



Rubber Interlaboratory Testing Program

Summary Report #188- 2nd Qtr 2016

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[Key for Web Summary Report](#)

<u>Analysis</u>	<u>Analysis Name</u>
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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632	Tensile Stress at 300% Elongation: Lab-Cured
633	Tensile Stress at 100% Elongation: Lab-Cured
660	Mooney Viscosity (4-minute readings)
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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 B61-B62			Sample B63-B64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2XY26X		3,258.3	-73.2	-0.42	3,108.2	-124.0	-0.65
33B94G		3,292.0	-39.5	-0.23	3,136.0	-96.2	-0.51
39F6P2		3,603.0	271.5	1.57	3,397.0	164.8	0.87
3KQFED		3,568.5	237.0	1.37	3,332.0	99.8	0.52
3QWCYD		3,253.4	-78.1	-0.45	3,053.7	-178.5	-0.94
4D7YY9		3,061.9	-269.6	-1.56	2,976.9	-255.3	-1.34
4LG2K9		3,665.0	333.5	1.93	3,690.0	457.8	2.41
64BJNA		3,310.0	-21.5	-0.12	3,188.0	-44.2	-0.23
69M4WF	X	2,149.0	-1,182.5	-6.85	1,934.5	-1,297.7	-6.82
7GZFP8		3,284.9	-46.6	-0.27	3,148.0	-84.2	-0.44
7J8XM3		3,169.5	-162.0	-0.94	3,161.0	-71.2	-0.37
7L87RD		3,256.5	-75.0	-0.43	3,091.0	-141.2	-0.74
7NYX76		3,479.4	147.9	0.86	3,534.7	302.5	1.59
8HMEFB		3,453.5	122.0	0.71	3,426.5	194.3	1.02
9ARX4C		3,109.5	-222.0	-1.29	3,126.0	-106.2	-0.56
9GPMM2		3,299.0	-32.5	-0.19	3,168.5	-63.7	-0.33
9K9HN9		3,300.0	-31.5	-0.18	3,145.0	-87.2	-0.46
9MUJ82		3,026.5	-305.0	-1.77	2,910.0	-322.2	-1.69
A6WJY2		3,371.1	39.6	0.23	3,304.2	72.0	0.38
A9T8B3		3,733.0	401.5	2.33	3,628.5	396.3	2.08
AHF9UX	X	2,857.5	-473.9	-2.74	2,992.1	-240.0	-1.26
AY3NWU		3,637.5	306.0	1.77	3,490.5	258.3	1.36
BA679W		3,299.6	-31.8	-0.18	3,016.8	-215.3	-1.13
BD4KTZ		3,335.0	3.5	0.02	3,211.5	-20.7	-0.11
BG2YGQ		3,397.1	65.6	0.38	3,374.7	142.6	0.75
BPW2H2		3,372.2	40.7	0.24	3,306.9	74.7	0.39
BVMEJP		3,171.5	-160.0	-0.93	3,125.5	-106.7	-0.56
CZ9QWX		3,280.0	-51.5	-0.30	3,079.0	-153.2	-0.80
D438LW		3,352.9	21.5	0.12	3,363.9	131.8	0.69
D47QAY		3,396.5	65.0	0.38	3,328.5	96.3	0.51
D48NJV		3,240.0	-91.5	-0.53	3,179.0	-53.2	-0.28
DWPVT6		3,140.1	-191.4	-1.11	3,016.8	-215.3	-1.13
DYUJC2	*	3,623.0	291.5	1.69	3,322.5	90.3	0.47
DZ8DNV		3,314.2	-17.3	-0.10	3,074.9	-157.3	-0.83
E2TE8N		3,512.5	181.0	1.05	3,416.5	184.3	0.97
E79PKR		3,221.3	-110.1	-0.64	3,152.8	-79.4	-0.42
EBLMUZ	*	3,011.5	-320.0	-1.85	2,751.0	-481.2	-2.53
EQY2BX		3,288.5	-43.0	-0.25	3,185.0	-47.2	-0.25



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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WebCode	Data Flag	Sample B61-B62			Sample B63-B64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
FJQ298		3,201.0	-130.5	-0.76	3,153.0	-79.2	-0.42
FMR3BP		3,065.4	-266.1	-1.54	3,031.3	-200.8	-1.06
FQCWCW		3,221.3	-110.1	-0.64	3,033.5	-198.7	-1.04
FUB99W		3,379.5	48.0	0.28	3,263.0	30.8	0.16
G6REKQ		3,502.7	171.2	0.99	3,515.0	282.9	1.49
GA2R2P		3,188.7	-142.8	-0.83	3,100.2	-132.0	-0.69
GC7DUV		3,389.0	57.5	0.33	3,151.5	-80.7	-0.42
GHDRVZ		3,430.2	98.7	0.57	3,292.4	60.2	0.32
GPE4RW		3,406.0	74.5	0.43	3,088.0	-144.2	-0.76
GWX7YY		3,255.0	-76.5	-0.44	3,165.0	-67.2	-0.35
H7XGJU		3,237.5	-94.0	-0.54	3,098.0	-134.2	-0.70
HLV9QQ		3,442.1	110.6	0.64	3,402.4	170.3	0.89
HVZF7Q		3,211.0	-120.5	-0.70	3,124.0	-108.2	-0.57
J64QDF		3,504.6	173.1	1.00	3,497.0	264.8	1.39
JCYTEQ		3,410.5	79.0	0.46	3,374.5	142.3	0.75
JKB82T		3,303.0	-28.5	-0.16	3,157.0	-75.2	-0.39
JL4ZUQ		3,147.3	-184.1	-1.07	3,147.3	-84.8	-0.45
JWLGPJ		3,360.6	29.1	0.17	3,324.3	92.1	0.48
K368LX		3,495.3	163.8	0.95	3,364.9	132.7	0.70
K3AJAU	X	2,928.0	-403.5	-2.34	3,142.5	-89.7	-0.47
KBMFBU		3,517.9	186.5	1.08	3,503.4	271.3	1.42
KHK6TK		3,548.5	217.0	1.26	3,373.0	140.8	0.74
KNQ2DK		3,343.0	11.5	0.07	3,155.5	-76.7	-0.40
L2RW9R		3,509.9	178.5	1.03	3,451.9	219.8	1.15
L4YCFX	*	3,823.2	491.8	2.85	3,816.0	583.8	3.07
L8H8JP		3,537.0	205.5	1.19	3,442.5	210.3	1.10
LCENZP		3,261.0	-70.5	-0.41	3,181.5	-50.7	-0.27
LMA6KK		3,262.5	-69.0	-0.40	3,095.8	-136.4	-0.72
LQ9FGK		3,373.0	41.5	0.24	3,244.5	12.3	0.06
LZX4FT		3,156.0	-175.5	-1.02	3,177.0	-55.2	-0.29
MYJ23T		3,180.0	-151.5	-0.88	3,150.0	-82.2	-0.43
NBUU8E		3,477.1	145.6	0.84	3,378.9	146.8	0.77
NEU64E		3,555.0	223.5	1.29	3,364.0	131.8	0.69
NW8NXW		3,212.6	-118.8	-0.69	3,147.3	-84.8	-0.45
P49FLK		3,315.6	-15.9	-0.09	3,206.1	-26.1	-0.14
QCEK8A		3,223.5	-108.0	-0.63	3,099.5	-132.7	-0.70
QH383F		3,240.5	-91.0	-0.53	3,359.0	126.8	0.67



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
QJE49J		3,418.1	86.6	0.50	3,446.8	214.6	1.13
QT4R4M		3,118.5	-213.0	-1.23	3,062.0	-170.2	-0.89
R4FERD		3,430.2	98.7	0.57	3,328.6	96.5	0.51
RAKBFK		2,917.0	-414.5	-2.40	2,839.5	-392.7	-2.06
RFV96R		3,320.5	-11.0	-0.06	3,259.0	26.8	0.14
RNZGKR	*	3,471.0	139.5	0.81	3,112.5	-119.7	-0.63
RVLAXC		3,363.0	31.5	0.18	3,383.0	150.8	0.79
TBWA88		3,025.5	-306.0	-1.77	2,818.5	-413.7	-2.17
TK6MMQ		3,234.4	-97.1	-0.56	3,269.2	37.0	0.19
TQ8YJM		3,579.6	248.1	1.44	3,383.0	150.9	0.79
UC6LMN		3,476.0	144.5	0.84	3,368.0	135.8	0.71
UF6XJN		3,282.0	-49.5	-0.29	3,240.9	8.7	0.05
UNX74E		3,523.9	192.4	1.11	3,353.9	121.7	0.64
URZ4E8		3,197.5	-134.0	-0.78	3,162.5	-69.7	-0.37
VH6N39		3,596.0	264.5	1.53	3,319.0	86.8	0.46
W2ZGN7		3,328.6	-2.8	-0.02	3,401.2	169.0	0.89
WA7HMC	*	2,843.5	-488.0	-2.83	2,660.0	-572.2	-3.01
X8XP6J		3,337.0	5.5	0.03	3,153.0	-79.2	-0.42
XBHGGL		3,280.9	-50.5	-0.29	3,155.5	-76.7	-0.40
XR6XM4		3,434.0	102.5	0.59	3,393.0	160.8	0.84
XV67QD		3,234.4	-97.1	-0.56	3,091.5	-140.7	-0.74
Y2A3BD		3,489.5	158.1	0.92	3,553.1	321.0	1.69
YC93MH		3,305.0	-26.5	-0.15	3,240.0	7.8	0.04
YG2YC9		3,142.0	-189.5	-1.10	3,010.5	-221.7	-1.16
YURWD7	X	81,812.9	78,481.4	454.46	82,590.3	79,358.1	416.89
Z3XZ2G		3,240.0	-91.5	-0.53	3,110.0	-122.2	-0.64
ZJN2V2		3,272.5	-59.0	-0.34	3,364.0	131.8	0.69
ZWQMYC		3,179.0	-152.5	-0.88	3,156.5	-75.7	-0.40

		Summary Statistics	
Grand Means	3,331.46 psi	3,232.16 psi	
Std Dev Btw Labs	172.69 psi	190.36 psi	
Statistics based on 99 of 103 reporting participants			



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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		Summary Statistics in SI Units	
Grand Means	22.969 MPa	22.28	MPa
Std Dev Btwn Labs	1.191 MPa	1.31	MPa
Statistics based on 99 of 103 reporting participants			

Samples B61-B62: Polyisoprene compound, batch #1 & B63-B64: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #605

- 69M4WF (X) - Data for all samples are low. Possible Systematic Error.
- AHF9UX (X) - Inconsistent in testing between sample groups.
- K3AJAU (X) - Inconsistent in testing between sample groups.
- YURWD7 (X) - Extreme data.

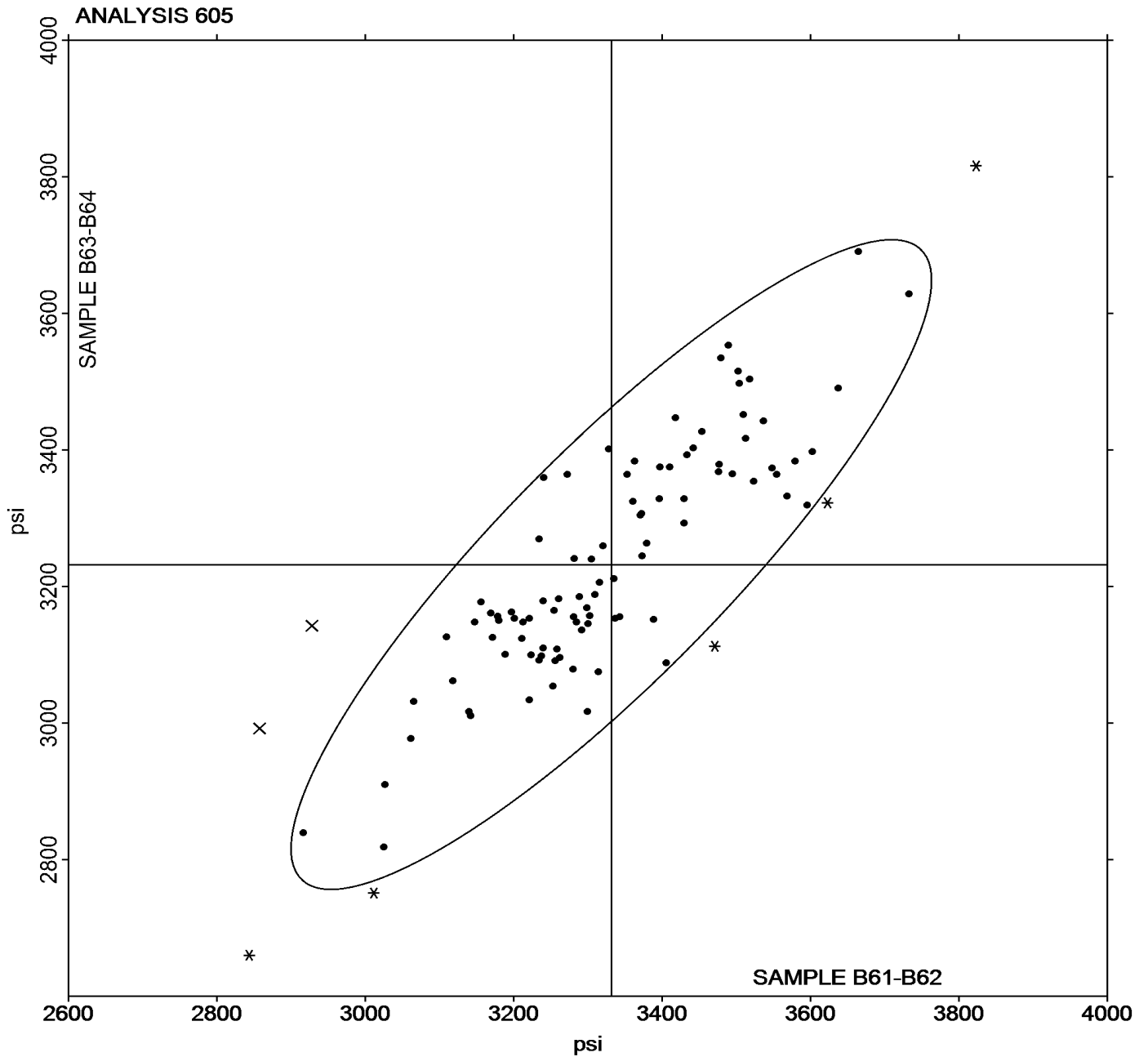


Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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Grand Mean Sample B61-B62 = 3,331.46 psi

Grand Mean Sample B63-B64 = 3,232.16 psi





Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

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WebCode	Data Flag	Sample B61-B62			Sample B63-B64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2XY26X		561.6	-52.9	-2.12	572.9	-53.7	-2.16
33B94G		637.5	23.0	0.92	640.5	13.9	0.56
39F6P2		659.0	44.5	1.78	653.0	26.4	1.06
3KQFED		616.5	2.0	0.08	633.0	6.4	0.26
3QWCYD		594.7	-19.8	-0.79	624.1	-2.5	-0.10
4D7YY9		653.0	38.5	1.54	656.6	30.0	1.20
4LG2K9		614.0	-0.5	-0.02	623.5	-3.1	-0.12
64BJNA		644.5	30.0	1.20	650.5	23.9	0.96
69M4WF	X	552.5	-62.0	-2.48	542.0	-84.6	-3.39
7GZFP8		592.5	-22.0	-0.88	602.5	-24.1	-0.97
7J8XM3		636.5	22.0	0.88	671.5	44.9	1.80
7L87RD		604.0	-10.5	-0.42	614.5	-12.1	-0.48
7NYX76		614.6	0.1	0.00	624.0	-2.6	-0.10
8HMEFB		624.0	9.5	0.38	616.0	-10.6	-0.42
9ARX4C		601.0	-13.5	-0.54	623.5	-3.1	-0.12
9GPMM2		605.5	-9.0	-0.36	626.5	-0.1	0.00
9K9HN9		579.0	-35.5	-1.42	605.5	-21.1	-0.85
A6WJY2		632.5	18.0	0.72	643.7	17.1	0.69
A9T8B3		606.5	-8.0	-0.32	622.0	-4.6	-0.18
AHF9UX	X	536.0	-78.5	-3.14	581.7	-44.8	-1.80
AY3NWU		605.5	-9.0	-0.36	607.5	-19.1	-0.77
BA679W		633.1	18.5	0.74	649.8	23.2	0.93
BD4KTZ		622.0	7.5	0.30	636.0	9.4	0.38
BG2YGQ	X	647.3	32.8	1.31	695.3	68.7	2.76
BPW2H2		597.5	-17.0	-0.68	598.0	-28.6	-1.15
BVMEJP		651.0	36.5	1.46	656.5	29.9	1.20
CZ9QWX		601.5	-13.0	-0.52	621.5	-5.1	-0.20
D438LW		578.0	-36.5	-1.46	601.5	-25.1	-1.01
D47QAY		643.0	28.5	1.14	671.0	44.4	1.78
D48NJV		597.5	-17.0	-0.68	613.0	-13.6	-0.54
DWPVT6		570.0	-44.5	-1.78	587.0	-39.6	-1.59
DYUJC2		645.0	30.5	1.22	643.0	16.4	0.66
DZ8DNV		619.9	5.3	0.21	647.2	20.7	0.83
E2TE8N		607.5	-7.0	-0.28	624.5	-2.1	-0.08
E79PKR		632.0	17.5	0.70	649.7	23.1	0.93
EBLMUZ	X	483.0	-131.5	-5.27	478.5	-148.1	-5.94
EQY2BX		590.0	-24.5	-0.98	620.5	-6.1	-0.24



Rubber Interlaboratory Testing Program

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Analysis 606

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Ultimate Elongation (percent)

WebCode	Data Flag	Sample B61-B62			Sample B63-B64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
FJQ298		599.5	-15.0	-0.60	599.5	-27.1	-1.09
FMR3BP		601.5	-13.0	-0.52	604.5	-22.1	-0.89
FQCWCW		629.3	14.8	0.59	650.9	24.3	0.97
FUB99W		595.5	-19.0	-0.76	591.5	-35.1	-1.41
G6REKQ		624.5	10.0	0.40	657.0	30.4	1.22
GA2R2P		590.5	-24.0	-0.96	607.0	-19.6	-0.79
GC7DUV		612.5	-2.0	-0.08	640.5	13.9	0.56
GHDRVZ	*	557.5	-57.1	-2.29	557.6	-69.0	-2.77
GPE4RW		658.5	44.0	1.76	654.5	27.9	1.12
GWX7YY		624.0	9.5	0.38	626.5	-0.1	0.00
H7XGJU		604.5	-10.0	-0.40	620.5	-6.1	-0.24
HLV9QQ		623.1	8.6	0.34	611.4	-15.2	-0.61
HVZF7Q		611.5	-3.0	-0.12	634.0	7.4	0.30
J64QDF		636.2	21.7	0.87	633.7	7.1	0.29
JCYTEQ		612.0	-2.5	-0.10	617.0	-9.6	-0.38
JKB82T		597.0	-17.5	-0.70	600.0	-26.6	-1.07
JL4ZUQ		609.0	-5.5	-0.22	632.7	6.1	0.25
K368LX		642.3	27.8	1.11	655.3	28.7	1.15
K3AJAU		616.0	1.5	0.06	624.5	-2.1	-0.08
KBMFBU		631.5	17.0	0.68	646.0	19.4	0.78
KHK6TK		592.0	-22.5	-0.90	595.5	-31.1	-1.25
KNQ2DK		609.5	-5.0	-0.20	618.5	-8.1	-0.32
L2RW9R		665.0	50.5	2.02	676.5	49.9	2.00
L4YCFX		589.5	-25.0	-1.00	602.0	-24.6	-0.99
L8H8JP		626.5	12.0	0.48	635.0	8.4	0.34
LCENZP		600.5	-14.0	-0.56	614.0	-12.6	-0.50
LMA6KK		587.6	-26.9	-1.08	602.2	-24.4	-0.98
LQ9FGK		608.5	-6.0	-0.24	633.5	6.9	0.28
LZX4FT		624.5	10.0	0.40	625.5	-1.1	-0.04
MYJ23T	*	549.5	-65.0	-2.60	578.0	-48.6	-1.95
NBUU8E		614.0	-0.6	-0.02	642.5	16.0	0.64
NEU64E		606.5	-8.0	-0.32	621.0	-5.6	-0.22
NW8NXW		618.5	4.0	0.16	631.5	4.9	0.20
P49FLK		637.0	22.5	0.90	638.0	11.4	0.46
QCEK8A	*	636.5	22.0	0.88	674.0	47.4	1.90
QH383F	*	552.0	-62.5	-2.50	589.0	-37.6	-1.51
QJE49J	X	705.7	91.2	3.65	689.0	62.4	2.50
QT4R4M		622.0	7.5	0.30	636.5	9.9	0.40



Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #188
2nd Qtr 2016

WebCode	Data Flag	Sample B61-B62			Sample B63-B64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
R4FERD		589.0	-25.5	-1.02	597.5	-29.1	-1.17
RAKBFK		580.0	-34.5	-1.38	590.0	-36.6	-1.47
RFV96R		634.0	19.5	0.78	667.0	40.4	1.62
RNZGKR		610.0	-4.5	-0.18	604.0	-22.6	-0.91
RVLAXC		632.5	18.0	0.72	646.5	19.9	0.80
TBWA88	*	621.0	6.5	0.26	598.0	-28.6	-1.15
TK6MMQ		610.0	-4.5	-0.18	626.0	-0.6	-0.02
TQ8YJM	X	7.2	-607.4	-24.32	7.3	-619.3	-24.86
UC6LMN		621.5	7.0	0.28	631.5	4.9	0.20
UF6XJN		637.4	22.8	0.91	638.0	11.4	0.46
UNX74E		593.4	-21.2	-0.85	614.6	-12.0	-0.48
URZ4E8		636.0	21.5	0.86	670.0	43.4	1.74
VH6N39		649.5	35.0	1.40	668.5	41.9	1.68
W2ZGN7		626.3	11.7	0.47	628.3	1.7	0.07
WA7HMC		564.5	-50.0	-2.00	570.0	-56.6	-2.27
X8XP6J		637.0	22.5	0.90	633.0	6.4	0.26
XBHGGL		598.5	-16.0	-0.64	609.0	-17.6	-0.71
XR6XM4		616.0	1.5	0.06	643.0	16.4	0.66
XV67QD		622.5	8.0	0.32	629.5	2.9	0.12
Y2A3BD		651.4	36.9	1.48	651.6	25.0	1.00
YC93MH	*	679.0	64.5	2.58	669.0	42.4	1.70
YG2YC9		614.5	0.0	0.00	629.5	2.9	0.12
YURWD7	X	24.6	-589.9	-23.62	23.3	-603.3	-24.21
Z3XZ2G	X	579.0	-35.5	-1.42	631.0	4.4	0.18
ZJN2V2		625.0	10.5	0.42	626.0	-0.6	-0.02
ZWQMYC		614.5	0.0	0.00	622.5	-4.1	-0.16

Grand Means		Summary Statistics	
	614.51 percent		626.57 percent
Std Dev Btwn Labs	24.97 percent		24.91 percent
Statistics based on 93 of 101 reporting participants			

Samples B61-B62: Polyisoprene compound, batch #1 & B63-B64: Polyisoprene compound, batch #2



Comments on Assigned Data Flags for Test #606

69M4WF (X) - Data for sample group B63-B64 are low.

AHF9UX (X) - Inconsistent in testing between sample groups. Data for sample group B61-B62 are low.

BG2YGQ (X) - Data for sample group B63-B64 are high. Inconsistent within the determinations of all samples.

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

QJE49J (X) - Inconsistent in testing between sample groups. Data for sample group B61-B62 are high.

TQ8YJM (X) - Extreme data.

YURWD7 (X) - Extreme data.

Z3XZ2G (X) - Inconsistent in testing between sample groups.

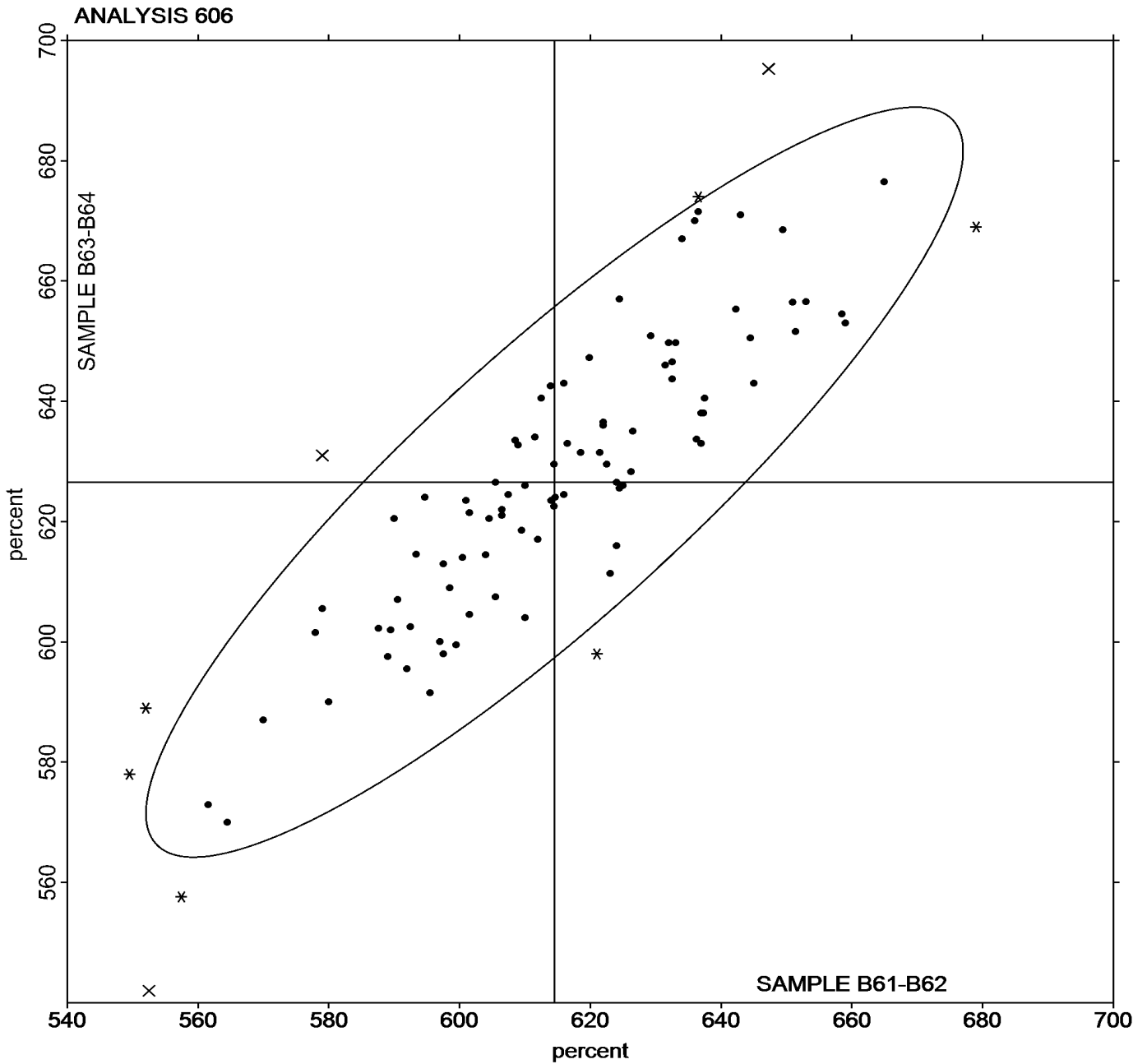


Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #188
2nd Qtr 2016

Grand Mean Sample B61-B62 = 614.51 percent

Grand Mean Sample B63-B64 = 626.57 percent





Rubber Interlaboratory Testing Program

Report #188

Analysis 607

2nd Qtr 2016

Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample B61-B62			Sample B63-B64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2XY26X		1,133.5	119.4	1.40	1,005.8	120.6	1.44
33B94G		949.5	-64.5	-0.76	844.5	-40.7	-0.49
39F6P2		980.0	-34.0	-0.40	900.5	15.3	0.18
3KQFED		1,055.0	41.0	0.48	863.0	-22.2	-0.27
3QWCYD		1,043.4	29.4	0.34	879.8	-5.4	-0.06
4D7YY9		833.8	-180.2	-2.11	747.5	-137.8	-1.65
4LG2K9		1,130.5	116.5	1.37	1,070.5	185.3	2.21
64BJNA		956.5	-57.5	-0.68	826.5	-58.7	-0.70
69M4WF	*	785.5	-228.5	-2.68	678.0	-207.2	-2.48
7GZFP8		1,032.8	18.8	0.22	863.4	-21.9	-0.26
7J8XM3		882.0	-132.0	-1.55	756.5	-128.7	-1.54
7L87RD		1,016.0	2.0	0.02	824.5	-60.7	-0.73
7NYX76		1,116.8	102.7	1.21	979.2	94.0	1.12
8HMEFB	*	1,015.5	1.5	0.02	1,026.0	140.8	1.68
9ARX4C		967.0	-47.0	-0.55	862.5	-22.7	-0.27
9GPMM2		1,011.0	-3.0	-0.04	882.5	-2.7	-0.03
9K9HN9		1,095.0	81.0	0.95	936.0	50.8	0.61
A6WJY2		988.9	-25.2	-0.30	894.2	8.9	0.11
A9T8B3		1,157.0	143.0	1.68	1,010.0	124.8	1.49
AHF9UX		1,113.8	99.8	1.17	919.1	33.9	0.40
AY3NWU		1,075.0	61.0	0.72	976.5	91.3	1.09
BA679W		971.8	-42.3	-0.50	789.0	-96.2	-1.15
BD4KTZ		995.5	-18.5	-0.22	829.0	-56.2	-0.67
BG2YGQ		1,111.7	97.7	1.15	993.0	107.8	1.29
BPW2H2	*	945.5	-68.5	-0.80	967.5	82.3	0.98
BVMEJP		900.5	-113.5	-1.33	808.5	-76.7	-0.92
CZ9QWX		1,035.0	21.0	0.25	836.0	-49.2	-0.59
D438LW		1,145.5	131.5	1.54	1,023.0	137.8	1.65
D47QAY		977.5	-36.5	-0.43	776.5	-108.7	-1.30
D48NJV		1,083.0	69.0	0.81	947.5	62.3	0.74
DYUJC2		1,024.5	10.5	0.12	837.5	-47.7	-0.57
DZ8DNV		1,013.3	-0.7	-0.01	808.0	-77.2	-0.92
E2TE8N		1,065.0	51.0	0.60	882.0	-3.2	-0.04
E79PKR		965.4	-48.7	-0.57	841.2	-44.0	-0.53
EBLMUZ	X	1,346.0	332.0	3.89	1,261.5	376.3	4.50
EQY2BX		1,083.0	69.0	0.81	879.0	-6.2	-0.07
FJQ298		1,019.0	5.0	0.06	936.0	50.8	0.61



Rubber Interlaboratory Testing Program

Report #188

Analysis 607

2nd Qtr 2016

Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample B61-B62			Sample B63-B64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
FMR3BP		1,029.1	15.0	0.18	942.0	56.8	0.68
FQCWCW		914.8	-99.2	-1.16	763.4	-121.8	-1.46
FUB99W		1,013.0	-1.0	-0.01	952.5	67.3	0.80
G6REKQ		1,055.2	41.1	0.48	888.4	3.2	0.04
GA2R2P		1,058.1	44.0	0.52	871.0	-14.2	-0.17
GC7DUV		1,079.0	65.0	0.76	890.0	4.8	0.06
GHDRVZ	X	1,197.3	183.3	2.15	1,173.4	288.2	3.44
GPE4RW		951.0	-63.0	-0.74	787.0	-98.2	-1.17
GWX7YY		953.0	-61.0	-0.72	838.0	-47.2	-0.56
H7XGJU		1,013.8	-0.3	0.00	844.2	-41.1	-0.49
HLV9QQ		1,045.6	31.6	0.37	985.2	100.0	1.20
HVZF7Q		1,005.0	-9.0	-0.11	834.5	-50.7	-0.61
J64QDF		990.0	-24.0	-0.28	943.0	57.8	0.69
JCYTEQ		1,044.5	30.5	0.36	983.0	97.8	1.17
JKB82T		1,085.0	71.0	0.83	948.0	62.8	0.75
JL4ZUQ		1,002.9	-11.1	-0.13	869.5	-15.7	-0.19
K368LX		1,015.4	1.4	0.02	878.8	-6.4	-0.08
K3AJAU		906.0	-108.0	-1.27	862.5	-22.7	-0.27
KBMFBU		947.1	-66.9	-0.79	855.0	-30.2	-0.36
KHK6TK		1,126.0	112.0	1.31	964.0	78.8	0.94
KNQ2DK		1,100.5	86.5	1.01	911.5	26.3	0.31
L2RW9R		892.0	-122.1	-1.43	797.7	-87.5	-1.05
L4YCFX		1,163.9	149.9	1.76	1,039.9	154.7	1.85
LCENZP		1,019.0	5.0	0.06	874.5	-10.7	-0.13
LMA6KK		1,041.0	26.9	0.32	853.3	-31.9	-0.38
LQ9FGK	X	1,002.0	-12.0	-0.14	828.0	-57.2	-0.68
MYJ23T	*	1,225.0	211.0	2.47	1,090.0	204.8	2.45
NBUU8E		1,042.3	28.3	0.33	855.0	-30.2	-0.36
NEU64E		1,050.5	36.5	0.43	951.0	65.8	0.79
NW8NXW		1,055.9	41.8	0.49	824.5	-60.7	-0.72
P49FLK		939.9	-74.2	-0.87	833.2	-52.0	-0.62
QCEK8A	*	792.0	-222.0	-2.60	650.0	-235.2	-2.81
QH383F		1,151.0	137.0	1.61	1,030.5	145.3	1.74
QJE49J	X	794.0	-220.1	-2.58	843.7	-41.5	-0.50
QT4R4M		924.0	-90.0	-1.06	811.5	-73.7	-0.88
R4FERD		1,076.9	62.9	0.74	967.4	82.2	0.98
RAKBFK		925.5	-88.5	-1.04	814.0	-71.2	-0.85
RFV96R		954.0	-60.0	-0.70	842.5	-42.7	-0.51



Rubber Interlaboratory Testing Program

Report #188

Analysis 607

2nd Qtr 2016

Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample B61-B62			Sample B63-B64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
RNZGKR		1,078.0	64.0	0.75	911.0	25.8	0.31
RVLAXC		955.5	-58.5	-0.69	873.0	-12.2	-0.15
TBWA88		903.0	-111.0	-1.30	819.5	-65.7	-0.79
TK6MMQ		961.6	-52.4	-0.62	911.6	26.4	0.32
UC6LMN		1,023.0	9.0	0.11	923.0	37.8	0.45
UF6XJN		941.9	-72.1	-0.85	894.4	9.2	0.11
UNX74E		1,103.1	89.0	1.04	922.0	36.8	0.44
URZ4E8		932.0	-82.0	-0.96	779.5	-105.7	-1.26
VH6N39		986.0	-28.0	-0.33	771.0	-114.2	-1.36
W2ZGN7	X	993.5	-20.5	-0.24	1,047.9	162.7	1.94
WA7HMC		981.0	-33.0	-0.39	804.5	-80.7	-0.96
X8XP6J		987.0	-27.0	-0.32	895.0	9.8	0.12
XBHGGL		1,066.5	52.4	0.62	903.1	17.9	0.21
XR6XM4		1,040.0	26.0	0.30	877.5	-7.7	-0.09
XV67QD		989.2	-24.9	-0.29	855.0	-30.2	-0.36
Y2A3BD		964.9	-49.2	-0.58	960.9	75.7	0.90
YC93MH	*	825.0	-189.0	-2.22	820.5	-64.7	-0.77
YG2YC9		984.5	-29.5	-0.35	803.0	-82.2	-0.98
YURWD7		1,225.4	211.3	2.48	1,061.7	176.5	2.11
Z3XZ2G		1,100.0	86.0	1.01	870.0	-15.2	-0.18
ZJN2V2		968.0	-46.0	-0.54	951.0	65.8	0.79
ZWQMYC	X	981.0	-33.0	-0.39	905.5	20.3	0.24

Summary Statistics	
Grand Means	1,014.04 psi 885.21 psi
Std Dev Btwn Labs	85.24 psi 83.69 psi
Statistics based on 91 of 97 reporting participants	

Summary Statistics in SI Units	
Grand Means	6.9915 MPa 6.10 MPa
Std Dev Btwn Labs	0.5877 MPa 0.58 MPa
Statistics based on 91 of 97 reporting participants	

Samples B61-B62: Polyisoprene compound, batch #1 & B63-B64: Polyisoprene compound, batch #2



Rubber Interlaboratory Testing Program

Report #188

Analysis 607

2nd Qtr 2016

Stress at 300% Elongation (psi)

Comments on Assigned Data Flags for Test #607

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

GHDRVZ (X) - Inconsistency in testing between Sample groups. Data for Sample group B63-B64 are high.

LQ9FGK (X) - Data appear to be transposed between Analysis #607 and Analysis #608. Data switched by CTS.

QJE49J (X) - Inconsistent in testing between sample groups.

W2ZGN7 (X) - Inconsistent in testing between sample groups.

ZWQMYC (X) - Data appear to be transposed between Analysis #607 and Analysis #608. Data switched by CTS.



Rubber Interlaboratory Testing Program

Report #188

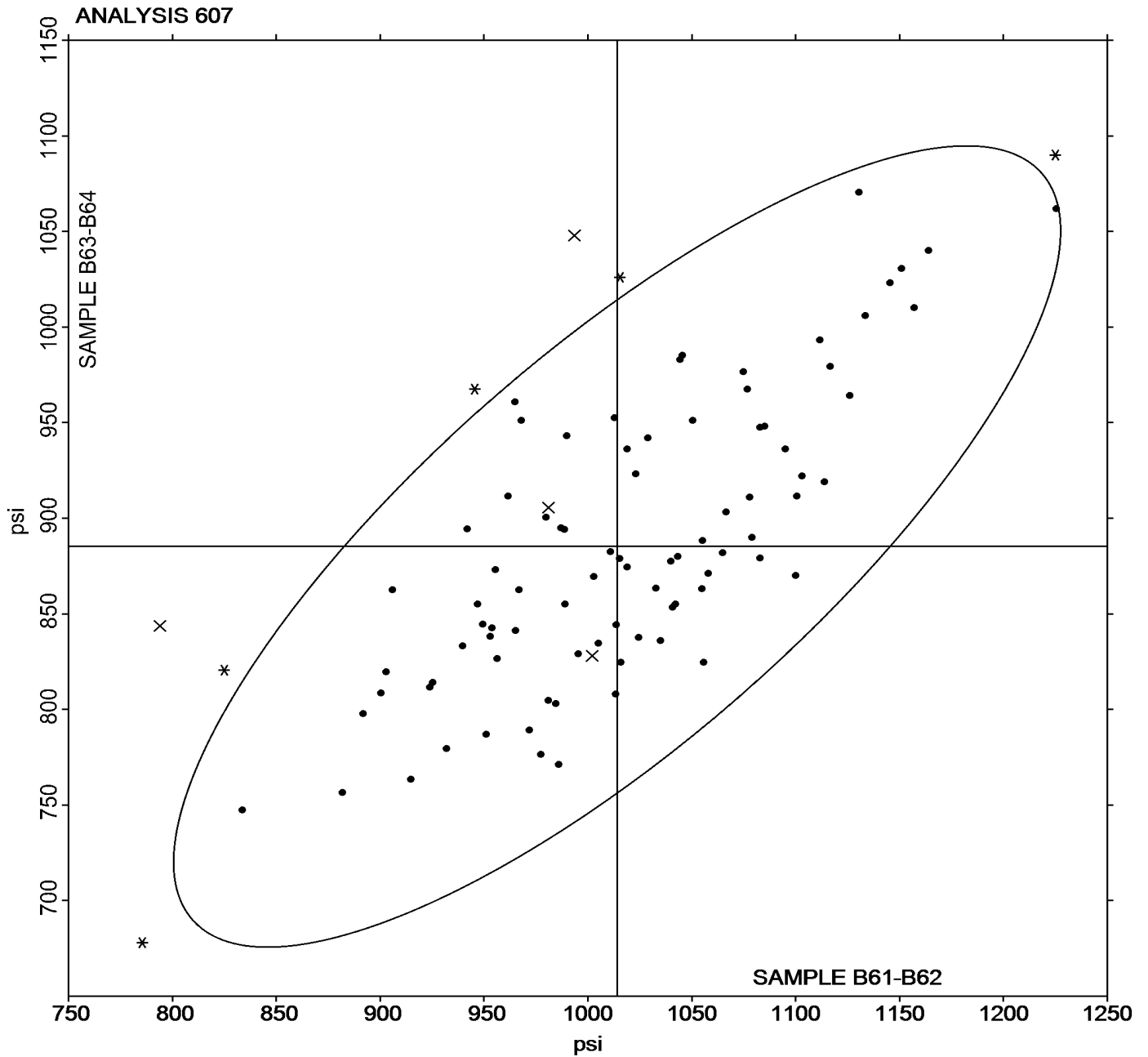
Analysis 607

2nd Qtr 2016

Stress at 300% Elongation (psi)

Grand Mean Sample B61-B62 = 1,014.04 psi

Grand Mean Sample B63-B64 = 885.21 psi





Rubber Interlaboratory Testing Program

Report #188

Analysis 608

2nd Qtr 2016

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample B61-B62			Sample B63-B64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2XY26X		224.8	10.2	0.69	190.0	-0.2	-0.02
33B94G		202.0	-12.6	-0.85	185.0	-5.2	-0.39
39F6P2		210.0	-4.6	-0.31	194.0	3.8	0.28
3KQFED		227.0	12.4	0.84	186.5	-3.7	-0.28
3QWCYD		235.3	20.6	1.40	204.4	14.1	1.05
4D7YY9	*	175.8	-38.8	-2.63	168.8	-21.4	-1.60
4LG2K9	X	266.0	51.4	3.48	255.0	64.8	4.83
64BJNA		210.5	-4.1	-0.28	184.0	-6.2	-0.46
69M4WF	X	150.5	-64.1	-4.34	122.5	-67.7	-5.05
7GZFP8		219.4	4.7	0.32	182.7	-7.6	-0.57
7J8XM3		191.0	-23.6	-1.60	173.5	-16.7	-1.25
7L87RD		205.0	-9.6	-0.65	174.0	-16.2	-1.21
7NYX76	*	252.0	37.4	2.53	221.1	30.9	2.30
8HMEFB		220.5	5.9	0.40	217.5	27.3	2.03
9ARX4C		213.0	-1.6	-0.11	191.0	0.8	0.06
9GPMM2		213.5	-1.1	-0.08	193.0	2.8	0.21
9K9HN9		210.0	-4.6	-0.31	191.0	0.8	0.06
A6WJY2		206.0	-8.7	-0.59	188.7	-1.5	-0.11
A9T8B3		234.0	19.4	1.31	210.5	20.3	1.51
AHF9UX		242.6	28.0	1.90	206.8	16.6	1.23
AY3NWU		214.0	-0.6	-0.04	192.5	2.3	0.17
BA679W		200.9	-13.7	-0.93	163.9	-26.3	-1.96
BD4KTZ		207.5	-7.1	-0.48	176.0	-14.2	-1.06
BG2YGO		229.2	14.6	0.99	200.2	10.0	0.74
BPW2H2	X	202.5	-12.1	-0.82	218.5	28.3	2.11
BVMEJP		183.0	-31.6	-2.14	158.5	-31.7	-2.36
CZ9QWX		210.0	-4.6	-0.31	176.0	-14.2	-1.06
D438LW		235.0	20.4	1.38	214.0	23.8	1.77
D47QAY		212.5	-2.1	-0.14	179.5	-10.7	-0.80
D48NJV		217.0	2.4	0.16	185.5	-4.7	-0.35
DYUJC2		215.0	0.4	0.03	179.5	-10.7	-0.80
DZ8DNV		221.8	7.2	0.49	186.1	-4.1	-0.31
E2TE8N		224.5	9.9	0.67	189.0	-1.2	-0.09
E79PKR		210.5	-4.2	-0.28	186.9	-3.4	-0.25
EBLMUZ	*	253.5	38.9	2.63	230.0	39.8	2.96
EQY2BX		240.5	25.9	1.75	197.5	7.3	0.54
FJQ298		213.0	-1.6	-0.11	197.5	7.3	0.54
FMR3BP		227.7	13.1	0.89	196.5	6.3	0.47



Rubber Interlaboratory Testing Program

Report #188

Analysis 608

2nd Qtr 2016

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample B61-B62			Sample B63-B64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
FQCWCW		197.3	-17.3	-1.17	167.2	-23.1	-1.72
FUB99W		205.5	-9.1	-0.62	195.0	4.8	0.36
G6REKQ		224.1	9.5	0.64	193.6	3.4	0.25
GA2R2P		229.2	14.5	0.99	190.0	-0.2	-0.02
GC7DUV		212.5	-2.1	-0.14	177.5	-12.7	-0.95
GHDRVZ	X	247.3	32.7	2.21	239.3	49.1	3.66
GPE4RW		209.5	-5.1	-0.35	178.0	-12.2	-0.91
GWX7YY		207.0	-7.6	-0.52	189.5	-0.7	-0.05
H7XGJU		214.5	-0.1	-0.01	186.3	-4.0	-0.30
HLV9QQ		214.8	0.2	0.01	199.0	8.8	0.65
HVZF7Q		215.5	0.9	0.06	185.5	-4.7	-0.35
J64QDF		221.8	7.1	0.48	212.8	22.5	1.68
JCYTEQ		217.0	2.4	0.16	208.5	18.3	1.36
JKB82T		225.5	10.9	0.74	195.5	5.3	0.39
JL4ZUQ		206.0	-8.7	-0.59	183.5	-6.8	-0.50
K368LX		213.4	-1.2	-0.08	187.4	-2.8	-0.21
K3AJAU		201.5	-13.1	-0.89	199.0	8.8	0.65
KBMFBU		198.0	-16.6	-1.13	184.9	-5.3	-0.40
KHK6TK		223.0	8.4	0.57	191.5	1.3	0.09
KNQ2DK		239.5	24.9	1.69	198.5	8.3	0.62
L2RW9R		188.6	-26.1	-1.77	174.0	-16.2	-1.21
L4YCFX	*	244.4	29.8	2.02	225.5	35.3	2.63
L8H8JP		215.0	0.4	0.03	186.0	-4.2	-0.32
LCENZP		212.0	-2.6	-0.18	183.0	-7.2	-0.54
LMA6KK		219.2	4.6	0.31	183.6	-6.6	-0.49
LQ9FGK	X	232.5	17.9	1.21	199.0	8.8	0.65
MYJ23T	X	294.0	79.4	5.38	266.5	76.3	5.68
NBUU8E		222.7	8.1	0.55	189.4	-0.9	-0.06
NEU64E		214.5	-0.1	-0.01	194.0	3.8	0.28
NW8NXW		213.2	-1.4	-0.10	199.4	9.2	0.69
P49FLK		199.4	-15.2	-1.03	173.3	-16.9	-1.26
QCEK8A	X	171.0	-43.6	-2.96	147.0	-43.2	-3.22
QH383F		231.0	16.4	1.11	207.5	17.3	1.29
QJE49J	*	186.3	-28.3	-1.92	192.0	1.8	0.13
QT4R4M		200.5	-14.1	-0.96	181.0	-9.2	-0.69
R4FERD		208.1	-6.5	-0.44	191.5	1.2	0.09
RAKBFK		192.5	-22.1	-1.50	179.5	-10.7	-0.80



Rubber Interlaboratory Testing Program

Report #188

Analysis 608

2nd Qtr 2016

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample B61-B62			Sample B63-B64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
RFV96R		203.5	-11.1	-0.75	183.0	-7.2	-0.54
RNZGKR		221.5	6.9	0.47	190.5	0.3	0.02
RVLAXC		201.0	-13.6	-0.92	184.0	-6.2	-0.46
TBWA88		191.0	-23.6	-1.60	174.0	-16.2	-1.21
TK6MMQ		201.6	-13.0	-0.88	193.6	3.4	0.25
UC6LMN		216.0	1.4	0.09	202.0	11.8	0.88
UF6XJN		208.5	-6.1	-0.41	201.1	10.8	0.81
UNX74E		224.0	9.3	0.63	190.1	-0.1	-0.01
URZ4E8		202.5	-12.1	-0.82	174.5	-15.7	-1.17
VH6N39		209.5	-5.1	-0.35	170.5	-19.7	-1.47
W2ZGN7	X	221.9	7.3	0.49	231.3	41.1	3.06
WA7HMC		201.0	-13.6	-0.92	171.5	-18.7	-1.40
X8XP6J		216.0	1.4	0.09	195.0	4.8	0.36
XBHGGL		228.5	13.9	0.94	192.9	2.7	0.20
XR6XM4		219.0	4.4	0.30	185.5	-4.7	-0.35
XV67QD		216.8	2.2	0.15	185.6	-4.6	-0.34
Y2A3BD		211.2	-3.4	-0.23	210.1	19.8	1.48
YC93MH		195.0	-19.6	-1.33	194.0	3.8	0.28
YG2YC9		220.5	5.9	0.40	186.5	-3.7	-0.28
YURWD7		240.6	26.0	1.76	203.9	13.7	1.02
Z3XZ2G		230.0	15.4	1.04	180.0	-10.2	-0.76
ZJN2V2		212.0	-2.6	-0.18	208.0	17.8	1.32
ZWQMYC	X	207.5	-7.1	-0.48	190.0	-0.2	-0.02

Grand Means		Summary Statistics	
	214.61 psi		190.23 psi
Stnd Dev Btwn Labs	14.76 psi		13.42 psi
Statistics based on 89 of 98 reporting participants			

Grand Means		Summary Statistics in SI Units	
	1.4797 MPa		1.31 MPa
Stnd Dev Btwn Labs	0.1018 MPa		0.09 MPa
Statistics based on 89 of 98 reporting participants			

Samples B61-B62: Polyisoprene compound, batch #1 & B63-B64: Polyisoprene compound, batch #2



Rubber Interlaboratory Testing Program

Analysis 608

Stress at 100% Elongation (psi)

Report #188

2nd Qtr 2016

Comments on Assigned Data Flags for Test #608

4LG2K9 (X) - Data for all samples are high.

69M4WF (X) - Data for all samples are low.

BPW2H2 (X) - Inconsistent in testing between sample groups.

GHDRVZ (X) - Data for sample group B63-B64 are high.

LQ9FGK (X) - Data appear to be transposed between Analysis #608 and Analysis #607. Data switched by CTS.

MYJ23T (X) - Data for all samples are high.

QCEK8A (X) - Data for all samples are low.

W2ZGN7 (X) - Inconsistency in testing between Sample groups. Data for Sample group B63-B64 are high.

ZWQMYC (X) - Data appear to be transposed between Analysis #608 and Analysis #607. Data switched by CTS.



Rubber Interlaboratory Testing Program

Report #188

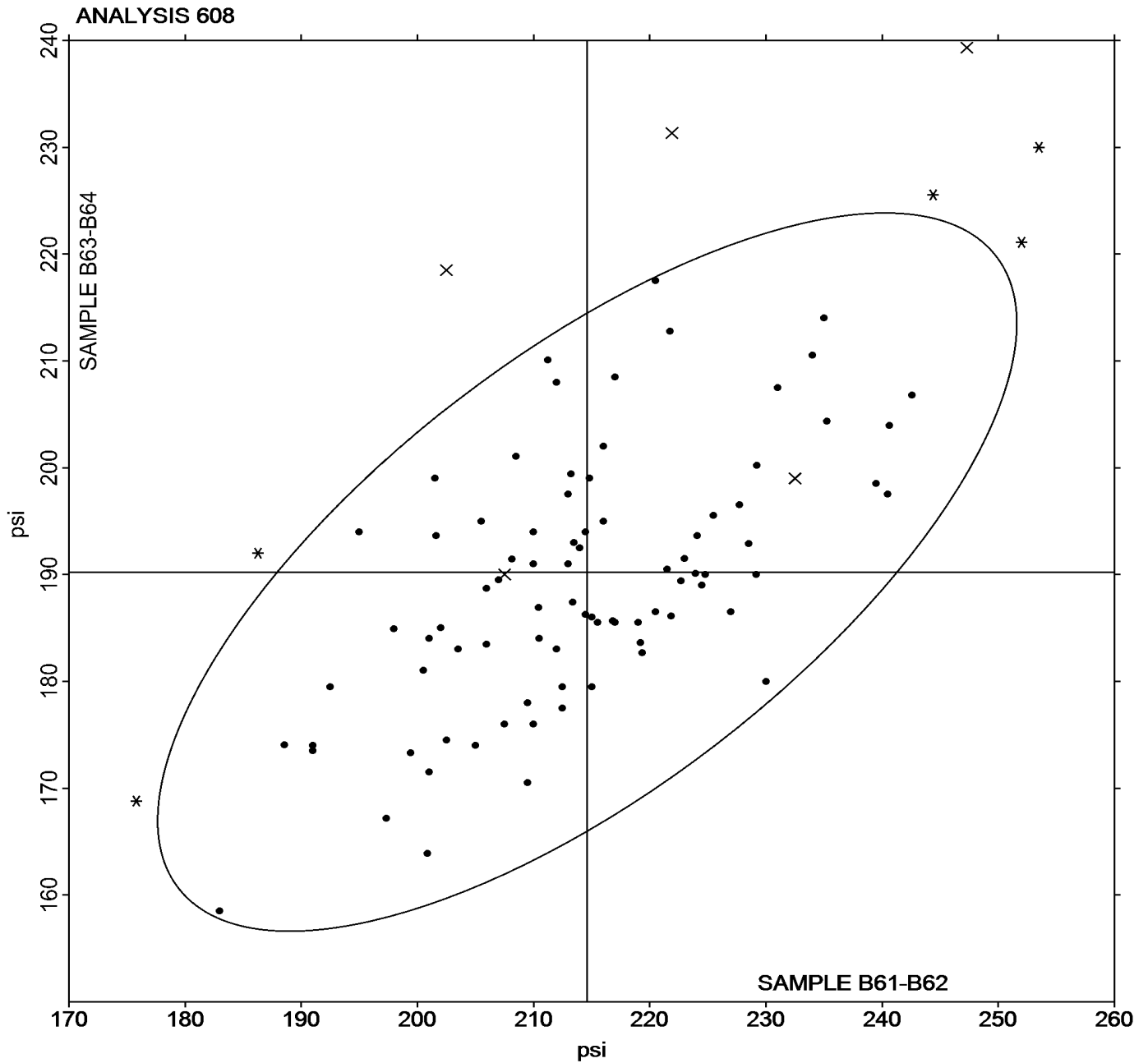
Analysis 608

2nd Qtr 2016

Stress at 100% Elongation (psi)

Grand Mean Sample B61-B62 = 214.61 psi

Grand Mean Sample B63-B64 = 190.23 psi





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

Report #188
2nd Qtr 2016

WebCode	Data Flag	Sample B61-B62			Sample B63-B64			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2XY26X		49.00	-0.90	-0.64	48.00	-0.58	-0.37	BT
33B94G		48.50	-1.40	-1.00	46.70	-1.88	-1.21	BT
39F6P2		50.50	0.60	0.43	49.50	0.92	0.60	XX
3KQFED		51.00	1.10	0.79	48.50	-0.08	-0.05	BT
3QWCYD		52.50	2.60	1.86	50.00	1.42	0.92	BT
4D7YY9		47.00	-2.90	-2.08	46.50	-2.08	-1.34	BT
4LG2K9		51.00	1.10	0.79	50.50	1.92	1.24	HH
64BJNA		49.50	-0.40	-0.29	48.50	-0.08	-0.05	BT
69M4WF		49.00	-0.90	-0.64	47.50	-1.08	-0.69	BT
7GZFP8		50.95	1.05	0.75	48.30	-0.28	-0.18	BT
7J8XM3		49.10	-0.80	-0.57	49.35	0.77	0.50	BT
7L87RD		50.50	0.60	0.43	47.50	-1.08	-0.69	HH
7NYX76		49.10	-0.80	-0.57	45.95	-2.63	-1.69	BT
8HMEFB		48.00	-1.90	-1.36	48.50	-0.08	-0.05	BT
8UHM2Y		51.00	1.10	0.79	49.50	0.92	0.60	BT
8VE3DV		49.50	-0.40	-0.29	48.40	-0.18	-0.11	BT
9ARX4C		50.50	0.60	0.43	49.00	0.42	0.27	HH
9GPMM2		50.00	0.10	0.07	50.00	1.42	0.92	HH
9K9HN9		49.50	-0.40	-0.29	49.00	0.42	0.27	HH
9MUJ82		48.50	-1.40	-1.00	47.50	-1.08	-0.69	BT
A6WJY2		50.45	0.55	0.39	48.25	-0.33	-0.21	BT
A9T8B3		52.00	2.10	1.50	50.50	1.92	1.24	HH
AHF9UX		49.50	-0.40	-0.29	49.00	0.42	0.27	HH
AY3NWU		50.40	0.50	0.36	49.45	0.87	0.56	XX
BA679W	X	49.45	-0.45	-0.32	43.25	-5.33	-3.43	XX
BD4KTZ		50.15	0.25	0.18	48.20	-0.38	-0.24	BT
BG2YGQ		48.50	-1.40	-1.00	47.00	-1.58	-1.02	BT
BPW2H2		48.00	-1.90	-1.36	48.05	-0.53	-0.34	BT
BVMEJP		46.50	-3.40	-2.44	45.00	-3.58	-2.30	HH
CZ9QWX		50.00	0.10	0.07	47.50	-1.08	-0.69	HH
D438LW		50.50	0.60	0.43	49.50	0.92	0.60	HH
D47QAY		49.90	0.00	0.00	47.60	-0.98	-0.63	BT
D48NJV		48.05	-1.85	-1.33	46.00	-2.58	-1.66	BT
DWPVT6		51.00	1.10	0.79	49.00	0.42	0.27	HH
DYUJC2		50.45	0.55	0.39	48.95	0.37	0.24	BT
DZ8DNV		51.65	1.75	1.25	49.05	0.47	0.31	BT
E2TE8N		50.00	0.10	0.07	50.50	1.92	1.24	BT



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

Report #188
2nd Qtr 2016

WebCode	Data Flag	Sample B61-B62			Sample B63-B64			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
E79PKR		50.30	0.40	0.29	48.25	-0.33	-0.21	BT
EBLMUZ		52.50	2.60	1.86	50.00	1.42	0.92	HH
EQY2BX	X	55.00	5.10	3.65	52.00	3.42	2.21	BT
FJQ298		48.00	-1.90	-1.36	46.00	-2.58	-1.66	BT
FMR3BP		47.50	-2.40	-1.72	46.25	-2.33	-1.50	BT
FQCWCW		48.00	-1.90	-1.36	47.05	-1.53	-0.98	XX
FUB99W		51.00	1.10	0.79	50.50	1.92	1.24	HH
G6REKQ		50.00	0.10	0.07	49.00	0.42	0.27	BT
GA2R2P		50.60	0.70	0.50	48.10	-0.48	-0.31	BT
GC7DUV		51.75	1.85	1.33	49.25	0.67	0.44	XX
GHDRVZ		53.00	3.10	2.22	52.00	3.42	2.21	HH
GPE4RW		48.55	-1.35	-0.97	48.45	-0.13	-0.08	BT
GWX7YY		49.50	-0.40	-0.29	49.00	0.42	0.27	HH
HLV9QQ		51.00	1.10	0.79	50.00	1.42	0.92	BT
HVZF7Q		49.00	-0.90	-0.64	46.50	-2.08	-1.34	BT
J64QDF		50.75	0.85	0.61	49.05	0.47	0.31	XX
JCYTEQ		49.50	-0.40	-0.29	49.50	0.92	0.60	BT
JKB82T		51.25	1.35	0.97	49.00	0.42	0.27	BT
JL4ZUQ		51.25	1.35	0.97	50.10	1.52	0.98	BT
JWLGPI		48.00	-1.90	-1.36	46.00	-2.58	-1.66	BT
K368LX		52.50	2.60	1.86	51.50	2.92	1.89	XX
K3AJAU		49.00	-0.90	-0.64	49.00	0.42	0.27	HH
KHK6TK		50.00	0.10	0.07	50.00	1.42	0.92	HH
KNQ2DK		48.00	-1.90	-1.36	46.55	-2.03	-1.31	XX
L2RW9R		50.40	0.50	0.36	50.40	1.82	1.18	XX
L4YCFX		51.10	1.20	0.86	49.60	1.02	0.66	BT
L8H8JP		48.50	-1.40	-1.00	47.50	-1.08	-0.69	XX
LCENZP		50.00	0.10	0.07	48.50	-0.08	-0.05	HH
LMA6KK		50.45	0.55	0.39	49.35	0.77	0.50	BT
LQ9FGK		51.00	1.10	0.79	49.25	0.67	0.44	HH
LZX4FT		50.65	0.75	0.54	50.20	1.62	1.05	HH
MYJ23T		49.50	-0.40	-0.29	47.50	-1.08	-0.69	HH
NBUU8E		49.65	-0.25	-0.18	47.30	-1.28	-0.82	BT
NEU64E		48.50	-1.40	-1.00	48.00	-0.58	-0.37	BT
NW8NXW		50.75	0.85	0.61	48.65	0.07	0.05	BT
P49FLK		47.35	-2.55	-1.83	45.55	-3.03	-1.95	BT
QCEK8A		48.85	-1.05	-0.75	46.45	-2.13	-1.37	BT
QD9BDN		50.50	0.60	0.43	49.50	0.92	0.60	BT



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

Report #188
2nd Qtr 2016

WebCode	Data Flag	Sample B61-B62			Sample B63-B64			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
QH383F		49.50	-0.40	-0.29	48.00	-0.58	-0.37	BT
QJE49J		49.00	-0.90	-0.64	48.00	-0.58	-0.37	BT
QT4R4M		48.35	-1.55	-1.11	47.10	-1.48	-0.95	BT
R4FERD		49.45	-0.45	-0.32	48.50	-0.08	-0.05	BT
RAKBFK		50.40	0.50	0.36	49.45	0.87	0.56	BT
RFV96R		49.00	-0.90	-0.64	47.50	-1.08	-0.69	BT
RNZGKR		49.50	-0.40	-0.29	48.50	-0.08	-0.05	XX
RVLAXC		50.00	0.10	0.07	50.00	1.42	0.92	XX
T7MWQA		52.10	2.20	1.58	51.45	2.87	1.85	BT
TBWA88	*	46.50	-3.40	-2.44	44.50	-4.08	-2.63	XX
TK6MMQ		50.00	0.10	0.07	49.50	0.92	0.60	BT
TQ8YJM		52.50	2.60	1.86	52.00	3.42	2.21	HH
UC6LMN		52.00	2.10	1.50	50.00	1.42	0.92	XX
UF6XJN		51.50	1.60	1.15	50.50	1.92	1.24	BT
UNX74E		49.00	-0.90	-0.64	46.50	-2.08	-1.34	XX
URZ4E8		53.15	3.25	2.33	51.15	2.57	1.66	BT
VH6N39		50.00	0.10	0.07	50.00	1.42	0.92	XX
W2ZGN7	X	52.50	2.60	1.86	54.00	5.42	3.50	HH
WA7HMC		50.00	0.10	0.07	50.00	1.42	0.92	HH
X8XP6J		50.00	0.10	0.07	47.80	-0.78	-0.50	BT
XBHGGL		50.00	0.10	0.07	50.00	1.42	0.92	HH
XR6XM4		50.00	0.10	0.07	49.00	0.42	0.27	XX
XV67QD		47.50	-2.40	-1.72	45.50	-3.08	-1.98	BT
Y2A3BD		51.10	1.20	0.86	50.70	2.12	1.37	BT
YC93MH		48.50	-1.40	-1.00	48.00	-0.58	-0.37	HH
YG2YC9		50.00	0.10	0.07	47.75	-0.83	-0.53	HH
YURWD7	*	51.30	1.40	1.00	47.80	-0.78	-0.50	XX
Z3XZ2G		50.00	0.10	0.07	47.00	-1.58	-1.02	HH
ZJN2V2		49.70	-0.20	-0.14	48.85	0.27	0.18	BT
ZWQMYC	X	55.00	5.10	3.65	52.50	3.92	2.53	BT

Summary Statistics	
Grand Means	49.900 Type A 48.575 Type A
Std Dev Btwn Labs	1.395 Type A 1.551 Type A
Statistics based on 101 of 105 reporting participants	



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

**Report #188
2nd Qtr 2016**

Samples B61-B62: Polyisoprene compound, batch #1 & B63-B64: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #620

BA679W (X) - Inconsistency in testing between Sample groups. Data for sample group B63-B64 are low. Inconsistent within the determinations of sample group B63-B64.

EQY2BX (X) - Inconsistency in testing between Sample groups. Data for Sample group B61-B62 are high.

W2ZGN7 (X) - Inconsistency in testing between Sample groups. Data for Sample group B63-B64 are high.

ZWQMYC (X) - Inconsistency in testing between Sample groups. Data for Sample group B61-B62 are high.

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 B61-B62 <i>Polyisoprene compound, batch #1</i>			Sample B63-B64 <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		
	50.03	1.25	0.13	48.71	1.34	0.14	72	76
	49.29	1.07	-0.61	48.04	1.48	-0.53	11	13
	48.57	2.27	-1.33	47.56	2.58	-1.02	5	5
	50.43	1.47	0.53	49.11	1.87	0.53	11	11



Rubber Interlaboratory Testing Program

Analysis 620

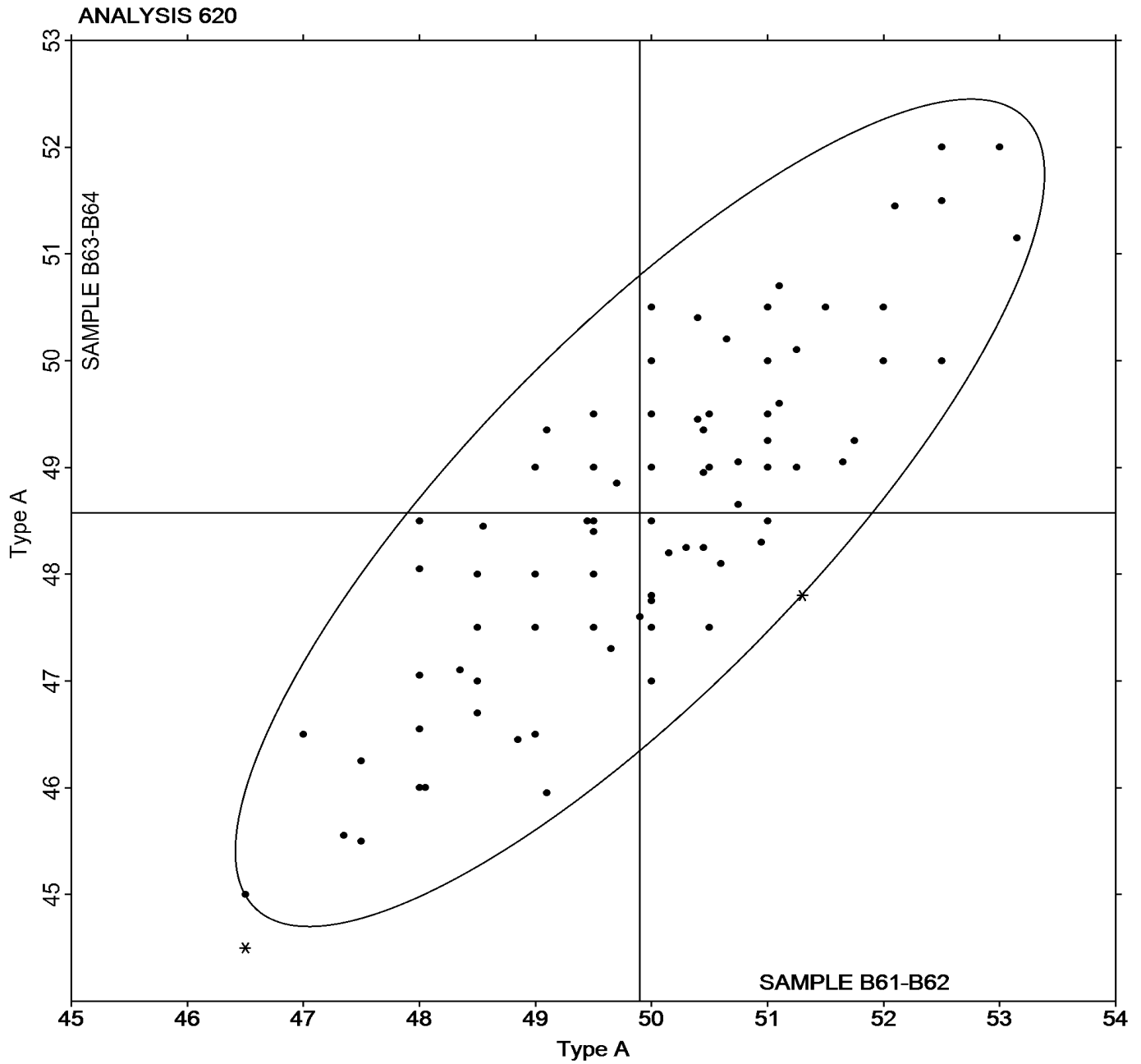
Hardness (Shore A/Type A)

Report #188

2nd Qtr 2016

Grand Mean Sample B61-B62 = 49.900 Type A

Grand Mean Sample B63-B64 = 48.575 Type A





Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #188
2nd Qtr 2016

WebCode	Data Flag	Sample B61-B62			Sample B63-B64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
33B94G		1.134	-0.003	-1.19	1.134	-0.003	-0.91
39F6P2		1.138	0.001	0.35	1.137	0.001	0.26
3KQFED		1.141	0.004	1.47	1.140	0.003	1.13
3QWCYD		1.139	0.002	0.76	1.138	0.002	0.63
4LG2K9	X	1.149	0.012	4.61	1.147	0.011	3.84
64BJNA		1.141	0.005	1.71	1.140	0.004	1.30
7GZFP8		1.136	-0.001	-0.45	1.133	-0.004	-1.44
7J8XM3		1.137	0.000	0.08	1.135	-0.002	-0.62
7L87RD		1.142	0.006	2.14	1.142	0.005	1.90
7NYX76		1.137	0.000	0.00	1.135	-0.001	-0.44
9GPMM2	*	1.139	0.002	0.86	1.135	-0.002	-0.55
A6WJY2		1.141	0.004	1.41	1.139	0.003	1.04
AY3NWU		1.135	-0.001	-0.50	1.135	-0.002	-0.57
BA679W		1.135	-0.002	-0.67	1.133	-0.003	-1.19
BG2YGO		1.136	-0.001	-0.26	1.135	-0.002	-0.55
BPW2H2		1.138	0.002	0.61	1.137	0.000	0.11
BVMEJP		1.136	-0.001	-0.45	1.135	-0.002	-0.55
D438LW		1.136	0.000	-0.09	1.139	0.002	0.78
DZ8DNV	X	1.137	0.000	0.11	1.126	-0.011	-3.95
E79PKR		1.135	-0.002	-0.58	1.134	-0.003	-0.96
EBLMUZ	X	1.140	0.003	1.23	1.130	-0.007	-2.34
EQY2BX		1.138	0.001	0.30	1.137	0.000	0.02
FJQ298		1.137	0.000	-0.07	1.136	-0.001	-0.37
FMR3BP		1.136	-0.001	-0.26	1.135	-0.002	-0.55
FUB99W		1.137	0.001	0.26	1.137	0.001	0.29
G6REKQ		1.138	0.002	0.63	1.138	0.001	0.44
GA2R2P		1.134	-0.003	-0.99	1.133	-0.003	-1.14
GPE4RW		1.136	-0.001	-0.26	1.135	-0.002	-0.55
HLV9QQ	*	1.131	-0.005	-1.95	1.129	-0.007	-2.54
HVZF7Q		1.137	0.000	-0.02	1.137	0.000	0.08
J64QDF		1.135	-0.002	-0.63	1.135	-0.002	-0.55
JCYTEQ		1.137	0.000	0.11	1.139	0.002	0.70
JKB82T		1.137	0.000	-0.07	1.136	-0.001	-0.19
KHK6TK		1.135	-0.002	-0.69	1.136	-0.001	-0.37
L4YCFX		1.136	-0.001	-0.35	1.138	0.001	0.35
L8H8JP	*	1.138	0.001	0.48	1.142	0.005	1.78
LCENZP		1.139	0.002	0.86	1.139	0.002	0.88



Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #188
2nd Qtr 2016

WebCode	Data Flag	Sample B61-B62			Sample B63-B64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
LMA6KK	*	1.130	-0.007	-2.59	1.131	-0.005	-1.89
LQ9FGK		1.138	0.001	0.48	1.139	0.002	0.83
LZX4FT		1.134	-0.003	-1.19	1.135	-0.002	-0.55
NBUU8E		1.136	-0.001	-0.26	1.134	-0.003	-0.91
NEU64E		1.135	-0.002	-0.63	1.134	-0.003	-0.91
NW8NXW		1.135	-0.002	-0.82	1.137	0.000	-0.01
QCEK8A		1.138	0.001	0.30	1.136	-0.001	-0.19
QD9BDN		1.140	0.003	1.23	1.140	0.003	1.21
QH383F		1.137	0.000	0.11	1.139	0.002	0.88
QJE49J		1.140	0.004	1.36	1.141	0.004	1.42
QT4R4M		1.138	0.001	0.35	1.138	0.001	0.40
RAKBFK	*	1.144	0.007	2.57	1.144	0.008	2.80
RVLAXC		1.135	-0.001	-0.48	1.136	0.000	-0.17
TBWA88		1.141	0.004	1.41	1.140	0.003	1.24
TQ8YJM		1.139	0.002	0.84	1.139	0.003	0.90
U2L8L8		1.135	-0.002	-0.76	1.136	-0.001	-0.32
UC6LMN		1.139	0.002	0.86	1.137	0.000	0.17
UF6XJN		1.135	-0.002	-0.63	1.135	-0.002	-0.55
UNX74E		1.130	-0.007	-2.49	1.131	-0.006	-1.98
URZ4E8		1.141	0.004	1.60	1.140	0.003	1.24
VH6N39		1.136	0.000	-0.17	1.137	0.001	0.29
W2ZGN7		1.136	-0.001	-0.26	1.136	-0.001	-0.19
X8XP6J	X	1.132	-0.005	-1.75	1.124	-0.013	-4.49
XBHGGL		1.134	-0.003	-1.13	1.134	-0.002	-0.80
XR6XM4		1.134	-0.003	-1.06	1.135	-0.002	-0.66
XV67QD		1.138	0.001	0.48	1.138	0.001	0.35
YG2YC9		1.133	-0.004	-1.41	1.132	-0.004	-1.50
YURWD7		1.137	0.001	0.26	1.140	0.004	1.38
ZJN2V2		1.135	-0.001	-0.48	1.136	-0.001	-0.33
ZWQMYC		1.137	0.000	-0.07	1.137	0.000	0.17

Summary Statistics			
Grand Means	1.1367	Mg/M ³	1.1365
Std Dev Btwn Labs	0.0027	Mg/M ³	0.0028
Statistics based on 63 of 67 reporting participants			



Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #188
2nd Qtr 2016

Samples B61-B62: Polyisoprene compound, batch #1 & B63-B64: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #621

- 4LG2K9 (X) - Data for all samples are high. Possible Systematic Error. Inconsistent within the determinations of sample group B61-B62.
- DZ8DNV (X) - Inconsistent in testing between sample groups. Data for sample B63-B64 are low. Inconsistent within the determinations of sample group B63-B64.
- EBLMUZ (X) - Inconsistent in testing between sample groups.
- X8XP6J (X) - Inconsistent in testing between sample groups. Data for sample group B63-B64 are low. Inconsistent within the determinations of sample group B63-B64.

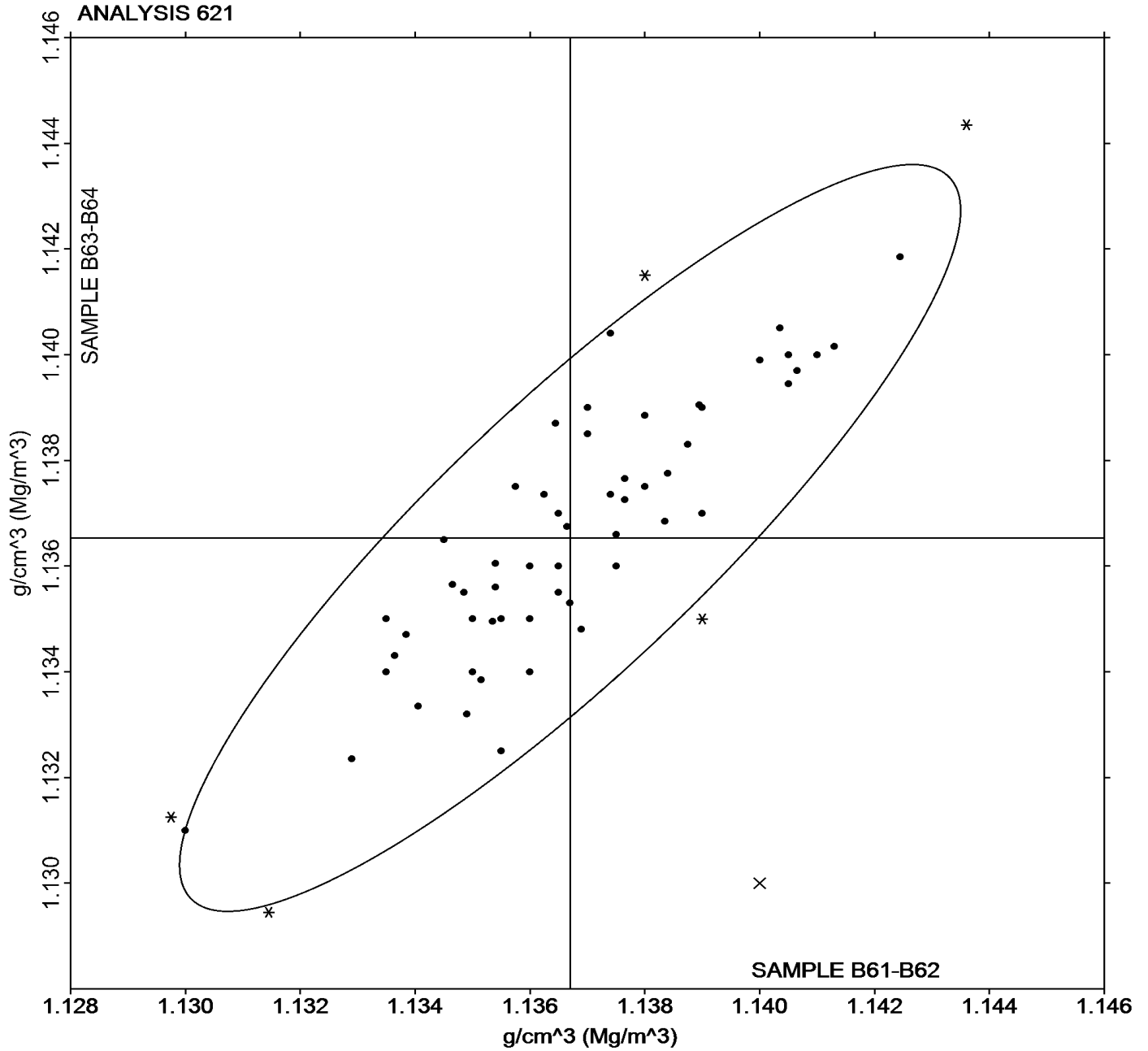


Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #188
2nd Qtr 2016

Grand Mean Sample B61-B62 = 1.1367 Mg/M³

Grand Mean Sample B63-B64 = 1.1365 Mg/M³





Rubber Interlaboratory Testing Program

Report #188

Analysis 630

2nd Qtr 2016

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

WebCode	Data Flag	Sample B61-B62			Sample K61-K62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
33B94G		3,292.0	-81.7	-0.52	3,032.5	-176.0	-0.74
4LG2K9		3,665.0	291.3	1.84	3,563.0	354.5	1.48
7GZFP8		3,284.9	-88.8	-0.56	3,254.7	46.2	0.19
7J8XM3		3,169.5	-204.2	-1.29	2,925.5	-283.0	-1.18
7NYX76		3,479.4	105.7	0.67	3,533.1	324.6	1.36
9GPMM2		3,299.0	-74.7	-0.47	2,651.5	-557.0	-2.33
A6WJY2		3,371.1	-2.6	-0.02	3,403.5	195.0	0.82
AY3NWU		3,637.5	263.8	1.67	3,403.0	194.5	0.81
BA679W		3,299.6	-74.0	-0.47	3,314.1	105.7	0.44
BD4KTZ		3,335.0	-38.7	-0.24	3,336.5	128.0	0.54
BG2YGQ		3,397.1	23.4	0.15	3,291.0	82.5	0.34
CZ9QWX		3,280.0	-93.7	-0.59	3,132.5	-76.0	-0.32
D438LW		3,352.9	-20.7	-0.13	3,184.1	-24.3	-0.10
D47QAY		3,396.5	22.8	0.14	2,949.0	-259.5	-1.08
DZ8DNV		3,314.2	-59.5	-0.38	3,179.5	-29.0	-0.12
E2TE8N		3,512.5	138.8	0.88	3,450.0	241.5	1.01
E79PKR		3,221.3	-152.4	-0.96	3,179.5	-28.9	-0.12
EQY2BX		3,288.5	-85.2	-0.54	3,317.5	109.0	0.46
H7XGJU		3,237.5	-136.2	-0.86	3,175.0	-33.5	-0.14
HLV9QQ		3,442.1	68.4	0.43	2,741.8	-466.7	-1.95
J64QDF		3,504.6	130.9	0.83	3,810.4	601.9	2.52
JCYTEQ		3,410.5	36.8	0.23	3,259.5	51.0	0.21
JL4ZUQ		3,147.3	-226.3	-1.43	3,103.8	-104.6	-0.44
K368LX		3,495.3	121.6	0.77	2,868.4	-340.1	-1.42
KNQ2DK		3,343.0	-30.7	-0.19	3,345.5	137.0	0.57
L2RW9R		3,509.9	136.3	0.86	3,328.6	120.2	0.50
L4YCFX	*	3,823.2	449.6	2.84	3,392.5	184.0	0.77
LCENZP		3,261.0	-112.7	-0.71	2,972.0	-236.5	-0.99
LQ9FGK		3,373.0	-0.7	0.00	2,954.0	-254.5	-1.06
NEU64E		3,555.0	181.3	1.15	3,411.5	203.0	0.85
NW8NXW		3,212.6	-161.1	-1.02	3,125.6	-82.9	-0.35
TBWA88		3,025.5	-348.2	-2.20	3,061.5	-147.0	-0.61
UNX74E		3,523.9	150.2	0.95	3,408.3	199.8	0.84
X8XP6J		3,337.0	-36.7	-0.23	3,194.0	-14.5	-0.06
XBHGGL		3,280.9	-92.7	-0.59	3,043.4	-165.0	-0.69



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

Report #188
2nd Qtr 2016

		Summary Statistics	
Grand Means			
	3,373.67 psi		3,208.46 psi
Stnd Dev Btwn Labs			
	158.36 psi		239.20 psi
Statistics based on 35 of 35 reporting participants			

		Summary Statistics in SI Units	
Grand Means			
	23.260 MPa		22.12 MPa
Stnd Dev Btwn Labs			
	1.092 MPa		1.65 MPa
Statistics based on 35 of 35 reporting participants			

Samples B61-B62: Polyisoprene compound, batch #1 & K61-K62: Polyisoprene compound, batch #1

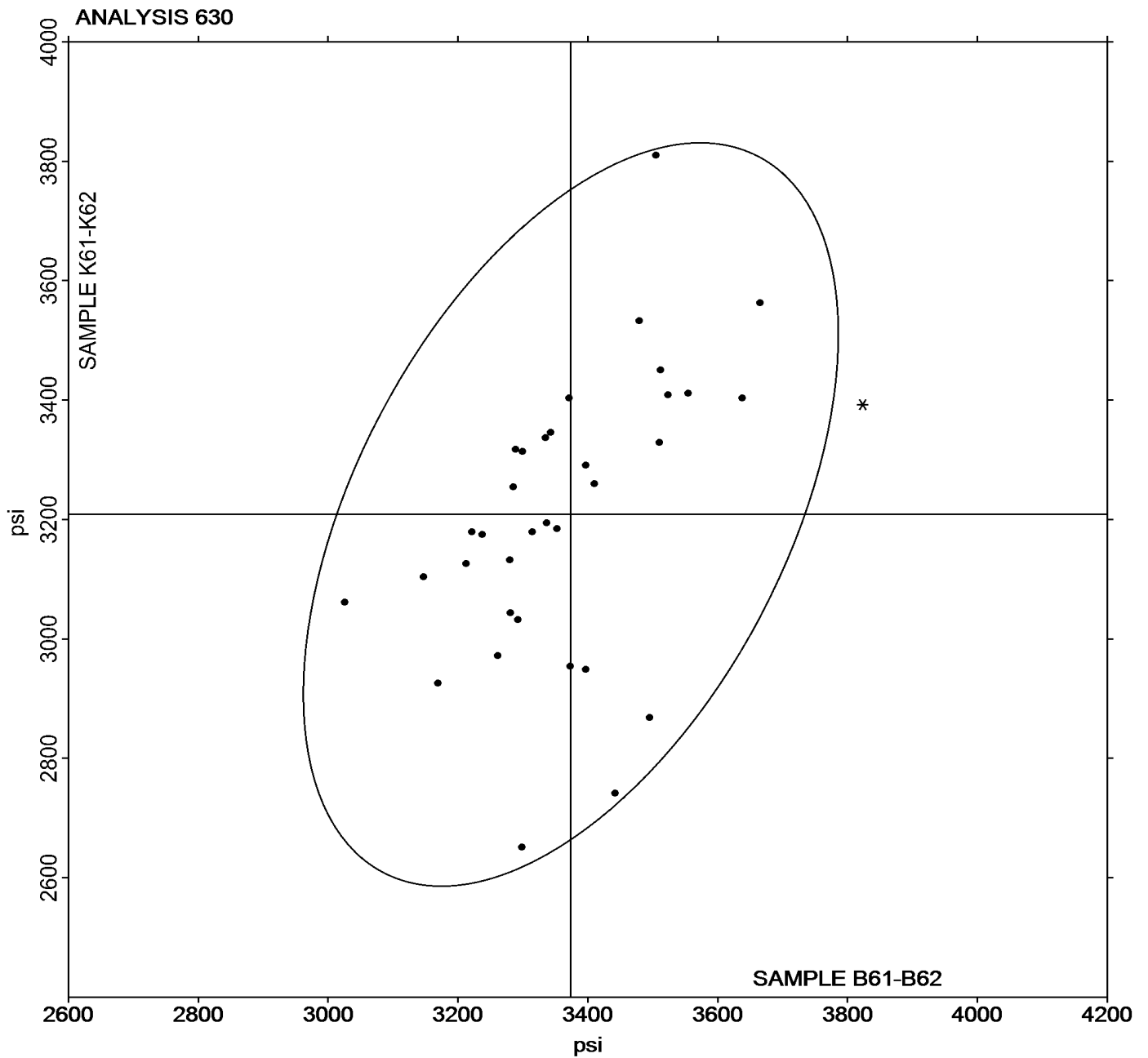


Rubber Interlaboratory Testing Program
Analysis 630
Tensile Strength: Precured vs. Lab-Cured Samples (psi)

Report #188
2nd Qtr 2016

Grand Mean Sample **B61-B62** = 3,373.67 psi

Grand Mean Sample **K61-K62** = 3,208.46 psi





Rubber Interlaboratory Testing Program

Report #188

Analysis 631

2nd Qtr 2016

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

WebCode	Data Flag	Sample B61-B62			Sample K61-K62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
33B94G		637.5	21.7	1.13	618.5	20.8	0.87
4LG2K9		614.0	-1.8	-0.09	610.0	12.3	0.51
7GZFP8		592.5	-23.3	-1.21	557.0	-40.7	-1.69
7J8XM3		636.5	20.7	1.08	617.5	19.8	0.83
7NYX76		614.6	-1.2	-0.06	592.3	-5.4	-0.22
9GPMM2		605.5	-10.3	-0.54	587.5	-10.2	-0.42
A6WJY2		632.5	16.7	0.87	612.6	14.9	0.62
AY3NWU		605.5	-10.3	-0.54	579.5	-18.2	-0.76
BA679W		633.1	17.2	0.90	606.4	8.7	0.36
BD4KTZ		622.0	6.2	0.32	597.5	-0.2	-0.01
BG2YGQ	X	647.3	31.5	1.64	718.2	120.6	5.02
CZ9QWX		601.5	-14.3	-0.74	578.5	-19.2	-0.80
D438LW		578.0	-37.8	-1.97	573.5	-24.2	-1.01
D47QAY		643.0	27.2	1.41	641.5	43.8	1.83
DZ8DNV		619.9	4.0	0.21	621.3	23.6	0.98
E2TE8N		607.5	-8.3	-0.43	598.0	0.3	0.01
E79PKR		632.0	16.2	0.84	593.0	-4.7	-0.20
EQY2BX	*	590.0	-25.8	-1.34	613.5	15.8	0.66
H7XGJU		604.5	-11.3	-0.59	574.5	-23.2	-0.96
HLV9QQ		623.1	7.3	0.38	592.4	-5.2	-0.22
J64QDF		636.2	20.4	1.06	594.1	-3.5	-0.15
JCYTEQ		612.0	-3.8	-0.20	581.5	-16.2	-0.67
JL4ZUQ		609.0	-6.8	-0.35	597.7	0.0	0.00
K368LX		642.3	26.4	1.38	626.5	28.8	1.20
KNQ2DK		609.5	-6.3	-0.33	604.0	6.3	0.26
L2RW9R	*	665.0	49.2	2.56	671.0	73.3	3.05
L4YCFX		589.5	-26.3	-1.37	544.5	-53.2	-2.21
LCENZP		600.5	-15.3	-0.80	572.0	-25.7	-1.07
LQ9FGK		608.5	-7.3	-0.38	594.5	-3.2	-0.13
NEU64E		606.5	-9.3	-0.48	605.5	7.8	0.33
NW8NXW	X	618.5	2.7	0.14	669.0	71.3	2.97
TBWA88		621.0	5.2	0.27	600.0	2.3	0.10
UNX74E		593.4	-22.5	-1.17	577.4	-20.3	-0.84
X8XP6J		637.0	21.2	1.10	606.5	8.8	0.37
XBHGGL		598.5	-17.3	-0.90	583.0	-14.7	-0.61



Rubber Interlaboratory Testing Program

Report #188

Analysis 631

2nd Qtr 2016

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

		Summary Statistics	
Grand Means	615.82 percent		597.67 percent
Stnd Dev Btwn Labs	19.22 percent		24.01 percent
Statistics based on 33 of 35 reporting participants			

Samples B61-B62: Polyisoprene compound, batch #1 & K61-K62: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #631

BG2YGQ (X) - Data for sample group K61-K62 are high. Inconsistent within the determinations of all samples.

NW8NXW (X) - Data for sample group K61-K62 are high.



Rubber Interlaboratory Testing Program

Report #188

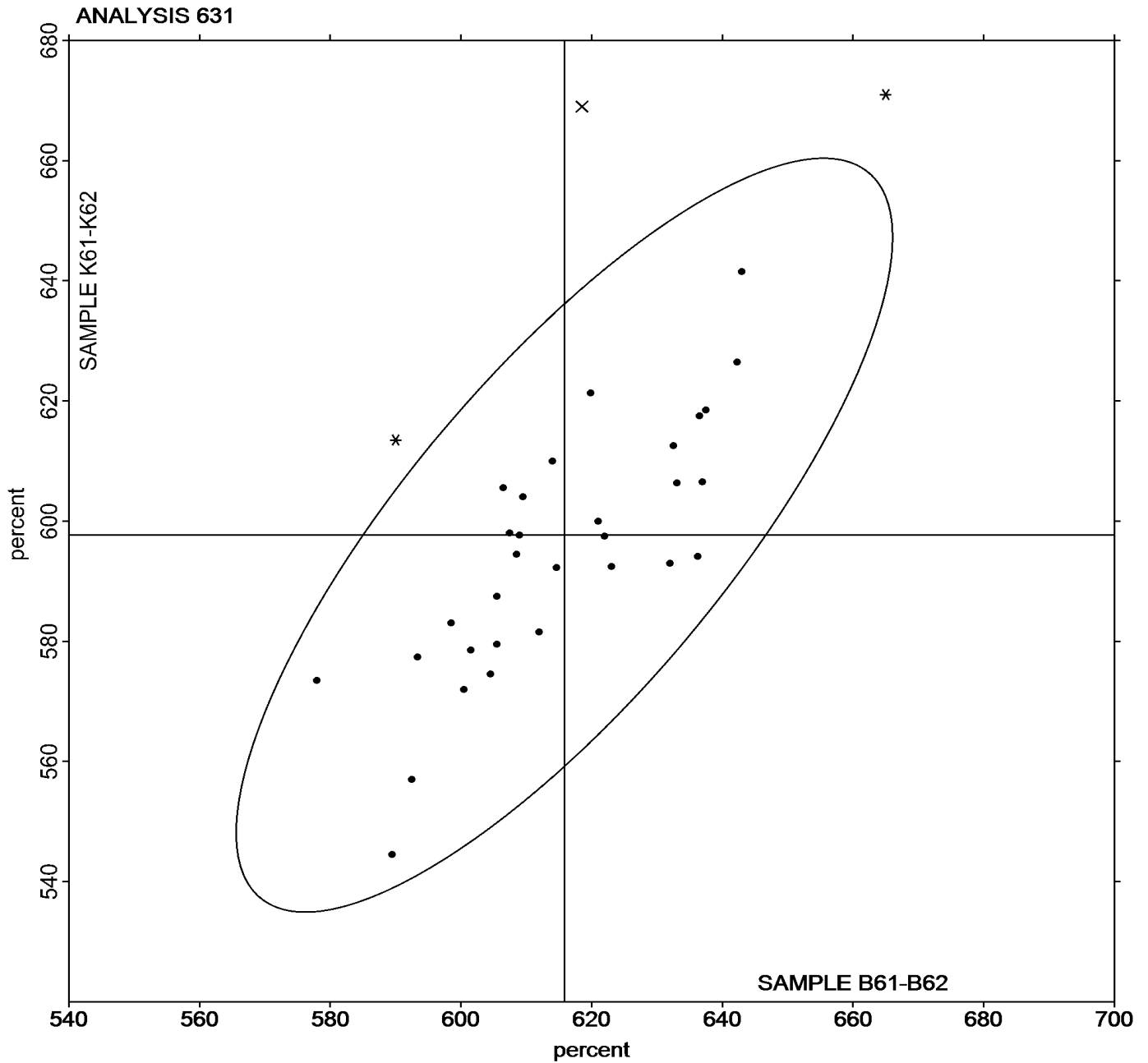
Analysis 631

2nd Qtr 2016

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

Grand Mean Sample B61-B62 = 615.82 percent

Grand Mean Sample K61-K62 = 597.67 percent





Rubber Interlaboratory Testing Program

Report #188

Analysis 632

2nd Qtr 2016

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

WebCode	Data Flag	Sample B61-B62			Sample K61-K62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
33B94G		949.5	-80.0	-1.16	904.0	-141.7	-1.20
4LG2K9		1,130.5	101.0	1.46	1,098.0	52.3	0.44
7GZFP8		1,032.8	3.3	0.05	1,170.2	124.5	1.05
7J8XM3		882.0	-147.5	-2.14	853.0	-192.7	-1.63
7NYX76		1,116.8	87.3	1.26	1,187.8	142.1	1.20
9GPMM2		1,011.0	-18.5	-0.27	894.0	-151.7	-1.28
A6WJY2		988.9	-40.7	-0.59	1,109.6	63.9	0.54
AY3NWU		1,075.0	45.5	0.66	1,127.5	81.8	0.69
BA679W		971.8	-57.8	-0.84	1,058.1	12.4	0.10
BD4KTZ		995.5	-34.0	-0.49	1,123.0	77.3	0.65
BG2YGQ		1,111.7	82.2	1.19	1,091.6	45.9	0.39
CZ9QWX		1,035.0	5.5	0.08	1,025.0	-20.7	-0.18
D438LW		1,145.5	116.0	1.68	1,097.0	51.3	0.43
D47QAY		977.5	-52.0	-0.75	759.0	-286.7	-2.43
DZ8DNV		1,013.3	-16.2	-0.24	1,061.7	16.0	0.14
E2TE8N		1,065.0	35.5	0.51	1,030.0	-15.7	-0.13
E79PKR		965.4	-64.1	-0.93	1,110.0	64.3	0.54
EQY2BX		1,083.0	53.5	0.78	1,100.5	54.8	0.46
H7XGJU		1,013.8	-15.8	-0.23	1,131.1	85.4	0.72
HLV9QQ		1,045.6	16.1	0.23	937.3	-108.4	-0.92
J64QDF		990.0	-39.5	-0.57	1,249.4	203.7	1.72
JCYTEQ		1,044.5	15.0	0.22	1,043.5	-2.2	-0.02
JL4ZUQ		1,002.9	-26.6	-0.39	1,066.0	20.3	0.17
K368LX		1,015.4	-14.1	-0.20	817.3	-228.4	-1.93
KNQ2DK		1,100.5	71.0	1.03	1,076.5	30.8	0.26
L2RW9R		892.0	-137.5	-1.99	834.0	-211.7	-1.79
L4YCFX		1,163.9	134.4	1.95	1,236.5	190.8	1.61
LCENZP		1,019.0	-10.5	-0.15	995.5	-50.2	-0.42
LQ9FGK	X	232.5	-797.0	-11.55	937.0	-108.7	-0.92
NEU64E		1,050.5	21.0	0.30	1,030.0	-15.7	-0.13
NW8NXW		1,055.9	26.4	0.38	978.3	-67.4	-0.57
TBWA88		903.0	-126.5	-1.83	1,092.5	46.8	0.40
UNX74E		1,103.1	73.5	1.07	1,201.2	155.5	1.32
X8XP6J		987.0	-42.5	-0.62	1,058.0	12.3	0.10
XBHGGL		1,066.5	37.0	0.54	1,006.6	-39.0	-0.33



Rubber Interlaboratory Testing Program

Report #188

Analysis 632

2nd Qtr 2016

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

Summary Statistics

Grand Means

1,029.52 psi

1,045.69 psi

Std Dev Btwn Labs

68.98 psi

118.21 psi

Statistics based on 34 of 35 reporting participants

Summary Statistics in SI Units

Grand Means

7.0982 MPa

7.21 MPa

Std Dev Btwn Labs

0.4756 MPa

0.82 MPa

Statistics based on 34 of 35 reporting participants

Samples B61-B62: Polyisoprene compound, batch #1 & K61-K62: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #632

LQ9FGK (X) - Extreme data for sample group B61-B62.



Rubber Interlaboratory Testing Program

Report #188

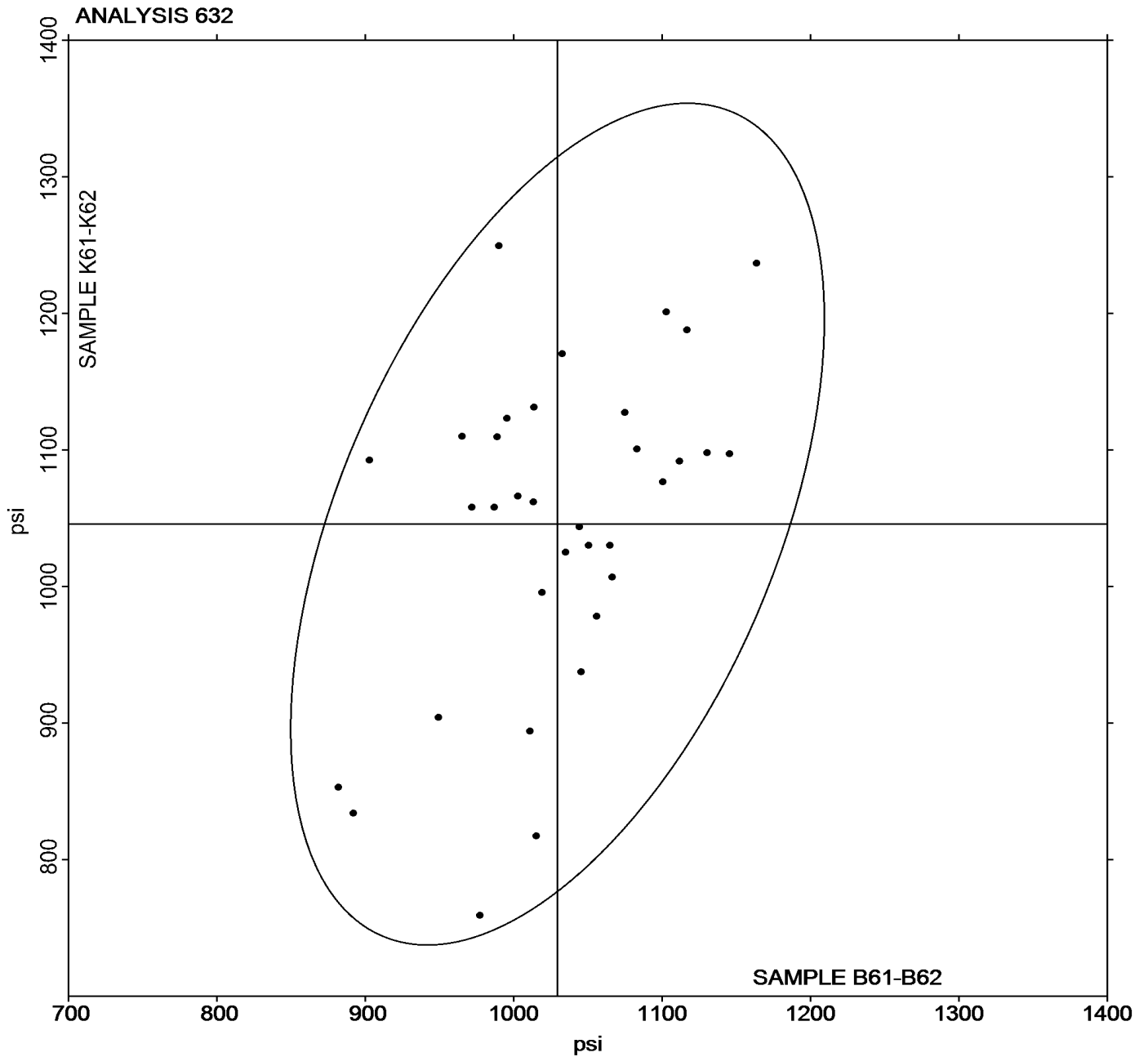
Analysis 632

2nd Qtr 2016

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

Grand Mean Sample **B61-B62** = 1,029.52 psi

Grand Mean Sample **K61-K62** = 1,045.69 psi





Rubber Interlaboratory Testing Program

Report #188

Analysis 633

2nd Qtr 2016

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

WebCode	Data Flag	Sample B61-B62			Sample K61-K62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
33B94G		202.0	-16.3	-0.96	199.0	-31.0	-1.18
4LG2K9	*	266.0	47.7	2.80	278.0	48.0	1.82
7GZFP8		219.4	1.0	0.06	253.4	23.4	0.89
7J8XM3		191.0	-27.3	-1.61	195.0	-35.0	-1.33
7NYX76		252.0	33.7	1.98	266.0	35.9	1.36
9GPMM2		213.5	-4.8	-0.28	194.0	-36.0	-1.37
A6WJY2		206.0	-12.4	-0.73	227.3	-2.7	-0.10
AY3NWU		214.0	-4.3	-0.25	240.0	10.0	0.38
BA679W		200.9	-17.5	-1.03	227.0	-3.1	-0.12
BD4KTZ		207.5	-10.8	-0.64	242.0	12.0	0.45
BG2YGQ		229.2	10.9	0.64	247.3	17.2	0.65
CZ9QWX	X	210.0	-8.3	-0.49	405.0	175.0	6.65
D438LW		235.0	16.7	0.98	229.0	-1.0	-0.04
D47QAY		212.5	-5.8	-0.34	178.0	-52.0	-1.98
DZ8DNV		221.8	3.5	0.21	243.3	13.3	0.50
E2TE8N		224.5	6.2	0.36	221.5	-8.5	-0.32
E79PKR		210.5	-7.9	-0.46	214.0	-16.0	-0.61
EQY2BX		240.5	22.2	1.30	253.5	23.5	0.89
H7XGJU		214.5	-3.8	-0.23	247.5	17.5	0.66
HLV9QQ		214.8	-3.5	-0.21	199.3	-30.8	-1.17
J64QDF		221.8	3.4	0.20	264.5	34.5	1.31
JCYTEQ		217.0	-1.3	-0.08	227.5	-2.5	-0.10
JL4ZUQ		206.0	-12.4	-0.73	229.2	-0.9	-0.03
K368LX		213.4	-4.9	-0.29	178.2	-51.9	-1.97
KNQ2DK		239.5	21.2	1.24	246.5	16.5	0.63
L2RW9R		188.6	-29.8	-1.75	188.6	-41.5	-1.58
L4YCFX		244.4	26.0	1.53	261.8	31.7	1.21
LCENZP		212.0	-6.3	-0.37	212.0	-18.0	-0.69
LQ9FGK	X	1,002.0	783.7	46.04	226.0	-4.0	-0.15
NEU64E		214.5	-3.8	-0.23	221.0	-9.0	-0.34
NW8NXW		213.2	-5.1	-0.30	254.5	24.5	0.93
TBWA88		191.0	-27.3	-1.61	231.0	1.0	0.04
UNX74E		224.0	5.6	0.33	257.7	27.7	1.05
X8XP6J		216.0	-2.3	-0.14	244.0	14.0	0.53
XBHGGL		228.5	10.2	0.60	220.1	-9.9	-0.38



Rubber Interlaboratory Testing Program

Report #188

Analysis 633

2nd Qtr 2016

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

		Summary Statistics	
Grand Means	218.34 psi	230.05 psi	
Stnd Dev Btwn Labs	17.02 psi	26.31 psi	
Statistics based on 33 of 35 reporting participants			

		Summary Statistics in SI Units	
Grand Means	1.5054 MPa	1.59 MPa	
Stnd Dev Btwn Labs	0.1174 MPa	0.18 MPa	
Statistics based on 33 of 35 reporting participants			

Samples B61-B62: Polyisoprene compound, batch #1 & K61-K62: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #633

CZ9QWX (X) - Data for sample group K61-K62 are high. Inconsistent within the determinations of sample group K61-K62.

LQ9FGK (X) - Extreme data for sample group B61-B62.



Rubber Interlaboratory Testing Program

Report #188

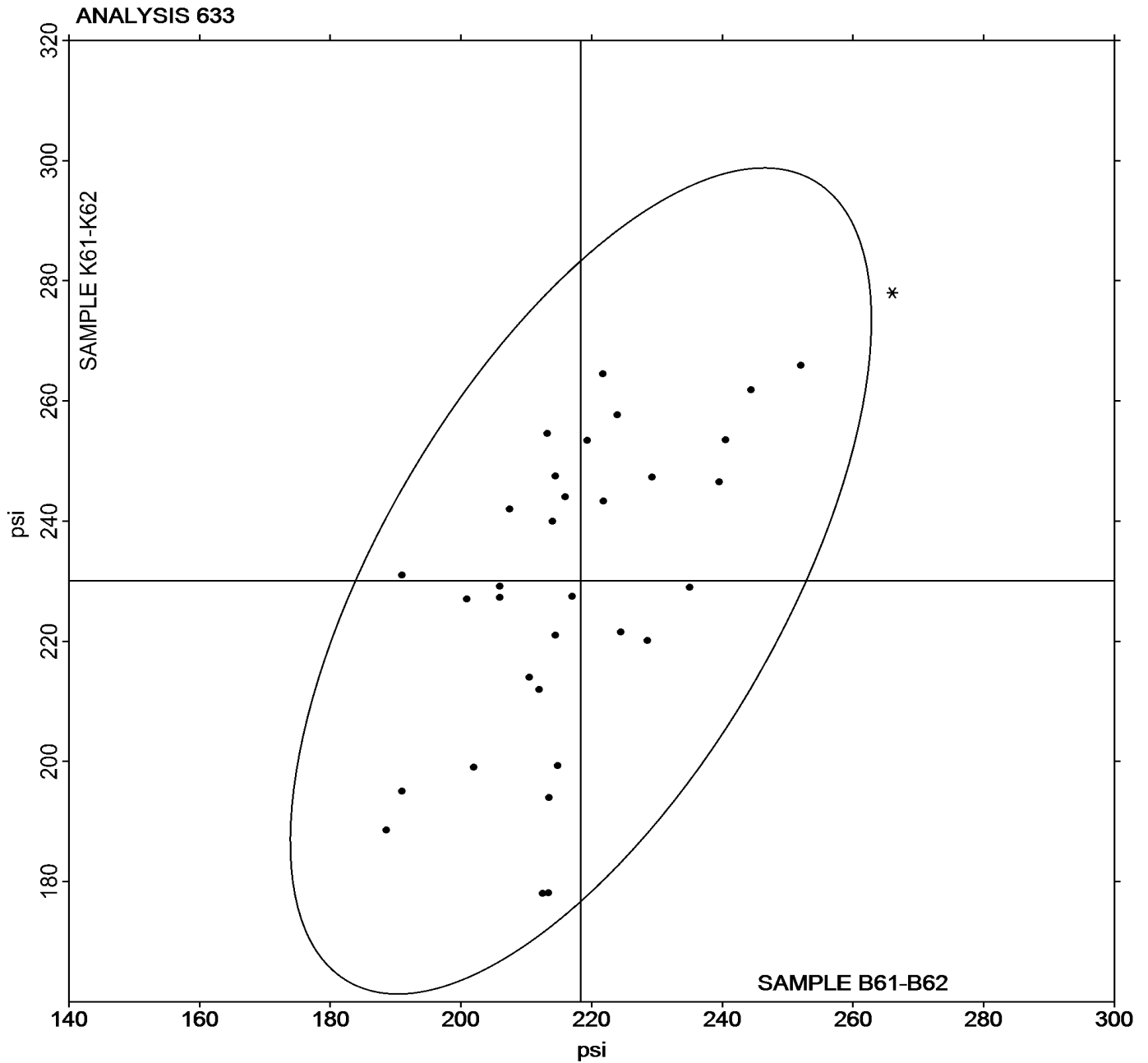
Analysis 633

2nd Qtr 2016

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

Grand Mean Sample **B61-B62** = 218.34 psi

Grand Mean Sample **K61-K62** = 230.05 psi





Rubber Interlaboratory Testing Program

Report #188

Analysis 660

2nd Qtr 2016

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

WebCode	Data Flag	Sample T61-T62			Sample T63-T64			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
4LG2K9		48.39	-0.05	-0.07	56.39	0.83	0.85	TA
64BJNA		49.22	0.77	0.99	55.65	0.09	0.09	MR
7NYX76		47.45	-1.00	-1.28	54.55	-1.01	-1.05	MR
AY3NWU		48.43	-0.01	-0.01	55.68	0.12	0.13	MR
BA679W		48.57	0.12	0.16	55.22	-0.34	-0.35	TA
BG2YGQ		48.78	0.34	0.43	55.88	0.32	0.33	XX
CDXMXV		49.23	0.79	1.01	57.45	1.89	1.95	MR
D438LW		48.13	-0.31	-0.40	55.20	-0.36	-0.37	MR
DYUJC2		47.70	-0.74	-0.95	54.42	-1.14	-1.18	MR
DZ8DNV		47.82	-0.63	-0.80	55.35	-0.21	-0.22	MR
E2TE8N		48.98	0.54	0.69	55.43	-0.13	-0.13	MR
EQY2BX		48.56	0.12	0.15	55.85	0.29	0.30	MR
FJQ298		49.57	1.13	1.44	57.15	1.59	1.64	MR
GG28RW		48.75	0.31	0.39	55.77	0.21	0.21	MR
H7XGJU		48.13	-0.31	-0.40	55.58	0.02	0.02	MR
HLV9QQ		49.33	0.88	1.13	56.57	1.01	1.04	TV
JL4ZUQ		47.63	-0.81	-1.04	54.92	-0.64	-0.67	MR
L2RW9R		47.88	-0.56	-0.72	54.67	-0.89	-0.93	MR
L4YCFX		47.27	-1.18	-1.51	54.59	-0.97	-1.01	XX
LCENZP		48.08	-0.36	-0.46	54.75	-0.81	-0.84	MR
LMA6KK		49.25	0.80	1.03	55.64	0.08	0.08	MR
MPV74D		49.25	0.81	1.03	57.37	1.81	1.87	MR
NW8NXW		49.05	0.61	0.77	56.43	0.87	0.90	MR
Q8KMJJ		49.75	1.31	1.67	56.17	0.61	0.63	MR
QH383F		48.08	-0.36	-0.46	55.43	-0.13	-0.13	MP
QJE49J		48.35	-0.10	-0.12	56.19	0.63	0.65	MR
TBWA88		48.07	-0.38	-0.48	54.63	-0.93	-0.96	XX
TQ8YJM		46.57	-1.88	-2.40	53.37	-2.19	-2.27	XX
U7Y9LJ	*	48.88	0.44	0.56	54.55	-1.01	-1.05	MR
X8XP6J		48.40	-0.04	-0.06	55.37	-0.19	-0.20	MR
XBHGGL		47.08	-1.36	-1.74	54.50	-1.06	-1.10	MR
YC93MH		49.58	1.14	1.45	57.24	1.68	1.74	MR



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

Report #188
2nd Qtr 2016

		Summary Statistics	
Grand Means			
	48.444 ML 1 + 4		55.561 ML 1 + 4
Stnd Dev Btwn Labs			
	0.782 ML 1 + 4		0.967 ML 1 + 4
Statistics based on 32 of 32 reporting participants			

Samples T61-T62: SBR & T63-T64: Butyl

Key to Instrument Codes Reported by Participants

- | | | | |
|-----------|--------------------------------------------|-----------|-----------------------------------------|
| MP | Monsanto Compact Mooney Viscometer | 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 | | |

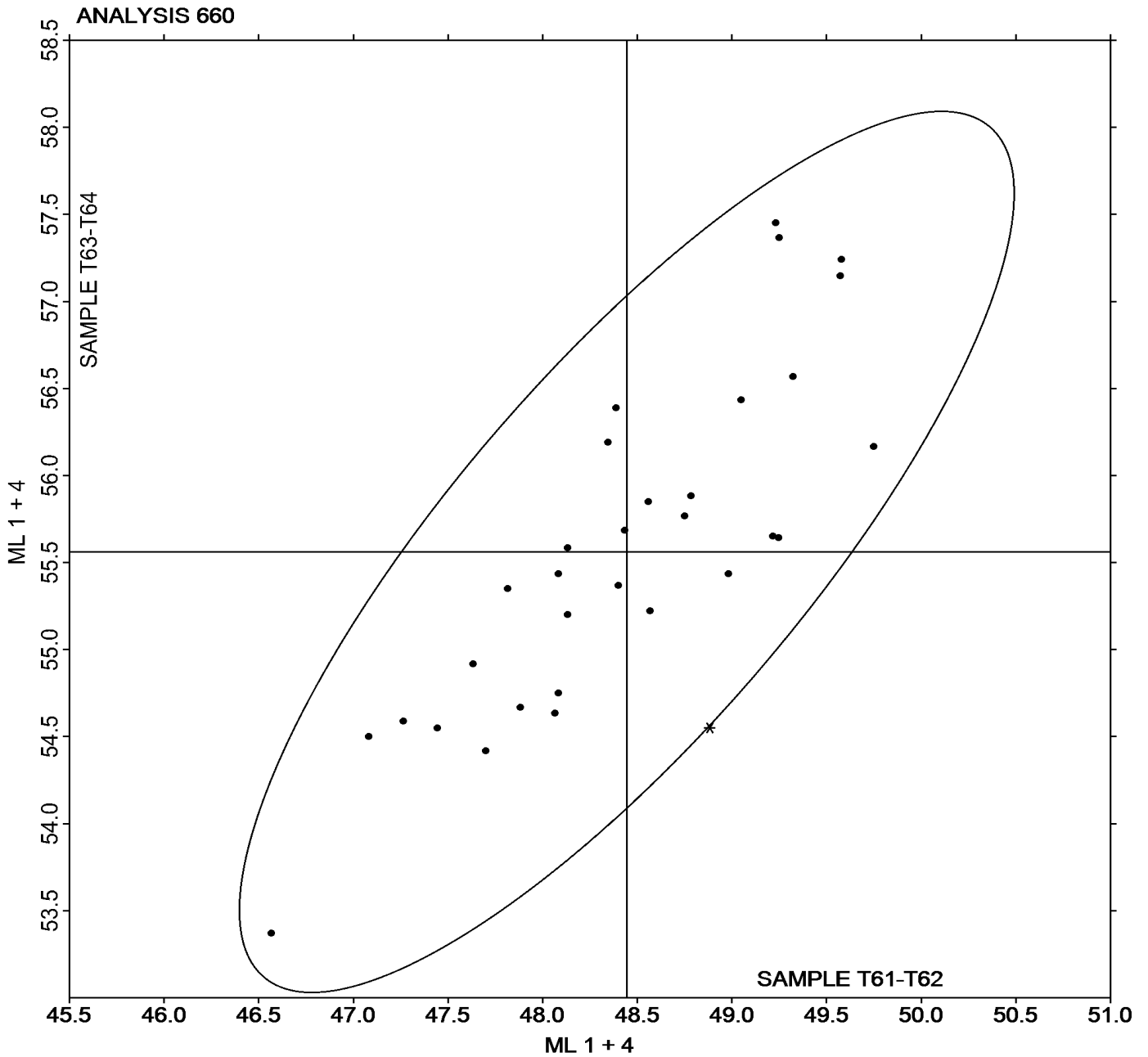


Rubber Interlaboratory Testing Program
Analysis 660
Mooney Viscosity: 4-minute readings (ML 1 + 4)

Report #188
2nd Qtr 2016

Grand Mean Sample **T61-T62** = 48.444 ML 1 + 4

Grand Mean Sample **T63-T64** = 55.561 ML 1 + 4





Rubber Interlaboratory Testing Program

Report #188

Analysis 661

2nd Qtr 2016

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

WebCode	Data Flag	Sample T61-T62			Sample T63-T64			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
4LG2K9		48.39	-0.04	-0.06	54.18	1.16	1.29	TA
64BJNA		49.22	0.78	1.13	52.93	-0.09	-0.10	MR
7NYX76		47.45	-0.99	-1.42	51.91	-1.11	-1.23	MR
AY3NWU		48.43	0.00	0.00	53.07	0.05	0.05	XX
BG2YGQ		48.78	0.35	0.50	54.13	1.11	1.24	XX
D438LW		48.13	-0.30	-0.43	52.82	-0.20	-0.23	MR
DYUJC2		47.70	-0.73	-1.05	52.27	-0.75	-0.84	MR
DZ8DNV		47.82	-0.62	-0.88	53.12	0.10	0.11	MR
E2TE8N		48.98	0.55	0.79	52.97	-0.05	-0.06	MR
EQY2BX		48.56	0.13	0.18	53.59	0.57	0.64	MR
FJQ298		49.57	1.14	1.64	54.69	1.67	1.86	MR
GG28RW		48.75	0.32	0.46	52.68	-0.34	-0.37	MR
H7XGJU		48.13	-0.30	-0.43	53.27	0.25	0.28	MR
HLV9QQ		49.33	0.89	1.28	53.40	0.38	0.42	MZ
JL4ZUQ		47.63	-0.80	-1.15	52.65	-0.37	-0.41	MR
L2RW9R		47.88	-0.55	-0.79	51.75	-1.27	-1.41	MR
L4YCFX		47.27	-1.17	-1.68	52.33	-0.69	-0.77	XX
LCENZP		48.08	-0.35	-0.50	52.02	-1.00	-1.11	MP
LMA6KK		49.25	0.81	1.17	53.40	0.38	0.42	MR
MPV74D		49.25	0.82	1.18	54.53	1.51	1.68	MR
NW8NXW		49.05	0.62	0.89	53.80	0.78	0.87	MR
QH383F		48.08	-0.35	-0.50	52.50	-0.52	-0.58	MP
QJE49J		48.35	-0.09	-0.12	54.20	1.18	1.31	MR
TBWA88		48.07	-0.37	-0.53	51.53	-1.49	-1.65	XX
U7Y9LJ		48.88	0.45	0.65	51.67	-1.35	-1.50	MR
X8XP6J		48.40	-0.03	-0.05	53.65	0.63	0.70	MR
XBHGGL		47.08	-1.35	-1.94	51.90	-1.12	-1.24	MR
YC93MH		49.58	1.15	1.65	53.58	0.56	0.63	MR

		Summary Statistics	
Grand Means	48.432 ML 1 + 8	53.019 ML 1 + 8	
Std Dev Btwn Labs	0.696 ML 1 + 8	0.899 ML 1 + 8	
Statistics based on 28 of 28 reporting participants			

Samples T61-T62: SBR & T63-T64: Butyl



Rubber Interlaboratory Testing Program

Report #188

Analysis 661

2nd Qtr 2016

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

Key to Instrument Codes Reported by Participants

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



Rubber Interlaboratory Testing Program

Report #188

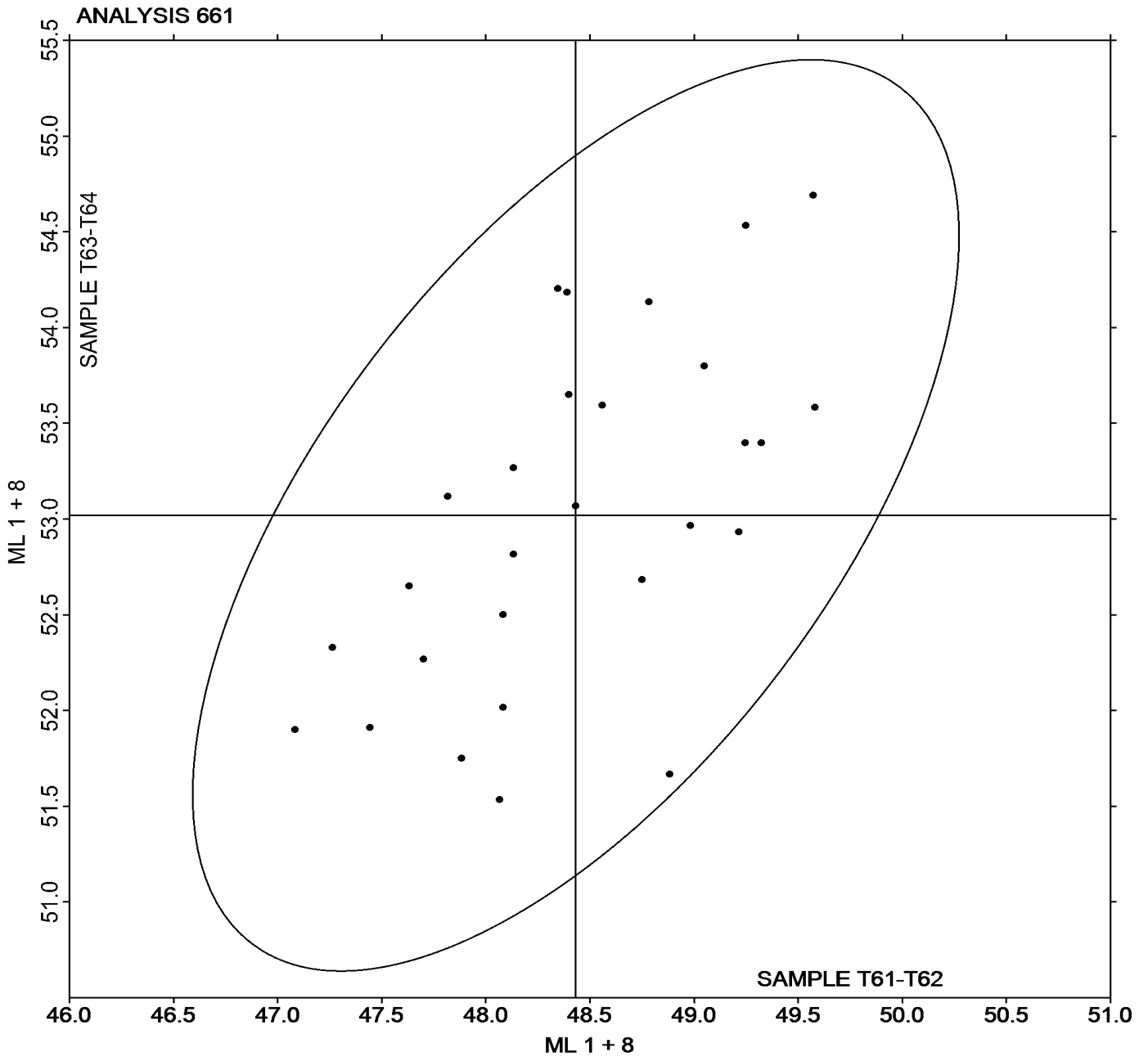
Analysis 661

2nd Qtr 2016

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

Grand Mean Sample T61-T62 = 48.432 ML 1 + 8

Grand Mean Sample T63-T64 = 53.019 ML 1 + 8





Rubber Interlaboratory Testing Program

Report #188

Analysis 662

2nd Qtr 2016

Mooney Stress Relaxation: t80 (seconds)

WebCode	Data Flag	Sample T61-T62			Sample T63-T64			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
4LG2K9	X	312.40	299.68	235.63	309.900	300.881	284.83	TA
AY3NWU		12.11	-0.60	-0.47	8.203	-0.816	-0.77	MR
BA679W	X	251.20	238.48	187.51	249.200	240.181	227.37	TA
D438LW		11.51	-1.20	-0.95	8.063	-0.956	-0.90	MR
DZ8DNV		11.41	-1.31	-1.03	8.530	-0.489	-0.46	MR
E2TE8N		12.67	-0.05	-0.04	8.423	-0.596	-0.56	MR
EQY2BX		13.74	1.02	0.80	7.965	-1.054	-1.00	MR
GG28RW		12.37	-0.35	-0.28	8.400	-0.619	-0.59	MR
HLV9QQ		11.10	-1.62	-1.27	11.127	2.108	2.00	TV
JL4ZUQ		13.90	1.18	0.93	9.360	0.341	0.32	MR
L2RW9R		15.45	2.73	2.15	10.222	1.203	1.14	XX
L4YCFX	X	311.40	298.68	234.84	309.200	300.181	284.17	XX
NW8NXW		12.84	0.12	0.09	8.715	-0.304	-0.29	MR
Q8KMJJ		12.80	0.08	0.07	10.200	1.181	1.12	MR

Summary Statistics	
Grand Means	
	12.717 seconds
	9.0189 seconds
Std Dev Btwn Labs	
	1.272 seconds
	1.0563 seconds
Statistics based on 11 of 14 reporting participants	

Samples T61-T62: SBR & T63-T64: Butyl

Comments on Assigned Data Flags for Test #662

4LG2K9 (X) - Extreme data.

BA679W (X) - Extreme data.

L4YCFX (X) - Extreme data.

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

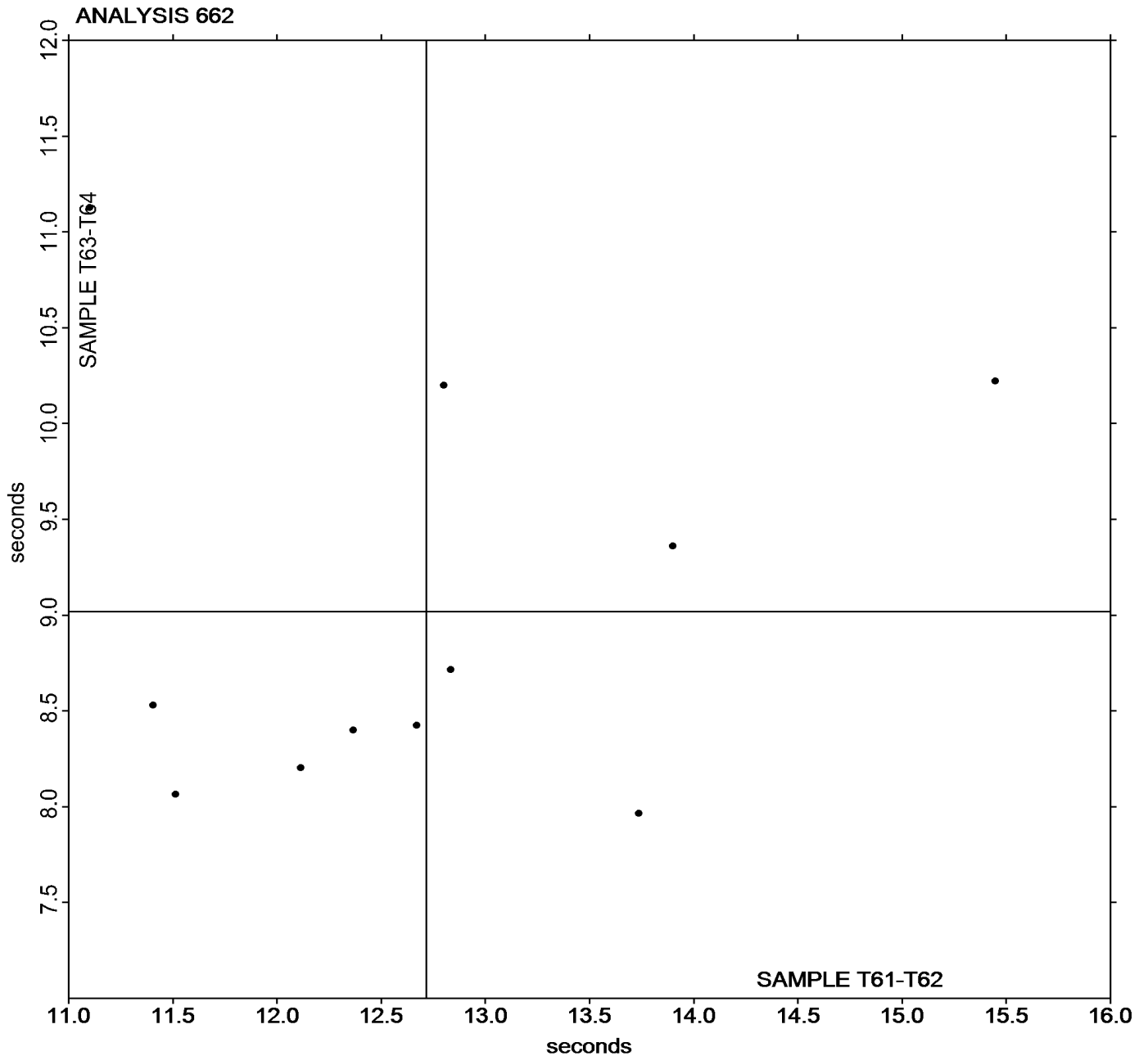


Rubber Interlaboratory Testing Program
Analysis 662
Mooney Stress Relaxation: t80 (seconds)

Report #188
2nd Qtr 2016

Grand Mean Sample T61-T62 = 12.717 seconds

Grand Mean Sample T63-T64 = 9.0189 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 #188

Analysis 663

2nd Qtr 2016

Mooney Stress Relaxation: X30 (percent)

WebCode	Data Flag	Sample T61-T62			Sample T63-T64			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
4LG2K9		85.50	-0.59	-0.38	89.82	-0.92	-1.11	TA
AY3NWU		85.99	-0.11	-0.07	91.21	0.47	0.57	MR
BA679W		86.98	0.89	0.58	91.02	0.28	0.34	TA
D438LW		86.29	0.20	0.13	91.42	0.68	0.82	MR
DZ8DNV		86.30	0.21	0.14	90.93	0.19	0.23	MR
E2TE8N		85.62	-0.47	-0.31	90.95	0.21	0.26	MR
EQY2BX		85.46	-0.63	-0.41	90.92	0.18	0.21	MR
GG28RW		85.78	-0.31	-0.20	90.98	0.24	0.30	MR
HLV9QQ	*	90.56	4.47	2.90	92.30	1.56	1.88	TV
JL4ZUQ		85.03	-1.07	-0.69	90.22	-0.52	-0.63	MR
L2RW9R		83.87	-2.22	-1.44	88.83	-1.91	-2.30	XX
L4YCFX		86.36	0.26	0.17	90.39	-0.35	-0.42	XX
NW8NXW		85.46	-0.63	-0.41	90.63	-0.11	-0.14	MR

Summary Statistics			
Grand Means	86.091 percent	90.739 percent	
Std Dev Btwn Labs	1.541 percent	0.829 percent	
Statistics based on 13 of 13 reporting participants			

Samples T61-T62: SBR & T63-T64: 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

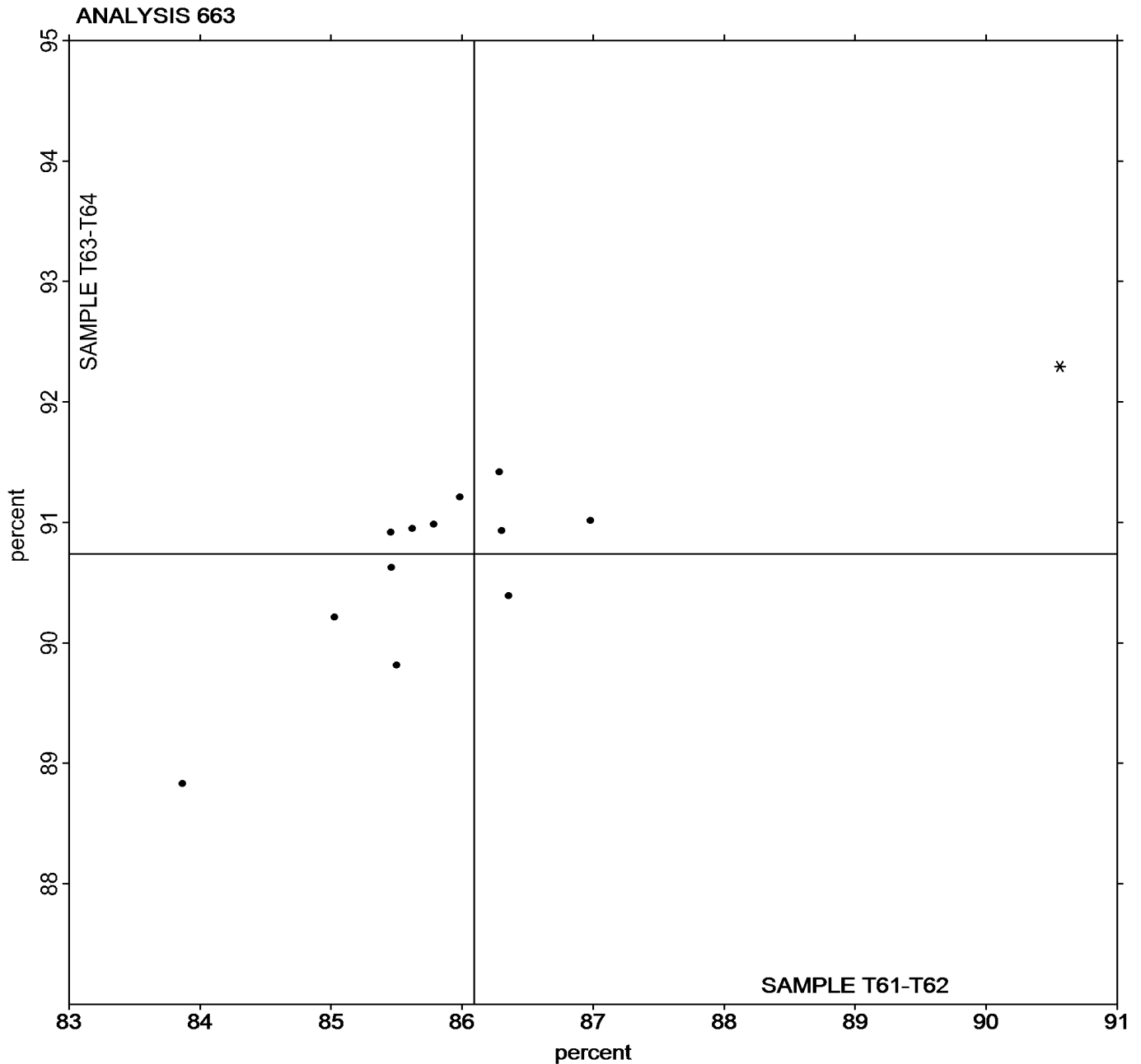


Rubber Interlaboratory Testing Program
Analysis 663
Mooney Stress Relaxation: X30 (percent)

Report #188
2nd Qtr 2016

Grand Mean Sample **T61-T62** = 86.091 percent

Grand Mean Sample **T63-T64** = 90.739 percent



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 #188

Analysis 664

2nd Qtr 2016

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

WebCode	Data Flag	Sample T61-T62			Sample T63-T64			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
4LG2K9		762.1	38.0	0.39	637.0	84.1	1.37	TA
AY3NWU		724.2	0.0	0.00	523.5	-29.4	-0.48	MR
D438LW		709.3	-14.9	-0.15	502.4	-50.5	-0.82	MR
DZ8DNV		705.2	-19.0	-0.19	536.9	-16.0	-0.26	MR
E2TE8N		765.7	41.5	0.42	538.3	-14.6	-0.24	MR
EQY2BX		756.5	32.4	0.33	534.4	-18.5	-0.30	MR
GG28RW		743.7	19.5	0.20	525.5	-27.4	-0.45	MR
HLV9QQ		439.7	-284.4	-2.89	446.7	-106.2	-1.73	TV
JL4ZUQ		776.7	52.5	0.53	575.7	22.8	0.37	XX
L2RW9R		844.3	120.2	1.22	684.2	131.3	2.14	XX
L4YCFX		692.7	-31.4	-0.32	568.9	16.0	0.26	XX
NW8NXW		770.0	45.8	0.47	561.2	8.3	0.14	MR

Summary Statistics	
Grand Means	
	724.17 M-s
	552.90 M-s
Std Dev Btwn Labs	
	98.33 M-s
	61.37 M-s
Statistics based on 12 of 12 reporting participants	

Samples T61-T62: SBR & T63-T64: 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

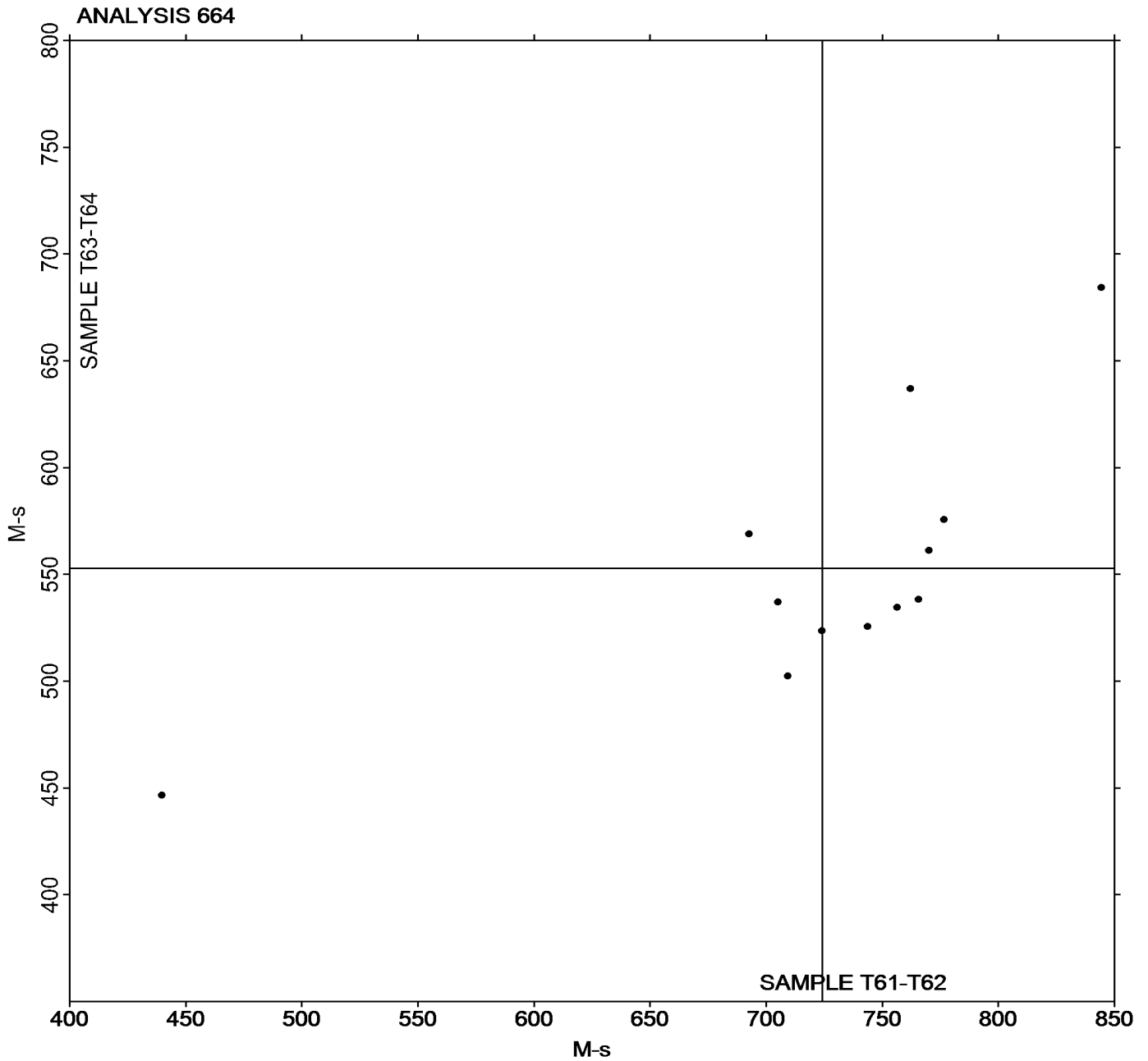


Rubber Interlaboratory Testing Program
Analysis 664
Mooney Stress Relaxation: Area under curve (M-s)

Report #188
2nd Qtr 2016

Grand Mean Sample **T61-T62** = 724.17 M-s

Grand Mean Sample **T63-T64** = 552.90 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 #188
2nd Qtr 2016

WebCode	Data Flag	Sample X61-X62			Sample X63-X64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
DYUJC2		1.1150	0.1370	2.01	1.883	0.209	0.72
EQY2BX		0.8883	-0.0897	-1.31	1.400	-0.275	-0.95
HLV9QQ		1.0333	0.0553	0.81	2.263	0.589	2.03
K368LX		0.8883	-0.0897	-1.31	1.368	-0.306	-1.06
L2RW9R		0.9683	-0.0097	-0.14	1.837	0.162	0.56
LCENZP		1.0000	0.0220	0.32	1.920	0.245	0.85
LMA6KK		0.9300	-0.0480	-0.70	1.430	-0.245	-0.85
QJE49J		0.9900	0.0120	0.18	1.567	-0.108	-0.37
X8XP6J		0.9617	-0.0163	-0.24	1.535	-0.140	-0.48
XBHGGL		1.0050	0.0270	0.40	1.543	-0.131	-0.45

		Summary Statistics	
Grand Means		0.97800 minutes	1.6747 minutes
Stnd Dev Btwn Labs		0.06826 minutes	0.2895 minutes
Statistics based on 10 of 10 reporting participants			

Samples X61-X62: EPDM compound #1 & X63-X64: EPDM compound #2

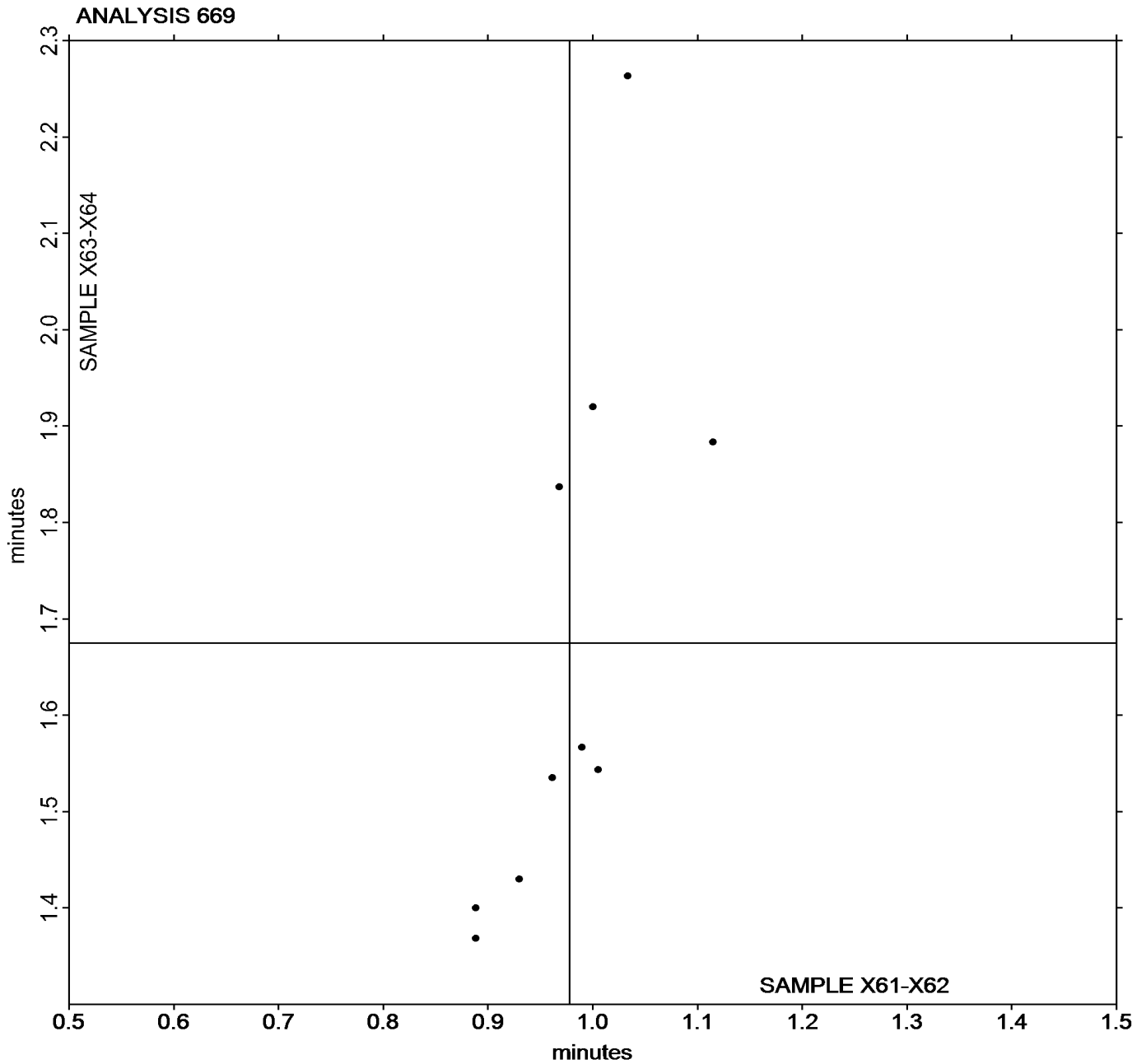


Rubber Interlaboratory Testing Program
Analysis 669
ODR Vulcanization-Cure Time 10% (minutes)

Report #188
2nd Qtr 2016

Grand Mean Sample X61-X62 = 0.97800 minutes

Grand Mean Sample X63-X64 = 1.6747 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 #188
2nd Qtr 2016

WebCode	Data Flag	Sample X61-X62			Sample X63-X64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
DYUJC2		0.8033	0.1362	2.23	1.477	0.210	0.68
EQY2BX		0.6033	-0.0638	-1.05	1.028	-0.239	-0.77
HLV9QQ		0.7333	0.0662	1.08	1.958	0.691	2.24
K368LX		0.6067	-0.0605	-0.99	0.995	-0.272	-0.88
L2RW9R		0.6500	-0.0172	-0.28	1.373	0.106	0.34
LCENZP		0.6833	0.0162	0.26	1.498	0.231	0.75
LMA6KK		0.6317	-0.0355	-0.58	1.025	-0.242	-0.78
QJE49J		0.6500	-0.0172	-0.28	1.153	-0.114	-0.37
X8XP6J		0.6400	-0.0272	-0.45	1.073	-0.194	-0.63
XBHGGL		0.6700	0.0028	0.05	1.088	-0.179	-0.58

		Summary Statistics	
Grand Means	0.66717 minutes	1.2670 minutes	
Stnd Dev Btwn Labs	0.06102 minutes	0.3089 minutes	
Statistics based on 10 of 10 reporting participants			

Samples X61-X62: EPDM compound #1 & X63-X64: EPDM compound #2

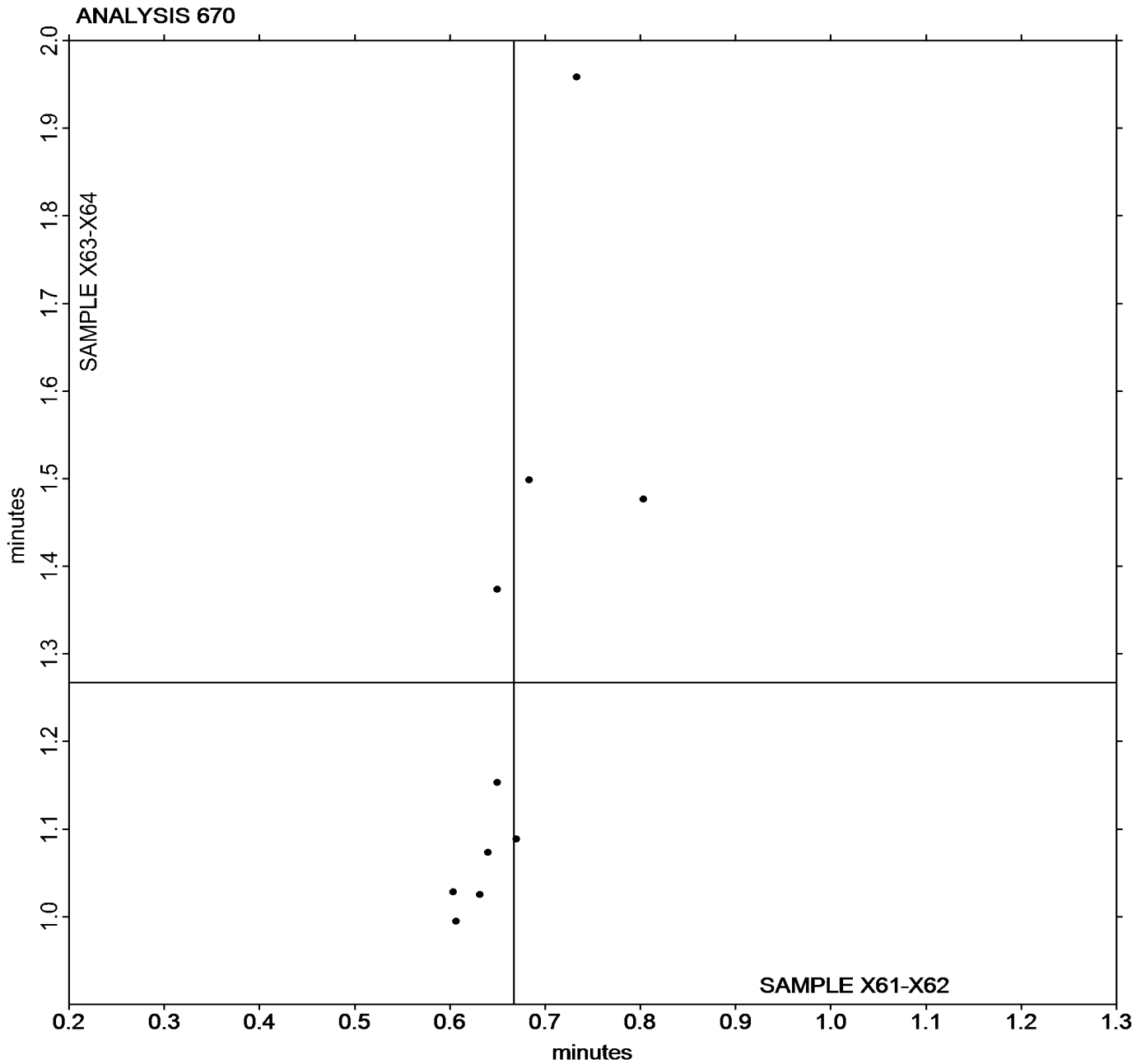


Rubber Interlaboratory Testing Program
Analysis 670
ODR Vulcanization-Scorch Time, Ts1 (minutes)

Report #188
2nd Qtr 2016

Grand Mean Sample X61-X62 = 0.66717 minutes

Grand Mean Sample X63-X64 = 1.2670 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 #188
2nd Qtr 2016

WebCode	Data Flag	Sample X61-X62			Sample X63-X64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
DYUJC2		2.785	0.227	1.24	3.830	0.252	0.71
EQY2BX		2.345	-0.214	-1.17	3.212	-0.367	-1.03
HLV9QQ		2.772	0.213	1.17	4.122	0.543	1.53
K368LX		2.240	-0.319	-1.75	3.295	-0.283	-0.80
L2RW9R		2.587	0.028	0.15	3.973	0.395	1.11
LCENZP		2.688	0.130	0.71	3.955	0.377	1.06
LMA6KK		2.408	-0.150	-0.82	3.230	-0.348	-0.98
QJE49J		2.498	-0.060	-0.33	3.267	-0.312	-0.88
X8XP6J		2.655	0.097	0.53	3.513	-0.065	-0.18
XBHGGL		2.607	0.048	0.26	3.387	-0.192	-0.54

		Summary Statistics	
Grand Means		2.5585 minutes	3.5783 minutes
Stnd Dev Btwn Labs		0.1823 minutes	0.3544 minutes
Statistics based on 10 of 10 reporting participants			

Samples X61-X62: EPDM compound #1 & X63-X64: EPDM compound #2

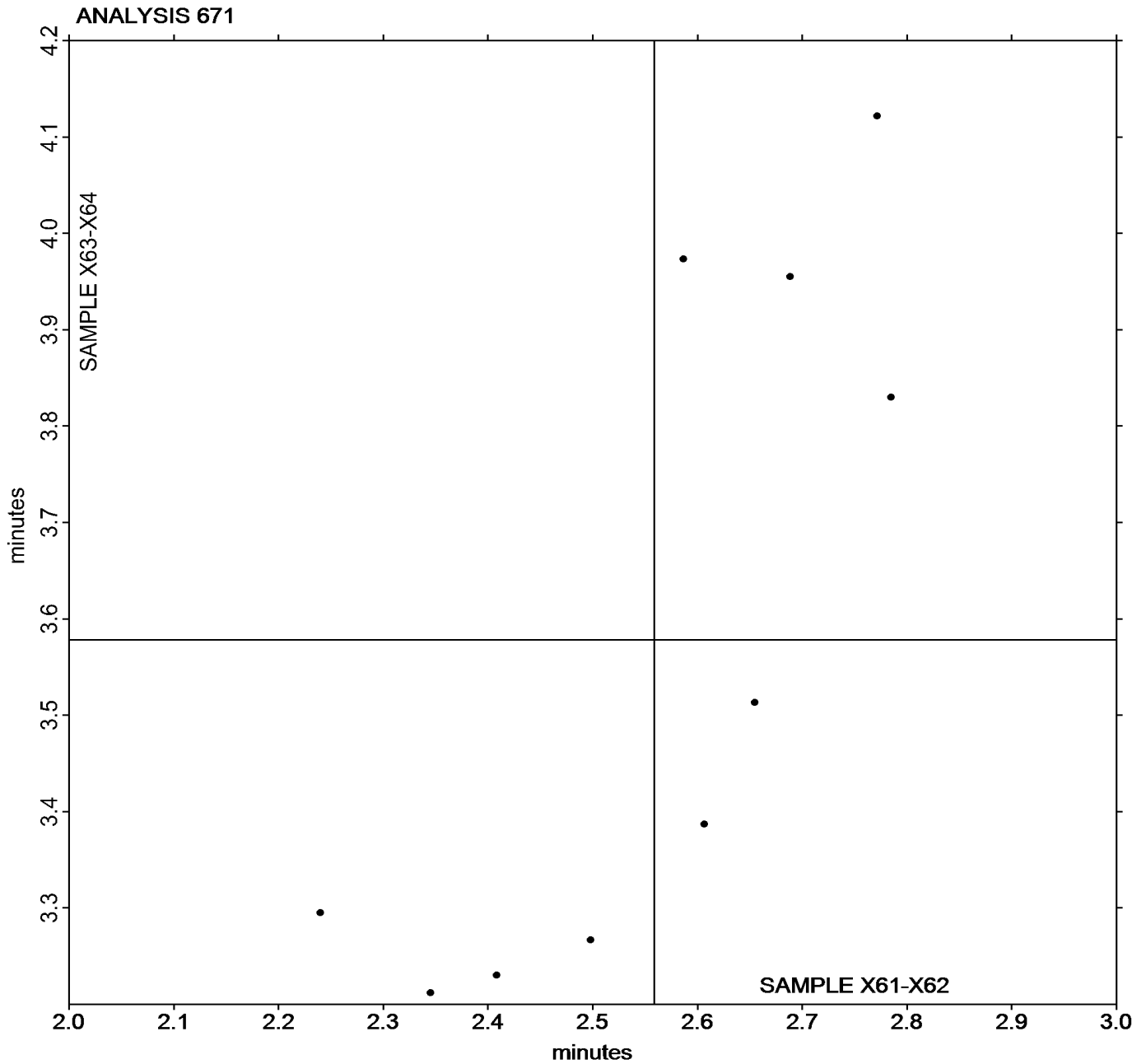


Rubber Interlaboratory Testing Program
Analysis 671
ODR Vulcanization-Cure Time 50% (minutes)

Report #188
2nd Qtr 2016

Grand Mean Sample X61-X62 = 2.5585 minutes

Grand Mean Sample X63-X64 = 3.5783 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 #188
2nd Qtr 2016

WebCode	Data Flag	Sample X61-X62			Sample X63-X64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
DYUJC2		13.11	-0.01	-0.01	9.380	-0.330	-0.19
EQY2BX		12.74	-0.39	-0.28	7.875	-1.835	-1.06
HLV9QQ		15.17	2.04	1.49	13.882	4.172	2.41
K368LX		11.07	-2.06	-1.51	9.068	-0.642	-0.37
L2RW9R		12.42	-0.71	-0.52	10.053	0.344	0.20
LCENZP		13.16	0.03	0.02	11.147	1.437	0.83
LMA6KK		13.28	0.16	0.11	8.982	-0.728	-0.42
QJE49J		11.61	-1.52	-1.11	8.358	-1.352	-0.78
X8XP6J		15.44	2.32	1.70	9.695	-0.015	-0.01
XBHGGL		13.26	0.14	0.10	8.658	-1.052	-0.61

		Summary Statistics	
Grand Means		13.124 minutes	9.7098 minutes
Stnd Dev Btwn Labs		1.365 minutes	1.7300 minutes
Statistics based on 10 of 10 reporting participants			

Samples X61-X62: EPDM compound #1 & X63-X64: EPDM compound #2

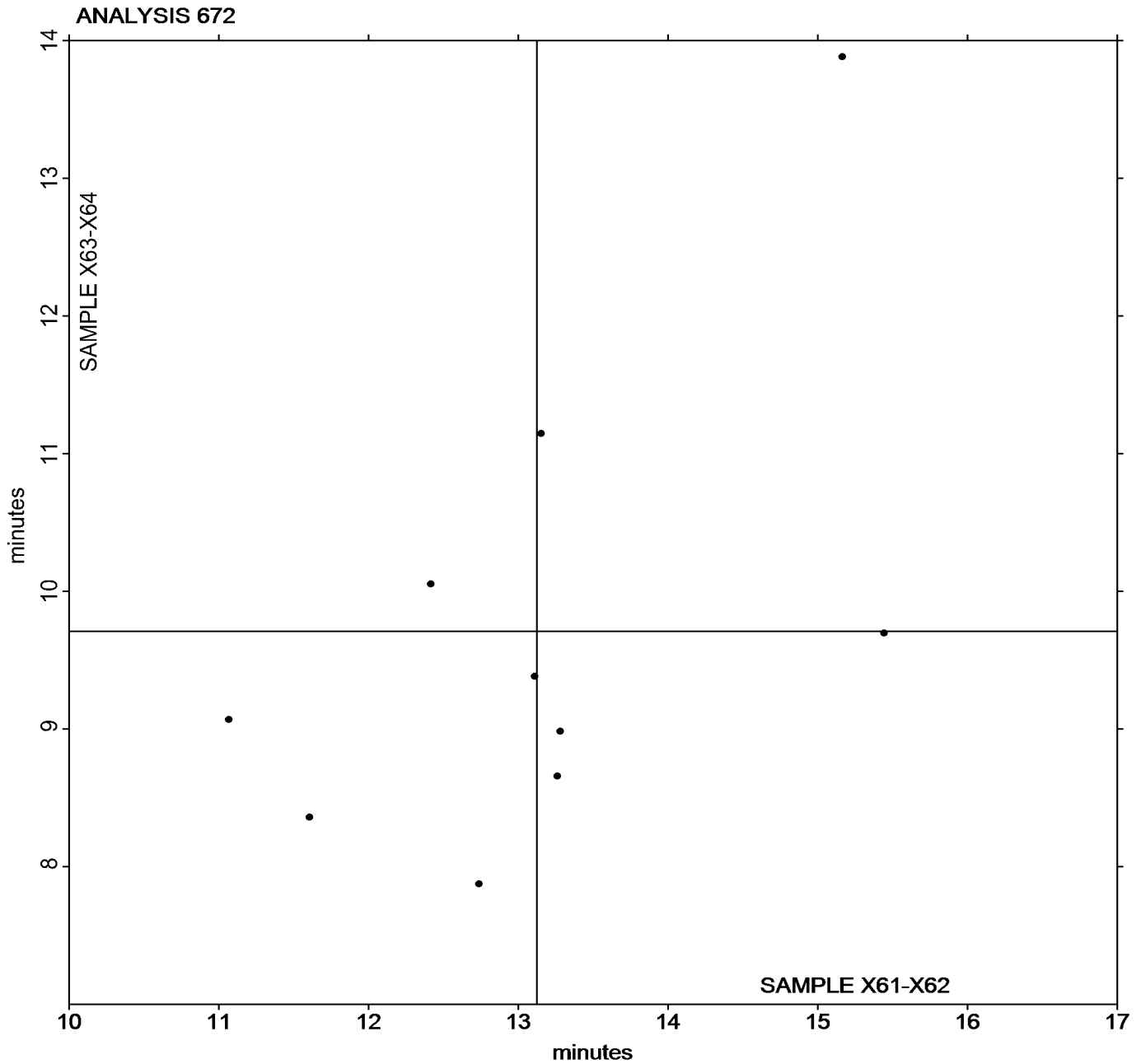


Rubber Interlaboratory Testing Program
Analysis 672
ODR Vulcanization-Cure Time 90% (minutes)

Report #188
2nd Qtr 2016

Grand Mean Sample **X61-X62** = 13.124 minutes

Grand Mean Sample **X63-X64** = 9.7098 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 #188
2nd Qtr 2016

WebCode	Data Flag	Sample X61-X62			Sample X63-X64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
DYUJC2		11.19	-0.40	-0.47	18.82	-0.73	-0.21
EQY2BX		11.56	-0.03	-0.04	17.12	-2.43	-0.69
HLV9QQ		12.84	1.24	1.45	27.10	7.54	2.14
K368LX		11.30	-0.29	-0.34	17.19	-2.36	-0.67
L2RW9R		11.93	0.34	0.39	23.02	3.47	0.99
LCENZP		13.03	1.44	1.68	22.67	3.12	0.89
LMA6KK		10.06	-1.53	-1.79	16.46	-3.10	-0.88
QJE49J		11.19	-0.40	-0.46	18.47	-1.08	-0.31
X8XP6J		11.26	-0.34	-0.39	17.16	-2.39	-0.68
XBHGGL		11.57	-0.02	-0.03	17.51	-2.04	-0.58

		Summary Statistics	
Grand Means		11.592 lbf.in	19.551 lbf.in
Std Dev Btwn Labs		0.856 lbf.in	3.517 lbf.in
Statistics based on 10 of 10 reporting participants			

		Summary Statistics in SI Units	
Grand Means		13.097 dN.m	22.090 dN.m
Std Dev Btwn Labs		0.968 dN.m	3.974 dN.m
Statistics based on 10 of 10 reporting participants			

Samples X61-X62: EPDM compound #1 & X63-X64: EPDM compound #2

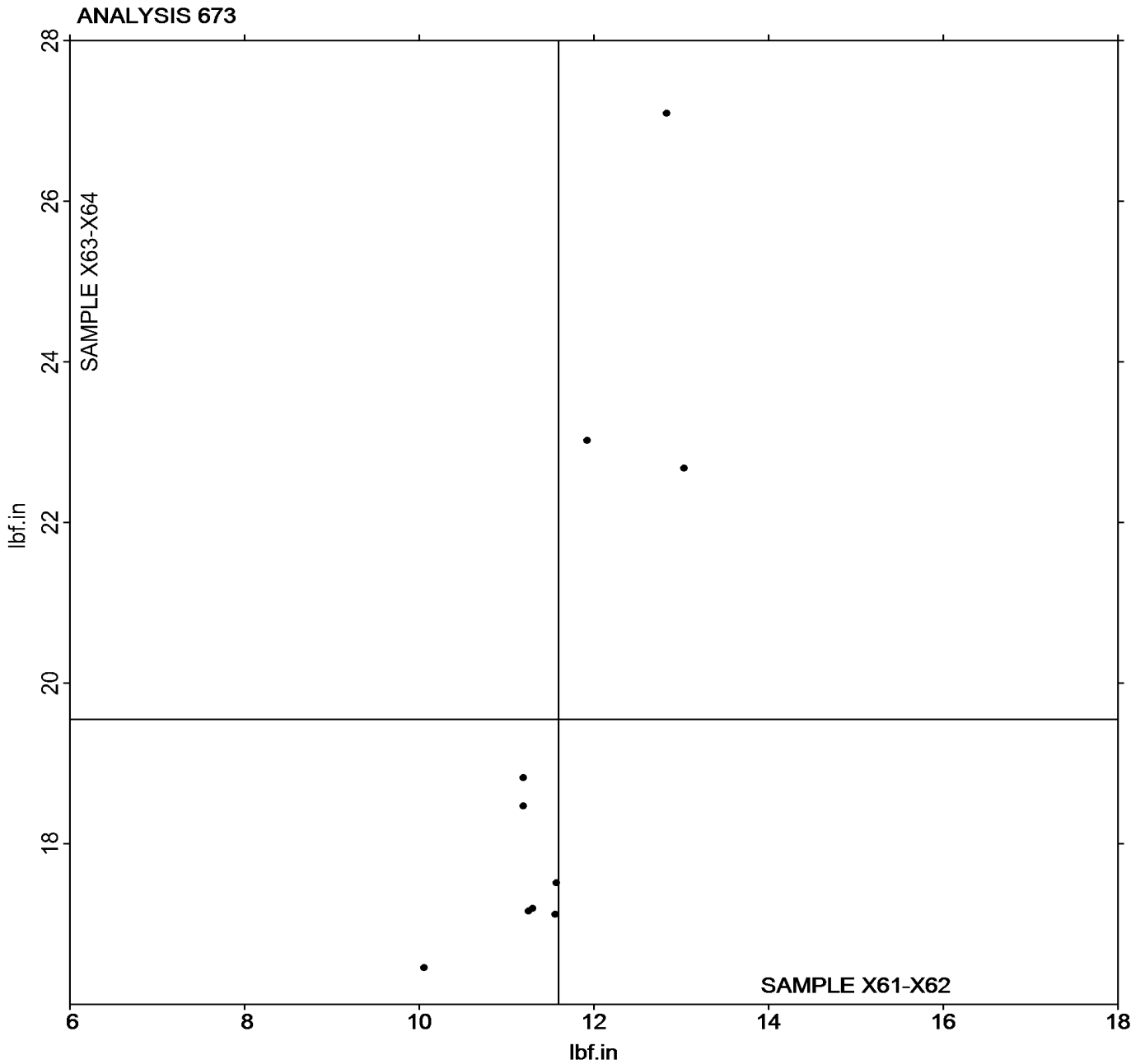


Rubber Interlaboratory Testing Program
Analysis 673
ODR Vulcanization: Minimum Torque (lbf.in)

Report #188
2nd Qtr 2016

Grand Mean Sample **X61-X62** = 11.592 lbf.in

Grand Mean Sample **X63-X64** = 19.551 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 #188
2nd Qtr 2016

WebCode	Data Flag	Sample X61-X62			Sample X63-X64		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
DYUJC2		42.76	-4.17	-1.23	39.57	-3.90	-1.33
EQY2BX		43.55	-3.38	-1.00	40.13	-3.34	-1.14
HLV9QQ		44.43	-2.50	-0.74	47.17	3.70	1.26
K368LX		43.51	-3.42	-1.01	39.76	-3.72	-1.27
L2RW9R		47.95	1.02	0.30	47.20	3.72	1.27
LCENZP		47.68	0.75	0.22	44.07	0.60	0.20
LMA6KK		46.29	-0.64	-0.19	42.06	-1.41	-0.48
QJE49J		50.36	3.44	1.01	44.85	1.38	0.47
X8XP6J		52.64	5.71	1.69	45.73	2.26	0.77
XBHGGL		50.11	3.19	0.94	44.20	0.73	0.25

		Summary Statistics	
Grand Means		46.926 lbf.in	43.474 lbf.in
Std Dev Btwn Labs		3.387 lbf.in	2.937 lbf.in
Statistics based on 10 of 10 reporting participants			

		Summary Statistics in SI Units	
Grand Means		53.019 dN.m	49.119 dN.m
Std Dev Btwn Labs		3.827 dN.m	3.318 dN.m
Statistics based on 10 of 10 reporting participants			

Samples X61-X62: EPDM compound #1 & X63-X64: EPDM compound #2

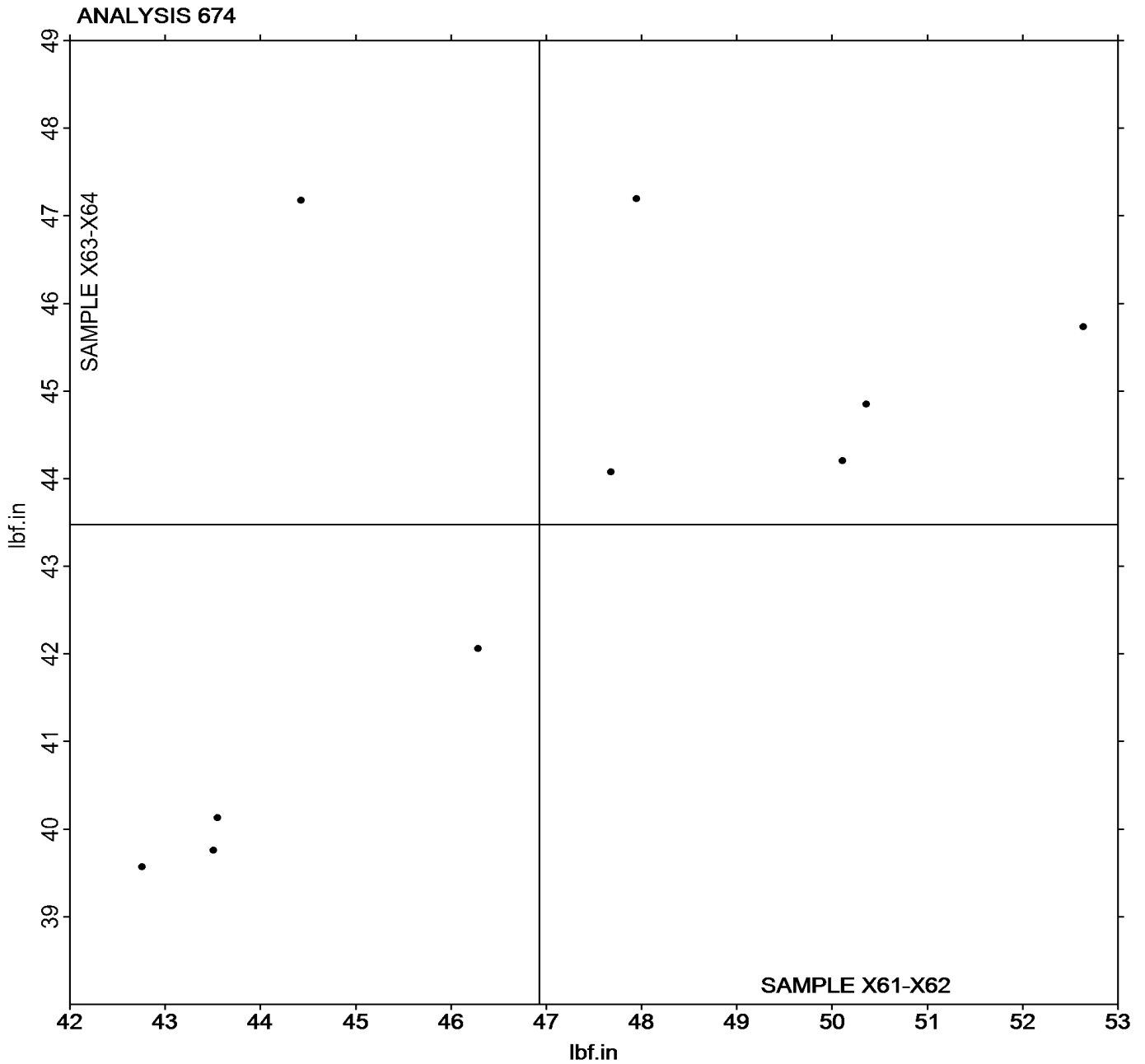


Rubber Interlaboratory Testing Program
Analysis 674
ODR Vulcanization: Maximum Torque (lbf.in)

Report #188
2nd Qtr 2016

Grand Mean Sample X61-X62 = 46.926 lbf.in

Grand Mean Sample X63-X64 = 43.474 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 684
MDR Vulcanization-Cure Time 10% (minutes)

Report #188
2nd Qtr 2016

WebCode	Data Flag	Sample X55-X56			Sample X57-X58			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
7GZFP8		0.8483	-0.0843	-0.88	0.8600	-0.0413	-0.55	MC
7NYX76		0.9350	0.0024	0.03	0.8883	-0.0130	-0.17	MD
942D63		0.9150	-0.0176	-0.18	0.8967	-0.0047	-0.06	MC
9GPMM2		1.1383	0.2057	2.15	1.0600	0.1587	2.12	TP
A6WJY2		0.9333	0.0007	0.01	0.9117	0.0103	0.14	MC
AY3NWU		0.8933	-0.0393	-0.41	0.8917	-0.0097	-0.13	MC
BG2YGQ		0.8200	-0.1126	-1.18	0.8267	-0.0747	-1.00	XX
CDXMXV		0.9550	0.0224	0.23	0.8833	-0.0180	-0.24	MP
D438LW		0.9471	0.0145	0.15	0.9361	0.0348	0.47	XX
DYUJC2		0.8917	-0.0409	-0.43	0.8650	-0.0363	-0.49	MC
DZ8DNV		0.8783	-0.0543	-0.57	0.8733	-0.0280	-0.38	MD
E2TE8N		0.9967	0.0641	0.67	0.9500	0.0487	0.65	MC
EQY2BX		0.8367	-0.0959	-1.00	0.7900	-0.1113	-1.49	XX
FJQ298		0.8683	-0.0643	-0.67	0.8483	-0.0530	-0.71	MC
GA2R2P		0.9500	0.0174	0.18	0.9050	0.0037	0.05	MC
J64QDF		1.0550	0.1224	1.28	1.0133	0.1120	1.50	XX
JCYTEQ		0.9334	0.0008	0.01	0.9028	0.0015	0.02	MC
KNQ2DK		0.8117	-0.1209	-1.26	0.8167	-0.0847	-1.13	MC
L4YCFX		0.9583	0.0257	0.27	0.9017	0.0003	0.00	XX
LMA6KK		0.9050	-0.0276	-0.29	0.8683	-0.0330	-0.44	MC
NEU64E		0.8683	-0.0643	-0.67	0.8617	-0.0397	-0.53	MC
NW8NXW		0.8950	-0.0376	-0.39	0.8517	-0.0497	-0.67	MC
PVYR9L	*	1.2267	0.2941	3.08	1.1233	0.2220	2.97	MC
QJE49J		0.9217	-0.0109	-0.11	0.9067	0.0053	0.07	MC
TBWA88	X	0.9150	-0.0176	-0.18	0.9833	0.0820	1.10	MC

Grand Means		Summary Statistics	
	0.93259 minutes		0.90134 minutes
Std Dev Btwn Labs	0.09560 minutes		0.07467 minutes
Statistics based on 24 of 25 reporting participants			

Samples X55-X56: EPDM compound, batch #1 & X57-X58: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #684

TBWA88 (X) - Inconsistent in testing between sample groups.



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

Report #188
2nd Qtr 2016

Key to Instrument Codes Reported by Participants

MC	Alpha Technologies [Monsanto] MDR 2000 or 2000E	MD	Alpha Tech. Rubber Process Analyzer (RPA 2000)
MP	Alpha Technologies [Monsanto] MDR 2000P	TP	Tech Pro MDR model MDPT
XX	Instrument model not specified by lab		

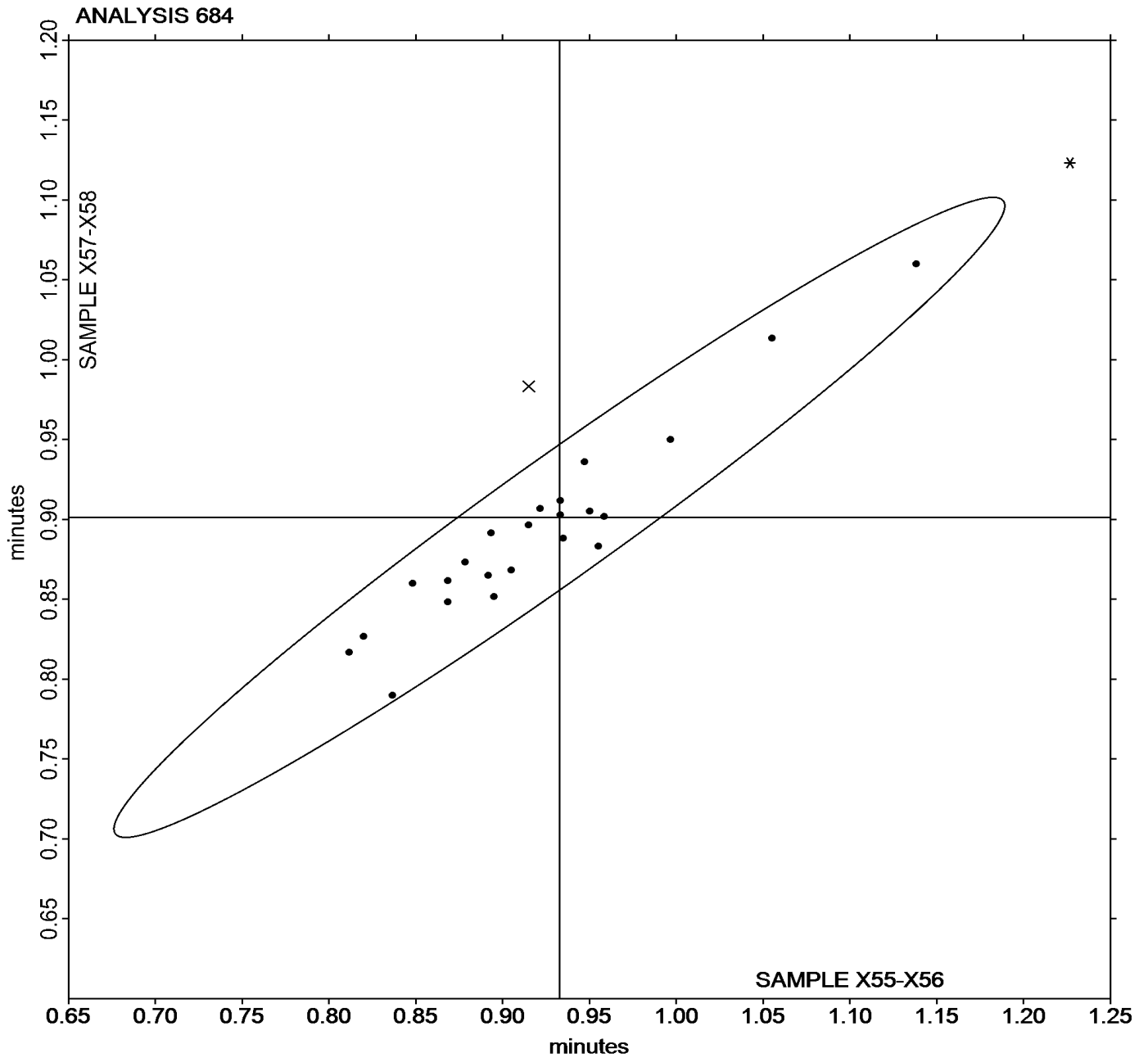


Rubber Interlaboratory Testing Program
Analysis 684
MDR Vulcanization-Cure Time 10% (minutes)

Report #188
2nd Qtr 2016

Grand Mean Sample X55-X56 = 0.93259 minutes

Grand Mean Sample X57-X58 = 0.90134 minutes





Rubber Interlaboratory Testing Program

Report #188

Analysis 685

2nd Qtr 2016

MDR Vulcanization-Scorch Time, Ts1 (minutes)

WebCode	Data Flag	Sample X55-X56			Sample X57-X58			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
64BJNA		0.6800	-0.1762	-1.19	0.6683	-0.1559	-1.26	MC
7GZFP8		0.7500	-0.1062	-0.72	0.7617	-0.0626	-0.50	MC
7NYX76		0.8483	-0.0079	-0.05	0.8067	-0.0176	-0.14	MD
942D63		0.8333	-0.0229	-0.15	0.8167	-0.0076	-0.06	MC
9GPM2		1.1683	0.3121	2.10	1.0683	0.2441	1.97	TP
A6WJY2		0.8533	-0.0029	-0.02	0.8367	0.0124	0.10	MC
AY3NWU		0.8383	-0.0179	-0.12	0.8317	0.0074	0.06	MC
BG2YGQ		0.8167	-0.0396	-0.27	0.8167	-0.0076	-0.06	XX
CDXMXV		0.8383	-0.0179	-0.12	0.7667	-0.0576	-0.46	MP
D438LW		0.9398	0.0836	0.56	0.9165	0.0923	0.74	XX
DYUJC2		0.8167	-0.0396	-0.27	0.7883	-0.0359	-0.29	MC
DZ8DNV		0.7283	-0.1279	-0.86	0.7250	-0.0993	-0.80	MD
E2TE8N		0.9550	0.0988	0.67	0.8933	0.0691	0.56	MC
EQY2BX		0.7917	-0.0646	-0.43	0.7417	-0.0826	-0.67	XX
FJQ298		0.7367	-0.1196	-0.81	0.7233	-0.1009	-0.81	MC
GA2R2P		0.8600	0.0038	0.03	0.8050	-0.0193	-0.16	MC
J64QDF		1.0300	0.1738	1.17	0.9700	0.1457	1.17	XX
JCYTEQ		0.8472	-0.0090	-0.06	0.8167	-0.0076	-0.06	MC
JL4ZUQ		0.7300	-0.1262	-0.85	0.7362	-0.0881	-0.71	MC
KNQ2DK		0.6617	-0.1946	-1.31	0.6689	-0.1554	-1.25	MC
L4YCFX		0.8217	-0.0346	-0.23	0.7667	-0.0576	-0.46	XX
LMA6KK		0.8367	-0.0196	-0.13	0.7983	-0.0259	-0.21	MC
NEU64E		0.7650	-0.0912	-0.61	0.7617	-0.0626	-0.50	MC
NW8NXW		0.7400	-0.1162	-0.78	0.7017	-0.1226	-0.99	MC
PVYR9L	*	1.3317	0.4754	3.20	1.1967	0.3724	3.00	MC
Q8KMJJ	X	1.1717	0.3154	2.12	1.1783	0.3541	2.85	MC
QJE49J		0.8350	-0.0212	-0.14	0.8200	-0.0043	-0.03	MC
TBWA88	X	0.9117	0.0554	0.37	1.0033	0.1791	1.44	MC
YURWD7	*	1.0650	0.2088	1.41	1.0517	0.2274	1.83	MC

Grand Means		Summary Statistics	
	0.85625 minutes		0.82426 minutes
Std Dev Btwn Labs	0.14848 minutes		0.12405 minutes
Statistics based on 27 of 29 reporting participants			

Samples X55-X56: EPDM compound, batch #1 & X57-X58: EPDM compound, batch #2



Rubber Interlaboratory Testing Program

Report #188

Analysis 685

2nd Qtr 2016

MDR Vulcanization-Scorch Time, Ts1 (minutes)

Comments on Assigned Data Flags for Test #685

Q8KMJJ (X) - Inconsistency in testing between Sample groups. Data for Sample group X57-X58 are high.

TBWA88 (X) - Inconsistent in testing between 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)
MP	Alpha Technologies [Monsanto] MDR 2000P	TP	Tech Pro MDR model MDPT
XX	Instrument model not specified by lab		

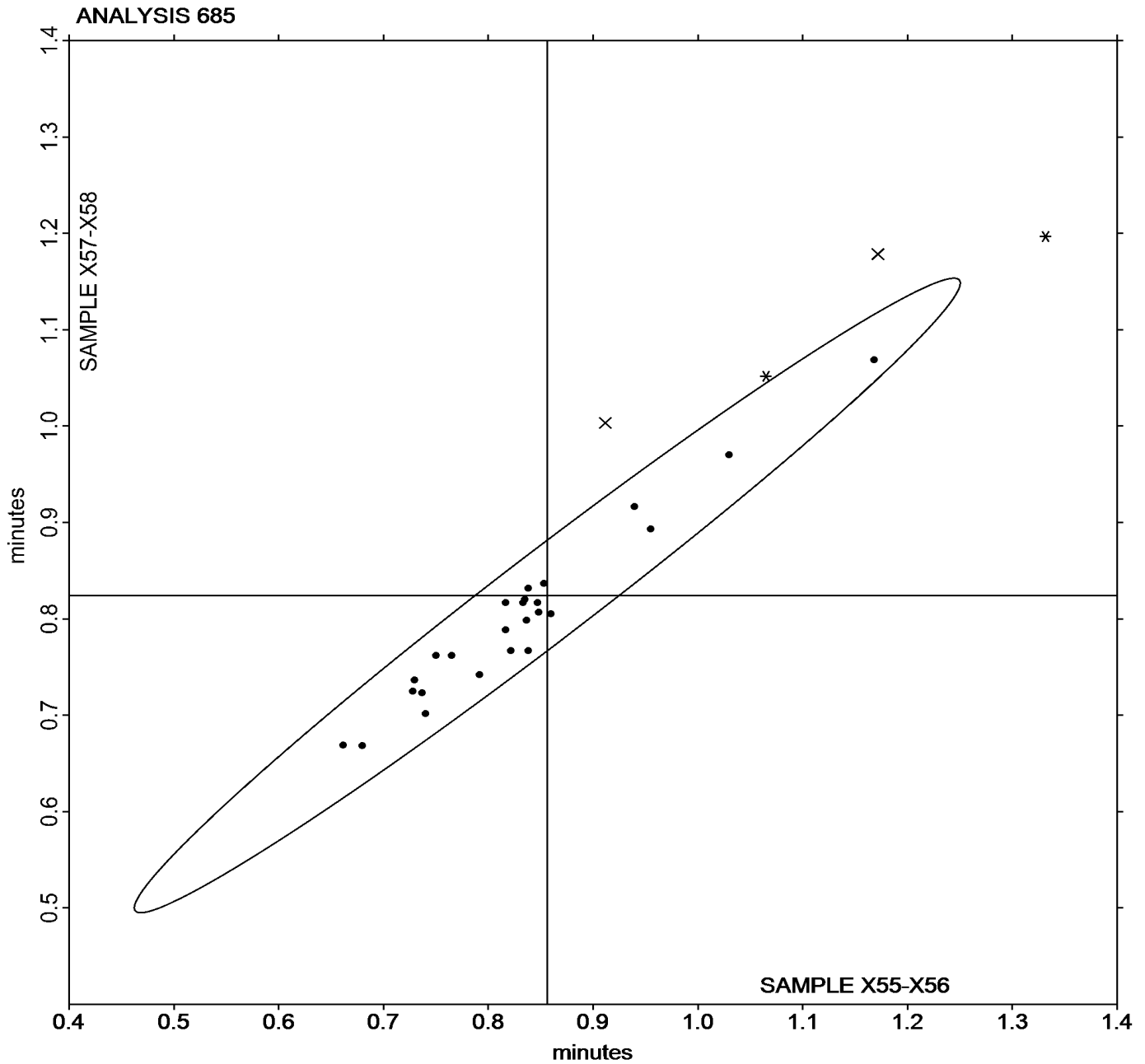


Rubber Interlaboratory Testing Program
Analysis 685
MDR Vulcanization-Scorch Time, Ts1 (minutes)

Report #188
2nd Qtr 2016

Grand Mean Sample X55-X56 = 0.85625 minutes

Grand Mean Sample X57-X58 = 0.82426 minutes





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

Report #188
2nd Qtr 2016

WebCode	Data Flag	Sample X55-X56			Sample X57-X58			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
64BJNA		2.528	-0.103	-0.98	2.517	-0.057	-0.61	MC
7GZFP8		2.587	-0.044	-0.42	2.547	-0.027	-0.28	MC
7NYX76		2.807	0.176	1.67	2.730	0.157	1.68	MD
942D63		2.613	-0.018	-0.17	2.560	-0.013	-0.14	MC
9GPMM2		2.720	0.089	0.85	2.592	0.018	0.20	TP
A6WJY2		2.692	0.061	0.58	2.595	0.022	0.23	MC
AY3NWU		2.668	0.037	0.36	2.595	0.022	0.23	MC
BG2YGQ		2.450	-0.181	-1.72	2.435	-0.138	-1.48	XX
D438LW		2.450	-0.181	-1.72	2.444	-0.129	-1.38	XX
DYUJC2		2.717	0.086	0.82	2.653	0.080	0.86	MC
DZ8DNV		2.638	0.007	0.07	2.615	0.042	0.45	MD
E2TE8N		2.605	-0.026	-0.25	2.535	-0.038	-0.41	MC
EQY2BX		2.488	-0.143	-1.36	2.428	-0.145	-1.55	XX
FJQ298		2.762	0.131	1.24	2.720	0.147	1.57	MC
GA2R2P		2.755	0.124	1.18	2.655	0.082	0.88	MC
J64QDF		2.628	-0.003	-0.03	2.544	-0.029	-0.31	XX
JCYTEQ		2.656	0.025	0.23	2.622	0.049	0.53	MC
JL4ZUQ		2.654	0.023	0.22	2.587	0.014	0.15	MC
KNQ2DK		2.533	-0.098	-0.93	2.458	-0.115	-1.23	MC
L4YCFX		2.677	0.046	0.43	2.607	0.033	0.36	XX
LMA6KK		2.692	0.061	0.58	2.645	0.072	0.77	MC
NEU64E		2.632	0.001	0.01	2.582	0.008	0.09	MC
NW8NXW		2.690	0.059	0.56	2.620	0.047	0.50	MC
PVYR9L		2.673	0.042	0.40	2.565	-0.008	-0.09	MC
Q8KMJJ		2.613	-0.018	-0.17	2.633	0.060	0.64	MC
QJE49J		2.788	0.157	1.50	2.697	0.123	1.32	MC
TBWA88		2.577	-0.054	-0.52	2.553	-0.020	-0.21	MC
YURWD7	*	2.375	-0.256	-2.44	2.315	-0.258	-2.76	MC

Grand Means		Summary Statistics	
	2.6310 minutes		2.5732 minutes
Std Dev Btwn Labs	0.1051 minutes		0.0934 minutes
Statistics based on 28 of 28 reporting participants			

Samples X55-X56: EPDM compound, batch #1 & X57-X58: EPDM compound, batch #2



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

Report #188
2nd Qtr 2016

Key to Instrument Codes Reported by Participants

MC	Alpha Technologies [Monsanto] MDR 2000 or 2000E	MD	Alpha Tech. Rubber Process Analyzer (RPA 2000)
TP	Tech Pro MDR model MDPT	XX	Instrument model not specified by lab

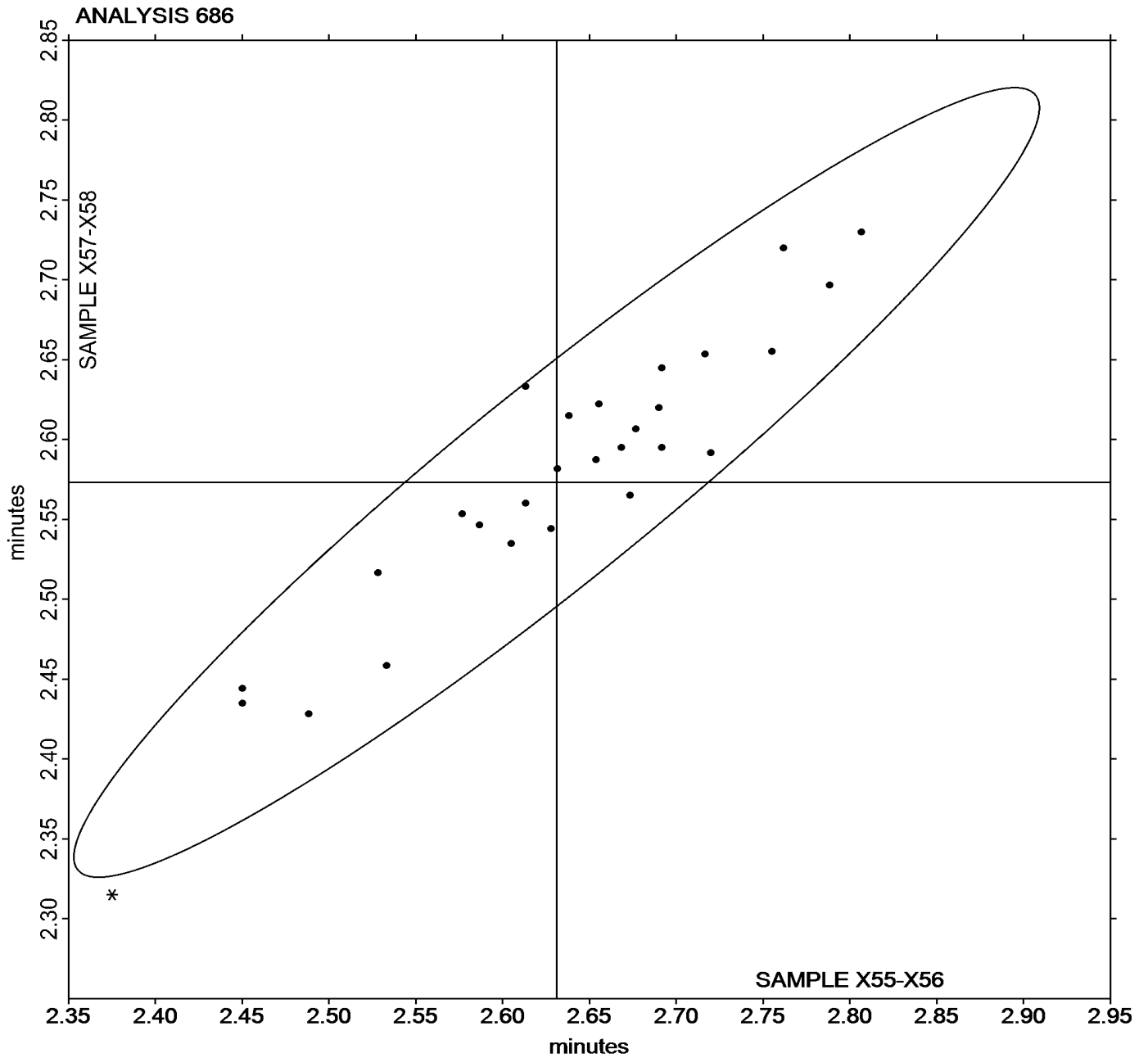


Rubber Interlaboratory Testing Program
Analysis 686
MDR Vulcanization-Cure Time 50% (minutes)

Report #188
2nd Qtr 2016

Grand Mean Sample X55-X56 = 2.6310 minutes

Grand Mean Sample X57-X58 = 2.5732 minutes





Rubber Interlaboratory Testing Program

Report #188

Analysis 687

2nd Qtr 2016

MDR Vulcanization-Cure Time 90% (minutes)

WebCode	Data Flag	Sample X55-X56			Sample X57-X58			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
64BJNA		6.012	-0.138	-0.58	6.048	-0.033	-0.15	MC
7GZFP8		5.983	-0.167	-0.69	5.998	-0.083	-0.37	MC
7NYX76		6.528	0.378	1.57	6.478	0.397	1.76	MD
942D63		6.102	-0.048	-0.20	5.965	-0.116	-0.51	MC
9GPMM2		6.318	0.168	0.70	6.180	0.099	0.44	TP
A6WJY2		6.092	-0.058	-0.24	5.997	-0.084	-0.37	MC
AY3NWU		6.452	0.302	1.25	6.340	0.259	1.15	MC
BG2YGQ		5.985	-0.165	-0.69	5.955	-0.126	-0.56	XX
CDXMXV		6.010	-0.140	-0.58	5.868	-0.213	-0.94	MP
D438LW		6.078	-0.073	-0.30	6.041	-0.040	-0.18	XX
DYUJC2		6.218	0.068	0.28	6.152	0.071	0.31	MC
DZ8DNV		5.990	-0.160	-0.67	5.932	-0.149	-0.66	MD
E2TE8N		6.132	-0.018	-0.08	5.982	-0.099	-0.44	MC
EQY2BX		5.817	-0.333	-1.39	5.717	-0.364	-1.61	XX
FJQ298		6.410	0.260	1.08	6.313	0.232	1.03	MC
GA2R2P		6.475	0.325	1.35	6.300	0.219	0.97	MC
J64QDF		6.236	0.086	0.36	6.114	0.033	0.15	XX
JCYTEQ		6.058	-0.092	-0.38	6.031	-0.050	-0.22	MC
JL4ZUQ		6.286	0.136	0.56	6.186	0.105	0.46	MC
KNQ2DK		5.887	-0.263	-1.09	5.842	-0.239	-1.06	MC
L4YCFX		6.448	0.298	1.24	6.315	0.234	1.04	XX
LMA6KK		6.000	-0.150	-0.62	6.038	-0.043	-0.19	MC
NEU64E		6.293	0.143	0.60	6.218	0.137	0.61	MC
NW8NXW		6.243	0.093	0.39	6.123	0.042	0.19	MC
PVYR9L		6.383	0.233	0.97	6.272	0.191	0.84	MC
Q8KMJJ	*	6.253	0.103	0.43	6.360	0.279	1.24	MC
QJE49J		6.342	0.192	0.80	6.260	0.179	0.79	MC
TBWA88		5.898	-0.252	-1.05	5.968	-0.113	-0.50	MC
YURWD7	*	5.423	-0.727	-3.02	5.358	-0.723	-3.20	MC

		Summary Statistics	
Grand Means	6.1501 minutes	6.0811 minutes	
Std Dev Btw Labs	0.2405 minutes	0.2258 minutes	
Statistics based on 29 of 29 reporting participants			

Samples X55-X56: EPDM compound, batch #1 & X57-X58: EPDM compound, batch #2



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

Report #188
2nd Qtr 2016

Key to Instrument Codes Reported by Participants

MC	Alpha Technologies [Monsanto] MDR 2000 or 2000E	MD	Alpha Tech. Rubber Process Analyzer (RPA 2000)
MP	Alpha Technologies [Monsanto] MDR 2000P	TP	Tech Pro MDR model MDPT
XX	Instrument model not specified by lab		

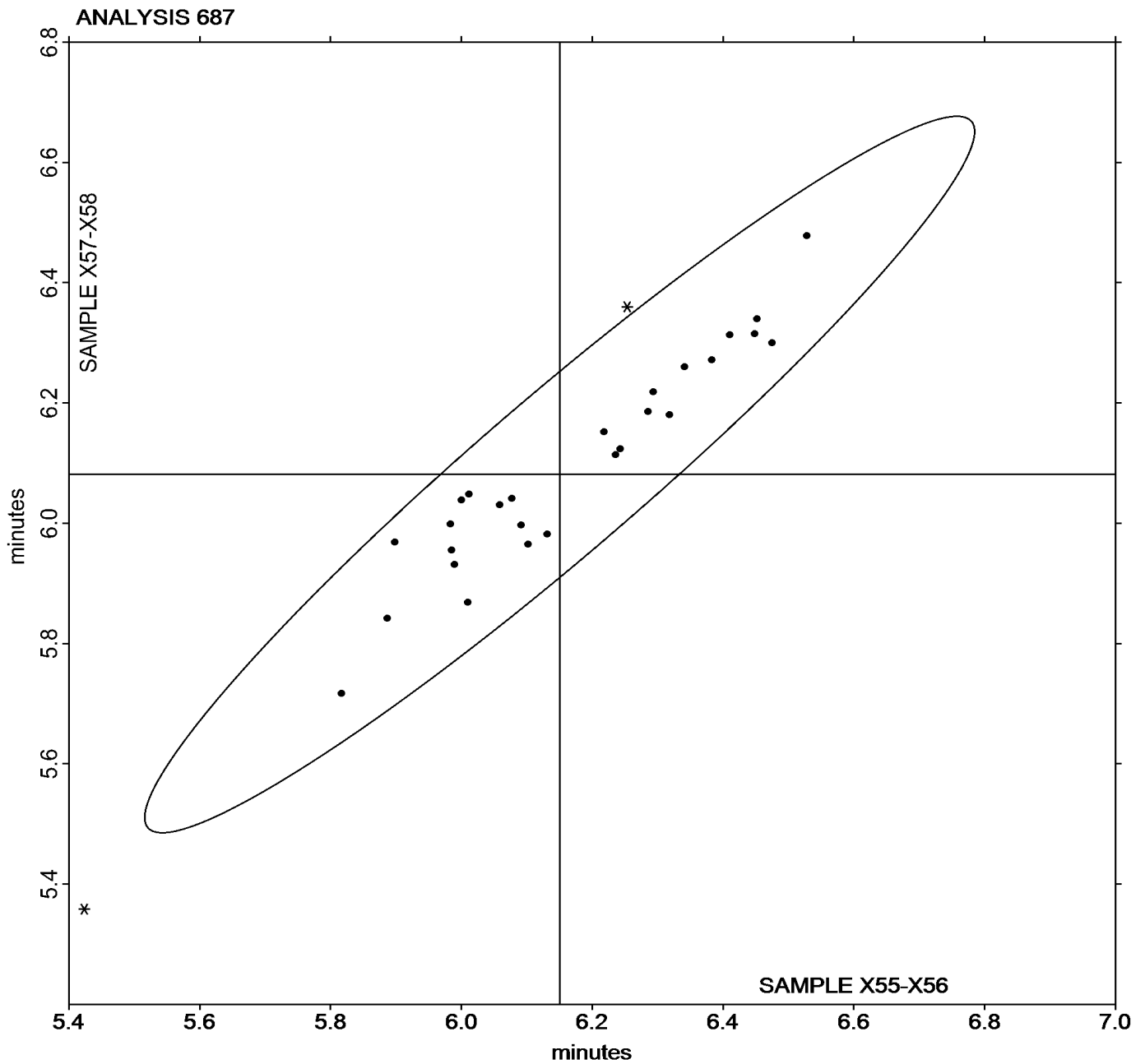


Rubber Interlaboratory Testing Program
Analysis 687
MDR Vulcanization-Cure Time 90% (minutes)

Report #188
2nd Qtr 2016

Grand Mean Sample X55-X56 = 6.1501 minutes

Grand Mean Sample X57-X58 = 6.0811 minutes





Rubber Interlaboratory Testing Program

Report #188

Analysis 688

2nd Qtr 2016

MDR Vulcanization: Minimum Torque (lbf.in)

WebCode	Data Flag	Sample X55-X56			Sample X57-X58			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
64BJNA		4.920	0.174	0.26	4.760	0.260	0.38	MC
7GZFP8		4.207	-0.540	-0.81	4.060	-0.440	-0.65	MC
7NYX76		4.419	-0.328	-0.49	4.064	-0.436	-0.65	MD
942D63		4.712	-0.035	-0.05	4.392	-0.108	-0.16	MC
9GPMM2		5.233	0.487	0.73	4.822	0.322	0.48	TP
A6WJY2		4.615	-0.131	-0.20	4.305	-0.195	-0.29	MC
AY3NWU		3.935	-0.811	-1.22	3.743	-0.757	-1.12	MC
BG2YGQ		4.838	0.092	0.14	4.727	0.227	0.34	XX
D438LW		4.934	0.188	0.28	4.863	0.363	0.54	XX
DYUJC2		4.205	-0.541	-0.81	3.963	-0.537	-0.79	MC
DZ8DNV		5.006	0.259	0.39	4.724	0.223	0.33	MD
E2TE8N		5.045	0.299	0.45	4.847	0.347	0.51	MC
EQY2BX		3.875	-0.871	-1.31	3.688	-0.812	-1.20	XX
FJQ298		4.372	-0.375	-0.56	4.137	-0.363	-0.54	MC
GA2R2P		4.507	-0.240	-0.36	4.172	-0.328	-0.49	MC
J64QDF		5.525	0.779	1.17	5.115	0.615	0.91	XX
JCYTEQ		5.025	0.279	0.42	4.607	0.107	0.16	MC
JL4ZUQ		4.509	-0.237	-0.36	4.299	-0.202	-0.30	MC
KNQ2DK		4.060	-0.687	-1.03	4.006	-0.494	-0.73	MC
L4YCFX		4.950	0.204	0.31	4.375	-0.125	-0.19	XX
LMA6KK		4.462	-0.285	-0.43	4.192	-0.308	-0.46	MC
NEU64E		4.358	-0.388	-0.58	4.202	-0.298	-0.44	MC
NW8NXW		4.107	-0.640	-0.96	3.744	-0.756	-1.12	MC
PVYR9L		5.748	1.002	1.50	5.352	0.852	1.26	MC
Q8KMJJ		6.247	1.500	2.25	6.120	1.620	2.40	MC
QJE49J		4.095	-0.651	-0.98	3.878	-0.622	-0.92	MC
TBWA88		4.372	-0.375	-0.56	4.257	-0.243	-0.36	MC
YURWD7	*	6.622	1.875	2.81	6.590	2.090	3.09	MC

Grand Means		Summary Statistics	
	4.7465 lbf.in		4.5000 lbf.in
Std Dev Btwn Labs	0.6673 lbf.in		0.6757 lbf.in
Statistics based on 28 of 28 reporting participants			



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

Report #188
2nd Qtr 2016

Grand Means		Summary Statistics in SI Units	
	5.3628 dN.m		5.0844 dN.m
Stnd Dev Btwn Labs	0.7540 dN.m		0.7634 dN.m
Statistics based on 28 of 28 reporting participants			

Samples X55-X56: EPDM compound, batch #1 & X57-X58: 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) |
| TP | Tech Pro MDR model MDPT | XX | Instrument model not specified by lab |

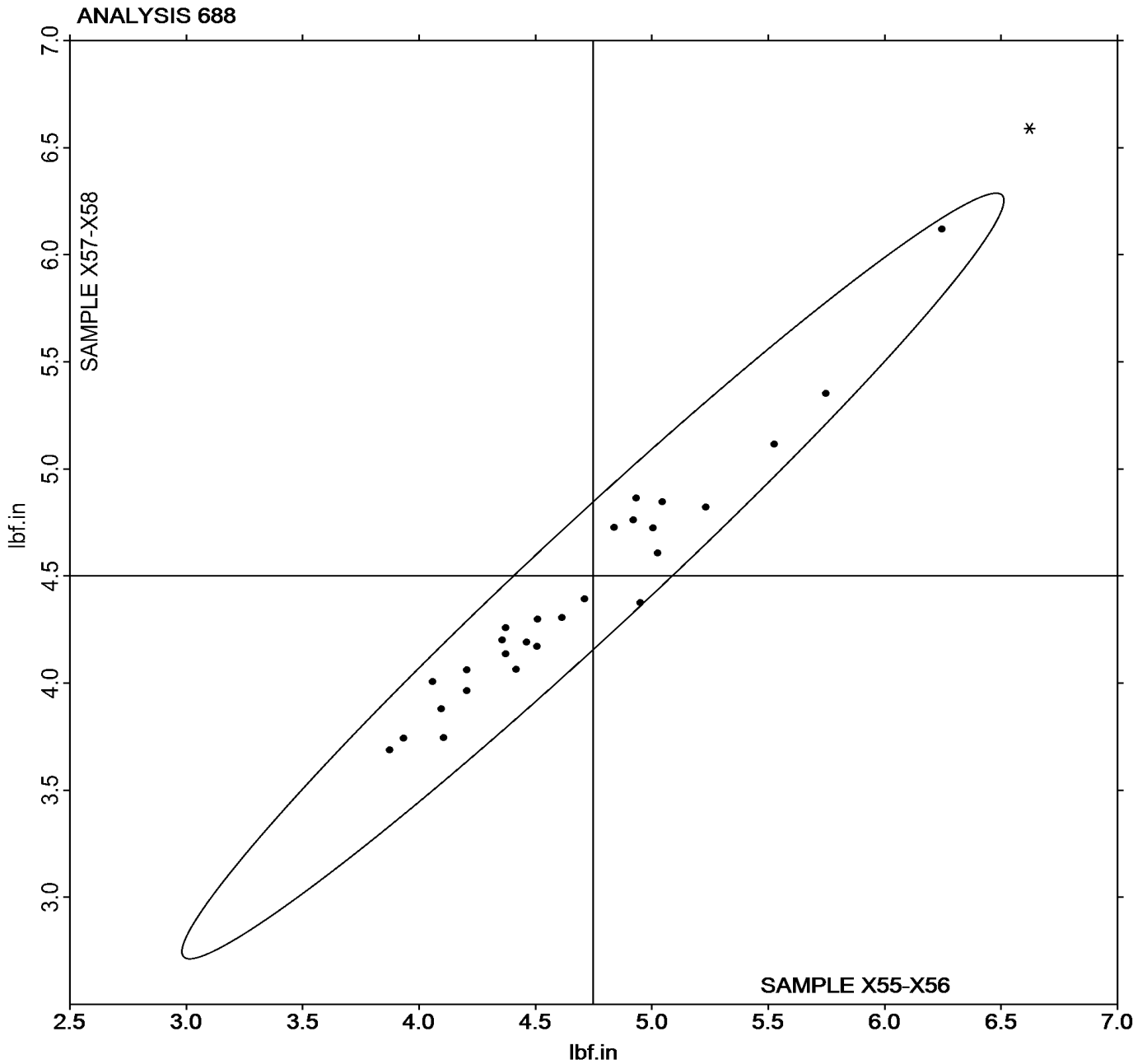


Rubber Interlaboratory Testing Program
Analysis 688
MDR Vulcanization: Minimum Torque (lbf.in)

Report #188
2nd Qtr 2016

Grand Mean Sample X55-X56 = 4.7465 lbf.in

Grand Mean Sample X57-X58 = 4.5000 lbf.in





Rubber Interlaboratory Testing Program

Report #188

Analysis 689

2nd Qtr 2016

MDR Vulcanization: Maximum Torque (lbf.in)

WebCode	Data Flag	Sample X55-X56			Sample X57-X58			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
64BJNA		16.12	0.07	0.07	15.93	0.12	0.12	MC
7GZFP8		16.38	0.33	0.32	16.12	0.31	0.32	MC
7NYX76		16.20	0.15	0.14	15.84	0.03	0.03	MD
942D63		16.36	0.32	0.31	16.06	0.25	0.26	MC
9GPMM2		14.74	-1.31	-1.27	14.69	-1.12	-1.16	TP
A6WJY2		16.25	0.21	0.20	15.84	0.02	0.03	MC
AY3NWU		15.12	-0.93	-0.90	14.88	-0.94	-0.97	MC
BG2YGQ		15.07	-0.98	-0.95	14.99	-0.82	-0.84	XX
CDXMXV		15.40	-0.65	-0.63	15.12	-0.69	-0.71	MC
D438LW		15.20	-0.85	-0.82	15.40	-0.41	-0.42	XX
DYUJC2		15.71	-0.34	-0.33	15.42	-0.39	-0.40	MC
DZ8DNV	*	18.76	2.72	2.63	18.42	2.61	2.70	MD
E2TE8N		15.94	-0.11	-0.11	15.97	0.16	0.16	MC
EQY2BX		14.88	-1.17	-1.13	14.79	-1.02	-1.05	XX
FJQ298		17.09	1.04	1.01	16.90	1.09	1.12	MC
GA2R2P		16.25	0.20	0.20	16.01	0.20	0.20	MC
J64QDF		16.33	0.28	0.27	15.93	0.12	0.12	XX
JCYTEQ		16.86	0.81	0.79	16.48	0.66	0.69	MC
JL4ZUQ		16.42	0.37	0.36	16.10	0.28	0.29	MC
KNQ2DK		16.06	0.01	0.01	15.95	0.14	0.14	MC
L4YCFX		18.49	2.45	2.37	18.10	2.29	2.37	XX
LMA6KK		15.83	-0.21	-0.21	15.66	-0.16	-0.16	MC
NEU64E		16.55	0.50	0.49	16.30	0.49	0.50	MC
NW8NXW		16.08	0.03	0.03	15.76	-0.05	-0.05	MC
PVYR9L		13.93	-2.12	-2.05	14.00	-1.82	-1.88	MC
Q8KMJJ		16.47	0.42	0.41	15.84	0.03	0.03	MC
QJE49J		15.84	-0.21	-0.20	15.62	-0.19	-0.19	MC
TBWA88	*	14.42	-1.62	-1.57	13.93	-1.88	-1.94	MC
YURWD7		16.62	0.57	0.55	16.47	0.66	0.68	MC

		Summary Statistics	
Grand Means	16.046 lbf.in	15.810 lbf.in	
Std Dev Btwn Labs	1.031 lbf.in	0.968 lbf.in	
Statistics based on 29 of 29 reporting participants			



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

Report #188
2nd Qtr 2016

Grand Means	Summary Statistics in SI Units	
	18.130 dN.m	17.863 dN.m
Stnd Dev Btwn Labs	1.165 dN.m	1.094 dN.m
Statistics based on 29 of 29 reporting participants		

Samples X55-X56: EPDM compound, batch #1 & X57-X58: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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

Report #188
2nd Qtr 2016

Grand Mean Sample X55-X56 = 16.046 lbf.in

Grand Mean Sample X57-X58 = 15.810 lbf.in

