

Rubber Interlaboratory Testing Program

Summary Report #200- 2nd Qtr 2019

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

[Key for Web Summary Report](#)

Analysis	Analysis Name	Analysis	Analysis Name
605	Tensile Strength: Precured Rubber Samples	690	RPA Rheological Properties: Part A - G' at 20Hz
606	Ultimate Elongation: Precured Rubber Samples	691	RPA Rheological Properties: Part A - G'' at 20Hz
607	Stress at 300% Elongation: Precured Samples	695	RPA Rheological Properties: Part B - G' at 1.0Hz
608	Stress at 100% Elongation: Precured Samples	696	RPA Rheological Properties: Part B - G'' at 1.0Hz
620	Hardness (Type A): Precured Rubber Samples		
621	Density: Precured Rubber Samples @ 25C		
625	Hardness (Shore D/Type D)		
630	Tensile Strength: Participant-Cured Rubber		
631	Ultimate Elongation: Participant-Cured Samples		
632	Tensile Stress at 300% Elongation: Lab-Cured		
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635	Compression Set		
660	Mooney Viscosity (4-minute readings)		
661	Mooney Viscosity (8-minute butyl readings)		
662	Mooney Stress Relaxation: t80		
663	Mooney Stress Relaxation: X30		
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671	ODR Vulcanization Charac.: Cure Time 50%		
672	ODR Vulcanization Charac.: Cure Time 90%		
673	ODR Vulcanization Charac.: Minimum Torque		
674	ODR Vulcanization Charac.: Maximum Torque		
684	MDR Vulcanization Charac.: Cure Time 10%		
685	MDR Vulcanization Charac.: Scorch Time, Ts1		
686	MDR Vulcanization Charac.: Cure Time 50%		
687	MDR Vulcanization Charac.: Cure Time 90%		
688	MDR Vulcanization Charac.: Minimum Torque		
689	MDR Vulcanization Charac.: Maximum Torque		

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:

**Collaborative Testing Services, Inc.
21331 Gentry Drive
Sterling, Virginia 20166 USA**

**+1-571-434-1925
FAX #: +1-571-434-1937
rubber@cts-interlab.com**

Office Hours: 8:00 a.m. - 4:30 p.m. ET

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

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

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

Common Problems Highlighted in Footnotes

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

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



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

Report #200
2nd Qtr 2019

WebCode	Data Flag	Sample B91-B92			Sample B93-B94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
23CYCH		3,584.9	189.7	1.23	3,587.4	162.7	1.00
28MVE7		3,347.5	-47.7	-0.31	3,297.0	-127.6	-0.79
2BTBTP		3,210.3	-185.0	-1.20	3,220.3	-204.3	-1.26
2MJACE		3,385.5	-9.7	-0.06	3,482.0	57.4	0.35
2QHNY6		3,594.5	199.3	1.29	3,584.5	159.9	0.99
2RC9TV	X	4,115.8	720.5	4.67	4,270.1	845.5	5.21
2UF6CY		3,552.4	157.1	1.02	3,646.6	222.0	1.37
39F7QK		3,415.2	19.9	0.13	3,459.5	34.8	0.21
39JK4L		3,334.5	-60.7	-0.39	3,420.5	-4.1	-0.03
48XGZD		3,407.0	11.8	0.08	3,389.8	-34.8	-0.21
4LHYV3		3,449.5	54.3	0.35	3,509.0	84.4	0.52
4WJJVA		3,243.0	-152.2	-0.99	3,160.5	-264.1	-1.63
4XD8GQ		3,511.3	116.1	0.75	3,587.0	162.4	1.00
6HYE8D		3,440.0	44.8	0.29	3,535.0	110.4	0.68
766GJK		3,370.3	-24.9	-0.16	3,298.9	-125.7	-0.77
77UV23		3,600.0	204.7	1.33	3,623.1	198.4	1.22
78CHZK		3,293.5	-101.7	-0.66	3,392.0	-32.6	-0.20
79NGVU	*	3,007.4	-387.8	-2.52	3,120.9	-303.7	-1.87
7KF8DD		3,271.0	-124.2	-0.81	3,401.5	-23.1	-0.14
7VZEC2		3,168.0	-227.2	-1.47	3,209.0	-215.6	-1.33
7X2FEK		3,257.3	-138.0	-0.89	3,233.6	-191.0	-1.18
939PHX		3,358.0	-37.2	-0.24	3,510.0	85.4	0.53
943BBP		3,445.5	50.3	0.33	3,423.5	-1.1	-0.01
9HXZ3F		3,312.4	-82.9	-0.54	3,282.4	-142.3	-0.88
9MYWWC		3,447.5	52.3	0.34	3,389.5	-35.1	-0.22
9RPD7L		3,119.1	-276.2	-1.79	3,246.7	-177.9	-1.10
9VT2PH		3,308.0	-87.2	-0.57	3,353.5	-71.1	-0.44
A4XVH4		3,320.5	-74.7	-0.48	3,341.0	-83.6	-0.52
AMAH7W		3,223.0	-172.2	-1.12	3,380.0	-44.6	-0.28
AQVPL6		3,435.0	39.8	0.26	3,482.0	57.4	0.35
BKG9A2		3,182.9	-212.4	-1.38	3,140.1	-284.5	-1.75
BN49MG	*	3,408.5	13.3	0.09	3,191.7	-232.9	-1.44
BURQ8J		3,498.0	102.8	0.67	3,435.0	10.4	0.06
CJ2UCW		3,142.0	-253.2	-1.64	3,248.0	-176.6	-1.09
CVFNQB		3,430.0	34.8	0.23	3,425.0	0.4	0.00
CVHCDF		3,467.2	71.9	0.47	3,498.3	73.7	0.45
D9XV32		3,070.0	-325.2	-2.11	3,075.0	-349.6	-2.16
DP6TNL		3,174.2	-221.1	-1.43	3,282.9	-141.7	-0.87



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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2nd Qtr 2019

WebCode	Data Flag	Sample B91-B92			Sample B93-B94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
DRD66M		3,301.0	-94.2	-0.61	3,410.0	-14.6	-0.09
EAQ37Y		3,488.5	93.3	0.60	3,700.0	275.4	1.70
EBJZCK		3,330.8	-64.4	-0.42	3,276.8	-147.9	-0.91
F9C2EW		3,488.5	93.3	0.60	3,619.5	194.9	1.20
FCAG8D		3,328.6	-66.6	-0.43	3,372.2	-52.5	-0.32
FF9WEF	X	4,112.6	717.3	4.65	4,313.1	888.4	5.48
GM9FC6		3,446.1	50.9	0.33	3,456.3	31.6	0.20
GTBPJX		3,517.0	121.8	0.79	3,497.5	72.8	0.45
GUCD74		3,568.0	172.8	1.12	3,671.5	246.9	1.52
GUKUWL		3,401.9	6.7	0.04	3,427.1	2.4	0.01
H8WF2Z		3,292.1	-103.2	-0.67	3,429.2	4.5	0.03
HKHRDA		3,091.0	-304.2	-1.97	3,160.0	-264.6	-1.63
HN2QPJ		3,317.8	-77.5	-0.50	3,408.4	-16.2	-0.10
J92C3V		3,382.3	-12.9	-0.08	3,219.9	-204.8	-1.26
JE79NF		3,215.5	-179.7	-1.17	3,238.7	-185.9	-1.15
JPQFM6		3,414.0	18.8	0.12	3,611.0	186.4	1.15
K2ZFW4		3,228.2	-167.0	-1.08	3,195.1	-229.6	-1.41
K3CAFB		3,487.5	92.3	0.60	3,522.5	97.9	0.60
KJU8G2		3,218.5	-176.7	-1.15	3,271.5	-153.1	-0.94
KKPXKV		3,597.0	201.8	1.31	3,654.0	229.4	1.41
KMVFJQ		3,385.0	-10.2	-0.07	3,405.5	-19.1	-0.12
KRBLND		3,509.0	113.8	0.74	3,496.5	71.9	0.44
L2VWCT		3,644.8	249.6	1.62	3,643.4	218.7	1.35
LFUJDZ		3,375.5	-19.7	-0.13	3,406.5	-18.1	-0.11
M6PVWM		3,442.0	46.8	0.30	3,493.5	68.9	0.42
MDZXHN		3,342.0	-53.3	-0.35	3,450.2	25.5	0.16
MPV76W		3,376.1	-19.2	-0.12	3,427.6	3.0	0.02
MZQGAX		3,593.0	197.8	1.28	3,612.0	187.4	1.15
NBQ8TJ		3,317.9	-77.3	-0.50	3,422.4	-2.3	-0.01
NMMDN3		3,235.5	-159.7	-1.04	3,257.5	-167.1	-1.03
NNWMCU		3,639.5	244.3	1.58	3,675.0	250.4	1.54
NVH9Q8		3,393.9	-1.3	-0.01	3,357.7	-67.0	-0.41
P92F3Y		3,386.7	-8.6	-0.06	3,455.6	30.9	0.19
QAMJ46	*	3,755.0	359.8	2.33	3,655.0	230.4	1.42
QRV9MW		3,385.5	-9.7	-0.06	3,408.0	-16.6	-0.10
QV8JD7		3,266.3	-129.0	-0.84	3,325.0	-99.6	-0.61
RDK2MC		3,502.7	107.5	0.70	3,705.7	281.1	1.73



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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WebCode	Data Flag	Sample B91-B92			Sample B93-B94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
RK2Z8V		3,342.5	-52.7	-0.34	3,360.5	-64.1	-0.40
RK8CVR		3,401.5	6.3	0.04	3,353.0	-71.6	-0.44
RLJPX3		3,340.0	-55.2	-0.36	3,355.0	-69.6	-0.43
RVKAZV		3,496.8	101.6	0.66	3,519.2	94.5	0.58
RYMFBV	*	3,225.0	-170.2	-1.10	3,075.0	-349.6	-2.16
U64K7T		3,292.5	-102.7	-0.67	3,299.5	-125.1	-0.77
UKDERB		3,423.4	28.1	0.18	3,427.2	2.6	0.02
VGDPQT		3,725.5	330.3	2.14	3,646.5	221.9	1.37
VH4N6R		3,575.2	180.0	1.17	3,473.7	49.0	0.30
VH94HT		3,263.4	-131.9	-0.86	3,235.8	-188.8	-1.16
VNT998	*	3,781.9	386.7	2.51	3,839.9	415.3	2.56
WAUJR2		3,581.7	186.4	1.21	3,514.1	89.5	0.55
WKRHLT		3,404.9	9.7	0.06	3,571.6	146.9	0.91
X2AX2U		3,381.0	-14.2	-0.09	3,389.5	-35.1	-0.22
XD3GHK		3,590.5	195.3	1.27	3,739.0	314.4	1.94
XPFLMV		3,459.9	64.7	0.42	3,549.8	125.2	0.77
XVQHPK		3,745.9	350.6	2.27	3,733.4	308.7	1.90
XZYZQX		3,420.5	25.3	0.16	3,455.5	30.9	0.19
Y29AEP		3,632.6	237.4	1.54	3,572.7	148.0	0.91
Y2PLWU		3,241.6	-153.6	-1.00	3,386.7	-38.0	-0.23
Y7HQND		3,328.6	-66.6	-0.43	3,270.6	-154.0	-0.95
YEEGDU		3,325.0	-70.2	-0.46	3,282.0	-142.6	-0.88
ZFLZU3	X	3,180.5	-214.7	-1.39	3,521.5	96.9	0.60
ZVERDH		3,513.4	118.2	0.77	3,514.9	90.2	0.56

Grand Means		Summary Statistics	
	3,395.24 psi		3,424.64 psi
Stnd Dev Btwn Labs	154.18 psi		162.25 psi
Statistics based on 96 of 99 reporting participants			

Grand Means		Summary Statistics in SI Units	
	23.409 MPa		23.61 MPa
Stnd Dev Btwn Labs	1.063 MPa		1.12 MPa
Statistics based on 96 of 99 reporting participants			



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

Report #200
2nd Qtr 2019

Samples B91-B92: Polyisoprene compound, batch #1 & B93-B94: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #605

2RC9TV (X) - Data for all samples are high. Possible Systematic Error.

FF9WEF (X) - Data for all samples are high. Possible Systematic Error.

ZFLZU3 (X) - Inconsistent in testing between samples.

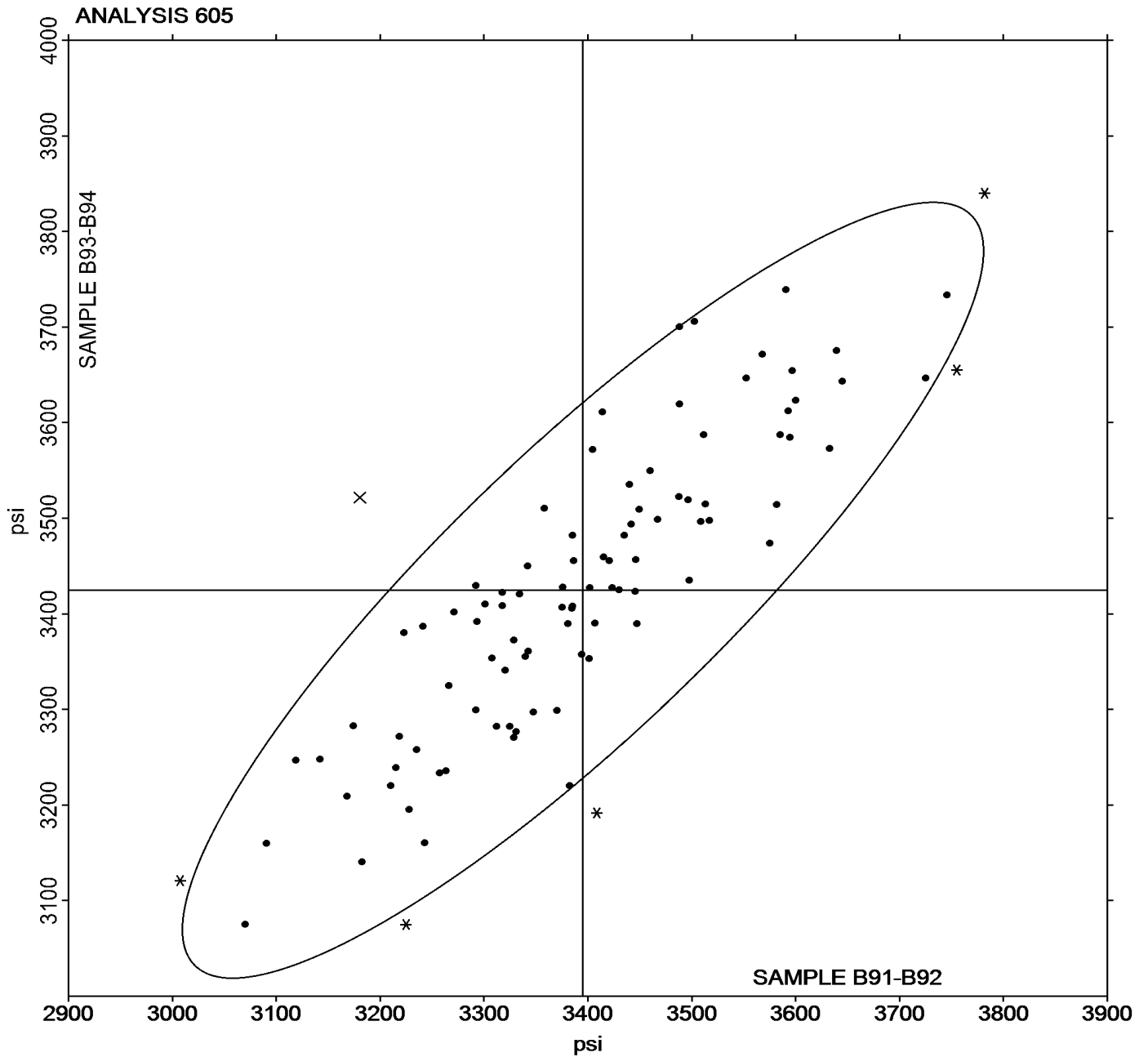


Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

Report #200
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Grand Mean Sample B91-B92 = 3,395.24 psi

Grand Mean Sample B93-B94 = 3,424.64 psi





Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #200
2nd Qtr 2019

WebCode	Data Flag	Sample B91-B92			Sample B93-B94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
23CYCH		685.5	44.1	1.31	675.0	47.3	1.52
28MVE7	X	581.5	-59.9	-1.78	540.0	-87.7	-2.81
2BTBTP		650.0	8.6	0.26	640.0	12.3	0.39
2MJACE	*	646.5	5.1	0.15	601.0	-26.7	-0.86
2QHNY6		656.5	15.1	0.45	649.0	21.3	0.68
2RC9TV		682.3	41.0	1.22	663.4	35.7	1.15
2UF6CY		650.3	9.0	0.27	636.3	8.6	0.28
39F7QK		663.5	22.1	0.66	655.3	27.6	0.88
39JK4L		632.5	-8.9	-0.26	625.5	-2.2	-0.07
48XGZD		634.5	-6.9	-0.20	633.0	5.3	0.17
4LHYV3		636.5	-4.9	-0.14	637.5	9.8	0.31
4WJJVA		627.5	-13.9	-0.41	611.5	-16.2	-0.52
4XD8GQ		645.0	3.7	0.11	617.3	-10.4	-0.33
6HYE8D		666.0	24.6	0.73	667.0	39.3	1.26
766GJK		663.9	22.5	0.67	652.8	25.1	0.80
77UV23		665.1	23.8	0.71	642.2	14.5	0.46
78CHZK		639.0	-2.4	-0.07	628.0	0.3	0.01
79NGVU		619.9	-21.4	-0.64	608.9	-18.8	-0.60
7KF8DD		591.0	-50.4	-1.50	595.0	-32.7	-1.05
7VZEC2		633.5	-7.9	-0.23	619.5	-8.2	-0.26
7X2FEK		601.8	-39.6	-1.18	581.9	-45.8	-1.47
939PHX		632.0	-9.4	-0.28	618.5	-9.2	-0.29
943BBP		625.0	-16.4	-0.49	606.0	-21.7	-0.70
9HXZ3F		611.6	-29.8	-0.89	614.4	-13.3	-0.43
9MYWWC	*	577.0	-64.4	-1.92	552.5	-75.2	-2.41
9VT2PH		616.0	-25.4	-0.76	607.0	-20.7	-0.66
A4XVH4		596.5	-44.9	-1.34	582.0	-45.7	-1.47
AMAH7W	*	590.0	-51.4	-1.53	607.0	-20.7	-0.66
AQVPL6		678.5	37.1	1.11	662.5	34.8	1.12
BKG9A2		626.0	-15.4	-0.46	605.5	-22.2	-0.71
BN49MG		592.8	-48.6	-1.45	600.2	-27.5	-0.88
BURQ8J		614.5	-26.9	-0.80	594.5	-33.2	-1.06
CJ2UCW		637.0	-4.4	-0.13	608.5	-19.2	-0.62
CVHCDF		697.0	55.6	1.66	669.0	41.3	1.32
DP6TNL		635.3	-6.1	-0.18	619.1	-8.6	-0.27
DRD66M		627.0	-14.4	-0.43	639.5	11.8	0.38
EAQ37Y		657.5	16.1	0.48	642.0	14.3	0.46



Rubber Interlaboratory Testing Program

Report #200

Analysis 606

2nd Qtr 2019

Ultimate Elongation (percent)

WebCode	Data Flag	Sample B91-B92			Sample B93-B94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
EBJZCK		666.5	25.1	0.75	640.0	12.3	0.39
F9C2EW		664.5	23.1	0.69	644.5	16.8	0.54
FCAG8D	X	767.5	126.1	3.76	759.0	131.3	4.21
FF9WEF	X	674.3	32.9	0.98	705.3	77.6	2.49
GM9FC6		636.5	-4.9	-0.14	612.0	-15.7	-0.50
GTBPJX		614.6	-26.7	-0.80	601.7	-26.0	-0.84
GUCD74		672.0	30.6	0.91	668.5	40.8	1.31
GUKUWL		665.7	24.3	0.72	629.9	2.2	0.07
H8WF2Z		667.7	26.3	0.78	649.8	22.1	0.71
HKHRDA	*	722.0	80.6	2.40	679.5	51.8	1.66
HN2QPJ		657.2	15.9	0.47	642.9	15.2	0.49
J92C3V		611.0	-30.4	-0.91	601.3	-26.4	-0.85
JE79NF	*	738.5	97.1	2.89	711.5	83.8	2.69
JPQFM6		660.0	18.6	0.55	652.5	24.8	0.80
K2ZFW4		602.2	-39.1	-1.16	581.9	-45.8	-1.47
K3CAFB	*	559.0	-82.4	-2.45	569.5	-58.2	-1.87
KJU8G2		604.0	-37.4	-1.11	594.5	-33.2	-1.06
KKP XKV		668.5	27.1	0.81	668.5	40.8	1.31
KMVFJQ		671.0	29.6	0.88	640.5	12.8	0.41
KRBLND		643.0	1.6	0.05	640.5	12.8	0.41
L2VWCT		687.0	45.6	1.36	651.5	23.8	0.76
LFUJDZ		644.0	2.6	0.08	651.0	23.3	0.75
M6PVWM		679.0	37.6	1.12	674.5	46.8	1.50
MDZXHN		655.8	14.4	0.43	632.7	5.0	0.16
MPV76W		643.9	2.5	0.08	605.9	-21.8	-0.70
MZQGAX		642.0	0.6	0.02	624.5	-3.2	-0.10
NBQ8TJ	X	832.3	190.9	5.68	800.2	172.5	5.53
NMMDN3		578.7	-62.7	-1.87	584.7	-43.0	-1.38
NNWMCU	X	1,882.5	1,241.1	36.95	1,875.0	1,247.3	40.00
NVH9Q8		581.0	-60.4	-1.80	567.0	-60.7	-1.95
P92F3Y		629.5	-11.9	-0.35	620.5	-7.2	-0.23
QAMJ46		640.0	-1.4	-0.04	623.0	-4.7	-0.15
QRV9MW		645.0	3.6	0.11	627.5	-0.2	-0.01
QV8JD7		657.0	15.6	0.47	639.5	11.8	0.38
RDK2MC	*	556.5	-84.9	-2.53	552.0	-75.7	-2.43
RK2Z8V		632.0	-9.4	-0.28	616.0	-11.7	-0.38
RK8CVR		627.0	-14.4	-0.43	621.5	-6.2	-0.20
RVKAZV		668.5	27.1	0.81	646.6	18.9	0.60



Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #200
2nd Qtr 2019

WebCode	Data Flag	Sample B91-B92			Sample B93-B94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
RYMFBV		634.0	-7.4	-0.22	618.5	-9.2	-0.29
U64K7T		654.0	12.6	0.38	630.0	2.3	0.07
UKDERB		685.6	44.2	1.32	646.1	18.4	0.59
VGDPQT		670.0	28.6	0.85	662.5	34.8	1.12
VH4N6R	X	943.5	302.1	8.99	888.5	260.8	8.36
VH94HT		672.0	30.6	0.91	653.5	25.8	0.83
VNT998		625.5	-15.9	-0.47	615.5	-12.2	-0.39
WAUJR2	X	796.5	155.2	4.62	770.4	142.7	4.57
WKRHLT		667.7	26.3	0.78	656.2	28.5	0.91
X2AX2U		661.5	20.1	0.60	638.5	10.8	0.35
XD3GHK		663.5	22.1	0.66	669.5	41.8	1.34
XPFLMV		598.5	-42.9	-1.28	592.0	-35.7	-1.14
XVQHPK		687.2	45.8	1.36	681.7	54.0	1.73
XZYZQX		603.0	-38.4	-1.14	581.0	-46.7	-1.50
Y29AEP	X	762.1	120.7	3.59	903.8	276.1	8.85
Y2PLWU		643.0	1.6	0.05	636.0	8.3	0.27
Y7HQND		642.5	1.1	0.03	627.5	-0.2	-0.01
YEEGDU		593.8	-47.6	-1.42	569.8	-57.9	-1.86
ZFLZU3		664.5	23.1	0.69	672.5	44.8	1.44
ZVERDH		637.4	-3.9	-0.12	622.8	-4.9	-0.16

Summary Statistics			
Grand Means		641.37 percent	627.70 percent
Std Dev Btwn Labs		33.59 percent	31.19 percent
Statistics based on 87 of 95 reporting participants			

Samples B91-B92: Polyisoprene compound, batch #1 & B93-B94: Polyisoprene compound, batch #2



Comments on Assigned Data Flags for Test #606

28MVE7 (X) - Data for sample group B93-B94 are low.

FCAG8D (X) - Data for all samples are high. Possible Systematic Error.

FF9WEF (X) - Inconsistent in testing between samples.

NBQ8TJ (X) - Data for all samples are high. Possible Systematic Error. Inconsistent within the determinations of sample group B93-B94.

NNWMCU (X) - Extreme Data.

VH4N6R (X) - Data for all samples are high. Possible Systematic Error.

WAUJR2 (X) - Data for all samples are high. Possible Systematic Error.

Y29AEP (X) - Data for all samples are high. Possible Systematic Error. Inconsistent within the determinations of both sample groups.

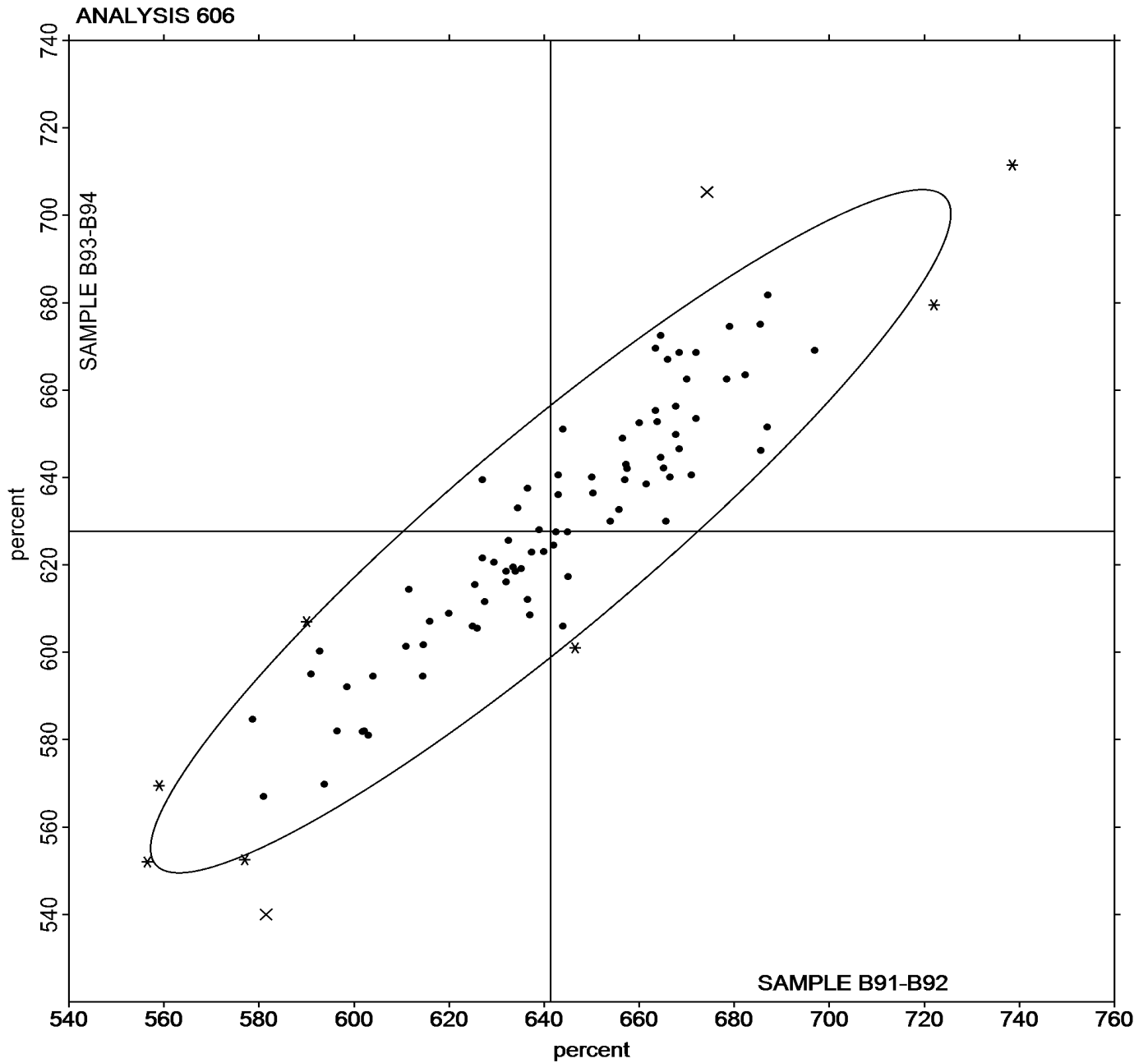


Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #200
2nd Qtr 2019

Grand Mean Sample B91-B92 = 641.37 percent

Grand Mean Sample B93-B94 = 627.70 percent





Rubber Interlaboratory Testing Program

Report #200

Analysis 607

2nd Qtr 2019

Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample B91-B92			Sample B93-B94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
23CYCH		839.5	-55.3	-0.56	870.7	-90.3	-0.96
2BTBTP		793.0	-101.8	-1.04	851.5	-109.5	-1.16
2MJACE		845.5	-49.3	-0.50	1,020.0	59.0	0.63
2QHNY6		924.5	29.7	0.30	935.5	-25.5	-0.27
2RC9TV		1,089.4	194.6	1.98	1,189.5	228.5	2.42
2UF6CY		878.7	-16.1	-0.16	969.3	8.3	0.09
39F7QK		977.7	82.9	0.84	1,002.4	41.5	0.44
39JK4L		905.0	10.2	0.10	973.5	12.5	0.13
48XGZD		886.0	-8.8	-0.09	884.0	-77.0	-0.82
4LHYV3		968.0	73.2	0.74	998.0	37.0	0.39
4WJJVA		826.5	-68.3	-0.69	895.5	-65.5	-0.69
4XD8GQ		874.2	-20.6	-0.21	1,011.1	50.1	0.53
6HYE8D		856.0	-38.8	-0.39	883.5	-77.5	-0.82
766GJK		852.2	-42.6	-0.43	895.4	-65.6	-0.70
77UV23		897.6	2.8	0.03	944.6	-16.3	-0.17
78CHZK		873.5	-21.3	-0.22	935.5	-25.5	-0.27
79NGVU		816.4	-78.4	-0.80	924.1	-36.9	-0.39
7KF8DD		983.0	88.2	0.90	1,075.5	114.5	1.21
7VZEC2		883.5	-11.3	-0.11	948.5	-12.5	-0.13
7X2FEK		1,026.6	131.8	1.34	1,032.0	71.0	0.75
939PHX		859.5	-35.3	-0.36	1,017.5	56.5	0.60
943BBP		937.0	42.2	0.43	1,020.5	59.5	0.63
9HXZ3F		958.5	63.7	0.65	955.4	-5.6	-0.06
9MYWWC		1,058.5	163.7	1.66	1,152.5	191.5	2.03
9VT2PH		916.0	21.2	0.22	976.0	15.0	0.16
A4XVH4		961.0	66.2	0.67	1,049.5	88.5	0.94
AMAH7W		943.5	48.7	0.50	996.5	35.5	0.38
AQVPL6		800.5	-94.3	-0.96	894.5	-66.5	-0.70
B7KBNB	*	1,133.5	238.7	2.43	1,242.0	281.0	2.98
BKG9A2		774.5	-120.3	-1.22	905.8	-55.2	-0.59
BN49MG	*	991.2	96.3	0.98	895.8	-65.2	-0.69
BURQ8J		954.0	59.2	0.60	1,019.0	58.0	0.61
CJ2UCW		801.5	-93.3	-0.95	940.0	-21.0	-0.22
CVHCDF		891.3	-3.5	-0.04	936.2	-24.8	-0.26
DP6TNL		808.9	-85.9	-0.87	978.7	17.8	0.19
DRD66M		947.5	52.7	0.54	936.0	-25.0	-0.26
EAQ37Y		888.0	-6.8	-0.07	990.0	29.0	0.31



Rubber Interlaboratory Testing Program

Report #200

Analysis 607

2nd Qtr 2019

Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample B91-B92			Sample B93-B94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
EBJZCK		855.4	-39.4	-0.40	940.2	-20.8	-0.22
FF9WEF		1,073.9	179.1	1.82	1,057.0	96.0	1.02
GM9FC6		939.1	44.3	0.45	1,026.9	65.9	0.70
GTBPJX		932.6	37.8	0.38	907.8	-53.2	-0.56
GUCD74		859.5	-35.3	-0.36	927.0	-34.0	-0.36
H8WF2Z		794.0	-100.8	-1.03	905.2	-55.8	-0.59
HKHRDA	*	646.0	-248.8	-2.53	792.0	-169.0	-1.79
HN2QPJ		803.5	-91.3	-0.93	871.7	-89.3	-0.95
J92C3V	*	987.6	92.8	0.94	903.1	-57.9	-0.61
JE79NF	*	648.3	-246.5	-2.51	733.2	-227.8	-2.41
JPQFM6		849.5	-45.3	-0.46	963.5	2.5	0.03
K2ZFW4		918.5	23.7	0.24	1,019.8	58.8	0.62
K3CAFB		1,120.0	225.2	2.29	1,187.0	226.0	2.40
KJU8G2		955.0	60.2	0.61	1,032.5	71.5	0.76
KKPXKV		894.0	-0.8	-0.01	947.0	-14.0	-0.15
KMVFJQ		769.0	-125.8	-1.28	924.5	-36.5	-0.39
KRBLND		926.5	31.7	0.32	910.5	-50.5	-0.54
L2VWCT		817.3	-77.5	-0.79	958.7	-2.3	-0.02
LFUJDZ		860.0	-34.8	-0.35	888.0	-73.0	-0.77
M6PVWM		868.5	-26.3	-0.27	889.0	-72.0	-0.76
MDZXHN		845.7	-49.1	-0.50	951.9	-9.1	-0.10
MPV76W		784.2	-110.6	-1.13	976.0	15.0	0.16
MZQGAX		974.5	79.7	0.81	1,043.5	82.5	0.87
NBQ8TJ	X	555.8	-339.0	-3.45	632.8	-328.2	-3.48
NMMDN3		1,093.5	198.6	2.02	1,100.7	139.7	1.48
NNWMCU	X	274.5	-620.3	-6.31	281.5	-679.5	-7.20
NVH9Q8	X	145.8	-749.0	-7.62	142.9	-818.1	-8.67
P92F3Y		904.3	9.5	0.10	1,029.1	68.1	0.72
QAMJ46		1,050.0	155.2	1.58	1,080.0	119.0	1.26
QRV9MW		897.0	2.2	0.02	961.0	0.0	0.00
QV8JD7		773.8	-121.0	-1.23	827.4	-133.5	-1.42
RDK2MC	*	1,124.1	229.2	2.33	1,247.3	286.4	3.03
RK2Z8V		878.5	-16.3	-0.17	1,014.0	53.0	0.56
RK8CVR		885.5	-9.3	-0.09	906.5	-54.5	-0.58
RVKAZV		855.2	-39.6	-0.40	919.8	-41.2	-0.44
RYMFBV		875.5	-19.3	-0.20	896.0	-65.0	-0.69
U64K7T		805.0	-89.8	-0.91	928.5	-32.5	-0.34
UKDERB		776.4	-118.4	-1.20	922.1	-38.9	-0.41



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

Report #200
2nd Qtr 2019

WebCode	Data Flag	Sample B91-B92			Sample B93-B94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
VGDPQT		905.0	10.2	0.10	924.0	-37.0	-0.39
VH4N6R		701.3	-193.5	-1.97	745.5	-215.5	-2.28
VH94HT		794.1	-100.7	-1.02	835.4	-125.6	-1.33
VNT998		1,003.7	108.9	1.11	1,096.5	135.5	1.44
WAUJR2		732.8	-162.0	-1.65	783.8	-177.2	-1.88
WKRHLT		838.8	-56.0	-0.57	956.1	-4.9	-0.05
X2AX2U		818.5	-76.3	-0.78	884.5	-76.5	-0.81
XD3GHK		937.0	42.2	0.43	969.0	8.0	0.09
XPFLMV		993.5	98.7	1.00	1,058.1	97.1	1.03
XVQHPK		872.8	-22.0	-0.22	875.6	-85.4	-0.90
XZYZQX		990.0	95.2	0.97	999.5	38.5	0.41
Y29AEP		973.8	79.0	0.80	946.1	-14.9	-0.16
Y2PLWU		844.1	-50.7	-0.52	917.4	-43.6	-0.46
Y7HQND		886.2	-8.6	-0.09	907.2	-53.8	-0.57
YEEGDU		972.9	78.1	0.79	1,074.2	113.2	1.20
ZFLZU3		783.5	-111.3	-1.13	870.0	-91.0	-0.96
ZVERDH		927.1	32.3	0.33	950.0	-11.0	-0.12

Grand Means		Summary Statistics	
	894.81 psi		960.98 psi
Std Dev Btwn Labs	98.33 psi		94.35 psi
Statistics based on 89 of 92 reporting participants			

Grand Means		Summary Statistics in SI Units	
	6.1694 MPa		6.63 MPa
Std Dev Btwn Labs	0.6780 MPa		0.65 MPa
Statistics based on 89 of 92 reporting participants			

Samples B91-B92: Polyisoprene compound, batch #1 & B93-B94: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #607

- NBQ8TJ (X) - Data for all samples are low. Possible Systematic Error.
- NNWMCU (X) - Data for all samples are low. Possible Systematic Error.
- NVH9Q8 (X) - Data for all samples are low. Possible Systematic Error.

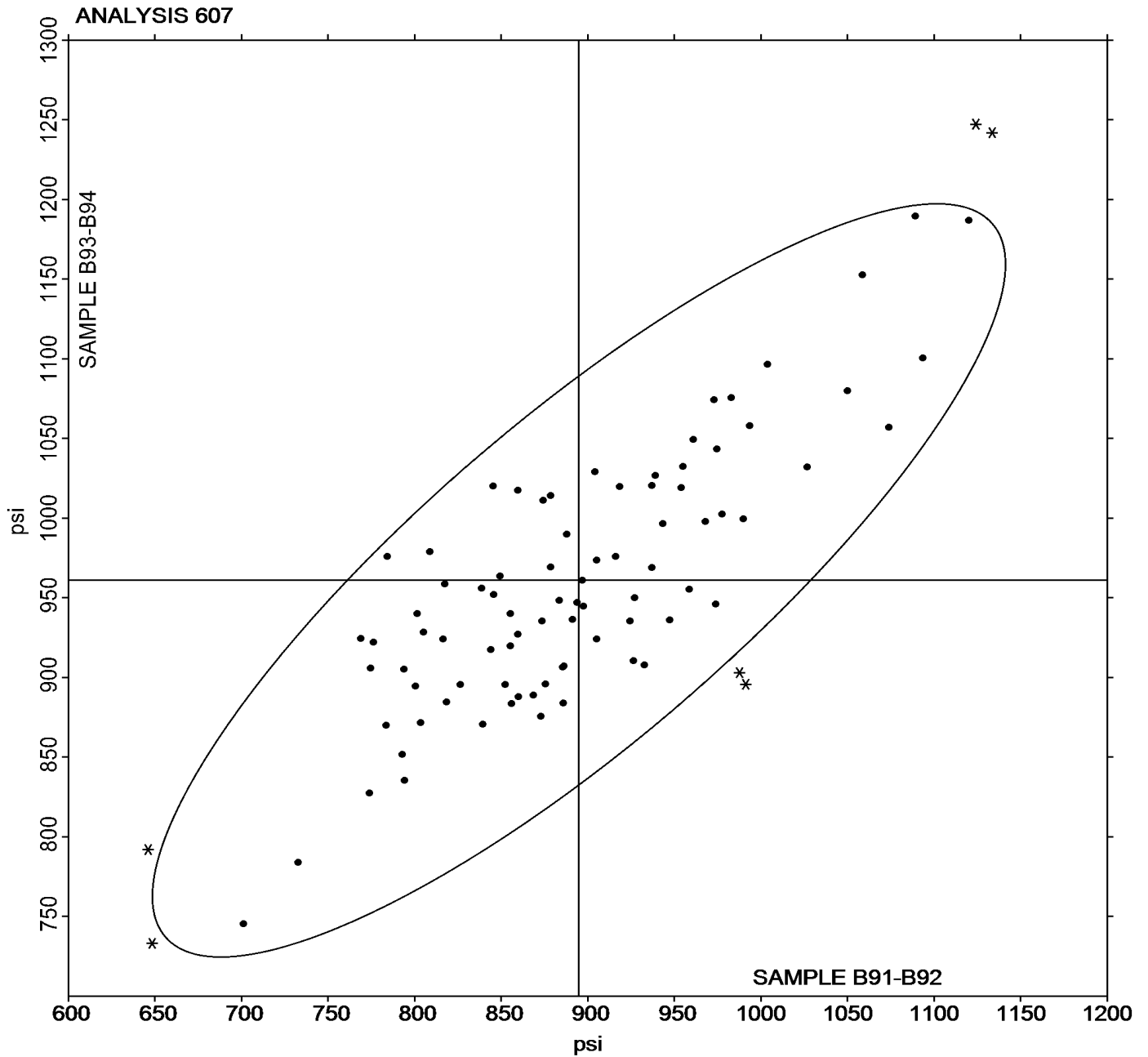


Rubber Interlaboratory Testing Program
Analysis 607
Stress at 300% Elongation (psi)

Report #200
2nd Qtr 2019

Grand Mean Sample **B91-B92** = 894.81 psi

Grand Mean Sample **B93-B94** = 960.98 psi





Rubber Interlaboratory Testing Program

Report #200

Analysis 608

2nd Qtr 2019

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample B91-B92			Sample B93-B94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
23CYCH		197.6	-4.2	-0.26	205.0	-10.3	-0.66
2BTBTP		185.5	-16.4	-1.01	189.5	-25.8	-1.64
2MJACE		209.0	7.1	0.44	242.5	27.2	1.73
2QHNY6		207.5	5.6	0.35	215.5	0.2	0.01
2RC9TV	X	304.6	102.7	6.36	340.6	125.3	7.97
2UF6CY		200.3	-1.6	-0.10	216.3	1.0	0.06
39F7QK		219.7	17.8	1.10	227.8	12.5	0.80
39JK4L		184.0	-17.9	-1.11	206.5	-8.8	-0.56
48XGZD		198.5	-3.4	-0.21	199.0	-16.3	-1.04
4LHYV3		236.5	34.6	2.15	237.0	21.7	1.38
4WJJVA		200.0	-1.9	-0.12	207.5	-7.8	-0.50
4XD8GQ		202.3	0.4	0.03	227.4	12.1	0.77
6HYE8D		172.5	-29.4	-1.82	189.0	-26.3	-1.67
766GJK		210.9	9.0	0.56	209.7	-5.6	-0.36
77UV23		206.2	4.3	0.27	212.0	-3.3	-0.21
78CHZK		199.5	-2.4	-0.15	211.0	-4.3	-0.27
79NGVU		193.7	-8.2	-0.51	217.0	1.7	0.11
7KF8DD	*	234.5	32.6	2.02	258.5	43.2	2.75
7VZEC2	X	470.0	268.1	16.61	502.5	287.2	18.28
7X2FEK		218.2	16.4	1.01	229.8	14.5	0.92
939PHX		189.5	-12.4	-0.77	223.0	7.7	0.49
943BBP		202.5	0.6	0.04	221.0	5.7	0.36
9HXZ3F		228.5	26.6	1.65	229.0	13.7	0.87
9MYWWC		207.5	5.6	0.35	225.5	10.2	0.65
9VT2PH		201.5	-0.4	-0.02	214.5	-0.8	-0.05
A4XVH4		206.5	4.6	0.29	223.5	8.2	0.52
AMAH7W		210.5	8.6	0.53	224.5	9.2	0.59
AQVPL6		187.0	-14.9	-0.92	201.5	-13.8	-0.88
B7KBNB	*	233.5	31.6	1.96	263.0	47.7	3.04
BKG9A2		185.6	-16.2	-1.01	211.8	-3.5	-0.22
BN49MG	*	200.8	-1.0	-0.06	184.3	-31.0	-1.97
BURQ8J		205.0	3.1	0.19	222.0	6.7	0.43
CJ2UCW		184.0	-17.9	-1.11	212.0	-3.3	-0.21
CVHCDF		199.4	-2.4	-0.15	211.0	-4.3	-0.27
DP6TNL		201.7	-0.1	-0.01	235.8	20.6	1.31
DRD66M		220.0	18.1	1.12	217.5	2.2	0.14
EAQ37Y		186.5	-15.4	-0.95	203.0	-12.3	-0.78
EBJZCK		214.3	12.4	0.77	230.6	15.3	0.98



Rubber Interlaboratory Testing Program

Report #200

Analysis 608

2nd Qtr 2019

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample B91-B92			Sample B93-B94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
F9C2EW		194.0	-7.9	-0.49	213.0	-2.3	-0.15
FF9WEF	X	263.3	61.4	3.80	271.5	56.2	3.58
GM9FC6		218.3	16.4	1.02	235.7	20.4	1.30
GTBPJX		203.4	1.5	0.10	198.9	-16.4	-1.04
GUCD74		201.0	-0.9	-0.05	215.0	-0.3	-0.02
H8WF2Z		182.3	-19.6	-1.22	199.2	-16.1	-1.03
HKHRDA		169.5	-32.4	-2.01	199.0	-16.3	-1.04
HN2QPJ		171.1	-30.7	-1.90	185.6	-29.6	-1.89
J92C3V	*	223.8	21.9	1.36	206.0	-9.3	-0.59
JE79NF		171.9	-30.0	-1.86	183.5	-31.8	-2.02
JPQFM6		194.0	-7.9	-0.49	215.5	0.2	0.01
K2ZFW4		196.2	-5.7	-0.35	216.6	1.3	0.08
K3CAFB		233.0	31.1	1.93	250.0	34.7	2.21
KJU8G2	*	241.5	39.6	2.46	229.5	14.2	0.90
KKPXKV		200.0	-1.9	-0.12	211.5	-3.8	-0.24
KMVFJQ		181.5	-20.4	-1.26	212.0	-3.3	-0.21
KRBLND		217.5	15.6	0.97	203.0	-12.3	-0.78
L2VWCT		179.1	-22.8	-1.41	206.7	-8.6	-0.55
LFUJDZ		197.5	-4.4	-0.27	205.5	-9.8	-0.62
M6PVWM		205.0	3.1	0.19	202.0	-13.3	-0.85
MDZXHN		190.5	-11.4	-0.70	213.2	-2.1	-0.14
MPV76W		175.1	-26.7	-1.66	211.5	-3.7	-0.24
MZQGAX		212.5	10.6	0.66	227.0	11.7	0.75
NBQ8TJ	X	151.7	-50.2	-3.11	162.3	-53.0	-3.37
NMMDN3	*	243.9	42.0	2.60	246.8	31.5	2.01
NNWMCU	X	113.5	-88.4	-5.48	115.0	-100.3	-6.38
NVH9Q8	X	102.3	-99.6	-6.17	99.4	-115.9	-7.38
P92F3Y		206.7	4.8	0.30	229.9	14.6	0.93
QAMJ46	X	261.0	59.1	3.66	260.0	44.7	2.85
QRV9MW		201.0	-0.9	-0.05	207.5	-7.8	-0.50
QV8JD7		179.1	-22.8	-1.41	188.6	-26.7	-1.70
RDK2MC		217.6	15.7	0.97	246.6	31.3	1.99
RK2Z8V		201.0	-0.9	-0.05	231.5	16.2	1.03
RK8CVR		206.0	4.1	0.26	208.0	-7.3	-0.46
RVKAZV		197.3	-4.5	-0.28	205.7	-9.6	-0.61
RYMFBV		198.6	-3.3	-0.20	203.7	-11.6	-0.74
U64K7T		185.5	-16.4	-1.01	211.5	-3.8	-0.24



Rubber Interlaboratory Testing Program

Report #200

Analysis 608

2nd Qtr 2019

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample B91-B92			Sample B93-B94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
UKDERB		179.0	-22.9	-1.42	209.7	-5.6	-0.36
VGDPQT		205.0	3.1	0.19	207.0	-8.3	-0.53
VH4N6R		203.1	1.2	0.07	219.0	3.7	0.24
VH94HT		192.2	-9.7	-0.60	198.0	-17.3	-1.10
VNT998		209.6	7.7	0.48	229.9	14.6	0.93
WAUJR2		209.7	7.9	0.49	221.2	5.9	0.38
WKRHLT		195.7	-6.2	-0.38	221.0	5.7	0.36
X2AX2U		186.0	-15.9	-0.98	203.0	-12.3	-0.78
XD3GHK		207.0	5.1	0.32	219.5	4.2	0.27
XPFLMV		220.5	18.6	1.15	232.1	16.8	1.07
XVQHPK		207.3	5.4	0.34	209.1	-6.2	-0.39
XZYZQX		206.0	4.1	0.26	206.5	-8.8	-0.56
Y29AEP		220.3	18.5	1.14	224.3	9.0	0.57
Y2PLWU		191.5	-10.4	-0.65	207.4	-7.9	-0.50
Y7HQND		194.4	-7.5	-0.47	198.7	-16.6	-1.06
YEEGDU		203.0	1.2	0.07	216.7	1.4	0.09
ZFLZU3		186.0	-15.9	-0.98	204.5	-10.8	-0.69
ZVERDH		208.8	6.9	0.43	213.1	-2.2	-0.14

		Summary Statistics	
Grand Means		201.87 psi	215.28 psi
Stnd Dev Btwn Labs		16.14 psi	15.71 psi
Statistics based on 86 of 93 reporting participants			

		Summary Statistics in SI Units	
Grand Means		1.3919 MPa	1.48 MPa
Stnd Dev Btwn Labs		0.1113 MPa	0.11 MPa
Statistics based on 86 of 93 reporting participants			

Samples B91-B92: Polyisoprene compound, batch #1 & B93-B94: Polyisoprene compound, batch #2



Rubber Interlaboratory Testing Program

Analysis 608

Stress at 100% Elongation (psi)

Report #200

2nd Qtr 2019

Comments on Assigned Data Flags for Test #608

2RC9TV (X) - Data for all samples are high. Possible Systematic Error.

7VZEC2 (X) - Extreme Data.

FF9WEF (X) - Data for all samples are high. Possible Systematic Error.

NBQ8TJ (X) - Data for all samples are low. Possible Systematic Error.

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

NVH9Q8 (X) - Data for all samples are low. Possible Systematic Error.

QAMJ46 (X) - Data for all samples are high. Possible Systematic Error.



Rubber Interlaboratory Testing Program

Report #200

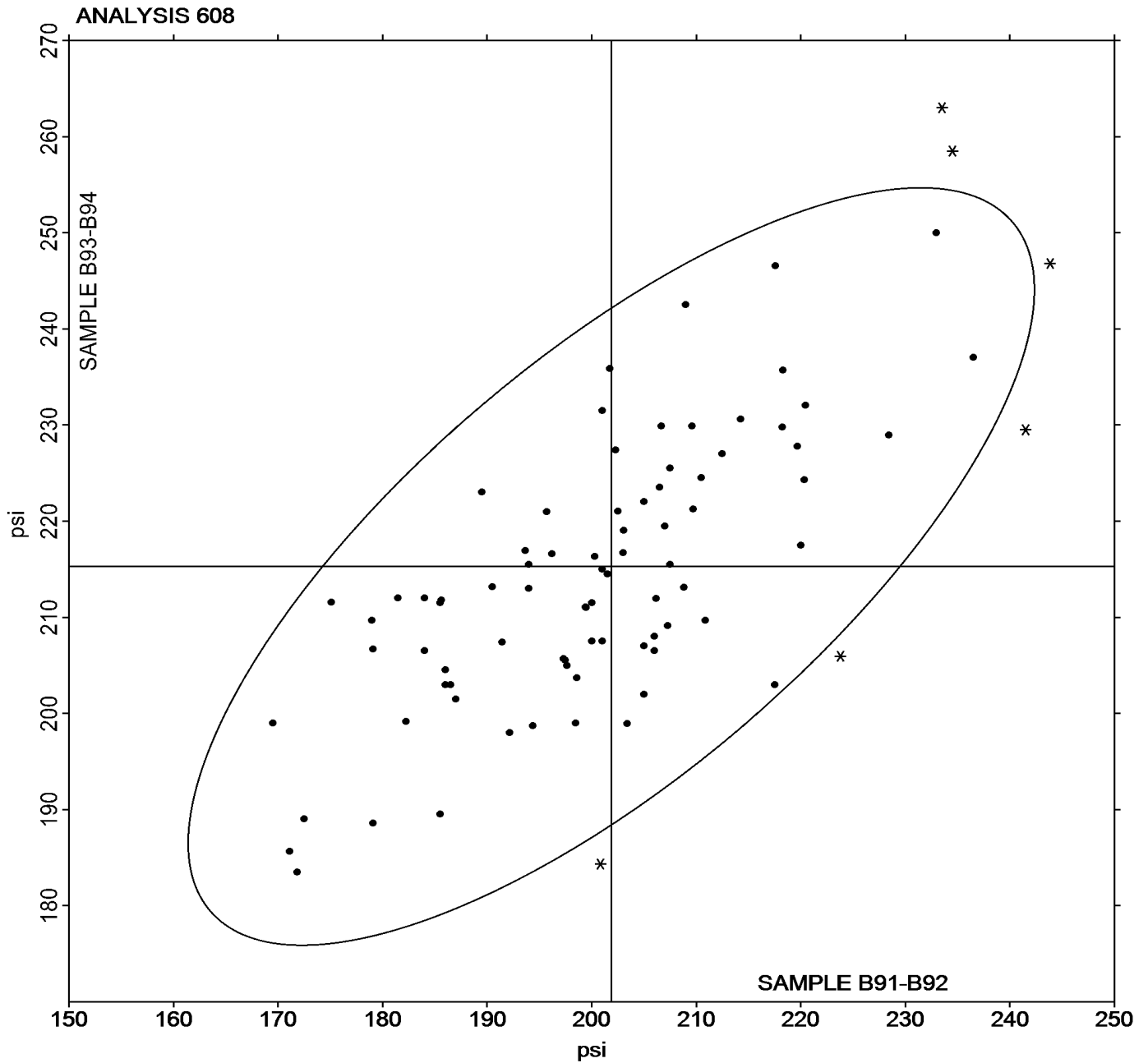
Analysis 608

2nd Qtr 2019

Stress at 100% Elongation (psi)

Grand Mean Sample **B91-B92** = 201.87 psi

Grand Mean Sample **B93-B94** = 215.28 psi





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

Report #200
2nd Qtr 2019

WebCode	Data Flag	Sample B91-B92			Sample B93-B94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
23CYCH		51.05	1.98	1.17	51.55	1.98	1.35	BT
28MVE7		48.50	-0.57	-0.34	50.00	0.43	0.29	BT
2BTBTP		49.50	0.43	0.25	50.05	0.48	0.32	BT
2MJACE		49.50	0.43	0.25	50.50	0.93	0.63	BT
2RC9TV		51.00	1.93	1.14	51.00	1.43	0.97	HH
2UF6CY		50.50	1.43	0.85	51.50	1.93	1.31	HH
39F7QK		51.50	2.43	1.44	50.50	0.93	0.63	BT
39JK4L		45.60	-3.47	-2.06	47.60	-1.97	-1.34	BT
48XGZD		51.50	2.43	1.44	51.00	1.43	0.97	HH
4LHYV3		48.50	-0.57	-0.34	48.00	-1.57	-1.07	BT
4WJVA		51.00	1.93	1.14	50.50	0.93	0.63	HH
4XD8GQ		51.45	2.38	1.41	52.05	2.48	1.69	BT
6HYE8D		50.00	0.93	0.55	50.50	0.93	0.63	HH
766GJK		48.65	-0.42	-0.25	49.35	-0.22	-0.15	BT
77UV23		49.70	0.63	0.37	48.90	-0.67	-0.46	BT
78CHZK		50.00	0.93	0.55	50.00	0.43	0.29	HH
79NGVU		50.00	0.93	0.55	49.50	-0.07	-0.05	HH
7KF8DD		47.85	-1.22	-0.72	49.40	-0.17	-0.12	BT
7VZEC2		49.80	0.73	0.43	49.95	0.38	0.26	BT
7X2FEK		51.00	1.93	1.14	51.50	1.93	1.31	BT
939PHX		47.90	-1.17	-0.69	49.55	-0.02	-0.02	BT
943BBP		47.50	-1.57	-0.93	48.50	-1.07	-0.73	BT
9HXZ3F		51.85	2.78	1.64	51.75	2.18	1.48	HH
9MYWWC		50.50	1.43	0.85	50.50	0.93	0.63	HH
9RPD7L		46.00	-3.07	-1.82	47.00	-2.57	-1.75	BT
9VT2PH		47.50	-1.57	-0.93	48.50	-1.07	-0.73	HH
A4XVH4		49.65	0.58	0.34	49.95	0.38	0.26	BT
AMAH7W		50.00	0.93	0.55	51.00	1.43	0.97	HH
AQVPL6		48.60	-0.47	-0.28	49.40	-0.17	-0.12	BT
B7KBNB		49.50	0.43	0.25	49.50	-0.07	-0.05	HH
BKG9A2		47.25	-1.82	-1.08	49.00	-0.57	-0.39	BT
BN49MG		49.95	0.88	0.52	50.25	0.68	0.46	XX
BURQ8J		50.50	1.43	0.85	50.00	0.43	0.29	BT
CJ2UCW		46.50	-2.57	-1.52	48.00	-1.57	-1.07	BT
CVHCDF		47.50	-1.57	-0.93	48.90	-0.67	-0.46	BT
D9XV32		46.50	-2.57	-1.52	47.50	-2.07	-1.41	BT
DP6TNL	X	54.00	4.93	2.92	52.00	2.43	1.65	BT



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

Report #200
2nd Qtr 2019

WebCode	Data Flag	Sample B91-B92			Sample B93-B94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
DRD66M		53.10	4.03	2.38	53.00	3.43	2.33	XX
EAQ37Y		51.00	1.93	1.14	51.00	1.43	0.97	HH
EBJZCK		46.50	-2.57	-1.52	46.50	-3.07	-2.09	BT
EG8M8P		49.00	-0.07	-0.04	48.50	-1.07	-0.73	BT
F9C2EW		50.00	0.93	0.55	51.00	1.43	0.97	BT
FCAG8D		48.00	-1.07	-0.63	49.00	-0.57	-0.39	HH
FF9WEF		51.00	1.93	1.14	51.00	1.43	0.97	HH
GJA6G6		48.50	-0.57	-0.34	49.00	-0.57	-0.39	BT
GM9FC6		48.55	-0.52	-0.31	49.65	0.08	0.05	BT
GTBPJX		46.50	-2.57	-1.52	46.50	-3.07	-2.09	HH
GUCD74		50.80	1.73	1.02	51.50	1.93	1.31	BT
GUKUWL		49.00	-0.07	-0.04	50.00	0.43	0.29	XX
H8WF2Z		48.85	-0.22	-0.13	49.50	-0.07	-0.05	BT
HKHRDA		51.50	2.43	1.44	52.50	2.93	1.99	BT
HN2QPJ		45.50	-3.57	-2.11	46.50	-3.07	-2.09	BT
J92C3V		48.90	-0.17	-0.10	48.80	-0.77	-0.53	BT
JE79NF		48.00	-1.07	-0.63	49.00	-0.57	-0.39	HH
JPQFM6		47.25	-1.82	-1.08	48.45	-1.12	-0.76	BT
K2ZFW4		47.95	-1.12	-0.66	48.80	-0.77	-0.53	BT
K3CAFB		50.00	0.93	0.55	50.00	0.43	0.29	HH
K448NG	X	42.00	-7.07	-4.19	42.00	-7.57	-5.15	HH
KJU8G2		49.25	0.18	0.11	49.75	0.18	0.12	HH
KKPXKV		49.80	0.73	0.43	50.55	0.98	0.66	BT
KMVFJQ		49.50	0.43	0.25	51.00	1.43	0.97	BT
KRBLND		48.00	-1.07	-0.63	48.50	-1.07	-0.73	BT
L2VWCT		48.00	-1.07	-0.63	48.00	-1.57	-1.07	XX
L4Z3NY		49.50	0.43	0.25	50.00	0.43	0.29	BT
LFUJDZ		49.25	0.18	0.11	50.00	0.43	0.29	HH
M6PVWM		48.85	-0.22	-0.13	48.65	-0.92	-0.63	BT
MDZXHN		46.00	-3.07	-1.82	47.50	-2.07	-1.41	BT
MPV76W	*	46.25	-2.82	-1.67	49.00	-0.57	-0.39	BT
MZQGAX		47.50	-1.57	-0.93	48.00	-1.57	-1.07	BT
NBQ8TJ		49.50	0.43	0.25	49.00	-0.57	-0.39	BT
NMMDN3		49.90	0.83	0.49	49.70	0.13	0.09	XX
NNWMCU		49.15	0.08	0.05	49.20	-0.37	-0.25	BT
NVH9Q8	*	51.50	2.43	1.44	50.00	0.43	0.29	HH
P92F3Y		47.95	-1.12	-0.66	49.60	0.03	0.02	BT
QAMJ46		50.00	0.93	0.55	50.50	0.93	0.63	BT



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

Report #200
2nd Qtr 2019

WebCode	Data Flag	Sample B91-B92			Sample B93-B94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
QRV9MW		49.00	-0.07	-0.04	49.50	-0.07	-0.05	HH
QV8JD7		49.00	-0.07	-0.04	50.00	0.43	0.29	BT
RDK2MC		46.80	-2.27	-1.34	46.85	-2.72	-1.85	BT
RK2Z8V		49.50	0.43	0.25	50.00	0.43	0.29	HH
RK8CVR		47.00	-2.07	-1.23	49.00	-0.57	-0.39	BT
RVKAZV		49.50	0.43	0.25	49.00	-0.57	-0.39	BT
RYMFBV		48.50	-0.57	-0.34	49.75	0.18	0.12	BT
U64K7T		49.50	0.43	0.25	50.00	0.43	0.29	BT
UKDERB	*	53.75	4.68	2.77	53.90	4.33	2.94	BT
VGDPQT		50.30	1.23	0.73	50.05	0.48	0.32	BT
VH4N6R		48.10	-0.97	-0.58	48.90	-0.67	-0.46	BT
VH94HT		49.50	0.43	0.25	50.00	0.43	0.29	BT
VNT998		49.00	-0.07	-0.04	49.00	-0.57	-0.39	HH
WAUJR2	*	47.50	-1.57	-0.93	46.50	-3.07	-2.09	BT
WKPUXM	*	44.50	-4.57	-2.71	46.00	-3.57	-2.43	BT
WKRHLT		45.00	-4.07	-2.41	46.00	-3.57	-2.43	HH
X2AX2U		51.00	1.93	1.14	51.50	1.93	1.31	BT
X4YCKC		50.00	0.93	0.55	50.85	1.28	0.87	BT
XD3GHK		49.95	0.88	0.52	50.20	0.63	0.43	BT
XPFLMV		50.00	0.93	0.55	50.50	0.93	0.63	HH
XVQHPK		50.45	1.38	0.82	50.50	0.93	0.63	BT
XZYZQX		49.00	-0.07	-0.04	48.50	-1.07	-0.73	BT
Y29AEP		49.50	0.43	0.25	50.00	0.43	0.29	XX
Y2PLWU		48.00	-1.07	-0.63	48.25	-1.32	-0.90	BT
Y7HQND		49.35	0.28	0.16	49.40	-0.17	-0.12	BT
Y8CCG4		49.20	0.13	0.08	49.65	0.08	0.05	BT
YEEGDU		48.85	-0.22	-0.13	48.65	-0.92	-0.63	BT
ZFLZU3		49.50	0.43	0.25	50.50	0.93	0.63	BT
ZVERDH		50.50	1.43	0.85	51.75	2.18	1.48	BT

		Summary Statistics	
Grand Means	49.072 Type A	49.574 Type A	
Std Dev Btw Labs	1.689 Type A	1.469 Type A	
Statistics based on 102 of 104 reporting participants			



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

Report #200
2nd Qtr 2019

Samples B91-B92: Polyisoprene compound, batch #1 & B93-B94: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #620

DP6TNL (X) - Data for sample group B91-B92 are high.

K448NG (X) - Data for all samples are low. Possible Systematic Error.

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 B91-B92 <i>Polyisoprene compound, batch #1</i>			Sample B93-B94 <i>Polyisoprene compound, batch #2</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Select from list below	53.10	0.00	4.03	53.00	0.00	3.43	1	1
Readings taken within 0 - 5 seconds	49.24	1.37	0.17	49.74	1.24	0.17	71	72
Readings taken at 5 seconds	47.73	1.57	-1.34	48.44	1.25	-1.14	10	13
Readings taken after 5+ seconds	48.40	1.79	-0.67	48.89	1.44	-0.68	7	8
Maximum hardness indicator used	49.57	1.49	0.50	50.01	1.22	0.43	8	10

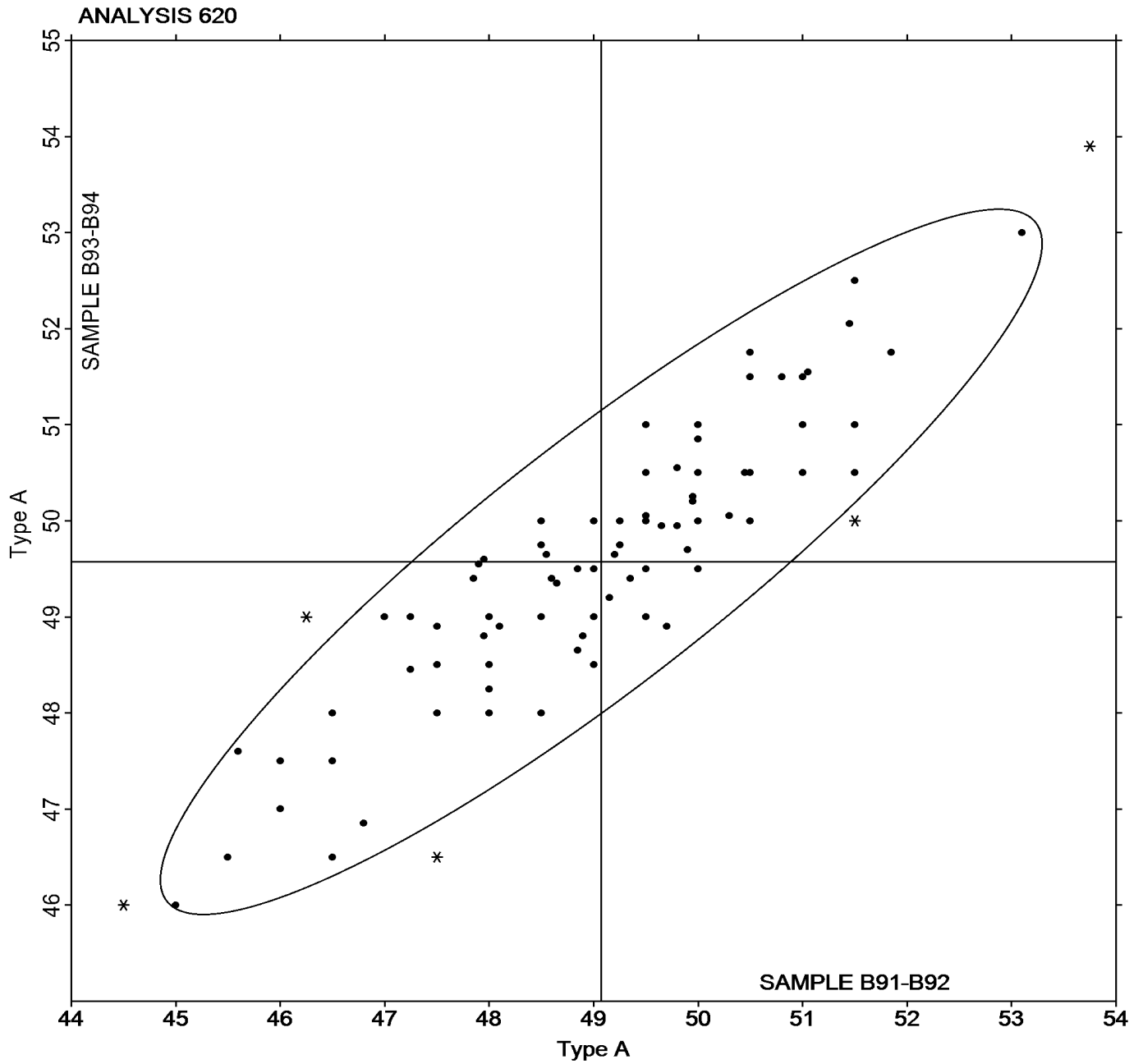


Rubber Interlaboratory Testing Program
Analysis 620
Hardness (Shore A/Type A)

Report #200
2nd Qtr 2019

Grand Mean Sample B91-B92 = 49.072 Type A

Grand Mean Sample B93-B94 = 49.574 Type A





Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #200
2nd Qtr 2019

WebCode	Data Flag	Sample B91-B92			Sample B93-B94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
23CYCH		1.136	0.000	0.13	1.137	0.002	0.53
28MVE7		1.132	-0.003	-0.96	1.133	-0.002	-0.81
2BTBTP		1.135	0.000	-0.05	1.134	-0.001	-0.32
2MJACE		1.135	-0.001	-0.18	1.133	-0.002	-0.81
2QHNY6		1.132	-0.003	-1.01	1.133	-0.002	-0.82
2RC9TV	*	1.138	0.003	0.87	1.141	0.005	1.83
2UF6CY		1.128	-0.008	-2.36	1.130	-0.005	-1.81
39F7QK	*	1.142	0.007	2.10	1.143	0.008	2.55
48XGZD	*	1.127	-0.008	-2.60	1.129	-0.007	-2.18
4LHYV3		1.131	-0.004	-1.35	1.130	-0.005	-1.79
4WJJVA		1.136	0.001	0.24	1.136	0.001	0.19
4XD8GQ		1.139	0.003	1.07	1.138	0.002	0.70
6HYE8D		1.139	0.003	1.07	1.138	0.003	0.86
6UAT77		1.139	0.004	1.26	1.139	0.004	1.20
766GJK		1.131	-0.004	-1.32	1.134	-0.001	-0.44
77UV23		1.134	-0.002	-0.49	1.133	-0.002	-0.69
78CHZK		1.136	0.001	0.35	1.135	-0.001	-0.26
7VZEC2	X	1.135	0.000	-0.02	1.131	-0.005	-1.64
939PHX		1.133	-0.002	-0.65	1.135	-0.001	-0.31
943BBP	*	1.143	0.007	2.32	1.140	0.005	1.53
9HXZ3F		1.136	0.001	0.43	1.137	0.002	0.58
9MYWWC		1.136	0.001	0.30	1.136	0.000	0.06
9VT2PH		1.136	0.001	0.29	1.137	0.001	0.36
A4XVH4		1.134	-0.001	-0.33	1.135	-0.001	-0.19
AMAH7W		1.136	0.000	0.13	1.137	0.002	0.53
B7KBNB		1.135	0.000	0.06	1.137	0.001	0.43
BKG9A2		1.137	0.001	0.44	1.134	-0.001	-0.47
BN49MG		1.133	-0.002	-0.63	1.133	-0.002	-0.79
BURQ8J		1.135	0.000	-0.04	1.136	0.000	0.09
DP6TNL	X	1.136	0.001	0.29	1.131	-0.004	-1.48
DRD66M		1.135	0.000	-0.02	1.137	0.001	0.36
EBJZCK		1.137	0.002	0.66	1.137	0.002	0.58
EG8M8P		1.134	-0.001	-0.21	1.135	0.000	-0.07
F9C2EW		1.140	0.004	1.38	1.139	0.003	1.03
FF9WEF		1.139	0.003	1.08	1.139	0.004	1.18
GM9FC6		1.134	-0.001	-0.33	1.134	-0.002	-0.54
GTBPJX	*	1.130	-0.005	-1.58	1.129	-0.007	-2.31



Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #200
2nd Qtr 2019

WebCode	Data Flag	Sample B91-B92			Sample B93-B94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
GUKUWL		1.136	0.001	0.16	1.137	0.002	0.59
H8WF2Z		1.138	0.002	0.76	1.137	0.002	0.68
HKHRDA		1.136	0.001	0.27	1.136	0.001	0.33
JPQFM6		1.135	0.000	-0.01	1.135	0.000	-0.12
K2ZFW4		1.135	0.000	0.04	1.135	0.000	-0.09
K3CAFB		1.130	-0.005	-1.58	1.131	-0.004	-1.48
K448NG	X	1.131	-0.004	-1.27	1.137	0.002	0.53
KKPXKV		1.135	0.000	-0.13	1.137	0.001	0.46
KMVFJQ		1.137	0.002	0.51	1.137	0.001	0.44
L2VWCT		1.137	0.002	0.60	1.139	0.004	1.20
L4Z3NY		1.133	-0.002	-0.69	1.135	0.000	-0.04
LFUJDZ		1.128	-0.007	-2.19	1.130	-0.006	-1.89
M6PVWM		1.135	-0.001	-0.16	1.134	-0.002	-0.56
MDZXHN		1.135	0.000	-0.02	1.136	0.000	0.03
MPV76W		1.140	0.005	1.54	1.140	0.005	1.53
MZQGAX		1.134	-0.001	-0.24	1.138	0.002	0.70
NBQ8TJ		1.135	0.000	-0.04	1.134	-0.001	-0.32
NNWMCU		1.132	-0.003	-0.96	1.132	-0.003	-1.14
P92F3Y		1.133	-0.002	-0.65	1.135	-0.001	-0.31
QAMJ46		1.134	-0.001	-0.44	1.133	-0.003	-0.86
QFGFTV		1.136	0.000	0.13	1.135	0.000	-0.02
QRV9MW	*	1.139	0.003	1.07	1.136	0.000	0.03
QV8JD7		1.134	-0.001	-0.33	1.134	-0.002	-0.64
RK2Z8V		1.138	0.002	0.76	1.137	0.001	0.36
RVKAZV		1.136	0.001	0.24	1.137	0.002	0.65
U64K7T		1.137	0.001	0.44	1.138	0.003	0.86
UKDERB		1.138	0.002	0.76	1.138	0.003	0.86
VGDPQT		1.134	-0.001	-0.46	1.133	-0.002	-0.66
WAUJR2		1.134	-0.002	-0.49	1.133	-0.003	-0.97
X2AX2U		1.141	0.006	1.94	1.142	0.006	2.13
X4YCKC		1.141	0.005	1.69	1.140	0.004	1.48
XD3GHK		1.139	0.004	1.26	1.139	0.003	1.06
XVQHPK		1.133	-0.002	-0.62	1.132	-0.004	-1.19
XZYZQX		1.137	0.001	0.44	1.137	0.001	0.36
Y29AEP		1.135	0.000	-0.02	1.135	-0.001	-0.31
Y2PLWU		1.134	-0.001	-0.33	1.135	-0.001	-0.31
YEEGDU	X	2.590	1.455	453.72	2.588	1.453	485.02
ZFLZU3		1.131	-0.005	-1.43	1.132	-0.004	-1.31



Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #200
2nd Qtr 2019

WebCode	Data Flag	Sample B91-B92			Sample B93-B94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
ZVERDH		1.129	-0.006	-1.88	1.131	-0.005	-1.51

		Summary Statistics					
Grand Means		1.1351	g/cm ³	(Mg/m ³)	1.1354	g/cm ³	(Mg/m ³)
Std Dev Btwn Labs		0.0032	g/cm ³	(Mg/m ³)	0.0030	g/cm ³	(Mg/m ³)
Statistics based on 72 of 76 reporting participants							

Samples B91-B92: Polyisoprene compound, batch #1 & B93-B94: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #621

- 7VZEC2 (X) - Inconsistent in testing between samples.
- DP6TNL (X) - Inconsistent in testing between samples.
- K448NG (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group B93-B94.
- YEEGDU (X) - Extreme Data.

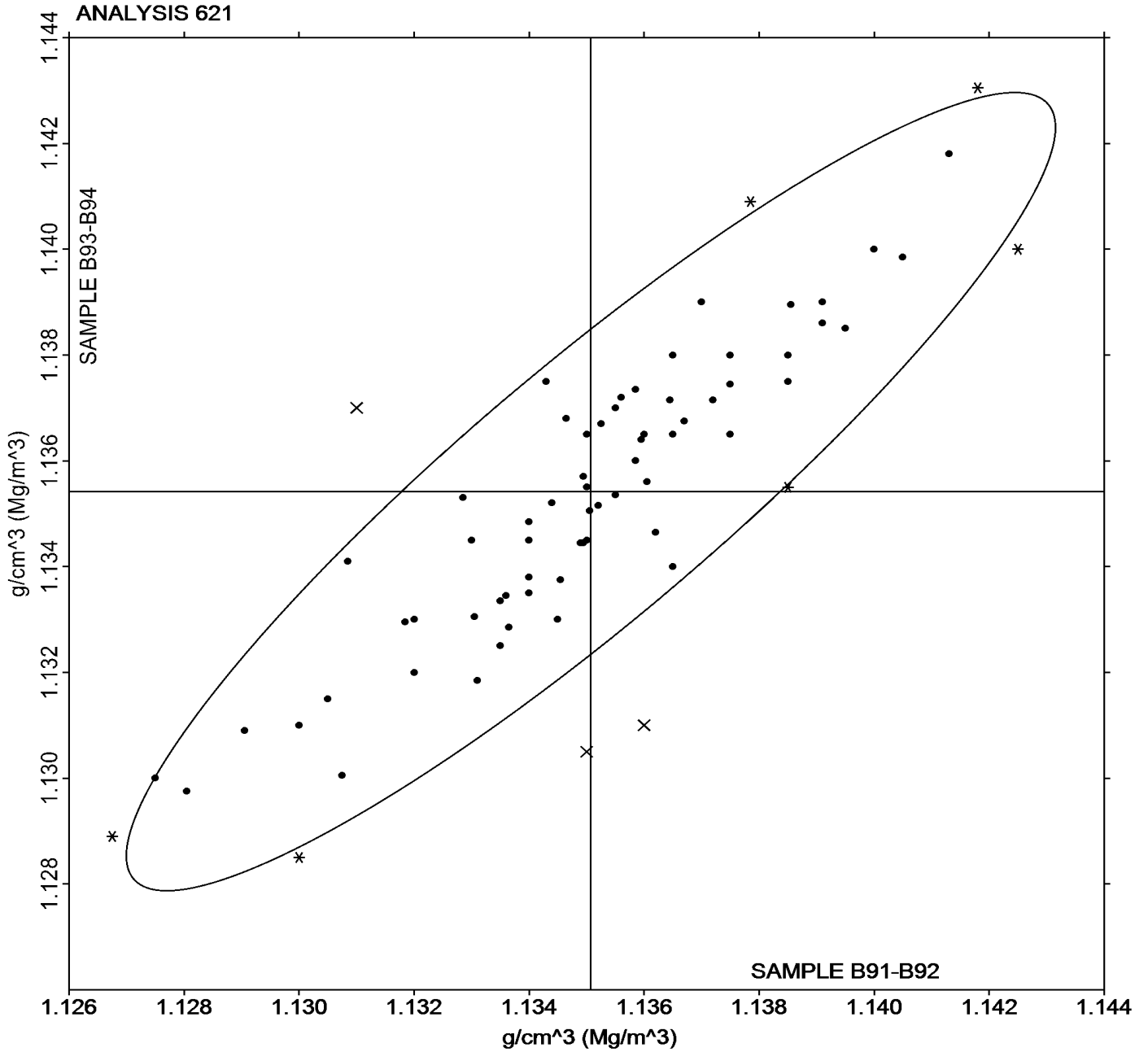


Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #200
2nd Qtr 2019

Grand Mean Sample **B91-B92** = 1.1351 g/cm³
(Mg/m³)

Grand Mean Sample **B93-B94** = 1.1354 g/cm³
(Mg/m³)





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

Report #200
2nd Qtr 2019

WebCode	Data Flag	Sample HB91-HB92			Sample HB93-HB94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3ANH72		77.70	2.26	0.87	84.55	0.59	0.32	HH
7X2FEK		73.50	-1.94	-0.74	83.50	-0.46	-0.24	BT
92JER6		76.00	0.56	0.22	83.00	-0.96	-0.51	BT
B7KBNB		78.00	2.56	0.98	86.00	2.04	1.09	HH
BNXYQA		75.00	-0.44	-0.17	84.50	0.54	0.29	HH
HZUB7B		76.80	1.36	0.52	85.25	1.29	0.69	BT
J24KU2		73.00	-2.44	-0.93	84.00	0.04	0.02	XX
MKZQJP		80.00	4.56	1.75	85.50	1.54	0.82	XX
RDK2MC		72.50	-2.94	-1.12	80.85	-3.11	-1.66	BT
RE3CY4		78.00	2.56	0.98	86.00	2.04	1.09	HH
RMCZC3		77.00	1.56	0.60	86.00	2.04	1.09	BT
U274UY		75.00	-0.44	-0.17	85.00	1.04	0.56	BT
WVR6DP		70.00	-5.44	-2.08	80.00	-3.96	-2.11	BT
X4YCKC		75.55	0.11	0.04	83.20	-0.76	-0.40	BT
Y7HQND		73.50	-1.94	-0.74	82.00	-1.96	-1.04	BT

Summary Statistics	
Grand Means	
75.437 Type D	83.957 Type D
Stnd Dev Btwn Labs	
2.615 Type D	1.874 Type D
Statistics based on 15 of 15 reporting participants	

Samples HB91-HB92: Hardness Disc, batch #1 & HB93-HB94: Hardness Disc, batch #2

Key to Instrument Codes Reported by Participants

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

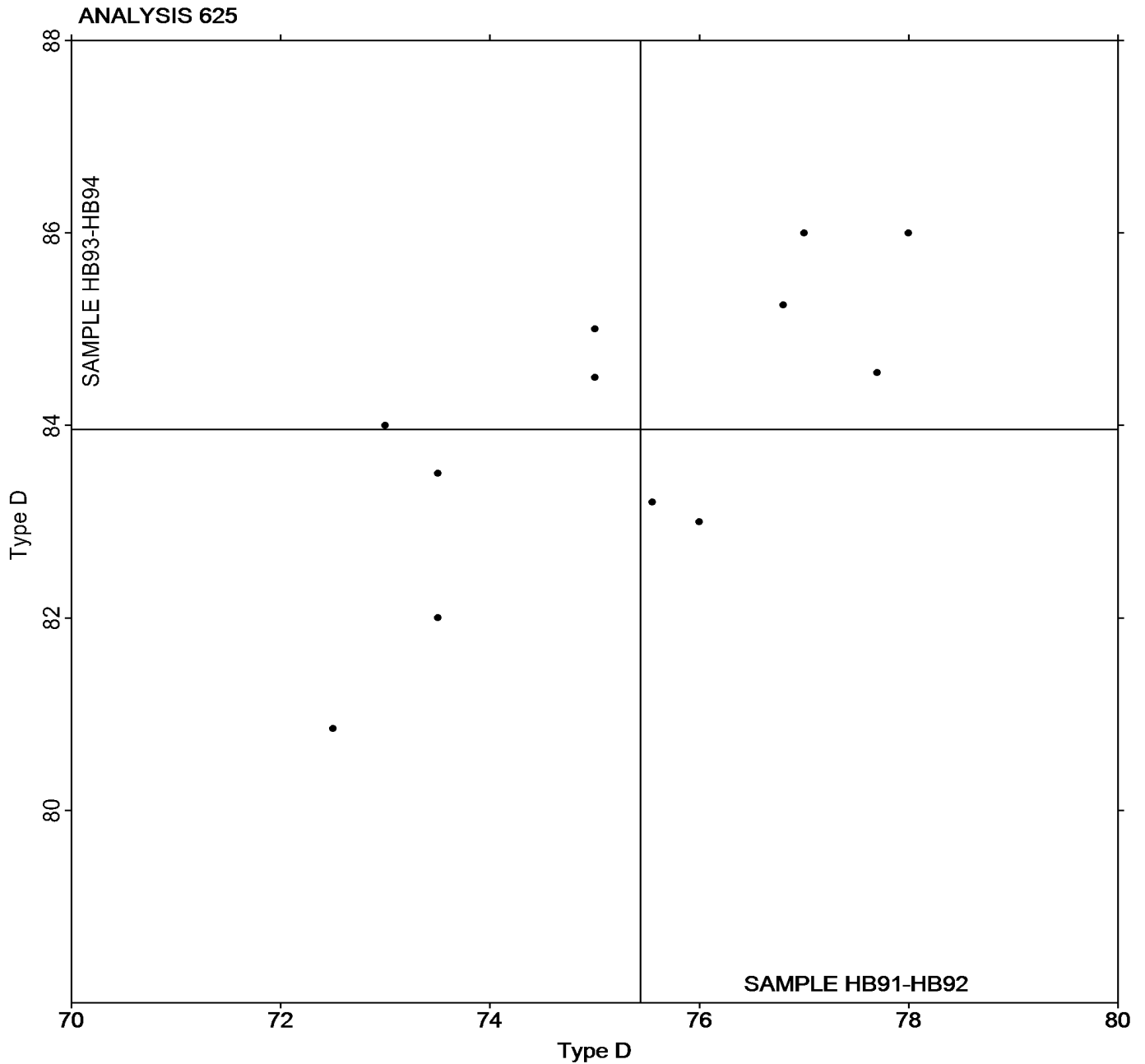


Rubber Interlaboratory Testing Program
Analysis 625
Hardness (Shore D/Type D)

Report #200
2nd Qtr 2019

Grand Mean Sample **HB91-HB92** = 75.437 Type D

Grand Mean Sample **HB93-HB94** = 83.957 Type D



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



Rubber Interlaboratory Testing Program

Report #200

Analysis 630

2nd Qtr 2019

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

WebCode	Data Flag	Sample B91-B92			Sample K91-K92		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
23CYCH		3,584.9	209.5	1.36	3,294.1	218.9	1.17
2MJACE		3,385.5	10.1	0.07	3,074.0	-1.3	-0.01
2UF6CY		3,552.4	177.0	1.15	3,379.4	304.1	1.63
48XGZD		3,407.0	31.6	0.20	3,096.9	21.7	0.12
6HYE8D		3,440.0	64.6	0.42	3,125.0	49.7	0.27
6UAT77	M	No data reported for this sample			3,284.6	209.3	1.12
766GJK		3,370.3	-5.1	-0.03	3,091.1	15.9	0.09
79NGVU	*	3,007.4	-368.0	-2.38	2,645.6	-429.6	-2.30
7VZEC2		3,168.0	-207.4	-1.34	3,059.5	-15.8	-0.08
943BBP		3,445.5	70.1	0.45	2,884.5	-190.8	-1.02
9HXZ3F		3,312.4	-63.0	-0.41	2,979.5	-95.8	-0.51
A4XVH4		3,320.5	-54.9	-0.36	3,013.5	-61.8	-0.33
AQVPL6		3,435.0	59.6	0.39	3,195.5	120.2	0.64
DP6TNL		3,174.2	-201.2	-1.30	2,958.8	-116.5	-0.62
DRD66M		3,301.0	-74.4	-0.48	2,793.5	-281.8	-1.51
EBJZCK		3,330.8	-44.6	-0.29	2,948.7	-126.5	-0.68
GTBPJX		3,517.0	141.6	0.92	3,106.8	31.5	0.17
H8WF2Z		3,292.1	-83.3	-0.54	3,137.2	61.9	0.33
HKHRDA		3,091.0	-284.4	-1.84	2,881.0	-194.3	-1.04
JE79NF		3,215.5	-159.9	-1.04	2,950.8	-124.4	-0.67
M6PVWM		3,442.0	66.6	0.43	2,917.0	-158.3	-0.85
MDZXHN		3,342.0	-33.4	-0.22	3,277.4	202.1	1.08
NMMDN3		3,235.5	-139.9	-0.91	2,957.5	-117.8	-0.63
P92F3Y		3,386.7	11.3	0.07	3,209.7	134.5	0.72
RK2Z8V		3,342.5	-32.9	-0.21	2,882.0	-193.3	-1.03
RK8CVR		3,401.5	26.1	0.17	3,096.0	20.7	0.11
RVKAZV		3,496.8	121.4	0.79	2,948.8	-126.5	-0.68
WAUJR2		3,581.7	206.3	1.34	3,364.9	289.6	1.55
WKRHLT		3,404.9	29.5	0.19	3,244.2	168.9	0.90
X4YCKC	M	No data reported for this sample			3,290.6	215.3	1.15
XD3GHK		3,590.5	215.1	1.39	3,458.5	383.2	2.05
XVQHPK		3,745.9	370.5	2.40	3,331.3	256.0	1.37
XZYZQX		3,420.5	45.1	0.29	2,880.5	-194.8	-1.04
Y7HQND		3,328.6	-46.7	-0.30	3,024.1	-51.2	-0.27
ZFLZU3	*	3,180.5	-194.9	-1.26	3,341.5	266.2	1.43
ZVERDH		3,513.4	138.0	0.89	3,009.8	-65.4	-0.35



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

Report #200
2nd Qtr 2019

		Summary Statistics	
Grand Means			
	3,375.39 psi		3,075.25 psi
Stnd Dev Btwn Labs			
	154.31 psi		186.79 psi
Statistics based on 34 of 36 reporting participants			

		Summary Statistics in SI Units	
Grand Means			
	23.272 MPa		21.20 MPa
Stnd Dev Btwn Labs			
	1.064 MPa		1.29 MPa
Statistics based on 34 of 36 reporting participants			

Samples B91-B92: Polyisoprene compound, batch #1 & K91-K92: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #630

- 6UAT77 (M) - Participant did not submit data for sample group .
- X4YCKC (M) - Participant did not submit data for sample group .



Rubber Interlaboratory Testing Program

Report #200

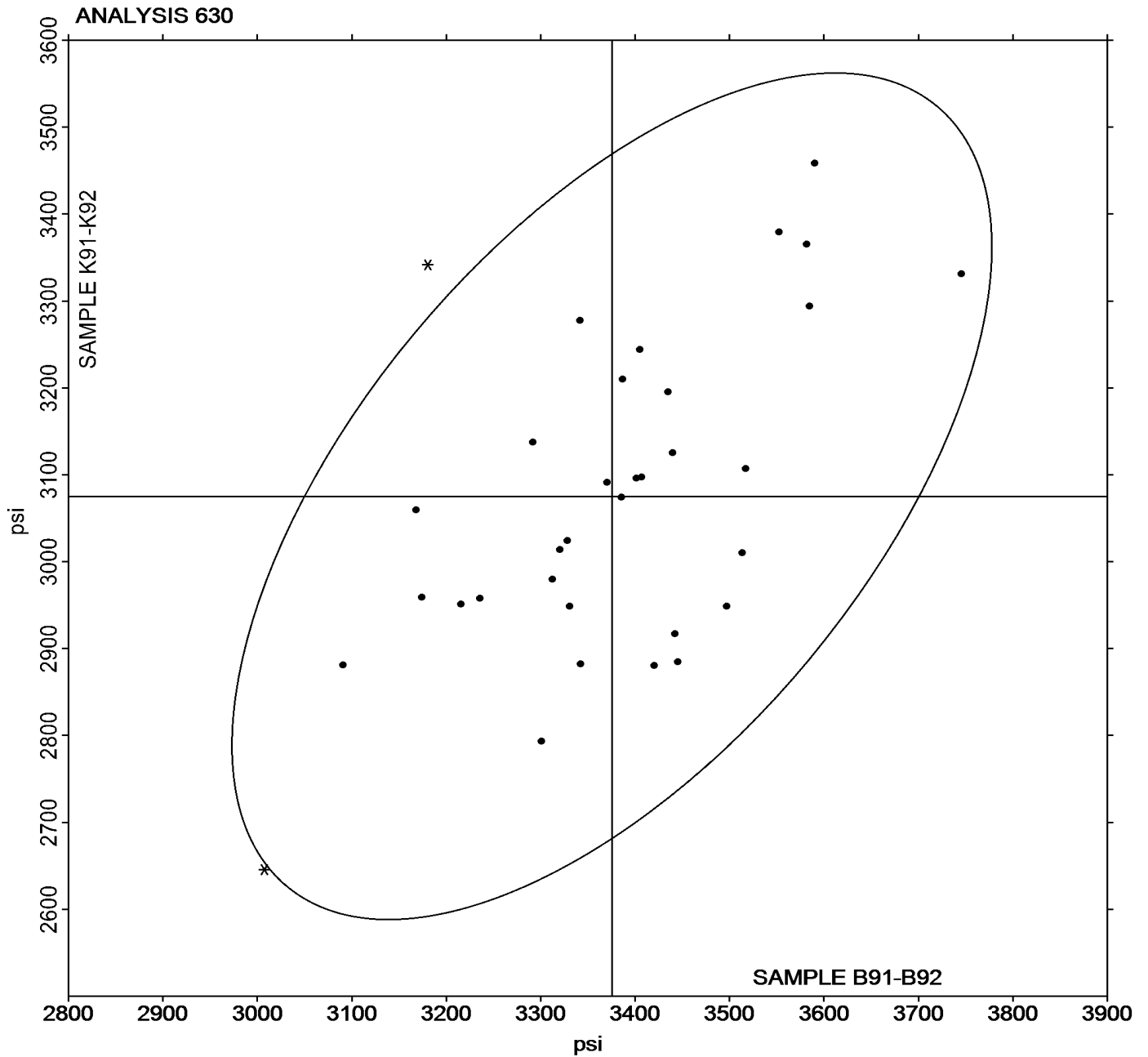
Analysis 630

2nd Qtr 2019

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

Grand Mean Sample **B91-B92** = 3,375.39 psi

Grand Mean Sample **K91-K92** = 3,075.25 psi





Rubber Interlaboratory Testing Program

Report #200

Analysis 631

2nd Qtr 2019

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

WebCode	Data Flag	Sample B91-B92			Sample K91-K92		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
23CYCH		685.5	37.3	1.20	599.0	39.0	1.59
2MJACE		646.5	-1.7	-0.05	537.0	-23.0	-0.94
2UF6CY		650.3	2.1	0.07	577.3	17.2	0.70
48XGZD		634.5	-13.7	-0.44	555.5	-4.5	-0.18
6HYE8D		666.0	17.8	0.57	561.5	1.5	0.06
6UAT77	M	No data reported for this sample			551.5	-8.5	-0.35
766GJK		663.9	15.7	0.50	569.1	9.1	0.37
79NGVU		619.9	-28.3	-0.91	515.2	-44.9	-1.83
7VZEC2		633.5	-14.7	-0.47	554.0	-6.0	-0.24
943BBP		625.0	-23.2	-0.75	536.5	-23.5	-0.96
9HXZ3F		611.6	-36.6	-1.18	558.9	-1.1	-0.05
A4XVH4		596.5	-51.7	-1.66	538.0	-22.0	-0.90
AQVPL6		678.5	30.3	0.97	582.0	22.0	0.90
DP6TNL		635.3	-13.0	-0.42	536.0	-24.0	-0.98
DRD66M		627.0	-21.2	-0.68	545.5	-14.5	-0.59
EBJZCK		666.5	18.3	0.59	580.5	20.5	0.83
GTBPJX		614.6	-33.6	-1.08	533.3	-26.7	-1.09
H8WF2Z		667.7	19.5	0.63	570.7	10.6	0.43
HKHRDA	X	722.0	73.8	2.37	553.5	-6.5	-0.27
JE79NF	*	738.5	90.3	2.90	609.5	49.5	2.02
M6PVWM		679.0	30.8	0.99	594.5	34.5	1.41
MDZXHN		655.8	7.6	0.24	567.2	7.2	0.29
NMMDN3		578.7	-69.5	-2.23	509.8	-50.2	-2.05
P92F3Y		629.5	-18.7	-0.60	561.5	1.5	0.06
RK2Z8V		632.0	-16.2	-0.52	554.0	-6.0	-0.24
RK8CVR		627.0	-21.2	-0.68	534.0	-26.0	-1.06
RVKAZV		668.5	20.3	0.65	569.5	9.5	0.39
WAUJR2	X	796.5	148.3	4.76	662.6	102.6	4.18
WKRHLT		667.7	19.5	0.63	579.8	19.8	0.81
X4YCKC	M	No data reported for this sample			531.5	-28.5	-1.16
XD3GHK		663.5	15.3	0.49	557.0	-3.0	-0.12
XVQHPK		687.2	38.9	1.25	594.2	34.2	1.39
XZYZQX	X	603.0	-45.2	-1.45	464.5	-95.5	-3.89
Y7HQND		642.5	-5.8	-0.18	547.7	-12.4	-0.50
ZFLZU3		664.5	16.3	0.52	590.5	30.5	1.24
ZVERDH		637.4	-10.8	-0.35	541.3	-18.7	-0.76



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

		Summary Statistics	
Grand Means	648.21 percent	560.01 percent	
Stnd Dev Btwn Labs	31.15 percent	24.54 percent	
Statistics based on 31 of 36 reporting participants			

Samples B91-B92: Polyisoprene compound, batch #1 & K91-K92: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #631

- 6UAT77 (M) - Participant did not submit data for sample group .
- HKHRDA (X) - Inconsistent in testing between samples.
- WAUJR2 (X) - Data for all samples are high.
- X4YCKC (M) - Participant did not submit data for sample group .
- XZYZQX (X) - Data for sample group K91-K92 are low.



Rubber Interlaboratory Testing Program

Report #200

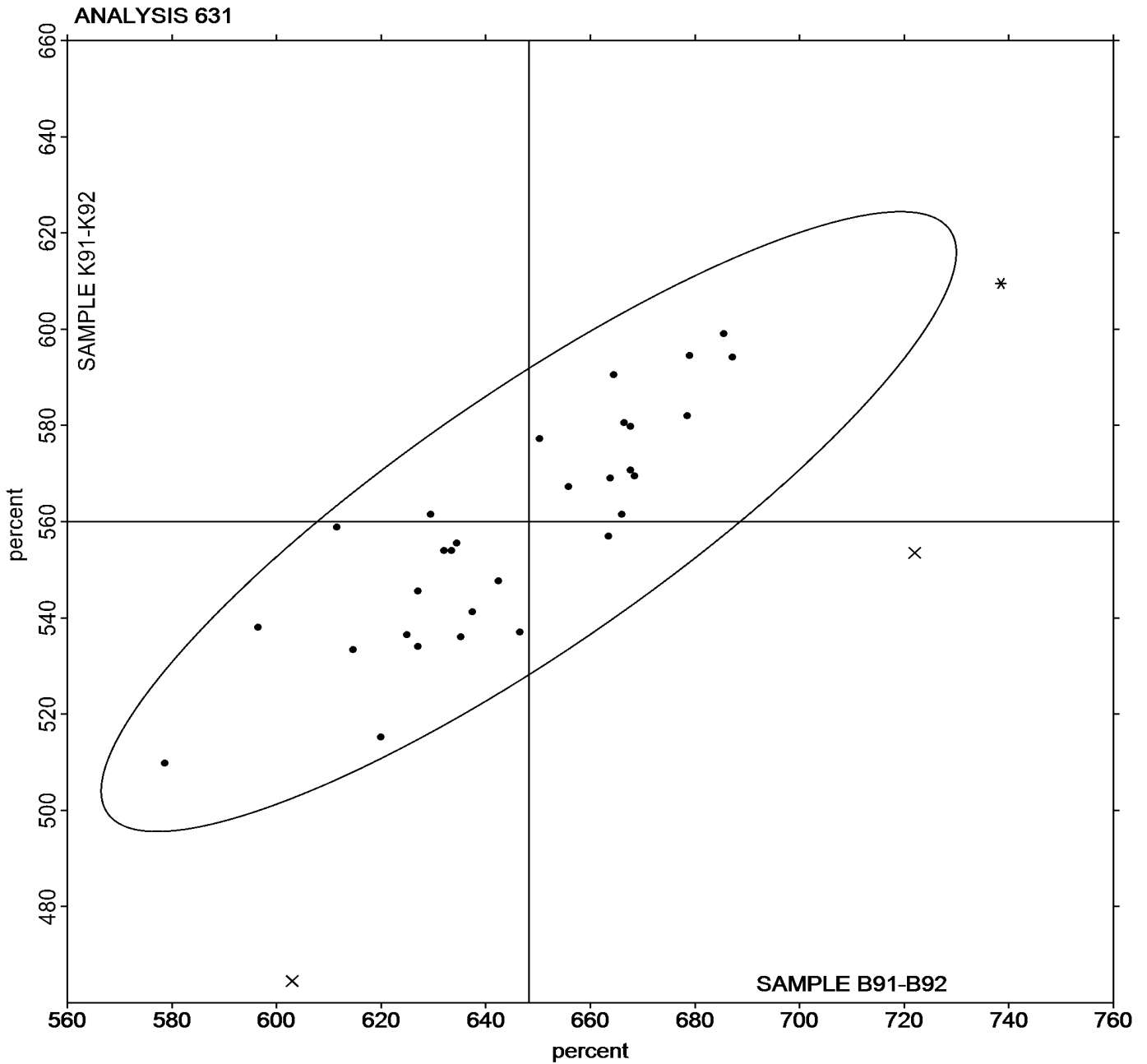
Analysis 631

2nd Qtr 2019

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

Grand Mean Sample B91-B92 = 648.21 percent

Grand Mean Sample K91-K92 = 560.01 percent





Rubber Interlaboratory Testing Program

Report #200

Analysis 632

2nd Qtr 2019

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

WebCode	Data Flag	Sample B91-B92			Sample K91-K92		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
23CYCH		839.5	-26.6	-0.30	1,152.1	-23.6	-0.26
2MJACE		845.5	-20.6	-0.24	1,271.5	95.8	1.04
2UF6CY		878.7	12.6	0.14	1,231.4	55.7	0.60
48XGZD		886.0	19.9	0.23	1,175.5	-0.2	0.00
6HYE8D		856.0	-10.1	-0.12	1,205.5	29.8	0.32
6UAT77	M	No data reported for this sample			1,310.1	134.4	1.46
766GJK		852.2	-13.9	-0.16	1,177.0	1.3	0.01
79NGVU		816.4	-49.6	-0.57	1,128.2	-47.5	-0.52
7VZEC2		883.5	17.4	0.20	1,267.5	91.8	1.00
943BBP		937.0	70.9	0.81	1,145.0	-30.7	-0.33
9HXZ3F		958.5	92.5	1.06	1,154.2	-21.5	-0.23
A4XVH4		961.0	94.9	1.09	1,179.0	3.3	0.04
AQVPL6		800.5	-65.6	-0.75	1,165.5	-10.2	-0.11
DP6TNL		808.9	-57.2	-0.66	1,210.3	34.5	0.37
DRD66M	*	947.5	81.4	0.93	1,011.5	-164.2	-1.78
EBJZCK		855.4	-10.7	-0.12	1,080.0	-95.7	-1.04
GTBPJX		932.6	66.5	0.76	1,265.6	89.9	0.98
H8WF2Z		794.0	-72.1	-0.83	1,194.3	18.5	0.20
HKHRDA	*	646.0	-220.1	-2.52	1,110.0	-65.7	-0.71
JE79NF	*	648.3	-217.8	-2.50	954.4	-221.4	-2.40
M6PVWM		868.5	2.4	0.03	998.5	-177.2	-1.92
MDZXHN		845.7	-20.4	-0.23	1,220.2	44.4	0.48
NMMDN3	*	1,093.5	227.4	2.61	1,407.0	231.2	2.51
P92F3Y		904.3	38.2	0.44	1,249.5	73.8	0.80
RK2Z8V		878.5	12.4	0.14	1,083.5	-92.2	-1.00
RK8CVR		885.5	19.4	0.22	1,279.0	103.3	1.12
RVKAZV		855.2	-10.8	-0.12	1,128.7	-47.1	-0.51
WAUJR2		732.8	-133.3	-1.53	1,091.9	-83.8	-0.91
WKRHLT		838.8	-27.3	-0.31	1,186.8	11.1	0.12
X4YCKC	M	No data reported for this sample			1,386.1	210.4	2.28
XD3GHK		937.0	70.9	0.81	1,332.5	156.8	1.70
XVQHPK		872.8	6.7	0.08	1,146.5	-29.3	-0.32
XZYZQX		990.0	123.9	1.42	1,263.0	87.3	0.95
Y7HQND		886.2	20.1	0.23	1,198.7	23.0	0.25
ZFLZU3		783.5	-82.6	-0.95	1,149.0	-26.7	-0.29
ZVERDH		927.1	61.0	0.70	1,161.6	-14.1	-0.15



Rubber Interlaboratory Testing Program

Report #200

Analysis 632

2nd Qtr 2019

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

		Summary Statistics	
Grand Means	866.08 psi	1,175.73 psi	
Stnd Dev Btwn Labs	87.26 psi	92.16 psi	
Statistics based on 34 of 36 reporting participants			

		Summary Statistics in SI Units	
Grand Means	5.9714 MPa	8.11 MPa	
Stnd Dev Btwn Labs	0.6016 MPa	0.64 MPa	
Statistics based on 34 of 36 reporting participants			

Samples B91-B92: Polyisoprene compound, batch #1 & K91-K92: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #632

6UAT77 (M) - Participant did not submit data for sample group .

X4YCKC (M) - Participant did not submit data for sample group .



Rubber Interlaboratory Testing Program

Report #200

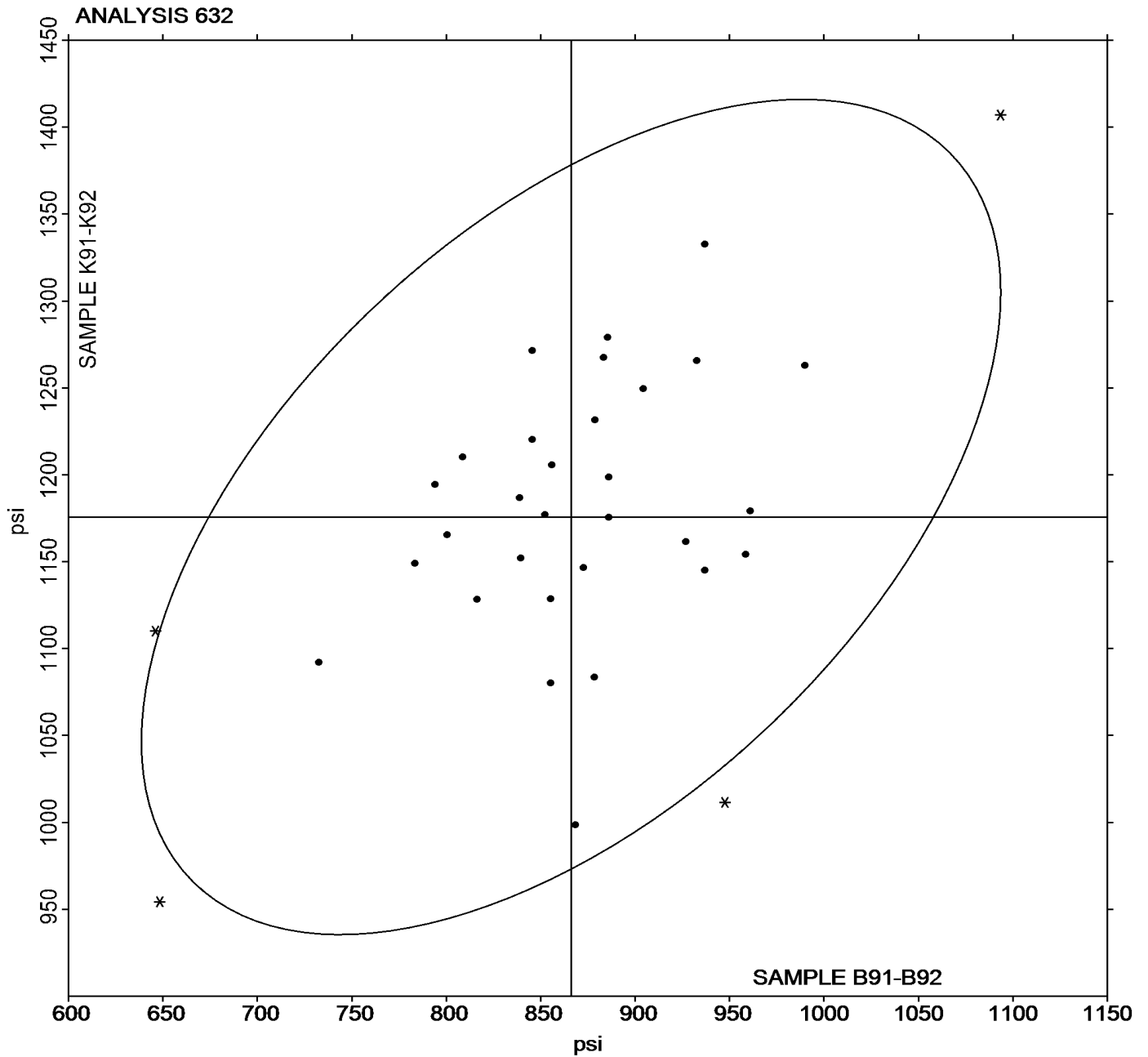
Analysis 632

2nd Qtr 2019

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

Grand Mean Sample **B91-B92** = 866.08 psi

Grand Mean Sample **K91-K92** = 1,175.73 psi





Rubber Interlaboratory Testing Program

Report #200

Analysis 633

2nd Qtr 2019

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

WebCode	Data Flag	Sample B91-B92			Sample K91-K92		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
23CYCH		197.6	-3.6	-0.23	265.6	2.2	0.11
2MJACE		209.0	7.8	0.51	296.0	32.6	1.55
2UF6CY		200.3	-0.9	-0.06	282.0	18.6	0.88
48XGZD		198.5	-2.7	-0.18	259.5	-3.9	-0.18
6HYE8D		172.5	-28.7	-1.87	267.5	4.1	0.20
6UAT77	M	No data reported for this sample			284.8	21.4	1.02
766GJK		210.9	9.7	0.63	274.5	11.1	0.53
79NGVU		193.7	-7.6	-0.49	257.2	-6.2	-0.30
7VZEC2	X	470.0	268.8	17.51	696.5	433.1	20.60
943BBP		202.5	1.3	0.08	243.0	-20.4	-0.97
9HXZ3F		228.5	27.2	1.77	261.4	-2.0	-0.10
A4XVH4		206.5	5.3	0.34	253.0	-10.4	-0.49
AQVPL6		187.0	-14.2	-0.93	262.0	-1.4	-0.07
DP6TNL		201.7	0.5	0.03	286.2	22.8	1.08
DRD66M	*	220.0	18.8	1.22	225.0	-38.4	-1.83
EBJZCK		214.3	13.0	0.85	267.8	4.4	0.21
GTBPJX		203.4	2.2	0.14	267.7	4.3	0.21
H8WF2Z		182.3	-19.0	-1.24	265.2	1.8	0.09
HKHRDA		169.5	-31.7	-2.07	248.5	-14.9	-0.71
JE79NF		171.9	-29.4	-1.91	234.2	-29.1	-1.39
M6PVWM		205.0	3.8	0.25	222.5	-40.9	-1.94
MDZXHN		190.5	-10.7	-0.70	257.8	-5.6	-0.27
NMMDN3	*	243.9	42.6	2.78	318.9	55.5	2.64
P92F3Y		206.7	5.4	0.35	281.4	18.0	0.86
RK2Z8V		201.0	-0.2	-0.02	245.0	-18.4	-0.87
RK8CVR		206.0	4.8	0.31	285.5	22.1	1.05
RVKAZV		197.3	-3.9	-0.25	245.5	-17.9	-0.85
WAUJR2		209.7	8.5	0.55	301.6	38.2	1.82
X4YCKC	M	No data reported for this sample			299.0	35.6	1.69
XD3GHK		207.0	5.8	0.38	267.0	3.6	0.17
XVQHPK		207.3	6.1	0.40	271.7	8.3	0.39
XZYZQX		206.0	4.8	0.31	247.5	-15.9	-0.76
Y7HQND		194.4	-6.9	-0.45	253.8	-9.6	-0.45
ZFLZU3		186.0	-15.2	-0.99	268.0	4.6	0.22
ZVERDH		208.8	7.6	0.49	245.8	-17.5	-0.83



Rubber Interlaboratory Testing Program

Report #200

Analysis 633

2nd Qtr 2019

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

		Summary Statistics	
Grand Means	201.24 psi	263.38 psi	
Stnd Dev Btwn Labs	15.35 psi	21.03 psi	
Statistics based on 32 of 35 reporting participants			

		Summary Statistics in SI Units	
Grand Means	1.3875 MPa	1.82 MPa	
Stnd Dev Btwn Labs	0.1058 MPa	0.14 MPa	
Statistics based on 32 of 35 reporting participants			

Samples B91-B92: Polyisoprene compound, batch #1 & K91-K92: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #633

6UAT77 (M) - Participant did not submit data for sample group .

7VZEC2 (X) - Extreme Data.

X4YCKC (M) - Participant did not submit data for sample group .



Rubber Interlaboratory Testing Program

Report #200

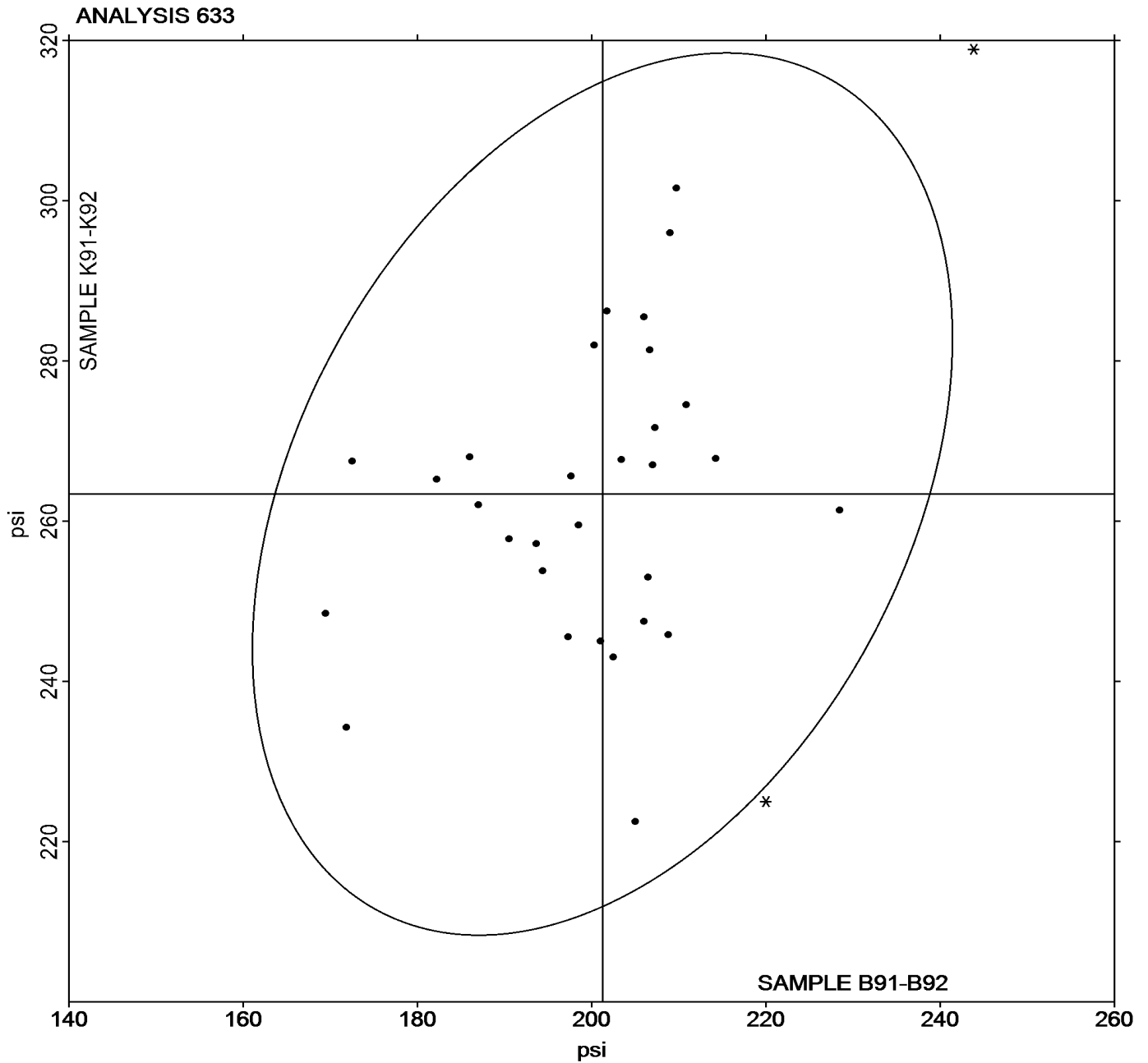
Analysis 633

2nd Qtr 2019

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

Grand Mean Sample **B91-B92** = 201.24 psi

Grand Mean Sample **K91-K92** = 263.38 psi





Rubber Interlaboratory Testing Program
Analysis 635
Compression Set Method B

Report #200
2nd Qtr 2019

WebCode	Data Flag	Sample O91			Sample O92		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2MJACE		20.33	-4.66	-0.92	21.00	-4.28	-1.00
48XGZD	X	57.78	32.78	6.49	51.13	25.84	6.05
4F8Z2N		28.25	3.25	0.64	27.24	1.95	0.46
7VZEC2		21.67	-3.33	-0.66	20.33	-4.95	-1.16
9HXZ3F		21.00	-4.00	-0.79	22.57	-2.72	-0.64
A4XVH4		21.34	-3.66	-0.72	22.69	-2.60	-0.61
AMAH7W		30.60	5.60	1.11	27.37	2.08	0.49
BURQ8J		20.13	-4.86	-0.96	19.03	-6.25	-1.46
DMLUCC		31.85	6.85	1.35	29.70	4.42	1.03
F9C2EW		21.57	-3.43	-0.68	23.80	-1.48	-0.35
JPQFM6		19.33	-5.66	-1.12	23.00	-2.28	-0.53
K2ZFW4		18.12	-6.88	-1.36	18.29	-6.99	-1.64
KKPXKV		23.99	-1.00	-0.20	23.26	-2.03	-0.47
LFUJDZ		27.33	2.34	0.46	21.00	-4.28	-1.00
M6PVWM		28.00	3.00	0.59	28.67	3.38	0.79
NMMDN3		21.07	-3.93	-0.78	26.77	1.48	0.35
RDK2MC		27.53	2.54	0.50	32.53	7.25	1.70
VH94HT		31.00	6.00	1.19	30.33	5.05	1.18
X4YCKC		23.98	-1.01	-0.20	25.63	0.35	0.08
XVQHPK	*	36.10	11.10	2.20	26.23	0.95	0.22
YEEGDU		21.10	-3.90	-0.77	28.53	3.25	0.76
ZVERDH		30.67	5.67	1.12	33.00	7.72	1.81

Summary Statistics	
Grand Means	24.998 % Compression
	25.284 % Compression
Std Dev Btwn Labs	5.055 % Compression
	4.274 % Compression
Statistics based on 21 of 22 reporting participants	

Samples O91: EPDM compound, batch #1 & O92: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #635

48XGZD (X) - Extreme data.

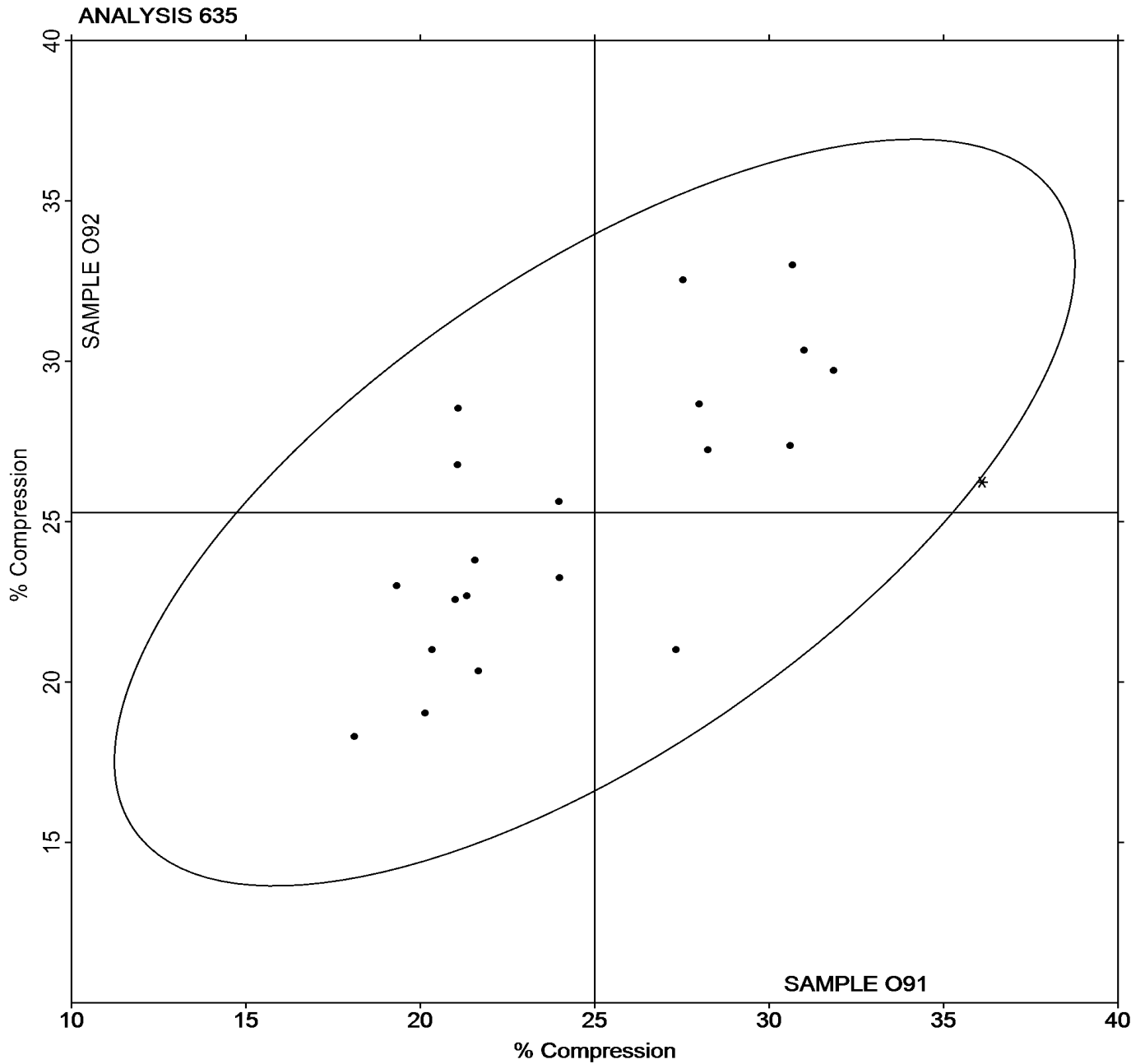


Rubber Interlaboratory Testing Program
Analysis 635
Compression Set Method B

Report #200
2nd Qtr 2019

Grand Mean Sample **O91** = 24.998 % Compression

Grand Mean Sample **O92** = 25.284 % Compression





Rubber Interlaboratory Testing Program

Report #200

Analysis 660

2nd Qtr 2019

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

WebCode	Data Flag	Sample T91-T92			Sample T93-T94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
23CYCH		47.35	0.10	0.09	53.70	-0.41	-0.42	MR
2MLXYK		46.90	-0.35	-0.33	54.20	0.09	0.09	MR
2UF6CY		45.39	-1.86	-1.74	52.68	-1.43	-1.48	MV
48XGZD		46.51	-0.74	-0.70	53.84	-0.27	-0.28	MV
4LHYV3		47.00	-0.25	-0.24	53.85	-0.26	-0.27	MR
4LY8LH		48.23	0.98	0.92	55.17	1.06	1.09	MR
6HYE8D		46.43	-0.82	-0.77	53.28	-0.83	-0.85	MR
6UAT77		47.98	0.73	0.68	54.78	0.67	0.70	MR
766GJK		47.48	0.23	0.21	54.75	0.64	0.66	MV
79NGVU	X	45.33	-1.92	-1.79	55.50	1.39	1.44	MV
7VZEC2		45.18	-2.07	-1.93	52.42	-1.69	-1.75	MR
943BBP		46.42	-0.84	-0.78	53.38	-0.73	-0.75	ML
9R93NF		48.07	0.81	0.76	54.60	0.49	0.51	MR
9VT2PH		47.87	0.61	0.57	54.20	0.09	0.09	MR
A2BUEL		44.62	-2.63	-2.46	51.89	-2.22	-2.29	XX
A42WKA		46.30	-0.95	-0.89	53.68	-0.43	-0.44	MR
A4XVH4		46.32	-0.93	-0.87	53.42	-0.69	-0.72	MV
DMLUCC		48.40	1.15	1.07	55.38	1.27	1.32	MP
DP6TNL	M	52.31	5.06	4.73	No data reported for this sample			MR
DRD66M	X	49.13	1.88	1.76	53.80	-0.31	-0.32	XX
EBJZCK		48.34	1.08	1.01	55.21	1.10	1.14	MV
GUCD74	*	45.57	-1.69	-1.58	51.57	-2.54	-2.63	MR
HKHRDA		47.72	0.46	0.43	54.50	0.39	0.40	MV
JE79NF		49.07	1.82	1.70	55.60	1.48	1.53	MV
K448NG		47.65	0.40	0.37	54.07	-0.04	-0.04	MR
KMVFJQ		47.57	0.32	0.30	54.86	0.75	0.77	MR
P92F3Y		47.37	0.11	0.11	54.53	0.42	0.44	MR
QFGFTV	*	49.84	2.59	2.42	55.67	1.56	1.61	TA
QQUKZR		48.22	0.96	0.90	55.13	1.02	1.06	MR
RBXLQ4		47.28	0.03	0.03	54.80	0.69	0.71	MR
RK8CVR		46.95	-0.30	-0.28	54.07	-0.04	-0.04	MR
RVKAZV		47.08	-0.17	-0.16	53.73	-0.38	-0.39	TV
V63XJM	X	45.55	-1.70	-1.59	54.84	0.72	0.75	MV
WAUJR2		47.55	0.30	0.28	54.32	0.21	0.21	MR
X8W8C8		46.53	-0.72	-0.67	53.70	-0.41	-0.42	MR
XD3GHK		47.16	-0.10	-0.09	54.07	-0.04	-0.04	MR
XVQHPK		47.80	0.55	0.51	54.82	0.71	0.73	MR



Rubber Interlaboratory Testing Program

Report #200

Analysis 660

2nd Qtr 2019

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

WebCode	Data Flag	Sample T91-T92			Sample T93-T94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
Y29AEP	*	48.16	0.91	0.85	53.84	-0.28	-0.28	MR
Y7HQND		47.07	-0.19	-0.17	53.35	-0.76	-0.79	MR
ZFLZU3		47.73	0.48	0.45	54.92	0.81	0.83	MV

Grand Means		Summary Statistics	
	47.253 ML 1 + 4		54.110 ML 1 + 4
Std Dev Btwn Labs	1.070 ML 1 + 4		0.968 ML 1 + 4
Statistics based on 36 of 40 reporting participants			

Samples T91-T92: NBR & T93-T94: BUTYL

Comments on Assigned Data Flags for Test #660

79NGVU (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group T91-T92.

DP6TNL (M) - Participant did not submit data for sample group .

DRD66M (X) - Inconsistent in testing between samples.

V63XJM (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group T91-T92.

Key to Instrument Codes Reported by Participants

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

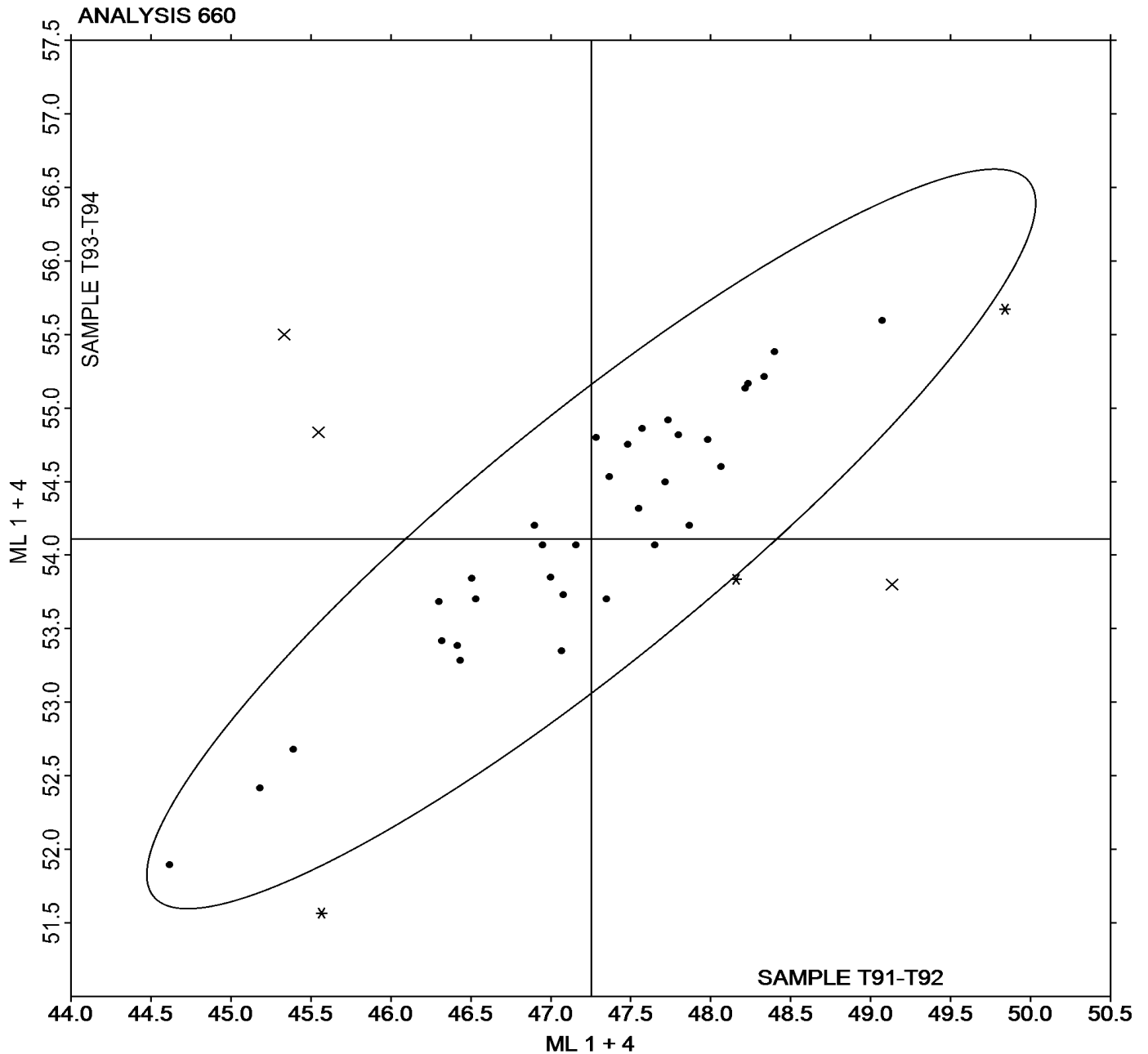


Rubber Interlaboratory Testing Program
Analysis 660
Mooney Viscosity: 4-minute readings (ML 1 + 4)

Report #200
2nd Qtr 2019

Grand Mean Sample **T91-T92** = 47.253 ML 1 + 4

Grand Mean Sample **T93-T94** = 54.110 ML 1 + 4





Rubber Interlaboratory Testing Program

Report #200

Analysis 661

2nd Qtr 2019

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

WebCode	Data Flag	Sample T91-T92			Sample T93-T94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
23CYCH		47.35	0.20	0.20	50.78	-0.87	-0.95	MR
2MLXYK		46.90	-0.25	-0.25	51.53	-0.12	-0.13	MR
2UF6CY		45.39	-1.76	-1.75	50.67	-0.98	-1.07	MV
48XGZD		46.51	-0.64	-0.64	51.38	-0.27	-0.29	MV
4LHYV3		47.00	-0.15	-0.15	51.60	-0.05	-0.05	MR
6HYE8D		46.43	-0.72	-0.71	50.76	-0.89	-0.98	MR
6UAT77		47.98	0.83	0.82	52.62	0.97	1.06	MR
766GJK		47.48	0.33	0.33	52.06	0.41	0.45	MV
79NGVU	*	45.33	-1.82	-1.80	52.99	1.34	1.47	MV
7VZEC2		45.18	-1.97	-1.95	50.57	-1.08	-1.19	MR
943BBP		46.42	-0.74	-0.73	49.60	-2.05	-2.25	ML
9VT2PH		47.87	0.71	0.71	51.47	-0.18	-0.20	MR
A42WKA		46.30	-0.85	-0.85	51.13	-0.52	-0.57	MR
A4XVH4		46.32	-0.83	-0.83	50.99	-0.66	-0.73	MV
DMLUCC		48.40	1.25	1.24	52.55	0.90	0.99	MP
DP6TNL	X	52.31	5.16	5.11	53.70	2.05	2.25	MR
DRD66M		49.13	1.98	1.96	51.50	-0.15	-0.16	XX
EBJZCK		48.34	1.18	1.17	52.00	0.35	0.38	MV
GUCD74		45.57	-1.59	-1.57	49.40	-2.25	-2.46	MR
HKHRDA		47.72	0.56	0.56	52.00	0.35	0.38	MV
JE79NF		49.07	1.92	1.90	53.65	2.00	2.19	MV
K448NG		47.65	0.50	0.49	51.90	0.25	0.28	MR
KMVFJQ		47.57	0.42	0.42	52.67	1.02	1.12	MR
P92F3Y		47.37	0.21	0.21	51.60	-0.05	-0.05	MR
QQUKZR		48.22	1.06	1.05	52.13	0.48	0.53	MR
RBXLQ4		47.28	0.13	0.13	52.13	0.48	0.53	MR
RK8CVR		46.95	-0.20	-0.20	51.70	0.05	0.06	MR
RVKAZV		47.08	-0.07	-0.07	50.79	-0.86	-0.94	TV
V63XJM	*	45.55	-1.60	-1.59	52.85	1.20	1.31	MV
WAUJR2		47.55	0.40	0.39	52.52	0.87	0.95	MR
X8W8C8		46.53	-0.62	-0.61	51.42	-0.23	-0.25	MR
XD3GHK		47.16	0.00	0.00	51.13	-0.52	-0.57	MR
XVQHPK		47.80	0.65	0.64	52.48	0.83	0.91	MR
Y29AEP		48.16	1.01	1.00	51.65	0.00	0.00	MR
Y7HQND		47.07	-0.09	-0.09	51.03	-0.62	-0.67	MR
ZFLZU3		47.73	0.58	0.58	52.46	0.81	0.89	MV



Rubber Interlaboratory Testing Program

Report #200

Analysis 661

2nd Qtr 2019

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

		Summary Statistics	
Grand Means	47.153 ML 1 + 8	51.649 ML 1 + 8	
Stnd Dev Btwn Labs	1.008 ML 1 + 8	0.913 ML 1 + 8	
Statistics based on 35 of 36 reporting participants			

Samples T91-T92: NBR & T93-T94: BUTYL

Comments on Assigned Data Flags for Test #661

DP6TNL (X) - Data for sample group T91-T92 are high.

Key to Instrument Codes Reported by Participants

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



Rubber Interlaboratory Testing Program

Report #200

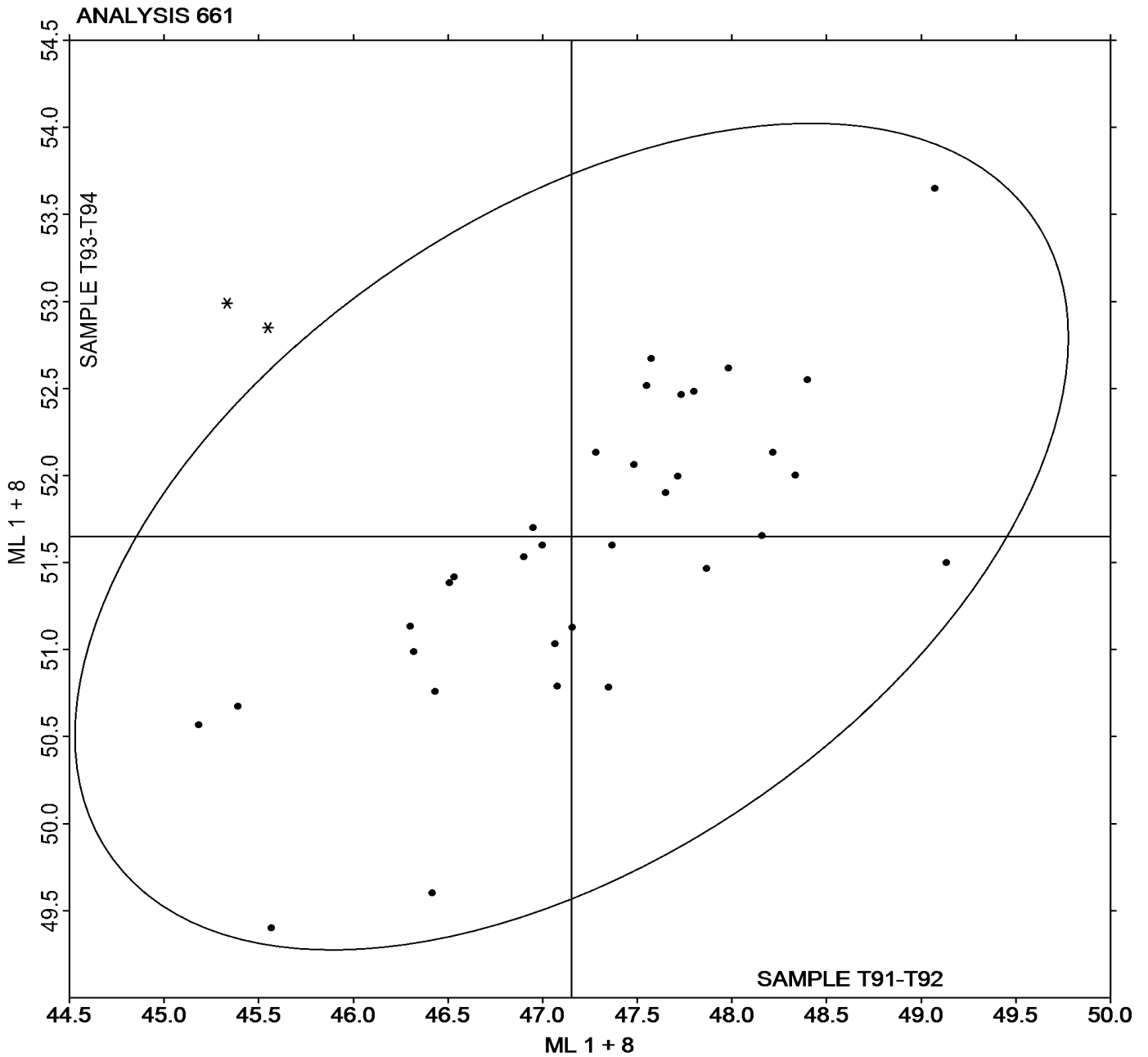
Analysis 661

2nd Qtr 2019

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

Grand Mean Sample T91-T92 = 47.153 ML 1 + 8

Grand Mean Sample T93-T94 = 51.649 ML 1 + 8





Rubber Interlaboratory Testing Program

Report #200

Analysis 662

2nd Qtr 2019

Mooney Stress Relaxation: t80 (seconds)

WebCode	Data Flag	Sample T91-T92			Sample T93-T94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
23CYCH		5.267	-0.149	-0.08	7.593	-0.484	-0.32	MR
2MLXYK		5.417	0.001	0.00	8.050	-0.028	-0.02	MR
2UF6CY	X	542.200	536.784	295.45	545.300	537.222	350.95	MV
48XGZD		3.600	-1.816	-1.00	6.600	-1.478	-0.97	MV
766GJK		5.060	-0.356	-0.20	5.120	-2.958	-1.93	MV
79NGVU		9.035	3.619	1.99	9.110	1.032	0.67	MV
9R93NF		5.400	-0.016	-0.01	9.700	1.622	1.06	MR
A4XVH4		3.867	-1.549	-0.85	6.333	-1.744	-1.14	MV
DP6TNL		6.563	1.147	0.63	8.990	0.912	0.60	MR
DRD66M		5.817	0.401	0.22	8.267	0.189	0.12	XX
EBJZCK		5.000	-0.416	-0.23	8.667	0.589	0.38	MV
HKHRDA		3.567	-1.849	-1.02	6.333	-1.744	-1.14	MV
JE79NF		3.800	-1.616	-0.89	6.600	-1.478	-0.97	MV
K448NG		6.940	1.524	0.84	9.453	1.376	0.90	MR
P92F3Y		4.962	-0.454	-0.25	7.842	-0.236	-0.15	MR
QFGFTV		5.433	0.017	0.01	11.067	2.989	1.95	TA
RK8CVR		4.930	-0.486	-0.27	7.753	-0.324	-0.21	MR
RVKAZV	*	11.065	5.649	3.11	11.138	3.061	2.00	TV
X8W8C8		3.800	-1.616	-0.89	7.917	-0.161	-0.11	MR
XVQHPK		4.817	-0.599	-0.33	8.263	0.186	0.12	MR
Y7HQND		5.300	-0.116	-0.06	8.200	0.122	0.08	MR
ZFLZU3		4.100	-1.316	-0.72	6.633	-1.444	-0.94	MV

Grand Means		Summary Statistics	
	5.4161 seconds		8.0776 seconds
Std Dev Btwn Labs	1.8168 seconds		1.5308 seconds
Statistics based on 21 of 22 reporting participants			

Samples T91-T92: NBR & T93-T94: BUTYL

Comments on Assigned Data Flags for Test #662

2UF6CY (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

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

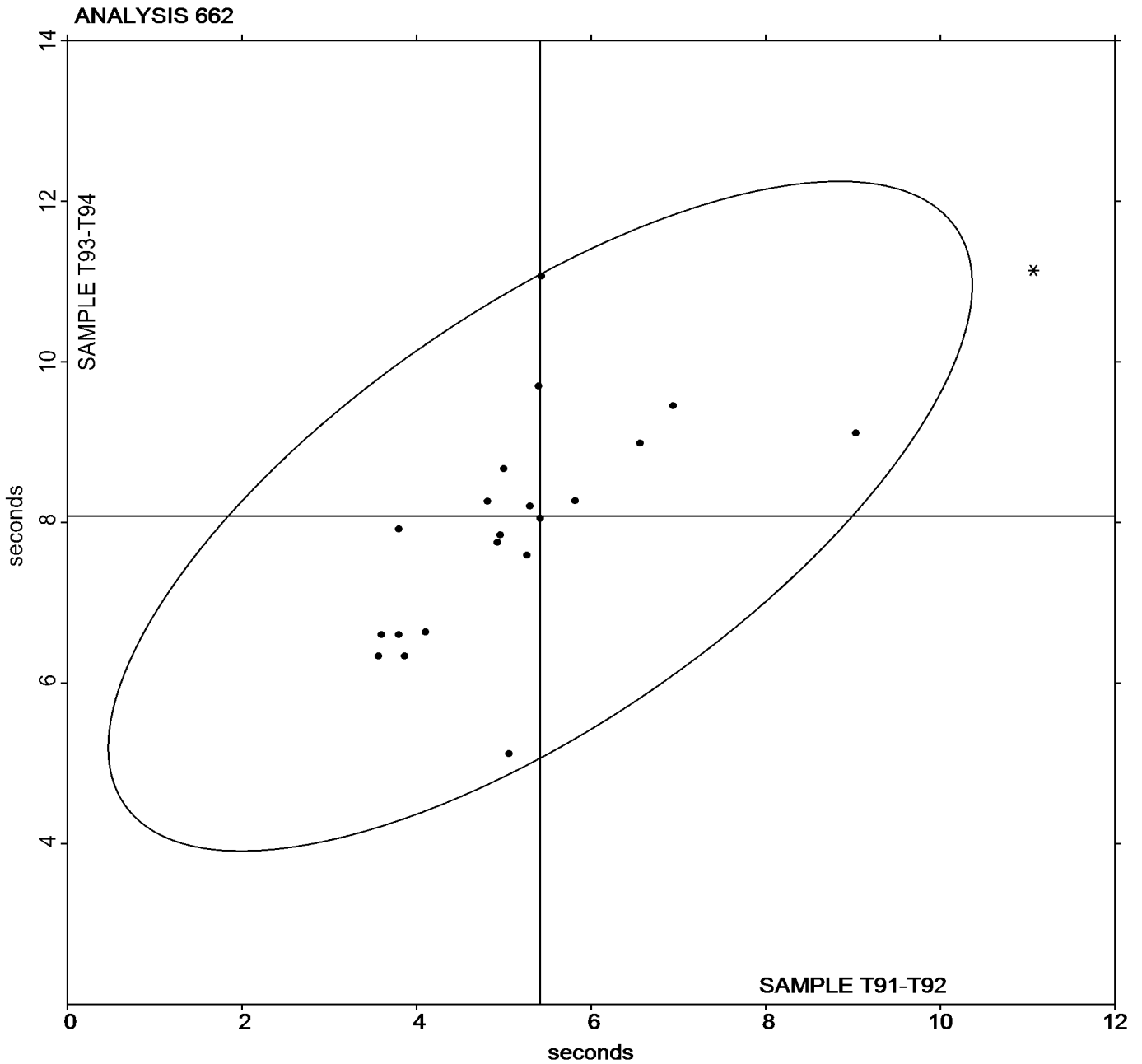


Rubber Interlaboratory Testing Program
Analysis 662
Mooney Stress Relaxation: t80 (seconds)

Report #200
2nd Qtr 2019

Grand Mean Sample T91-T92 = 5.4161 seconds

Grand Mean Sample T93-T94 = 8.0776 seconds





Rubber Interlaboratory Testing Program

Report #200

Analysis 663

2nd Qtr 2019

Mooney Stress Relaxation: X30 (percent)

WebCode	Data Flag	Sample T91-T92			Sample T93-T94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
23CYCH		90.98	-1.41	-0.57	91.89	-0.36	-0.17	MR
2MLXYK		90.78	-1.61	-0.65	91.47	-0.78	-0.37	MR
2UF6CY	*	100.00	7.61	3.08	98.31	6.06	2.90	MV
48XGZD		94.09	1.70	0.69	93.57	1.33	0.64	MV
766GJK		93.65	1.26	0.51	92.88	0.63	0.30	MV
79NGVU	X	97.39	5.00	2.02	91.34	-0.90	-0.43	MZ
A4XVH4		93.45	1.06	0.43	93.82	1.57	0.75	MV
DP6TNL	X	71.50	-20.89	-8.46	83.65	-8.59	-4.11	MR
DRD66M		89.83	-2.56	-1.03	90.83	-1.41	-0.68	XX
EBJZCK		92.24	-0.15	-0.06	91.48	-0.76	-0.37	MV
HKHRDA		93.87	1.48	0.60	94.03	1.79	0.86	MV
JE79NF		94.83	2.44	0.99	94.33	2.09	1.00	MV
K448NG		88.25	-4.14	-1.68	89.23	-3.02	-1.44	MR
P92F3Y		91.02	-1.37	-0.55	91.48	-0.76	-0.36	MR
QFGFTV		90.56	-1.83	-0.74	88.94	-3.31	-1.58	TA
RK8CVR		90.98	-1.41	-0.57	91.56	-0.68	-0.33	MR
RVKAZV		92.26	-0.13	-0.05	90.90	-1.34	-0.64	TV
X8W8C8		93.07	0.68	0.27	91.72	-0.53	-0.25	MR
XVQHPK		91.32	-1.07	-0.43	91.08	-1.17	-0.56	MR
Y7HQND		91.47	-0.92	-0.37	91.68	-0.56	-0.27	MR
ZFLZU3		92.75	0.36	0.15	93.44	1.19	0.57	MV

Grand Means		Summary Statistics	
	92.389 percent		92.243 percent
Std Dev Btwn Labs	2.469 percent		2.089 percent
Statistics based on 19 of 21 reporting participants			

Samples T91-T92: NBR & T93-T94: BUTYL

Comments on Assigned Data Flags for Test #663

79NGVU (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both sample groups.

DP6TNL (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of both sample groups.

Key to Instrument Codes Reported by Participants

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

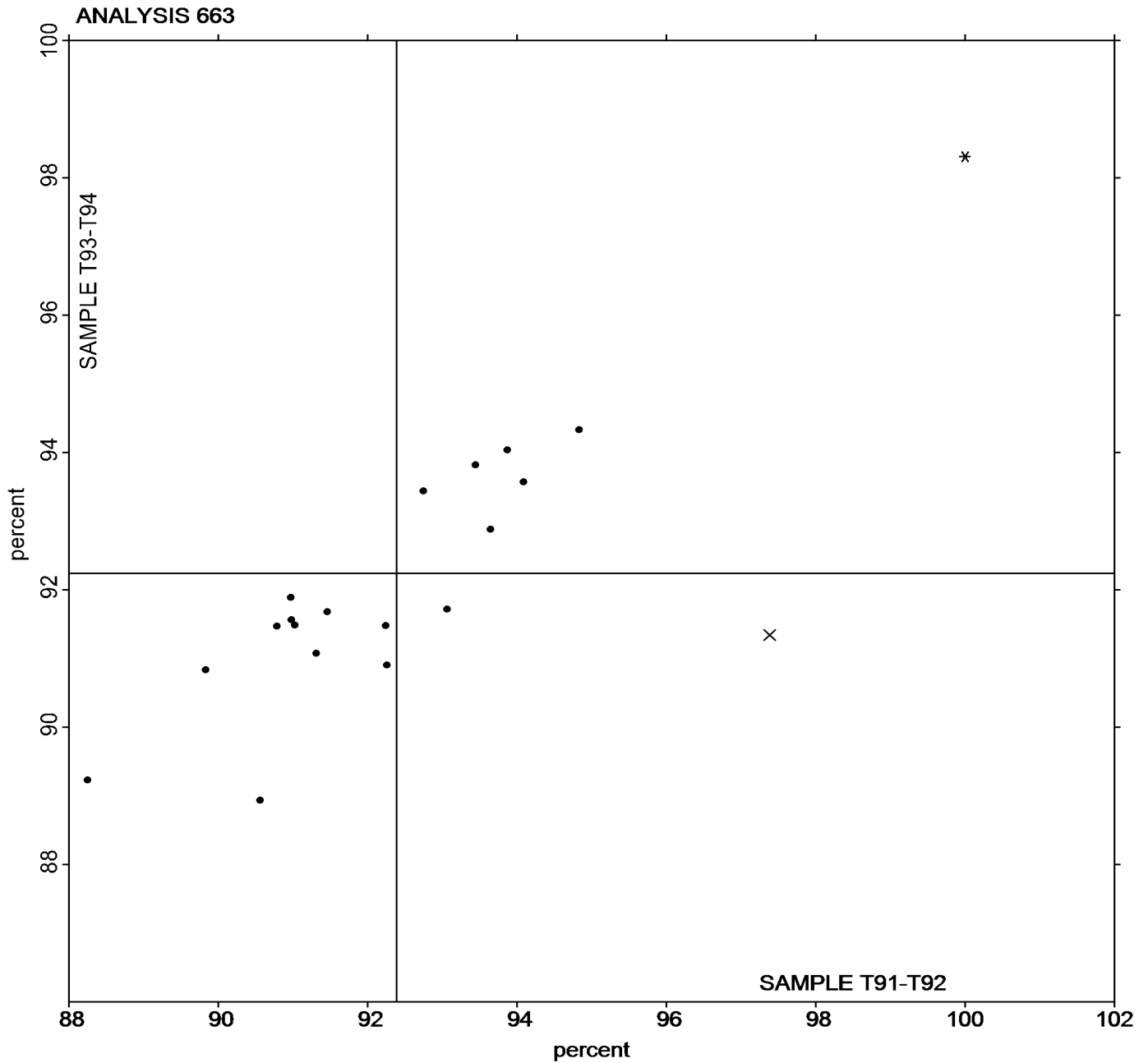


Rubber Interlaboratory Testing Program
Analysis 663
Mooney Stress Relaxation: X30 (percent)

Report #200
2nd Qtr 2019

Grand Mean Sample T91-T92 = 92.389 percent

Grand Mean Sample T93-T94 = 92.243 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 #200

Analysis 664

2nd Qtr 2019

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

WebCode	Data Flag	Sample T91-T92			Sample T93-T94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
23CYCH		458.3	47.6	0.49	466.8	-0.5	-0.01	MR
2MLXYK		467.3	56.6	0.58	490.3	23.0	0.25	MR
2UF6CY	X	50.5	-360.2	-3.71	156.6	-310.7	-3.40	MV
48XGZD		279.0	-131.7	-1.36	349.8	-117.5	-1.29	MV
766GJK		314.8	-95.9	-0.99	418.3	-49.0	-0.54	MV
79NGVU	X	128.6	-282.1	-2.90	405.5	-61.8	-0.68	MZ
A4XVH4		314.5	-96.2	-0.99	341.6	-125.8	-1.38	MV
DP6TNL		634.6	223.9	2.31	619.6	152.3	1.67	MR
DRD66M		533.4	122.7	1.26	532.9	65.5	0.72	XX
EBJZCK		402.0	-8.7	-0.09	526.7	59.4	0.65	MV
HKHRDA		319.0	-91.7	-0.94	332.4	-134.9	-1.48	MV
JE79NF		255.4	-155.3	-1.60	324.5	-142.8	-1.56	MV
P92F3Y		459.9	49.2	0.51	493.8	26.5	0.29	MR
QFGFTV		376.5	-34.1	-0.35	518.2	50.9	0.56	TA
RK8CVR		457.8	47.1	0.49	492.7	25.3	0.28	MR
RVKAZV		366.2	-44.5	-0.46	516.8	49.5	0.54	TV
X8W8C8		508.0	97.3	1.00	613.0	145.7	1.59	MR
XVQHPK		447.2	36.5	0.38	523.1	55.8	0.61	MR
Y7HQND		433.7	23.0	0.24	478.8	11.5	0.13	XX
ZFLZU3		364.7	-46.0	-0.47	372.3	-95.0	-1.04	MV

Grand Means		Summary Statistics	
	410.70 M-s		467.33 M-s
Std Dev Btwn Labs	97.10 M-s		91.40 M-s
Statistics based on 18 of 20 reporting participants			

Samples T91-T92: NBR & T93-T94: BUTYL

Comments on Assigned Data Flags for Test #664

2UF6CY (X) - Extreme data.

79NGVU (X) - Extreme data.

Key to Instrument Codes Reported by Participants

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

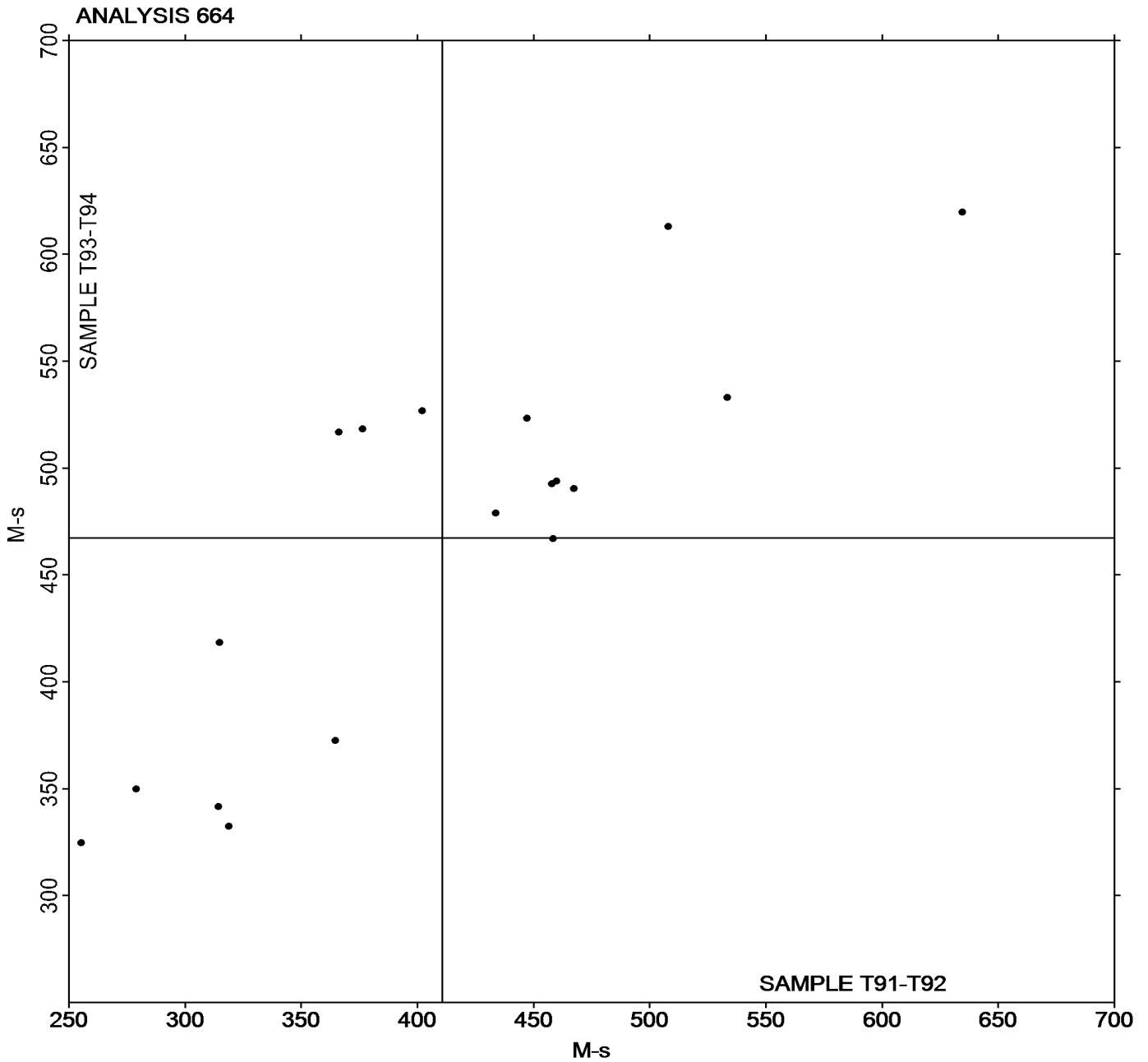


Rubber Interlaboratory Testing Program
Analysis 664
Mooney Stress Relaxation: Area under curve (M-s)

Report #200
2nd Qtr 2019

Grand Mean Sample **T91-T92** = 410.70 M-s

Grand Mean Sample **T93-T94** = 467.33 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 #200
2nd Qtr 2019

WebCode	Data Flag	Sample X91-X92			Sample X93-X94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
7VZEC2		1.498	-0.161	-0.87	4.012	-0.259	-0.66
A4XVH4		1.730	0.071	0.38	4.397	0.126	0.32
DMLUCC		1.995	0.336	1.81	5.033	0.762	1.93
GUCD74		1.833	0.174	0.94	4.602	0.331	0.84
HKHRDA		1.437	-0.223	-1.20	3.685	-0.586	-1.48
KMVFJQ		1.538	-0.121	-0.65	4.033	-0.238	-0.60
RVKAZV		1.783	0.124	0.67	4.408	0.137	0.35
WKRHLT		1.588	-0.071	-0.38	4.032	-0.239	-0.61
Y29AEP		1.532	-0.128	-0.69	4.237	-0.034	-0.09

		Summary Statistics	
Grand Means	1.6594 minutes	4.2709 minutes	
Std Dev Btwn Labs	0.1853 minutes	0.3954 minutes	
Statistics based on 9 of 9 reporting participants			

Samples X91-X92: EPDM compound #1 & X93-X94: EPDM compound #2

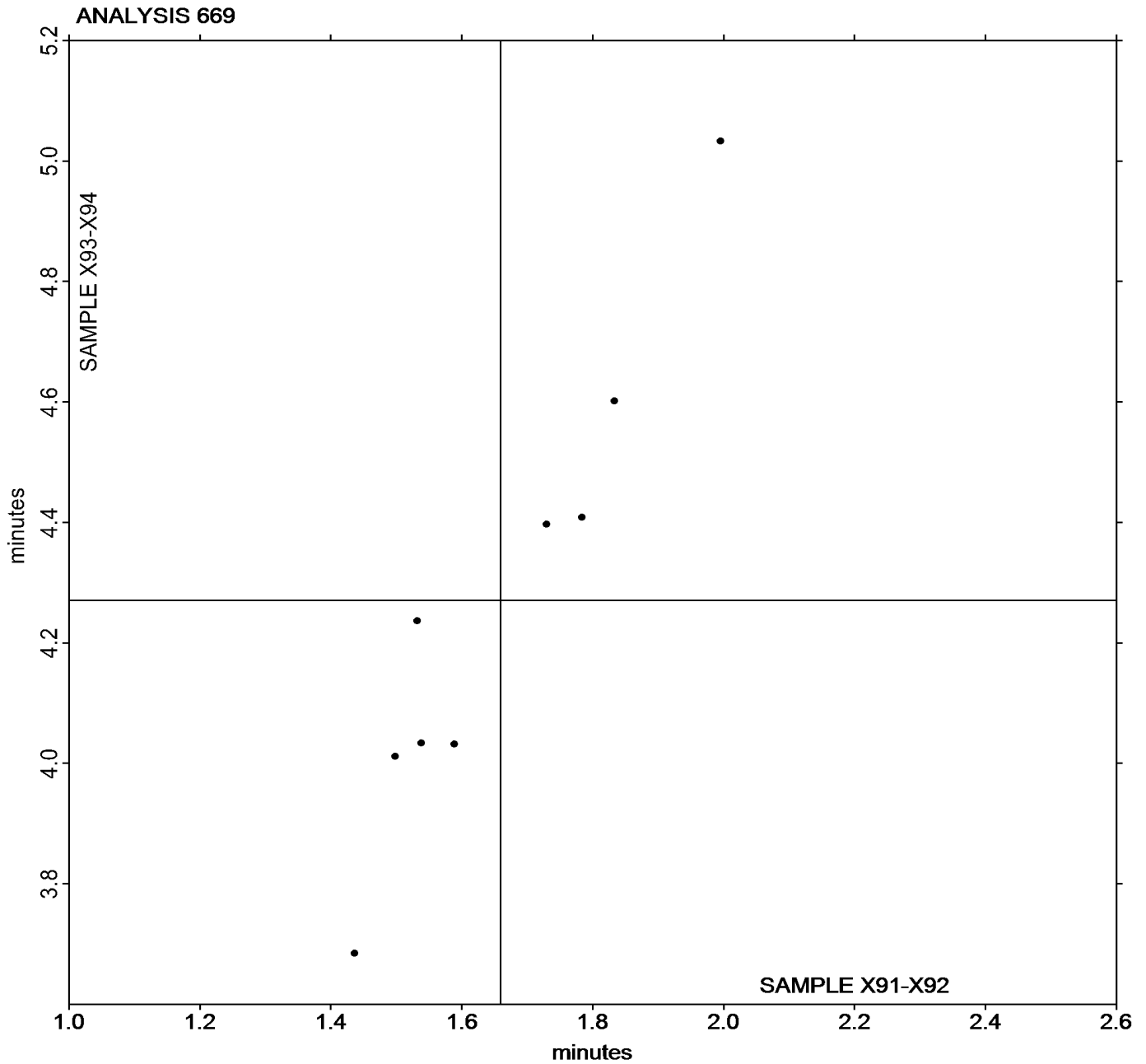


Rubber Interlaboratory Testing Program
Analysis 669
ODR Vulcanization-Cure Time 10% (minutes)

Report #200
2nd Qtr 2019

Grand Mean Sample **X91-X92** = 1.6594 minutes

Grand Mean Sample **X93-X94** = 4.2709 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 #200
2nd Qtr 2019

WebCode	Data Flag	Sample X91-X92			Sample X93-X94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
7VZEC2		1.083	-0.145	-0.70	2.463	-0.407	-0.70
A4XVH4		1.235	0.007	0.03	2.747	-0.124	-0.21
DMLUCC		1.680	0.452	2.18	4.157	1.286	2.22
GUCD74		1.378	0.150	0.73	3.167	0.296	0.51
HKHRDA		1.023	-0.205	-0.99	2.430	-0.441	-0.76
KMVFJQ		1.085	-0.143	-0.69	2.285	-0.586	-1.01
RVKAZV		1.317	0.088	0.43	3.235	0.364	0.63
WKRHLT		1.168	-0.060	-0.29	2.620	-0.251	-0.43
Y29AEP		1.085	-0.143	-0.69	2.733	-0.137	-0.24

		Summary Statistics	
Grand Means	1.2283 minutes	2.8707 minutes	
Std Dev Btwn Labs	0.2068 minutes	0.5782 minutes	
Statistics based on 9 of 9 reporting participants			

Samples X91-X92: EPDM compound #1 & X93-X94: EPDM compound #2

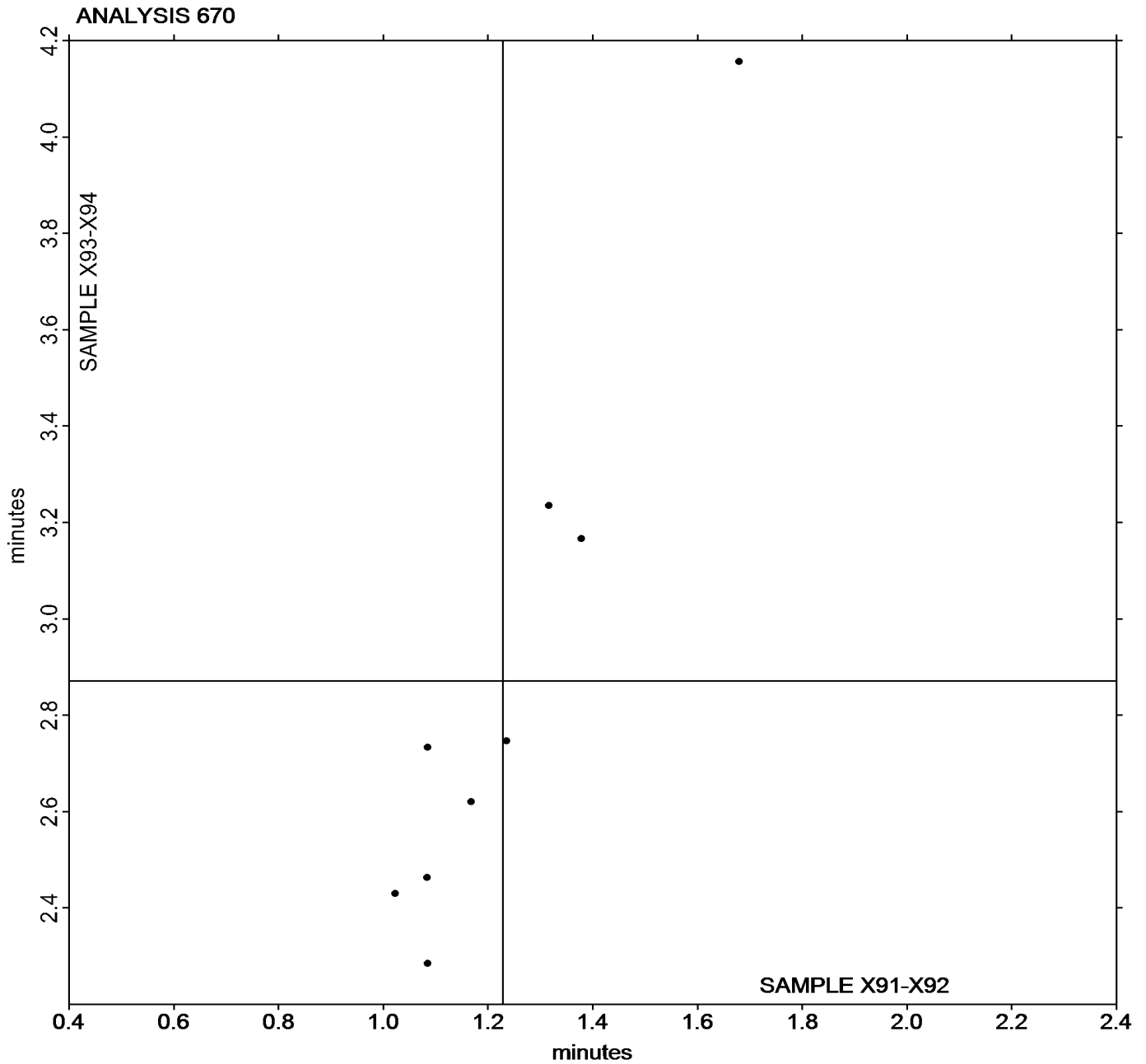


Rubber Interlaboratory Testing Program
Analysis 670
ODR Vulcanization-Scorch Time, Ts1 (minutes)

Report #200
2nd Qtr 2019

Grand Mean Sample **X91-X92** = 1.2283 minutes

Grand Mean Sample **X93-X94** = 2.8707 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 #200
2nd Qtr 2019

WebCode	Data Flag	Sample X91-X92			Sample X93-X94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
7VZEC2		3.002	-0.149	-0.61	8.345	-0.034	-0.07
A4XVH4		3.305	0.154	0.63	8.907	0.528	1.15
DMLUCC		3.462	0.311	1.28	8.547	0.168	0.37
GUCD74		3.390	0.239	0.98	8.768	0.390	0.85
HKHRDA		2.758	-0.393	-1.62	7.275	-1.104	-2.40
KMVFJQ		2.998	-0.153	-0.63	8.390	0.011	0.02
RVKAZV		3.398	0.247	1.02	8.322	-0.057	-0.12
WKRHLT		3.023	-0.128	-0.53	8.458	0.080	0.17
Y29AEP		3.022	-0.129	-0.53	8.395	0.016	0.04

		Summary Statistics	
Grand Means	3.1509 minutes	8.3785 minutes	
Std Dev Btwn Labs	0.2427 minutes	0.4594 minutes	
Statistics based on 9 of 9 reporting participants			

Samples X91-X92: EPDM compound #1 & X93-X94: EPDM compound #2

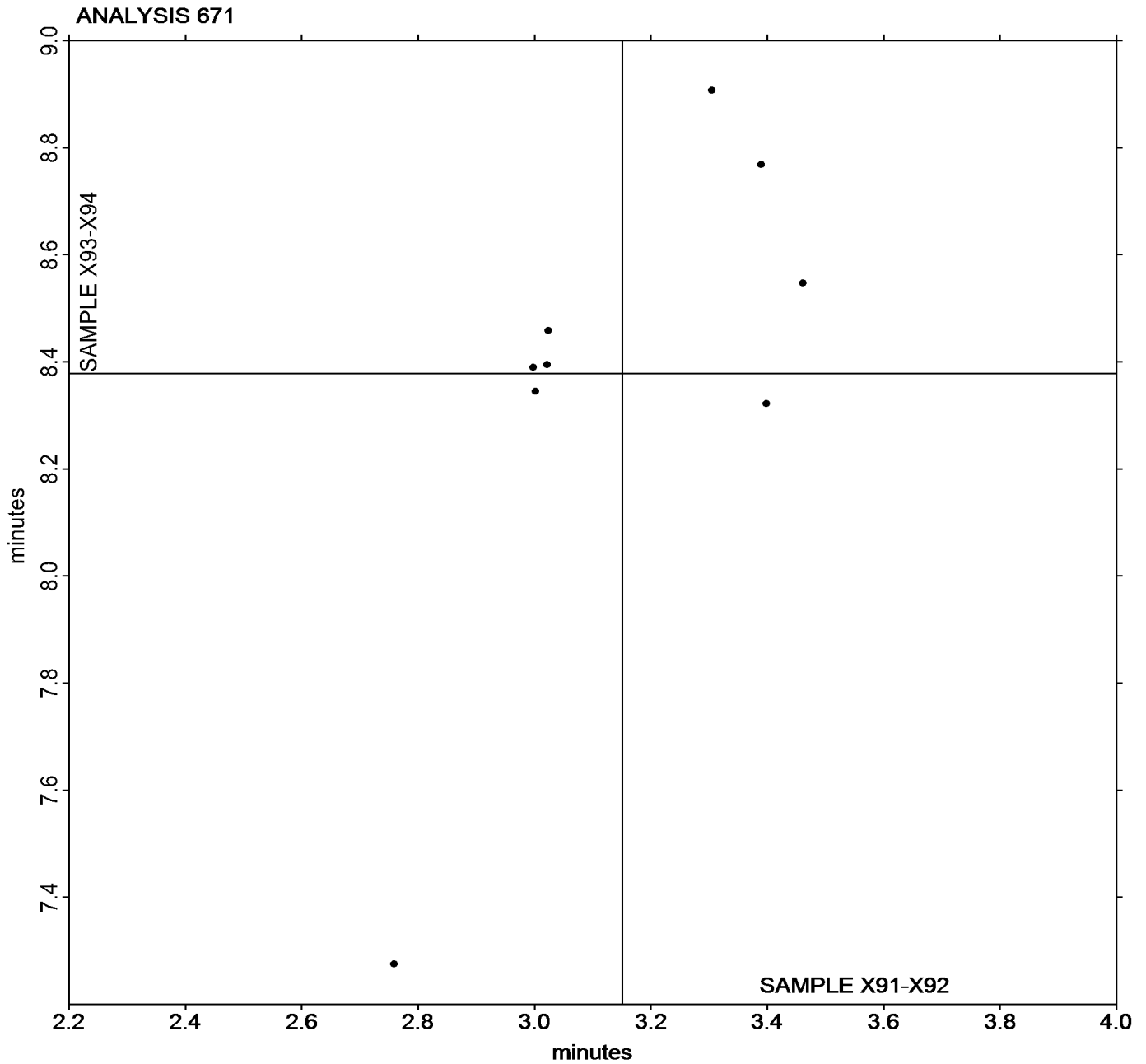


Rubber Interlaboratory Testing Program
Analysis 671
ODR Vulcanization-Cure Time 50% (minutes)

Report #200
2nd Qtr 2019

Grand Mean Sample X91-X92 = 3.1509 minutes

Grand Mean Sample X93-X94 = 8.3785 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 #200
2nd Qtr 2019

WebCode	Data Flag	Sample X91-X92			Sample X93-X94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
7VZEC2		14.58	0.41	0.19	18.77	2.54	0.88
A4XVH4		14.02	-0.15	-0.07	15.45	-0.78	-0.27
DMLUCC		13.08	-1.08	-0.50	13.67	-2.57	-0.89
GUCD74		13.47	-0.70	-0.32	17.10	0.86	0.30
HKHRDA		11.55	-2.62	-1.20	12.16	-4.07	-1.42
KMVFJQ		13.84	-0.33	-0.15	15.95	-0.28	-0.10
RVKAZV		15.43	1.27	0.58	16.16	-0.07	-0.03
WKRHLT		12.41	-1.76	-0.81	14.86	-1.38	-0.48
Y29AEP		19.12	4.96	2.27	21.98	5.75	2.00

		Summary Statistics	
Grand Means	14.165 minutes	16.232 minutes	
Stnd Dev Btwn Labs	2.182 minutes	2.872 minutes	
Statistics based on 9 of 9 reporting participants			

Samples X91-X92: EPDM compound #1 & X93-X94: EPDM compound #2

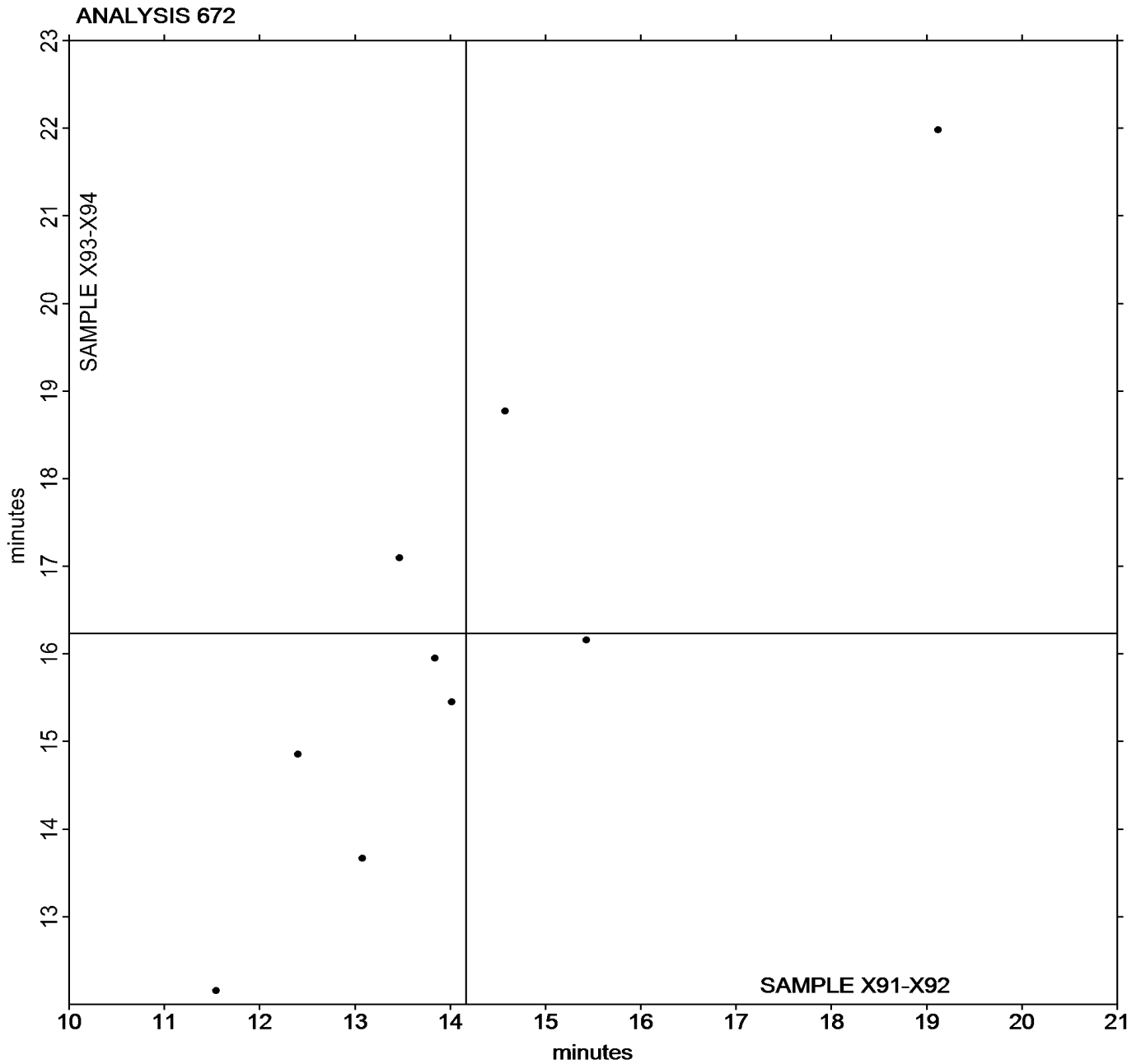


Rubber Interlaboratory Testing Program
Analysis 672
ODR Vulcanization-Cure Time 90% (minutes)

Report #200
2nd Qtr 2019

Grand Mean Sample X91-X92 = 14.165 minutes

Grand Mean Sample X93-X94 = 16.232 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 #200
2nd Qtr 2019

WebCode	Data Flag	Sample X91-X92			Sample X93-X94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
7VZEC2		7.618	-0.990	-1.24	5.327	-1.496	-1.62
A4XVH4		9.218	0.610	0.76	6.517	-0.306	-0.33
DMLUCC		8.967	0.358	0.45	6.802	-0.021	-0.02
GUCD74		9.658	1.050	1.32	6.740	-0.082	-0.09
HKHRDA		9.523	0.915	1.15	7.927	1.104	1.19
KMVFJQ		8.227	-0.382	-0.48	5.837	-0.986	-1.06
RVKAZV		7.662	-0.947	-1.19	7.930	1.108	1.20
WKRHLT		8.773	0.165	0.21	6.502	-0.321	-0.35
Y29AEP		7.828	-0.780	-0.98	7.822	0.999	1.08

		Summary Statistics	
Grand Means		8.6083 lbf.in	6.8224 lbf.in
Std Dev Btwn Labs		0.7983 lbf.in	0.9258 lbf.in
Statistics based on 9 of 9 reporting participants			

		Summary Statistics in SI Units	
Grand Means		9.7261 dN.m	7.7083 dN.m
Std Dev Btwn Labs		0.9019 dN.m	1.0460 dN.m
Statistics based on 9 of 9 reporting participants			

Samples X91-X92: EPDM compound #1 & X93-X94: EPDM compound #2

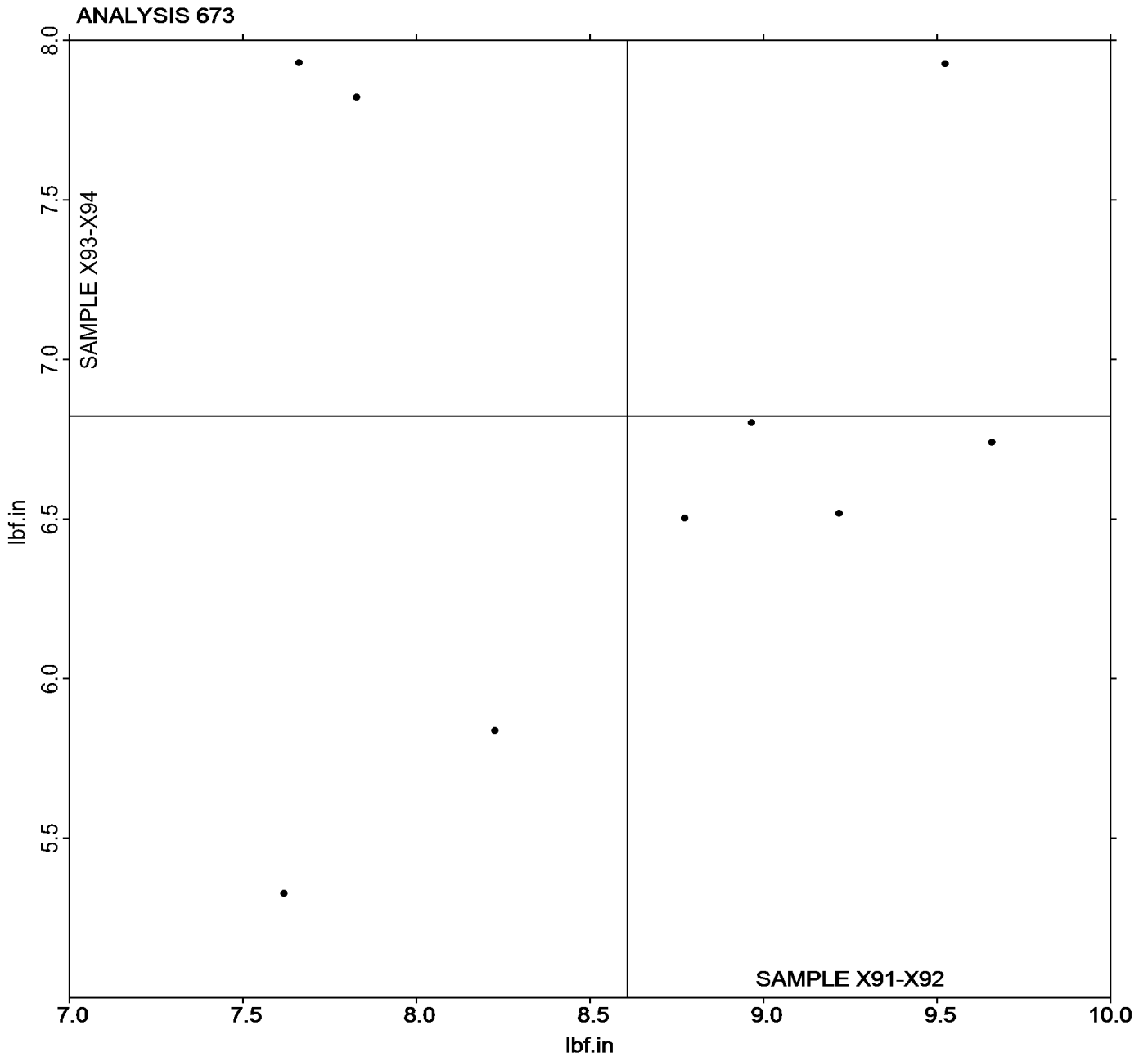


Rubber Interlaboratory Testing Program
Analysis 673
ODR Vulcanization: Minimum Torque (lbf.in)

Report #200
2nd Qtr 2019

Grand Mean Sample X91-X92 = 8.6083 lbf.in

Grand Mean Sample X93-X94 = 6.8224 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 #200
2nd Qtr 2019

WebCode	Data Flag	Sample X91-X92			Sample X93-X94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
7VZEC2		45.73	-0.18	-0.06	35.43	-0.40	-0.15
A4XVH4		48.41	2.49	0.78	36.90	1.07	0.41
DMLUCC		42.31	-3.61	-1.13	32.56	-3.26	-1.24
GUCD74		43.12	-2.80	-0.88	33.13	-2.69	-1.03
HKHRDA		48.77	2.85	0.89	38.37	2.54	0.97
KMVFJQ		50.88	4.96	1.55	38.70	2.87	1.10
RVKAZV		43.93	-1.98	-0.62	34.08	-1.75	-0.67
WKRHLT		42.19	-3.73	-1.17	33.73	-2.09	-0.80
Y29AEP		47.90	1.99	0.62	39.51	3.69	1.41

		Summary Statistics	
Grand Means		45.915 lbf.in	35.822 lbf.in
Std Dev Btwn Labs		3.194 lbf.in	2.621 lbf.in
Statistics based on 9 of 9 reporting participants			

		Summary Statistics in SI Units	
Grand Means		51.877 dN.m	40.473 dN.m
Std Dev Btwn Labs		3.609 dN.m	2.961 dN.m
Statistics based on 9 of 9 reporting participants			

Samples X91-X92: EPDM compound #1 & X93-X94: EPDM compound #2

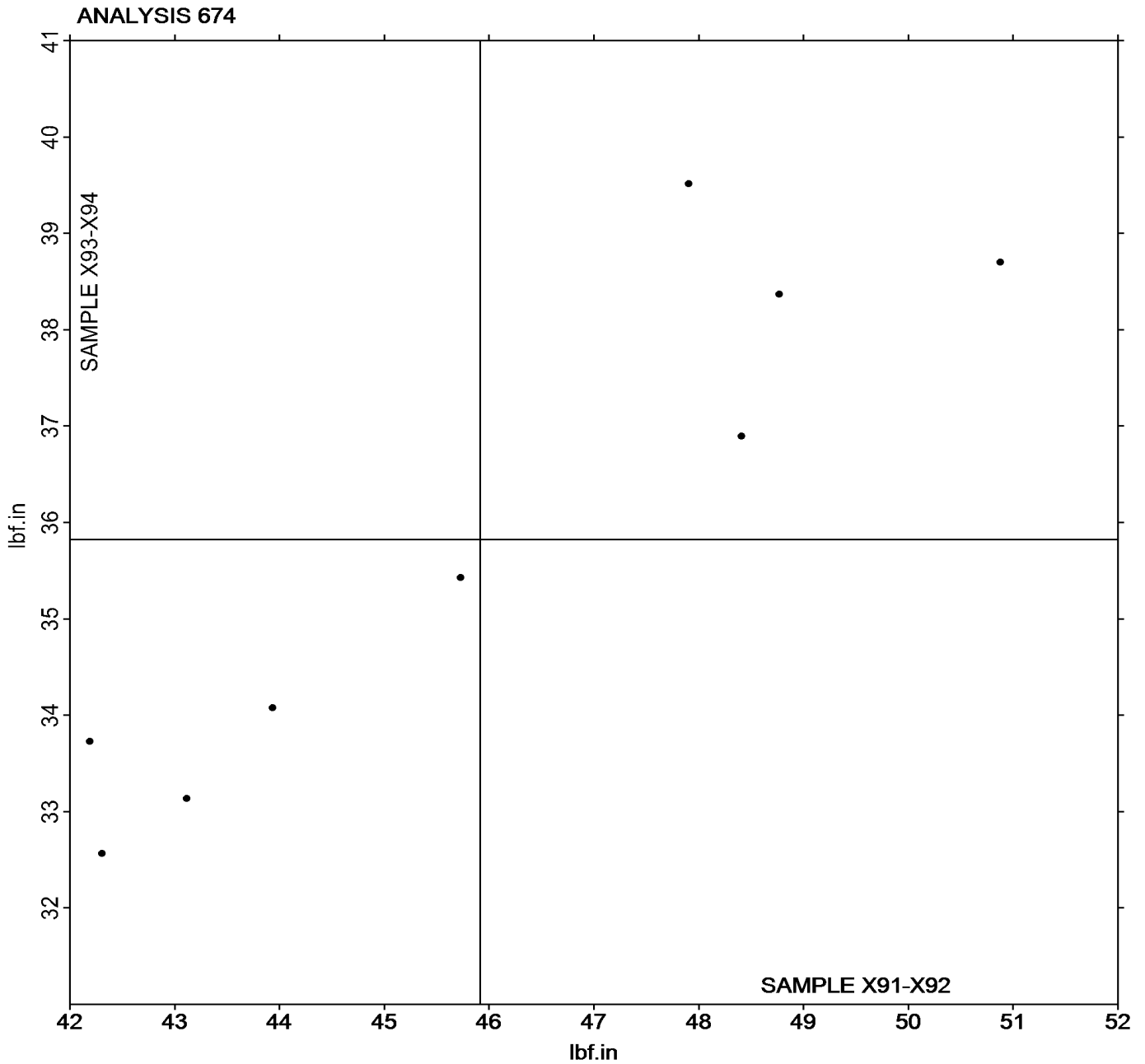


Rubber Interlaboratory Testing Program
Analysis 674
ODR Vulcanization: Maximum Torque (lbf.in)

Report #200
2nd Qtr 2019

Grand Mean Sample **X91-X92** = 45.915 lbf.in

Grand Mean Sample **X93-X94** = 35.822 lbf.in



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



Rubber Interlaboratory Testing Program

Report #200

Analysis 684

2nd Qtr 2019

MDR Vulcanization-Cure Time 10% (minutes)

WebCode	Data Flag	Sample X95-X96			Sample X97-X98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
23CYCH		3.085	0.063	0.45	1.525	-0.025	-0.24	MC
2MJACE		2.978	-0.044	-0.32	1.572	0.022	0.20	MC
2UF6CY		3.200	0.178	1.27	1.742	0.191	1.78	MM
48XGZD		2.952	-0.070	-0.50	1.525	-0.025	-0.24	MM
4LHYV3		3.000	-0.022	-0.16	1.540	-0.010	-0.10	MC
4LY8LH		2.962	-0.060	-0.43	1.558	0.008	0.07	MP
4UU96G		3.102	0.080	0.57	1.445	-0.105	-0.98	MC
766GJK		3.050	0.028	0.20	1.687	0.136	1.27	MR
79NGVU		2.773	-0.249	-1.78	1.433	-0.117	-1.09	MX
7ZV42L		2.858	-0.164	-1.17	1.413	-0.137	-1.28	ME
943BBP		3.202	0.180	1.28	1.617	0.066	0.62	MC
9VT2PH		2.962	-0.060	-0.43	1.522	-0.029	-0.27	MC
A4XVH4		3.178	0.156	1.11	1.710	0.160	1.49	MX
DP6TNL	*	2.678	-0.344	-2.45	1.225	-0.325	-3.03	MC
DRD66M		3.132	0.110	0.78	1.642	0.091	0.85	XX
EBJZCK		2.727	-0.295	-2.11	1.413	-0.137	-1.28	MC
GM9FC6		3.110	0.088	0.63	1.605	0.055	0.51	MC
GUCD74		3.053	0.031	0.22	1.608	0.058	0.54	MC
H8WF2Z		2.980	-0.042	-0.30	1.590	0.040	0.37	MC
HKHRDA		3.128	0.106	0.76	1.688	0.138	1.29	MX
JE79NF		3.047	0.025	0.18	1.508	-0.042	-0.39	MC
K448NG		2.883	-0.139	-0.99	1.492	-0.059	-0.55	MC
KMVFJQ		3.147	0.125	0.89	1.705	0.155	1.44	MC
M6PVWM		2.987	-0.035	-0.25	1.510	-0.040	-0.38	ME
NMMDN3		2.900	-0.122	-0.87	1.483	-0.067	-0.63	MC
NNWMCU		3.133	0.111	0.79	1.575	0.025	0.23	MC
P92F3Y		3.180	0.158	1.13	1.707	0.156	1.46	MC
QFGFTV		3.038	0.016	0.12	1.397	-0.154	-1.43	MD
RK2Z8V		3.270	0.248	1.77	1.597	0.046	0.43	TP
RK8CVR		3.057	0.035	0.25	1.527	-0.024	-0.22	MC
V63XJM	X	2.547	-0.475	-3.39	1.430	-0.120	-1.12	MC
WAUJR2		3.018	-0.004	-0.03	1.582	0.031	0.29	MC
X4YCKC		3.112	0.090	0.64	1.568	0.018	0.17	MC
XD3GHK		2.723	-0.299	-2.13	1.352	-0.199	-1.85	MC
XVQHPK		3.005	-0.017	-0.12	1.590	0.040	0.37	MD
XZYQXQ		2.988	-0.034	-0.24	1.595	0.045	0.42	MC
Y29AEP		3.137	0.115	0.82	1.530	-0.020	-0.19	MC
ZFLZU3		2.955	-0.067	-0.48	1.602	0.051	0.48	MM



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

Report #200
2nd Qtr 2019

WebCode	Data Flag	Sample X95-X96			Sample X97-X98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
ZVERDH		3.152	0.130	0.92	1.535	-0.015	-0.14	ME

Summary Statistics	
Grand Means	
	3.0221 minutes
	1.5504 minutes
Stnd Dev Btwn Labs	
	0.1402 minutes
	0.1072 minutes
Statistics based on 38 of 39 reporting participants	

Samples X95-X96: EPDM compound #1 & X97-X98: EPDM compound #2

Comments on Assigned Data Flags for Test #684

V63XJM (X) - Data for sample group X95-X96 are low. Inconsistent within the determinations of sample group X95-X96.

Key to Instrument Codes Reported by Participants

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

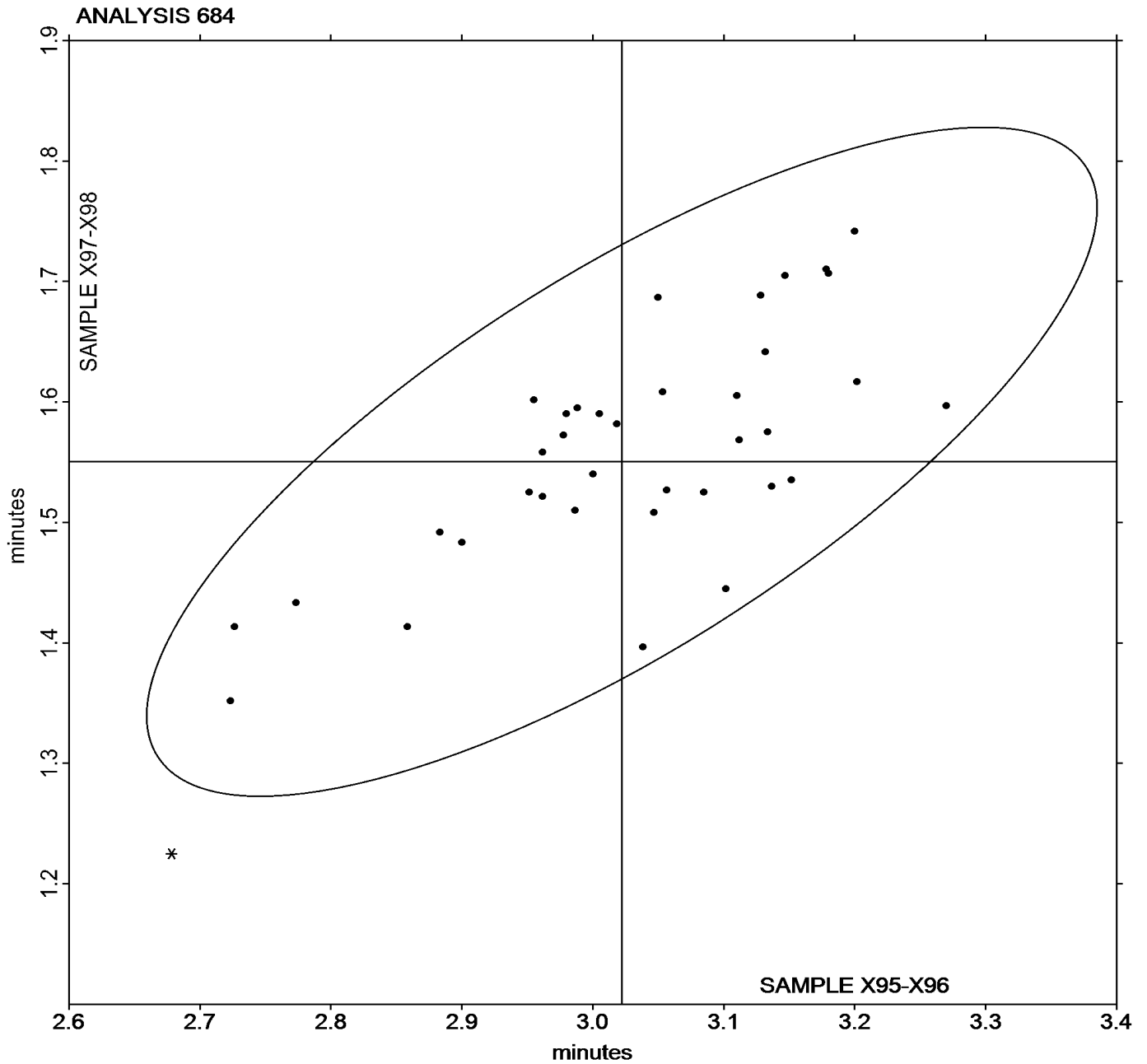


Rubber Interlaboratory Testing Program
Analysis 684
MDR Vulcanization-Cure Time 10% (minutes)

Report #200
2nd Qtr 2019

Grand Mean Sample X95-X96 = 3.0221 minutes

Grand Mean Sample X97-X98 = 1.5504 minutes





Rubber Interlaboratory Testing Program

Report #200

Analysis 685

2nd Qtr 2019

MDR Vulcanization-Scorch Time, Ts1 (minutes)

WebCode	Data Flag	Sample X95-X96			Sample X97-X98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
23CYCH		2.960	0.157	0.75	1.477	0.025	0.25	MC
2MJACE		2.708	-0.095	-0.45	1.489	0.037	0.37	MC
2UF6CY		3.133	0.330	1.58	1.688	0.237	2.36	MM
39F7QK	X	1.183	-1.620	-7.76	1.195	-0.257	-2.56	MC
48XGZD		2.720	-0.083	-0.40	1.437	-0.015	-0.15	MM
4LHYV3		2.772	-0.031	-0.15	1.467	0.015	0.15	MC
4LY8LH		2.563	-0.240	-1.15	1.368	-0.083	-0.83	MP
4UU96G		3.007	0.204	0.98	1.402	-0.050	-0.50	MC
6HYE8D		2.588	-0.215	-1.03	1.387	-0.065	-0.65	MR
766GJK		2.325	-0.478	-2.29	1.332	-0.120	-1.20	MR
79NGVU		2.648	-0.155	-0.74	1.382	-0.070	-0.70	MX
7ZV42L		2.718	-0.085	-0.41	1.383	-0.068	-0.68	ME
943BBP		3.203	0.400	1.92	1.590	0.138	1.38	MC
9R93NF		2.943	0.140	0.67	1.508	0.057	0.57	MC
9VT2PH		2.820	0.017	0.08	1.457	0.005	0.05	MC
A4XVH4		2.857	0.054	0.26	1.595	0.143	1.43	MX
DP6TNL	*	2.595	-0.208	-1.00	1.202	-0.250	-2.49	MC
DRD66M		2.838	0.035	0.17	1.435	-0.017	-0.17	XX
EBJZCK	X	1.398	-1.405	-6.73	0.870	-0.582	-5.80	MC
GM9FC6		2.650	-0.153	-0.73	1.430	-0.022	-0.21	MC
GUCD74		2.818	0.015	0.07	1.507	0.055	0.55	MC
H8WF2Z		2.738	-0.065	-0.31	1.505	0.053	0.53	MC
HKHRDA		3.030	0.227	1.09	1.628	0.177	1.76	MX
JE79NF		2.900	0.097	0.47	1.433	-0.018	-0.18	MC
K448NG		2.868	0.065	0.31	1.473	0.022	0.22	MC
KMVFJQ		2.978	0.175	0.84	1.585	0.133	1.33	MC
M6PVWM		2.875	0.072	0.35	1.463	0.012	0.12	ME
NMMDN3		2.416	-0.387	-1.86	1.316	-0.136	-1.35	MC
NNWMCU		2.835	0.032	0.15	1.440	-0.012	-0.12	MC
P92F3Y		2.673	-0.130	-0.62	1.475	0.023	0.23	MC
QFGFTV		2.898	0.095	0.46	1.322	-0.130	-1.30	MD
RK2Z8V	*	3.370	0.567	2.72	1.597	0.145	1.45	TP
RK8CVR		2.957	0.154	0.74	1.477	0.025	0.25	MC
V63XJM		2.505	-0.298	-1.43	1.278	-0.173	-1.73	MC
WAUJR2		2.920	0.117	0.56	1.545	0.093	0.93	MC
X4YCKC		2.928	0.125	0.60	1.463	0.012	0.12	MC
XD3GHK		2.555	-0.248	-1.19	1.303	-0.148	-1.48	MC
XVQHPK		2.882	0.079	0.38	1.527	0.075	0.75	MD



**Rubber Interlaboratory Testing Program
Analysis 685**

**Report #200
2nd Qtr 2019**

MDR Vulcanization-Scorch Time, Ts1 (minutes)

WebCode	Data Flag	Sample X95-X96			Sample X97-X98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XZYZQX		2.790	-0.013	-0.06	1.500	0.048	0.48	MC
Y29AEP		2.870	0.067	0.32	1.438	-0.013	-0.13	MC
Y7HQND		2.497	-0.306	-1.47	1.333	-0.118	-1.18	MC
ZFLZU3		2.673	-0.130	-0.62	1.475	0.023	0.23	MM
ZVERDH		2.892	0.089	0.43	1.402	-0.050	-0.50	ME

Grand Means		Summary Statistics	
	2.8029 minutes		1.4515 minutes
Std Dev Btwn Labs	0.2087 minutes		0.1002 minutes
Statistics based on 41 of 43 reporting participants			

Samples X95-X96: EPDM compound, batch #1 & X97-X98: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #685

39F7QK (X) - Data for sample group X95-X96 are low.

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

Key to Instrument Codes Reported by Participants

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

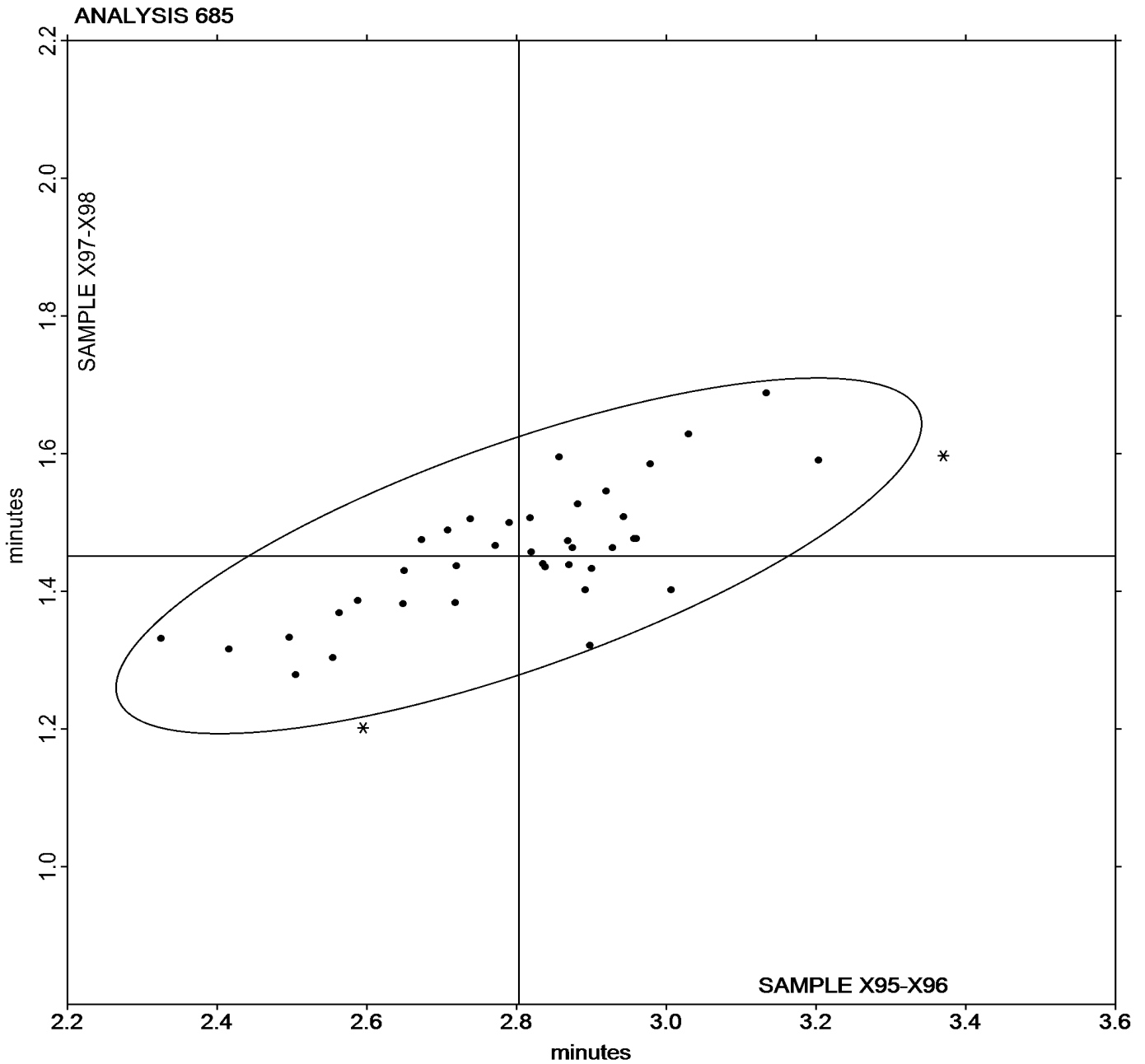


Rubber Interlaboratory Testing Program
Analysis 685
MDR Vulcanization-Scorch Time, Ts1 (minutes)

Report #200
2nd Qtr 2019

Grand Mean Sample **X95-X96** = 2.8029 minutes

Grand Mean Sample **X97-X98** = 1.4515 minutes





Rubber Interlaboratory Testing Program

Report #200

Analysis 686

2nd Qtr 2019

MDR Vulcanization-Cure Time 50% (minutes)

WebCode	Data Flag	Sample X95-X96			Sample X97-X98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
23CYCH		6.795	-0.327	-1.14	3.573	-0.082	-0.51	MC
2MJACE		7.386	0.265	0.92	3.764	0.109	0.68	MC
2UF6CY		7.143	0.022	0.08	3.685	0.030	0.19	MM
39F7QK	X	2.757	-4.365	-15.22	2.740	-0.915	-5.69	MC
48XGZD		6.945	-0.177	-0.62	3.615	-0.040	-0.25	MM
4LHYV3		7.015	-0.107	-0.37	3.645	-0.010	-0.06	MC
4LY8LH		6.895	-0.227	-0.79	3.470	-0.185	-1.15	MC
4UU96G		6.717	-0.405	-1.41	3.390	-0.265	-1.65	MC
6HYE8D		7.247	0.125	0.44	3.800	0.145	0.90	MR
766GJK	*	6.692	-0.430	-1.50	3.602	-0.053	-0.33	MR
79NGVU		6.720	-0.402	-1.40	3.417	-0.238	-1.48	MX
7ZV42L		6.707	-0.415	-1.45	3.408	-0.247	-1.54	ME
943BBP		7.407	0.285	0.99	3.852	0.197	1.22	MC
9R93NF		7.538	0.417	1.45	3.762	0.107	0.66	MC
9VT2PH		7.292	0.170	0.59	3.740	0.085	0.53	MC
A4XVH4		7.515	0.393	1.37	3.873	0.218	1.36	MX
DP6TNL	X	5.882	-1.240	-4.32	2.848	-0.807	-5.02	MC
DRD66M		7.130	0.008	0.03	3.628	-0.027	-0.17	XX
EBJZCK	*	6.350	-0.772	-2.69	3.280	-0.375	-2.33	MC
GM9FC6		7.420	0.298	1.04	3.700	0.045	0.28	MC
GUCD74		7.397	0.275	0.96	3.812	0.157	0.97	MC
H8WF2Z		7.430	0.308	1.08	3.883	0.228	1.42	MC
HKHRDA		7.315	0.193	0.67	3.868	0.213	1.33	MX
JE79NF		7.078	-0.043	-0.15	3.602	-0.053	-0.33	MC
K448NG		6.972	-0.150	-0.52	3.525	-0.130	-0.81	MC
KMVFJQ		7.335	0.213	0.74	3.845	0.190	1.18	MC
M6PVWM		6.962	-0.160	-0.56	3.618	-0.037	-0.23	ME
NMMDN3		7.033	-0.088	-0.31	3.605	-0.050	-0.31	MC
NNWMCU		7.185	0.063	0.22	3.737	0.082	0.51	MC
P92F3Y		7.605	0.483	1.69	3.972	0.317	1.97	MC
QFGFTV		6.690	-0.432	-1.50	3.347	-0.308	-1.92	MD
RK2Z8V		7.418	0.297	1.03	3.658	0.003	0.02	TP
RK8CVR		7.183	0.062	0.22	3.658	0.003	0.02	MC
V63XJM		6.908	-0.213	-0.74	3.588	-0.067	-0.42	MC
WAUJR2		7.233	0.112	0.39	3.770	0.115	0.71	MC
X4YCKC		7.443	0.322	1.12	3.770	0.115	0.71	MC
XD3GHK		6.773	-0.348	-1.21	3.397	-0.258	-1.61	MC



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

Report #200
2nd Qtr 2019

WebCode	Data Flag	Sample X95-X96			Sample X97-X98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XVQHPK		7.093	-0.028	-0.10	3.648	-0.007	-0.04	MD
XZYZQX		7.330	0.208	0.73	3.755	0.100	0.62	MC
Y29AEP	*	7.288	0.167	0.58	3.555	-0.100	-0.62	MC
Y7HQND		7.136	0.014	0.05	3.738	0.083	0.52	MC
ZFLZU3		7.222	0.100	0.35	3.723	0.068	0.42	MM
ZVERDH		7.043	-0.078	-0.27	3.582	-0.073	-0.46	ME

Grand Means		Summary Statistics	
	7.1216 minutes		3.6551 minutes
Std Dev Btwn Labs	0.2868 minutes		0.1608 minutes
Statistics based on 41 of 43 reporting participants			

Samples X95-X96: EPDM compound, batch #1 & X97-X98: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #686

39F7QK (X) - Extreme Data.

DP6TNL (X) - Data for all samples are low.

Key to Instrument Codes Reported by Participants

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

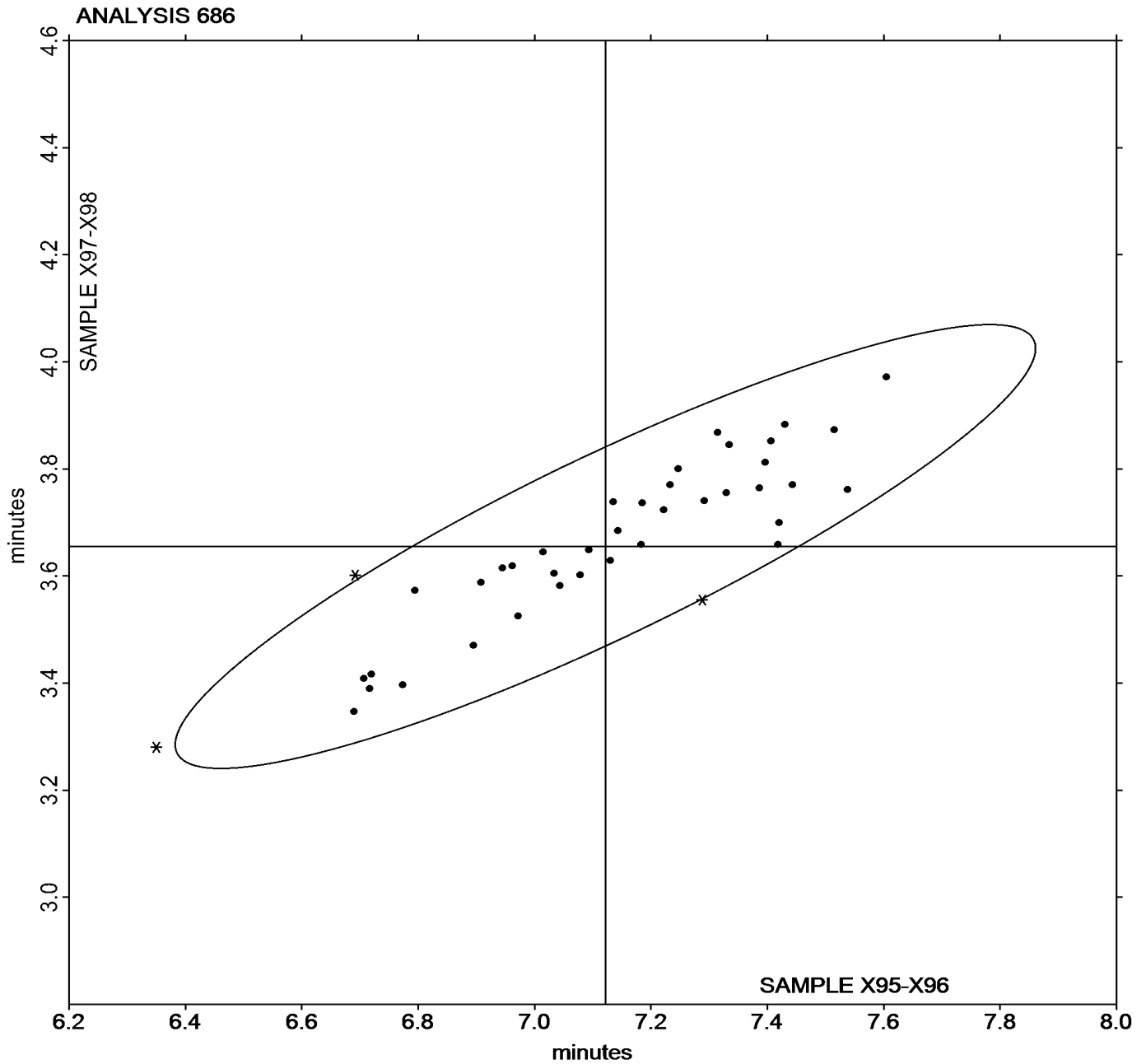


Rubber Interlaboratory Testing Program
Analysis 686
MDR Vulcanization-Cure Time 50% (minutes)

Report #200
2nd Qtr 2019

Grand Mean Sample **X95-X96** = 7.1216 minutes

Grand Mean Sample **X97-X98** = 3.6551 minutes





Rubber Interlaboratory Testing Program

Report #200

Analysis 687

2nd Qtr 2019

MDR Vulcanization-Cure Time 90% (minutes)

WebCode	Data Flag	Sample X95-X96			Sample X97-X98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
23CYCH		10.77	-0.51	-1.45	6.275	-0.147	-0.50	MC
2MJACE		11.66	0.38	1.06	6.622	0.200	0.68	MC
2UF6CY		11.11	-0.18	-0.50	6.625	0.203	0.69	MM
39F7QK	X	6.00	-5.28	-14.95	6.192	-0.231	-0.79	MC
48XGZD		11.14	-0.15	-0.41	6.233	-0.189	-0.64	MM
4LHYV3		10.96	-0.32	-0.92	6.162	-0.261	-0.89	MC
4LY8LH		10.94	-0.35	-0.98	6.067	-0.356	-1.21	MP
4UU96G		10.81	-0.48	-1.35	6.245	-0.177	-0.60	MC
6HYE8D		11.56	0.28	0.78	6.135	-0.287	-0.98	MR
766GJK	*	11.09	-0.19	-0.53	7.153	0.731	2.49	MR
79NGVU		11.01	-0.27	-0.76	5.955	-0.467	-1.59	MX
7ZV42L		10.74	-0.54	-1.54	5.917	-0.506	-1.72	ME
943BBP		11.60	0.31	0.89	6.250	-0.172	-0.59	MC
9R93NF	*	12.22	0.94	2.65	6.537	0.114	0.39	MC
9VT2PH		11.31	0.03	0.08	6.465	0.043	0.14	MC
A4XVH4		11.68	0.40	1.14	6.718	0.296	1.01	MX
DP6TNL	X	9.44	-1.84	-5.21	5.047	-1.376	-4.68	MC
DRD66M		11.27	-0.01	-0.03	7.013	0.591	2.01	XX
EBJZCK		11.32	0.04	0.12	6.305	-0.117	-0.40	MC
GM9FC6		12.03	0.75	2.13	6.520	0.098	0.33	MC
GUCD74		11.54	0.26	0.73	6.712	0.289	0.98	MC
H8WF2Z		11.58	0.30	0.84	6.420	-0.002	-0.01	MC
HKHRDA		11.56	0.28	0.79	6.992	0.569	1.94	XX
JE79NF		11.29	0.01	0.02	6.458	0.036	0.12	MC
K448NG		11.13	-0.15	-0.42	6.388	-0.034	-0.12	MC
KMVFJQ		11.35	0.07	0.20	6.922	0.499	1.70	MC
M6PVWM		10.95	-0.33	-0.93	6.470	0.048	0.16	ME
NMMDN3		11.05	-0.23	-0.67	6.187	-0.235	-0.80	MC
NNWMCU		11.00	-0.28	-0.80	6.270	-0.152	-0.52	MC
P92F3Y		11.89	0.61	1.74	7.053	0.631	2.15	MC
QFGFTV		10.77	-0.51	-1.45	6.235	-0.187	-0.64	MD
RK2Z8V		11.41	0.13	0.36	6.250	-0.172	-0.59	TP
RK8CVR		11.17	-0.11	-0.32	6.270	-0.152	-0.52	MC
V63XJM		11.26	-0.02	-0.06	6.278	-0.144	-0.49	MC
WAUJR2		11.21	-0.07	-0.21	6.417	-0.006	-0.02	MC
X4YCKC		11.28	-0.01	-0.02	6.218	-0.204	-0.69	MC
XD3GHK		10.88	-0.40	-1.14	6.048	-0.374	-1.27	MC
XVQHPK		11.18	-0.10	-0.29	6.505	0.083	0.28	MD



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

Report #200
2nd Qtr 2019

WebCode	Data Flag	Sample X95-X96			Sample X97-X98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XZYZQX		11.33	0.05	0.13	6.517	0.094	0.32	MC
Y29AEP		11.88	0.60	1.69	6.255	-0.167	-0.57	MC
Y7HQND		11.05	-0.23	-0.64	6.517	0.094	0.32	MC
ZFLZU3		11.55	0.27	0.77	6.433	0.011	0.04	MM
ZVERDH		11.02	-0.26	-0.73	6.308	-0.114	-0.39	ME

Grand Means		Summary Statistics	
	11.281 minutes		6.4225 minutes
Std Dev Btwn Labs	0.353 minutes		0.2939 minutes
Statistics based on 41 of 43 reporting participants			

Samples X95-X96: EPDM compound, batch #1 & X97-X98: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #687

39F7QK (X) - Extreme Data for sample group X95-X96.

DP6TNL (X) - Data for all samples are low.

Key to Instrument Codes Reported by Participants

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

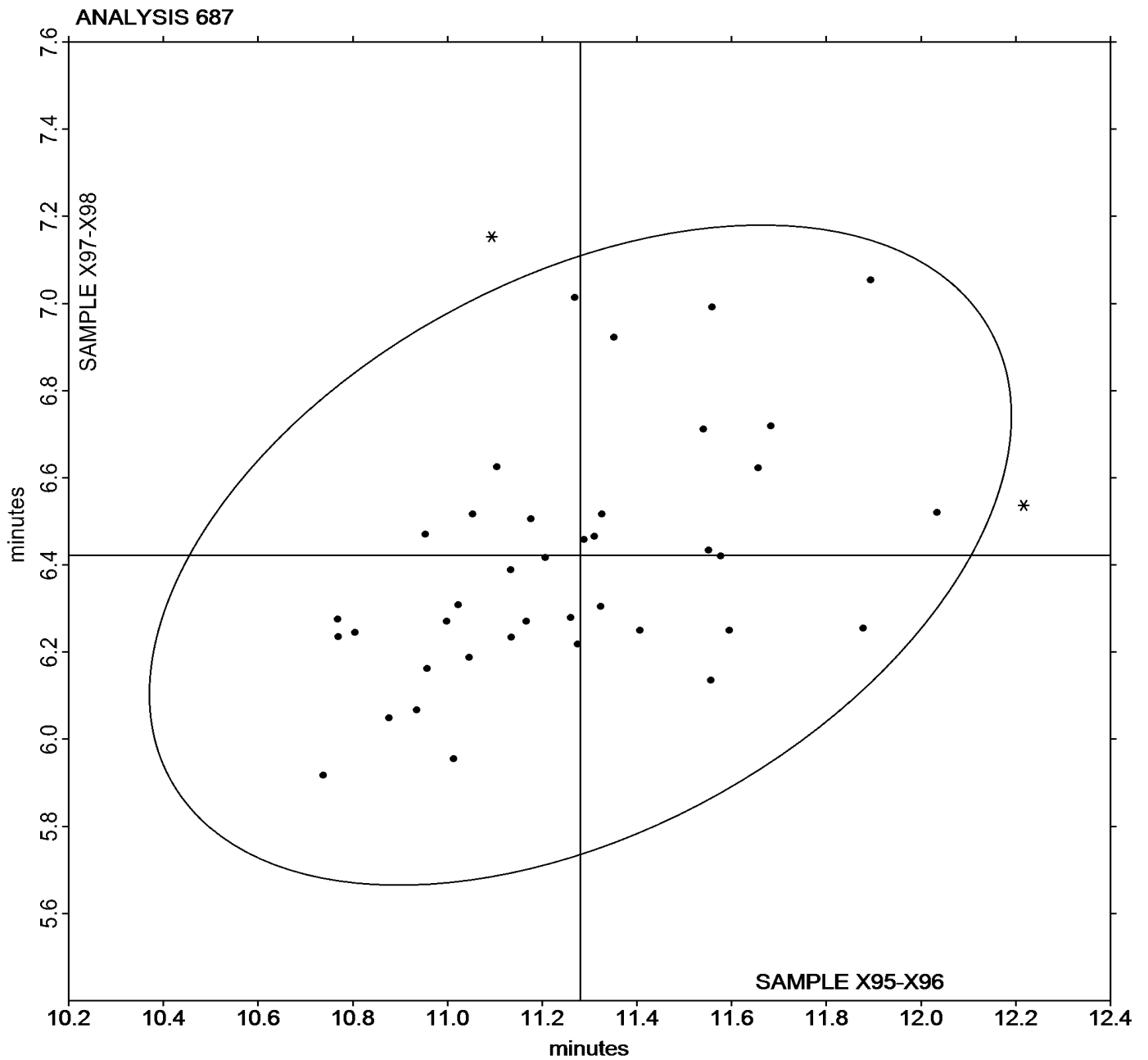


Rubber Interlaboratory Testing Program
Analysis 687
MDR Vulcanization-Cure Time 90% (minutes)

Report #200
2nd Qtr 2019

Grand Mean Sample X95-X96 = 11.281 minutes

Grand Mean Sample X97-X98 = 6.4225 minutes





Rubber Interlaboratory Testing Program

Report #200

Analysis 688

2nd Qtr 2019

MDR Vulcanization: Minimum Torque (lbf.in)

WebCode	Data Flag	Sample X95-X96			Sample X97-X98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
23CYCH	X	2.162	0.360	1.36	1.978	0.079	0.34	MC
2MJACE		1.567	-0.235	-0.89	1.678	-0.221	-0.95	MC
2UF6CY		1.423	-0.379	-1.43	1.537	-0.363	-1.56	MM
39F7QK	X	3.800	1.998	7.54	3.873	1.974	8.48	MC
48XGZD		1.945	0.143	0.54	1.995	0.096	0.41	MM
4LHYV3		1.683	-0.119	-0.45	1.768	-0.131	-0.56	MC
4LY8LH		1.742	-0.060	-0.23	1.829	-0.070	-0.30	MP
4UU96G	*	2.625	0.823	3.11	2.613	0.714	3.07	MC
6HYE8D		1.970	0.168	0.63	2.123	0.224	0.96	MR
766GJK		1.727	-0.075	-0.28	1.860	-0.039	-0.17	MR
79NGVU		1.865	0.063	0.24	1.918	0.019	0.08	MX
7ZV42L		1.957	0.155	0.58	2.122	0.222	0.96	ME
943BBP		1.685	-0.117	-0.44	1.809	-0.091	-0.39	MC
9R93NF		1.725	-0.077	-0.29	1.917	0.017	0.08	MC
9VT2PH		1.610	-0.192	-0.73	1.718	-0.181	-0.78	MC
A4XVH4		1.453	-0.349	-1.32	1.615	-0.284	-1.22	MX
DP6TNL	*	2.600	0.798	3.01	2.553	0.654	2.81	MC
DRD66M		1.973	0.171	0.65	2.023	0.124	0.53	XX
EBJZCK		2.083	0.281	1.06	2.135	0.236	1.01	MC
GM9FC6		1.620	-0.182	-0.69	1.741	-0.159	-0.68	MC
GUCD74		1.648	-0.154	-0.58	1.763	-0.136	-0.58	MC
H8WF2Z		1.620	-0.182	-0.69	1.762	-0.138	-0.59	MC
HKHRDA		1.685	-0.117	-0.44	1.775	-0.124	-0.53	MX
JE79NF		2.078	0.276	1.04	2.065	0.166	0.71	MC
K448NG		1.633	-0.169	-0.64	1.648	-0.251	-1.08	MC
KMVFJQ		1.530	-0.272	-1.03	1.705	-0.194	-0.83	MC
M6PVWM		1.923	0.121	0.46	1.998	0.099	0.43	ME
NMMDN3		1.547	-0.255	-0.96	1.658	-0.241	-1.04	MC
NNWMCU		2.016	0.214	0.81	2.099	0.200	0.86	MC
P92F3Y		1.488	-0.314	-1.18	1.598	-0.302	-1.30	MC
RK2Z8V		1.803	0.001	0.00	1.940	0.041	0.18	TP
RK8CVR		1.873	0.071	0.27	2.005	0.106	0.45	MC
V63XJM		1.850	0.048	0.18	2.032	0.132	0.57	MC
WAUJR2		1.660	-0.142	-0.54	1.762	-0.138	-0.59	MC
X4YCKC		1.753	-0.049	-0.18	1.785	-0.114	-0.49	MC
XD3GHK		1.957	0.155	0.58	2.025	0.126	0.54	MC
XVQHPK		1.602	-0.200	-0.76	1.723	-0.176	-0.76	MD
XZYQXQ		1.667	-0.135	-0.51	1.855	-0.044	-0.19	MC



Rubber Interlaboratory Testing Program

Report #200

Analysis 688

2nd Qtr 2019

MDR Vulcanization: Minimum Torque (lbf.in)

WebCode	Data Flag	Sample X95-X96			Sample X97-X98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
Y29AEP	X	2.058	0.256	0.97	2.340	0.441	1.89	MC
Y7HQND		1.747	-0.056	-0.21	1.844	-0.055	-0.24	MC
ZFLZU3		1.767	-0.035	-0.13	1.865	-0.034	-0.15	MM
ZVERDH		2.179	0.377	1.42	2.207	0.308	1.32	ME

Summary Statistics	
Grand Means	
	1.8021 lbf.in
	1.8992 lbf.in
Stnd Dev Btwn Labs	
	0.2648 lbf.in
	0.2328 lbf.in
Statistics based on 39 of 42 reporting participants	

Summary Statistics in SI Units	
Grand Means	
	2.0361 dN.m
	2.1458 dN.m
Stnd Dev Btwn Labs	
	0.2992 dN.m
	0.2630 dN.m
Statistics based on 39 of 42 reporting participants	

Samples X95-X96: EPDM compound, batch #1 & X97-X98: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #688

23CYCH (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both sample groups.

39F7QK (X) - Data for all samples are high. Possible Systematic Error. Inconsistent within the determinations of both sample groups.

Y29AEP (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group X97-X98.

Key to Instrument Codes Reported by Participants

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

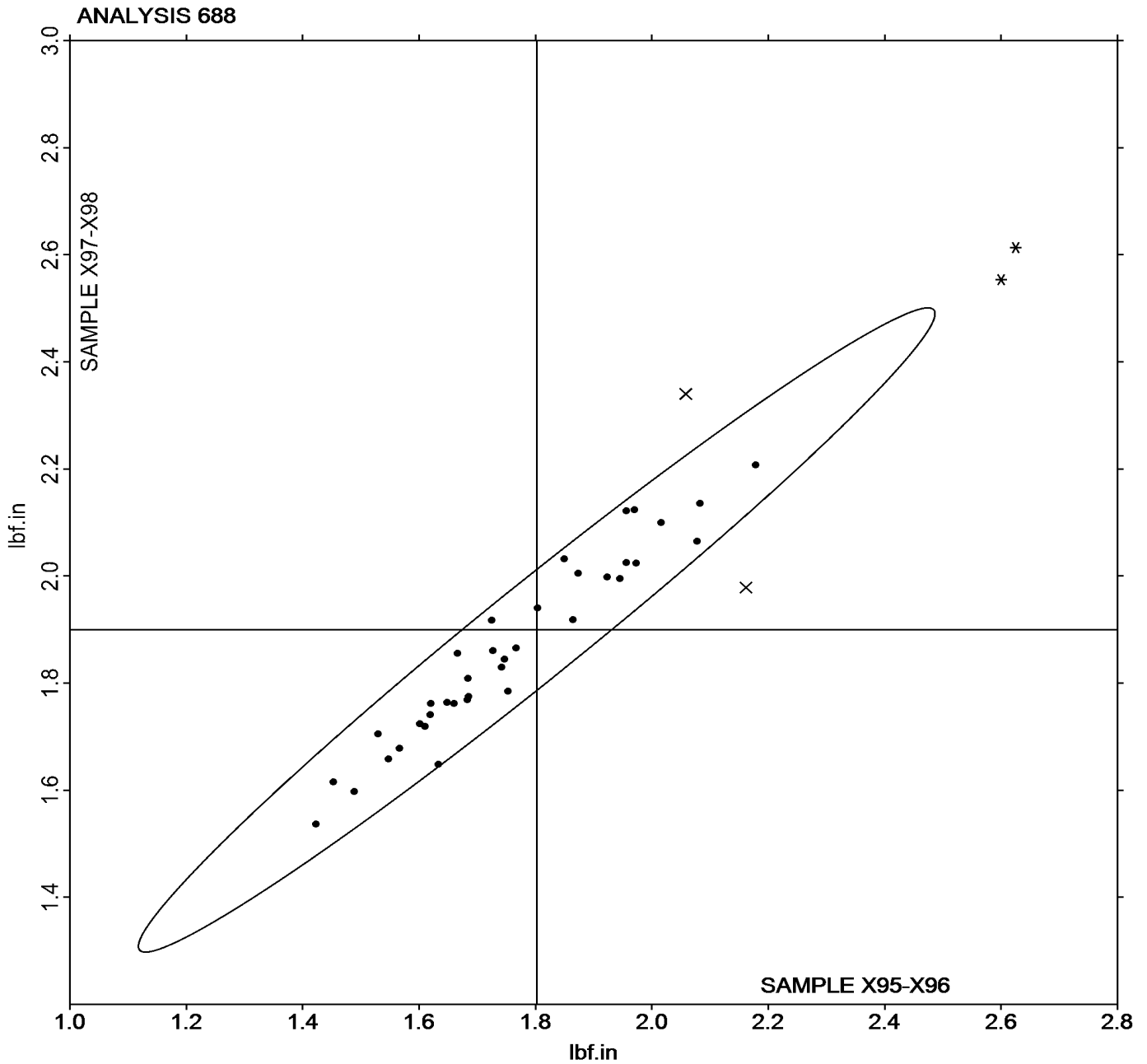


Rubber Interlaboratory Testing Program
Analysis 688
MDR Vulcanization: Minimum Torque (lbf.in)

Report #200
2nd Qtr 2019

Grand Mean Sample X95-X96 = 1.8021 lbf.in

Grand Mean Sample X97-X98 = 1.8992 lbf.in





Rubber Interlaboratory Testing Program

Report #200

Analysis 689

2nd Qtr 2019

MDR Vulcanization: Maximum Torque (lbf.in)

WebCode	Data Flag	Sample X95-X96			Sample X97-X98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
23CYCH		12.94	0.27	0.35	12.64	-0.19	-0.26	MC
2MJACE		13.03	0.36	0.46	12.83	0.00	0.00	MC
2UF6CY	*	10.62	-2.05	-2.66	11.14	-1.68	-2.38	MM
39F7QK		13.91	1.24	1.60	14.13	1.31	1.85	MC
48XGZD		13.30	0.62	0.80	13.30	0.47	0.67	MM
4LHYV3		13.06	0.39	0.50	12.81	-0.02	-0.03	MC
4LY8LH		12.87	0.20	0.25	13.22	0.40	0.56	MC
4UU96G		13.25	0.57	0.74	13.34	0.52	0.73	MC
6HYE8D		13.28	0.61	0.79	13.11	0.29	0.41	XX
766GJK	X	15.60	2.92	3.78	16.48	3.65	5.17	MR
79NGVU		11.43	-1.25	-1.61	11.57	-1.25	-1.77	MX
7ZV42L		12.83	0.15	0.20	12.67	-0.15	-0.22	ME
943BBP	*	10.53	-2.14	-2.77	10.91	-1.92	-2.71	MC
9R93NF		13.11	0.44	0.57	13.01	0.18	0.26	MC
9VT2PH		12.36	-0.31	-0.41	12.57	-0.26	-0.37	MC
A4XVH4		11.88	-0.80	-1.03	11.94	-0.89	-1.26	MX
DP6TNL		13.24	0.57	0.73	12.99	0.16	0.23	MC
DRD66M	X	13.79	1.11	1.44	15.08	2.25	3.19	XX
EBJZCK		14.02	1.35	1.74	14.02	1.19	1.68	MC
GM9FC6		13.51	0.83	1.08	13.73	0.91	1.29	MC
GUCD74		12.91	0.24	0.30	13.03	0.20	0.28	MC
H8WF2Z		12.93	0.26	0.34	12.89	0.06	0.08	MC
HKHRDA		12.18	-0.49	-0.64	12.59	-0.24	-0.34	MX
JE79NF		12.94	0.26	0.34	13.04	0.21	0.30	MC
K448NG		11.70	-0.97	-1.25	11.90	-0.93	-1.31	MC
KMVFJQ	*	12.40	-0.27	-0.35	13.31	0.48	0.69	MC
M6PVWM		12.64	-0.03	-0.04	12.63	-0.19	-0.28	ME
NMMDN3		12.94	0.26	0.34	12.65	-0.17	-0.24	MC
NNWMCU		12.57	-0.10	-0.13	12.69	-0.14	-0.19	MC
P92F3Y		12.86	0.19	0.24	13.41	0.58	0.83	MC
RK2Z8V		11.24	-1.44	-1.86	11.96	-0.87	-1.23	TP
RK8CVR		12.46	-0.22	-0.28	12.58	-0.24	-0.34	MC
V63XJM	X	12.12	-0.55	-0.71	14.23	1.41	1.99	MC
WAUJR2		12.25	-0.42	-0.55	12.26	-0.56	-0.80	MC
X4YCKC		12.79	0.12	0.15	13.30	0.48	0.68	MC
XD3GHK		12.86	0.19	0.24	12.60	-0.23	-0.32	MC
XVQHPK		12.31	-0.36	-0.47	12.61	-0.22	-0.31	MD
XZYZQX		12.73	0.06	0.08	13.14	0.32	0.45	MC



Rubber Interlaboratory Testing Program

Report #200

Analysis 689

2nd Qtr 2019

MDR Vulcanization: Maximum Torque (lbf.in)

WebCode	Data Flag	Sample X95-X96			Sample X97-X98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
Y29AEP		13.71	1.04	1.34	13.63	0.81	1.14	MC
Y7HQND		12.81	0.14	0.18	13.61	0.78	1.11	MC
ZFLZU3		13.31	0.63	0.82	13.68	0.86	1.21	MM
ZVERDH		12.55	-0.12	-0.16	12.78	-0.05	-0.06	ME

Grand Means		Summary Statistics	
	12.673 lbf.in		12.826 lbf.in
Stnd Dev Btwn Labs	0.773 lbf.in		0.706 lbf.in
Statistics based on 39 of 42 reporting participants			

Grand Means		Summary Statistics in SI Units	
	14.318 dN.m		14.491 dN.m
Stnd Dev Btwn Labs	0.874 dN.m		0.798 dN.m
Statistics based on 39 of 42 reporting participants			

Samples X95-X96: EPDM compound, batch #1 & X97-X98: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #689

766GJK (X) - Data for all samples are high. Possible Systematic Error.

DRD66M (X) - Data for sample group X97-X98 are high.

V63XJM (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group X95-X96.

Key to Instrument Codes Reported by Participants

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



Rubber Interlaboratory Testing Program

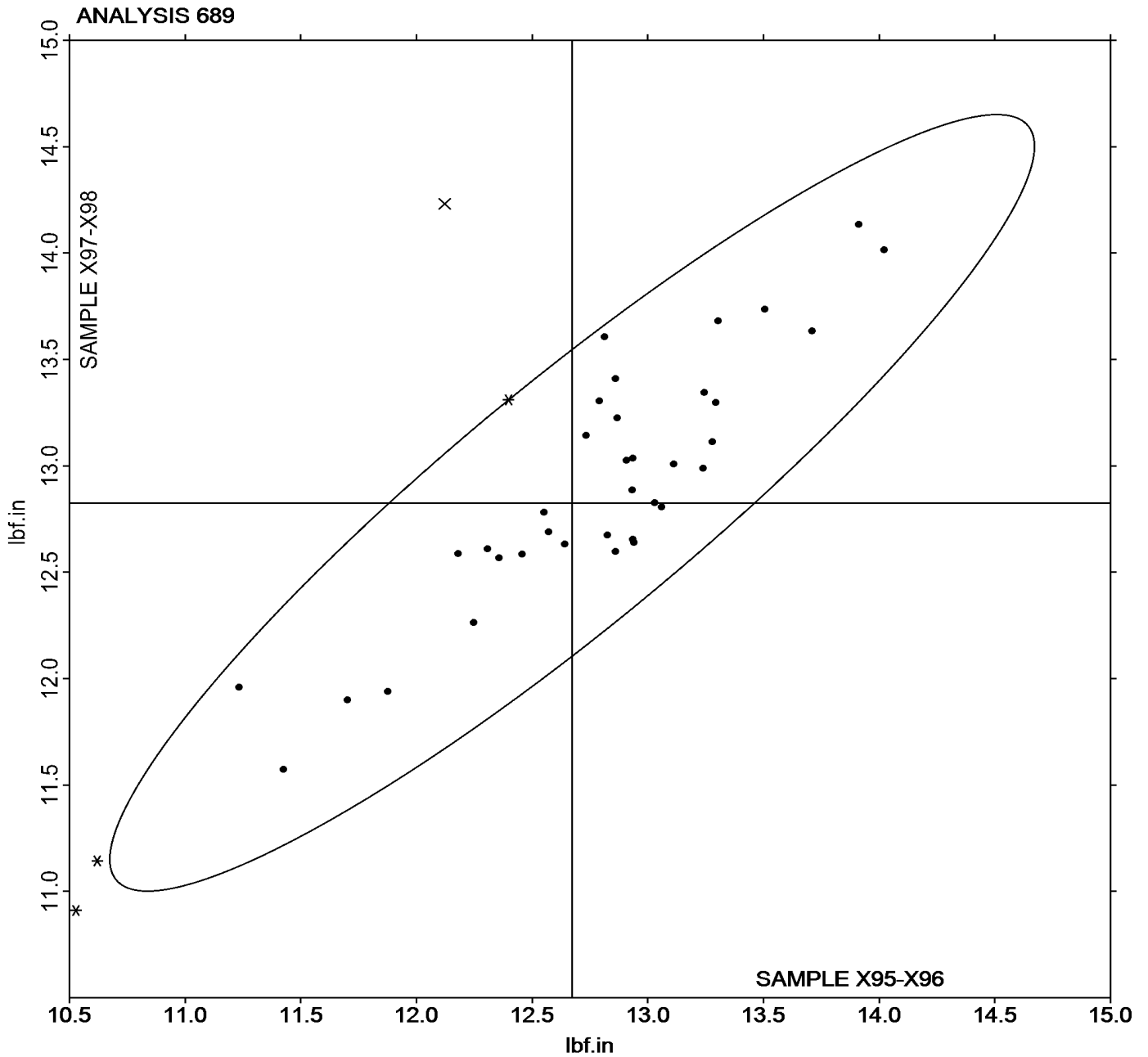
Analysis 689

MDR Vulcanization: Maximum Torque (lbf.in)

Report #200
2nd Qtr 2019

Grand Mean Sample X95-X96 = 12.673 lbf.in

Grand Mean Sample X97-X98 = 12.826 lbf.in





Rubber Interlaboratory Testing Program

Report #200

Analysis 690

2nd Qtr 2019

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

WebCode	Data Flag	Sample F91-F92			Sample F93-F94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
48XGZD		510.2	61.9	1.18	576.2	78.9	1.22	RP
6UAT77		425.1	-23.2	-0.44	453.1	-44.2	-0.68	RP
79NGVU		550.9	102.5	1.96	623.8	126.5	1.95	XX
A4XVH4		411.3	-37.1	-0.71	470.8	-26.5	-0.41	RP
NMMDN3		419.2	-29.1	-0.56	461.3	-36.0	-0.55	RP
RK2Z8V		412.8	-35.5	-0.68	461.0	-36.3	-0.56	XX
X4YCKC		432.3	-16.1	-0.31	467.8	-29.5	-0.46	PR
Y7HQND		424.9	-23.4	-0.45	464.4	-32.9	-0.51	RP

Grand Means		Summary Statistics	
	448.35 kPa		497.31 kPa
Stnd Dev Btwn Labs	52.32 kPa		64.87 kPa
Statistics based on 8 of 8 reporting participants			

Samples F91-F92: EPDM compound, batch #1 & F93-F94: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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

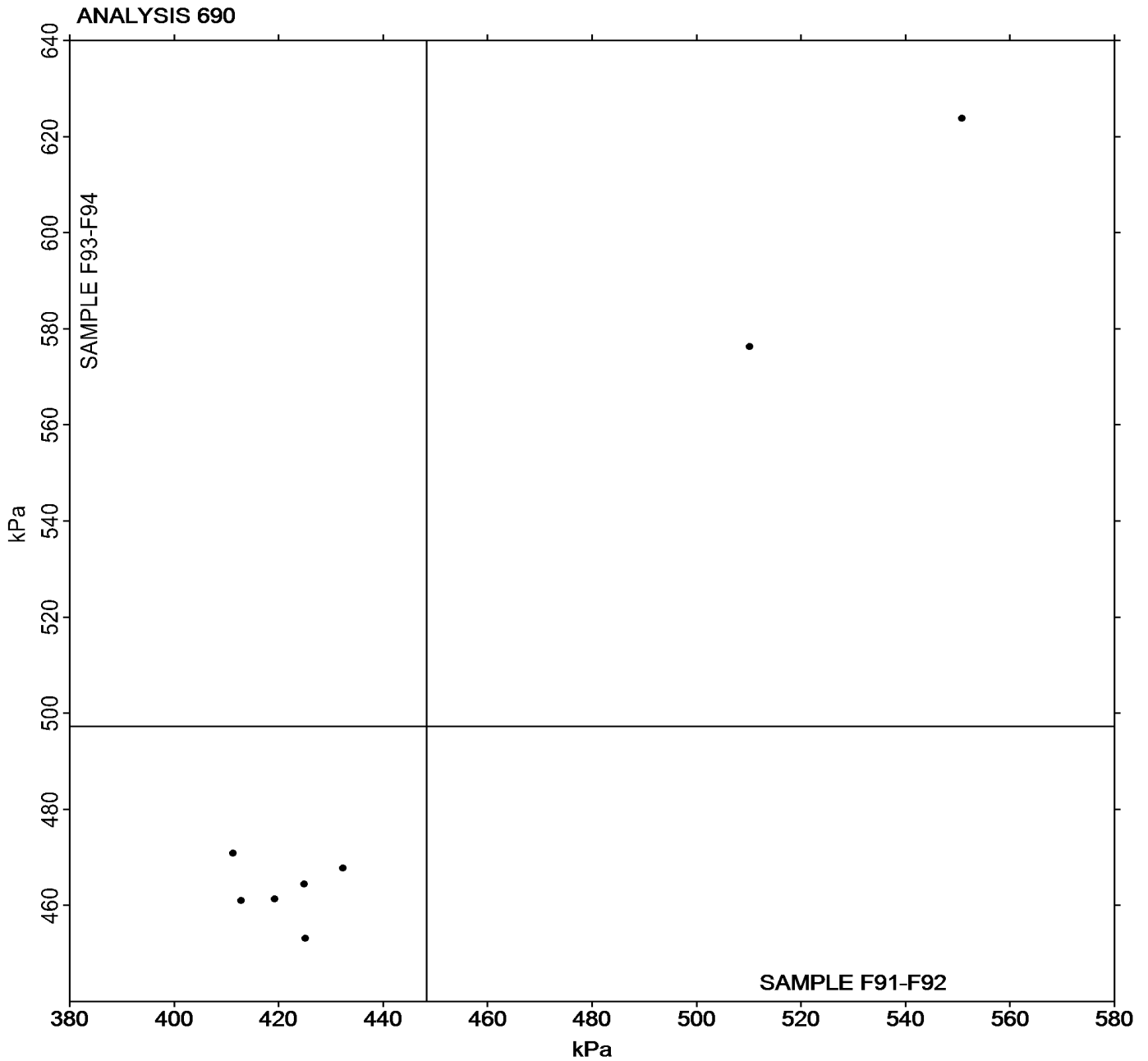


Rubber Interlaboratory Testing Program
Analysis 690
RPA Rheological Properties: Part A - G' at 20Hz (kPa)

Report #200
2nd Qtr 2019

Grand Mean Sample F91-F92 = 448.35 kPa

Grand Mean Sample F93-F94 = 497.31 kPa



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



Rubber Interlaboratory Testing Program

Report #200

Analysis 691

2nd Qtr 2019

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

WebCode	Data Flag	Sample F91-F92			Sample F93-F94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
48XGZD		170.7	-14.9	-0.51	174.2	-19.9	-0.65	XX
6UAT77		204.6	19.0	0.65	212.8	18.7	0.61	RP
79NGVU		208.3	22.8	0.78	220.0	25.9	0.85	XX
A4XVH4		121.1	-64.5	-2.20	128.0	-66.2	-2.17	RP
NMMDN3		195.8	10.2	0.35	206.0	11.8	0.39	RP
RK2Z8V		181.7	-3.9	-0.13	194.0	-0.1	0.00	XX
X4YCKC		209.9	24.4	0.83	217.4	23.3	0.76	PR
Y7HQND		192.5	6.9	0.23	200.7	6.5	0.21	RP

Summary Statistics	
Grand Means	185.57 kPa
Std Dev Btwn Labs	29.32 kPa
	194.14 kPa
	30.51 kPa
Statistics based on 8 of 8 reporting participants	

Samples F91-F92: EPDM compound, batch #1 & F93-F94: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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

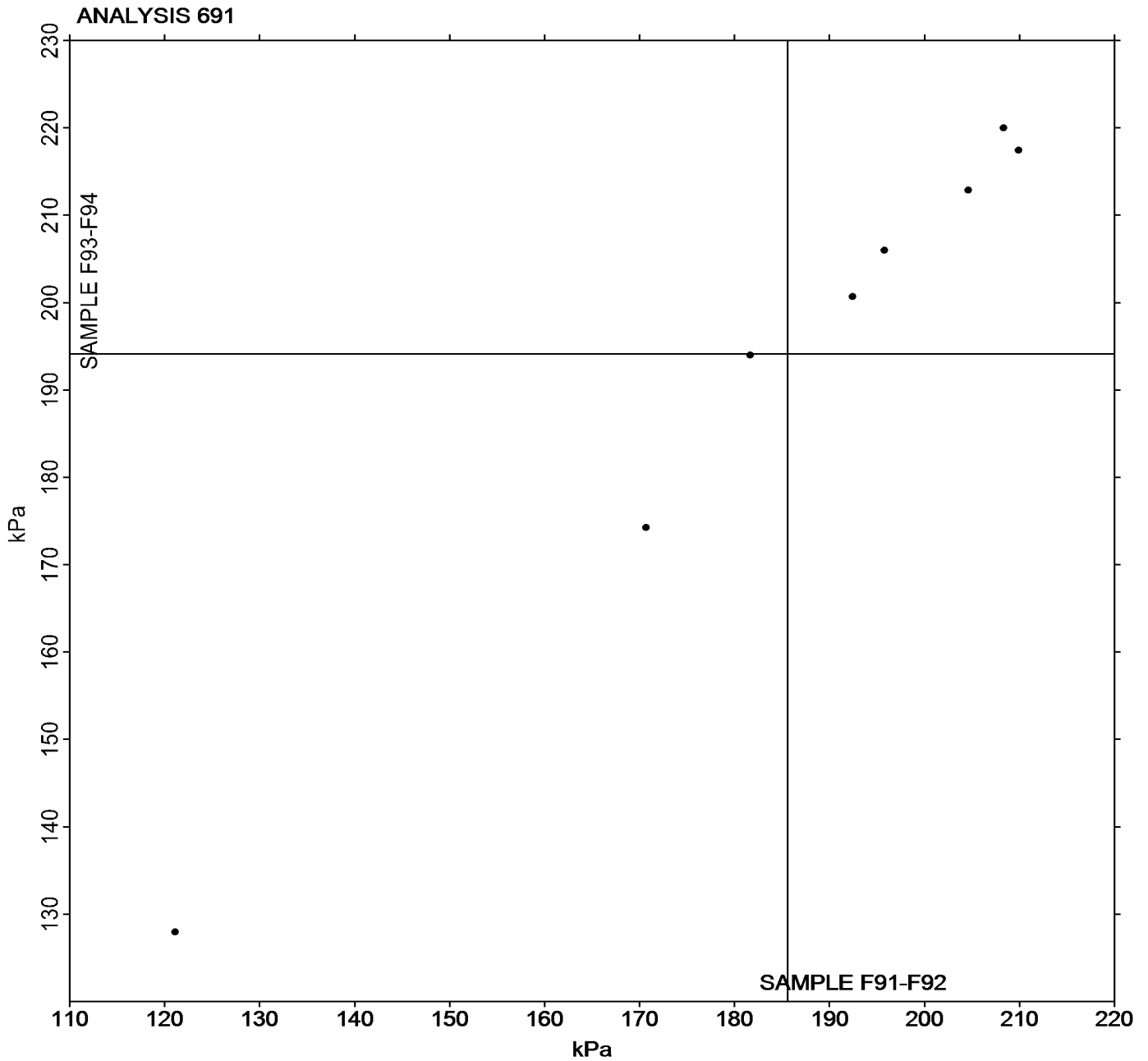


Rubber Interlaboratory Testing Program
Analysis 691
RPA Rheological Properties: Part A - G'' at 20Hz (kPa)

Report #200
2nd Qtr 2019

Grand Mean Sample F91-F92 = 185.57 kPa

Grand Mean Sample F93-F94 = 194.14 kPa



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



Rubber Interlaboratory Testing Program

Report #200

Analysis 695

2nd Qtr 2019

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

WebCode	Data Flag	Sample F91-F92			Sample F93-F94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
48XGZD		77.61	10.90	0.82	114.19	26.42	0.95	XX
6UAT77		57.71	-9.01	-0.68	66.20	-21.58	-0.77	RP
79NGVU		92.14	25.42	1.92	135.63	47.86	1.72	XX
A4XVH4		62.69	-4.03	-0.30	94.06	6.28	0.23	RP
NMMDN3		59.13	-7.59	-0.57	69.93	-17.84	-0.64	RP
X4YCKC		57.08	-9.63	-0.73	67.29	-20.48	-0.74	PR
Y7HQND		60.66	-6.06	-0.46	67.12	-20.66	-0.74	RP

Grand Means		Summary Statistics	
	66.717 kPa		87.773 kPa
Std Dev Btwn Labs	13.226 kPa		27.863 kPa
Statistics based on 7 of 7 reporting participants			

Samples F91-F92: EPDM compound, batch #1 & F93-F94: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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

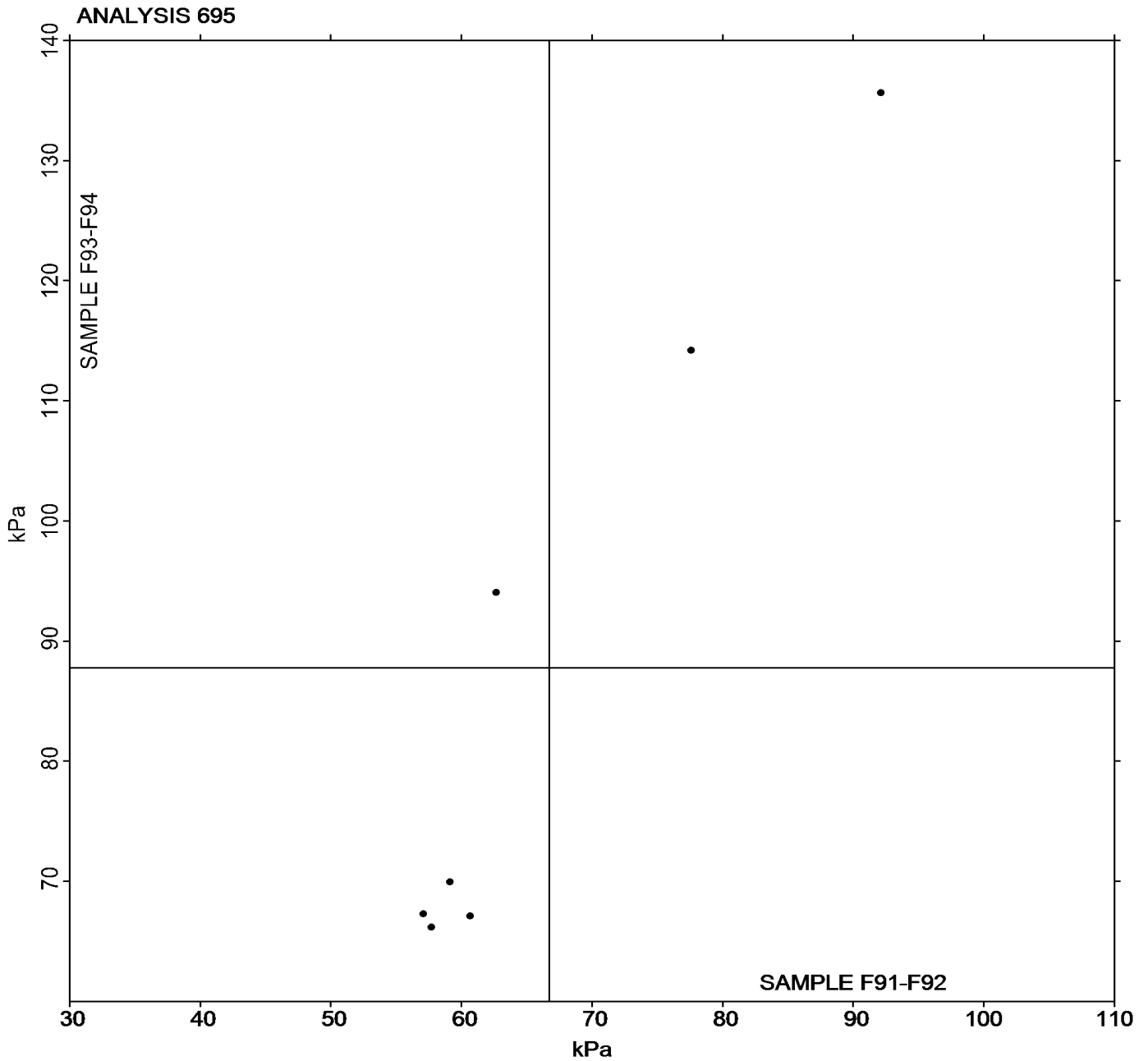


Rubber Interlaboratory Testing Program
Analysis 695
RPA Rheological Properties: Part B - G' at 1.0Hz (kPa)

Report #200
2nd Qtr 2019

Grand Mean Sample F91-F92 = 66.717 kPa

Grand Mean Sample F93-F94 = 87.773 kPa



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



Rubber Interlaboratory Testing Program

Report #200

Analysis 696

2nd Qtr 2019

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

WebCode	Data Flag	Sample F91-F92			Sample F93-F94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
48XGZD		69.01	5.89	1.10	80.81	9.06	0.93	XX
6UAT77		58.59	-4.53	-0.85	63.39	-8.36	-0.86	XX
79NGVU		72.12	9.01	1.69	89.66	17.91	1.85	XX
A4XVH4		58.19	-4.93	-0.92	67.84	-3.91	-0.40	RP
NMMDN3		61.78	-1.34	-0.25	68.30	-3.45	-0.36	RP
X4YCKC		61.01	-2.10	-0.39	66.95	-4.80	-0.49	PR
Y7HQND		61.11	-2.01	-0.38	65.31	-6.44	-0.66	RP

Grand Means		Summary Statistics	
	63.115 kPa		71.749 kPa
Std Dev Btwn Labs	5.337 kPa		9.702 kPa
Statistics based on 7 of 7 reporting participants			

Samples F91-F92: EPDM compound, batch #1 & F93-F94: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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



Rubber Interlaboratory Testing Program

Report #200

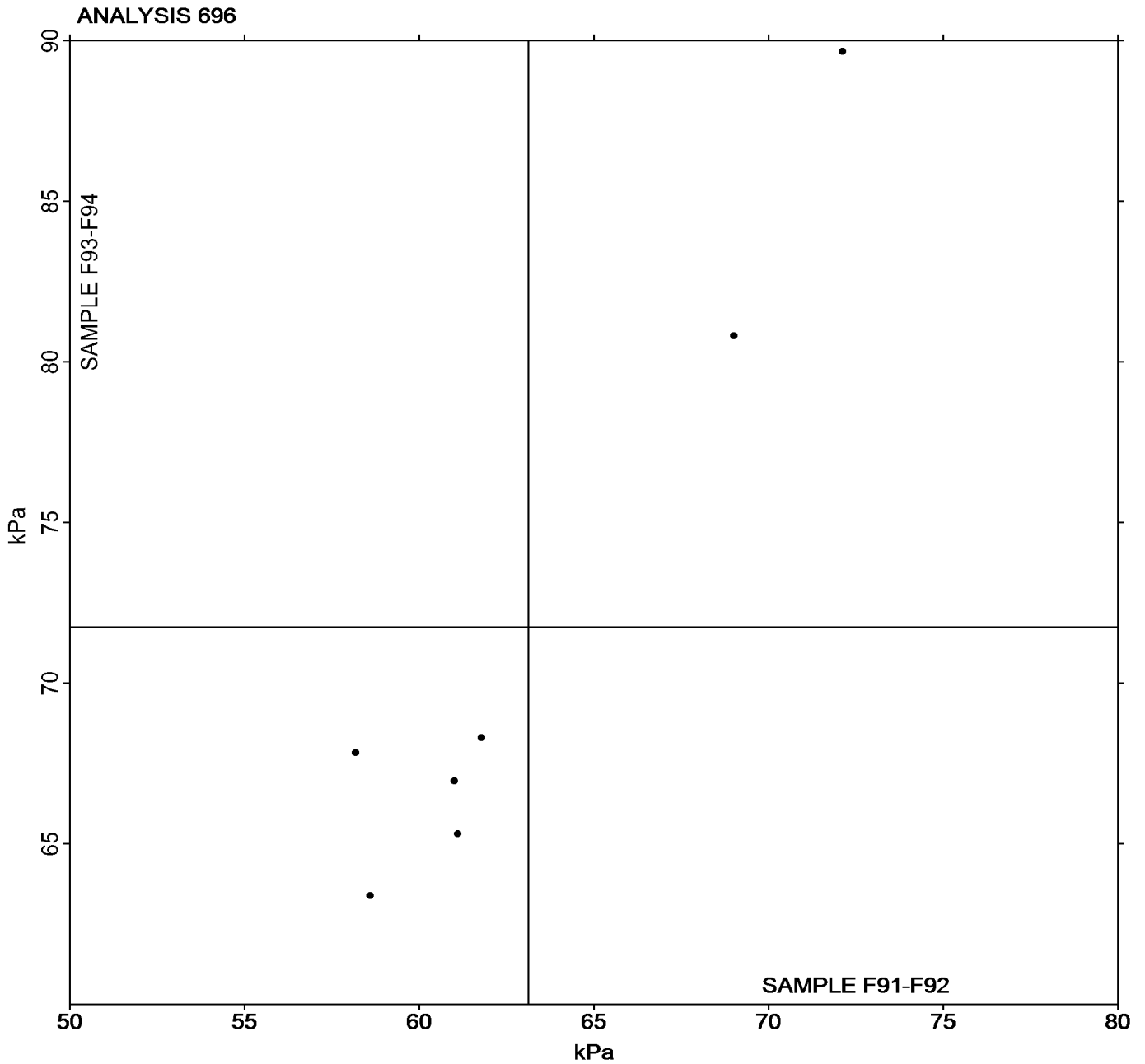
Analysis 696

2nd Qtr 2019

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

Grand Mean Sample **F91-F92** = 63.115 kPa

Grand Mean Sample **F93-F94** = 71.749 kPa



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

-End of Report-