



Rubber Interlaboratory Testing Program

Summary Report #201- 3rd 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		
633	Tensile Stress at 100% Elongation: Lab-Cured		
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		
664	Mooney Stress Relaxation: Area under curve		
669	ODR Vulcanization Charac.: Cure Time 10%		
670	ODR Vulcanization Charac.: Scorch Time, Ts1		
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:

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

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

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

Common Problems Highlighted in Footnotes

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

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



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

Report #201
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WebCode	Data Flag	Sample C91-C92			Sample C93-C94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
24UCKP		3,501.1	127.4	0.92	3,494.7	117.7	0.82
2CNGDQ		3,299.5	-74.3	-0.54	3,226.5	-150.5	-1.04
2FVP7C	*	3,394.5	20.7	0.15	3,179.0	-198.0	-1.37
2R2T4Y		3,324.3	-49.5	-0.36	3,232.2	-144.8	-1.00
2ZMFLB		3,217.3	-156.5	-1.14	3,332.9	-44.1	-0.31
3ACLYA		3,521.5	147.7	1.07	3,492.7	115.7	0.80
3C7LT4		3,386.7	12.9	0.09	3,321.4	-55.6	-0.39
43UVKX		3,617.3	243.5	1.77	3,692.0	315.0	2.18
4C3PEQ	X	3,841.6	467.8	3.39	3,880.9	503.9	3.49
69QPJE		3,426.5	52.8	0.38	3,376.5	-0.5	0.00
6DDR2P	X	4,042.6	668.8	4.85	3,941.1	564.2	3.91
6EK4HQ		3,286.5	-87.3	-0.63	3,247.0	-130.0	-0.90
6GNY2U		3,443.6	69.8	0.51	3,374.3	-2.6	-0.02
6NZKU2		3,536.6	162.9	1.18	3,446.3	69.3	0.48
6WY63N		3,307.5	-66.3	-0.48	3,413.0	36.0	0.25
74G9ZL		3,430.9	57.1	0.41	3,409.1	32.2	0.22
7HHXZT		3,477.5	103.7	0.75	3,456.8	79.8	0.55
7M3M2K		3,485.9	112.1	0.81	3,457.4	80.4	0.56
82DQKQ		3,467.5	93.7	0.68	3,430.0	53.0	0.37
82TA6N	X	2,812.0	-561.8	-4.07	2,897.5	-479.5	-3.33
86BAK4		3,466.4	92.7	0.67	3,560.7	183.7	1.27
8KL37L		3,415.7	41.9	0.30	3,364.9	-12.1	-0.08
8NT88G		3,174.5	-199.3	-1.45	3,184.0	-193.0	-1.34
8PHHZ3	X	2,908.0	-465.7	-3.38	2,676.0	-701.0	-4.86
9WYCU7		3,440.0	66.2	0.48	3,435.0	58.0	0.40
AB8TUC		3,498.5	124.7	0.90	3,548.0	171.0	1.19
AGCWHP		3,447.0	73.2	0.53	3,490.5	113.5	0.79
ANWNCX		3,415.9	42.1	0.31	3,340.5	-36.5	-0.25
APHHVE		3,227.0	-146.8	-1.06	3,280.0	-97.0	-0.67
AVWCKP		3,312.1	-61.6	-0.45	3,459.3	82.3	0.57
B6DF6U		3,437.4	63.7	0.46	3,415.7	38.7	0.27
BDUP23		3,485.2	111.4	0.81	3,405.1	28.1	0.20
BVJR38		3,322.0	-51.8	-0.38	3,447.0	70.0	0.49
C3CLDB		3,261.5	-112.3	-0.81	3,255.5	-121.5	-0.84
C6Y7ZZ		3,239.1	-134.7	-0.98	3,212.0	-165.0	-1.14
CEX9WG		3,502.4	128.6	0.93	3,379.0	2.0	0.01
CJLFYT		3,516.4	142.6	1.03	3,442.4	65.4	0.45
DNC8N2		3,332.5	-41.3	-0.30	3,244.0	-133.0	-0.92



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
DNEU8Z		3,300.0	-73.8	-0.53	3,347.5	-29.5	-0.20
E4HNCE		3,219.9	-153.9	-1.12	3,169.1	-207.9	-1.44
E6P7VF		3,155.0	-218.8	-1.59	3,090.0	-287.0	-1.99
ECB6LN		3,430.0	56.2	0.41	3,440.0	63.0	0.44
FDTNX7		3,491.4	117.6	0.85	3,447.5	70.5	0.49
FYHY7R		3,362.5	-11.3	-0.08	3,229.0	-148.0	-1.03
GX3Z9T		3,574.0	200.2	1.45	3,619.6	242.6	1.68
HDXLNN		3,422.0	48.2	0.35	3,455.0	78.0	0.54
HMPYRU		3,354.5	-19.3	-0.14	3,408.5	31.5	0.22
J32BAH		3,239.4	-134.3	-0.97	3,243.8	-133.2	-0.92
J9QNB7		3,211.0	-162.8	-1.18	3,234.5	-142.5	-0.99
JTM7QU		3,626.3	252.5	1.83	3,549.7	172.7	1.20
JYQACL		3,242.0	-131.8	-0.96	3,155.0	-222.0	-1.54
K82T9Q		3,426.3	52.5	0.38	3,322.3	-54.7	-0.38
KGX3EK		3,161.9	-211.9	-1.54	3,256.1	-120.8	-0.84
KT2PBQ		3,394.6	20.9	0.15	3,440.3	63.4	0.44
LBALFE		3,195.9	-177.8	-1.29	3,200.3	-176.7	-1.23
LF9QU9		3,253.0	-120.8	-0.88	3,293.0	-84.0	-0.58
LFNAE7		3,553.1	179.3	1.30	3,492.8	115.8	0.80
LH96ZH		3,417.3	43.5	0.32	3,344.4	-32.6	-0.23
M7ANNM		3,563.0	189.2	1.37	3,611.0	234.0	1.62
MH3GQH		3,158.2	-215.5	-1.56	3,222.0	-154.9	-1.07
MQVPB9		3,058.8	-314.9	-2.28	3,119.8	-257.2	-1.78
NQV2FG		3,130.3	-243.4	-1.77	3,141.9	-235.1	-1.63
NUEWH9		3,620.3	246.5	1.79	3,591.0	214.0	1.48
NZAM7Z		3,382.0	8.2	0.06	3,493.0	116.0	0.80
PCMKZY		3,521.0	147.2	1.07	3,567.5	190.5	1.32
PJFHDW		3,363.5	-10.3	-0.07	3,387.5	10.5	0.07
PN6ZCE		3,413.0	39.3	0.28	3,480.3	103.3	0.72
PP8PV6		3,480.9	107.2	0.78	3,577.4	200.4	1.39
PYLUGF	*	3,238.0	-135.8	-0.98	3,434.0	57.0	0.40
Q4F2JN		3,196.5	-177.3	-1.29	3,353.5	-23.5	-0.16
Q7ALUU		3,581.0	207.2	1.50	3,476.0	99.0	0.69
QG2FMN		3,419.0	45.2	0.33	3,409.0	32.0	0.22
QG6WZG		3,568.0	194.2	1.41	3,626.5	249.5	1.73
QRQ29F		3,268.5	-105.3	-0.76	3,185.5	-191.5	-1.33
QUYB6J		3,389.5	15.7	0.11	3,440.5	63.5	0.44



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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WebCode	Data Flag	Sample C91-C92			Sample C93-C94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
QXXMZJ		3,253.9	-119.8	-0.87	3,238.7	-138.3	-0.96
R4FFPN	X	1,377.0	-1,996.8	-14.48	1,376.0	-2,001.0	-13.88
R4R3YV	X	63.0	-3,310.8	-24.01	63.8	-3,313.2	-22.98
RCX7M7	X	2,839.5	-534.3	-3.87	2,973.4	-403.5	-2.80
RHFYMF		3,153.5	-220.3	-1.60	3,149.5	-227.5	-1.58
RPXPQL		3,313.6	-60.2	-0.44	3,274.3	-102.7	-0.71
RVYUE6		3,341.0	-32.8	-0.24	3,416.5	39.5	0.27
T7YUTN		3,544.0	170.2	1.23	3,515.5	138.5	0.96
TDZ7NL		3,242.0	-131.8	-0.96	3,297.5	-79.5	-0.55
TGLV9Y		3,507.9	134.1	0.97	3,524.2	147.2	1.02
TKK76Y		3,519.5	145.7	1.06	3,535.5	158.5	1.10
TMGXVF		3,129.9	-243.9	-1.77	3,170.8	-206.2	-1.43
TN428Q	X	2,828.3	-545.5	-3.96	3,009.6	-367.4	-2.55
TNGUJK		3,460.0	86.2	0.63	3,602.0	225.0	1.56
TYTB44		3,530.0	156.2	1.13	3,534.0	157.0	1.09
U3X6PM		3,416.5	42.7	0.31	3,468.0	91.0	0.63
UM3QPT		3,352.0	-21.8	-0.16	3,271.5	-105.5	-0.73
UYP3DV		3,291.3	-82.4	-0.60	3,302.3	-74.7	-0.52
VA4JH8		3,365.0	-8.8	-0.06	3,315.0	-62.0	-0.43
VCZPPU		3,227.0	-146.8	-1.06	3,276.0	-101.0	-0.70
VD4VE8		3,291.8	-82.0	-0.59	3,232.8	-144.2	-1.00
VD6H2D		3,328.0	-45.8	-0.33	3,438.3	61.3	0.43
VQW4KG		3,448.9	75.1	0.54	3,557.7	180.8	1.25
W4AZZA		3,496.9	123.1	0.89	3,519.4	142.4	0.99
WJMBQG		3,502.7	128.9	0.94	3,553.5	176.5	1.22
WJNZWZ		3,510.0	136.2	0.99	3,398.0	21.0	0.15
XM6PUH		3,249.1	-124.6	-0.90	3,240.2	-136.7	-0.95
XT4GUY		3,263.5	-110.2	-0.80	3,305.7	-71.3	-0.49
XVVF9X		3,138.5	-235.3	-1.71	3,249.5	-127.5	-0.88
YWR6FR	*	3,662.5	288.7	2.09	3,757.6	380.7	2.64
Z6WMZ3		3,077.0	-296.8	-2.15	3,076.3	-300.7	-2.09
Z9UZNR		3,212.5	-161.2	-1.17	3,253.2	-123.7	-0.86
ZFUDR2		3,523.7	150.0	1.09	3,497.6	120.6	0.84
ZFWCJN		3,345.7	-28.1	-0.20	3,190.1	-186.9	-1.30
ZPMN3W		3,426.0	52.3	0.38	3,389.9	12.9	0.09



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

Report #201
3rd Qtr 2019

		Summary Statistics	
Grand Means			
	3,373.76 psi		3,376.97 psi
Stnd Dev Btwn Labs			
	137.89 psi		144.19 psi
Statistics based on 102 of 110 reporting participants			

		Summary Statistics in SI Units	
Grand Means			
	23.261 MPa		23.28 MPa
Stnd Dev Btwn Labs			
	0.951 MPa		0.99 MPa
Statistics based on 102 of 110 reporting participants			

Samples C91-C92: Polyisoprene compound, batch #1 & C93-C94: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #605

- 4C3PEQ (X) - Data for all samples are high. Possible Systematic Error.
- 6DDR2P (X) - Data for all samples are high. Possible Systematic Error.
- 82TA6N (X) - Data for all samples are low. Possible Systematic Error.
- 8PHHZ3 (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of sample group C93-C94.
- R4FFPN (X) - Extreme Data.
- R4R3YV (X) - Extreme Data.
- RCX7M7 (X) - Data for all samples are low. Possible Systematic Error.
- TN428Q (X) - Data for sample group C91-C92 are low.

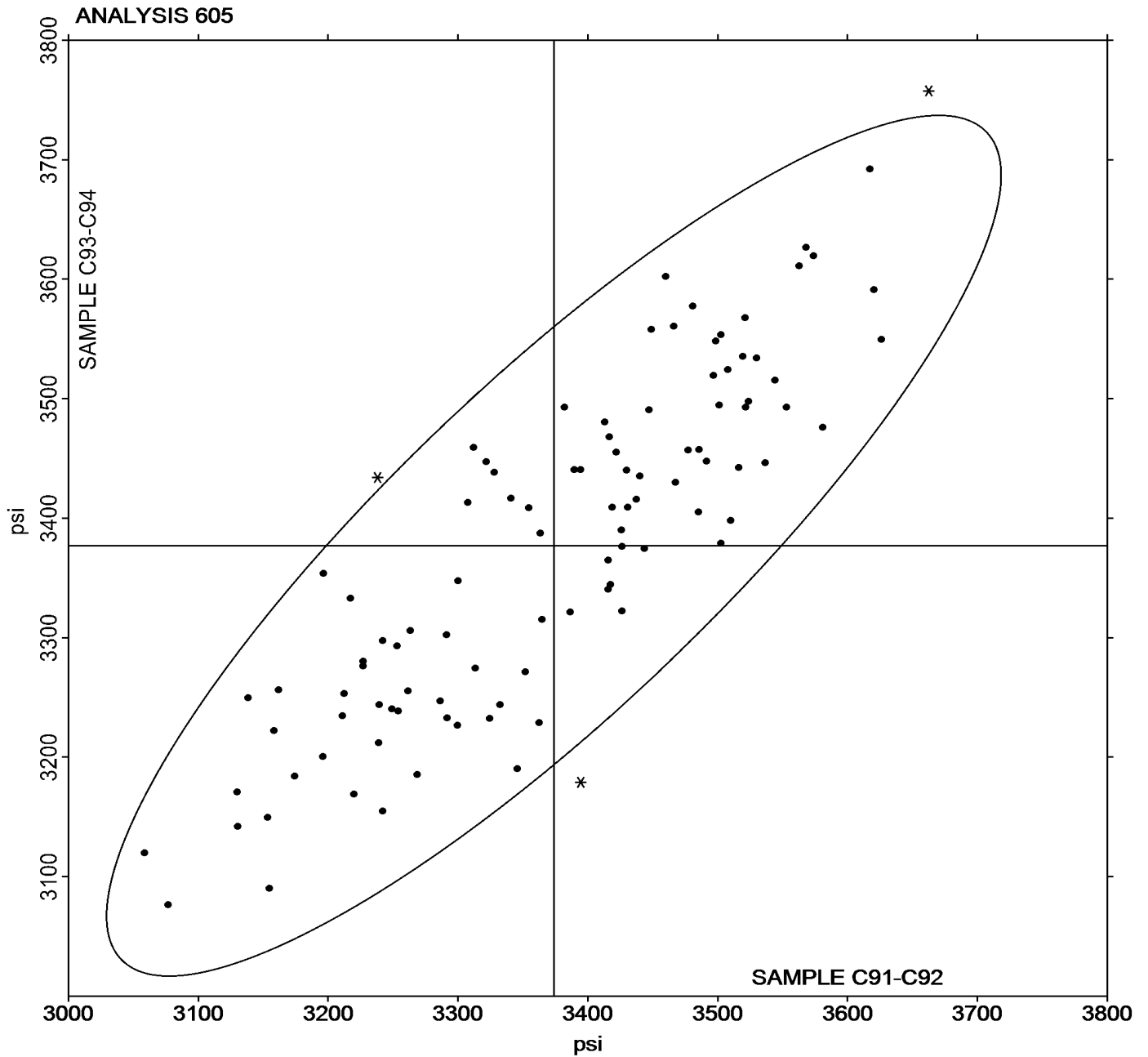


Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

Report #201
3rd Qtr 2019

Grand Mean Sample **C91-C92** = 3,373.76 psi

Grand Mean Sample **C93-C94** = 3,376.97 psi





Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #201
3rd Qtr 2019

WebCode	Data Flag	Sample C91-C92			Sample C93-C94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
24UCKP		605.4	-13.8	-0.39	619.8	-0.2	-0.01
2CNGDQ		604.0	-15.2	-0.43	597.5	-22.5	-0.66
2FVP7C		647.0	27.8	0.80	641.5	21.5	0.63
2ZMFLB		641.0	21.8	0.62	649.6	29.6	0.87
3ACLYA		638.6	19.4	0.55	630.7	10.7	0.31
3C7LT4		649.1	29.9	0.86	648.3	28.3	0.83
43UVKX	X	607.5	-11.7	-0.33	573.5	-46.5	-1.36
4C3PEQ	*	545.8	-73.4	-2.10	532.1	-87.9	-2.57
69QPJE		648.5	29.3	0.84	641.0	21.0	0.61
6DDR2P	X	558.3	-60.9	-1.74	533.8	-86.1	-2.52
6EK4HQ		648.5	29.3	0.84	660.0	40.0	1.17
6GNY2U		611.1	-8.1	-0.23	607.9	-12.1	-0.35
6NZKU2		616.8	-2.4	-0.07	610.9	-9.1	-0.27
6WY63N		630.5	11.3	0.32	629.0	9.0	0.26
74G9ZL		579.0	-40.2	-1.15	573.5	-46.5	-1.36
7HHXZT		655.0	35.8	1.03	648.2	28.2	0.83
7M3M2K		664.2	45.0	1.29	652.1	32.1	0.94
82DQKQ		632.5	13.3	0.38	628.5	8.5	0.25
82TA6N		574.0	-45.2	-1.29	582.0	-38.0	-1.11
86BAK4		660.0	40.8	1.17	668.0	48.0	1.40
8KL37L		600.5	-18.7	-0.53	618.0	-2.0	-0.06
8NT88G		567.5	-51.7	-1.48	581.5	-38.5	-1.13
8PHHZ3	X	629.5	10.3	0.30	556.5	-63.5	-1.86
9WYCU7		640.0	20.8	0.60	638.5	18.5	0.54
AB8TUC		621.5	2.3	0.07	614.0	-6.0	-0.17
AGCWHP	*	673.0	53.8	1.54	649.0	29.0	0.85
ANWNCX		644.0	24.8	0.71	653.6	33.6	0.98
APHHVE		640.0	20.8	0.60	628.0	8.0	0.23
AVWCKP		636.3	17.2	0.49	625.7	5.7	0.17
B6DF6U		597.5	-21.7	-0.62	615.5	-4.5	-0.13
BDUP23		659.5	40.3	1.15	675.5	55.5	1.62
BVJR38		637.0	17.8	0.51	638.5	18.5	0.54
C3CLDB		609.5	-9.7	-0.28	618.5	-1.5	-0.04
C6Y7ZZ		582.2	-37.0	-1.06	579.5	-40.5	-1.19
CEX9WG		644.5	25.3	0.72	651.0	31.0	0.91
CJLFYT		644.0	24.8	0.71	649.5	29.5	0.86
DNC8N2	*	517.5	-101.7	-2.91	531.0	-89.0	-2.60
DNEU8Z		611.0	-8.2	-0.23	615.5	-4.5	-0.13



Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #201
3rd Qtr 2019

WebCode	Data Flag	Sample C91-C92			Sample C93-C94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
E4HNCE		602.4	-16.8	-0.48	598.3	-21.7	-0.63
ECB6LN		663.5	44.3	1.27	680.0	60.0	1.75
FDTNX7	X	764.8	145.6	4.17	752.6	132.6	3.88
FYHY7R	X	599.5	-19.7	-0.56	678.5	58.5	1.71
GX3Z9T		678.7	59.5	1.70	677.8	57.8	1.69
HDXLNN	X	1,865.0	1,245.8	35.65	1,859.0	1,239.0	36.23
HMPYRU		646.0	26.8	0.77	656.0	36.0	1.05
J32BAH		614.3	-4.9	-0.14	628.4	8.4	0.24
J9QNB7		674.0	54.8	1.57	676.5	56.5	1.65
JTM7QU		647.4	28.2	0.81	638.3	18.4	0.54
JYQACL		627.0	7.8	0.22	608.5	-11.5	-0.34
K82T9Q	X	793.2	174.0	4.98	777.9	158.0	4.62
KT2PBQ		612.5	-6.7	-0.19	613.5	-6.5	-0.19
LF9QU9		621.3	2.1	0.06	622.0	2.0	0.06
LFNAE7		643.0	23.8	0.68	634.0	14.0	0.41
LH96ZH		641.6	22.4	0.64	624.2	4.2	0.12
M7ANNM		624.0	4.8	0.14	637.5	17.5	0.51
MH3GQH	X	719.5	100.3	2.87	744.0	124.0	3.63
MQVPB9	X	545.2	-74.0	-2.12	596.0	-23.9	-0.70
NQV2FG		594.4	-24.8	-0.71	593.8	-26.2	-0.77
NUEWH9		640.0	20.8	0.60	641.0	21.0	0.61
NZAM7Z		631.5	12.3	0.35	627.5	7.5	0.22
PCMKZY		630.5	11.3	0.32	642.5	22.5	0.66
PJFHDW		634.0	14.9	0.43	639.0	19.0	0.56
PN6ZCE		614.1	-5.0	-0.14	639.7	19.7	0.58
PP8PV6		604.3	-14.9	-0.43	590.2	-29.8	-0.87
PYLUGF		558.5	-60.7	-1.74	563.0	-57.0	-1.67
Q4F2JN	*	518.5	-100.7	-2.88	518.7	-101.3	-2.96
Q7ALUU		630.0	10.8	0.31	640.5	20.5	0.60
QG2FMN		629.5	10.3	0.30	623.0	3.0	0.09
QG6WZG		647.5	28.3	0.81	632.5	12.5	0.37
QRQ29F		633.5	14.3	0.41	617.0	-3.0	-0.09
QUYB6J		608.0	-11.2	-0.32	626.0	6.0	0.18
QXXMZJ		659.0	39.8	1.14	654.5	34.5	1.01
R4FFPN		548.8	-70.4	-2.01	551.9	-68.1	-1.99
R4R3YV	X	753.4	134.2	3.84	771.7	151.7	4.44
RCX7M7	X	980.4	361.2	10.33	854.6	234.7	6.86



Rubber Interlaboratory Testing Program

Report #201

Analysis 606

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Ultimate Elongation (percent)

WebCode	Data Flag	Sample C91-C92			Sample C93-C94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
RHFYMF		564.0	-55.2	-1.58	573.0	-47.0	-1.37
RPXPQL		665.0	45.8	1.31	655.0	35.0	1.02
RVYUE6		536.5	-82.7	-2.37	545.0	-75.0	-2.19
T7YUTN		591.0	-28.2	-0.81	588.5	-31.5	-0.92
TDZ7NL		603.5	-15.7	-0.45	600.0	-20.0	-0.58
TGLV9Y		636.0	16.8	0.48	637.0	17.0	0.50
TKK76Y		638.5	19.3	0.55	643.5	23.5	0.69
TMGXVF		570.5	-48.6	-1.39	579.0	-41.0	-1.20
TN428Q	X	530.9	-88.3	-2.53	569.2	-50.8	-1.49
TNGUJK		639.0	19.8	0.57	647.0	27.0	0.79
TYTB44		640.5	21.3	0.61	642.0	22.0	0.64
U3X6PM		591.5	-27.7	-0.79	587.5	-32.5	-0.95
UM3QPT		633.5	14.3	0.41	621.0	1.0	0.03
UYP3DV		603.9	-15.2	-0.44	603.8	-16.2	-0.47
VA4JH8		599.0	-20.2	-0.58	595.0	-25.0	-0.73
VCZPPU		557.0	-62.2	-1.78	550.0	-70.0	-2.05
VD4VE8		606.8	-12.4	-0.35	601.2	-18.8	-0.55
VD6H2D		640.7	21.5	0.62	647.0	27.0	0.79
VQW4KG		646.9	27.7	0.79	642.1	22.1	0.65
W4AZZA		668.0	48.8	1.40	651.5	31.5	0.92
WJMBQG		660.0	40.8	1.17	657.5	37.5	1.10
WJNZWZ		614.0	-5.2	-0.15	614.0	-6.0	-0.17
XM6PUH		550.2	-69.0	-1.97	560.6	-59.4	-1.74
XT4GUY		617.5	-1.7	-0.05	609.0	-11.0	-0.32
XVVF9X		572.5	-46.7	-1.34	589.5	-30.5	-0.89
YWR6FR		638.3	19.1	0.55	645.0	25.0	0.73
Z6WMZ3		592.0	-27.2	-0.78	592.0	-28.0	-0.82
Z9UZNR		628.3	9.1	0.26	646.9	27.0	0.79
ZFUDR2		604.5	-14.7	-0.42	600.5	-19.5	-0.57
ZFWCJN		626.1	6.9	0.20	647.5	27.5	0.80
ZPMN3W		613.1	-6.1	-0.17	608.0	-12.0	-0.35

Grand Means		Summary Statistics	
	619.17 percent		619.98 percent
Std Dev Btwn Labs	34.95 percent		34.20 percent
Statistics based on 94 of 106 reporting participants			



Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #201
3rd Qtr 2019

Samples C91-C92: Polyisoprene compound, batch #1 & C93-C94: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #606

- 43UVKX (X) - Inconsistent in testing between samples.
- 6DDR2P (X) - Inconsistent in testing between samples.
- 8PHHZ3 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group C93-C94.
- FDTNX7 (X) - Data for all samples are high. Possible Systematic Error.
- FYHY7R (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group C93-C94.
- HDXLNN (X) - Extreme Data.
- K82T9Q (X) - Data for all samples are high. Possible Systematic Error. Inconsistent within the determinations of both sample groups.
- MH3GQH (X) - Data for all samples are high. Possible Systematic Error.
- MQVPB9 (X) - Inconsistent in testing between samples.
- R4R3YV (X) - Data for all samples are high. Possible Systematic Error.
- RCX7M7 (X) - Extreme Data.
- TN428Q (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group C93-C94.

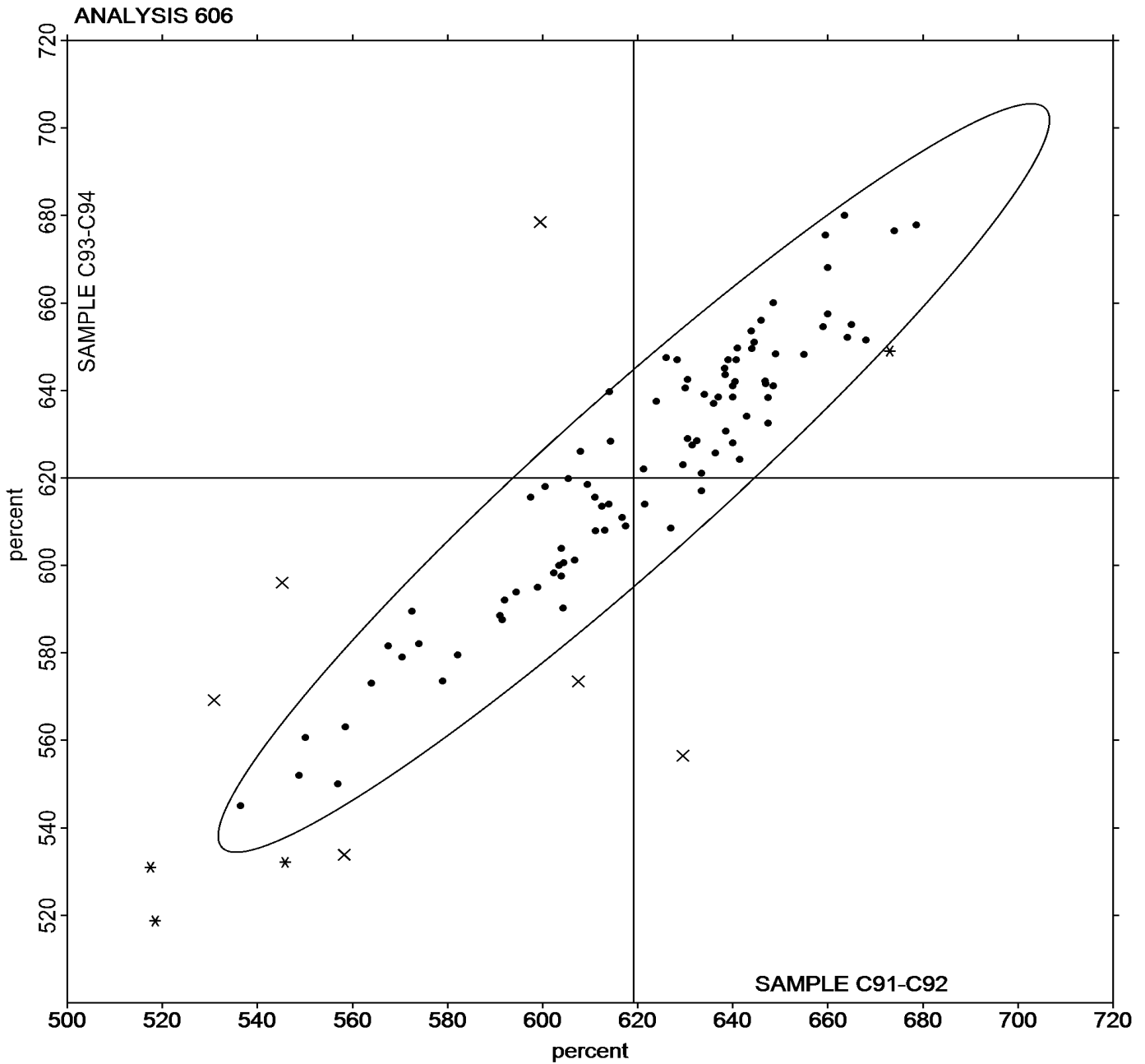


Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #201
3rd Qtr 2019

Grand Mean Sample C91-C92 = 619.17 percent

Grand Mean Sample C93-C94 = 619.98 percent





Rubber Interlaboratory Testing Program

Report #201

Analysis 607

3rd Qtr 2019

Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample C91-C92			Sample C93-C94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
24UCKP		1,031.0	78.4	0.95	940.4	1.4	0.02
2CNGDQ		943.0	-9.6	-0.12	941.5	2.5	0.03
2FVP7C		900.0	-52.6	-0.64	829.5	-109.5	-1.39
2ZMFLB		882.1	-70.5	-0.85	898.4	-40.6	-0.51
3ACLYA		942.1	-10.5	-0.13	942.7	3.6	0.05
3C7LT4		872.4	-80.2	-0.97	904.3	-34.7	-0.44
43UVKX	X	1,087.8	135.2	1.64	1,226.3	287.3	3.64
4C3PEQ	X	1,473.0	520.4	6.31	1,518.1	579.0	7.33
69QPJE		888.4	-64.2	-0.78	868.8	-70.2	-0.89
6DDR2P	X	1,500.5	547.9	6.64	1,462.0	523.0	6.62
6EK4HQ		892.0	-60.6	-0.73	827.5	-111.5	-1.41
6GNY2U		972.8	20.3	0.25	937.0	-2.1	-0.03
6NZKU2		1,010.5	57.9	0.70	1,002.8	63.8	0.81
6WY63N		929.0	-23.6	-0.29	953.0	14.0	0.18
74G9ZL		1,105.9	153.3	1.86	1,094.3	155.3	1.97
7HHXZT		937.2	-15.4	-0.19	934.0	-5.0	-0.06
7M3M2K		880.6	-72.0	-0.87	898.3	-40.7	-0.52
82DQKQ		1,012.0	59.4	0.72	973.5	34.5	0.44
82TA6N		923.5	-29.1	-0.35	952.0	13.0	0.16
86BAK4		1,029.1	76.5	0.93	1,039.2	100.2	1.27
8KL37L		1,045.0	92.4	1.12	989.0	50.0	0.63
8PHHZ3		1,098.7	146.1	1.77	1,126.2	187.2	2.37
9WYCU7		931.0	-21.6	-0.26	953.0	14.0	0.18
AB8TUC		988.5	35.9	0.44	972.0	33.0	0.42
AGCWHP		814.5	-138.1	-1.67	885.0	-54.0	-0.68
ANWNCX		898.5	-54.1	-0.66	851.4	-87.6	-1.11
APHHVE		906.0	-46.6	-0.57	934.5	-4.5	-0.06
B6DF6U		1,005.8	53.2	0.65	978.3	39.3	0.50
BDUP23	X	933.3	-19.3	-0.23	777.1	-162.0	-2.05
BVJR38		901.5	-51.1	-0.62	920.0	-19.0	-0.24
C3CLDB		959.0	6.4	0.08	911.5	-27.5	-0.35
C6Y7ZZ		1,086.5	133.9	1.62	1,065.3	126.3	1.60
CEX9WG	*	953.0	0.4	0.00	827.0	-112.0	-1.42
CJLFYT		971.4	18.8	0.23	922.4	-16.7	-0.21
DNC8N2	X	1,386.5	433.9	5.26	1,246.0	307.0	3.88
DNEU8Z		917.5	-35.1	-0.43	944.5	5.5	0.07
E4HNCE		958.7	6.1	0.07	981.2	42.2	0.53
ECB6LN		927.5	-25.1	-0.30	964.0	25.0	0.32



Rubber Interlaboratory Testing Program

Report #201

Analysis 607

3rd Qtr 2019

Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample C91-C92			Sample C93-C94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
FDTNX7		748.9	-203.7	-2.47	759.5	-179.5	-2.27
FYHY7R	X	1,035.5	82.9	1.01	826.5	-112.5	-1.42
GX3Z9T		875.5	-77.1	-0.94	853.4	-85.6	-1.08
HDXLNN	X	250.5	-702.1	-8.51	248.0	-691.0	-8.74
HMPYRU		906.0	-46.6	-0.57	857.5	-81.5	-1.03
J32BAH		949.3	-3.3	-0.04	868.8	-70.2	-0.89
J9QNB7		782.0	-170.6	-2.07	792.5	-146.5	-1.85
JTM7QU		952.1	-0.5	-0.01	1,005.0	66.0	0.83
K82T9Q	*	699.6	-253.0	-3.07	707.0	-232.0	-2.94
KT2PBQ		1,022.5	69.9	0.85	1,017.4	78.4	0.99
LF9QU9		843.3	-109.3	-1.33	842.5	-96.5	-1.22
LFNAE7		931.9	-20.7	-0.25	934.5	-4.5	-0.06
LH96ZH		1,085.6	133.0	1.61	1,040.5	101.4	1.28
M7ANNM		1,029.0	76.4	0.93	984.0	45.0	0.57
MH3GQH	X	705.6	-247.0	-3.00	665.7	-273.3	-3.46
MQVPB9	*	1,088.0	135.4	1.64	968.6	29.6	0.37
NQV2FG		967.9	15.3	0.19	915.4	-23.6	-0.30
NUEWH9		969.0	16.4	0.20	960.5	21.5	0.27
NZAM7Z		930.0	-22.6	-0.27	949.0	10.0	0.13
PCMZY		1,017.0	64.4	0.78	947.5	8.5	0.11
PJFHDW		899.8	-52.8	-0.64	889.1	-50.0	-0.63
PN6ZCE		995.1	42.5	0.52	959.5	20.5	0.26
PP8PV6	*	986.8	34.2	0.42	1,073.9	134.9	1.71
PYLUGF	*	1,102.0	149.4	1.81	1,144.5	205.5	2.60
Q4F2JN	X	1,253.5	300.9	3.65	1,268.5	329.5	4.17
Q7ALUU		962.0	9.4	0.11	903.0	-36.0	-0.46
QG2FMN		944.5	-8.1	-0.10	981.5	42.5	0.54
QG6WZG		961.0	8.4	0.10	882.0	-57.0	-0.72
QRQ29F		865.5	-87.1	-1.06	901.0	-38.0	-0.48
QUYB6J		1,005.0	52.4	0.64	959.0	20.0	0.25
QXXMZJ		843.4	-109.2	-1.32	831.1	-107.9	-1.37
R4FFPN	X	518.6	-434.0	-5.26	457.0	-482.0	-6.10
R4R3YV	X	14.7	-937.9	-11.37	14.5	-924.5	-11.70
RCX7M7	X	375.8	-576.8	-7.00	521.4	-417.6	-5.28
RHFYMF		1,006.0	53.4	0.65	940.0	1.0	0.01
RPXPQL		810.0	-142.6	-1.73	791.5	-147.5	-1.87
RVYUE6		1,122.0	169.4	2.05	1,083.5	144.5	1.83



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

Report #201
3rd Qtr 2019

WebCode	Data Flag	Sample C91-C92			Sample C93-C94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
T7YUTN		1,096.0	143.4	1.74	1,022.0	83.0	1.05
TDZ7NL		946.5	-6.1	-0.07	942.0	3.0	0.04
TGLV9Y		924.1	-28.5	-0.35	928.3	-10.8	-0.14
TMGXVF		979.9	27.3	0.33	942.8	3.8	0.05
TN428Q		1,017.4	64.8	0.79	994.2	55.2	0.70
TNGUJK		940.5	-12.1	-0.15	959.5	20.5	0.26
TYTB44		965.5	12.9	0.16	957.5	18.5	0.23
U3X6PM		1,005.6	53.0	0.64	1,030.5	91.5	1.16
UM3QPT		986.5	33.9	0.41	957.0	18.0	0.23
UY3DV		872.7	-79.9	-0.97	876.0	-63.0	-0.80
VD4VE8		945.6	-7.0	-0.08	940.7	1.7	0.02
VD6H2D		866.2	-86.4	-1.05	893.0	-46.0	-0.58
VQW4KG		900.2	-52.4	-0.64	936.3	-2.8	-0.03
W4AZZA		881.8	-70.8	-0.86	901.4	-37.6	-0.48
WJMBQG		871.7	-80.9	-0.98	876.0	-63.0	-0.80
WJNZWZ		1,032.5	79.9	0.97	962.0	23.0	0.29
XM6PUH		1,056.7	104.1	1.26	968.5	29.5	0.37
XT4GUY		981.1	28.5	0.35	984.8	45.7	0.58
XVVF9X		1,046.0	93.4	1.13	1,039.0	100.0	1.27
YWR6FR		968.1	15.5	0.19	1,005.2	66.1	0.84
Z6WMZ3		867.3	-85.3	-1.03	881.1	-57.9	-0.73
Z9UZNR		848.0	-104.6	-1.27	793.3	-145.7	-1.84
ZFUDR2		1,096.5	143.9	1.75	1,098.7	159.7	2.02
ZFWCJN		1,003.1	50.5	0.61	911.4	-27.6	-0.35
ZPMN3W		914.0	-38.6	-0.47	926.4	-12.6	-0.16

Grand Means		Summary Statistics	
	952.60 psi		939.01 psi
Std Dev Btwn Labs	82.46 psi		79.03 psi
Statistics based on 88 of 100 reporting participants			



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

Report #201
3rd Qtr 2019

		Summary Statistics in SI Units	
Grand Means	6.5679 MPa	6.47	MPa
Stnd Dev Btwn Labs	0.5685 MPa	0.54	MPa
Statistics based on 88 of 100 reporting participants			

Samples C91-C92: Polyisoprene compound, batch #1 & C93-C94: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #607

- 43UVKX (X) - Data for sample group C93-C94 are high.
- 4C3PEQ (X) - Data for all samples are high. Possible Systematic Error.
- 6DDR2P (X) - Data for all samples are high. Possible Systematic Error.
- BDUP23 (X) - Inconsistent in testing between samples.
- DNC8N2 (X) - Data for all samples are high. Possible Systematic Error.
- FYHY7R (X) - Inconsistent in testing between samples.
- HDXLNN (X) - Extreme data.
- MH3GQH (X) - Data for all samples are low. Possible Systematic Error.
- Q4F2JN (X) - Data for all samples are high. Possible Systematic Error.
- R4FFPN (X) - Data for all samples are low. Possible Systematic Error.
- R4R3YV (X) - Extreme Data.
- RCX7M7 (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of sample group C93-C94.

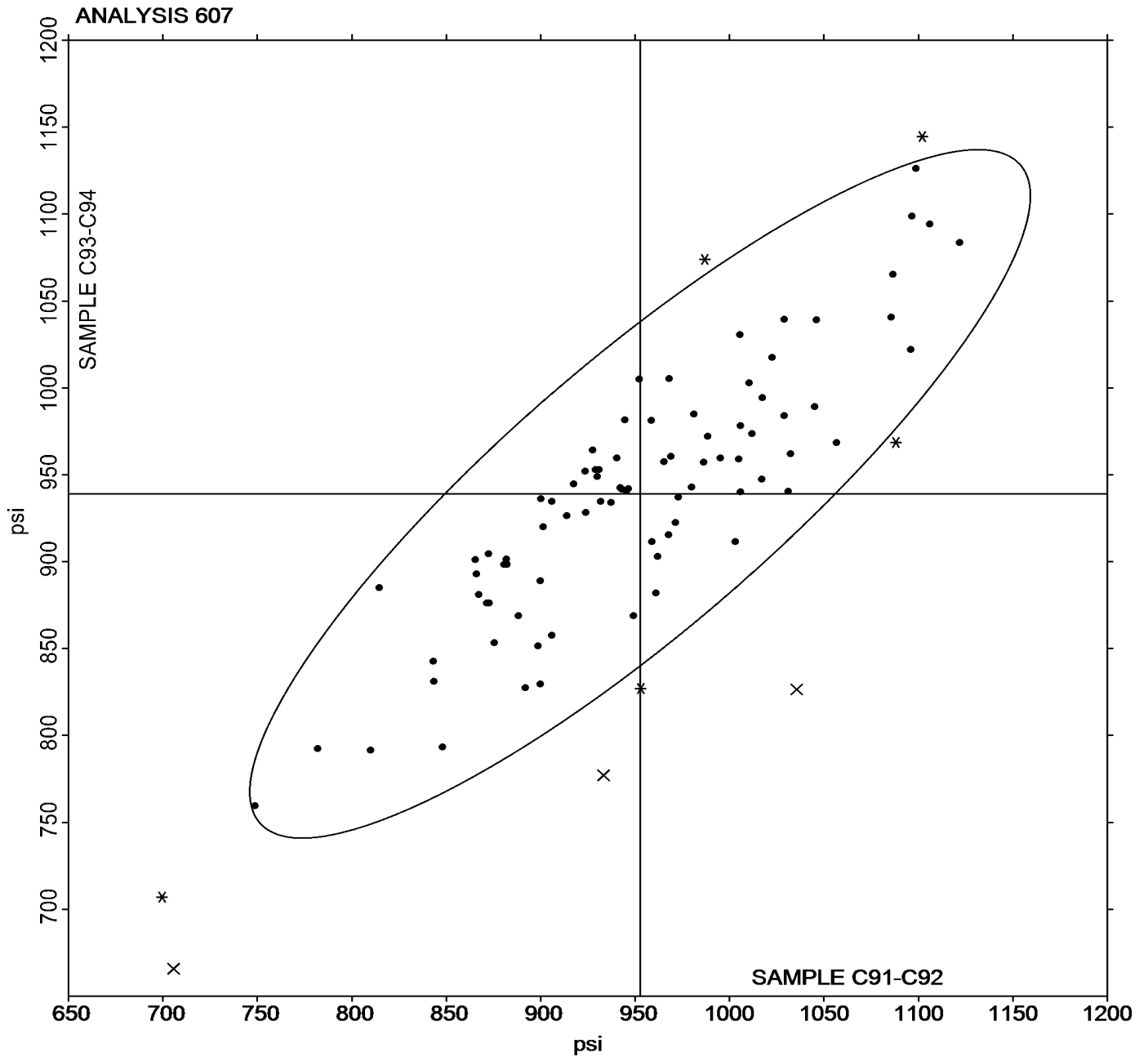


Rubber Interlaboratory Testing Program
Analysis 607
Stress at 300% Elongation (psi)

Report #201
3rd Qtr 2019

Grand Mean Sample **C91-C92** = 952.60 psi

Grand Mean Sample **C93-C94** = 939.01 psi





Rubber Interlaboratory Testing Program

Report #201

Analysis 608

3rd Qtr 2019

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample C91-C92			Sample C93-C94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
24UCKP		227.9	20.4	1.32	207.4	3.9	0.25
2CNGDQ		194.5	-13.0	-0.84	192.5	-11.0	-0.69
2FVP7C		202.5	-5.0	-0.32	193.0	-10.5	-0.66
2ZMFLB		193.2	-14.3	-0.92	199.5	-4.0	-0.25
3ACLYA		207.0	-0.5	-0.03	202.2	-1.3	-0.08
3C7LT4		187.8	-19.7	-1.27	190.7	-12.8	-0.80
43UVKX	*	224.1	16.6	1.07	240.8	37.3	2.35
4C3PEQ	X	348.6	141.1	9.13	372.5	169.0	10.64
69QPJE		202.3	-5.2	-0.33	199.4	-4.1	-0.26
6DDR2P	X	331.6	124.1	8.02	335.8	132.3	8.33
6EK4HQ		182.5	-25.0	-1.62	176.0	-27.5	-1.73
6GNY2U		198.7	-8.8	-0.57	189.3	-14.2	-0.89
6NZKU2		218.7	11.2	0.72	215.0	11.5	0.72
6WY63N		209.5	2.0	0.13	216.0	12.5	0.79
74G9ZL		235.0	27.5	1.78	232.8	29.3	1.84
7HHXZT		216.7	9.2	0.60	213.6	10.1	0.63
7M3M2K		199.5	-8.0	-0.52	199.8	-3.7	-0.23
82DQKQ		209.5	2.0	0.13	204.5	1.0	0.06
82TA6N		207.0	-0.5	-0.03	214.5	11.0	0.69
86BAK4		216.1	8.6	0.56	226.3	22.8	1.43
8KL37L	*	253.5	46.0	2.98	244.0	40.5	2.55
8PHHZ3	X	282.1	74.6	4.82	280.7	77.2	4.86
9WYCU7		201.0	-6.5	-0.42	210.0	6.5	0.41
AB8TUC		209.0	1.5	0.10	204.0	0.5	0.03
AGCWHP		186.0	-21.5	-1.39	198.0	-5.5	-0.35
ANWNCX		199.4	-8.1	-0.52	188.6	-14.9	-0.94
APHHVE		203.0	-4.5	-0.29	204.0	0.5	0.03
B6DF6U		216.1	8.6	0.56	206.0	2.5	0.16
BDUP23	*	218.3	10.8	0.70	184.3	-19.2	-1.21
BVJR38		197.0	-10.5	-0.68	202.0	-1.5	-0.09
C3CLDB		215.0	7.5	0.49	204.0	0.5	0.03
C6Y7ZZ		240.5	33.0	2.13	232.2	28.7	1.81
CEX9WG		204.9	-2.6	-0.17	178.6	-24.9	-1.57
CJLFYT		206.9	-0.6	-0.04	192.0	-11.5	-0.72
DNC8N2	X	284.0	76.5	4.95	257.5	54.0	3.40
DNEU8Z		177.5	-30.0	-1.94	169.0	-34.5	-2.17
E4HNCE		206.0	-1.5	-0.10	211.0	7.5	0.48
ECB6LN		206.0	-1.5	-0.10	208.5	5.0	0.32



Rubber Interlaboratory Testing Program

Report #201

Analysis 608

3rd Qtr 2019

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample C91-C92			Sample C93-C94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
FDTNX7		204.4	-3.0	-0.20	204.7	1.2	0.08
FYHY7R	*	224.0	16.5	1.07	192.0	-11.5	-0.72
GX3Z9T		196.6	-10.9	-0.70	194.4	-9.1	-0.57
HDXLNN	X	102.5	-105.0	-6.79	100.0	-103.5	-6.52
HMPYRU		202.0	-5.5	-0.35	192.0	-11.5	-0.72
J32BAH		198.7	-8.8	-0.57	176.2	-27.3	-1.72
J9QNB7		189.0	-18.5	-1.20	185.0	-18.5	-1.16
JTM7QU		208.8	1.3	0.08	216.0	12.6	0.79
K82T9Q		171.3	-36.2	-2.34	173.0	-30.5	-1.92
KT2PBQ		224.8	17.3	1.12	219.7	16.2	1.02
LF9QU9		186.5	-21.0	-1.36	189.3	-14.2	-0.90
LFNAE7		203.7	-3.8	-0.24	200.5	-3.0	-0.19
LH96ZH		217.5	10.0	0.65	218.0	14.5	0.91
M7ANNM		213.0	5.5	0.36	206.0	2.5	0.16
MH3GQH		185.6	-21.8	-1.41	174.0	-29.4	-1.85
MQVPB9	*	243.4	35.9	2.32	221.2	17.7	1.12
NQV2FG		210.6	3.1	0.20	195.9	-7.6	-0.48
NUEWH9		206.0	-1.5	-0.10	208.0	4.5	0.28
NZAM7Z		200.5	-7.0	-0.45	203.0	-0.5	-0.03
PCMZY		226.0	18.5	1.20	209.0	5.5	0.35
PJFHDW		190.4	-17.1	-1.10	180.6	-22.9	-1.44
PN6ZCE		229.5	22.0	1.42	222.8	19.3	1.22
PP8PV6		211.2	3.7	0.24	227.9	24.4	1.53
PYLUGF		227.0	19.5	1.26	236.5	33.0	2.08
Q4F2JN		236.0	28.5	1.84	226.0	22.5	1.42
Q7ALUU		212.0	4.5	0.29	200.5	-3.0	-0.19
QG2FMN		206.0	-1.5	-0.10	212.5	9.0	0.57
QG6WZG		193.5	-14.0	-0.90	203.5	0.0	0.00
QRQ29F		189.5	-18.0	-1.16	194.5	-9.0	-0.57
QUYB6J		201.5	-6.0	-0.39	194.0	-9.5	-0.60
QXXMZJ		195.1	-12.4	-0.80	191.5	-12.0	-0.76
R4FFPN	X	103.1	-104.3	-6.75	88.5	-115.0	-7.24
R4R3YV	X	3.9	-203.6	-13.16	3.8	-199.7	-12.57
RCX7M7	X	107.3	-100.2	-6.48	133.9	-69.6	-4.38
RHFYMF		215.5	8.0	0.52	201.5	-2.0	-0.13
RPXPQL		188.0	-19.5	-1.26	193.5	-10.0	-0.63
RVYUE6		202.0	-5.5	-0.35	191.0	-12.5	-0.79



Rubber Interlaboratory Testing Program

Report #201

Analysis 608

3rd Qtr 2019

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample C91-C92			Sample C93-C94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
T7YUTN		224.5	17.0	1.10	204.5	1.0	0.06
TDZ7NL		201.5	-6.0	-0.39	204.5	1.0	0.06
TGLV9Y		203.1	-4.4	-0.28	199.9	-3.6	-0.23
TKK76Y		203.5	-4.0	-0.26	198.5	-5.0	-0.31
TMGXVF		208.7	1.2	0.08	203.7	0.2	0.01
TN428Q	X	227.7	20.2	1.31	283.6	80.1	5.04
TNGUJK		215.5	8.0	0.52	217.5	14.0	0.88
TYTB44		215.0	7.5	0.49	212.5	9.0	0.57
U3X6PM		208.1	0.6	0.04	212.9	9.4	0.59
UM3QPT		236.5	29.0	1.88	224.0	20.5	1.29
UYP3DV		180.9	-26.6	-1.72	183.3	-20.2	-1.27
VA4JH8		200.5	-7.0	-0.45	196.5	-7.0	-0.44
VD4VE8		202.7	-4.7	-0.31	190.9	-12.6	-0.80
VD6H2D		188.1	-19.4	-1.25	191.7	-11.7	-0.74
VQW4KG		196.4	-11.1	-0.72	205.4	1.9	0.12
W4AZZA		201.6	-5.9	-0.38	202.3	-1.2	-0.07
WJMBQG		198.0	-9.5	-0.61	193.6	-9.9	-0.62
WJNZWZ		214.5	7.0	0.45	195.0	-8.5	-0.53
XM6PUH		212.2	4.7	0.30	197.0	-6.5	-0.41
XT4GUY		231.1	23.6	1.53	229.6	26.1	1.64
XVVF9X		219.0	11.5	0.74	218.0	14.5	0.91
YWR6FR		215.6	8.1	0.52	220.3	16.8	1.06
Z6WMZ3		197.3	-10.2	-0.66	195.8	-7.7	-0.48
Z9UZNR		194.0	-13.5	-0.87	182.0	-21.5	-1.35
ZFUDR2	*	242.9	35.5	2.29	242.9	39.5	2.48
ZFWCJN		206.9	-0.6	-0.04	201.5	-2.0	-0.12
ZPMN3W		196.4	-11.1	-0.71	197.1	-6.4	-0.40

Grand Means		Summary Statistics	
	207.49 psi		203.49 psi
Std Dev Btwn Labs	15.47 psi		15.88 psi
Statistics based on 93 of 102 reporting participants			



Rubber Interlaboratory Testing Program
Analysis 608
Stress at 100% Elongation (psi)

Report #201
3rd Qtr 2019

		Summary Statistics in SI Units	
Grand Means	1.4306 MPa	1.40	MPa
Stnd Dev Btwn Labs	0.1066 MPa	0.11	MPa
Statistics based on 93 of 102 reporting participants			

Samples C91-C92: Polyisoprene compound, batch #1 & C93-C94: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #608

- 4C3PEQ (X) - Extreme Data.
- 6DDR2P (X) - Data for all samples are high. Possible Systematic Error.
- 8PHHZ3 (X) - Data for all samples are high. Possible Systematic Error.
- DNC8N2 (X) - Data for all samples are high. Possible Systematic Error.
- HDXLNN (X) - Data for all samples are low. Possible Systematic Error.
- R4FFPN (X) - Data for all samples are low. Possible Systematic Error.
- R4R3YV (X) - Extreme Data.
- RCX7M7 (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of sample group C93-C94.
- TN428Q (X) - Data for sample group C93-C94 are high. Inconsistent within the determinations of sample group C93-C94.

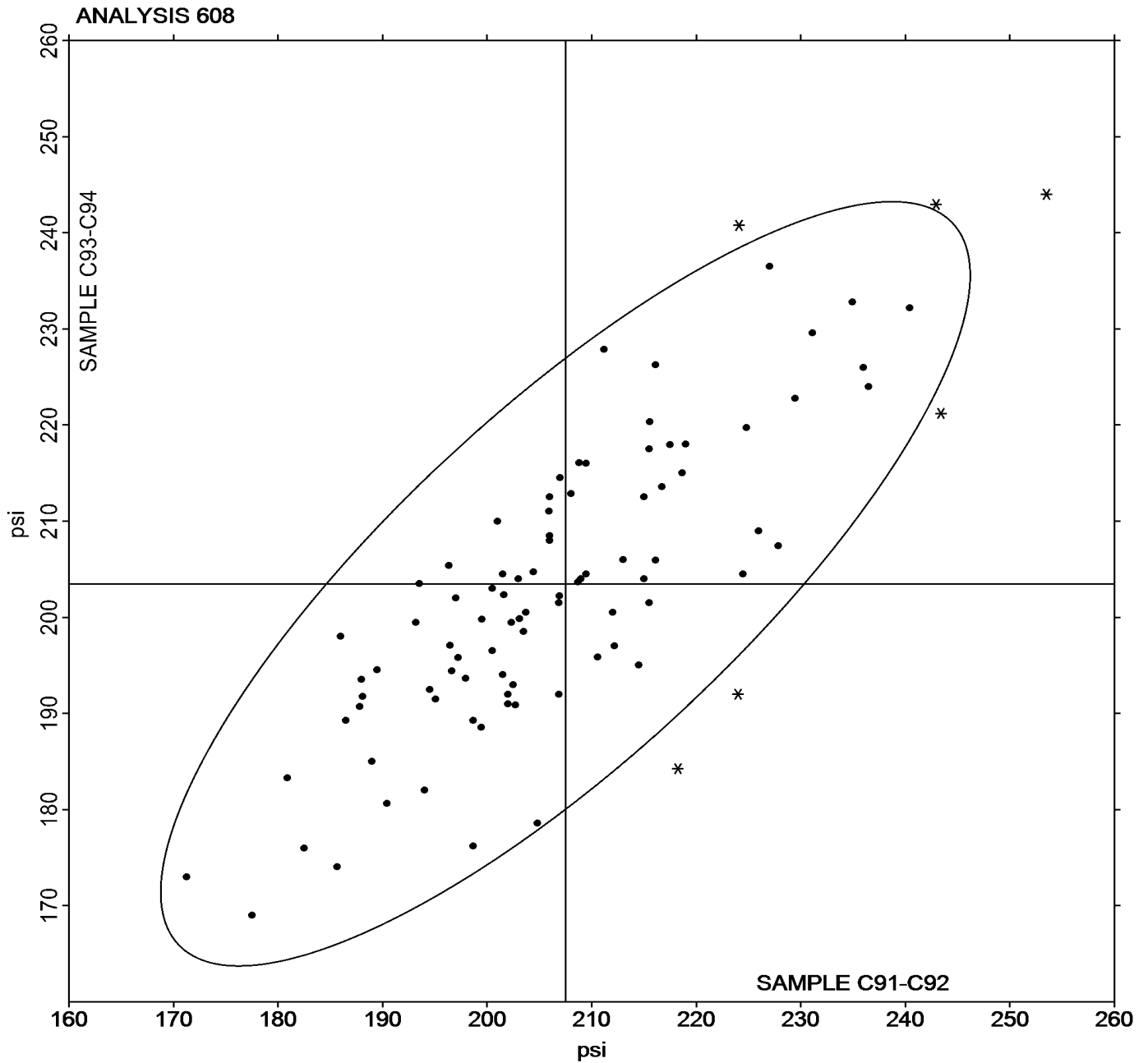


Rubber Interlaboratory Testing Program
Analysis 608
Stress at 100% Elongation (psi)

Report #201
3rd Qtr 2019

Grand Mean Sample **C91-C92** = 207.49 psi

Grand Mean Sample **C93-C94** = 203.49 psi





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

Report #201
3rd Qtr 2019

WebCode	Data Flag	Sample C91-C92			Sample C93-C94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
24UCKP		50.75	1.68	1.14	50.90	1.86	1.26	BT
2CNGDQ	*	45.00	-4.07	-2.76	45.00	-4.04	-2.74	BT
2FVP7C		48.00	-1.07	-0.73	47.50	-1.54	-1.04	BT
2R2T4Y		47.00	-2.07	-1.41	47.50	-1.54	-1.04	BT
2V7E2W		47.50	-1.57	-1.07	47.50	-1.54	-1.04	XX
2ZMFLB		49.15	0.08	0.05	49.90	0.86	0.58	BT
3ACLYA		50.00	0.93	0.63	50.00	0.96	0.65	HH
3C7LT4		47.90	-1.17	-0.80	48.40	-0.64	-0.43	BT
43UVKX		50.00	0.93	0.63	50.50	1.46	0.99	HH
4C3PEQ		52.00	2.93	1.98	52.00	2.96	2.01	HH
69QPJE		50.00	0.93	0.63	50.00	0.96	0.65	BT
6DDR2P		52.00	2.93	1.98	52.00	2.96	2.01	HH
6EK4HQ		48.50	-0.57	-0.39	48.00	-1.04	-0.70	BT
6GNY2U		51.00	1.93	1.30	50.50	1.46	0.99	BT
6NZKU2		51.30	2.23	1.51	50.70	1.66	1.13	BT
6WY63N		49.00	-0.07	-0.05	49.00	-0.04	-0.03	BT
74G9ZL		50.00	0.93	0.63	50.50	1.46	0.99	HH
7HHXZT		50.55	1.48	1.00	50.40	1.36	0.92	BT
7M3M2K	X	44.50	-4.57	-3.10	47.00	-2.04	-1.38	BT
82DQKQ		50.80	1.73	1.17	50.25	1.21	0.82	BT
82TA6N		49.50	0.43	0.29	50.00	0.96	0.65	HH
86BAK4		48.00	-1.07	-0.73	48.00	-1.04	-0.70	BT
8KL37L		50.50	1.43	0.97	50.50	1.46	0.99	BT
8NT88G		48.50	-0.57	-0.39	48.50	-0.54	-0.37	BT
8PHHZ3		49.25	0.18	0.12	47.60	-1.44	-0.98	BT
9WYCU7		50.00	0.93	0.63	50.50	1.46	0.99	HH
AB8TUC		46.50	-2.57	-1.74	47.50	-1.54	-1.04	BT
AGCWHP		49.00	-0.07	-0.05	49.00	-0.04	-0.03	BT
ANWNCX		47.80	-1.27	-0.86	48.80	-0.24	-0.16	BT
APHHVE		48.50	-0.57	-0.39	49.00	-0.04	-0.03	BT
AVWCKP		48.50	-0.57	-0.39	49.00	-0.04	-0.03	XX
B6DF6U		46.40	-2.67	-1.81	47.65	-1.39	-0.94	BT
BDUP23		50.60	1.53	1.03	50.35	1.31	0.89	BT
BVJR38		48.50	-0.57	-0.39	48.50	-0.54	-0.37	BT
C3CLDB		49.00	-0.07	-0.05	48.50	-0.54	-0.37	BT
C6Y7ZZ		49.80	0.73	0.49	49.55	0.51	0.35	XX
CEX9WG		48.10	-0.97	-0.66	47.00	-2.04	-1.38	BT



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

Report #201
3rd Qtr 2019

WebCode	Data Flag	Sample C91-C92			Sample C93-C94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
CJLFYT		48.70	-0.37	-0.25	47.15	-1.89	-1.28	BT
DNC8N2		48.50	-0.57	-0.39	49.50	0.46	0.31	HH
DNEU8Z		50.00	0.93	0.63	50.00	0.96	0.65	HH
E4HNCE	*	49.15	0.08	0.05	51.15	2.11	1.43	BT
E6P7VF	*	45.50	-3.57	-2.42	47.00	-2.04	-1.38	BT
ECB6LN		49.00	-0.07	-0.05	48.50	-0.54	-0.37	BT
FDTNX7		47.50	-1.57	-1.07	48.00	-1.04	-0.70	BT
FYHY7R		51.00	1.93	1.30	51.50	2.46	1.67	HH
GX3Z9T	*	53.10	4.03	2.73	51.50	2.46	1.67	BT
H4JTZJ		46.00	-3.07	-2.08	47.00	-2.04	-1.38	BT
HAPPJJ		50.00	0.93	0.63	50.00	0.96	0.65	BT
HDXLNN		48.35	-0.72	-0.49	48.60	-0.44	-0.30	BT
HMPYRU		49.00	-0.07	-0.05	48.00	-1.04	-0.70	BT
J32BAH	*	50.50	1.43	0.97	48.50	-0.54	-0.37	BT
J9QNB7		50.00	0.93	0.63	49.50	0.46	0.31	HH
JTM7QU		46.85	-2.22	-1.51	46.85	-2.19	-1.49	BT
JYQACL		50.00	0.93	0.63	50.00	0.96	0.65	BT
K82T9Q		49.40	0.33	0.22	49.75	0.71	0.48	BT
KT2PBQ		46.70	-2.37	-1.61	46.00	-3.04	-2.06	BT
KXDZZZ		48.00	-1.07	-0.73	47.50	-1.54	-1.04	BT
LF9QU9		49.50	0.43	0.29	50.00	0.96	0.65	HH
LH96ZH	*	52.25	3.18	2.15	50.75	1.71	1.16	HH
M7ANNM	*	46.50	-2.57	-1.74	45.00	-4.04	-2.74	BT
MH3GQH		49.50	0.43	0.29	49.00	-0.04	-0.03	HH
MQVPB9	X	55.10	6.03	4.08	54.35	5.31	3.61	BT
NQV2FG		49.25	0.18	0.12	48.50	-0.54	-0.37	HH
NUEWH9		51.00	1.93	1.30	51.00	1.96	1.33	HH
NZAM7Z		48.00	-1.07	-0.73	47.75	-1.29	-0.87	BT
PCMZY		50.00	0.93	0.63	50.00	0.96	0.65	HH
PJFHDW		49.00	-0.07	-0.05	49.50	0.46	0.31	BT
PN6ZCE		48.65	-0.42	-0.29	48.15	-0.89	-0.60	BT
PP8PV6	*	51.85	2.78	1.88	52.95	3.91	2.66	BT
PYLUGF		50.50	1.43	0.97	51.00	1.96	1.33	HH
Q4F2JN		48.00	-1.07	-0.73	47.50	-1.54	-1.04	BT
QG2FMN		49.00	-0.07	-0.05	49.00	-0.04	-0.03	BT
QG6WZG		51.00	1.93	1.30	51.25	2.21	1.50	HH
QRQ29F		47.00	-2.07	-1.41	47.50	-1.54	-1.04	BT
QTRCF9	X	49.00	-0.07	-0.05	46.50	-2.54	-1.72	HH



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

Report #201
3rd Qtr 2019

WebCode	Data Flag	Sample C91-C92			Sample C93-C94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
QUYB6J		46.85	-2.22	-1.51	46.50	-2.54	-1.72	BT
QXXMZJ		49.00	-0.07	-0.05	49.00	-0.04	-0.03	BT
R4FFPN		47.50	-1.57	-1.07	47.00	-2.04	-1.38	BT
R4R3YV		48.00	-1.07	-0.73	48.00	-1.04	-0.70	XX
RCX7M7	*	48.50	-0.57	-0.39	46.50	-2.54	-1.72	HH
RHFYMF		49.60	0.53	0.36	49.50	0.46	0.31	BT
RPXPQL		50.30	1.23	0.83	49.90	0.86	0.58	BT
RVYUE6		49.50	0.43	0.29	48.50	-0.54	-0.37	BT
T7YUTN		50.00	0.93	0.63	49.00	-0.04	-0.03	HH
TDZ7NL		48.50	-0.57	-0.39	49.00	-0.04	-0.03	HH
TGLV9Y		51.00	1.93	1.30	50.90	1.86	1.26	BT
TKK76Y		48.95	-0.12	-0.08	49.30	0.26	0.18	BT
TMGXVF		48.00	-1.07	-0.73	48.05	-0.99	-0.67	BT
TN428Q		50.00	0.93	0.63	50.00	0.96	0.65	HH
TNGUJK		47.85	-1.22	-0.83	49.00	-0.04	-0.03	BT
TYTB44		51.65	2.58	1.75	50.70	1.66	1.13	XX
U3X6PM		49.50	0.43	0.29	50.20	1.16	0.79	BT
UM3QPT		48.00	-1.07	-0.73	48.00	-1.04	-0.70	BT
UYP3DV		48.90	-0.17	-0.12	49.00	-0.04	-0.03	XX
VA4JH8		47.30	-1.77	-1.20	48.10	-0.94	-0.64	BT
VCZPPU		48.00	-1.07	-0.73	48.00	-1.04	-0.70	HH
VD4VE8		49.35	0.28	0.19	49.85	0.81	0.55	BT
VD6H2D		48.00	-1.07	-0.73	49.00	-0.04	-0.03	BT
VQW4KG		48.65	-0.42	-0.29	49.40	0.36	0.25	BT
W4AZZA		49.00	-0.07	-0.05	50.00	0.96	0.65	BT
WJMBQG		50.15	1.08	0.73	49.25	0.21	0.14	BT
WJNZWZ		50.00	0.93	0.63	48.50	-0.54	-0.37	BT
XM6PUH		49.05	-0.02	-0.02	48.55	-0.49	-0.33	BT
XT4GUY		47.75	-1.32	-0.90	47.75	-1.29	-0.87	BT
XVVF9X		49.55	0.48	0.32	49.70	0.66	0.45	BT
YWR6FR		49.35	0.28	0.19	49.85	0.81	0.55	BT
Z6WMZ3		49.00	-0.07	-0.05	49.25	0.21	0.14	BT
Z9UZNR		48.60	-0.47	-0.32	47.00	-2.04	-1.38	XX
ZFUDR2		48.50	-0.57	-0.39	49.05	0.01	0.01	BT
ZFWCJN		50.50	1.43	0.97	50.50	1.46	0.99	BT
ZPMN3W		48.50	-0.57	-0.39	49.00	-0.04	-0.03	HH

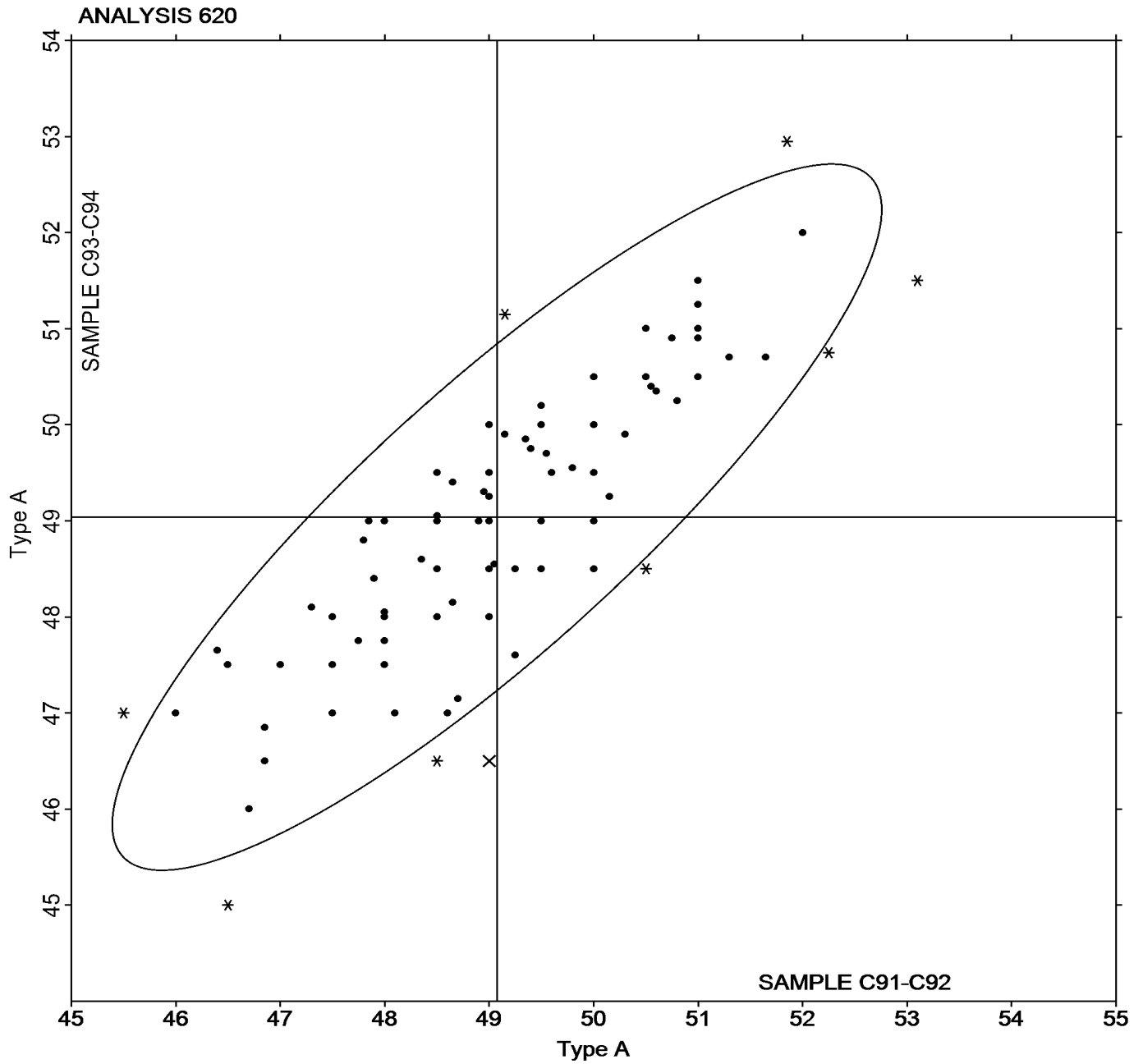


Rubber Interlaboratory Testing Program
Analysis 620
Hardness (Shore A/Type A)

Report #201
3rd Qtr 2019

Grand Mean Sample C91-C92 = 49.074 Type A

Grand Mean Sample C93-C94 = 49.038 Type A





Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #201
3rd Qtr 2019

WebCode	Data Flag	Sample C91-C92			Sample C93-C94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
24UCKP		1.133	-0.001	-0.37	1.133	-0.002	-0.45
2CNGDQ		1.129	-0.005	-1.51	1.130	-0.004	-1.19
2FVP7C		1.133	-0.001	-0.23	1.135	0.000	0.15
2ZMFLB		1.136	0.002	0.55	1.138	0.004	1.17
3C7LT4		1.133	-0.001	-0.30	1.133	-0.001	-0.36
4C3PEQ		1.139	0.005	1.53	1.139	0.005	1.43
69QPJE		1.134	0.000	0.05	1.132	-0.002	-0.59
6DDR2P		1.139	0.005	1.55	1.140	0.006	1.85
6EK4HQ		1.134	0.000	-0.09	1.135	0.001	0.29
6GNY2U		1.130	-0.004	-1.08	1.130	-0.004	-1.19
6NZKU2		1.129	-0.005	-1.35	1.131	-0.003	-0.89
6WY63N		1.130	-0.004	-1.11	1.131	-0.003	-0.96
7HHXZT		1.133	-0.001	-0.25	1.136	0.001	0.44
7M3M2K		1.131	-0.003	-0.80	1.134	-0.001	-0.15
82DQKQ		1.134	0.000	-0.08	1.134	0.000	-0.05
82TA6N		1.136	0.002	0.62	1.134	-0.001	-0.15
86BAK4		1.134	0.000	0.05	1.134	0.000	0.00
8KL37L		1.134	0.000	-0.02	1.133	-0.001	-0.37
8NT88G		1.135	0.001	0.19	1.135	0.000	0.15
8PHHZ3	*	1.127	-0.007	-2.07	1.131	-0.004	-1.04
9WYCU7		1.138	0.004	1.19	1.139	0.004	1.33
AB8TUC		1.136	0.002	0.62	1.134	0.000	0.00
ANWNCX		1.135	0.002	0.45	1.136	0.002	0.55
APHHVE		1.133	-0.001	-0.23	1.135	0.000	0.15
AVWCKP		1.136	0.002	0.62	1.138	0.004	1.05
BDUP23		1.135	0.001	0.38	1.134	0.000	-0.03
CEX9WG		1.129	-0.005	-1.36	1.132	-0.002	-0.59
CJLFYT		1.134	0.000	0.14	1.134	0.000	-0.13
DNC8N2		1.135	0.001	0.36	1.136	0.002	0.55
DNEU8Z		1.133	-0.001	-0.27	1.132	-0.002	-0.71
FDTNX7		1.135	0.001	0.34	1.133	-0.001	-0.30
FYHY7R		1.136	0.002	0.48	1.135	0.001	0.40
GX3Z9T		1.134	0.001	0.17	1.136	0.002	0.61
HDXLNN		1.130	-0.004	-1.18	1.131	-0.003	-1.02
HMPYRU		1.136	0.002	0.55	1.136	0.001	0.44
J32BAH		1.133	-0.001	-0.23	1.133	-0.002	-0.45
J9QNB7		1.133	-0.001	-0.23	1.132	-0.002	-0.61



Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #201
3rd Qtr 2019

WebCode	Data Flag	Sample C91-C92			Sample C93-C94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
JTM7QU	X	1.122	-0.012	-3.49	1.123	-0.011	-3.13
JYQACL		1.135	0.001	0.34	1.135	0.001	0.29
K82T9Q		1.133	-0.001	-0.22	1.136	0.002	0.46
KT2PBQ		1.135	0.001	0.34	1.134	-0.001	-0.15
KXDZ2Z		1.133	-0.001	-0.19	1.133	-0.001	-0.18
LF9QU9		1.137	0.003	0.86	1.137	0.003	0.83
LFNAE7		1.140	0.006	1.64	1.140	0.006	1.72
LH96ZH		1.137	0.003	0.85	1.137	0.002	0.74
M7ANNM		1.132	-0.002	-0.66	1.135	0.001	0.29
MQVPB9		1.137	0.003	0.86	1.137	0.003	0.89
NUEWH9		1.130	-0.004	-1.14	1.132	-0.002	-0.65
NZAM7Z		1.133	-0.001	-0.23	1.133	-0.002	-0.45
PCMKZY		1.129	-0.005	-1.51	1.130	-0.004	-1.19
PJFHDW		1.133	-0.001	-0.27	1.134	0.000	0.12
PN6ZCE		1.126	-0.008	-2.31	1.127	-0.007	-2.09
PYLUGF		1.138	0.004	1.04	1.138	0.003	1.03
Q4F2JN		1.134	0.000	0.02	1.132	-0.002	-0.65
Q7ALUU		1.134	0.000	0.09	1.134	0.000	-0.09
QRQ29F		1.135	0.001	0.34	1.133	-0.001	-0.30
QTRCF9		1.129	-0.005	-1.36	1.131	-0.003	-0.89
R4FFPN		1.132	-0.002	-0.51	1.130	-0.004	-1.19
R4R3YV	*	1.139	0.005	1.33	1.142	0.008	2.37
RCX7M7		1.139	0.005	1.47	1.137	0.003	0.89
RHFYMF		1.135	0.001	0.31	1.135	0.001	0.25
RPXPQL		1.133	-0.001	-0.20	1.132	-0.002	-0.73
RVYUE6		1.141	0.007	1.89	1.140	0.006	1.78
T7YUTN	X	1.135	0.001	0.19	1.127	-0.007	-2.07
TDZ7NL		1.135	0.001	0.19	1.134	-0.001	-0.15
TGLV9Y		1.140	0.006	1.75	1.140	0.006	1.69
TKK76Y		1.139	0.005	1.47	1.139	0.005	1.48
TMGXVF		1.134	0.000	0.07	1.134	0.000	0.07
TYTB44		1.135	0.001	0.34	1.133	-0.002	-0.45
U3X6PM		1.136	0.002	0.49	1.135	0.001	0.29
UM3QPT		1.136	0.002	0.55	1.136	0.002	0.46
UYP3DV		1.134	0.000	0.01	1.134	0.000	-0.11
VA4JH8		1.133	-0.001	-0.37	1.132	-0.003	-0.74
VD4VE8	*	1.127	-0.007	-2.03	1.125	-0.009	-2.68
VD6H2D		1.133	-0.001	-0.15	1.132	-0.002	-0.59



Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #201
3rd Qtr 2019

WebCode	Data Flag	Sample C91-C92			Sample C93-C94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
VQW4KG		1.136	0.002	0.62	1.138	0.004	1.18
W4AZZA		1.136	0.002	0.48	1.135	0.001	0.18
WJMBQG	*	1.127	-0.007	-1.96	1.125	-0.009	-2.62
WJNZWZ		1.136	0.002	0.48	1.132	-0.002	-0.59
XM6PUH		1.140	0.006	1.75	1.140	0.006	1.78
XT4GUY		1.135	0.001	0.34	1.137	0.002	0.74
XVVF9X		1.126	-0.008	-2.24	1.129	-0.005	-1.47
YWR6FR		1.133	-0.001	-0.37	1.129	-0.005	-1.48
Z6WMZ3		1.131	-0.003	-0.80	1.131	-0.003	-0.89
Z9UZNR		1.142	0.008	2.19	1.142	0.008	2.25
ZFUDR2		1.133	-0.001	-0.25	1.135	0.001	0.43
ZPMN3W	*	1.126	-0.008	-2.36	1.130	-0.004	-1.19

Summary Statistics			
Grand Means	1.1338	g/cm ³ (Mg/m ³)	1.1340 g/cm ³ (Mg/m ³)
Std Dev Btwn Labs	0.0035	g/cm ³ (Mg/m ³)	0.0034 g/cm ³ (Mg/m ³)
Statistics based on 85 of 87 reporting participants			

Samples C91-C92: Polyiosprene compound, batch #1 & C93-C94: Polyiosprene compound, batch #2

Comments on Assigned Data Flags for Test #621

JTM7QU (X) - Data for all samples are low. Possible Systematic Error.

T7YUTN (X) - Inconsistent in testing between samples.

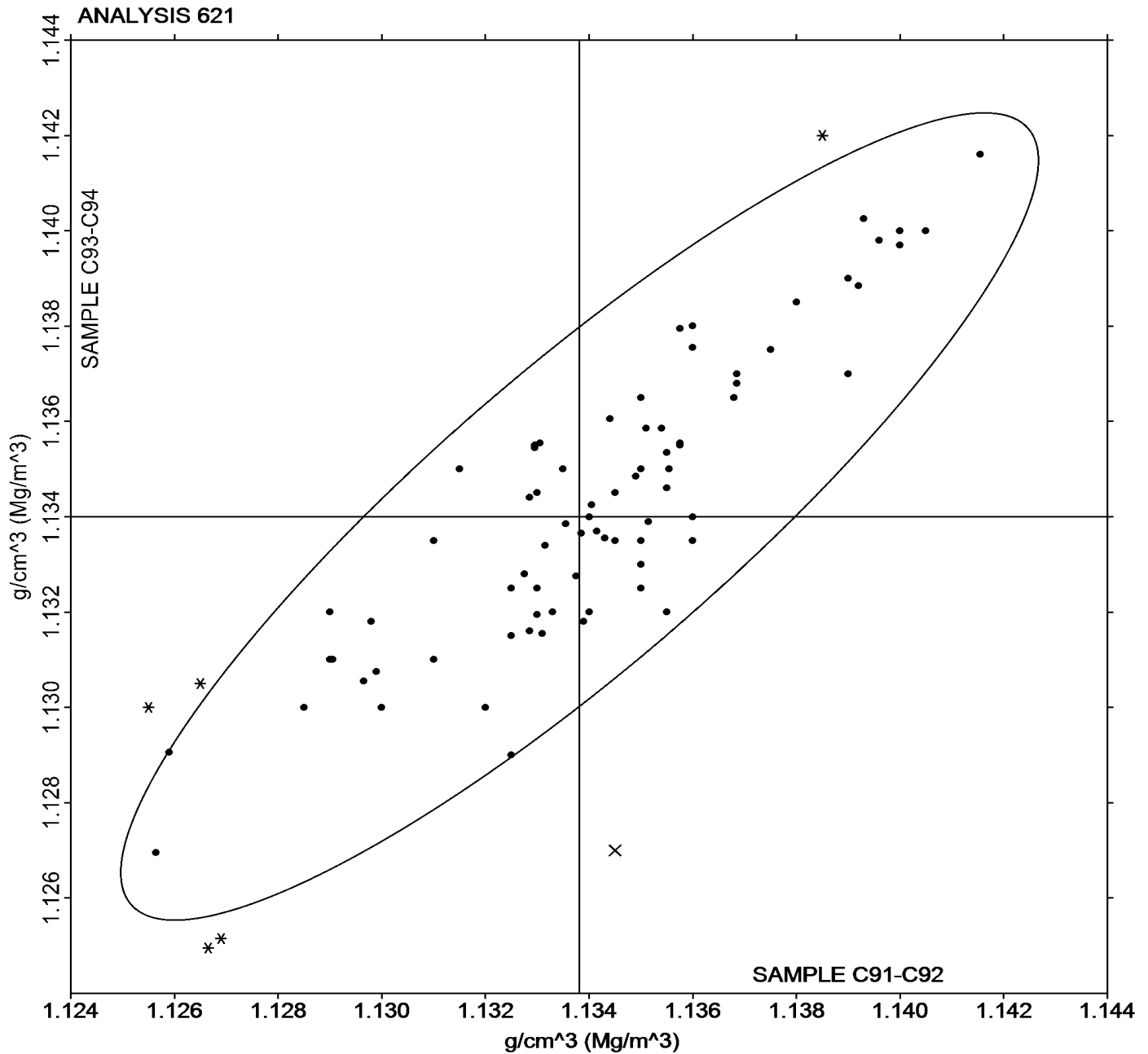


Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #201
3rd Qtr 2019

Grand Mean Sample C91-C92 = 1.1338 g/cm³
(Mg/m³)

Grand Mean Sample C93-C94 = 1.1340 g/cm³
(Mg/m³)





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

Report #201
3rd Qtr 2019

WebCode	Data Flag	Sample HC91-HC92			Sample HC93-HC94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2PAUPZ		73.00	-2.27	-0.77	80.00	-4.30	-1.75	BT
6MN3F3		75.50	0.23	0.08	83.00	-1.30	-0.53	BT
7XMTZA		77.00	1.73	0.59	87.00	2.70	1.09	BT
8AT9HY		70.00	-5.27	-1.79	81.00	-3.30	-1.34	BT
B6DF6U		73.25	-2.02	-0.68	82.30	-2.00	-0.81	BT
CHJL4Y		76.75	1.48	0.50	85.85	1.55	0.63	BT
CMN924		74.00	-1.27	-0.43	84.50	0.20	0.08	BT
DNC8N2		79.00	3.73	1.27	85.50	1.20	0.49	HH
E4HNCE		73.90	-1.37	-0.46	83.50	-0.80	-0.33	BT
FCKBHP		74.20	-1.07	-0.36	84.65	0.35	0.14	BT
FVVK3M		76.50	1.23	0.42	86.50	2.20	0.89	HH
LM36UK		72.00	-3.27	-1.11	81.50	-2.80	-1.14	BT
NAR6JC		75.00	-0.27	-0.09	84.50	0.20	0.08	XX
TGLV9Y		75.50	0.23	0.08	83.25	-1.05	-0.43	BT
VZLRKP		78.25	2.98	1.01	86.05	1.75	0.71	HH
XNEWWE		80.00	4.73	1.61	89.50	5.20	2.11	HH
ZFWCJN		75.50	0.23	0.08	84.00	-0.30	-0.12	XX
ZHPVBH		78.00	2.73	0.93	86.50	2.20	0.89	HH
ZT7NHC		79.00	3.73	1.27	86.50	2.20	0.89	BT
ZX382Q		69.00	-6.27	-2.13	80.50	-3.80	-1.55	BT

		Summary Statistics	
Grand Means	75.268 Type D	84.305 Type D	
Std Dev Btwn Labs	2.948 Type D	2.462 Type D	
Statistics based on 20 of 20 reporting participants			

Samples HC91-HC92: Hardness Disc, batch #1 & HC93-HC94: Hardness Disc, batch #2

Key to Instrument Codes Reported by Participants

BT Benchtop
 XX Specify Benchtop or Handheld Instrument

HH Handheld

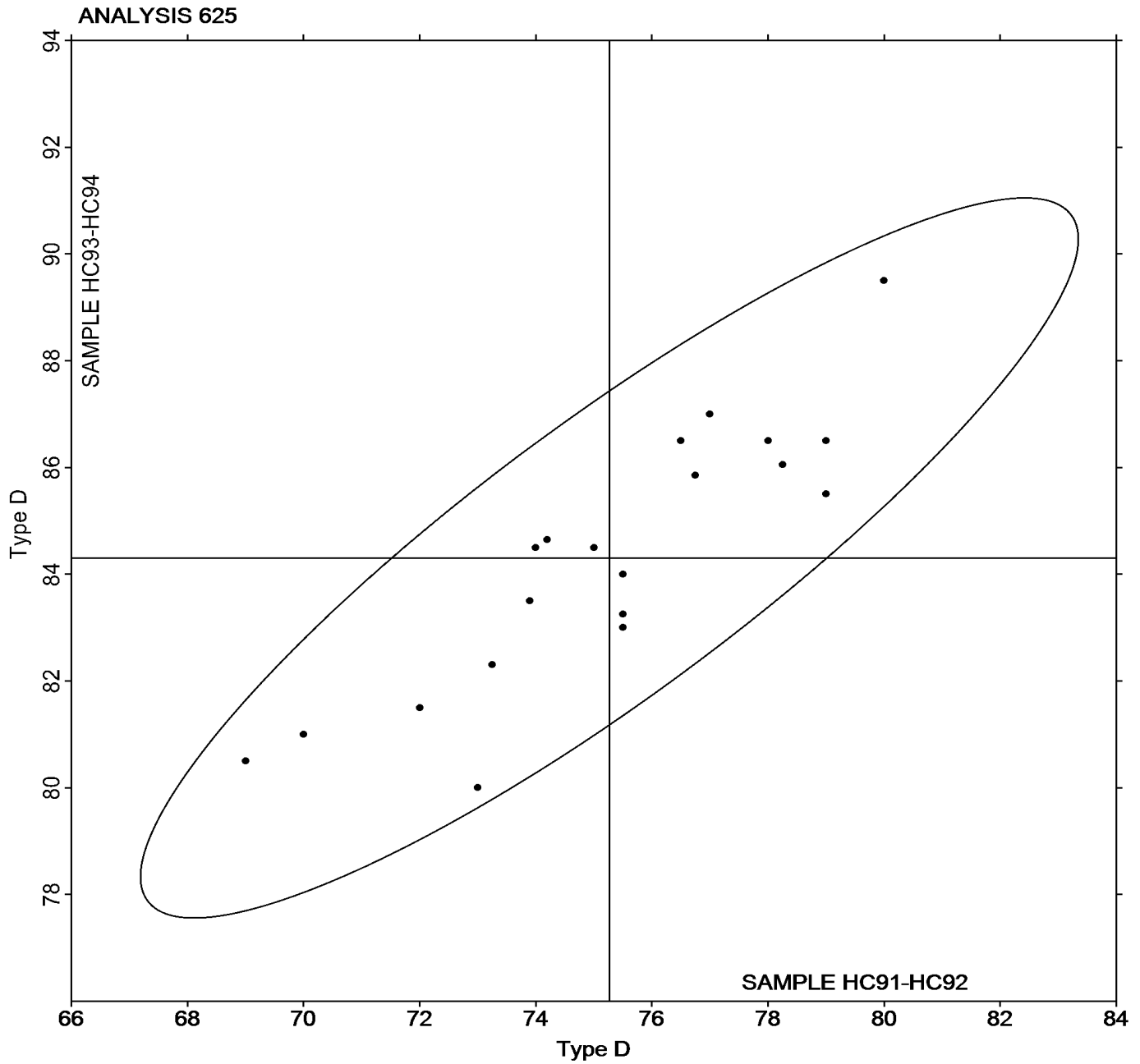


Rubber Interlaboratory Testing Program
Analysis 625
Hardness (Shore D/Type D)

Report #201
3rd Qtr 2019

Grand Mean Sample HC91-HC92 = 75.268 Type D

Grand Mean Sample HC93-HC94 = 84.305 Type D





Rubber Interlaboratory Testing Program

Report #201

Analysis 630

3rd Qtr 2019

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

WebCode	Data Flag	Sample C91-C92			Sample L91-L92		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2CNGDQ		3,299.5	-106.7	-0.77	3,268.0	229.0	1.38
2ZMFLB		3,217.3	-188.9	-1.36	2,951.1	-87.9	-0.53
3ACLYA		3,521.5	115.3	0.83	2,953.6	-85.4	-0.51
6NZKU2		3,536.6	130.5	0.94	3,010.2	-28.8	-0.17
7HHXZT		3,477.5	71.3	0.51	3,212.3	173.3	1.04
7M3M2K		3,485.9	79.7	0.57	3,223.8	184.8	1.11
82TA6N	X	2,812.0	-594.2	-4.28	2,741.0	-298.0	-1.79
9WYCU7		3,440.0	33.8	0.24	3,170.0	131.0	0.79
AB8TUC		3,498.5	92.3	0.67	3,044.0	5.0	0.03
AGCWHP		3,447.0	40.8	0.29	3,141.0	102.0	0.61
APHHVE		3,227.0	-179.2	-1.29	3,067.5	28.5	0.17
BDUP23		3,485.2	79.0	0.57	3,131.2	92.2	0.55
C6Y7ZZ		3,239.1	-167.1	-1.20	2,873.1	-165.9	-1.00
CJLFYT	X	3,516.4	110.2	0.79	2,514.5	-524.5	-3.15
E4HNCE		3,219.9	-186.3	-1.34	2,915.3	-123.7	-0.74
FDTNX7		3,491.4	85.2	0.61	3,269.0	230.0	1.38
HMPYRU		3,354.5	-51.7	-0.37	2,997.5	-41.5	-0.25
JTM7QU		3,626.3	220.1	1.59	3,426.3	387.4	2.33
KT2PBQ		3,394.6	-11.5	-0.08	3,066.8	27.9	0.17
LFNAE7		3,553.1	146.9	1.06	3,188.9	149.9	0.90
LH96ZH		3,417.3	11.1	0.08	2,772.0	-267.0	-1.60
MH3GQH		3,158.2	-247.9	-1.79	2,733.3	-305.7	-1.84
MQVPB9		3,058.8	-347.3	-2.50	2,808.6	-230.4	-1.38
NUEWH9	*	3,620.3	214.1	1.54	2,774.8	-264.2	-1.59
QG2FMN		3,419.0	12.8	0.09	3,021.0	-18.0	-0.11
TGLV9Y		3,507.9	101.7	0.73	3,142.8	103.8	0.62
TYTB44		3,530.0	123.8	0.89	3,057.5	18.5	0.11
VD4VE8		3,291.8	-114.4	-0.82	2,953.5	-85.5	-0.51
VD6H2D		3,328.0	-78.2	-0.56	2,889.5	-149.5	-0.90
VQW4KG		3,448.9	42.7	0.31	3,174.7	135.7	0.82
WJMBQG		3,502.7	96.5	0.70	3,176.4	137.4	0.83
WJNZWZ		3,510.0	103.8	0.75	3,000.5	-38.5	-0.23
XT4GUY		3,263.5	-142.6	-1.03	2,814.8	-224.2	-1.35
ZPMN3W		3,426.0	19.9	0.14	3,018.5	-20.5	-0.12



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

Report #201
3rd Qtr 2019

		Summary Statistics	
Grand Means			
	3,406.15 psi		3,038.98 psi
Stnd Dev Btwn Labs			
	138.77 psi		166.40 psi
Statistics based on 32 of 34 reporting participants			

		Summary Statistics in SI Units	
Grand Means			
	23.484 MPa		20.95 MPa
Stnd Dev Btwn Labs			
	0.957 MPa		1.15 MPa
Statistics based on 32 of 34 reporting participants			

Samples C91-C92: Polyisoprene compound, batch #1 & L91-L92: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #630

82TA6N (X) - Data for sample group C91-C92 are low.

CJLFYT (X) - Data for sample group L91-L92 are low.



Rubber Interlaboratory Testing Program

Report #201

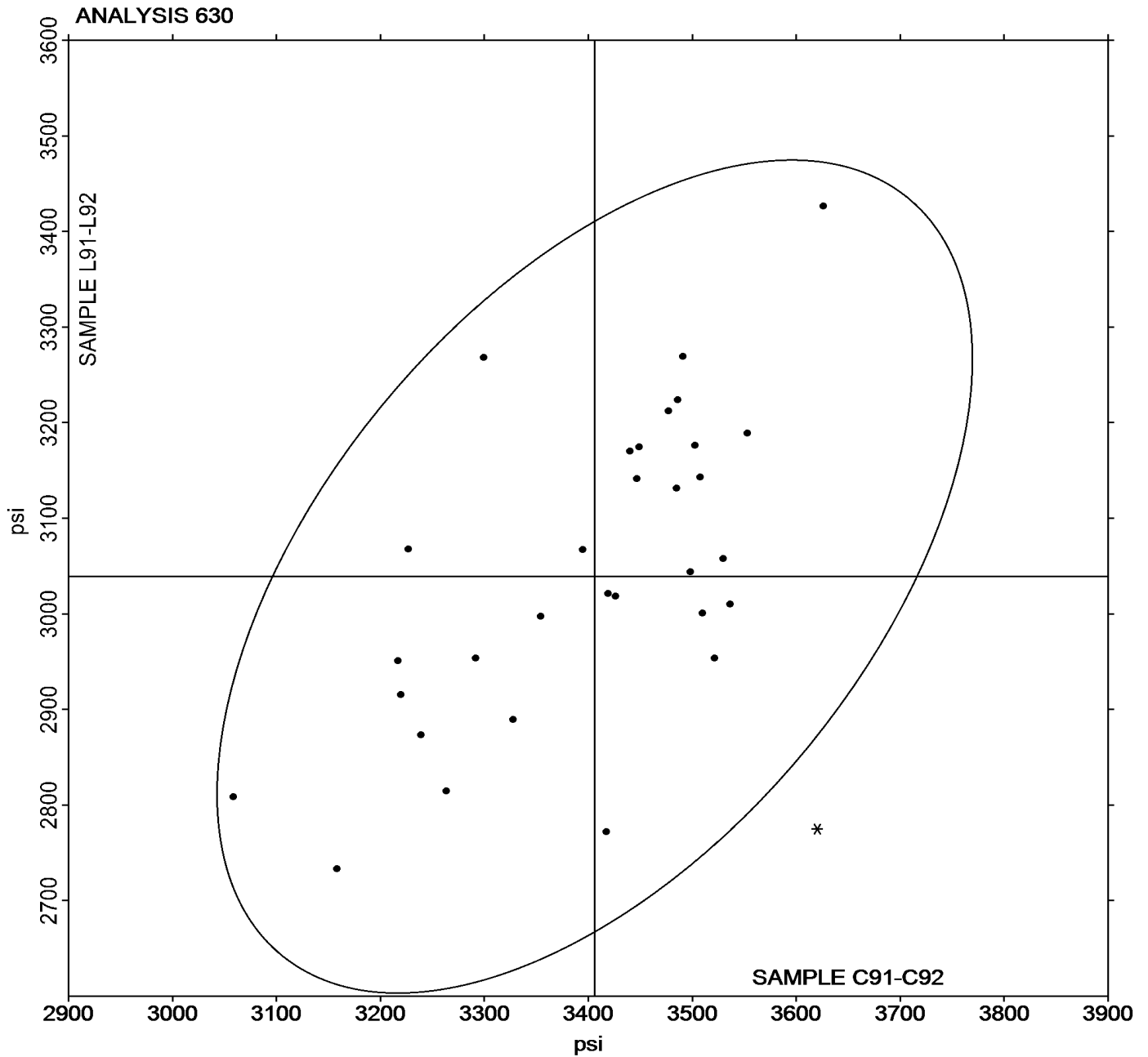
Analysis 630

3rd Qtr 2019

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

Grand Mean Sample C91-C92 = 3,406.15 psi

Grand Mean Sample L91-L92 = 3,038.98 psi





Rubber Interlaboratory Testing Program

Report #201

Analysis 631

3rd Qtr 2019

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

WebCode	Data Flag	Sample C91-C92			Sample L91-L92		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2CNGDQ		604.0	-28.0	-0.90	539.5	-17.7	-0.62
2ZMFLB		641.0	8.9	0.29	543.3	-13.9	-0.49
3ACLYA		638.6	6.6	0.21	564.4	7.2	0.25
6NZKU2		616.8	-15.3	-0.49	538.4	-18.7	-0.66
7HHXZT		655.0	23.0	0.74	581.8	24.7	0.87
7M3M2K		664.2	32.2	1.03	574.2	17.0	0.60
82TA6N	*	574.0	-58.0	-1.86	546.0	-11.2	-0.40
9WYCU7		640.0	8.0	0.26	589.0	31.8	1.13
AB8TUC		621.5	-10.5	-0.34	561.0	3.8	0.14
AGCWHP		673.0	41.0	1.31	582.5	25.3	0.90
APHHVE		640.0	8.0	0.26	564.0	6.8	0.24
BDUP23		659.5	27.5	0.88	577.5	20.3	0.72
C6Y7ZZ		582.2	-49.8	-1.59	497.7	-59.5	-2.11
CJLFYT		644.0	12.0	0.38	601.0	43.8	1.55
E4HNCE		602.4	-29.7	-0.95	523.8	-33.4	-1.18
FDTNX7	X	764.8	132.8	4.25	678.1	120.9	4.28
HMPYRU		646.0	14.0	0.45	590.5	33.3	1.18
JTM7QU		647.4	15.4	0.49	571.3	14.2	0.50
KT2PBQ		612.5	-19.5	-0.62	541.0	-16.2	-0.57
LFNAE7		643.0	11.0	0.35	547.5	-9.7	-0.34
LH96ZH		641.6	9.5	0.31	553.2	-4.0	-0.14
MH3GQH	*	719.5	87.5	2.80	637.0	79.8	2.82
MQVPB9	*	545.2	-86.8	-2.78	499.6	-57.5	-2.04
NUEWH9		640.0	8.0	0.26	560.5	3.3	0.12
QG2FMN		629.5	-2.5	-0.08	521.5	-35.7	-1.26
TGLV9Y		636.0	4.0	0.13	545.0	-12.2	-0.43
TYTB44		640.5	8.5	0.27	559.5	2.3	0.08
VD4VE8		606.8	-25.2	-0.81	514.7	-42.5	-1.50
VD6H2D		640.7	8.7	0.28	554.4	-2.8	-0.10
VQW4KG		646.9	14.8	0.48	552.8	-4.4	-0.16
WJMBQG		660.0	28.0	0.90	573.0	15.8	0.56
WJNZWZ		614.0	-18.0	-0.58	563.5	6.3	0.22
XT4GUY		617.5	-14.5	-0.46	559.5	2.3	0.08
ZPMN3W		613.1	-18.9	-0.60	558.0	0.8	0.03



Rubber Interlaboratory Testing Program

Report #201

Analysis 631

3rd Qtr 2019

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

		Summary Statistics	
Grand Means	632.01 percent	557.17 percent	
Stnd Dev Btwn Labs	31.24 percent	28.27 percent	
Statistics based on 33 of 34 reporting participants			

Samples C91-C92: Polyisoprene compound, batch #1 & L91-L92: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #631

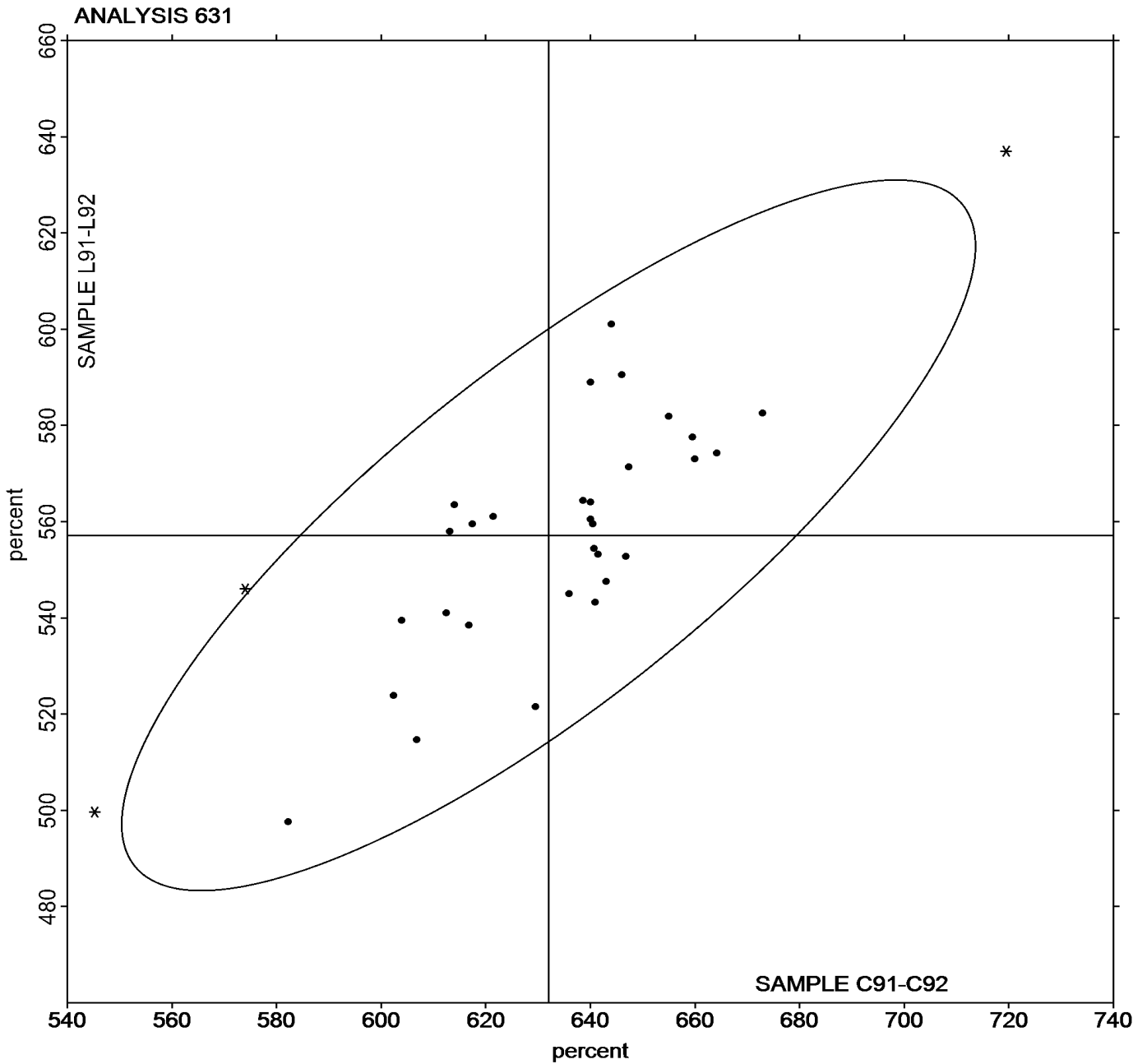
FDTNX7 (X) - Data for all samples are high. Possible Systematic Error.



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

Grand Mean Sample C91-C92 = 632.01 percent

Grand Mean Sample L91-L92 = 557.17 percent





Rubber Interlaboratory Testing Program

Report #201

Analysis 632

3rd Qtr 2019

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

WebCode	Data Flag	Sample C91-C92			Sample L91-L92		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2CNGDQ		943.0	5.8	0.07	1,255.0	105.9	0.89
2ZMFLB		882.1	-55.1	-0.67	1,161.8	12.7	0.11
3ACLYA		942.1	5.0	0.06	1,066.7	-82.4	-0.69
6NZKU2		1,010.5	73.3	0.90	1,187.4	38.2	0.32
7HHXZT		937.2	0.0	0.00	1,195.9	46.8	0.39
7M3M2K		880.6	-56.6	-0.69	1,142.2	-7.0	-0.06
82TA6N		923.5	-13.7	-0.17	1,093.5	-55.6	-0.47
9WYCU7		931.0	-6.2	-0.08	1,109.5	-39.6	-0.33
AB8TUC		988.5	51.3	0.63	1,093.0	-56.1	-0.47
AGCWHP		814.5	-122.7	-1.50	1,095.5	-53.6	-0.45
APHHVE		906.0	-31.2	-0.38	1,234.0	84.9	0.71
BDUP23		933.3	-3.9	-0.05	1,115.8	-33.3	-0.28
C6Y7ZZ		1,086.5	149.3	1.82	1,370.1	220.9	1.86
CJLFYT	*	971.4	34.2	0.42	845.5	-303.6	-2.55
E4HNCE		958.7	21.5	0.26	1,248.1	98.9	0.83
FDTNX7		748.9	-188.3	-2.30	1,002.6	-146.5	-1.23
HMPYRU		906.0	-31.2	-0.38	1,038.5	-110.6	-0.93
JTM7QU		952.1	14.9	0.18	1,334.5	185.4	1.56
KT2PBQ		1,022.5	85.4	1.04	1,285.8	136.6	1.15
LFNAE7		931.9	-5.3	-0.06	1,279.2	130.0	1.09
LH96ZH		1,085.6	148.4	1.81	1,075.4	-73.7	-0.62
MH3GQH	*	705.6	-231.6	-2.83	834.7	-314.4	-2.64
MQVPB9		1,088.0	150.9	1.84	1,266.8	117.7	0.99
NUEWH9		969.0	31.8	0.39	1,039.5	-109.6	-0.92
QG2FMN		944.5	7.3	0.09	1,223.5	74.4	0.62
TGLV9Y		924.1	-13.1	-0.16	1,206.2	57.1	0.48
TYTB44		965.5	28.3	0.35	1,171.0	21.9	0.18
VD4VE8		945.6	8.4	0.10	1,238.8	89.7	0.75
VD6H2D		866.2	-71.0	-0.87	1,095.3	-53.8	-0.45
VQW4KG		900.2	-37.0	-0.45	1,260.8	111.7	0.94
WJMBQG		871.7	-65.5	-0.80	1,195.8	46.7	0.39
WJNZWZ		1,032.5	95.3	1.16	1,114.5	-34.6	-0.29
XT4GUY		981.1	44.0	0.54	1,082.0	-67.2	-0.56
ZPMN3W		914.0	-23.2	-0.28	1,112.0	-37.1	-0.31



Rubber Interlaboratory Testing Program

Report #201

Analysis 632

3rd Qtr 2019

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

		Summary Statistics	
Grand Means			
	937.17 psi		1,149.14 psi
Std Dev Btwn Labs			
	81.87 psi		119.01 psi
Statistics based on 34 of 34 reporting participants			

		Summary Statistics in SI Units	
Grand Means			
	6.4615 MPa		7.92 MPa
Std Dev Btwn Labs			
	0.5645 MPa		0.82 MPa
Statistics based on 34 of 34 reporting participants			

Samples C91-C92: Polyisoprene compound, batch #1 & L91-L92: Polyisoprene compound, batch #1



Rubber Interlaboratory Testing Program

Analysis 632

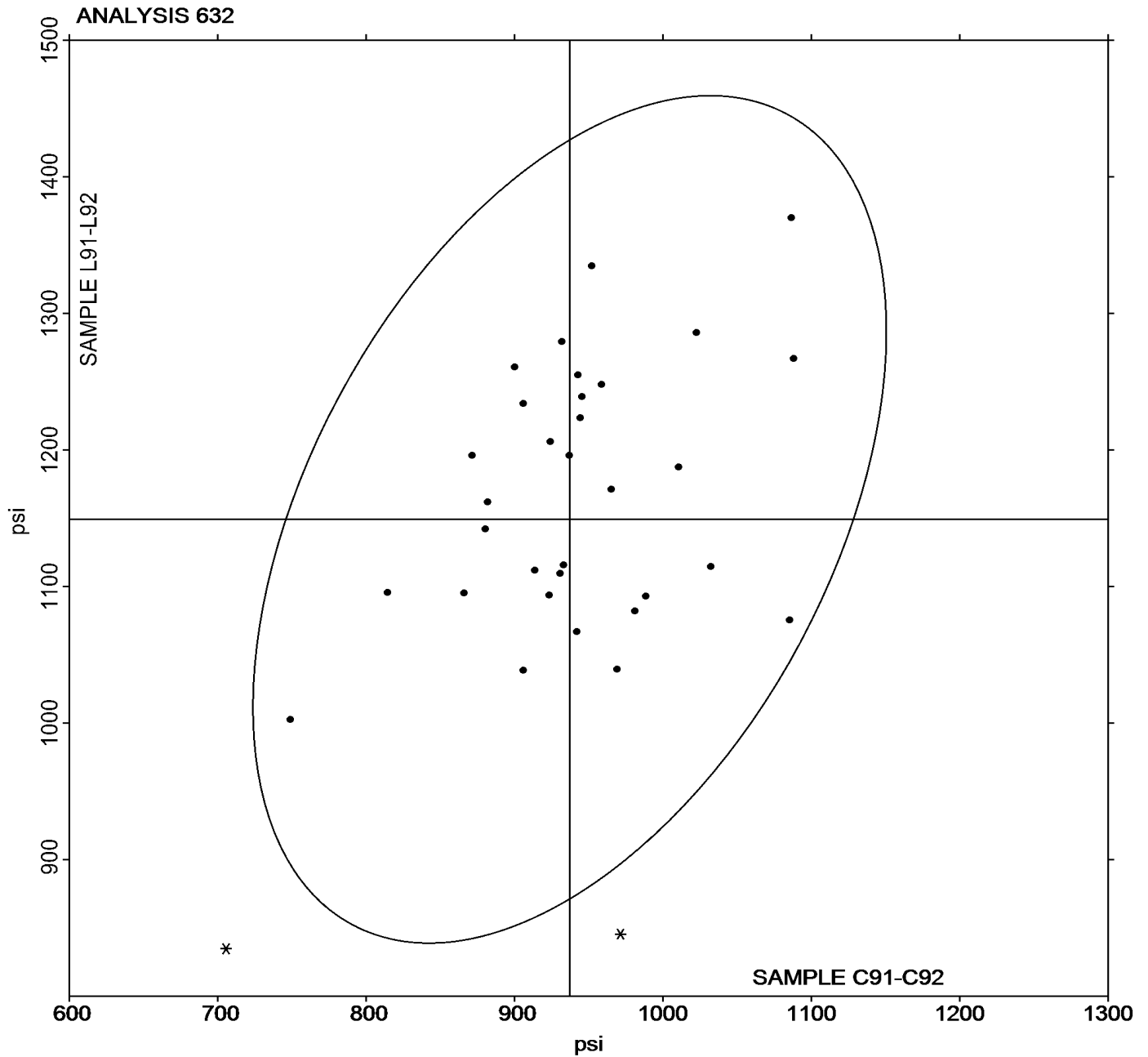
Report #201

3rd Qtr 2019

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

Grand Mean Sample C91-C92 = 937.17 psi

Grand Mean Sample L91-L92 = 1,149.14 psi





Rubber Interlaboratory Testing Program

Report #201

Analysis 633

3rd Qtr 2019

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

WebCode	Data Flag	Sample C91-C92			Sample L91-L92		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2CNGDQ		194.5	-13.0	-0.95	263.0	3.8	0.19
2ZMFLB		193.2	-14.3	-1.04	257.4	-1.8	-0.09
3ACLYA		207.0	-0.6	-0.04	236.5	-22.7	-1.12
6NZKU2		218.7	11.2	0.81	245.3	-13.9	-0.69
7HHXZT		216.7	9.2	0.67	282.5	23.3	1.15
7M3M2K		199.5	-8.0	-0.58	258.1	-1.1	-0.05
82TA6N		207.0	-0.5	-0.04	252.0	-7.2	-0.36
9WYCU7		201.0	-6.5	-0.47	248.5	-10.7	-0.53
AB8TUC		209.0	1.5	0.11	241.0	-18.2	-0.90
AGCWHP		186.0	-21.5	-1.57	253.0	-6.2	-0.31
APHHVE		203.0	-4.5	-0.33	290.5	31.3	1.55
BDUP23		218.3	10.7	0.78	257.6	-1.6	-0.08
C6Y7ZZ	*	240.5	32.9	2.40	304.5	45.3	2.23
CJLFYT	X	206.9	-0.7	-0.05	177.0	-82.2	-4.06
E4HNCE		206.0	-1.6	-0.11	274.8	15.7	0.77
FDTNX7		204.4	-3.1	-0.22	276.4	17.2	0.85
HMPYRU		202.0	-5.5	-0.40	232.5	-26.7	-1.32
JTM7QU		208.8	1.3	0.09	281.2	22.0	1.09
KT2PBQ		224.8	17.3	1.26	282.8	23.6	1.17
LFNAE7		203.7	-3.8	-0.28	278.6	19.4	0.96
LH96ZH		217.5	10.0	0.73	235.8	-23.4	-1.15
MH3GQH		185.6	-21.9	-1.59	216.8	-42.4	-2.09
MQVPB9	*	243.4	35.9	2.62	289.7	30.5	1.50
NUEWH9		206.0	-1.5	-0.11	224.5	-34.7	-1.71
QG2FMN		206.0	-1.5	-0.11	267.0	7.8	0.39
TGLV9Y		203.1	-4.4	-0.32	259.8	0.6	0.03
TYTB44		215.0	7.5	0.55	260.5	1.3	0.06
VD4VE8		202.7	-4.8	-0.35	256.1	-3.1	-0.15
VD6H2D		188.1	-19.4	-1.42	239.6	-19.6	-0.97
VQW4KG		196.4	-11.2	-0.81	269.2	10.0	0.49
WJMBQG		198.0	-9.5	-0.69	268.3	9.1	0.45
WJNZWZ		214.5	7.0	0.51	247.0	-12.2	-0.60
XT4GUY		231.1	23.6	1.72	262.6	3.4	0.17
ZPMN3W		196.4	-11.1	-0.81	240.5	-18.7	-0.92



Rubber Interlaboratory Testing Program

Report #201

Analysis 633

3rd Qtr 2019

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

		Summary Statistics	
Grand Means	207.51 psi		259.19 psi
Stnd Dev Btwn Labs	13.72 psi		20.26 psi
Statistics based on 33 of 34 reporting participants			

		Summary Statistics in SI Units	
Grand Means	1.4307 MPa		1.79 MPa
Stnd Dev Btwn Labs	0.0946 MPa		0.14 MPa
Statistics based on 33 of 34 reporting participants			

Samples C91-C92: Polyisoprene compound, batch #1 & L91-L92: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #633

CJLFYT (X) - Data for sample group L91-L92 are low.



Rubber Interlaboratory Testing Program

Analysis 633

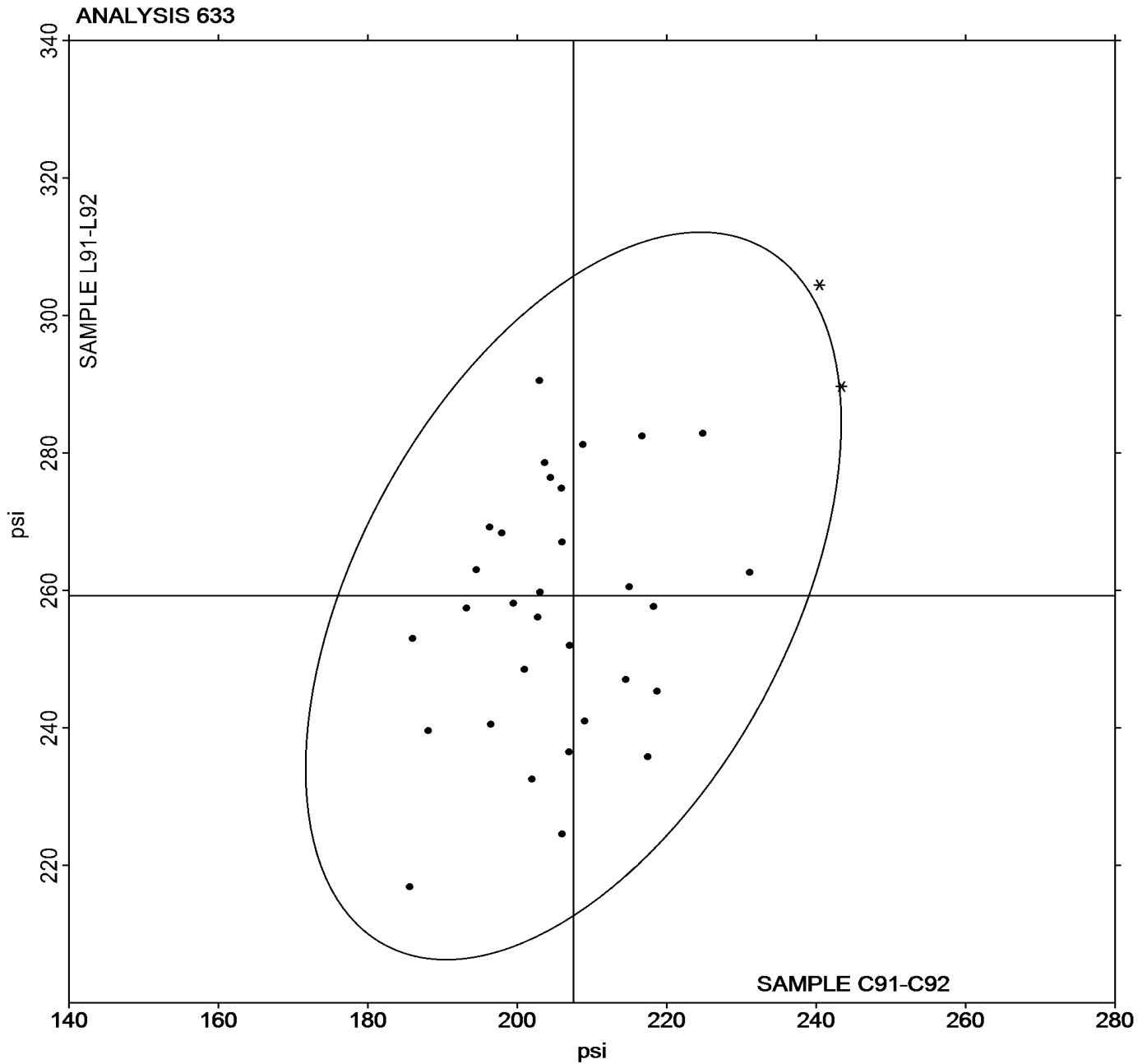
Report #201

3rd Qtr 2019

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

Grand Mean Sample C91-C92 = 207.51 psi

Grand Mean Sample L91-L92 = 259.19 psi





Rubber Interlaboratory Testing Program
Analysis 635
Compression Set Method B

Report #201
3rd Qtr 2019

WebCode	Data Flag	Sample P91			Sample P92		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
6NZKU2		27.40	0.41	0.09	25.00	-0.57	-0.14
7HHXZT		27.27	0.28	0.06	30.70	5.13	1.25
82DQKQ		24.33	-2.65	-0.55	22.67	-2.91	-0.71
ANWNCX		30.56	3.58	0.75	28.56	2.99	0.73
APHHVE		27.00	0.01	0.00	25.67	0.09	0.02
B6DF6U		35.07	8.08	1.69	31.93	6.36	1.55
C6Y7ZZ		21.00	-5.99	-1.25	20.47	-5.11	-1.25
CJLFYT		33.67	6.68	1.40	25.33	-0.24	-0.06
E6MGNX		36.03	9.04	1.89	34.50	8.93	2.18
FYHY7R		22.13	-4.85	-1.02	25.60	0.03	0.01
J9QNB7	X	12.53	-14.45	-3.02	24.30	-1.27	-0.31
LH96ZH		19.60	-7.39	-1.55	18.90	-6.67	-1.63
LV3FTQ		26.33	-0.65	-0.14	28.00	2.43	0.59
NUEWH9		20.29	-6.69	-1.40	21.33	-4.25	-1.04
PA8XNE		25.33	-1.65	-0.35	25.33	-0.24	-0.06
PYLUGF		26.77	-0.22	-0.05	21.83	-3.74	-0.91
QXXMZJ		32.00	5.01	1.05	24.00	-1.57	-0.38
R4FFPN	X	5.63	-21.35	-4.47	6.46	-19.12	-4.66
TGLV9Y		25.17	-1.81	-0.38	27.89	2.32	0.57
TKK76Y		23.23	-3.75	-0.79	20.23	-5.34	-1.30
TMGXVF		28.77	1.78	0.37	25.76	0.19	0.05
U3X6PM		33.17	6.18	1.29	29.53	3.96	0.97
VD4VE8		26.23	-0.75	-0.16	21.05	-4.52	-1.10
WJNZWZ		22.33	-4.65	-0.97	28.33	2.76	0.67

Summary Statistics	
Grand Means	26.986 % Compression
	25.574 % Compression
Std Dev Btwn Labs	4.780 % Compression
	4.099 % Compression
Statistics based on 22 of 24 reporting participants	

Samples P91: EPDM compound, batch #1 & P92: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #635

J9QNB7 (X) - Extreme data.

R4FFPN (X) - Extreme data.

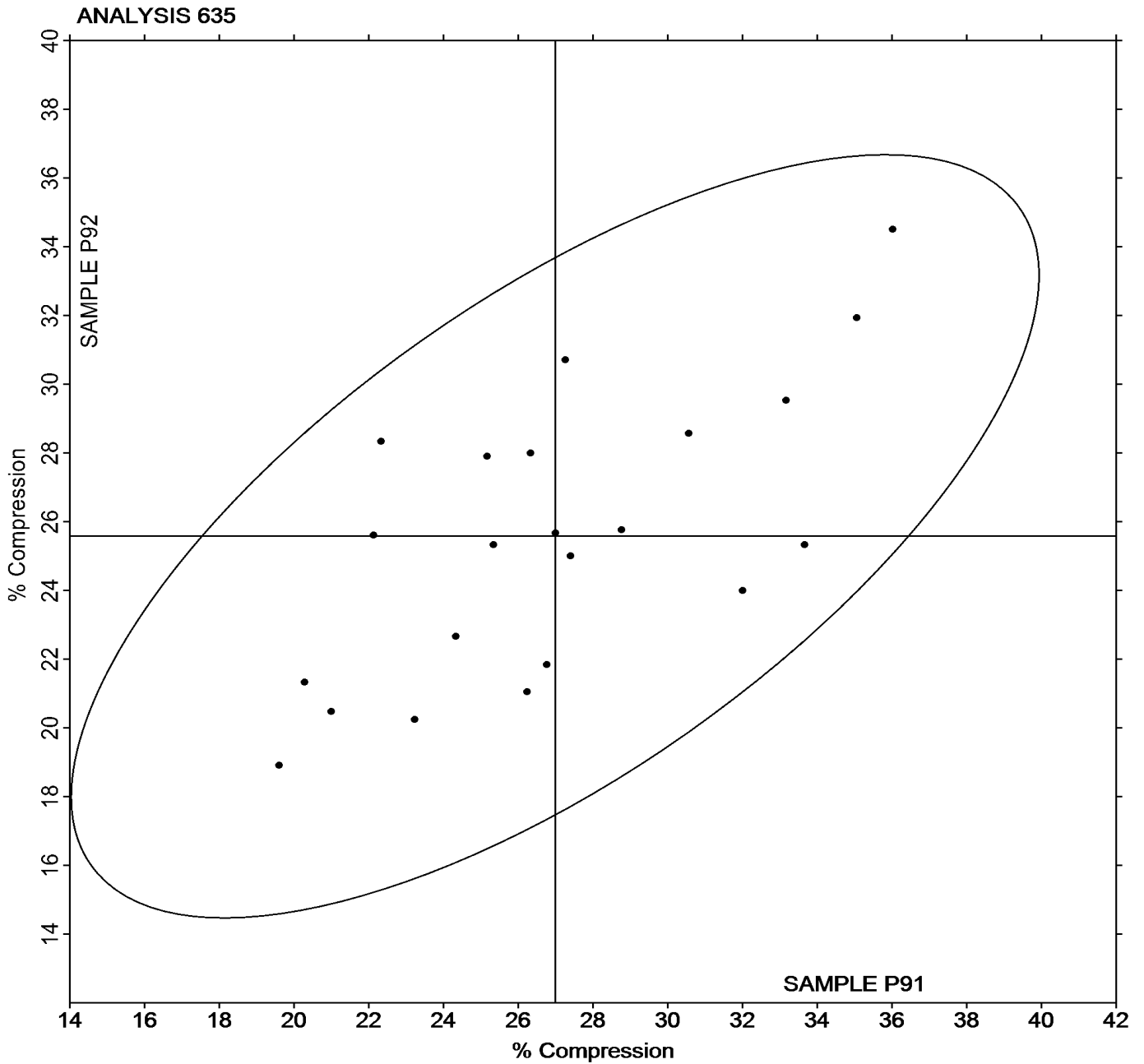


Rubber Interlaboratory Testing Program
Analysis 635
Compression Set Method B

Report #201
3rd Qtr 2019

Grand Mean Sample P91 = 26.986 % Compression

Grand Mean Sample P92 = 25.574 % Compression





Rubber Interlaboratory Testing Program

Report #201

Analysis 660

3rd Qtr 2019

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

WebCode	Data Flag	Sample U91-U92			Sample U93-U94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3C7LT4		52.23	-0.17	-0.14	54.44	-0.06	-0.04	TA
6WY63N		51.96	-0.43	-0.36	55.55	1.05	0.77	MR
7ANT7R		50.45	-1.94	-1.60	53.23	-1.27	-0.92	MR
7HHXZT		52.05	-0.34	-0.28	55.28	0.78	0.57	MR
9WYCU7		53.88	1.49	1.23	53.98	-0.52	-0.38	MR
AB8TUC		52.40	0.01	0.01	54.33	-0.17	-0.12	ML
AGCWHP		53.60	1.21	0.99	55.90	1.40	1.02	MV
APHHVE		51.23	-1.16	-0.95	52.85	-1.65	-1.20	MR
B2D82J	X	48.95	-3.44	-2.84	55.90	1.40	1.02	MR
BDUP23		51.30	-1.09	-0.90	52.95	-1.55	-1.13	MR
BX7B46		52.48	0.09	0.07	54.10	-0.40	-0.29	MR
C8VGF4		53.25	0.86	0.71	54.55	0.05	0.03	MR
C94UX6		50.26	-2.13	-1.76	51.48	-3.02	-2.20	XX
E4HNCE		52.38	-0.01	-0.01	53.78	-0.72	-0.52	MR
FDTNX7		52.35	-0.04	-0.04	54.52	0.02	0.01	MR
GKRPJH		50.85	-1.55	-1.27	53.00	-1.50	-1.10	MV
GW2CLN		51.83	-0.56	-0.46	54.33	-0.17	-0.12	MR
HMPYRU		51.97	-0.42	-0.35	55.34	0.84	0.61	MV
JTM7QU		50.94	-1.46	-1.20	53.53	-0.97	-0.71	MV
KT2PBQ		52.95	0.56	0.46	54.45	-0.05	-0.04	MR
LFNAE7	*	55.03	2.64	2.17	58.57	4.07	2.97	MR
LV3FTQ		51.88	-0.51	-0.42	54.68	0.18	0.13	MP
MH3GQH		52.59	0.19	0.16	55.81	1.31	0.96	MV
MQVPB9	M	52.92	0.53	0.43	No data reported for this sample			MR
NUEWH9		53.66	1.27	1.04	56.51	2.01	1.46	MV
PN6ZCE		53.69	1.29	1.07	54.20	-0.30	-0.22	MR
QFXGRP		53.40	1.01	0.83	55.20	0.70	0.51	MR
QG2FMN		52.68	0.29	0.24	54.12	-0.38	-0.28	MR
QTRCF9		54.03	1.64	1.35	54.85	0.35	0.26	MR
RCX7M7		53.83	1.44	1.19	57.50	3.00	2.19	MV
TDZ7NL		54.34	1.94	1.60	56.83	2.33	1.70	MR
TFH9EC		52.90	0.51	0.42	54.57	0.07	0.05	MR
TNGUJK		50.68	-1.71	-1.41	52.35	-2.15	-1.57	MR
TYTB44		50.88	-1.51	-1.24	53.37	-1.13	-0.83	XX
UM3QPT		53.03	0.64	0.53	54.28	-0.22	-0.16	MR
VD4VE8		51.89	-0.50	-0.42	53.21	-1.29	-0.94	MV
VD6H2D		53.23	0.84	0.69	54.88	0.38	0.28	TV
VQW4KG		52.34	-0.06	-0.05	54.09	-0.41	-0.30	MR



Rubber Interlaboratory Testing Program

Report #201

Analysis 660

3rd Qtr 2019

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

WebCode	Data Flag	Sample U91-U92			Sample U93-U94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
W66KM9		49.70	-2.69	-2.22	53.30	-1.20	-0.87	TV
XT4GUY		52.95	0.56	0.46	55.77	1.27	0.92	XX
Z6XAN8		51.32	-1.08	-0.89	53.87	-0.63	-0.46	MR
Z9UZNR		53.30	0.91	0.75	54.43	-0.07	-0.05	MR

Grand Means		Summary Statistics	
	52.393 ML 1 + 4		54.499 ML 1 + 4
Std Dev Btwn Labs	1.214 ML 1 + 4		1.372 ML 1 + 4
Statistics based on 40 of 42 reporting participants			

Samples U91-U92: SBR & U93-U94: Butyl

Comments on Assigned Data Flags for Test #660

B2D82J (X) - Data for sample group U91-U92 are low.

MQVPB9 (M) - Participant did not submit data for sample group .

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

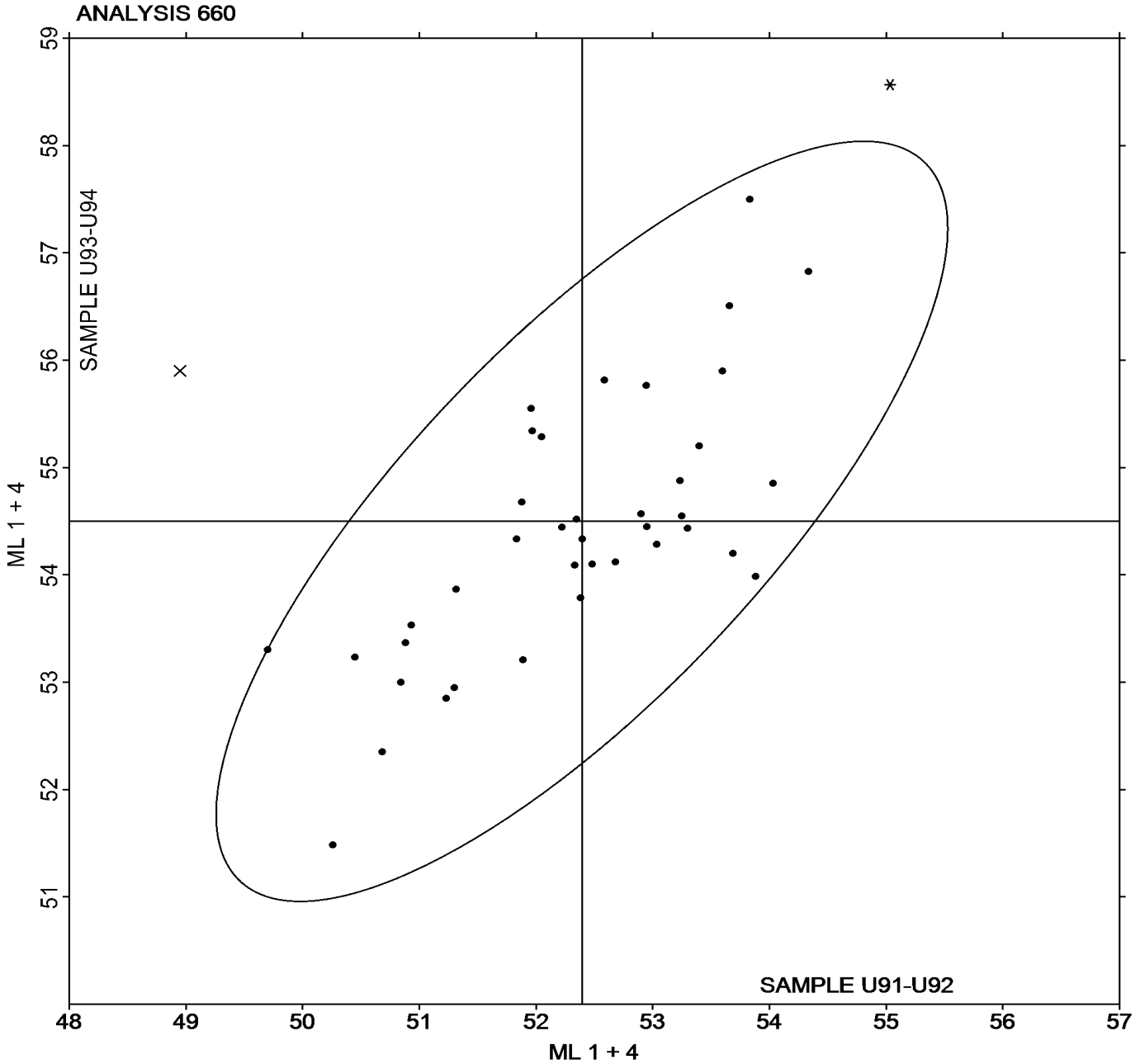
Analysis 660

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

Report #201
3rd Qtr 2019

Grand Mean Sample **U91-U92** = 52.393 ML 1 + 4

Grand Mean Sample **U93-U94** = 54.499 ML 1 + 4





Rubber Interlaboratory Testing Program

Report #201

Analysis 661

3rd Qtr 2019

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

WebCode	Data Flag	Sample U91-U92			Sample U93-U94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
6WY63N		51.96	-0.45	-0.40	52.80	0.98	0.88	MR
7ANT7R		50.45	-1.96	-1.74	50.57	-1.25	-1.13	MR
7HHXZT		52.05	-0.36	-0.32	52.97	1.15	1.04	MR
9WYCU7		53.88	1.47	1.30	51.08	-0.74	-0.66	MP
AB8TUC		52.40	-0.01	-0.01	50.07	-1.75	-1.58	ML
AGCWHP		53.60	1.19	1.05	53.44	1.62	1.46	MV
APHHVE		51.23	-1.18	-1.04	51.02	-0.80	-0.72	MR
B2D82J	X	48.95	-3.46	-3.06	53.80	1.98	1.79	MR
BDUP23		51.30	-1.11	-0.98	49.97	-1.85	-1.67	MR
BX7B46		52.48	0.07	0.06	51.83	0.01	0.01	MR
C8VGF4		53.25	0.84	0.74	51.47	-0.35	-0.32	MR
E4HNCE		52.38	-0.03	-0.03	51.43	-0.39	-0.35	MR
FDTNX7		52.35	-0.06	-0.06	52.92	1.10	0.99	MR
GKRPJH		50.85	-1.57	-1.39	51.11	-0.71	-0.64	MV
GW2CLN		51.83	-0.58	-0.51	51.98	0.16	0.15	MR
HMPYRU		51.97	-0.44	-0.39	52.75	0.93	0.84	MV
JTM7QU		50.94	-1.48	-1.31	51.12	-0.70	-0.63	MV
KT2PBQ		52.95	0.54	0.47	51.75	-0.07	-0.06	MR
LFNAE7	X	55.03	2.62	2.32	56.62	4.80	4.33	MR
LV3FTQ		51.88	-0.53	-0.47	50.86	-0.96	-0.87	MP
MH3GQH		52.59	0.17	0.15	54.15	2.33	2.10	MV
MQVPB9		52.92	0.50	0.45	52.17	0.35	0.32	MR
NUEWH9		53.66	1.25	1.10	52.33	0.51	0.46	MV
PN6ZCE		53.69	1.27	1.12	51.83	0.01	0.01	MR
QFXGRP		53.40	0.99	0.87	51.97	0.15	0.13	MR
QG2FMN		52.68	0.27	0.24	51.78	-0.04	-0.03	MR
QTRCF9		54.03	1.62	1.43	52.55	0.73	0.66	MR
RCX7M7		53.83	1.42	1.25	54.00	2.18	1.97	MV
TDZ7NL		54.34	1.92	1.70	54.30	2.48	2.24	MR
TNGUJK		50.68	-1.73	-1.53	49.98	-1.84	-1.66	MR
TYTB44		50.88	-1.53	-1.35	50.85	-0.97	-0.87	XX
UM3QPT		53.03	0.62	0.55	51.50	-0.32	-0.29	MR
VD4VE8		51.89	-0.53	-0.46	50.64	-1.18	-1.06	MV
VD6H2D		53.23	0.82	0.72	51.47	-0.35	-0.32	TV
VQW4KG		52.34	-0.08	-0.07	51.60	-0.22	-0.20	MR
W66KM9		49.70	-2.71	-2.40	50.85	-0.97	-0.87	TV
XT4GUY		52.95	0.53	0.47	52.01	0.19	0.17	XX



Rubber Interlaboratory Testing Program

Report #201

Analysis 661

3rd Qtr 2019

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

WebCode	Data Flag	Sample U91-U92			Sample U93-U94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
Z9UZNR		53.30	0.89	0.78	52.38	0.56	0.51	MR

Summary Statistics	
Grand Means	
	52.414 ML 1 + 8
	51.819 ML 1 + 8
Std Dev Btwn Labs	
	1.131 ML 1 + 8
	1.108 ML 1 + 8
Statistics based on 36 of 38 reporting participants	

Samples U91-U92: SBR & U93-U94: Butyl

Comments on Assigned Data Flags for Test #661

B2D82J (X) - Data for sample group U91-U92 are low. Inconsistent within the determinations of sample group U93-U94.

LFNAE7 (X) - Data for sample group U93-U94 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 #201

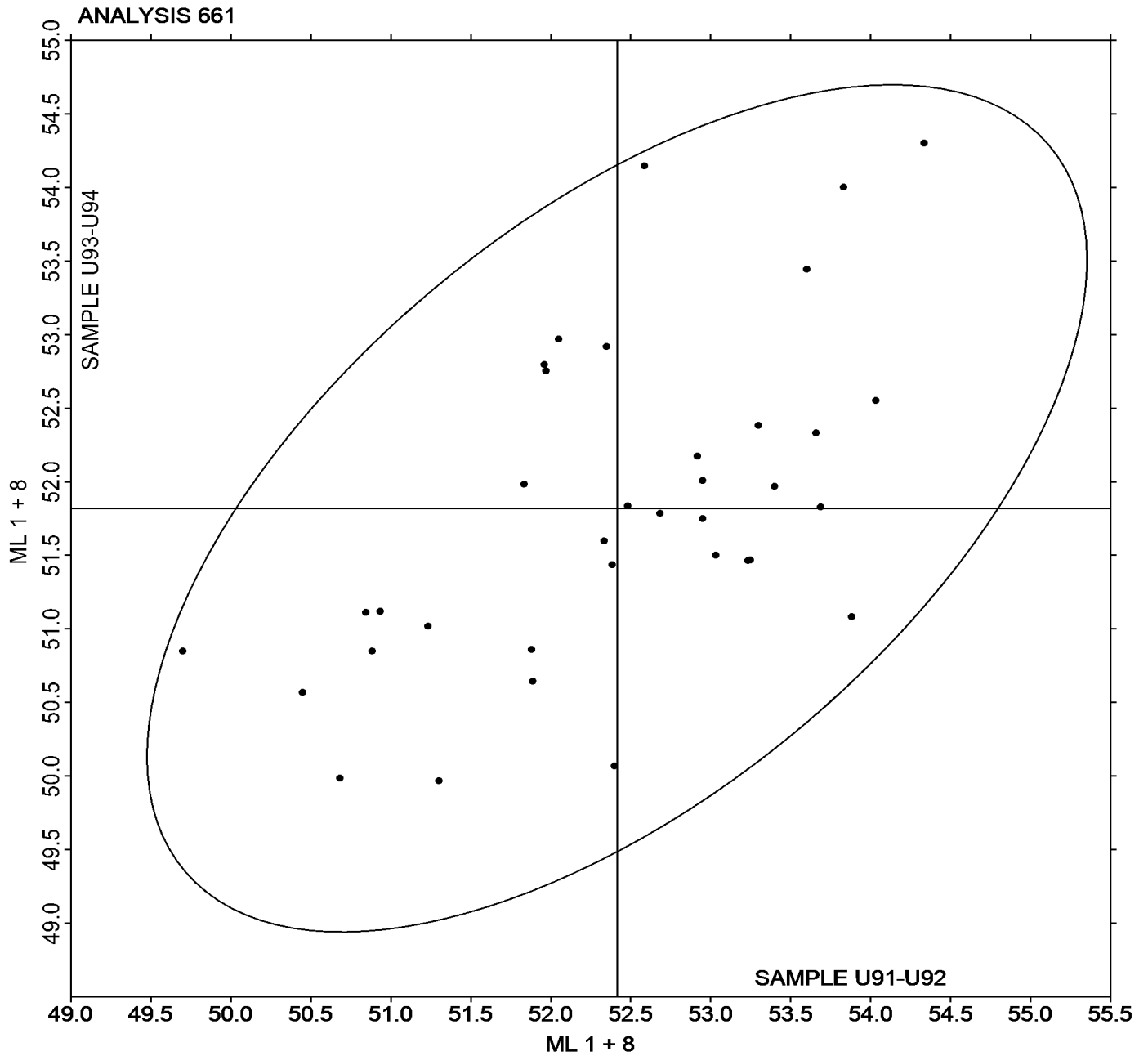
Analysis 661

3rd Qtr 2019

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

Grand Mean Sample **U91-U92** = 52.414 ML 1 + 8

Grand Mean Sample **U93-U94** = 51.819 ML 1 + 8





Rubber Interlaboratory Testing Program

Report #201

Analysis 662

3rd Qtr 2019

Mooney Stress Relaxation: t80 (seconds)

WebCode	Data Flag	Sample U91-U92			Sample U93-U94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3C7LT4		21.17	3.27	1.13	10.017	2.646	2.67	TA
7HHXZT		18.15	0.25	0.09	7.207	-0.164	-0.17	MR
AGCWHP		19.97	2.07	0.72	7.633	0.262	0.26	MV
BDUP23		18.87	0.97	0.34	6.770	-0.601	-0.61	MR
E4HNCE		19.84	1.95	0.67	7.600	0.229	0.23	MR
GW2CLN		12.53	-5.36	-1.86	7.683	0.312	0.31	MR
HMPYRU		13.10	-4.79	-1.66	6.100	-1.271	-1.28	MV
JTM7QU	X	311.40	293.51	101.66	306.000	298.629	300.93	MV
KT2PBQ		18.89	0.99	0.34	7.220	-0.151	-0.15	MR
MH3GQH		19.90	2.01	0.70	8.200	0.829	0.84	MV
MQVPB9		13.43	-4.46	-1.55	6.097	-1.274	-1.28	MR
NUEWH9		19.49	1.59	0.55	7.000	-0.371	-0.37	MV
QFXGRP		19.97	2.07	0.72	7.517	0.146	0.15	MR
QG2FMN		18.98	1.09	0.38	7.213	-0.158	-0.16	MR
QTRCF9		20.42	2.53	0.88	7.157	-0.214	-0.22	MR
RCX7M7	X	9.13	-8.76	-3.04	9.130	1.759	1.77	MV
TFH9EC		19.70	1.81	0.63	8.400	1.029	1.04	MR
TYTB44		18.22	0.32	0.11	7.367	-0.004	0.00	XX
VD4VE8		12.80	-5.09	-1.76	5.500	-1.871	-1.89	MV
VD6H2D	X	11.21	-6.68	-2.31	11.123	3.752	3.78	TV
XT4GUY		16.67	-1.23	-0.42	8.000	0.629	0.63	XX

Grand Means		Summary Statistics	
	17.893 seconds		7.3711 seconds
Std Dev Btwn Labs	2.887 seconds		0.9923 seconds
Statistics based on 18 of 21 reporting participants			

Samples U91-U92: SBR & U93-U94: Butyl

Comments on Assigned Data Flags for Test #662

JTM7QU (X) - Extreme Data.

RCX7M7 (X) - Extreme data.

VD6H2D (X) - Extreme data.



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

Report #201
3rd Qtr 2019

Key to Instrument Codes Reported by Participants

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

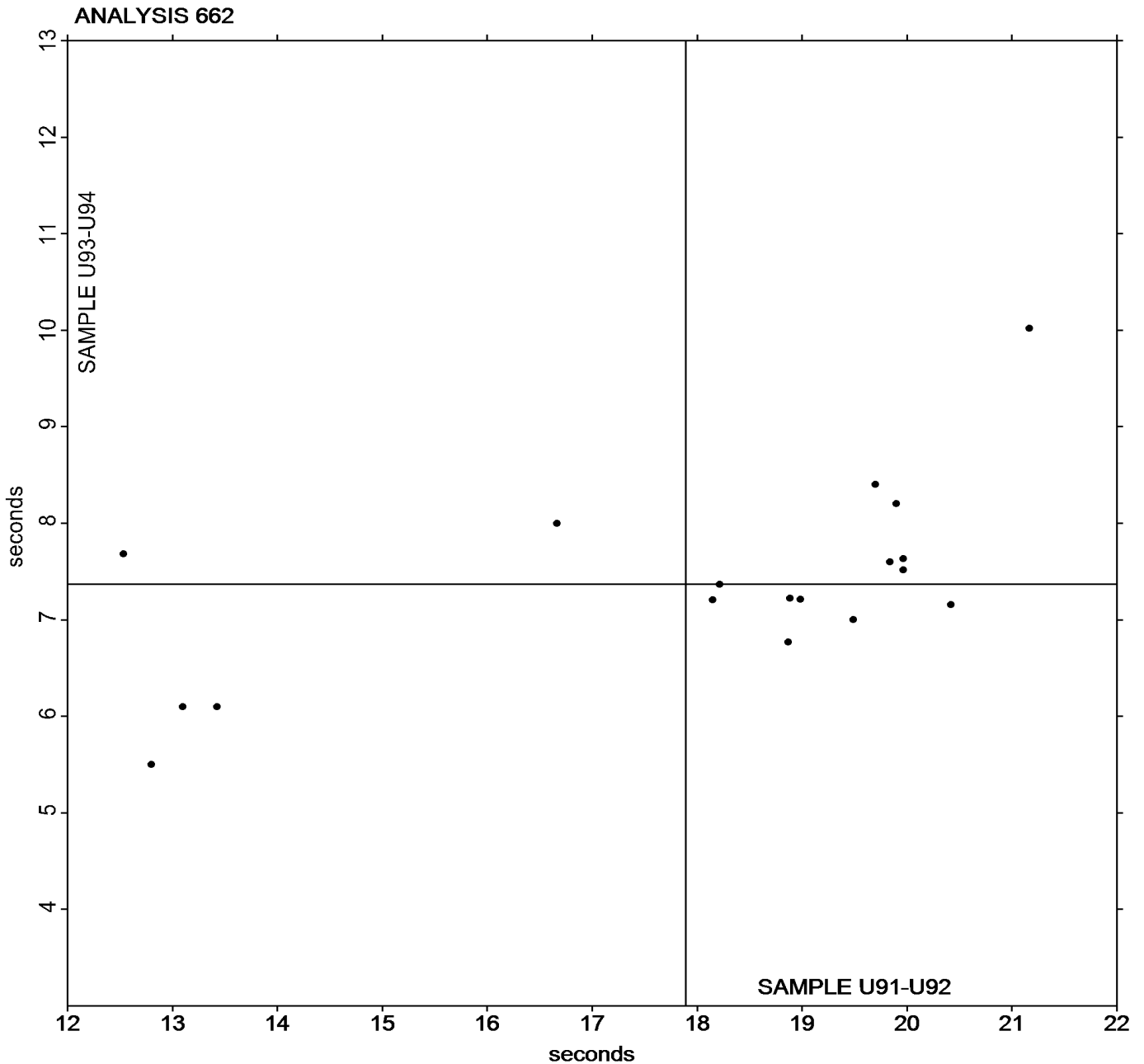


Rubber Interlaboratory Testing Program
Analysis 662
Mooney Stress Relaxation: t80 (seconds)

Report #201
3rd Qtr 2019

Grand Mean Sample **U91-U92** = 17.893 seconds

Grand Mean Sample **U93-U94** = 7.3711 seconds



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



Rubber Interlaboratory Testing Program

Report #201

Analysis 663

3rd Qtr 2019

Mooney Stress Relaxation: X30 (percent)

WebCode	Data Flag	Sample U91-U92			Sample U93-U94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3C7LT4		82.51	-1.63	-0.90	89.91	-2.73	-1.95	TA
7HHXZT		83.38	-0.76	-0.42	92.51	-0.14	-0.10	MR
AGCWHP		82.70	-1.44	-0.79	92.80	0.16	0.11	MV
BDUP23		83.25	-0.89	-0.49	93.47	0.82	0.58	MR
E4HNCE		82.95	-1.19	-0.66	92.39	-0.26	-0.18	MR
GW2CLN		85.82	1.68	0.92	91.83	-0.81	-0.58	MR
HMPYRU		85.77	1.63	0.90	94.20	1.55	1.11	MV
JTM7QU		87.16	3.02	1.66	95.51	2.87	2.04	MV
KT2PBQ		83.16	-0.98	-0.54	92.45	-0.20	-0.14	MR
MH3GQH		83.00	-1.14	-0.63	91.00	-1.65	-1.17	MV
MQVPB9	X	72.66	-11.48	-6.32	93.88	1.23	0.87	MR
NUEWH9		82.76	-1.38	-0.76	91.91	-0.74	-0.53	MV
QFXGRP		82.57	-1.57	-0.87	92.13	-0.51	-0.36	MR
QG2FMN		83.17	-0.97	-0.54	92.35	-0.30	-0.21	MR
QTRCF9		82.51	-1.63	-0.90	92.34	-0.31	-0.22	MR
RCX7M7		88.68	4.54	2.50	93.74	1.09	0.78	MZ
TYTB44		83.35	-0.79	-0.43	92.17	-0.48	-0.34	XX
VD4VE8		86.18	2.04	1.13	95.76	3.12	2.22	MV
VD6H2D		85.36	1.22	0.67	91.80	-0.85	-0.60	TV
XT4GUY		84.38	0.24	0.13	92.01	-0.63	-0.45	XX

		Summary Statistics	
Grand Means		84.139 percent	92.646 percent
Std Dev Btwn Labs		1.815 percent	1.405 percent
Statistics based on 19 of 20 reporting participants			

Samples U91-U92: SBR & U93-U94: Butyl

Comments on Assigned Data Flags for Test #663

MQVPB9 (X) - Data for sample group U91-U92 are low. 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

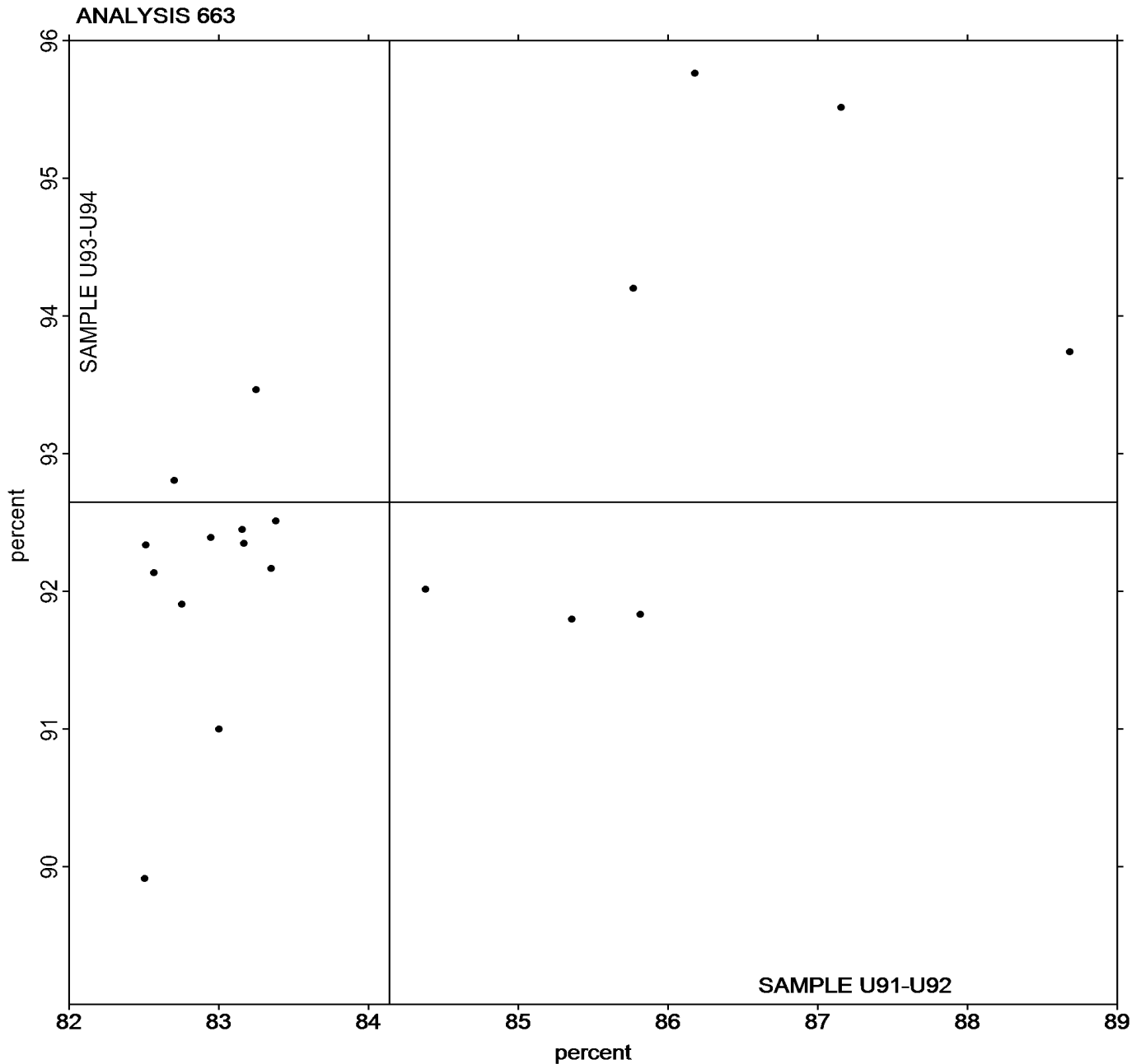


Rubber Interlaboratory Testing Program
Analysis 663
Mooney Stress Relaxation: X30 (percent)

Report #201
3rd Qtr 2019

Grand Mean Sample U91-U92 = 84.139 percent

Grand Mean Sample U93-U94 = 92.646 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 #201

Analysis 664

3rd Qtr 2019

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

WebCode	Data Flag	Sample U91-U92			Sample U93-U94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3C7LT4		723.8	-120.1	-0.82	489.6	57.4	0.60	TA
7HHXZT		928.9	85.0	0.58	448.7	16.6	0.17	MR
AGCWHP		983.7	139.9	0.96	479.5	47.3	0.50	MV
BDUP23		920.0	76.2	0.52	376.6	-55.6	-0.58	MR
E4HNCE		958.7	114.8	0.79	448.8	16.7	0.18	XX
GW2CLN	*	542.0	-301.8	-2.07	618.0	185.8	1.96	MR
HMPYRU		777.0	-66.8	-0.46	331.6	-100.5	-1.06	MV
JTM7QU		677.2	-166.7	-1.15	250.8	-181.3	-1.91	MV
KT2PBQ		961.0	117.1	0.80	445.0	12.8	0.14	MR
MH3GQH		962.8	119.0	0.82	541.2	109.0	1.15	MV
MQVPB9		837.8	-6.0	-0.04	347.9	-84.2	-0.89	MR
NUEWH9		990.9	147.1	1.01	482.5	50.4	0.53	MV
QFXGRP		997.0	153.2	1.05	459.7	27.5	0.29	MR
QG2FMN		956.3	112.5	0.77	449.0	16.8	0.18	MR
RCX7M7		564.9	-278.9	-1.92	371.0	-61.2	-0.64	MZ
TYTB44		915.8	72.0	0.49	452.8	20.7	0.22	XX
VD4VE8		748.7	-95.1	-0.65	230.0	-202.1	-2.13	MV
VD6H2D		706.8	-137.0	-0.94	477.9	45.8	0.48	TV
XT4GUY		879.4	35.6	0.24	510.2	78.1	0.82	XX

Grand Means		Summary Statistics	
	843.83 M-s		432.15 M-s
Stnd Dev Btwn Labs	145.54 M-s		95.06 M-s
Statistics based on 19 of 19 reporting participants			

Samples U91-U92: SBR & U93-U94: Butyl

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

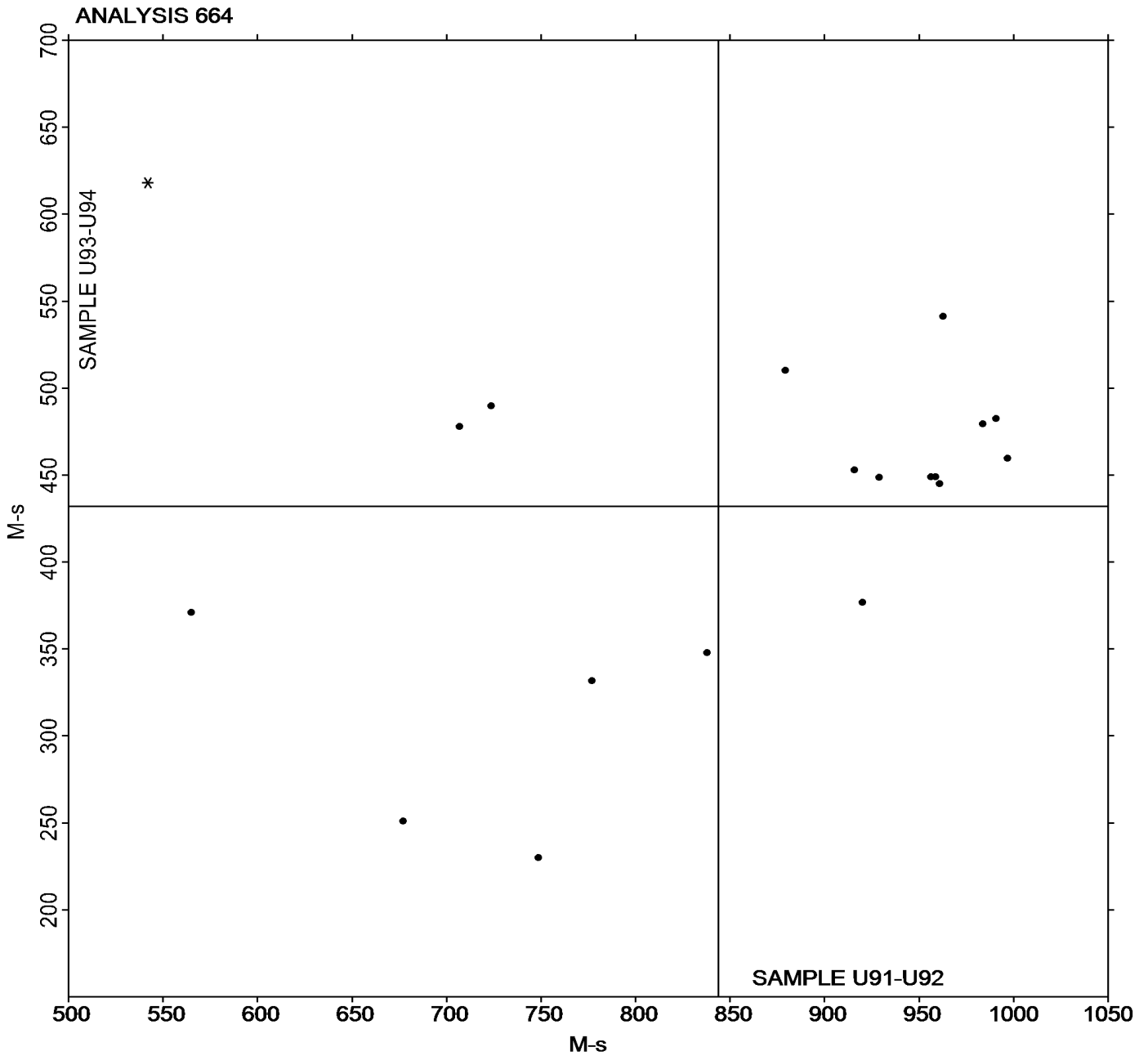


Rubber Interlaboratory Testing Program
Analysis 664
Mooney Stress Relaxation: Area under curve (M-s)

Report #201
3rd Qtr 2019

Grand Mean Sample **U91-U92** = 843.83 M-s

Grand Mean Sample **U93-U94** = 432.15 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 #201
3rd Qtr 2019

WebCode	Data Flag	Sample Y91-Y92			Sample Y93-Y94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
6WY63N		1.465	-0.144	-0.76	3.890	-0.366	-0.60
APHHVE		1.493	-0.116	-0.61	3.960	-0.296	-0.49
C8VGF4		1.570	-0.039	-0.21	4.117	-0.139	-0.23
HMPYRU		1.388	-0.221	-1.17	3.487	-0.769	-1.27
LV3FTQ		1.982	0.373	1.98	5.697	1.441	2.37
PN6ZCE		1.523	-0.086	-0.45	4.140	-0.116	-0.19
TNGUJK		1.820	0.211	1.12	4.342	0.086	0.14
VD4VE8		1.687	0.078	0.41	4.290	0.034	0.06
VD6H2D		1.553	-0.056	-0.30	4.380	0.124	0.20

Summary Statistics	
Grand Means	1.6091 minutes 4.2557 minutes
Stnd Dev Btwn Labs	0.1885 minutes 0.6068 minutes
Statistics based on 9 of 9 reporting participants	

Samples Y91-Y92: EPDM compound, batch #1 & Y93-Y94: EPDM compound, batch #2

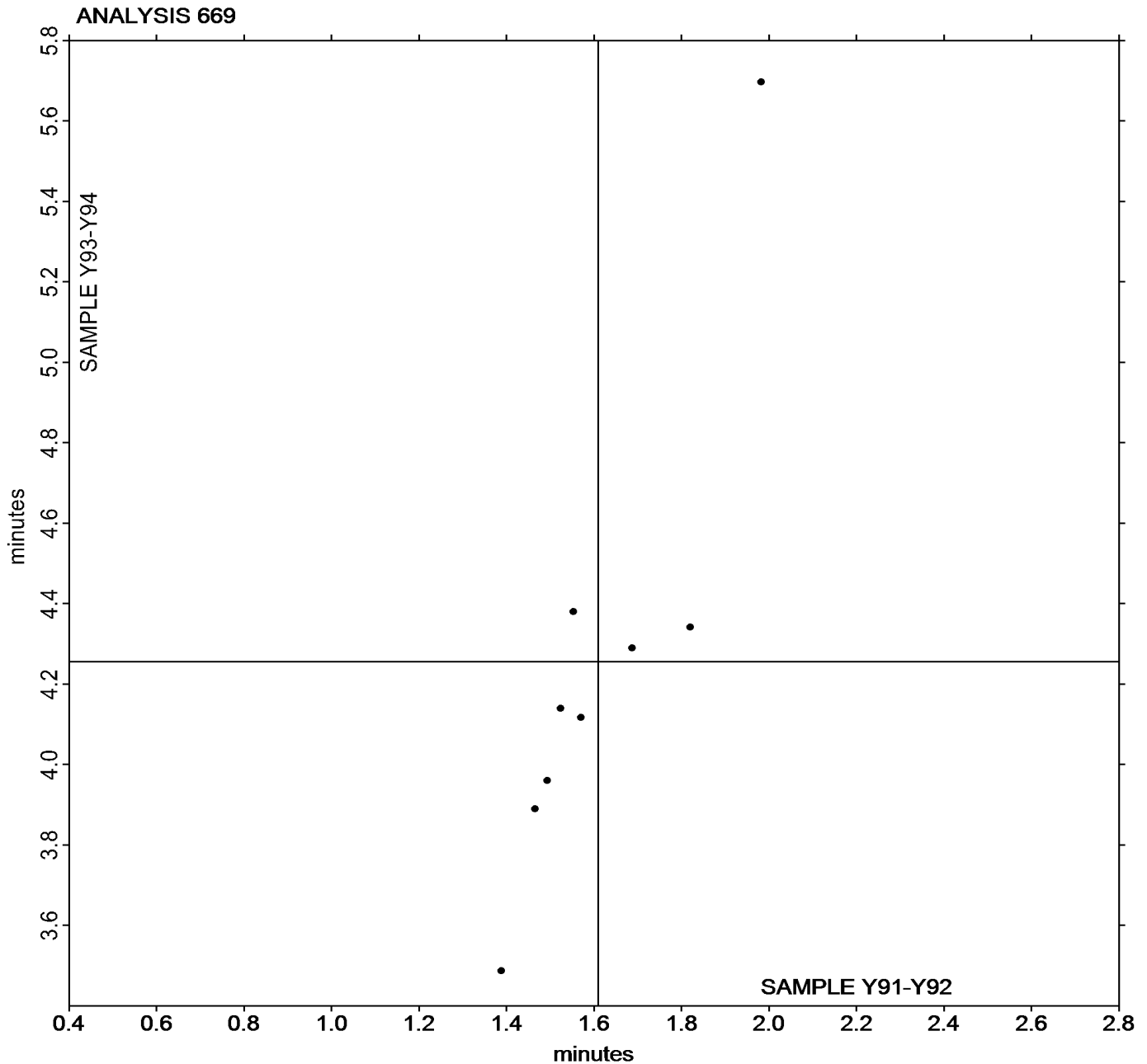


Rubber Interlaboratory Testing Program
Analysis 669
ODR Vulcanization-Cure Time 10% (minutes)

Report #201
3rd Qtr 2019

Grand Mean Sample **Y91-Y92** = 1.6091 minutes

Grand Mean Sample **Y93-Y94** = 4.2557 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 #201
3rd Qtr 2019

WebCode	Data Flag	Sample Y91-Y92			Sample Y93-Y94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
6WY63N		1.045	-0.145	-0.69	2.763	-0.593	-0.76
APHHVE		1.080	-0.110	-0.53	2.963	-0.393	-0.50
C8VGF4		1.065	-0.125	-0.60	3.167	-0.189	-0.24
HMPYRU		0.977	-0.213	-1.02	2.610	-0.746	-0.96
LV3FTQ		1.650	0.460	2.21	5.268	1.912	2.45
PN6ZCE		1.085	-0.105	-0.50	3.075	-0.281	-0.36
TNGUJK		1.360	0.170	0.82	3.447	0.091	0.12
VD4VE8		1.207	0.017	0.08	3.405	0.049	0.06
VD6H2D		1.238	0.049	0.23	3.507	0.151	0.19

		Summary Statistics	
Grand Means	1.1896 minutes	3.3561 minutes	
Stnd Dev Btwn Labs	0.2087 minutes	0.7800 minutes	
Statistics based on 9 of 9 reporting participants			

Samples Y91-Y92: EPDM compound, batch #1 & Y93-Y94: EPDM compound, batch #2

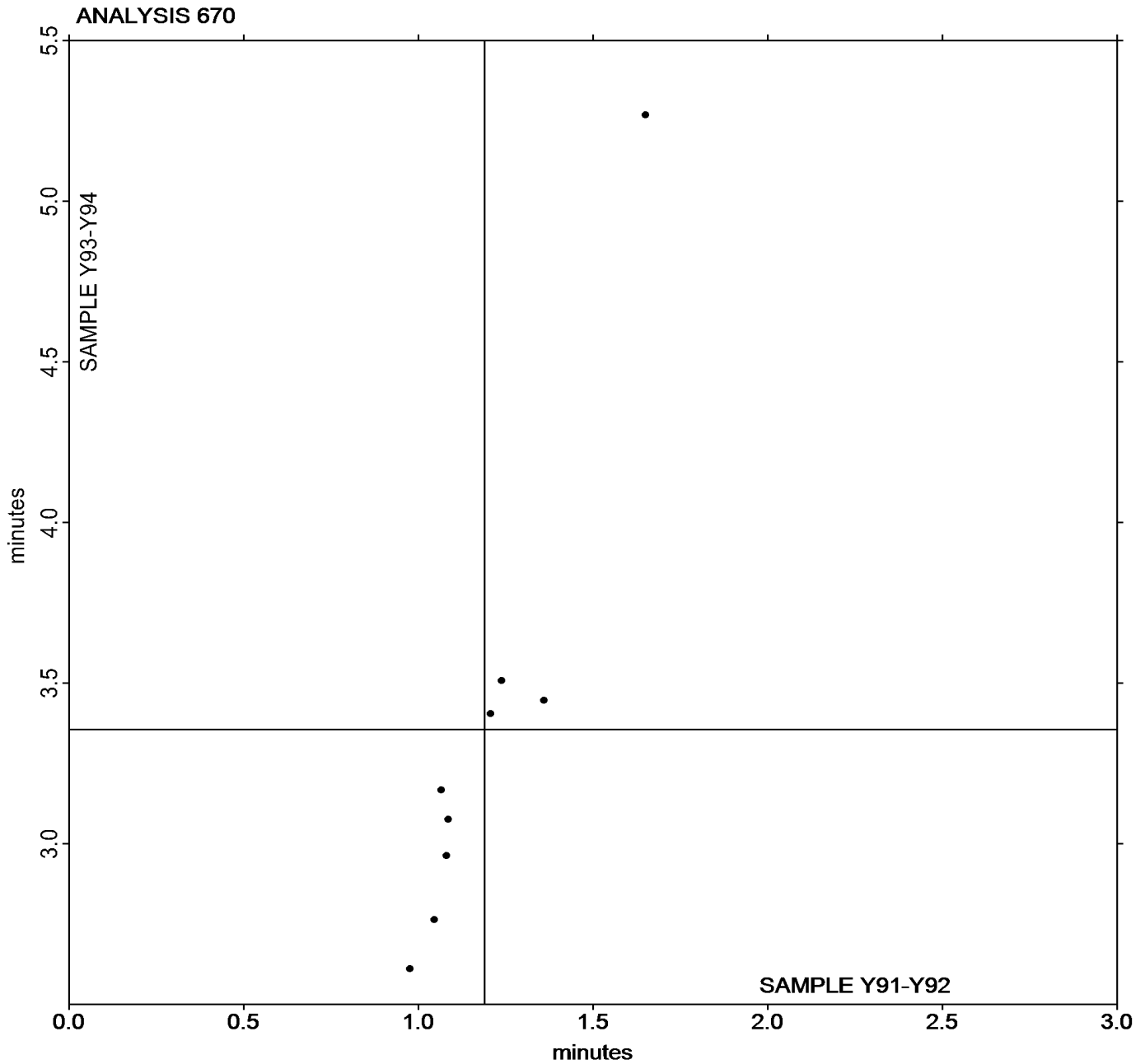


Rubber Interlaboratory Testing Program
Analysis 670
ODR Vulcanization-Scorch Time, Ts1 (minutes)

Report #201
3rd Qtr 2019

Grand Mean Sample Y91-Y92 = 1.1896 minutes

Grand Mean Sample Y93-Y94 = 3.3561 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 #201
3rd Qtr 2019

WebCode	Data Flag	Sample Y91-Y92			Sample Y93-Y94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
6WY63N		2.858	-0.270	-0.91	7.327	-0.203	-0.39
APHHVE		3.043	-0.085	-0.29	7.435	-0.095	-0.18
C8VGF4		3.455	0.326	1.10	7.367	-0.163	-0.31
HMPYRU		2.717	-0.412	-1.38	6.450	-1.080	-2.06
LV3FTQ		3.505	0.376	1.26	8.357	0.827	1.57
PN6ZCE		3.005	-0.124	-0.42	7.703	0.174	0.33
TNGUJK		3.440	0.311	1.05	7.553	0.024	0.04
VD4VE8		3.282	0.153	0.51	7.548	0.019	0.04
VD6H2D		2.853	-0.275	-0.92	8.028	0.499	0.95

		Summary Statistics	
Grand Means	3.1287 minutes	7.5298 minutes	
Std Dev Btwn Labs	0.2978 minutes	0.5251 minutes	
Statistics based on 9 of 9 reporting participants			

Samples Y91-Y92: EPDM compound, batch #1 & Y93-Y94: EPDM compound, batch #2

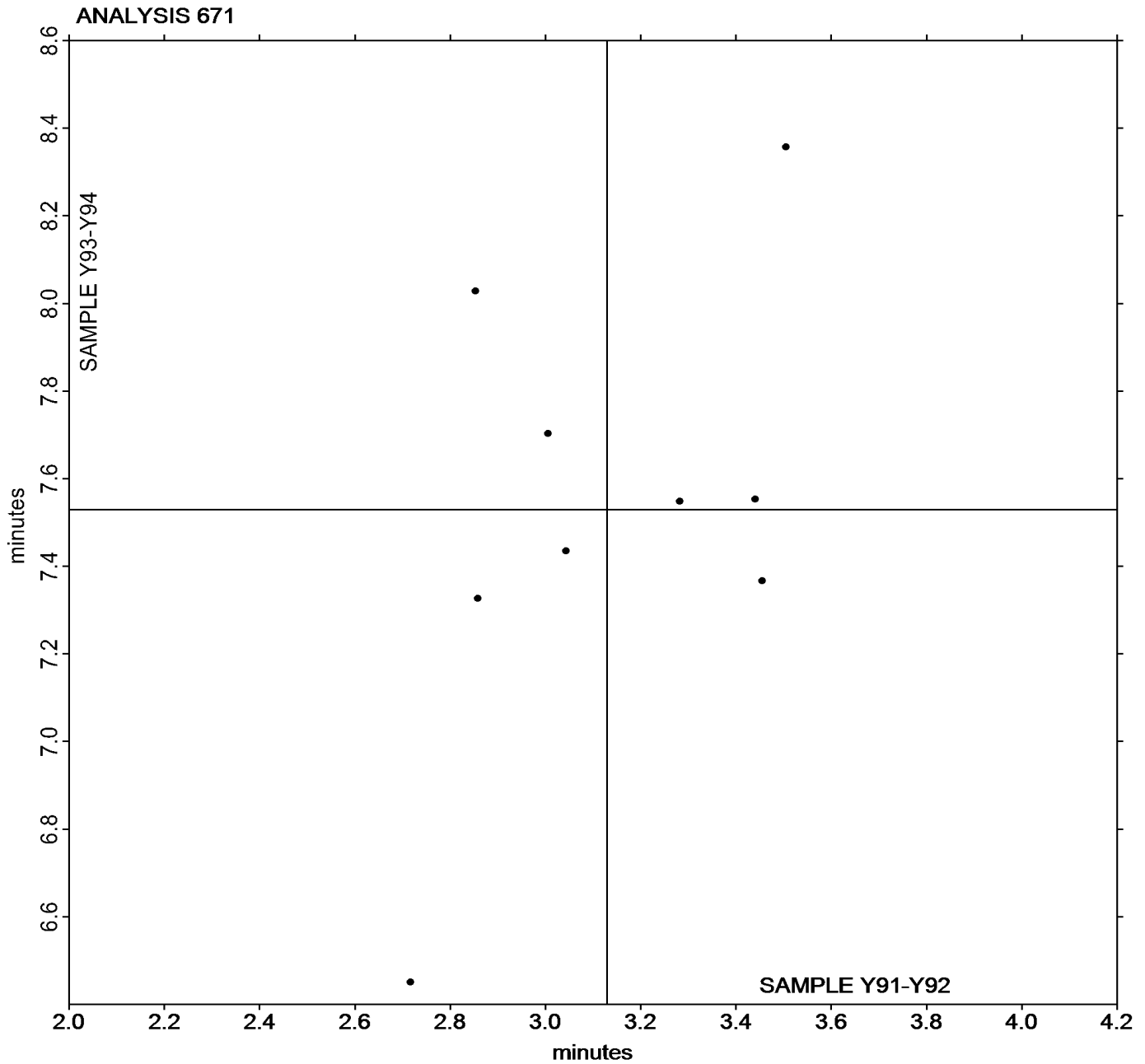


Rubber Interlaboratory Testing Program
Analysis 671
ODR Vulcanization-Cure Time 50% (minutes)

Report #201
3rd Qtr 2019

Grand Mean Sample Y91-Y92 = 3.1287 minutes

Grand Mean Sample Y93-Y94 = 7.5298 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 #201
3rd Qtr 2019

WebCode	Data Flag	Sample Y91-Y92			Sample Y93-Y94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
6WY63N		13.29	-1.22	-0.61	13.42	-1.55	-0.69
APHHVE		14.03	-0.48	-0.24	15.22	0.25	0.11
C8VGF4		15.38	0.87	0.44	13.00	-1.97	-0.88
HMPYRU		11.75	-2.76	-1.39	12.42	-2.55	-1.14
LV3FTQ		13.03	-1.48	-0.74	14.15	-0.82	-0.37
PN6ZCE		18.01	3.50	1.76	18.45	3.47	1.56
TNGUJK		14.17	-0.33	-0.17	13.95	-1.02	-0.46
VD4VE8		13.85	-0.66	-0.33	15.57	0.60	0.27
VD6H2D		17.05	2.55	1.28	18.56	3.59	1.61

		Summary Statistics	
Grand Means		14.507 minutes	14.970 minutes
Std Dev Btwn Labs		1.986 minutes	2.232 minutes
Statistics based on 9 of 9 reporting participants			

Samples Y91-Y92: EPDM compound, batch #1 & Y93-Y94: EPDM compound, batch #2

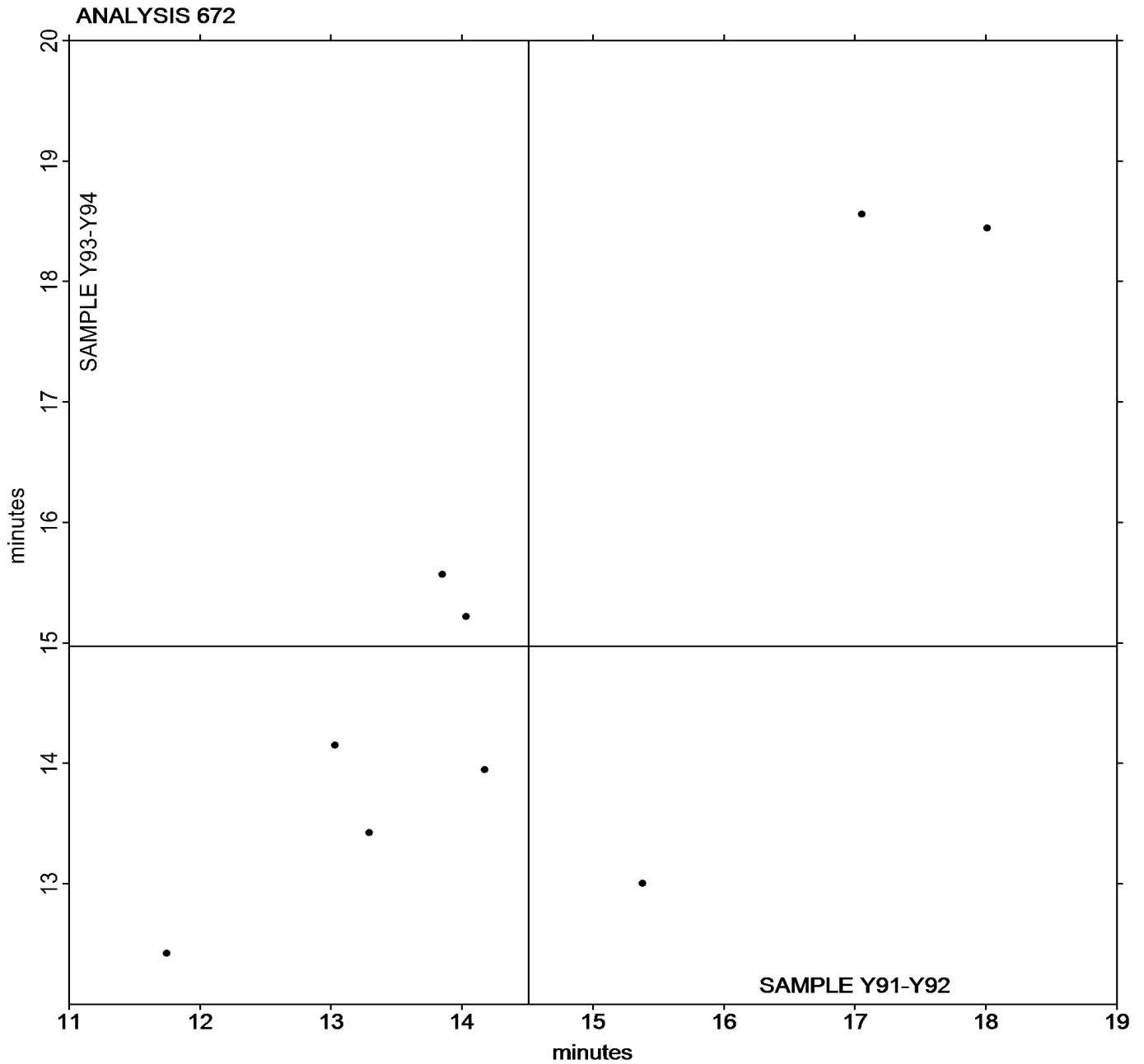


Rubber Interlaboratory Testing Program
Analysis 672
ODR Vulcanization-Cure Time 90% (minutes)

Report #201
3rd Qtr 2019

Grand Mean Sample **Y91-Y92** = 14.507 minutes

Grand Mean Sample **Y93-Y94** = 14.970 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 #201
3rd Qtr 2019

WebCode	Data Flag	Sample Y91-Y92			Sample Y93-Y94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
6WY63N		8.528	-0.392	-0.38	12.41	-0.87	-0.78
APHHVE		7.698	-1.222	-1.18	12.16	-1.13	-1.00
C8VGF4		9.228	0.308	0.30	14.02	0.74	0.66
HMPYRU		10.533	1.613	1.56	15.66	2.38	2.11
LV3FTQ		8.808	-0.112	-0.11	12.84	-0.44	-0.39
PN6ZCE		8.093	-0.827	-0.80	12.29	-0.99	-0.88
TNGUJK		10.453	1.533	1.49	13.26	-0.02	-0.02
VD4VE8		9.070	0.149	0.14	14.03	0.74	0.66
VD6H2D		7.872	-1.049	-1.02	12.88	-0.40	-0.36

		Summary Statistics	
Grand Means		8.9206 lbf.in	13.283 lbf.in
Std Dev Btwn Labs		1.0315 lbf.in	1.124 lbf.in
Statistics based on 9 of 9 reporting participants			

		Summary Statistics in SI Units	
Grand Means		10.079 dN.m	15.008 dN.m
Std Dev Btwn Labs		1.165 dN.m	1.270 dN.m
Statistics based on 9 of 9 reporting participants			

Samples Y91-Y92: EPDM compound, batch #1 & Y93-Y94: EPDM compound, batch #2

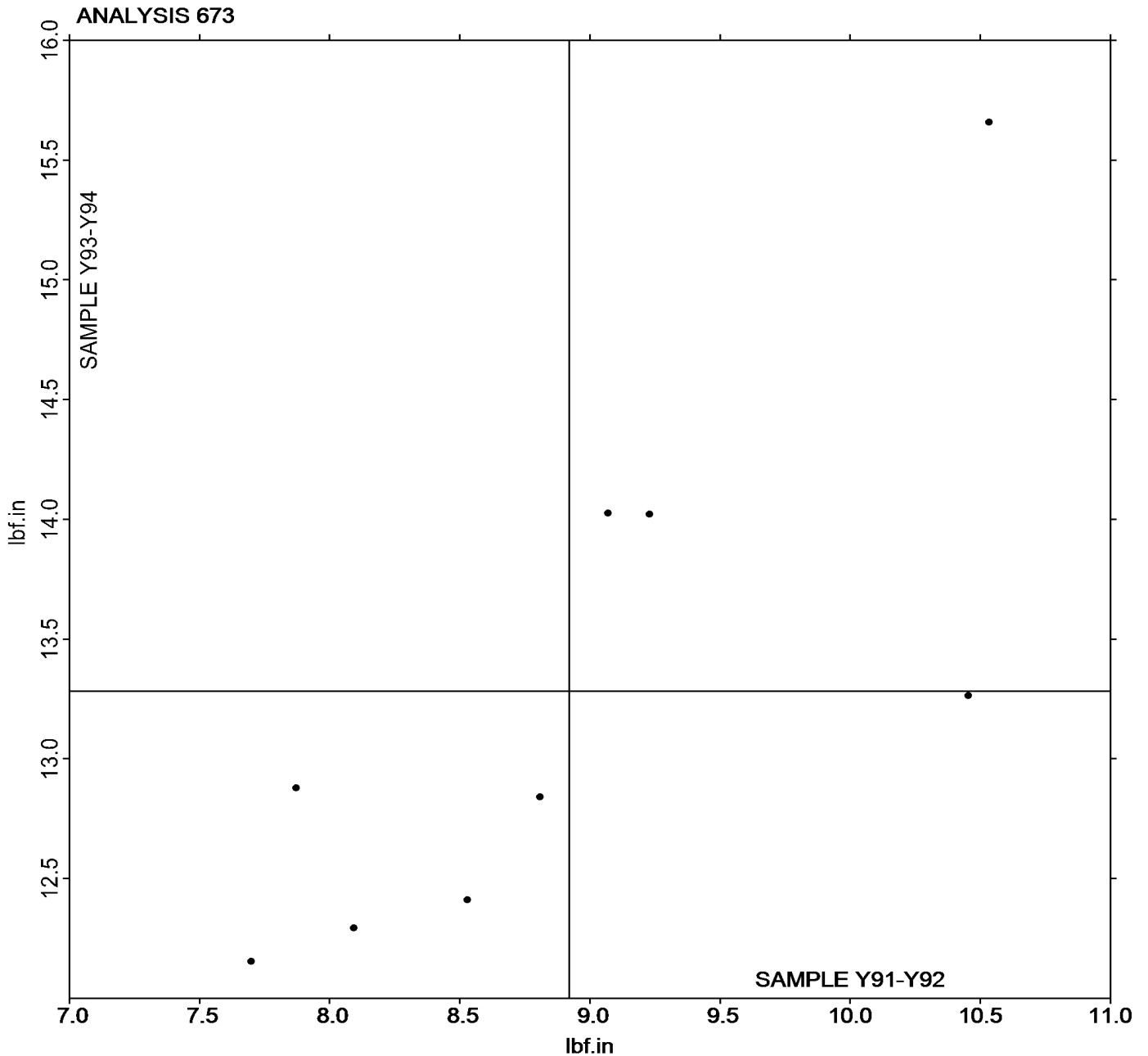


Rubber Interlaboratory Testing Program
Analysis 673
ODR Vulcanization: Minimum Torque (lbf.in)

Report #201
3rd Qtr 2019

Grand Mean Sample **Y91-Y92** = 8.9206 lbf.in

Grand Mean Sample **Y93-Y94** = 13.283 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 #201
3rd Qtr 2019

WebCode	Data Flag	Sample Y91-Y92			Sample Y93-Y94		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
6WY63N		49.57	3.49	0.70	41.99	2.84	1.33
APHHVE		44.96	-1.12	-0.22	39.15	-0.01	0.00
C8VGF4		49.81	3.73	0.75	38.23	-0.93	-0.44
HMPYRU		49.43	3.35	0.67	42.40	3.24	1.52
LV3FTQ		44.66	-1.42	-0.28	36.33	-2.83	-1.33
PN6ZCE		49.11	3.03	0.60	40.47	1.32	0.62
TNGUJK		45.94	-0.14	-0.03	37.63	-1.53	-0.72
VD4VE8		47.37	1.29	0.26	39.22	0.07	0.03
VD6H2D		33.88	-12.21	-2.44	37.00	-2.16	-1.01

		Summary Statistics	
Grand Means		46.081 lbf.in	39.157 lbf.in
Std Dev Btwn Labs		5.005 lbf.in	2.126 lbf.in
Statistics based on 9 of 9 reporting participants			

		Summary Statistics in SI Units	
Grand Means		52.064 dN.m	44.242 dN.m
Std Dev Btwn Labs		5.655 dN.m	2.402 dN.m
Statistics based on 9 of 9 reporting participants			

Samples Y91-Y92: EPDM compound, batch #1 & Y93-Y94: EPDM compound, batch #2

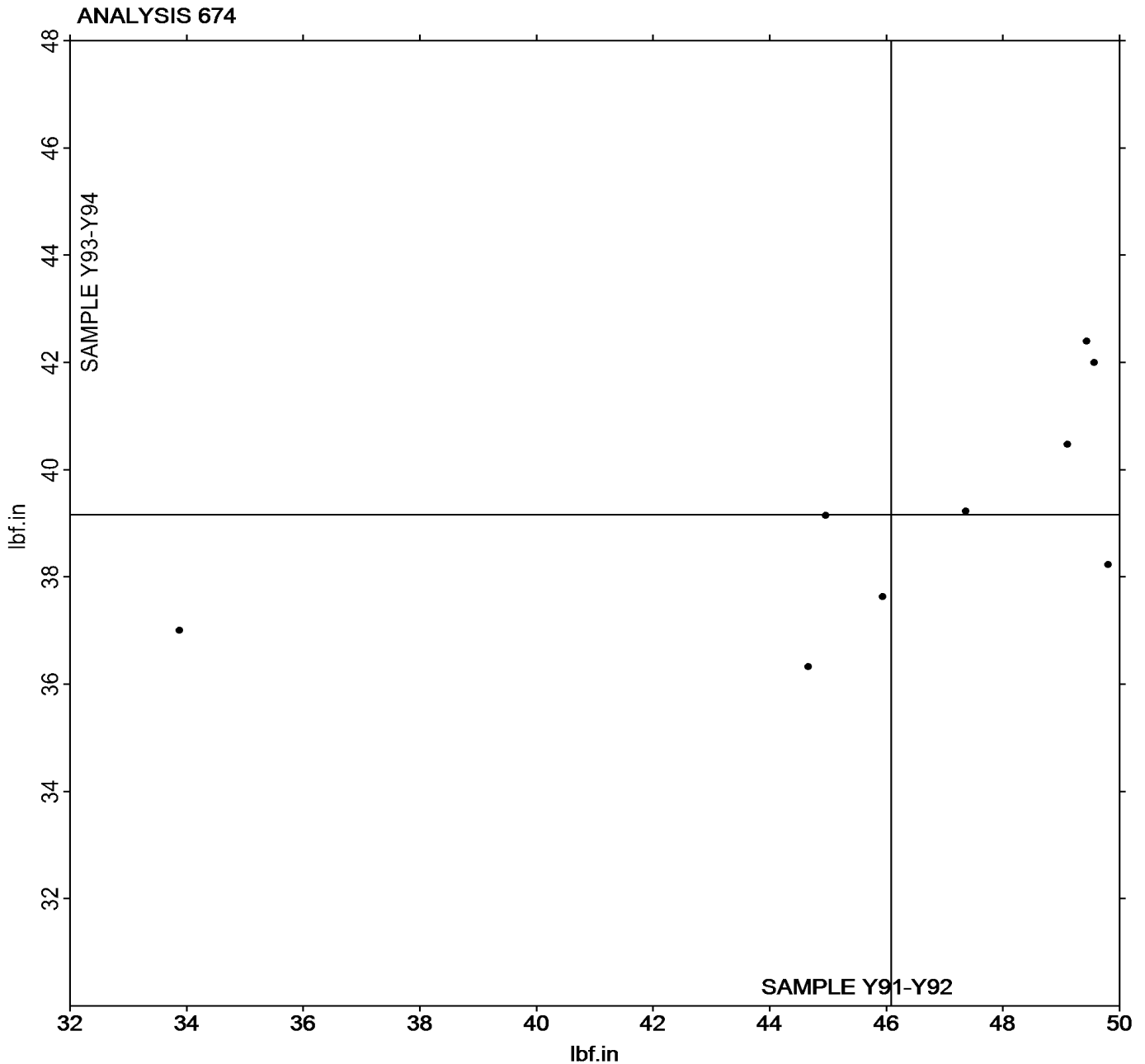


Rubber Interlaboratory Testing Program
Analysis 674
ODR Vulcanization: Maximum Torque (lbf.in)

Report #201
3rd Qtr 2019

Grand Mean Sample Y91-Y92 = 46.081 lbf.in

Grand Mean Sample Y93-Y94 = 39.157 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 #201

Analysis 684

3rd Qtr 2019

MDR Vulcanization-Cure Time 10% (minutes)

WebCode	Data Flag	Sample Y95-Y96			Sample Y97-Y98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2CNGDQ		3.067	0.024	0.15	3.045	0.001	0.01	MC
2ZMFLB		3.038	-0.004	-0.02	3.012	-0.033	-0.24	MC
3C7LT4		3.075	0.033	0.20	3.158	0.114	0.86	MD
6NZKU2		3.080	0.038	0.23	3.072	0.027	0.21	ME
6WY63N		2.908	-0.134	-0.80	3.147	0.102	0.77	MC
7HHXZT		3.127	0.084	0.51	3.025	-0.019	-0.14	MD
82TA6N		3.343	0.301	1.80	3.265	0.221	1.66	TP
9ZYMP7		2.678	-0.364	-2.18	2.973	-0.071	-0.53	MM
AB8TUC	*	3.255	0.213	1.27	2.913	-0.131	-0.98	MC
AGCWHP		2.993	-0.049	-0.29	3.088	0.044	0.33	MM
BDUP23		2.940	-0.102	-0.61	3.002	-0.043	-0.32	MC
C6Y7ZZ		2.860	-0.182	-1.09	2.853	-0.191	-1.44	MC
CJLFYT		2.895	-0.147	-0.88	3.018	-0.026	-0.19	ME
EEGNMX		3.007	-0.036	-0.21	2.985	-0.059	-0.45	ME
FDTNX7		3.065	0.023	0.14	3.118	0.074	0.56	MC
GKRPJH	*	2.648	-0.394	-2.36	2.628	-0.416	-3.13	MC
HDXLNN		3.170	0.128	0.76	3.130	0.086	0.64	MC
HMPYRU		3.088	0.046	0.28	3.145	0.101	0.76	XX
JTM7QU		3.082	0.039	0.24	3.095	0.051	0.38	MR
KT2PBQ		3.210	0.168	1.00	3.153	0.109	0.82	MC
MH3GQH		3.097	0.054	0.33	3.015	-0.029	-0.22	MC
MQVPB9		2.742	-0.301	-1.80	2.847	-0.198	-1.49	MC
NUEWH9		2.903	-0.139	-0.83	3.011	-0.033	-0.25	MM
PN6ZCE		3.045	0.003	0.02	3.188	0.144	1.08	MC
QG2FMN		2.962	-0.081	-0.48	3.107	0.062	0.47	MC
QTRCF9		2.958	-0.084	-0.50	2.932	-0.113	-0.85	MC
RCX7M7		3.232	0.189	1.13	3.023	-0.021	-0.16	MX
TDZ7NL		3.012	-0.031	-0.18	2.865	-0.179	-1.35	MC
TGLV9Y		3.230	0.188	1.12	3.185	0.141	1.06	MC
TNGUJK		2.938	-0.104	-0.62	2.987	-0.058	-0.43	MC
TYTB44		3.022	-0.021	-0.12	3.148	0.104	0.78	XX
UM3QPT		3.048	0.006	0.04	3.000	-0.044	-0.33	MC
VD4VE8		3.165	0.123	0.73	3.175	0.131	0.98	MD
VQW4KG		3.042	-0.001	0.00	2.922	-0.123	-0.92	MC
WJMBQG	*	3.492	0.450	2.69	3.347	0.303	2.28	MC
WJNZWZ		3.167	0.125	0.75	2.883	-0.161	-1.21	MC
XT4GUY	X	2.838	-0.204	-1.22	5.757	2.712	20.39	MC
Z6XAN8		3.147	0.104	0.62	3.167	0.122	0.92	MP



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

Report #201
3rd Qtr 2019

WebCode	Data Flag	Sample Y95-Y96			Sample Y97-Y98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
Z9UZNR		2.846	-0.197	-1.18	3.117	0.073	0.55	MC
ZFUDR2		3.070	0.028	0.17	2.980	-0.064	-0.48	MC

Grand Means		Summary Statistics	
	3.0422 minutes		3.0442 minutes
Std Dev Btwn Labs	0.1672 minutes		0.1330 minutes
Statistics based on 39 of 40 reporting participants			

Samples Y95-Y96: EPDM compound, batch #1 & Y97-Y98: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #684

XT4GUY (X) - Extreme Data for sample group Y97-Y98.

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		

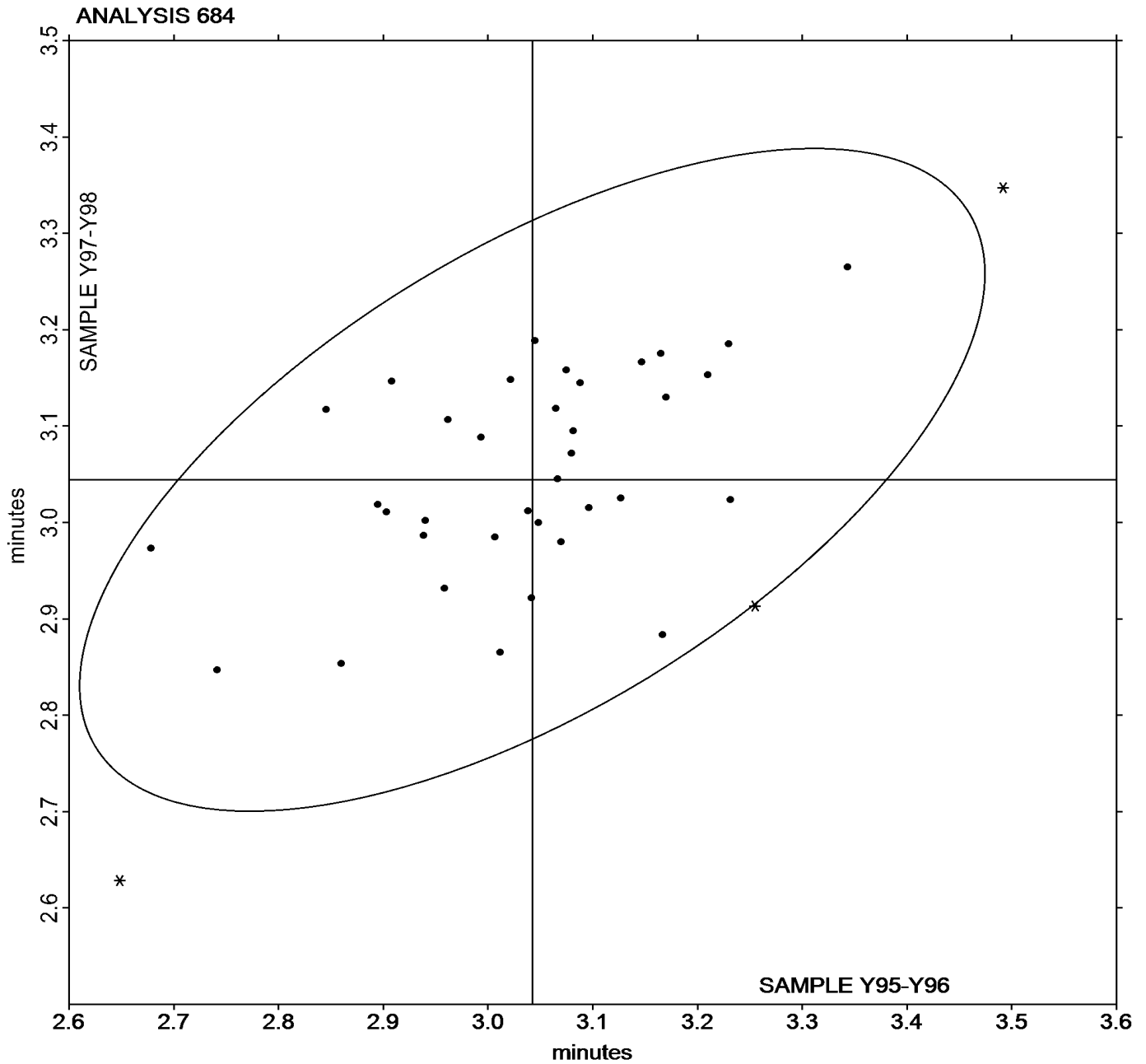


Rubber Interlaboratory Testing Program
Analysis 684
MDR Vulcanization-Cure Time 10% (minutes)

Report #201
3rd Qtr 2019

Grand Mean Sample Y95-Y96 = 3.0422 minutes

Grand Mean Sample Y97-Y98 = 3.0442 minutes





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

Report #201
3rd Qtr 2019

WebCode	Data Flag	Sample Y95-Y96			Sample Y97-Y98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2CNGDQ		2.978	0.032	0.15	2.840	-0.032	-0.15	MC
2ZMFLB		2.962	0.015	0.07	2.835	-0.037	-0.18	MC
3C7LT4		2.943	-0.003	-0.02	2.992	0.119	0.57	MD
6NZKU2		2.987	0.040	0.19	2.912	0.039	0.19	ME
6WY63N		2.843	-0.103	-0.49	2.992	0.119	0.57	MC
7HHXZT		3.175	0.228	1.08	2.913	0.041	0.20	MD
82TA6N		3.332	0.385	1.83	3.362	0.489	2.34	TP
9WYCU7		2.552	-0.395	-1.87	2.528	-0.344	-1.65	MR
9ZYMP7	*	2.650	-0.297	-1.41	2.970	0.098	0.47	MM
AB8TUC		3.312	0.365	1.73	2.927	0.054	0.26	MC
AGCWHP		2.848	-0.098	-0.47	2.772	-0.101	-0.48	MM
BDUP23		2.960	0.013	0.06	2.965	0.093	0.44	MC
C6Y7ZZ		2.583	-0.363	-1.72	2.493	-0.380	-1.82	MC
CJLFYT		2.890	-0.057	-0.27	2.942	0.069	0.33	ME
E4HNCE		2.761	-0.186	-0.88	2.484	-0.388	-1.86	MC
EEGNMX		2.998	0.052	0.25	2.843	-0.029	-0.14	ME
FDTNX7		3.022	0.075	0.36	3.010	0.138	0.66	MC
GKRPJH	*	2.450	-0.497	-2.35	2.287	-0.586	-2.81	MC
GX3Z9T		2.900	-0.047	-0.22	2.895	0.023	0.11	MC
HDXLNN		3.065	0.118	0.56	2.940	0.068	0.32	MC
HMPYRU		3.168	0.222	1.05	3.170	0.298	1.43	XX
JTM7QU		2.647	-0.300	-1.42	2.445	-0.427	-2.05	MR
KT2PBQ		2.930	-0.017	-0.08	2.785	-0.087	-0.42	MC
MH3GQH		3.012	0.065	0.31	2.892	0.019	0.09	MC
MQVPB9		2.707	-0.240	-1.14	2.843	-0.029	-0.14	MC
NUEWH9		2.849	-0.097	-0.46	2.914	0.042	0.20	MM
PN6ZCE		2.865	-0.082	-0.39	2.820	-0.052	-0.25	MC
QG2FMN		2.918	-0.028	-0.13	3.005	0.133	0.64	MC
QTRCF9		2.945	-0.002	-0.01	2.865	-0.007	-0.04	MC
RCX7M7		3.172	0.225	1.07	3.155	0.283	1.35	MX
TDZ7NL		2.905	-0.042	-0.20	2.767	-0.106	-0.51	MC
TFH9EC		3.047	0.100	0.47	3.030	0.158	0.76	MC
TGLV9Y		3.272	0.325	1.54	3.088	0.216	1.03	MC
TNGUJK		2.890	-0.057	-0.27	2.848	-0.024	-0.11	MC
TYTB44		2.985	0.038	0.18	3.040	0.168	0.80	XX
UM3QPT		3.057	0.110	0.52	2.878	0.006	0.03	MC
VD4VE8		2.995	0.048	0.23	2.907	0.034	0.16	MD
VQW4KG		3.072	0.125	0.59	2.907	0.034	0.16	MC



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

Report #201
3rd Qtr 2019

WebCode	Data Flag	Sample Y95-Y96			Sample Y97-Y98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
WJMBQG	*	3.506	0.559	2.65	3.183	0.311	1.49	MC
WJNZWZ		3.106	0.159	0.75	2.775	-0.097	-0.47	MC
XT4GUY	X	1.938	-1.008	-4.78	1.448	-1.424	-6.82	MC
Z6XAN8		2.792	-0.155	-0.73	2.553	-0.319	-1.53	MP
Z9UZNR		2.738	-0.208	-0.99	3.003	0.131	0.63	MC
ZFUDR2		2.915	-0.032	-0.15	2.735	-0.137	-0.66	MC

Summary Statistics	
Grand Means	
	2.9465 minutes
	2.8723 minutes
Std Dev Btwn Labs	
	0.2110 minutes
	0.2088 minutes
	Statistics based on 43 of 44 reporting participants

Samples Y95-Y96: EPDM compound, batch #1 & Y97-Y98: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #685

XT4GUY (X) - Data for all samples are low. Possible Systematic Error.

Key to Instrument Codes Reported by Participants

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

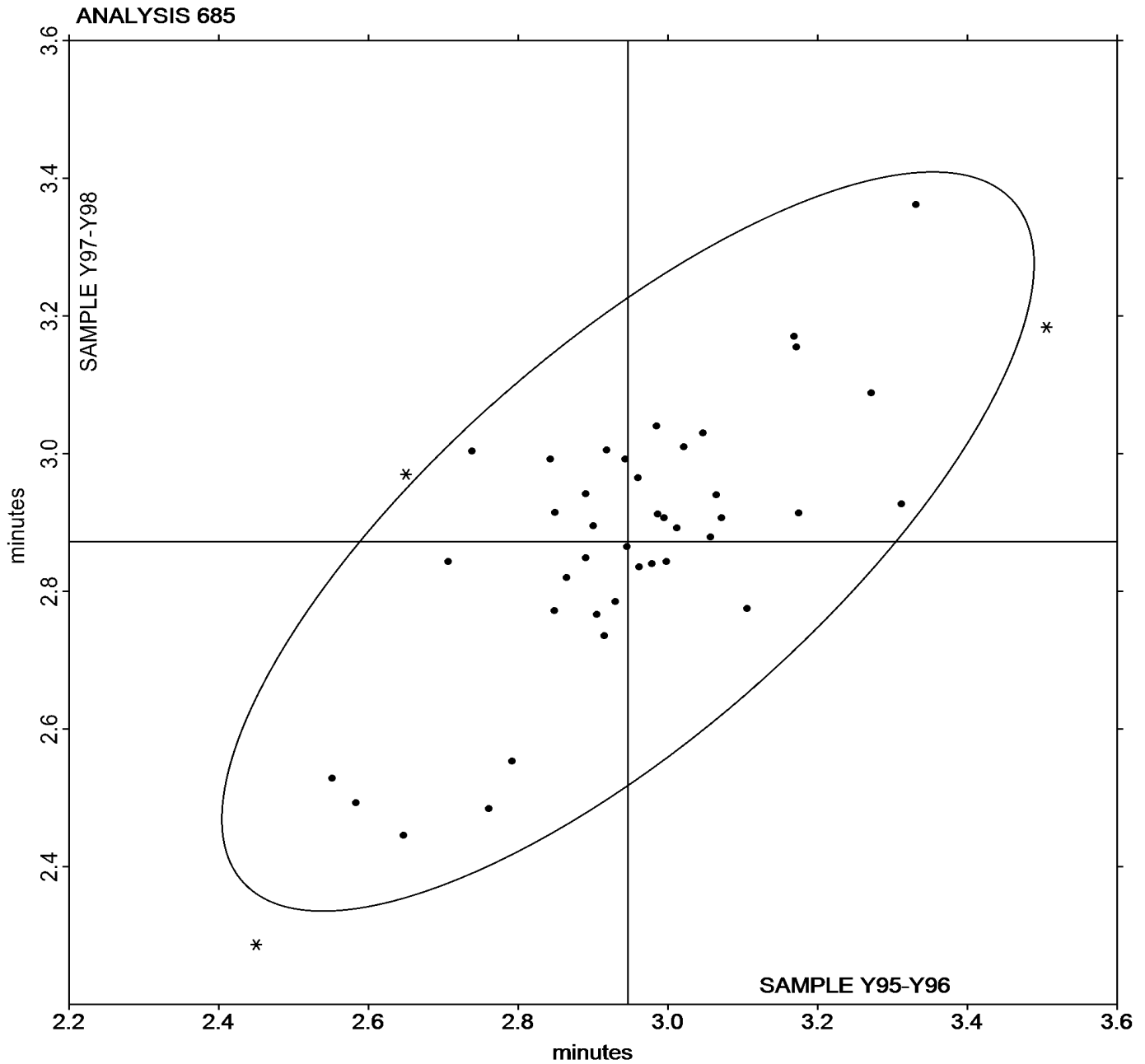


Rubber Interlaboratory Testing Program
Analysis 685
MDR Vulcanization-Scorch Time, Ts1 (minutes)

Report #201
3rd Qtr 2019

Grand Mean Sample Y95-Y96 = 2.9465 minutes

Grand Mean Sample Y97-Y98 = 2.8723 minutes





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

Report #201
3rd Qtr 2019

WebCode	Data Flag	Sample Y95-Y96			Sample Y97-Y98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2CNGDQ		6.575	0.172	0.67	7.283	0.262	0.95	MC
2ZMFLB		6.627	0.224	0.88	7.167	0.145	0.53	MC
3C7LT4		6.350	-0.053	-0.21	7.025	0.004	0.01	MD
6NZKU2		6.323	-0.080	-0.31	7.160	0.139	0.50	ME
6WY63N	*	6.177	-0.226	-0.88	7.263	0.242	0.88	MC
7HHXZT		6.427	0.024	0.09	7.082	0.060	0.22	MD
82TA6N		6.828	0.425	1.66	7.092	0.070	0.26	TP
9WYCU7		6.117	-0.286	-1.12	7.012	-0.010	-0.03	MR
9ZYMP7		6.308	-0.095	-0.37	6.700	-0.321	-1.17	MM
AB8TUC		6.632	0.229	0.89	7.218	0.197	0.72	MC
AGCWHP		6.365	-0.038	-0.15	7.140	0.119	0.43	MM
BDUP23		6.390	-0.013	-0.05	6.812	-0.210	-0.76	MC
C6Y7ZZ		6.272	-0.131	-0.51	6.780	-0.241	-0.88	MC
CJLFYT		6.087	-0.316	-1.24	6.997	-0.025	-0.09	ME
E4HNCE		6.657	0.254	0.99	7.260	0.238	0.86	MC
EEGNMX		6.225	-0.178	-0.70	6.698	-0.323	-1.17	ME
FDTNX7		6.395	-0.008	-0.03	7.050	0.029	0.10	MC
GKRPHJ		6.133	-0.270	-1.05	6.718	-0.303	-1.10	MC
GX3Z9T	*	5.673	-0.730	-2.85	6.240	-0.781	-2.84	MC
HDXLNN		6.362	-0.041	-0.16	6.918	-0.103	-0.37	MC
HMPYRU		6.495	0.092	0.36	7.153	0.132	0.48	XX
JTM7QU		6.330	-0.073	-0.29	6.633	-0.388	-1.41	MR
KT2PBQ		6.783	0.380	1.49	7.407	0.385	1.40	MC
MH3GQH		6.603	0.200	0.78	7.132	0.110	0.40	MC
MQVPB9	X	5.170	-1.233	-4.82	5.417	-1.605	-5.82	MC
NUEWH9		6.304	-0.098	-0.38	6.931	-0.090	-0.33	MM
PN6ZCE		6.768	0.365	1.43	7.653	0.632	2.29	MC
QG2FMN		6.398	-0.005	-0.02	7.090	0.069	0.25	MC
QTRCF9		6.233	-0.170	-0.66	7.010	-0.011	-0.04	MC
RCX7M7	*	6.592	0.189	0.74	6.682	-0.340	-1.23	MX
TDZ7NL		6.437	0.034	0.13	7.028	0.007	0.03	MC
TFH9EC		6.362	-0.041	-0.16	7.100	0.079	0.29	MC
TGLV9Y		6.423	0.020	0.08	7.195	0.174	0.63	MC
TNGUJK		6.517	0.114	0.45	7.132	0.110	0.40	MC
TYTB44		6.200	-0.203	-0.79	6.912	-0.110	-0.40	XX
UM3QPT		6.415	0.012	0.05	7.035	0.014	0.05	MC
VD4VE8		6.983	0.580	2.27	7.555	0.534	1.94	XX



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

Report #201
3rd Qtr 2019

WebCode	Data Flag	Sample Y95-Y96			Sample Y97-Y98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
VQW4KG		6.345	-0.058	-0.23	6.758	-0.263	-0.95	MC
WJMBQG		6.778	0.375	1.47	7.497	0.476	1.73	MC
WJNZWZ		6.336	-0.067	-0.26	7.081	0.059	0.22	MC
XT4GUY	*	5.703	-0.700	-2.74	6.418	-0.603	-2.19	MC
Z6XAN8		6.395	-0.008	-0.03	6.928	-0.093	-0.34	MC
Z9UZNR		6.470	0.067	0.26	6.948	-0.074	-0.27	MC
ZFUDR2		6.530	0.127	0.50	7.020	-0.001	0.00	MC

Grand Means		Summary Statistics	
	6.4029 minutes		7.0212 minutes
Std Dev Btwn Labs	0.2557 minutes		0.2755 minutes
Statistics based on 43 of 44 reporting participants			

Samples Y95-Y96: EPDM compound, batch #1 & Y97-Y98: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #686

MQVPB9 (X) - Data for all samples are low. Possible Systematic Error.

Key to Instrument Codes Reported by Participants

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

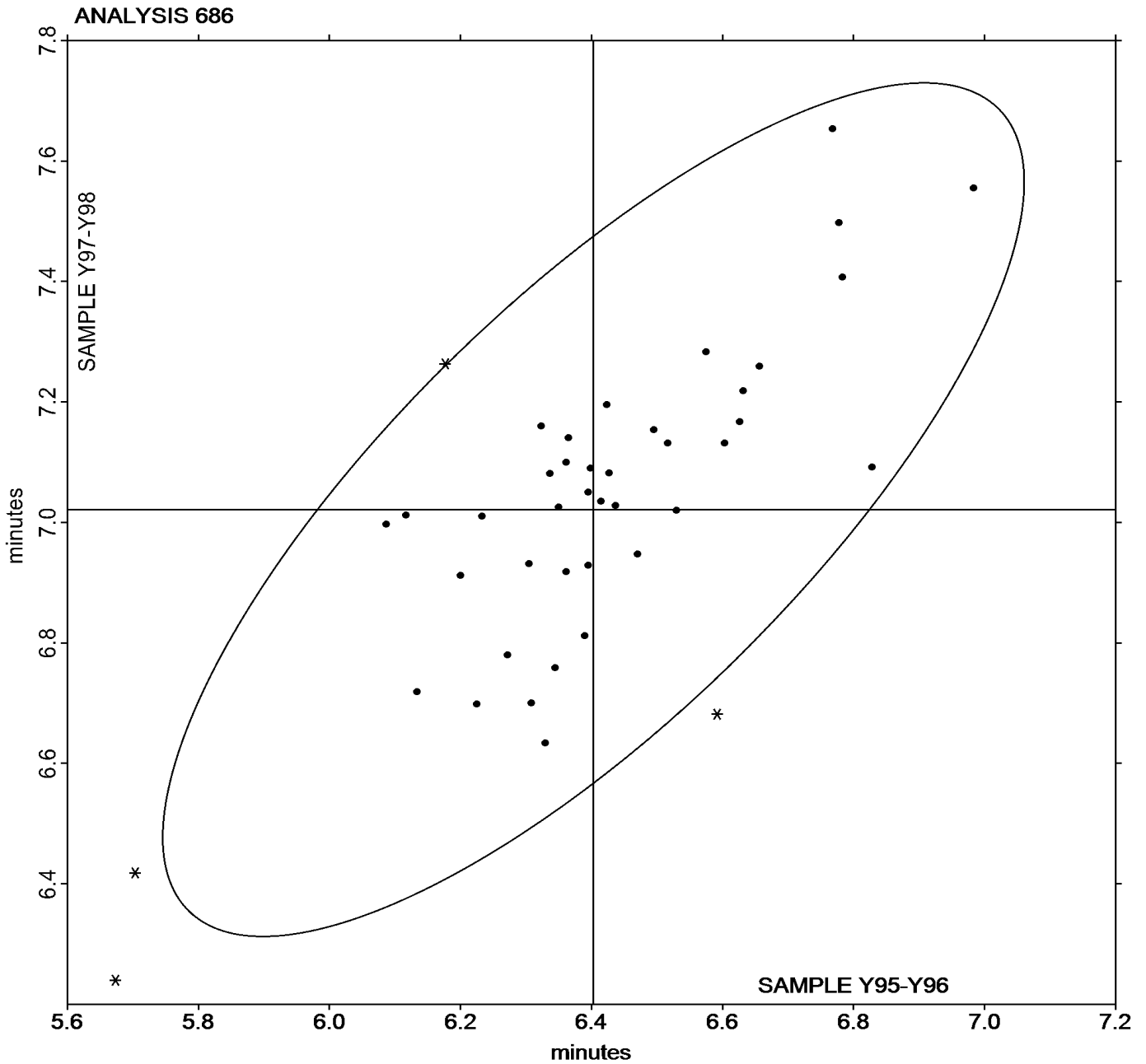


Rubber Interlaboratory Testing Program
Analysis 686
MDR Vulcanization-Cure Time 50% (minutes)

Report #201
3rd Qtr 2019

Grand Mean Sample Y95-Y96 = 6.4029 minutes

Grand Mean Sample Y97-Y98 = 7.0212 minutes





Rubber Interlaboratory Testing Program

Report #201

Analysis 687

3rd Qtr 2019

MDR Vulcanization-Cure Time 90% (minutes)

WebCode	Data Flag	Sample Y95-Y96			Sample Y97-Y98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2CNGDQ		10.70	0.13	0.44	11.32	0.16	0.62	MC
2ZMFLB		10.71	0.14	0.48	11.14	-0.02	-0.08	MC
3C7LT4		10.57	0.00	-0.01	11.16	0.00	0.00	MD
6NZKU2		10.30	-0.27	-0.93	11.16	0.01	0.02	ME
6WY63N		10.36	-0.22	-0.75	11.38	0.22	0.85	MC
7HHXZT		10.33	-0.25	-0.86	11.07	-0.09	-0.36	MD
82TA6N		10.91	0.34	1.16	10.97	-0.19	-0.75	TP
9WYCU7		10.29	-0.29	-0.99	11.33	0.17	0.68	MR
9ZYMP7		10.63	0.06	0.20	10.91	-0.24	-0.96	MM
AB8TUC		10.72	0.14	0.50	11.39	0.24	0.92	MC
AGCWHP		10.56	-0.01	-0.04	11.45	0.30	1.16	MM
BDUP23		10.63	0.06	0.20	10.95	-0.21	-0.82	MC
C6Y7ZZ		10.28	-0.30	-1.02	10.76	-0.40	-1.57	MC
CJLFYT		10.09	-0.48	-1.66	11.02	-0.14	-0.54	ME
E4HNCE		10.82	0.24	0.84	11.34	0.18	0.70	MC
EEGNMX		10.18	-0.39	-1.35	10.68	-0.48	-1.87	ME
FDTNX7		10.50	-0.08	-0.26	11.08	-0.08	-0.30	MC
GKRPJH		10.10	-0.47	-1.64	10.85	-0.31	-1.21	MC
GX3Z9T	X	9.57	-1.00	-3.47	10.04	-1.12	-4.38	MC
HDXLNN		10.23	-0.35	-1.20	10.75	-0.41	-1.62	MC
HMPYRU		11.02	0.44	1.53	11.45	0.29	1.13	XX
JTM7QU		10.77	0.20	0.69	11.08	-0.08	-0.33	MR
KT2PBQ		10.97	0.39	1.35	11.45	0.29	1.13	MC
MH3GQH		10.78	0.21	0.71	11.29	0.13	0.50	MC
MQVPB9	X	8.81	-1.76	-6.10	8.90	-2.26	-8.86	MC
NUEWH9	X	12.58	2.01	6.94	11.76	0.60	2.36	MM
PN6ZCE	X	11.59	1.02	3.52	12.97	1.81	7.11	MC
QG2FMN		10.55	-0.02	-0.09	11.22	0.07	0.26	MC
QTRCF9		10.45	-0.12	-0.43	11.21	0.05	0.18	MC
RCX7M7		10.89	0.32	1.10	11.11	-0.05	-0.20	MX
TDZ7NL		10.49	-0.08	-0.29	11.06	-0.10	-0.41	MC
TFH9EC		10.67	0.10	0.34	11.57	0.42	1.63	MC
TGLV9Y		10.20	-0.37	-1.29	10.96	-0.20	-0.79	MC
TNGUJK		10.59	0.01	0.04	11.21	0.05	0.18	MC
TYTB44		10.38	-0.19	-0.66	11.12	-0.04	-0.17	XX
UM3QPT		10.38	-0.19	-0.67	10.99	-0.16	-0.65	MC
VD4VE8	*	11.45	0.87	3.02	11.91	0.75	2.95	XX



Rubber Interlaboratory Testing Program

Report #201

Analysis 687

3rd Qtr 2019

MDR Vulcanization-Cure Time 90% (minutes)

WebCode	Data Flag	Sample Y95-Y96			Sample Y97-Y98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
VQW4KG		10.34	-0.23	-0.81	10.74	-0.42	-1.65	MC
WJMBQG		10.86	0.29	0.99	11.47	0.31	1.23	MC
WJNZWZ		10.45	-0.12	-0.41	11.19	0.03	0.13	MC
XT4GUY	X	9.25	-1.33	-4.58	9.97	-1.19	-4.68	MC
Z6XAN8		10.53	-0.05	-0.16	11.01	-0.14	-0.57	MP
Z9UZNR		10.79	0.22	0.76	11.09	-0.07	-0.26	MC
ZFUDR2		10.92	0.34	1.18	11.37	0.21	0.83	MC

Grand Means		Summary Statistics	
	10.573 minutes		11.158 minutes
Std Dev Btwn Labs	0.289 minutes		0.255 minutes
Statistics based on 39 of 44 reporting participants			

Samples Y95-Y96: EPDM compound, batch #1 & Y97-Y98: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #687

- GX3Z9T (X) - Data for all samples are low.
- MQVPB9 (X) - Data for all samples are low.
- NUEWH9 (X) - Data for sample group Y95-Y96 are high. Inconsistent within the determinations of sample group Y97-Y98.
- PN6ZCE (X) - Data for all samples are high. Inconsistent within the determinations of sample group Y97-Y98.
- XT4GUY (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		

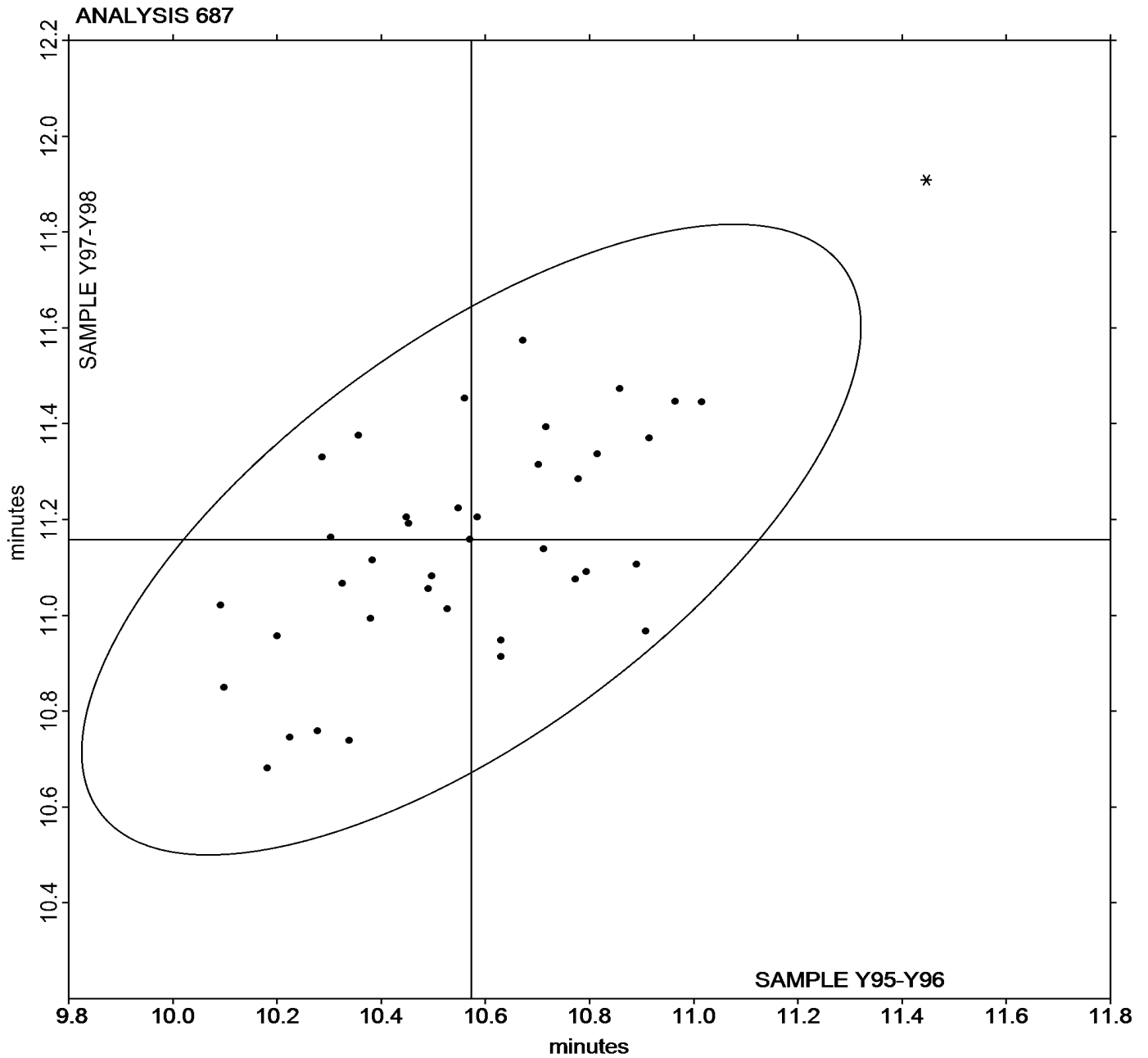


Rubber Interlaboratory Testing Program
Analysis 687
MDR Vulcanization-Cure Time 90% (minutes)

Report #201
3rd Qtr 2019

Grand Mean Sample **Y95-Y96** = 10.573 minutes

Grand Mean Sample **Y97-Y98** = 11.158 minutes





Rubber Interlaboratory Testing Program

Report #201

Analysis 688

3rd Qtr 2019

MDR Vulcanization: Minimum Torque (lbf.in)

WebCode	Data Flag	Sample Y95-Y96			Sample Y97-Y98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2CNGDQ		3.432	0.044	0.15	2.005	-0.062	-0.20	MC
2ZMFLB		3.312	-0.076	-0.26	1.870	-0.197	-0.63	MC
6NZKU2		3.567	0.179	0.60	2.009	-0.057	-0.18	ME
6WY63N		3.235	-0.153	-0.51	1.823	-0.243	-0.78	MC
7HHXZT		3.063	-0.325	-1.09	1.568	-0.499	-1.61	MD
82TA6N		3.428	0.040	0.14	2.400	0.333	1.07	TP
9WYCU7		3.638	0.250	0.84	2.117	0.050	0.16	MR
9ZYMP7	*	3.558	0.170	0.57	2.938	0.872	2.81	MM
AB8TUC		2.978	-0.410	-1.37	1.527	-0.540	-1.74	MC
AGCWHP		3.538	0.150	0.50	2.187	0.120	0.39	MM
BDUP23		3.077	-0.311	-1.04	2.148	0.082	0.26	MC
C6Y7ZZ		3.363	-0.025	-0.08	2.220	0.153	0.49	MC
CJLFYT		3.445	0.057	0.19	2.035	-0.032	-0.10	ME
E4HNCE		3.232	-0.156	-0.52	1.747	-0.320	-1.03	MC
EEGNMX		3.587	0.199	0.67	2.260	0.193	0.62	ME
FDTNX7		3.398	0.010	0.03	2.160	0.093	0.30	MC
GKRPJH		3.248	-0.140	-0.47	1.952	-0.115	-0.37	MC
GX3Z9T		4.075	0.687	2.30	2.732	0.665	2.14	MC
HDXLNN		3.648	0.260	0.87	2.269	0.202	0.65	MC
HMPYRU		2.937	-0.451	-1.51	1.877	-0.190	-0.61	MM
JTM7QU		3.385	-0.003	-0.01	1.980	-0.087	-0.28	MR
KT2PBQ		3.272	-0.116	-0.39	1.763	-0.304	-0.98	MC
MH3GQH		3.308	-0.080	-0.27	2.060	-0.007	-0.02	MC
MQVPB9	X	4.978	1.590	5.33	4.110	2.043	6.58	MC
NUEWH9		3.254	-0.134	-0.45	2.251	0.184	0.59	MM
PN6ZCE		2.845	-0.543	-1.82	1.652	-0.415	-1.34	MC
QG2FMN		3.443	0.055	0.19	2.442	0.375	1.21	MC
QTRCF9		3.022	-0.366	-1.23	1.725	-0.342	-1.10	MC
RCX7M7		3.195	-0.193	-0.65	1.938	-0.128	-0.41	MX
TDZ7NL		3.268	-0.120	-0.40	1.800	-0.267	-0.86	MC
TFH9EC		3.490	0.102	0.34	2.203	0.137	0.44	MC
TGLV9Y		3.980	0.592	1.98	2.230	0.163	0.53	MC
TNGUJK		3.053	-0.335	-1.12	1.998	-0.068	-0.22	MC
TYTB44		3.682	0.294	0.98	2.547	0.480	1.55	XX
UM3QPT		3.320	-0.068	-0.23	1.887	-0.180	-0.58	MC
VD4VE8		2.760	-0.628	-2.10	1.652	-0.414	-1.33	XX
VQW4KG		3.640	0.252	0.84	2.267	0.200	0.64	MC
WJMBQG	*	4.025	0.637	2.13	1.888	-0.178	-0.57	MC



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

Report #201
3rd Qtr 2019

WebCode	Data Flag	Sample Y95-Y96			Sample Y97-Y98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
WJNZWZ		3.545	0.157	0.53	1.852	-0.215	-0.69	MC
XT4GUY		3.832	0.444	1.49	2.087	0.020	0.06	MC
Z6XAN8		3.573	0.185	0.62	2.073	0.006	0.02	MP
Z9UZNR		3.498	0.110	0.37	2.730	0.663	2.14	MC
ZFUDR2		3.142	-0.246	-0.82	1.931	-0.136	-0.44	MC

Grand Means		Summary Statistics	
	3.3879 lbf.in		2.0666 lbf.in
Stnd Dev Btwn Labs	0.2987 lbf.in		0.3107 lbf.in
Statistics based on 42 of 43 reporting participants			

Grand Means		Summary Statistics in SI Units	
	3.8278 dN.m		2.3349 dN.m
Stnd Dev Btwn Labs	0.3374 dN.m		0.3511 dN.m
Statistics based on 42 of 43 reporting participants			

Samples Y95-Y96: EPDM compound, batch #1 & Y97-Y98: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #688

MQVPB9 (X) - Data for all samples are high. Inconsistent within the determinations of sample group Y97-Y98.

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	

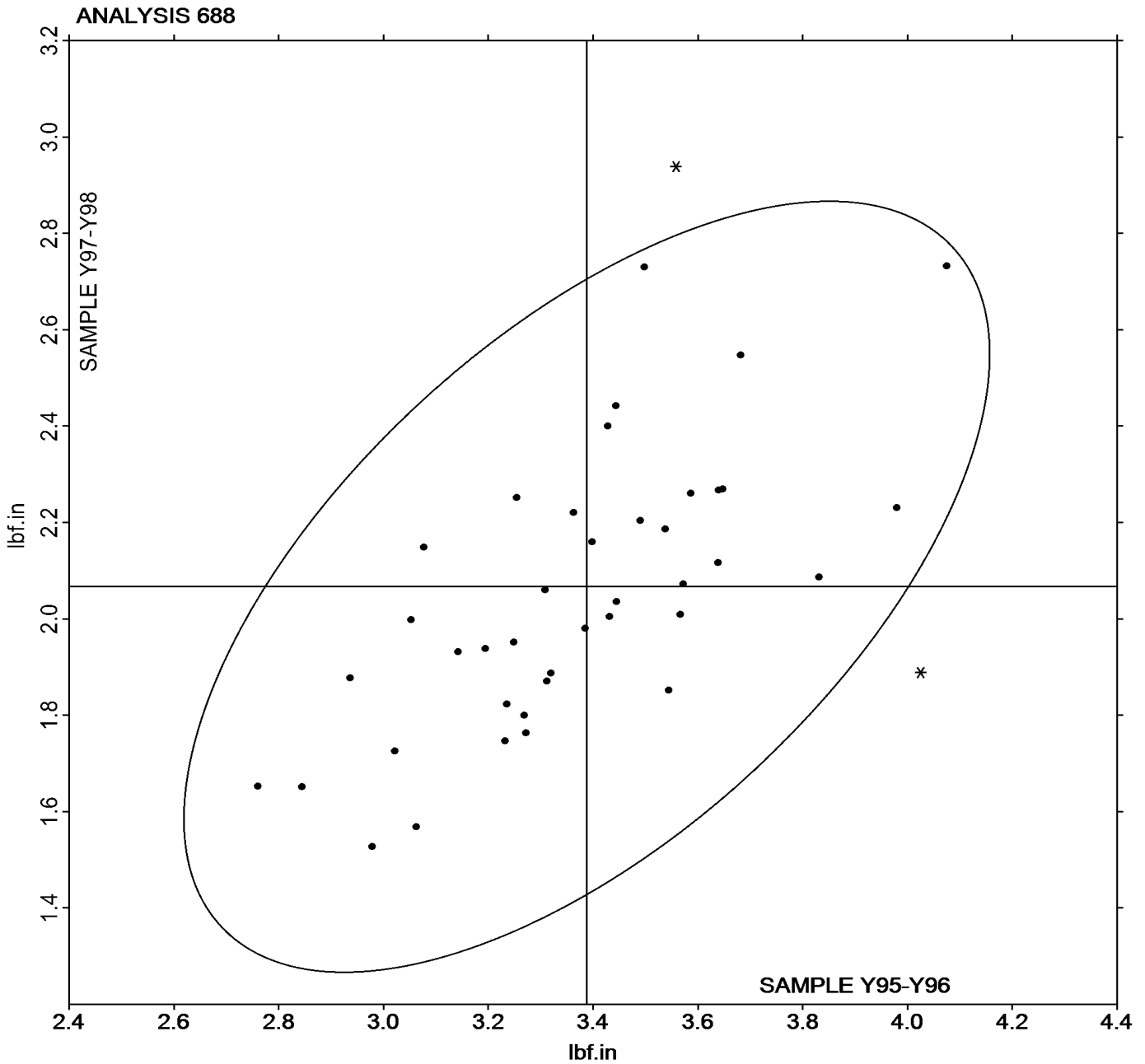


Rubber Interlaboratory Testing Program
Analysis 688
MDR Vulcanization: Minimum Torque (lbf.in)

Report #201
3rd Qtr 2019

Grand Mean Sample **Y95-Y96** = 3.3879 lbf.in

Grand Mean Sample **Y97-Y98** = 2.0666 lbf.in





Rubber Interlaboratory Testing Program

Report #201

Analysis 689

3rd Qtr 2019

MDR Vulcanization: Maximum Torque (lbf.in)

WebCode	Data Flag	Sample Y95-Y96			Sample Y97-Y98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2CNGDQ		14.03	0.31	0.40	13.17	0.41	0.47	MC
2ZMFLB		13.80	0.09	0.11	12.87	0.11	0.12	MC
6NZKU2		13.11	-0.61	-0.77	11.72	-1.05	-1.20	ME
6WY63N		13.75	0.04	0.04	12.69	-0.08	-0.09	MC
7HHXZT		12.73	-0.99	-1.26	12.21	-0.55	-0.64	MD
82TA6N		13.53	-0.19	-0.24	11.81	-0.95	-1.09	TP
9WYCU7		14.12	0.41	0.52	13.00	0.23	0.27	MR
9ZYMP7		13.73	0.01	0.01	12.94	0.17	0.20	MM
AB8TUC	*	11.41	-2.31	-2.94	10.26	-2.51	-2.88	MC
AGCWHP		14.59	0.88	1.12	14.12	1.35	1.56	MM
BDUP23		12.93	-0.79	-1.00	12.35	-0.41	-0.47	MC
C6Y7ZZ		14.08	0.36	0.46	13.16	0.40	0.46	MC
CJLFYT		13.46	-0.25	-0.32	12.48	-0.29	-0.33	ME
E4HNCE		14.43	0.71	0.91	13.19	0.42	0.49	MC
EEGNMX		13.64	-0.08	-0.10	13.17	0.41	0.47	ME
FDTNX7		13.76	0.04	0.05	12.88	0.12	0.13	MC
GKRPJH		14.68	0.96	1.22	14.04	1.27	1.46	MC
GX3Z9T		13.76	0.04	0.05	12.48	-0.28	-0.32	MC
HDXLNN		13.23	-0.49	-0.63	12.18	-0.59	-0.67	MC
HMPYRU		12.43	-1.29	-1.65	11.75	-1.02	-1.17	MM
JTM7QU	*	15.74	2.02	2.58	15.49	2.73	3.13	MR
KT2PBQ		13.97	0.25	0.32	12.62	-0.14	-0.17	MC
MH3GQH		13.96	0.24	0.31	12.70	-0.06	-0.07	MC
MQVPB9		15.41	1.70	2.16	14.16	1.40	1.61	MC
NUEWH9		13.62	-0.10	-0.13	12.82	0.05	0.06	MM
PN6ZCE		13.97	0.25	0.32	13.65	0.88	1.01	MC
QG2FMN		13.83	0.11	0.14	13.11	0.35	0.40	MC
QTRCF9		13.07	-0.65	-0.83	12.09	-0.68	-0.78	MC
RCX7M7		12.43	-1.28	-1.64	11.36	-1.41	-1.62	MX
TDZ7NL		14.00	0.28	0.36	12.32	-0.44	-0.51	MC
TFH9EC		13.61	-0.11	-0.14	12.53	-0.23	-0.27	MC
TGLV9Y		13.67	-0.04	-0.05	12.82	0.06	0.07	MC
TNGUJK		13.47	-0.25	-0.32	12.75	-0.02	-0.02	MC
TYTB44		13.95	0.24	0.30	13.22	0.46	0.53	XX
UM3QPT		13.33	-0.39	-0.50	12.65	-0.11	-0.13	MC
VD4VE8		12.56	-1.15	-1.47	11.78	-0.99	-1.13	XX
VQW4KG		13.40	-0.32	-0.41	12.34	-0.43	-0.49	MC
WJMBQG		13.95	0.23	0.30	12.70	-0.07	-0.08	MC



Rubber Interlaboratory Testing Program

Report #201

Analysis 689

3rd Qtr 2019

MDR Vulcanization: Maximum Torque (lbf.in)

WebCode	Data Flag	Sample Y95-Y96			Sample Y97-Y98			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
WJNZWZ		14.06	0.35	0.44	12.49	-0.27	-0.31	MC
XT4GUY		15.09	1.37	1.75	13.97	1.21	1.39	MC
Z6XAN8	X	11.70	-2.01	-2.56	12.93	0.16	0.19	MC
Z9UZNR		14.21	0.49	0.63	13.48	0.72	0.83	MC
ZFUDR2		13.64	-0.08	-0.10	12.57	-0.19	-0.22	MC

Grand Means		Summary Statistics	
	13.716 lbf.in		12.763 lbf.in
Stnd Dev Btwn Labs	0.785 lbf.in		0.870 lbf.in
Statistics based on 42 of 43 reporting participants			

Grand Means		Summary Statistics in SI Units	
	15.498 dN.m		14.420 dN.m
Stnd Dev Btwn Labs	0.887 dN.m		0.983 dN.m
Statistics based on 42 of 43 reporting participants			

Samples Y95-Y96: EPDM compound, batch #1 & Y97-Y98: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #689

Z6XAN8 (X) - Inconsistent in testing between samples.

Key to Instrument Codes Reported by Participants

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

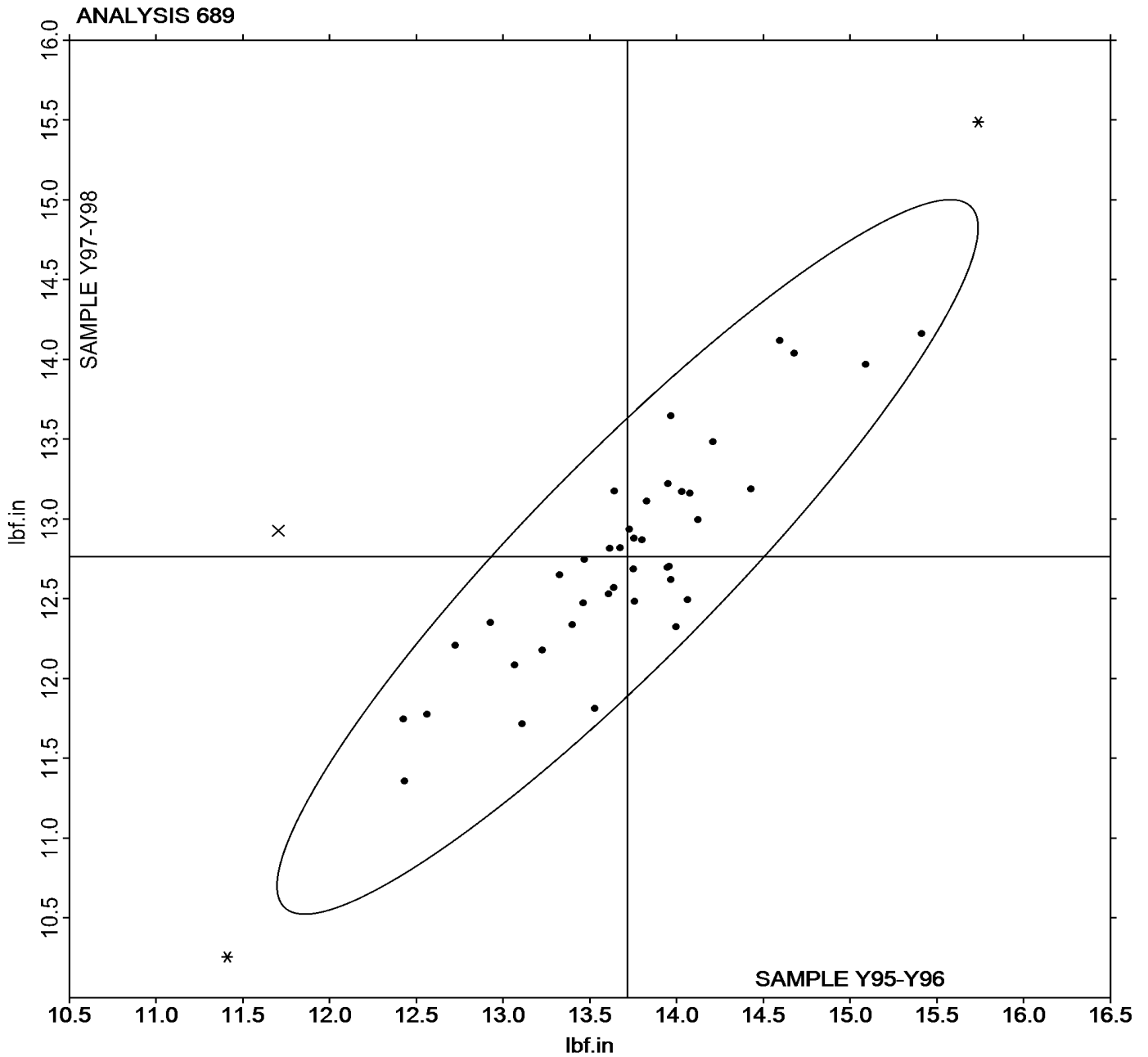


Rubber Interlaboratory Testing Program
Analysis 689
MDR Vulcanization: Maximum Torque (lbf.in)

Report #201
3rd Qtr 2019

Grand Mean Sample **Y95-Y96** = 13.716 lbf.in

Grand Mean Sample **Y97-Y98** = 12.763 lbf.in





Rubber Interlaboratory Testing Program

Report #201

Analysis 690

3rd Qtr 2019

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

WebCode	Data Flag	Sample G91-G92			Sample G93-G94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
82TA6N		621.0	27.2	0.64	464.2	-4.5	-0.10	XX
C6Y7ZZ		619.5	25.7	0.61	495.2	26.5	0.62	RP
E4HNCE		569.4	-24.4	-0.58	436.5	-32.1	-0.75	RP
LFNAE7		593.3	-0.4	-0.01	452.8	-15.8	-0.37	RP
NUEWH9		634.8	41.0	0.97	549.3	80.7	1.89	RP
TGLV9Y		607.4	13.7	0.32	462.4	-6.2	-0.14	PR
VD4VE8		510.8	-82.9	-1.96	420.0	-48.6	-1.14	RP

Summary Statistics	
Grand Means	
	593.74 kPa
	468.62 kPa
Std Dev Btwn Labs	
	42.31 kPa
	42.66 kPa
Statistics based on 7 of 7 reporting participants	

Samples G91-G92: EPDM compound, batch #1 & G93-G94: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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

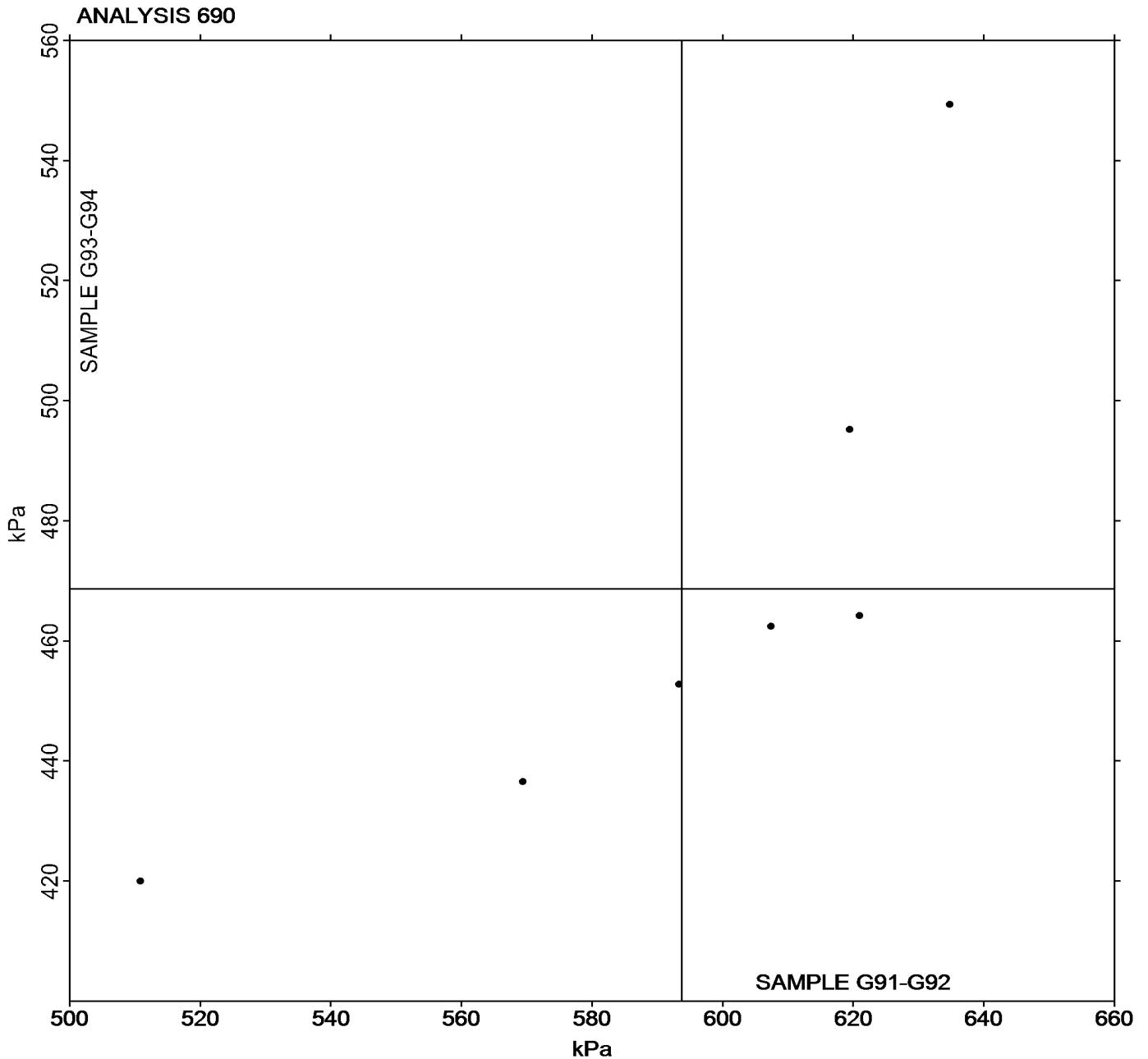


Rubber Interlaboratory Testing Program
Analysis 690
RPA Rheological Properties: Part A - G' at 20Hz (kPa)

Report #201
3rd Qtr 2019

Grand Mean Sample G91-G92 = 593.74 kPa

Grand Mean Sample G93-G94 = 468.62 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 #201

Analysis 691

3rd Qtr 2019

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

WebCode	Data Flag	Sample G91-G92			Sample G93-G94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
82TA6N		203.4	-2.1	-0.10	177.6	-14.8	-0.90	XX
C6Y7ZZ		221.3	15.9	0.74	206.9	14.5	0.88	RP
E4HNCE		210.1	4.6	0.22	196.0	3.6	0.22	RP
LFNAE7		223.0	17.5	0.82	206.6	14.2	0.86	RP
NUEWH9		168.2	-37.3	-1.75	170.7	-21.7	-1.32	XX
TGLV9Y		225.5	20.0	0.94	210.3	17.8	1.09	PR
VD4VE8		186.8	-18.7	-0.88	178.9	-13.5	-0.82	RP

Grand Means		Summary Statistics	
	205.46 kPa		192.43 kPa
Stnd Dev Btwn Labs	21.30 kPa		16.40 kPa
Statistics based on 7 of 7 reporting participants			

Samples G91-G92: EPDM compound, batch #1 & G93-G94: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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

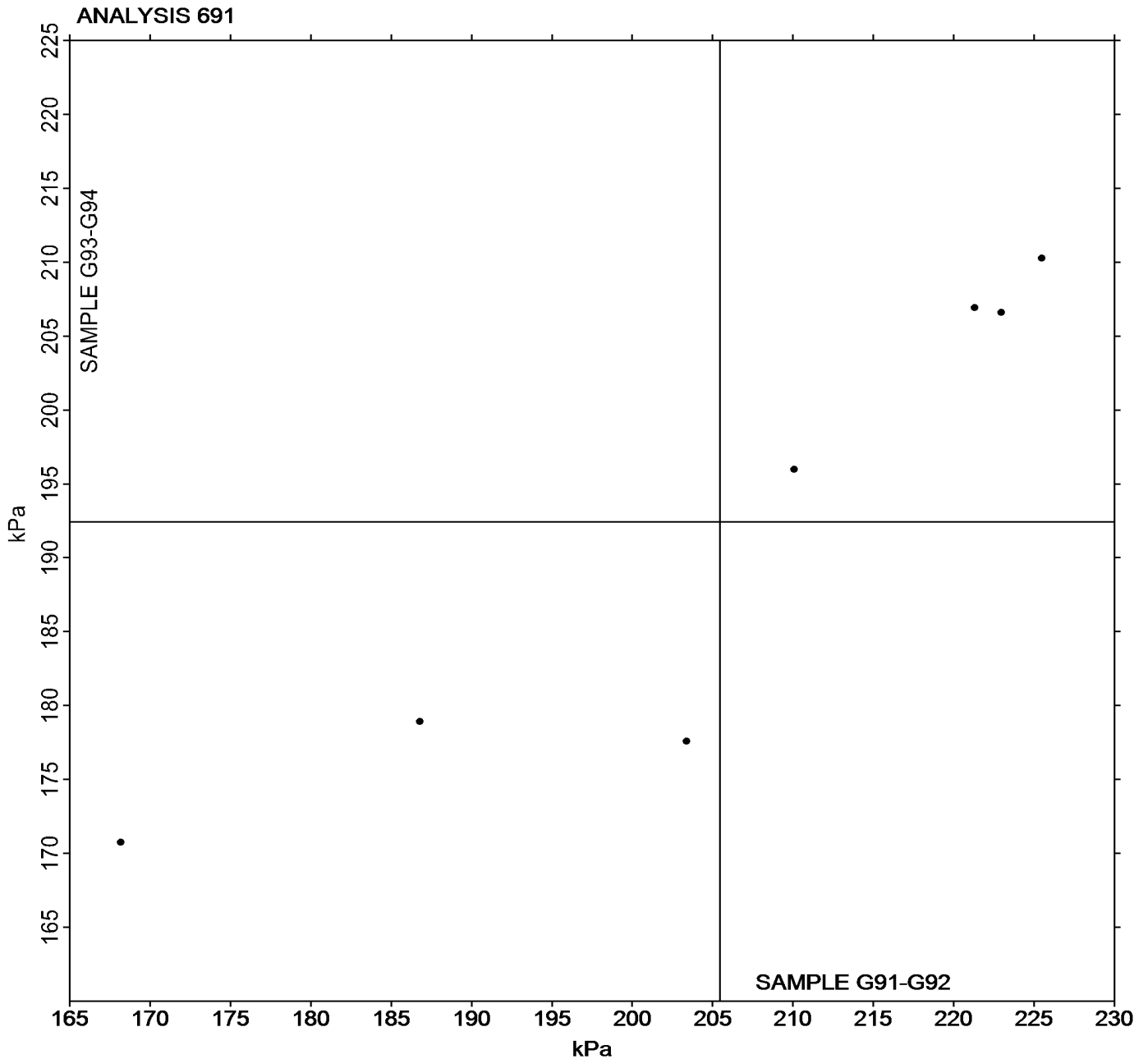


Rubber Interlaboratory Testing Program
Analysis 691
RPA Rheological Properties: Part A - G'' at 20Hz (kPa)

Report #201
3rd Qtr 2019

Grand Mean Sample **G91-G92** = 205.46 kPa

Grand Mean Sample **G93-G94** = 192.43 kPa



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



Rubber Interlaboratory Testing Program

Report #201

Analysis 695

3rd Qtr 2019

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

WebCode	Data Flag	Sample G91-G92			Sample G93-G94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
C6Y7ZZ		114.5	6.4	0.61	78.48	6.12	0.53	RP
E4HNCE		97.7	-10.4	-0.98	60.66	-11.71	-1.01	RP
LFNAE7		107.0	-1.1	-0.10	67.71	-4.66	-0.40	RP
NUEWH9		125.3	17.3	1.63	92.81	20.45	1.77	XX
TGLV9Y		106.1	-2.0	-0.19	66.04	-6.33	-0.55	PR
VD4VE8		97.8	-10.3	-0.97	68.50	-3.87	-0.33	RP

Summary Statistics	
Grand Means	
	108.08 kPa
	72.365 kPa
Std Dev Btwn Labs	
	10.56 kPa
	11.570 kPa
Statistics based on 6 of 6 reporting participants	

Samples G91-G92: EPDM compound, batch #1 & G93-G94: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

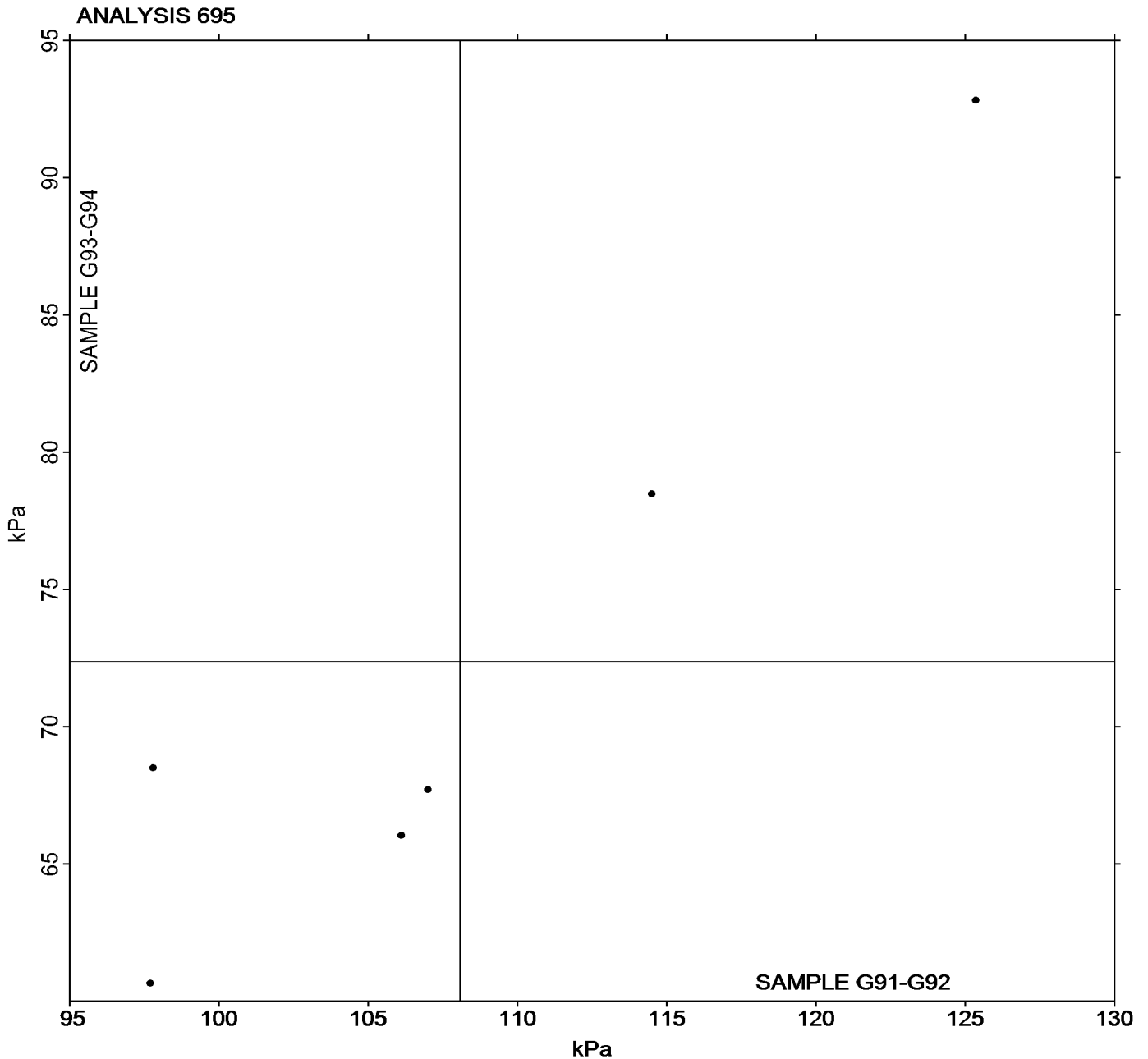
PR	PRPA 2000	RP	RPA 2000
XX	Instrument model not specified by lab		



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

Grand Mean Sample G91-G92 = 108.08 kPa

Grand Mean Sample G93-G94 = 72.365 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 #201

Analysis 696

3rd Qtr 2019

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

WebCode	Data Flag	Sample G91-G92			Sample G93-G94			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
C6Y7ZZ		77.43	3.85	0.92	68.95	4.33	0.95	RP
E4HNCE		72.85	-0.73	-0.18	62.21	-2.41	-0.53	RP
LFNAE7		73.62	0.04	0.01	62.15	-2.47	-0.54	XX
NUEWH9		76.42	2.84	0.68	71.05	6.43	1.41	XX
TGLV9Y		75.39	1.81	0.43	64.39	-0.23	-0.05	PR
VD4VE8		65.79	-7.79	-1.86	58.97	-5.65	-1.24	RP

Summary Statistics	
Grand Means	
	73.583 kPa
	64.620 kPa
Std Dev Btwn Labs	
	4.181 kPa
	4.560 kPa
Statistics based on 6 of 6 reporting participants	

Samples G91-G92: EPDM compound, batch #1 & G93-G94: 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

Report #201

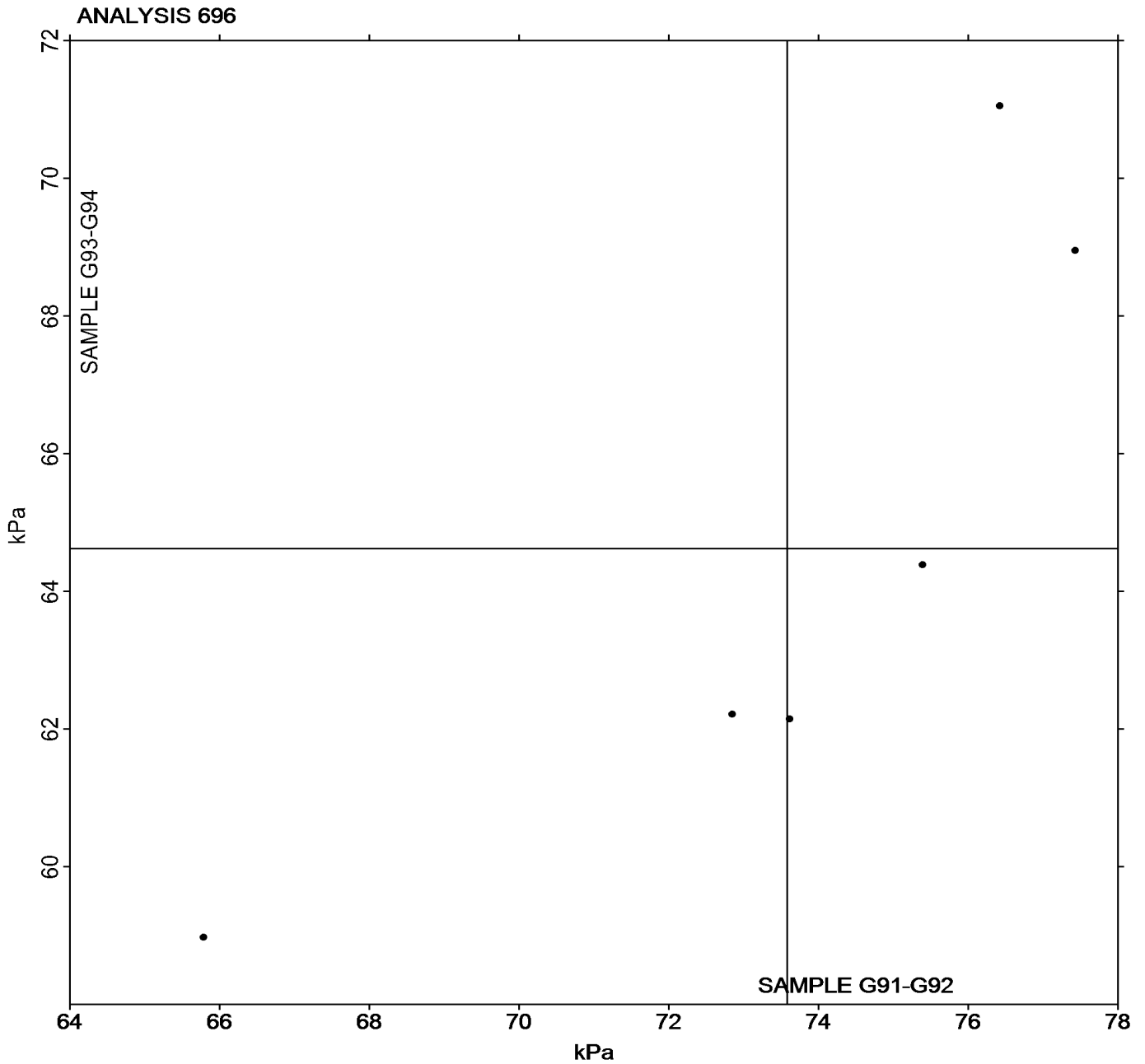
Analysis 696

3rd Qtr 2019

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

Grand Mean Sample **G91-G92** = 73.583 kPa

Grand Mean Sample **G93-G94** = 64.620 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-