-1.71	12.13	-1.58	-2.03	MC
L8BMGN		13.35	-0.37	-0.41	13.45	-0.25	-0.33	ME
LAY26X		14.26	0.55	0.61	14.31	0.61	0.79	MC
LLTJDC		15.32	1.61	1.79	14.62	0.92	1.18	MC
MJYBPT		13.40	-0.31	-0.35	13.47	-0.23	-0.30	MC
MT9HRN		13.76	0.05	0.05	13.68	-0.03	-0.03	MC
PA3YLB		13.05	-0.66	-0.73	13.09	-0.61	-0.79	MC
PRNHMP		13.22	-0.49	-0.54	13.39	-0.32	-0.41	MC
Q4Z6BF		13.65	-0.07	-0.07	13.63	-0.07	-0.09	MC
TFKLRC		12.35	-1.36	-1.51	12.22	-1.49	-1.92	MC
VG7U77		13.64	-0.07	-0.08	13.33	-0.37	-0.48	XX
VNMKEJ		13.49	-0.22	-0.25	13.30	-0.40	-0.52	MC
VZGYEF		13.68	-0.04	-0.04	13.86	0.16	0.21	MM
WDG8P3		13.66	-0.05	-0.06	13.69	-0.02	-0.02	MC
XKWZLK		13.28	-0.43	-0.48	13.44	-0.26	-0.34	MC
XN2TFH		14.65	0.94	1.04	14.60	0.89	1.15	MC
XPTUDU		14.38	0.67	0.74	14.28	0.57	0.74	XX
ZXVNQJ		12.52	-1.19	-1.32	12.85	-0.86	-1.11	MD



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

Report #191
1st Qtr 2017

		Summary Statistics	
Grand Means	13.712 lbf.in	13.704 lbf.in	
Stnd Dev Btwn Labs	0.902 lbf.in	0.776 lbf.in	
Statistics based on 36 of 36 reporting participants			

		Summary Statistics in SI Units	
Grand Means	15.493 dN.m	15.483 dN.m	
Stnd Dev Btwn Labs	1.020 dN.m	0.877 dN.m	
Statistics based on 36 of 36 reporting participants			

Samples W75-W76: EPDM compound, batch #1 & W77-W78: 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

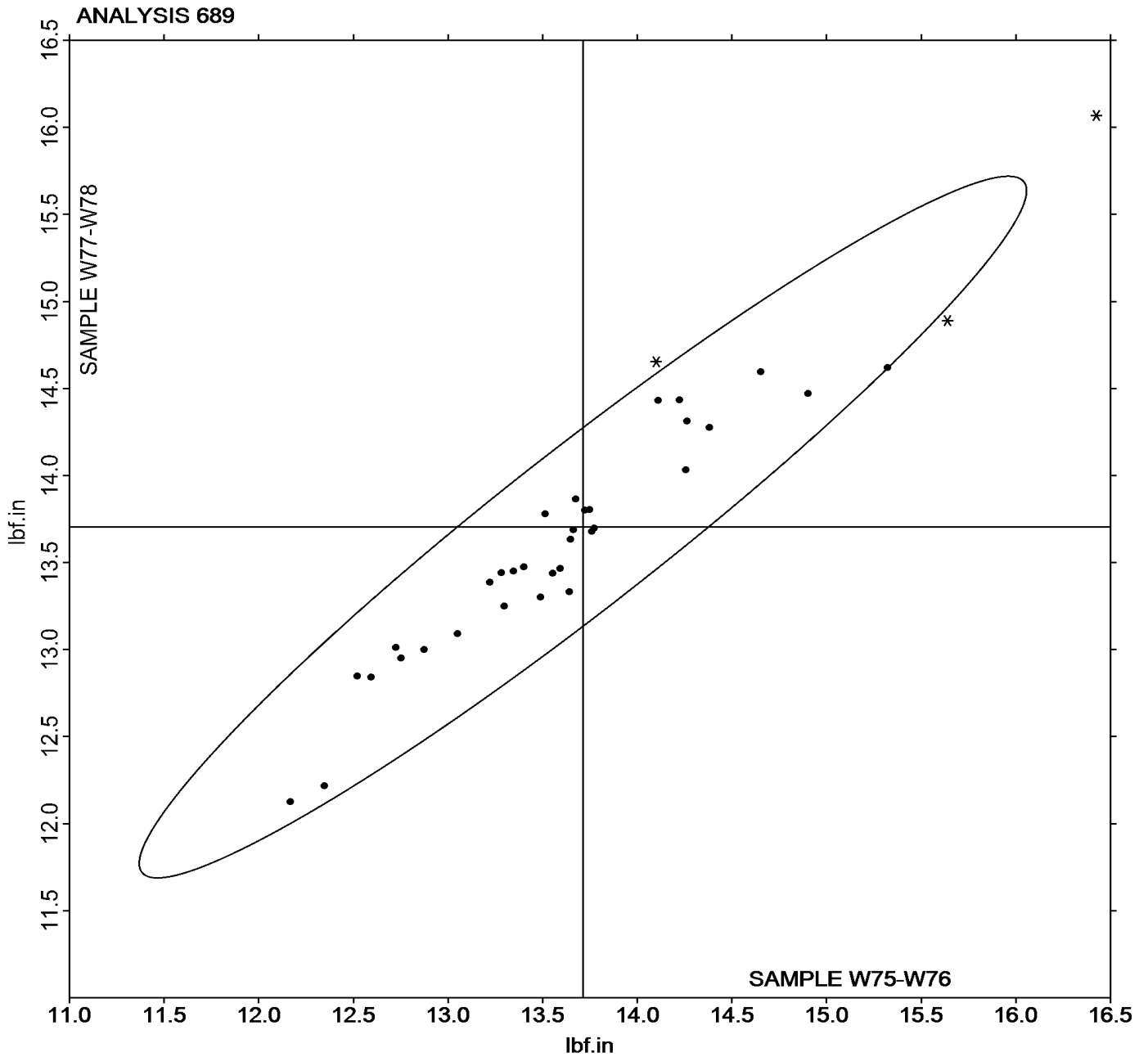


Rubber Interlaboratory Testing Program
Analysis 689
MDR Vulcanization: Maximum Torque (lbf.in)

Report #191
1st Qtr 2017

Grand Mean Sample **W75-W76** = 13.712 lbf.in

Grand Mean Sample **W77-W78** = 13.704 lbf.in





Rubber Interlaboratory Testing Program

Report #191

Analysis 690

1st Qtr 2017

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

WebCode	Data Flag	Sample E71-E72			Sample E73-E74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
9CQV3R		452.0	-7.0	-1.06	930.5	36.1	0.98	RP
A4ANVM		462.2	3.2	0.49	917.3	22.9	0.62	XX
CDR6KY		460.8	1.8	0.28	834.0	-60.4	-1.63	RP
LLTJDC		467.3	8.3	1.27	895.2	0.8	0.02	PP
XN2TFH		452.6	-6.4	-0.97	895.0	0.6	0.02	RP

Summary Statistics	
Grand Means	
	459.00 kPa
	894.39 kPa
Std Dev Btwn Labs	
	6.58 kPa
	37.01 kPa
Statistics based on 5 of 5 reporting participants	

Samples E71-E72: EPDM compound, batch #1 & E73-E74: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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

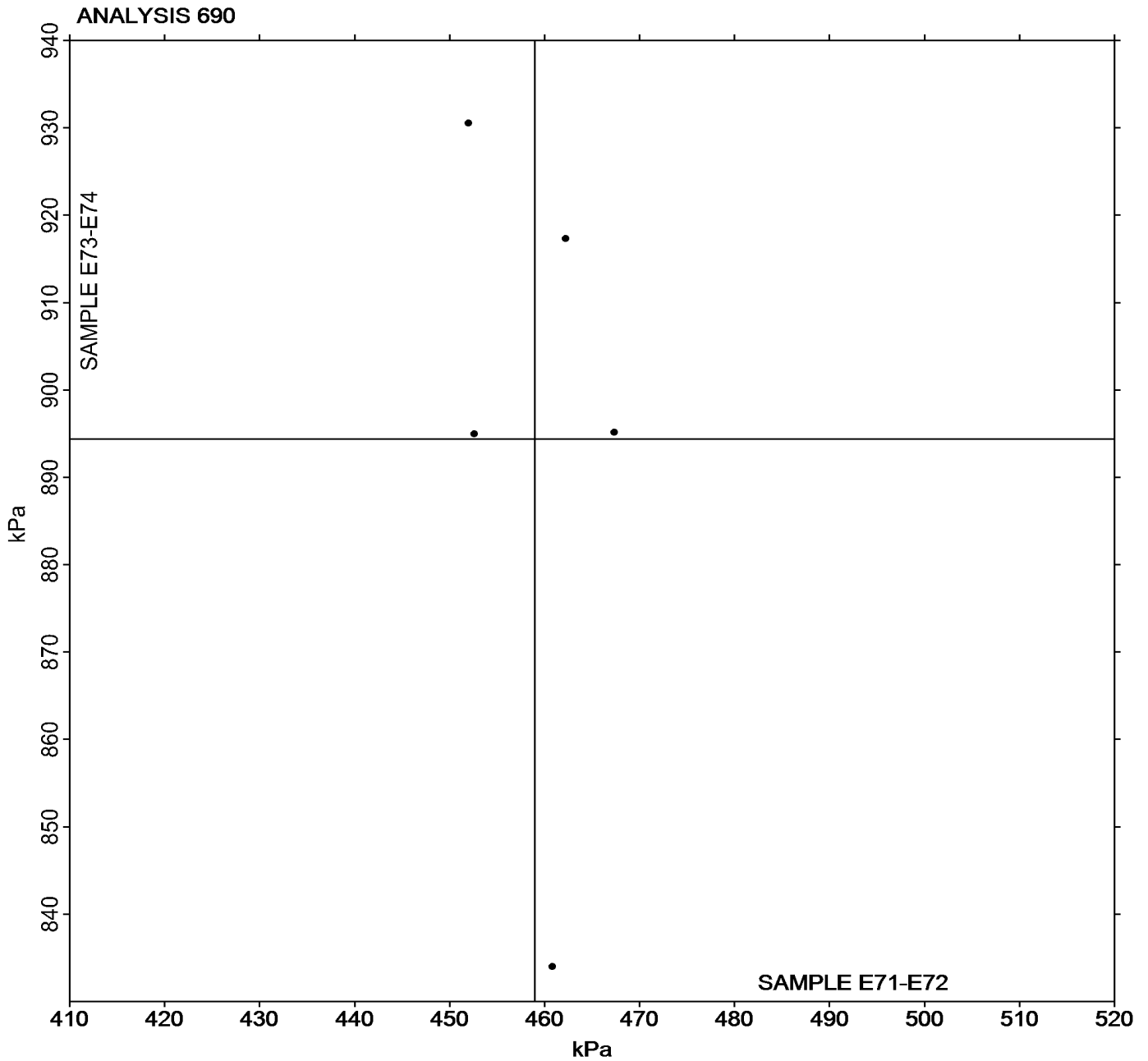


Rubber Interlaboratory Testing Program
Analysis 690
RPA Rheological Properties: Part A - G' at 20Hz (kPa)

Report #191
1st Qtr 2017

Grand Mean Sample E71-E72 = 459.00 kPa

Grand Mean Sample E73-E74 = 894.39 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 #191

Analysis 691

1st Qtr 2017

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

WebCode	Data Flag	Sample E71-E72			Sample E73-E74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
9CQV3R		205.7	-1.4	-0.30	234.5	10.2	0.85	XX
A4ANVM		212.2	5.1	1.05	239.7	15.4	1.29	XX
CDR6KY		210.4	3.2	0.66	213.4	-11.0	-0.92	RP
LLTJDC		207.7	0.6	0.11	217.5	-6.8	-0.58	PP
XN2TFH		199.6	-7.5	-1.53	216.7	-7.7	-0.65	RP

Summary Statistics	
Grand Means	
	207.11 kPa
	224.35 kPa
Std Dev Btwn Labs	
	4.88 kPa
	11.89 kPa
Statistics based on 5 of 5 reporting participants	

Samples E71-E72: EPDM compound, batch #1 & E73-E74: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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

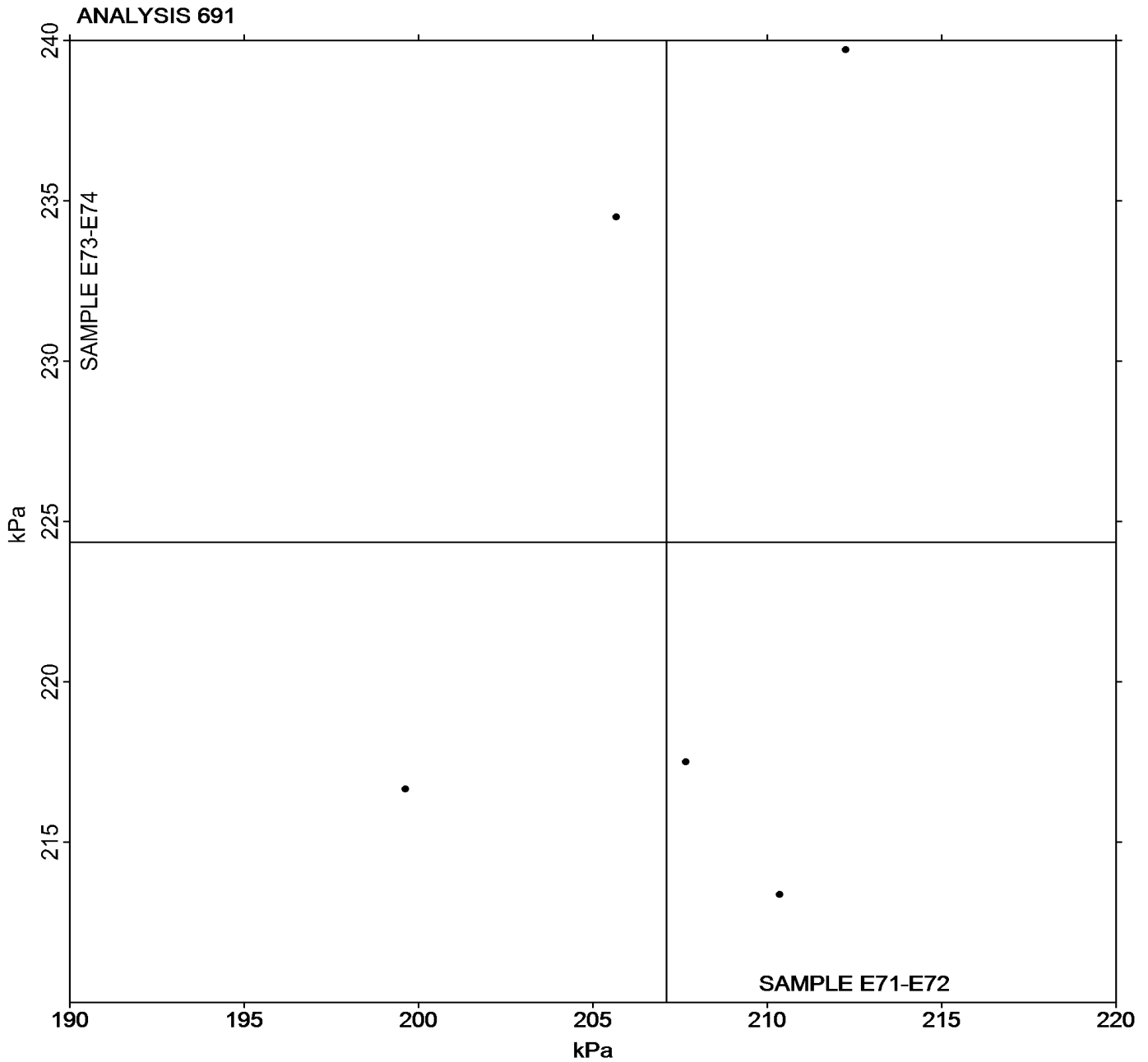


Rubber Interlaboratory Testing Program
Analysis 691
RPA Rheological Properties: Part A - G'' at 20Hz (kPa)

Report #191
1st Qtr 2017

Grand Mean Sample **E71-E72** = 207.11 kPa

Grand Mean Sample **E73-E74** = 224.35 kPa



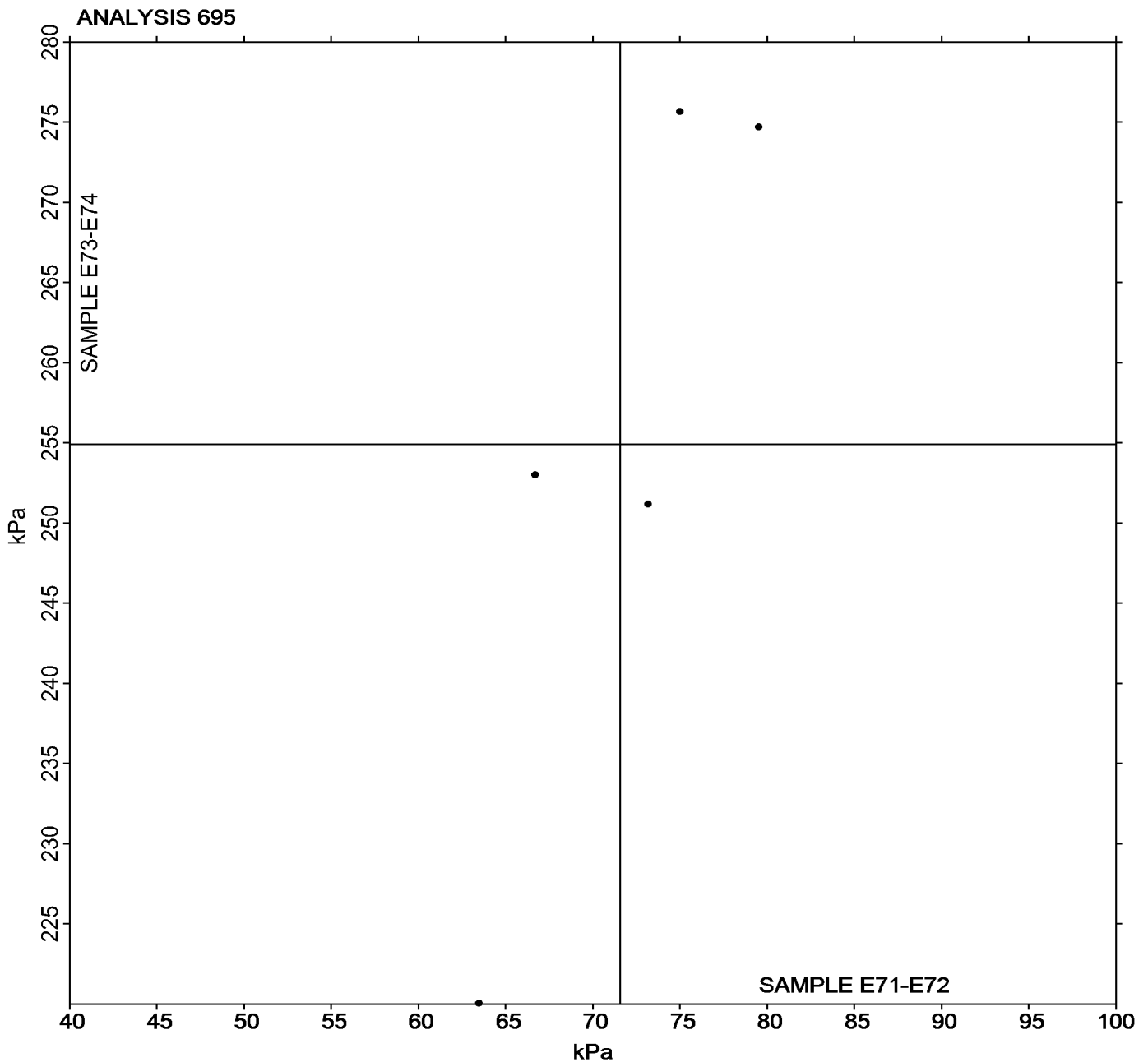
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.



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

Grand Mean Sample E71-E72 = 71.571 kPa

Grand Mean Sample E73-E74 = 254.91 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 #191

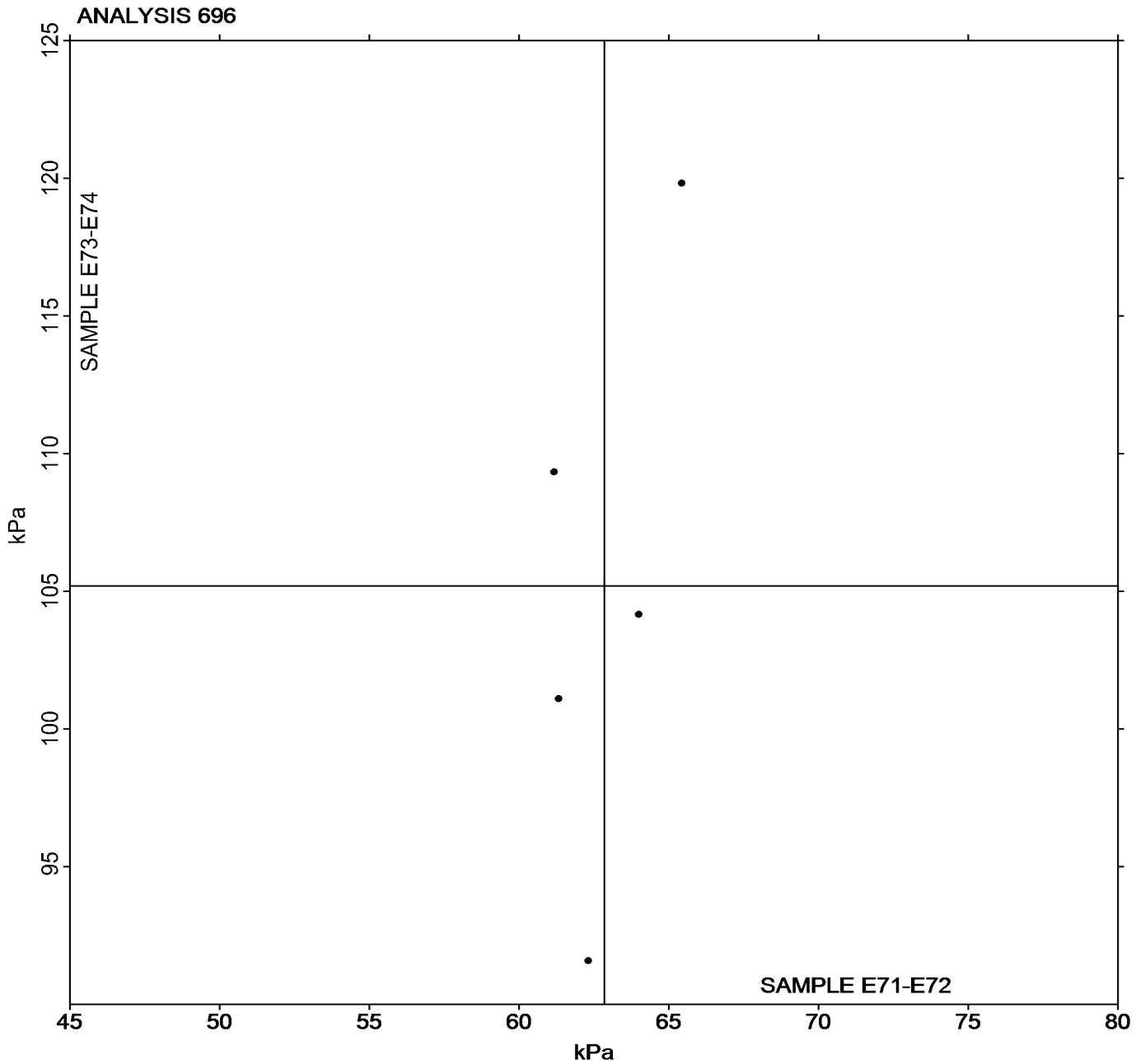
Analysis 696

1st Qtr 2017

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

Grand Mean Sample **E71-E72** = 62.852 kPa

Grand Mean Sample **E73-E74** = 105.20 kPa



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