



## Rubber Interlaboratory Testing Program

### Summary Report #210- 4th Qtr 2021

---

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

[Key for Web Summary Report](#)

<b>Analysis</b>	<b>Analysis Name</b>	<b>Analysis</b>	<b>Analysis Name</b>
<a href="#">605</a>	<a href="#">Tensile Strength: Precured Rubber Samples</a>	<a href="#">690</a>	<a href="#">RPA Rheological Properties: Part A - G' at 20Hz</a>
<a href="#">606</a>	<a href="#">Ultimate Elongation: Precured Rubber Samples</a>	<a href="#">691</a>	<a href="#">RPA Rheological Properties: Part A - G'' at 20Hz</a>
<a href="#">607</a>	<a href="#">Stress at 300% Elongation: Precured Samples</a>	<a href="#">695</a>	<a href="#">RPA Rheological Properties: Part B - G' at 1.0Hz</a>
<a href="#">608</a>	<a href="#">Stress at 100% Elongation: Precured Samples</a>	<a href="#">696</a>	<a href="#">RPA Rheological Properties: Part B - G'' at 1.0Hz</a>
<a href="#">620</a>	<a href="#">Hardness (Type A): Precured Rubber Samples</a>		
<a href="#">621</a>	<a href="#">Density: Precured Rubber Samples @ 25C</a>		
<a href="#">625</a>	<a href="#">Hardness (Shore D/Type D)</a>		
<a href="#">630</a>	<a href="#">Tensile Strength: Participant-Cured Rubber</a>		
<a href="#">631</a>	<a href="#">Ultimate Elongation: Participant-Cured Samples</a>		
<a href="#">632</a>	<a href="#">Tensile Stress at 300% Elongation: Lab-Cured</a>		
<a href="#">633</a>	<a href="#">Tensile Stress at 100% Elongation: Lab-Cured</a>		
<a href="#">635</a>	<a href="#">Compression Set</a>		
<a href="#">660</a>	<a href="#">Mooney Viscosity (4-minute readings)</a>		
<a href="#">661</a>	<a href="#">Mooney Viscosity (8-minute butyl readings)</a>		
<a href="#">662</a>	<a href="#">Mooney Stress Relaxation: t80</a>		
<a href="#">663</a>	<a href="#">Mooney Stress Relaxation: X30</a>		
<a href="#">664</a>	<a href="#">Mooney Stress Relaxation: Area under curve</a>		
<a href="#">669</a>	<a href="#">ODR Vulcanization Charac.: Cure Time 10%</a>		
<a href="#">670</a>	<a href="#">ODR Vulcanization Charac.: Scorch Time, Ts1</a>		
<a href="#">671</a>	<a href="#">ODR Vulcanization Charac.: Cure Time 50%</a>		
<a href="#">672</a>	<a href="#">ODR Vulcanization Charac.: Cure Time 90%</a>		
<a href="#">673</a>	<a href="#">ODR Vulcanization Charac.: Minimum Torque</a>		
<a href="#">674</a>	<a href="#">ODR Vulcanization Charac.: Maximum Torque</a>		
<a href="#">684</a>	<a href="#">MDR Vulcanization Charac.: Cure Time 10%</a>		
<a href="#">685</a>	<a href="#">MDR Vulcanization Charac.: Scorch Time, Ts1</a>		
<a href="#">686</a>	<a href="#">MDR Vulcanization Charac.: Cure Time 50%</a>		
<a href="#">687</a>	<a href="#">MDR Vulcanization Charac.: Cure Time 90%</a>		
<a href="#">688</a>	<a href="#">MDR Vulcanization Charac.: Minimum Torque</a>		
<a href="#">689</a>	<a href="#">MDR Vulcanization Charac.: Maximum Torque</a>		

## **ABOUT THE PROGRAM**

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

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

## **ABOUT CTS**

Founded in 1971, CTS is a privately-owned company that specializes in interlaboratory tests for a wide variety of industrial sectors, including rubber, plastics, fasteners and metals, containerboard, paper and color, as well as proficiency tests for forensic laboratories. All of the tests are designed to assist organizations in achieving and maintaining quality control objectives. Labs from the U.S., as well as more than 80 countries, currently participate in CTS programs.

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

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

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

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

<b>WebCode</b>	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.
<b>Lab Mean</b>	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.
<b>Grand Mean</b>	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.
<b>Difference from Grand Mean</b>	The difference of the LAB MEAN from the GRAND MEAN.
<b>Between-Lab Standard Deviation</b>	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).
<b>Comparative Performance Value</b>	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.
<b>Inst Code</b>	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).
<b>Data Flag</b>	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	<b>CAUTION</b> - 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	<b>STOP</b> - 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	<b>PROCEED</b> - 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 #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample D11-D12			Sample D13-D14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
344PCP		3,045.1	-24.1	-0.16	3,045.8	-35.1	-0.27
3VE2GM		3,088.9	19.7	0.13	3,226.4	145.5	1.11
42JX6T	X	2,407.6	-661.5	-4.41	2,284.4	-796.5	-6.05
46GG7R		2,879.5	-189.7	-1.26	2,889.0	-191.9	-1.46
46KY9W	*	2,620.8	-448.4	-2.99	2,783.1	-297.8	-2.26
4BLDRC		2,968.5	-100.7	-0.67	3,026.5	-54.4	-0.41
4KEQRC		3,088.0	18.8	0.13	2,986.5	-94.4	-0.72
4RWXQ6		3,022.0	-47.2	-0.31	3,041.0	-39.9	-0.30
4W4PCM	X	3,560.7	491.5	3.28	3,350.4	269.5	2.05
6TJY8C		3,130.0	60.8	0.41	3,150.0	69.1	0.53
7CV6UR		3,018.9	-50.3	-0.34	3,109.3	28.4	0.22
7MTAJK		2,984.8	-84.4	-0.56	2,929.0	-151.9	-1.15
7QC3YT		3,201.5	132.3	0.88	3,149.0	68.1	0.52
87JGTV		2,968.2	-101.0	-0.67	3,085.0	4.1	0.03
89QUE4		3,016.8	-52.4	-0.35	3,234.4	153.5	1.17
8YWTUJ		3,129.6	60.4	0.40	3,161.5	80.6	0.61
92KMBK		3,137.0	67.8	0.45	3,119.0	38.1	0.29
9CJDWT		3,136.0	66.8	0.45	3,139.0	58.1	0.44
9DD3ZL		3,023.0	-46.2	-0.31	2,978.5	-102.4	-0.78
9Q2ATG		2,958.9	-110.2	-0.73	2,974.2	-106.7	-0.81
9YFRT3		3,023.6	-45.6	-0.30	2,971.9	-109.0	-0.83
AD89UL		3,058.1	-11.0	-0.07	3,062.5	-18.4	-0.14
AMJ63X		3,263.6	194.4	1.30	3,197.3	116.4	0.88
ARP2HR	X	3,827.7	758.5	5.06	3,656.4	575.6	4.37
AX3NEH		3,072.9	3.8	0.03	2,963.4	-117.5	-0.89
BJEYWQ		3,392.7	323.5	2.16	3,362.5	281.7	2.14
BJGP6U		2,985.5	-83.7	-0.56	2,994.0	-86.9	-0.66
BMF3QY		2,923.3	-145.9	-0.97	2,808.0	-272.9	-2.07
BW32EJ		3,120.6	51.4	0.34	3,142.1	61.2	0.46
BY7YNQ		3,230.5	161.3	1.08	3,250.5	169.6	1.29
CD6Z6X		3,219.9	150.7	1.00	3,279.3	198.5	1.51
CK6MRR		3,176.5	107.3	0.72	3,217.5	136.6	1.04
CN4XNR		3,119.8	50.6	0.34	3,030.6	-50.3	-0.38
DHYGUX		3,073.0	3.8	0.03	3,129.5	48.6	0.37
DTUR34		3,213.5	144.3	0.96	3,255.5	174.6	1.33
E3ZPNM		3,140.0	70.8	0.47	3,100.0	19.1	0.15
EAVYNJ		3,193.0	123.8	0.83	3,273.5	192.6	1.46
EC38YP		2,997.5	-71.7	-0.48	3,104.5	23.6	0.18



**Rubber Interlaboratory Testing Program**  
**Analysis 605**  
**Tensile Strength (psi)**

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample D11-D12			Sample D13-D14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
EEU7DN		2,989.3	-79.9	-0.53	2,982.0	-98.9	-0.75
ETB4HN	*	3,148.0	78.8	0.53	3,338.5	257.6	1.96
F3T3MY		3,076.5	7.3	0.05	3,030.5	-50.4	-0.38
G4JPFE		3,159.5	90.3	0.60	3,109.0	28.1	0.21
GH2FG2		2,870.5	-198.7	-1.32	3,027.0	-53.9	-0.41
H7JDCF		3,151.5	82.3	0.55	3,110.0	29.1	0.22
HFUFXF		2,821.0	-248.2	-1.65	2,915.3	-165.6	-1.26
HKLUEB		3,055.0	-14.2	-0.09	3,155.0	74.1	0.56
HKNEAQ		3,263.0	193.8	1.29	3,210.5	129.6	0.98
HPV3MR		3,321.4	252.2	1.68	3,140.1	59.2	0.45
HWE7VU		3,095.2	26.0	0.17	3,092.2	11.3	0.09
HYJWYN		3,058.5	-10.7	-0.07	3,162.0	81.1	0.62
J2QFJH		2,865.0	-204.2	-1.36	2,885.0	-195.9	-1.49
J7Y4RD		3,204.0	134.8	0.90	3,282.5	201.6	1.53
J9RV6J		3,082.1	12.9	0.09	3,067.6	-13.3	-0.10
JJ9D4H		2,935.5	-133.7	-0.89	2,997.0	-83.9	-0.64
JJNX9D		3,234.1	164.9	1.10	3,140.7	59.8	0.45
KBDU2E		2,896.4	-172.8	-1.15	2,958.1	-122.8	-0.93
KBQNFU		3,050.0	-19.2	-0.13	3,043.5	-37.4	-0.28
KJ6APX		3,048.0	-21.2	-0.14	3,023.3	-57.5	-0.44
KRGB47		3,018.0	-51.2	-0.34	3,080.5	-0.4	0.00
KW9HME		2,946.5	-122.7	-0.82	3,087.2	6.3	0.05
KWN28C		3,135.7	66.6	0.44	3,214.8	133.9	1.02
L2HHWC		3,178.5	109.3	0.73	3,252.0	171.1	1.30
LAAQMU		3,188.9	119.7	0.80	3,024.4	-56.5	-0.43
LFZ4KB	M	3,220.0	150.8	1.01	3,221.0	140.1	1.06
LQK9WG		3,071.0	1.8	0.01	3,186.5	105.6	0.80
MKN4FH		3,042.2	-27.0	-0.18	3,018.8	-62.1	-0.47
ML7WE8		3,286.5	217.3	1.45	3,184.0	103.1	0.78
MRAYGL		3,355.0	285.8	1.90	3,216.0	135.1	1.03
N2UPGJ		3,158.7	89.5	0.60	3,096.6	15.8	0.12
N37LNA		3,174.2	105.0	0.70	3,124.1	43.3	0.33
NBFTNJ		3,231.5	162.3	1.08	3,286.3	205.4	1.56
PEWHNL		3,117.5	48.3	0.32	3,029.0	-51.9	-0.39
PNJHX6		3,288.0	218.8	1.46	3,132.5	51.6	0.39
QQ23HY	*	2,720.9	-348.3	-2.32	2,718.8	-362.1	-2.75
R9E4P7	X	3,291.7	222.5	1.48	2,951.5	-129.3	-0.98



**Rubber Interlaboratory Testing Program**  
**Analysis 605**  
**Tensile Strength (psi)**

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample D11-D12			Sample D13-D14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
RCJMWE		3,266.9	197.7	1.32	3,247.2	166.3	1.26
RDVLQN		3,002.5	-66.7	-0.44	3,074.5	-6.4	-0.05
RL8HUA		2,899.5	-169.7	-1.13	2,999.5	-81.4	-0.62
RM32YG		3,088.6	19.4	0.13	3,051.6	-29.3	-0.22
RYWFYD		3,117.8	48.6	0.32	3,063.3	-17.6	-0.13
T3N4VB		2,755.0	-314.2	-2.09	2,775.0	-305.9	-2.32
T3PYEG		3,208.4	139.2	0.93	3,128.5	47.6	0.36
T9X8X7	*	2,691.2	-378.0	-2.52	2,916.7	-164.1	-1.25
TD9F7N		2,969.3	-99.9	-0.67	2,923.0	-157.9	-1.20
TK9URP		3,068.9	-0.3	0.00	3,079.1	-1.8	-0.01
TRQ4FL		3,091.5	22.3	0.15	2,971.0	-109.9	-0.83
UBW3VZ		2,891.5	-177.7	-1.18	2,867.5	-213.4	-1.62
UD3MN7		2,892.5	-176.7	-1.18	2,998.0	-82.9	-0.63
UMEDT7		3,323.2	254.0	1.69	3,163.5	82.6	0.63
V2QDZG		2,937.9	-131.3	-0.88	3,067.0	-13.9	-0.11
VGHHZX		2,770.0	-299.2	-1.99	2,860.0	-220.9	-1.68
VQ9V8A		3,161.9	92.7	0.62	3,099.5	18.6	0.14
WHBLC6		3,128.0	58.8	0.39	3,042.0	-38.9	-0.30
WXNW3D	*	2,685.2	-384.0	-2.56	2,775.5	-305.4	-2.32
XMJ9LZ		3,075.0	5.8	0.04	3,245.0	164.1	1.25
XZBVV2		3,153.5	84.3	0.56	3,142.5	61.6	0.47
Y6W843		3,165.5	96.3	0.64	3,243.0	162.1	1.23
YMDCU2		3,147.6	78.4	0.52	3,209.3	128.4	0.98
YXD4WZ		2,966.0	-103.1	-0.69	3,089.3	8.5	0.06
Z7KZHH		3,142.5	73.3	0.49	3,218.5	137.6	1.05
ZR8RHE		3,062.4	-6.8	-0.05	2,938.1	-142.8	-1.08
ZV2N3Y		3,190.5	121.3	0.81	3,166.5	85.6	0.65

Grand Means		Summary Statistics	
	3,069.19 psi		3,080.88 psi
Std Dev Btwn Labs	150.04 psi		131.62 psi
Statistics based on 97 of 102 reporting participants			



**Rubber Interlaboratory Testing Program**  
**Analysis 605**  
**Tensile Strength (psi)**

**Report #210**  
**4th Qtr 2021**

		Summary Statistics in SI Units	
Grand Means	21.161 MPa	21.24	MPa
Stnd Dev Btwn Labs	1.034 MPa	0.91	MPa
Statistics based on 97 of 102 reporting participants			

Samples D11-D12: Polyisoprene compound, batch #1 & D13-D14: Polyisoprene compound, batch #2

**Comments on Assigned Data Flags for Test #605**

- 42JX6T (X) - Data for all samples are low. Possible Systematic Error.
- 4W4PCM (X) - Data for sample group D11-D12 are high.
- ARP2HR (X) - Data for all samples are high. Possible Systematic Error.
- LFZ4KB (M) - Missing data for sample D11.
- R9E4P7 (X) - Inconsistent in testing between samples.



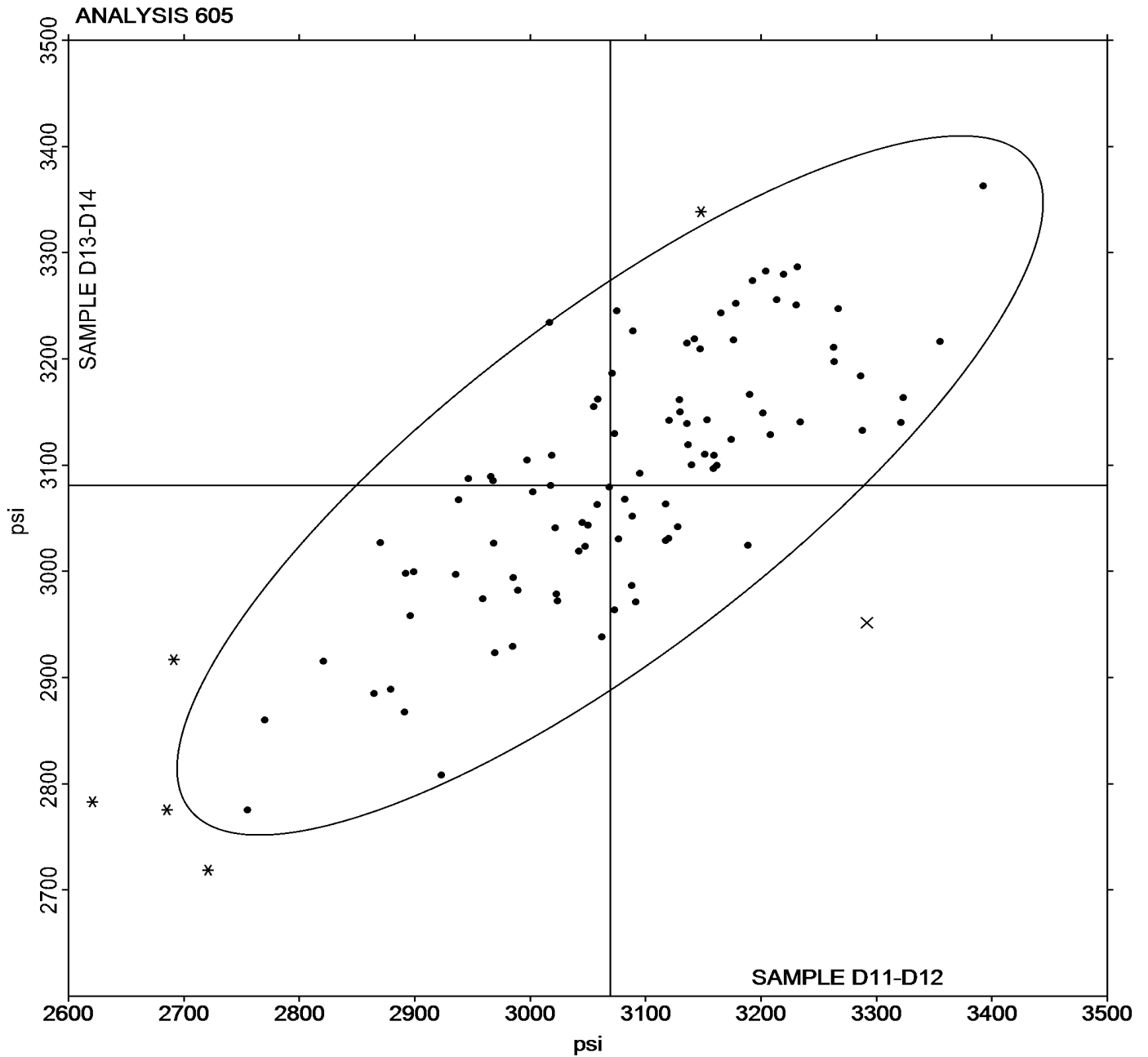


Rubber Interlaboratory Testing Program  
Analysis 605  
Tensile Strength (psi)

Report #210  
4th Qtr 2021

Grand Mean Sample **D11-D12** = 3,069.19 psi

Grand Mean Sample **D13-D14** = 3,080.88 psi





**Rubber Interlaboratory Testing Program**  
**Analysis 606**  
**Ultimate Elongation (percent)**

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample D11-D12			Sample D13-D14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3VE2GM		593.6	-35.5	-1.01	584.3	-46.1	-1.31
46GG7R	*	541.0	-88.1	-2.52	547.4	-83.0	-2.35
46KY9W		614.5	-14.6	-0.42	631.3	0.9	0.03
4BLDRC		606.4	-22.7	-0.65	611.1	-19.4	-0.55
4KEQRC		593.0	-36.1	-1.03	580.0	-50.4	-1.43
4RWXQ6		638.0	8.9	0.26	640.0	9.6	0.27
4W4PCM		586.0	-43.1	-1.23	563.5	-66.9	-1.90
6TJY8C		627.0	-2.1	-0.06	641.5	11.1	0.31
7CV6UR	X	707.1	78.0	2.23	641.2	10.8	0.31
7MTAJK		594.8	-34.3	-0.98	595.4	-35.0	-0.99
7QC3YT		596.0	-33.1	-0.95	589.5	-40.9	-1.16
87JGTV		596.0	-33.1	-0.95	605.0	-25.4	-0.72
89QUE4		658.0	28.9	0.83	665.5	35.1	0.99
8YWTUJ		631.0	1.9	0.06	633.9	3.5	0.10
92KMBK		610.0	-19.1	-0.54	596.5	-33.9	-0.96
9CJDWT		654.0	24.9	0.71	640.5	10.1	0.29
9DD3ZL	M	626.0	-3.1	-0.09	615.0	-15.4	-0.44
9Q2ATG		645.0	15.9	0.46	645.5	15.1	0.43
9YFRT3		625.2	-3.8	-0.11	612.8	-17.6	-0.50
AD89UL		618.0	-11.1	-0.32	620.0	-10.4	-0.30
AMJ63X		628.0	-1.1	-0.03	635.0	4.6	0.13
ARP2HR		673.5	44.4	1.27	696.1	65.7	1.86
AX3NEH		657.4	28.3	0.81	630.7	0.3	0.01
BJEYWQ		653.5	24.5	0.70	656.9	26.5	0.75
BJGP6U		603.0	-26.1	-0.75	614.0	-16.4	-0.47
BMF3QY	X	509.5	-119.6	-3.42	496.1	-134.4	-3.81
BW32EJ		647.8	18.8	0.54	631.4	0.9	0.03
BY7YNQ		640.5	11.4	0.33	630.0	-0.4	-0.01
CD6Z6X		643.5	14.4	0.41	647.0	16.6	0.47
CK6MRR		617.5	-11.6	-0.33	618.0	-12.4	-0.35
CN4XNR		665.0	35.9	1.03	665.0	34.6	0.98
DHYGUX		621.5	-7.6	-0.22	628.5	-1.9	-0.05
DTUR34		671.5	42.4	1.21	670.5	40.1	1.14
E3ZPNM		622.0	-7.1	-0.20	634.5	4.1	0.12
EAVYNJ		589.5	-39.6	-1.13	574.5	-55.9	-1.58
EC38YP		593.0	-36.1	-1.03	627.0	-3.4	-0.10
EEU7DN		585.5	-43.6	-1.25	585.0	-45.4	-1.29
ETB4HN		627.0	-2.1	-0.06	651.0	20.6	0.58



**Rubber Interlaboratory Testing Program**  
**Analysis 606**  
**Ultimate Elongation (percent)**

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample D11-D12			Sample D13-D14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
F3T3MY	*	703.0	73.9	2.12	718.5	88.1	2.49
G4JPFE		621.5	-7.6	-0.22	622.0	-8.4	-0.24
GH2FG2	X	301.1	-328.0	-9.38	326.0	-304.4	-8.62
H7JDCF		599.5	-29.6	-0.85	594.0	-36.4	-1.03
HFUFXF		623.1	-6.0	-0.17	603.0	-27.5	-0.78
HKLUEB		633.0	3.9	0.11	635.5	5.1	0.14
HKNEAQ		632.0	2.9	0.08	608.0	-22.4	-0.63
HPV3MR		635.5	6.4	0.18	646.5	16.1	0.46
HWE7VU		654.7	25.7	0.73	655.1	24.7	0.70
HYJWYN		607.5	-21.6	-0.62	587.5	-42.9	-1.22
J2QFJH		563.5	-65.6	-1.88	564.0	-66.4	-1.88
J7Y4RD		637.0	7.9	0.23	639.5	9.1	0.26
J9RV6J		628.0	-1.1	-0.03	631.5	1.1	0.03
JJ9D4H		631.0	1.9	0.06	641.5	11.1	0.31
JJNX9D		634.5	5.4	0.16	624.2	-6.3	-0.18
KBDU2E		615.6	-13.5	-0.39	648.6	18.1	0.51
KBQNFU		673.0	43.9	1.26	664.0	33.6	0.95
KJ6APX		621.5	-7.6	-0.22	619.0	-11.4	-0.32
KRGB47		707.5	78.4	2.24	707.5	77.1	2.18
KW9HME	X	1,144.6	515.5	14.75	1,136.4	505.9	14.33
KWN28C	*	698.5	69.4	1.99	718.5	88.1	2.49
L2HHWC		642.0	12.9	0.37	637.0	6.6	0.19
LAAQMU		652.0	22.9	0.66	623.5	-6.9	-0.20
LFZ4KB	M	608.0	-21.1	-0.60	619.0	-11.4	-0.32
LQK9WG		654.0	24.9	0.71	658.5	28.1	0.80
MKN4FH		620.8	-8.2	-0.24	628.8	-1.6	-0.04
ML7WE8		640.0	10.9	0.31	636.5	6.1	0.17
MRAYGL		659.0	29.9	0.86	649.0	18.6	0.53
N2UPGJ	X	2,267.0	1,637.9	46.85	2,343.5	1,713.0	48.52
N37LNA		592.1	-37.0	-1.06	597.8	-32.6	-0.92
NBFTNJ		699.0	69.9	2.00	686.5	56.1	1.59
PEWHNL		640.5	11.4	0.33	640.0	9.6	0.27
PNJHX6		696.0	66.9	1.92	676.5	46.1	1.31
QQ23HY		615.0	-14.1	-0.40	614.0	-16.4	-0.47
R9E4P7		664.9	35.8	1.02	643.6	13.2	0.37
RCJMWE		627.9	-1.2	-0.03	614.6	-15.8	-0.45
RDVLQN	*	546.0	-83.1	-2.38	583.8	-46.7	-1.32



**Rubber Interlaboratory Testing Program**  
**Analysis 606**  
**Ultimate Elongation (percent)**

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample D11-D12			Sample D13-D14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
RL8HUA		622.0	-7.1	-0.20	624.5	-5.9	-0.17
RM32YG		646.0	16.9	0.48	667.5	37.1	1.05
RYWFYD		660.8	31.8	0.91	648.7	18.3	0.52
T3PYEG		651.5	22.4	0.64	650.0	19.6	0.55
T9X8X7		600.0	-29.1	-0.83	607.3	-23.2	-0.66
TD9F7N		565.0	-64.1	-1.83	593.5	-36.9	-1.05
TK9URP	X	766.6	137.5	3.93	783.3	152.8	4.33
TRQ4FL	X	755.0	125.9	3.60	684.0	53.6	1.52
UD3MN7	*	550.6	-78.5	-2.25	536.2	-94.3	-2.67
UMEDT7		652.9	23.9	0.68	637.9	7.5	0.21
V2QDZG		644.1	15.1	0.43	652.7	22.3	0.63
VGHHZX		682.0	52.9	1.51	672.5	42.1	1.19
VQ9V8A		614.0	-15.1	-0.43	626.5	-3.9	-0.11
WHBLC6		624.5	-4.6	-0.13	661.0	30.6	0.87
WXNW3D		658.0	28.9	0.83	677.3	46.9	1.33
XMJ9LZ		590.0	-39.1	-1.12	615.0	-15.4	-0.44
XZBVV2		663.5	34.4	0.99	670.5	40.1	1.14
Y6W843		577.5	-51.6	-1.47	582.0	-48.4	-1.37
YMDCU2		668.0	38.9	1.11	645.5	15.1	0.43
YXD4WZ		569.3	-59.8	-1.71	589.0	-41.5	-1.17
Z7KZHH		663.0	33.9	0.97	690.0	59.6	1.69
ZR8RHE		621.8	-7.3	-0.21	609.1	-21.3	-0.60
ZV2N3Y		625.0	-4.1	-0.12	633.5	3.1	0.09

Grand Means		Summary Statistics	
	629.05 percent		630.42 percent
Std Dev Btwn Labs	34.96 percent		35.31 percent
Statistics based on 89 of 98 reporting participants			

Samples D11-D12: Polyisoprene compound, batch #1 & D13-D14: Polyisoprene compound, batch #2



**Rubber Interlaboratory Testing Program**  
**Analysis 606**  
**Ultimate Elongation (percent)**

**Report #210**  
**4th Qtr 2021**

---

**Comments on Assigned Data Flags for Test #606**

7CV6UR (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group D11-D12.

9DD3ZL (M) - Missing data for sample D14.

BMF3QY (X) - Data for all samples are low. Possible Systematic Error.

GH2FG2 (X) - Data for all samples are low.

KW9HME (X) - Extreme Data.

LFZ4KB (M) - Missing data for sample D11.

N2UPGJ (X) - Extreme Data.

TK9URP (X) - Data for all samples are high. Possible Systematic Error.

TRQ4FL (X) - Data for sample group D11-D12 are high.

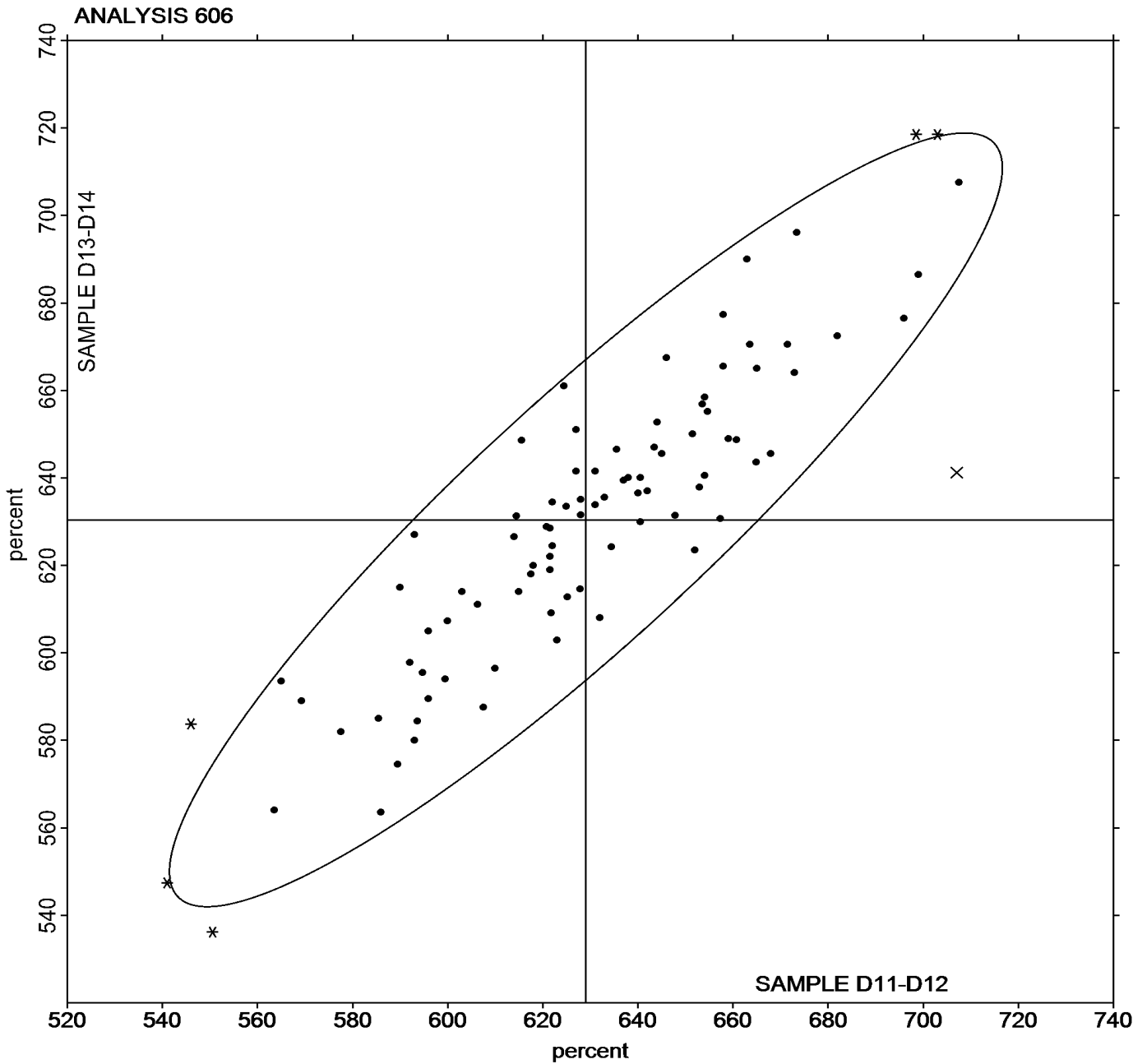


Rubber Interlaboratory Testing Program  
Analysis 606  
Ultimate Elongation (percent)

Report #210  
4th Qtr 2021

Grand Mean Sample D11-D12 = 629.05 percent

Grand Mean Sample D13-D14 = 630.42 percent





# Rubber Interlaboratory Testing Program

Report #210

## Analysis 607

4th Qtr 2021

### Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample D11-D12			Sample D13-D14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3VE2GM		965.2	98.8	1.20	992.4	134.0	1.81
42JX6T		952.2	85.8	1.04	873.5	15.1	0.20
46GG7R		1,019.8	153.3	1.86	945.5	87.1	1.18
46KY9W		752.8	-113.6	-1.38	789.8	-68.6	-0.93
4BLDRC		886.7	20.2	0.24	910.0	51.6	0.70
4KEQRC		965.0	98.6	1.19	945.5	87.1	1.18
4RWXQ6		772.5	-93.9	-1.14	810.0	-48.4	-0.65
4W4PCM		1,042.1	175.7	2.13	971.8	113.4	1.53
6TJY8C		881.0	14.6	0.18	848.5	-9.9	-0.13
7CV6UR	X	660.5	-206.0	-2.49	809.4	-49.0	-0.66
7MTAJK		871.3	4.9	0.06	872.3	13.9	0.19
7QC3YT		951.0	84.6	1.02	904.5	46.1	0.62
87JGTV		895.6	29.2	0.35	903.6	45.2	0.61
89QUE4		984.1	117.7	1.42	956.5	98.2	1.33
92KMBK		869.5	3.1	0.04	915.5	57.1	0.77
9CJDWT		815.0	-51.4	-0.62	848.5	-9.9	-0.13
9DD3ZL	M	817.5	-48.9	-0.59	874.5	16.1	0.22
9Q2ATG		809.4	-57.0	-0.69	822.3	-36.0	-0.49
9YFRT3		893.2	26.8	0.32	865.9	7.5	0.10
AD89UL		810.0	-56.4	-0.68	818.0	-40.3	-0.55
AMJ63X		913.0	46.6	0.56	860.5	2.1	0.03
ARP2HR		1,016.5	150.1	1.82	978.4	120.0	1.62
AX3NEH		807.2	-59.2	-0.72	827.8	-30.6	-0.41
BJEYWQ		891.8	25.4	0.31	876.1	17.7	0.24
BJGP6U		923.5	57.1	0.69	911.5	53.1	0.72
BMF3QY	X	1,137.1	270.7	3.28	1,152.3	294.0	3.97
BW32EJ		862.6	-3.9	-0.05	849.0	-9.4	-0.13
BY7YNQ		776.0	-90.4	-1.09	857.5	-0.9	-0.01
CD6Z6X		862.3	-4.2	-0.05	873.9	15.5	0.21
CK6MRR		917.0	50.6	0.61	897.0	38.6	0.52
CN4XNR		793.4	-73.1	-0.88	751.3	-107.1	-1.45
DHYGUX		790.5	-75.9	-0.92	835.0	-23.4	-0.32
DTUR34		800.5	-65.9	-0.80	809.5	-48.9	-0.66
E3ZPNM		924.5	58.1	0.70	901.0	42.6	0.58
EAVYNJ		911.0	44.5	0.54	988.6	130.2	1.76
EC38YP		913.0	46.6	0.56	869.5	11.1	0.15
EEU7DN		834.0	-32.4	-0.39	828.9	-29.5	-0.40
ETB4HN		877.0	10.6	0.13	863.5	5.1	0.07



# Rubber Interlaboratory Testing Program

Report #210

## Analysis 607

4th Qtr 2021

### Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample D11-D12			Sample D13-D14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
F3T3MY		732.9	-133.6	-1.62	757.0	-101.4	-1.37
G4JPFE		901.0	34.6	0.42	891.5	33.1	0.45
GH2FG2	X	2,951.0	2,084.6	25.24	2,665.0	1,806.6	24.42
HFUFXF		808.6	-57.8	-0.70	914.5	56.1	0.76
HKLUEB		828.5	-37.9	-0.46	874.5	16.1	0.22
HKNEAQ	*	907.5	41.1	0.50	997.5	139.1	1.88
HPV3MR		862.3	-4.2	-0.05	780.3	-78.0	-1.06
HWE7VU		781.8	-84.7	-1.02	777.4	-81.0	-1.09
HYJWYN	X	921.0	54.6	0.66	1,067.0	208.6	2.82
J2QFJH		925.0	58.6	0.71	890.0	31.6	0.43
J7Y4RD		877.5	11.1	0.13	889.5	31.1	0.42
J9RV6J		900.0	33.6	0.41	829.6	-28.7	-0.39
JJNX9D		988.8	122.4	1.48	930.1	71.8	0.97
KBDU2E		836.7	-29.8	-0.36	770.9	-87.5	-1.18
KBQNFU		770.0	-96.4	-1.17	793.0	-65.4	-0.88
KJ6APX		886.2	19.8	0.24	879.7	21.3	0.29
KRGB47		676.0	-190.4	-2.31	718.0	-140.4	-1.90
KW9HME	X	409.7	-456.7	-5.53	424.2	-434.1	-5.87
KWN28C		740.4	-126.0	-1.53	697.6	-160.7	-2.17
L2HHWC		896.0	29.6	0.36	892.0	33.6	0.45
LAAQMU		849.1	-17.3	-0.21	833.1	-25.3	-0.34
LFZ4KB	M	982.0	115.6	1.40	985.5	127.1	1.72
LQK9WG		814.0	-52.4	-0.63	821.5	-36.9	-0.50
MKN4FH		863.8	-2.6	-0.03	841.4	-17.0	-0.23
ML7WE8		863.0	-3.4	-0.04	865.0	6.6	0.09
MRAYGL		877.0	10.6	0.13	842.0	-16.4	-0.22
N2UPGJ		937.3	70.9	0.86	917.9	59.5	0.80
N37LNA		1,012.4	146.0	1.77	943.5	85.1	1.15
NBFTNJ		739.7	-126.8	-1.53	768.3	-90.1	-1.22
PEWHNL		828.5	-37.9	-0.46	802.0	-56.4	-0.76
PNJHX6		760.0	-106.4	-1.29	775.0	-83.4	-1.13
QQ23HY		821.6	-44.8	-0.54	821.6	-36.7	-0.50
R9E4P7		810.8	-55.6	-0.67	725.9	-132.4	-1.79
RCJMWE		933.0	66.6	0.81	946.7	88.3	1.19
RDVLQN		1,003.5	137.1	1.66	909.0	50.6	0.68
RM32YG		834.0	-32.4	-0.39	765.8	-92.6	-1.25
RYWFYD		815.4	-51.0	-0.62	804.7	-53.7	-0.73





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

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample D11-D12			Sample D13-D14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
T3PYEG		787.6	-78.8	-0.95	825.1	-33.3	-0.45
T9X8X7	*	733.9	-132.5	-1.60	857.2	-1.2	-0.02
TD9F7N		986.5	120.1	1.45	898.3	39.9	0.54
TK9URP		840.3	-26.2	-0.32	806.0	-52.4	-0.71
TRQ4FL		730.8	-135.6	-1.64	752.4	-106.0	-1.43
UD3MN7	*	1,001.9	135.5	1.64	1,070.7	212.4	2.87
UMEDT7		873.8	7.4	0.09	839.6	-18.8	-0.25
V2QDZG		752.5	-113.9	-1.38	785.4	-72.9	-0.99
VGHHZX		745.1	-121.3	-1.47	745.2	-113.2	-1.53
VQ9V8A		961.6	95.2	1.15	900.7	42.3	0.57
WHBLC6	*	896.0	29.6	0.36	763.5	-94.9	-1.28
WXNW3D		768.2	-98.2	-1.19	768.7	-89.7	-1.21
XMJ9LZ		1,005.0	138.6	1.68	994.0	135.6	1.83
XZBVV2		833.0	-33.4	-0.40	783.0	-75.4	-1.02
Y6W843		1,004.5	138.1	1.67	982.0	123.6	1.67
YMDCU2	*	792.1	-74.3	-0.90	922.4	64.0	0.87
YXD4WZ		970.3	103.9	1.26	928.2	69.9	0.94
Z7KZHH		790.0	-76.4	-0.93	750.5	-107.9	-1.46
ZR8RHE		854.5	-11.9	-0.14	858.5	0.1	0.00
ZV2N3Y		885.0	18.6	0.23	865.0	6.6	0.09

Grand Means		Summary Statistics	
	866.41 psi		858.36 psi
Std Dev Btwn Labs	82.59 psi		73.98 psi
Statistics based on 88 of 95 reporting participants			

Grand Means		Summary Statistics in SI Units	
	5.9737 MPa		5.92 MPa
Std Dev Btwn Labs	0.5695 MPa		0.51 MPa
Statistics based on 88 of 95 reporting participants			

Samples D11-D12: Polyisoprene compound, batch #1 & D13-D14: Polyisoprene compound, batch #2



**Comments on Assigned Data Flags for Test #607**

7CV6UR (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group D11-D12.

9DD3ZL (M) - Missing data for sample D14.

BMF3QY (X) - Data for all samples are high. Possible Systematic Error.

GH2FG2 (X) - Extreme Data.

HYJWYN (X) - Data for sample group D13-D14 are high.

KW9HME (X) - Data for all samples are low. Possible Systematic Error.

LFZ4KB (M) - Missing data for sample D11



# Rubber Interlaboratory Testing Program

## Analysis 607

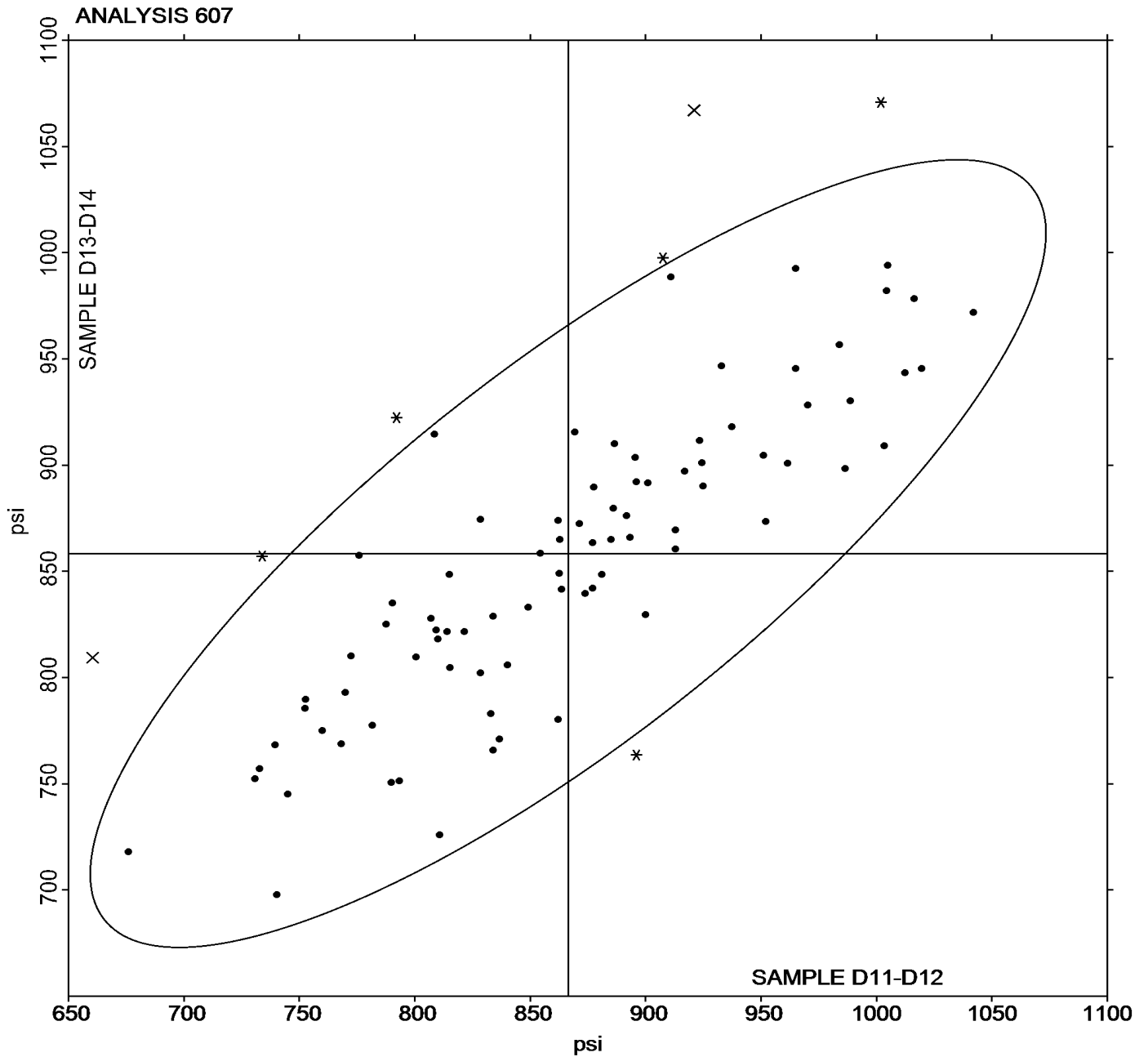
### Stress at 300% Elongation (psi)

Report #210

4th Qtr 2021

Grand Mean Sample **D11-D12** = 866.41 psi

Grand Mean Sample **D13-D14** = 858.36 psi





# Rubber Interlaboratory Testing Program

Report #210

## Analysis 608

4th Qtr 2021

### Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample D11-D12			Sample D13-D14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3VE2GM	*	220.8	24.0	1.61	233.7	37.2	2.55
42JX6T		195.8	-1.0	-0.07	194.4	-2.2	-0.15
46GG7R		212.0	15.2	1.02	195.0	-1.5	-0.10
46KY9W		170.2	-26.6	-1.78	181.2	-15.3	-1.05
4BLDRC		206.2	9.4	0.63	208.2	11.7	0.80
4KEQRC	*	223.0	26.2	1.75	234.0	37.5	2.57
4RWXQ6		181.0	-15.8	-1.06	187.0	-9.5	-0.65
4W4PCM	X	256.7	59.9	4.01	234.2	37.7	2.59
6TJY8C		199.0	2.2	0.15	194.5	-2.0	-0.14
7CV6UR		196.7	-0.1	-0.01	198.2	1.7	0.12
7MTAJK		186.3	-10.5	-0.71	189.3	-7.2	-0.49
7QC3YT		210.0	13.2	0.88	199.0	2.5	0.17
87JGTV		207.4	10.6	0.71	208.1	11.6	0.80
89QUE4	*	235.7	38.9	2.60	231.3	34.8	2.39
92KMBK		193.0	-3.8	-0.25	202.0	5.5	0.38
9CJDWT		194.5	-2.3	-0.15	202.0	5.5	0.38
9DD3ZL	M	179.5	-17.3	-1.16	189.5	-7.0	-0.48
9Q2ATG		199.8	3.0	0.20	202.5	6.0	0.41
9YFRT3		201.5	4.7	0.31	195.0	-1.5	-0.10
AD89UL		179.8	-16.9	-1.13	180.6	-15.9	-1.09
AMJ63X		207.5	10.7	0.72	193.0	-3.5	-0.24
ARP2HR		226.4	29.6	1.98	218.9	22.4	1.54
AX3NEH		194.1	-2.6	-0.18	190.6	-5.9	-0.41
BJEYWQ		202.9	6.1	0.41	200.7	4.2	0.29
BJGP6U		204.0	7.2	0.48	204.2	7.6	0.52
BMF3QY		221.9	25.1	1.68	225.5	29.0	1.99
BW32EJ		198.1	1.3	0.08	198.9	2.3	0.16
BY7YNQ		174.0	-22.8	-1.53	192.5	-4.0	-0.28
CD6Z6X		194.4	-2.4	-0.16	198.0	1.5	0.10
CK6MRR		207.0	10.2	0.68	223.0	26.5	1.82
CN4XNR		179.1	-17.7	-1.18	173.3	-23.2	-1.59
DHYGUX		182.0	-14.8	-0.99	186.5	-10.0	-0.69
DTUR34		205.5	8.7	0.58	207.0	10.5	0.72
E3ZPNM		216.0	19.2	1.29	213.0	16.5	1.13
EAVYNJ		206.8	10.0	0.67	225.9	29.3	2.02
EC38YP		209.5	12.7	0.85	203.0	6.5	0.45
EEU7DN		174.0	-22.7	-1.52	171.1	-25.4	-1.74
ETB4HN		202.5	5.7	0.38	201.5	5.0	0.34



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

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample D11-D12			Sample D13-D14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
F3T3MY	X	202.5	5.7	0.38	235.5	39.0	2.68
G4JPFE		201.0	4.2	0.28	201.5	5.0	0.34
GH2FG2	X	476.5	279.7	18.73	425.4	228.8	15.72
H7JDCF		190.5	-6.3	-0.42	191.0	-5.5	-0.38
HFUFXF	*	174.8	-22.0	-1.47	200.2	3.6	0.25
HKLUEB		195.5	-1.3	-0.09	205.0	8.5	0.58
HKNEAQ		206.0	9.2	0.62	218.5	22.0	1.51
HPV3MR		201.6	4.8	0.32	187.1	-9.4	-0.65
HWE7VU		182.7	-14.0	-0.94	181.3	-15.2	-1.04
HYJWYN	X	203.0	6.2	0.42	233.5	37.0	2.54
J2QFJH		185.0	-11.8	-0.79	190.0	-6.5	-0.45
J7Y4RD		199.5	2.7	0.18	204.5	8.0	0.55
J9RV6J		200.9	4.1	0.27	185.6	-10.9	-0.75
JJNX9D		207.7	10.9	0.73	195.4	-1.2	-0.08
KBDU2E		192.1	-4.7	-0.31	184.3	-12.2	-0.84
KBQNFU		187.0	-9.8	-0.66	190.0	-6.5	-0.45
KJ6APX		194.4	-2.4	-0.16	193.6	-2.9	-0.20
KRGB47		170.5	-26.3	-1.76	176.0	-20.5	-1.41
KW9HME	X	135.6	-61.2	-4.10	141.4	-55.1	-3.78
KWN28C		185.6	-11.1	-0.75	176.9	-19.6	-1.34
L2HHWC		216.5	19.7	1.32	204.5	8.0	0.55
LAAQMU		180.1	-16.7	-1.12	183.3	-13.2	-0.91
LFZ4KB	M	227.0	30.2	2.02	231.0	34.5	2.37
LQK9WG		196.0	-0.8	-0.05	194.5	-2.0	-0.14
MKN4FH		193.9	-2.9	-0.19	189.7	-6.8	-0.47
ML7WE8		195.0	-1.8	-0.12	195.5	-1.0	-0.07
MRAYGL		201.0	4.2	0.28	190.5	-6.0	-0.41
N2UPGJ		199.3	2.6	0.17	193.9	-2.6	-0.18
N37LNA		218.3	21.5	1.44	205.2	8.7	0.60
NBFTNJ		163.6	-33.2	-2.23	180.2	-16.3	-1.12
PEWHNL		189.5	-7.3	-0.49	185.5	-11.0	-0.76
PNJHX6		181.5	-15.3	-1.02	185.0	-11.5	-0.79
QQ23HY		198.7	1.9	0.13	200.9	4.4	0.30
R9E4P7	*	178.4	-18.4	-1.23	158.8	-37.7	-2.59
RCJMWE		217.5	20.7	1.38	217.3	20.8	1.43
RDVLQN		187.5	-9.3	-0.62	184.0	-12.5	-0.86
RM32YG		197.3	0.5	0.03	180.6	-15.9	-1.09



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

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample D11-D12			Sample D13-D14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
RYWFYD		201.2	4.4	0.29	200.1	3.5	0.24
T3PYEG		170.1	-26.7	-1.79	176.3	-20.2	-1.39
T9X8X7	*	166.8	-30.0	-2.01	193.6	-2.9	-0.20
TD9F7N		207.0	10.2	0.69	192.8	-3.8	-0.26
TK9URP		184.2	-12.6	-0.84	182.1	-14.4	-0.99
TRQ4FL	X	247.5	50.7	3.39	191.0	-5.5	-0.38
UD3MN7		209.2	12.4	0.83	221.2	24.7	1.69
UMEDT7		203.2	6.5	0.43	195.8	-0.7	-0.05
V2QDZG		170.7	-26.1	-1.75	179.5	-17.0	-1.17
VGHHZX		190.3	-6.5	-0.43	192.3	-4.2	-0.29
VQ9V8A		229.2	32.4	2.17	213.2	16.7	1.15
WHBLC6		202.0	5.2	0.35	185.0	-11.5	-0.79
WXNW3D		196.9	0.1	0.01	206.2	9.7	0.67
XMJ9LZ		224.0	27.2	1.82	220.0	23.5	1.61
XZBVV2		198.0	1.2	0.08	189.5	-7.0	-0.48
Y6W843		202.0	5.2	0.35	199.0	2.5	0.17
YMDCU2		179.7	-17.1	-1.15	204.0	7.5	0.51
YXD4WZ		194.4	-2.4	-0.16	179.8	-16.7	-1.14
Z7KZHH		191.0	-5.8	-0.39	182.0	-14.5	-1.00
ZR8RHE		195.8	-1.0	-0.07	196.5	0.0	0.00
ZV2N3Y		195.0	-1.8	-0.12	191.0	-5.5	-0.38

Grand Means		Summary Statistics	
	196.79 psi		196.51 psi
Std Dev Btwn Labs	14.94 psi		14.56 psi
Statistics based on 88 of 96 reporting participants			

Grand Means		Summary Statistics in SI Units	
	1.3568 MPa		1.35 MPa
Std Dev Btwn Labs	0.1030 MPa		0.10 MPa
Statistics based on 88 of 96 reporting participants			

Samples D11-D12: Polyisoprene compound, batch #1 & D13-D14: Polyisoprene compound, batch #2



## Rubber Interlaboratory Testing Program

### Analysis 608

#### Stress at 100% Elongation (psi)

---

Report #210

4th Qtr 2021

#### **Comments on Assigned Data Flags for Test #608**

4W4PCM (X) - Data for sample group D11-D12 are high.

9DD3ZL (M) - Missing data for sample D14.

F3T3MY (X) - Inconsistent in testing between samples.

GH2FG2 (X) - Data for all samples are very high.

HYJWYN (X) - Inconsistent in testing between samples.

KW9HME (X) - Data for all samples are low. Possible Systematic Error.

LFZ4KB (M) - Missing data for sample D11.

TRQ4FL (X) - Inconsistent in testing between samples. Data for sample group D11-D12 are high.

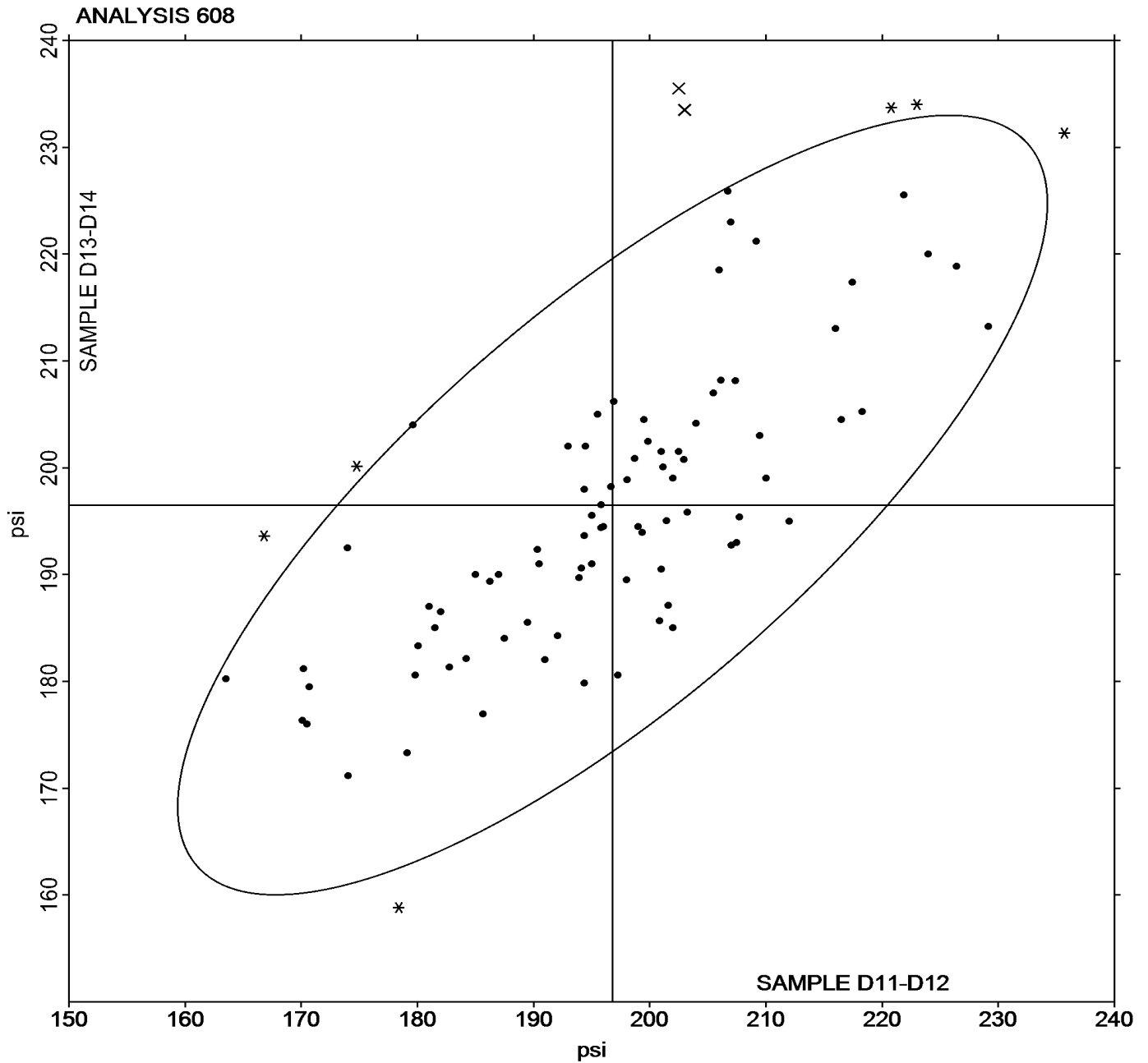


**Rubber Interlaboratory Testing Program**  
**Analysis 608**  
**Stress at 100% Elongation (psi)**

**Report #210**  
**4th Qtr 2021**

Grand Mean Sample **D11-D12** = 196.79 psi

Grand Mean Sample **D13-D14** = 196.51 psi







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

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample D11-D12			Sample D13-D14			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
344PCP		46.00	-2.38	-1.46	46.50	-1.80	-1.05	BT
3VE2GM		51.50	3.12	1.92	51.50	3.20	1.87	HH
42JX6T		46.50	-1.88	-1.16	46.00	-2.30	-1.34	BT
46GG7R		47.20	-1.18	-0.73	47.45	-0.85	-0.50	BT
46KY9W		47.10	-1.28	-0.79	47.20	-1.10	-0.64	BT
4BLDRC		47.05	-1.33	-0.82	47.15	-1.15	-0.67	BT
4KEQRC		49.00	0.62	0.38	48.50	0.20	0.12	BT
4RWXQ6		48.50	0.12	0.08	48.50	0.20	0.12	BT
4W4PCM		47.60	-0.78	-0.48	47.35	-0.95	-0.56	BT
6TJY8C		50.00	1.62	1.00	50.00	1.70	0.99	HH
7CV6UR		48.50	0.12	0.08	48.00	-0.30	-0.18	BT
7MTAJK	X	97.00	48.62	29.95	97.50	49.20	28.74	BT
7QC3YT		50.40	2.02	1.25	50.05	1.75	1.02	BT
7YKPQU		48.15	-0.23	-0.14	48.85	0.55	0.32	BT
87JGTV		49.15	0.77	0.48	48.30	0.00	0.00	BT
89QUE4		45.50	-2.88	-1.77	46.00	-2.30	-1.34	BT
8PV8RR		46.85	-1.53	-0.94	47.25	-1.05	-0.61	XX
92KMBK		50.00	1.62	1.00	50.00	1.70	0.99	HH
9CJDWT		49.90	1.52	0.94	50.30	2.00	1.17	BT
9DD3ZL		49.00	0.62	0.38	48.00	-0.30	-0.18	BT
9PPDLQ		49.70	1.32	0.81	49.60	1.30	0.76	XX
9Q2ATG		46.65	-1.73	-1.06	45.05	-3.25	-1.90	BT
9YFRT3		48.00	-0.38	-0.23	48.50	0.20	0.12	BT
AD89UL	X	44.45	-3.93	-2.42	46.65	-1.65	-0.96	BT
AMJ63X		48.50	0.12	0.08	48.00	-0.30	-0.18	HH
ARP2HR		46.50	-1.88	-1.16	45.00	-3.30	-1.93	HH
AX3NEH		47.00	-1.38	-0.85	48.00	-0.30	-0.18	BT
BJEYWQ		45.45	-2.93	-1.80	45.20	-3.10	-1.81	BT
BJGP6U		46.80	-1.58	-0.97	46.60	-1.70	-0.99	BT
BMF3QY		48.20	-0.18	-0.11	47.30	-1.00	-0.59	BT
BW32EJ	*	48.25	-0.13	-0.08	46.20	-2.10	-1.23	BT
BY7YNQ	*	47.00	-1.38	-0.85	49.00	0.70	0.41	HH
CD6Z6X		47.00	-1.38	-0.85	47.00	-1.30	-0.76	BT
CF9XBK		49.00	0.62	0.38	48.00	-0.30	-0.18	BT
CK6MRR		46.20	-2.18	-1.34	46.15	-2.15	-1.26	BT
CN4XNR		48.50	0.12	0.08	47.50	-0.80	-0.47	BT
DHYGUX	X	52.50	4.12	2.54	48.50	0.20	0.12	BT
DTUR34		48.75	0.37	0.23	49.30	1.00	0.58	BT



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

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample D11-D12			Sample D13-D14			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
E3ZPNM		49.00	0.62	0.38	48.50	0.20	0.12	BT
EAVYNJ		48.00	-0.38	-0.23	48.00	-0.30	-0.18	BT
EC38YP		49.00	0.62	0.38	50.00	1.70	0.99	HH
EEU7DN		50.35	1.97	1.21	49.75	1.45	0.85	BT
F3T3MY		49.00	0.62	0.38	49.00	0.70	0.41	HH
G4JPFE		51.05	2.67	1.65	51.95	3.65	2.13	BT
GH2FG2		50.00	1.62	1.00	49.50	1.20	0.70	BT
H2DKHJ		47.50	-0.88	-0.54	47.50	-0.80	-0.47	BT
H7JDCF		48.05	-0.33	-0.20	46.70	-1.60	-0.94	BT
HFUFXF		46.75	-1.63	-1.00	48.05	-0.25	-0.15	BT
HKLUEB		49.50	1.12	0.69	50.00	1.70	0.99	HH
HKNEAQ		49.55	1.17	0.72	50.05	1.75	1.02	BT
HPV3MR		48.50	0.12	0.08	48.05	-0.25	-0.15	BT
HWE7VU		48.60	0.22	0.14	48.60	0.30	0.17	BT
HYJWYN	X	52.65	4.27	2.63	55.50	7.20	4.21	BT
J2QFJH	*	52.00	3.62	2.23	53.00	4.70	2.74	HH
J7Y4RD		46.50	-1.88	-1.16	46.00	-2.30	-1.34	BT
J9RV6J		49.90	1.52	0.94	48.70	0.40	0.23	BT
JJ9D4H		47.50	-0.88	-0.54	47.50	-0.80	-0.47	BT
JJNX9D		51.75	3.37	2.08	51.00	2.70	1.58	HH
KBDU2E		46.50	-1.88	-1.16	46.70	-1.60	-0.94	BT
KBQNFU		47.00	-1.38	-0.85	47.50	-0.80	-0.47	BT
KJ6APX		47.10	-1.28	-0.79	46.35	-1.95	-1.14	BT
KRGB47		46.80	-1.58	-0.97	47.55	-0.75	-0.44	BT
KW9HME	X	49.00	0.62	0.38	46.50	-1.80	-1.05	BT
KWN28C		49.00	0.62	0.38	48.00	-0.30	-0.18	BT
L2HHWC		47.00	-1.38	-0.85	46.50	-1.80	-1.05	BT
LAAQMU		47.80	-0.58	-0.36	46.80	-1.50	-0.88	BT
LFZ4KB		49.00	0.62	0.38	49.50	1.20	0.70	HH
LQK9WG		47.50	-0.88	-0.54	46.50	-1.80	-1.05	BT
MKN4FH		48.45	0.07	0.04	47.50	-0.80	-0.47	BT
ML7WE8		49.10	0.72	0.44	49.75	1.45	0.85	BT
MRAYGL		48.85	0.47	0.29	49.20	0.90	0.52	HH
N2UPGJ		49.50	1.12	0.69	48.50	0.20	0.12	HH
N37LNA		45.85	-2.53	-1.56	45.70	-2.60	-1.52	BT
NBFTNJ		49.80	1.42	0.88	50.75	2.45	1.43	BT
NKMP9F		45.15	-3.23	-1.99	45.30	-3.00	-1.75	BT



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

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample D11-D12			Sample D13-D14			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
PEWHNL		51.00	2.62	1.62	50.50	2.20	1.28	BT
PNJHX6		49.25	0.87	0.54	48.60	0.30	0.17	BT
QQ23HY		48.00	-0.38	-0.23	49.00	0.70	0.41	HH
R9E4P7		48.50	0.12	0.08	48.50	0.20	0.12	BT
RCJMWE		50.00	1.62	1.00	49.50	1.20	0.70	BT
RDVLQN	X	43.50	-4.88	-3.00	45.00	-3.30	-1.93	BT
RL8HUA		50.00	1.62	1.00	50.00	1.70	0.99	HH
RM32YG		47.00	-1.38	-0.85	46.50	-1.80	-1.05	BT
RYWFYD		49.00	0.62	0.38	48.70	0.40	0.23	HH
T3N4VB		45.50	-2.88	-1.77	45.50	-2.80	-1.64	BT
T3PYEG		49.45	1.07	0.66	49.70	1.40	0.82	BT
T9X8X7		49.50	1.12	0.69	50.00	1.70	0.99	HH
TD9F7N		49.00	0.62	0.38	49.00	0.70	0.41	BT
TK9URP		50.00	1.62	1.00	50.00	1.70	0.99	BT
TRQ4FL		49.00	0.62	0.38	49.00	0.70	0.41	HH
UBW3VZ		47.95	-0.43	-0.26	47.65	-0.65	-0.38	BT
UD3MN7		46.00	-2.38	-1.46	46.50	-1.80	-1.05	BT
UMEDT7		48.10	-0.28	-0.17	48.20	-0.10	-0.06	BT
UTKB2B		49.00	0.62	0.38	49.50	1.20	0.70	BT
V2QDZG		47.00	-1.38	-0.85	47.00	-1.30	-0.76	BT
VGHHZX		47.50	-0.88	-0.54	49.00	0.70	0.41	HH
VQ9V8A		48.50	0.12	0.08	47.40	-0.90	-0.53	BT
WHBLC6		47.00	-1.38	-0.85	48.50	0.20	0.12	BT
WXNW3D		46.75	-1.63	-1.00	46.75	-1.55	-0.91	HH
XMJ9LZ		52.00	3.62	2.23	51.50	3.20	1.87	BT
XZBVV2		50.00	1.62	1.00	50.00	1.70	0.99	BT
Y6W843	*	53.00	4.62	2.85	53.50	5.20	3.04	HH
YMDCU2		47.30	-1.08	-0.66	48.05	-0.25	-0.15	BT
YXD4WZ	X	54.50	6.12	3.77	53.50	5.20	3.04	HH
Z7KZHH		48.50	0.12	0.08	48.00	-0.30	-0.18	BT
ZR8RHE		52.05	3.67	2.26	51.15	2.85	1.66	BT
ZV2N3Y		47.00	-1.38	-0.85	47.00	-1.30	-0.76	BT
ZZDENU		47.00	-1.38	-0.85	47.00	-1.30	-0.76	HH



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

**Report #210**  
**4th Qtr 2021**

		Summary Statistics	
Grand Means	48.378 Type A	48.301 Type A	
Stnd Dev Btwn Labs	1.623 Type A	1.712 Type A	
Statistics based on 101 of 108 reporting participants			

Samples D11-D12: Polyisoprene compound, batch #1 & D13-D14: Polyisoprene compound, batch #2

**Comments on Assigned Data Flags for Test #620**

- 7MTAJK (X) - Data for all samples are very high.
- AD89UL (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group D11-D12.
- DHYGUX (X) - Inconsistent in testing between samples.
- HYJWYN (X) - Data for sample group D13-D14 are high.
- KW9HME (X) - Inconsistent in testing between samples.
- RDVLQN (X) - Data for sample group D11-D12 are low.
- YXD4WZ (X) - Data for all samples are high. Possible Systematic Error.

**Key to Instrument Codes Reported by Participants**

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

**Results by Reading Time (as reported by laboratory)**

Reading Time	Sample D11-D12 <i>Polyisoprene compound, batch #1</i>			Sample D13-D14 <i>Polyisoprene compound, batch #2</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Reading time not reported	46.85	0.00	-1.53	47.25	0.00	-1.05	1	1
Readings taken within 0 - 5 seconds	48.66	1.45	0.28	48.55	1.48	0.25	67	73
Readings taken at 5 seconds	46.74	1.00	-1.64	46.68	1.02	-1.63	10	10
Readings taken after 5+ seconds	46.94	1.34	-1.44	46.94	1.28	-1.36	7	9
Maximum hardness indicator used	48.60	1.31	0.22	48.43	1.64	0.12	12	15

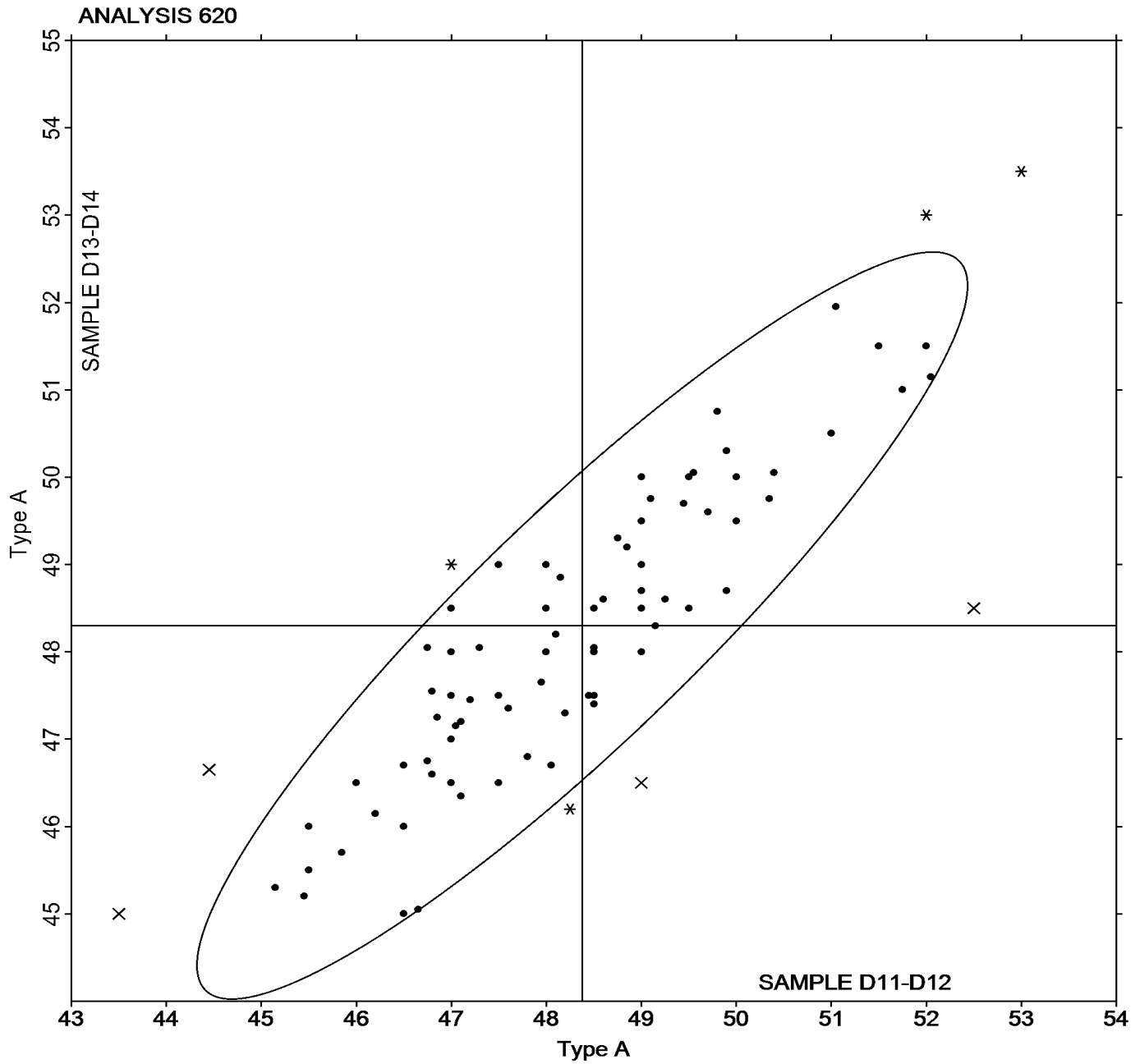


Rubber Interlaboratory Testing Program  
Analysis 620  
Hardness (Shore A/Type A)

Report #210  
4th Qtr 2021

Grand Mean Sample **D11-D12** = 48.378 Type A

Grand Mean Sample **D13-D14** = 48.301 Type A





**Rubber Interlaboratory Testing Program**  
**Analysis 621**  
**Density**

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample D11-D12			Sample D13-D14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3VE2GM		1.141	0.007	2.20	1.142	0.008	2.24
42JX6T	X	1.132	-0.002	-0.51	1.141	0.007	1.86
46GG7R		1.136	0.003	0.77	1.138	0.004	1.11
46KY9W	*	1.131	-0.003	-0.81	1.127	-0.007	-1.94
4KEQRC		1.129	-0.004	-1.34	1.130	-0.004	-1.00
4RWXQ6		1.134	0.000	0.09	1.135	0.001	0.17
6TJY8C	*	1.128	-0.006	-1.86	1.124	-0.010	-2.83
7CV6UR		1.134	0.000	0.09	1.133	-0.001	-0.26
7MTAJK		1.130	-0.004	-1.11	1.130	-0.004	-1.10
7QC3YT		1.130	-0.004	-1.25	1.130	-0.004	-1.20
7YKPQU		1.133	-0.001	-0.24	1.136	0.002	0.52
87JGTV		1.133	-0.001	-0.21	1.134	0.000	-0.11
89QUE4		1.132	-0.002	-0.66	1.133	-0.001	-0.26
92KMBK		1.138	0.004	1.14	1.137	0.003	0.87
9CJDWT		1.134	0.000	0.09	1.133	-0.001	-0.26
9DD3ZL	*	1.135	0.001	0.39	1.140	0.006	1.72
9PPDLQ		1.133	-0.001	-0.21	1.133	-0.001	-0.26
9Q2ATG		1.127	-0.006	-1.94	1.128	-0.006	-1.55
9YFRT3		1.137	0.004	1.07	1.135	0.001	0.31
AMJ63X		1.130	-0.003	-0.97	1.132	-0.002	-0.45
AX3NEH		1.134	0.000	-0.06	1.134	0.000	-0.11
BJEYWQ		1.131	-0.003	-0.88	1.132	-0.002	-0.61
BMF3QY		1.136	0.002	0.71	1.135	0.001	0.27
BY7YNQ		1.130	-0.004	-1.11	1.131	-0.003	-0.96
CD6Z6X		1.133	-0.001	-0.36	1.134	0.000	-0.11
CF9XBK		1.130	-0.004	-1.26	1.131	-0.003	-0.82
DTUR34		1.139	0.005	1.46	1.138	0.004	1.21
E3ZPNM		1.138	0.004	1.28	1.139	0.005	1.32
EC38YP		1.133	-0.001	-0.36	1.129	-0.005	-1.38
ETB4HN		1.137	0.003	0.84	1.138	0.004	1.01
F3T3MY	X	1.118	-0.016	-4.72	1.120	-0.014	-3.93
G4JPFE	X	1.126	-0.008	-2.31	1.121	-0.013	-3.78
GH2FG2		1.139	0.006	1.66	1.138	0.004	1.14
H2DKHJ		1.135	0.001	0.24	1.135	0.001	0.31
H7JDCF		1.137	0.003	0.99	1.137	0.003	0.87
HKLUEB		1.135	0.001	0.39	1.136	0.002	0.45
HKNEAQ		1.135	0.001	0.36	1.135	0.001	0.27
HPV3MR	*	1.129	-0.005	-1.56	1.133	-0.001	-0.26



**Rubber Interlaboratory Testing Program**  
**Analysis 621**  
**Density**

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample D11-D12			Sample D13-D14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
J2QFJH		1.136	0.003	0.78	1.136	0.002	0.53
J7Y4RD	X	1.131	-0.003	-0.81	1.141	0.007	1.86
J9RV6J		1.133	-0.001	-0.21	1.135	0.001	0.31
JJ9D4H		1.135	0.001	0.24	1.135	0.001	0.17
KBQNFU		1.133	-0.001	-0.36	1.136	0.002	0.45
KJ6APX		1.134	0.000	-0.06	1.136	0.002	0.59
KRGB47		1.138	0.004	1.17	1.134	0.000	0.03
KW9HME	*	1.138	0.004	1.14	1.142	0.008	2.14
KWN28C		1.138	0.004	1.14	1.138	0.004	1.15
L2HHWC		1.134	0.000	-0.06	1.133	-0.001	-0.26
LAAQMU		1.131	-0.003	-0.96	1.133	-0.001	-0.40
LFZ4KB		1.140	0.007	1.99	1.140	0.006	1.69
LQK9WG		1.135	0.001	0.39	1.137	0.003	0.87
MKN4FH		1.132	-0.002	-0.46	1.135	0.001	0.17
ML7WE8		1.141	0.007	2.05	1.141	0.007	2.00
MRAYGL		1.129	-0.004	-1.32	1.126	-0.008	-2.11
N2UPGJ		1.130	-0.004	-1.26	1.130	-0.004	-1.24
NBFTNJ		1.130	-0.004	-1.26	1.130	-0.004	-1.16
PEWHNL		1.133	-0.001	-0.21	1.134	0.000	-0.04
PNJHX6	X	1.147	0.013	3.85	1.147	0.013	3.69
R9E4P7		1.138	0.004	1.14	1.137	0.003	0.73
RCJMWE		1.132	-0.002	-0.57	1.133	-0.001	-0.34
RDVLQN		1.133	-0.001	-0.36	1.130	-0.004	-1.10
RM32YG		1.136	0.002	0.54	1.136	0.002	0.51
RYWFYD		1.133	-0.001	-0.31	1.132	-0.002	-0.48
T3PYEG		1.135	0.001	0.39	1.135	0.001	0.25
TD9F7N		1.132	-0.002	-0.57	1.133	-0.001	-0.38
TRQ4FL	X	1.115	-0.019	-5.63	1.107	-0.027	-7.70
UBW3VZ		1.140	0.006	1.88	1.139	0.005	1.41
UD3MN7		1.133	-0.001	-0.25	1.132	-0.002	-0.66
UMEDT7		1.136	0.002	0.63	1.135	0.001	0.39
V2QDZG		1.130	-0.004	-1.22	1.131	-0.003	-0.86
VGHHZX		1.136	0.002	0.54	1.134	0.000	-0.11
VQ9V8A		1.134	0.000	-0.04	1.134	0.000	-0.11
XMJ9LZ		1.136	0.002	0.69	1.136	0.002	0.59
XZBVV2	*	1.126	-0.008	-2.40	1.128	-0.005	-1.54
Y6W843		1.133	-0.001	-0.33	1.131	-0.003	-0.82



**Rubber Interlaboratory Testing Program**  
**Analysis 621**  
**Density**

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample D11-D12			Sample D13-D14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
YMDCU2		1.133	-0.001	-0.34	1.131	-0.003	-0.89
Z7KZHH		1.136	0.002	0.62	1.136	0.002	0.59
ZR8RHE		1.133	-0.001	-0.36	1.134	0.000	0.03
ZZDENU		1.134	0.000	-0.06	1.133	-0.001	-0.40

Summary Statistics			
Grand Means	1.1337	g/cm <sup>3</sup> (Mg/m <sup>3</sup> )	1.1339
			g/cm <sup>3</sup> (Mg/m <sup>3</sup> )
Stnd Dev Btwn Labs	0.0033	g/cm <sup>3</sup> (Mg/m <sup>3</sup> )	0.0036
			g/cm <sup>3</sup> (Mg/m <sup>3</sup> )
Statistics based on 73 of 79 reporting participants			

Samples D11-D12: Polyisoprene compound, batch #1 & D13-D14: Polyisoprene compound, batch #2

**Comments on Assigned Data Flags for Test #621**

- 42JX6T (X) - Inconsistent in testing between samples.
- F3T3MY (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of sample group D13-D14.
- G4JPFE (X) - Data for sample group D13-D14 are low. Inconsistent within the determinations of sample group D11-D12.
- J7Y4RD (X) - Inconsistent in testing between samples.
- PNJHX6 (X) - Data for all samples are high. Possible Systematic Error.
- TRQ4FL (X) - Data for all samples are low. Possible Systematic Error.



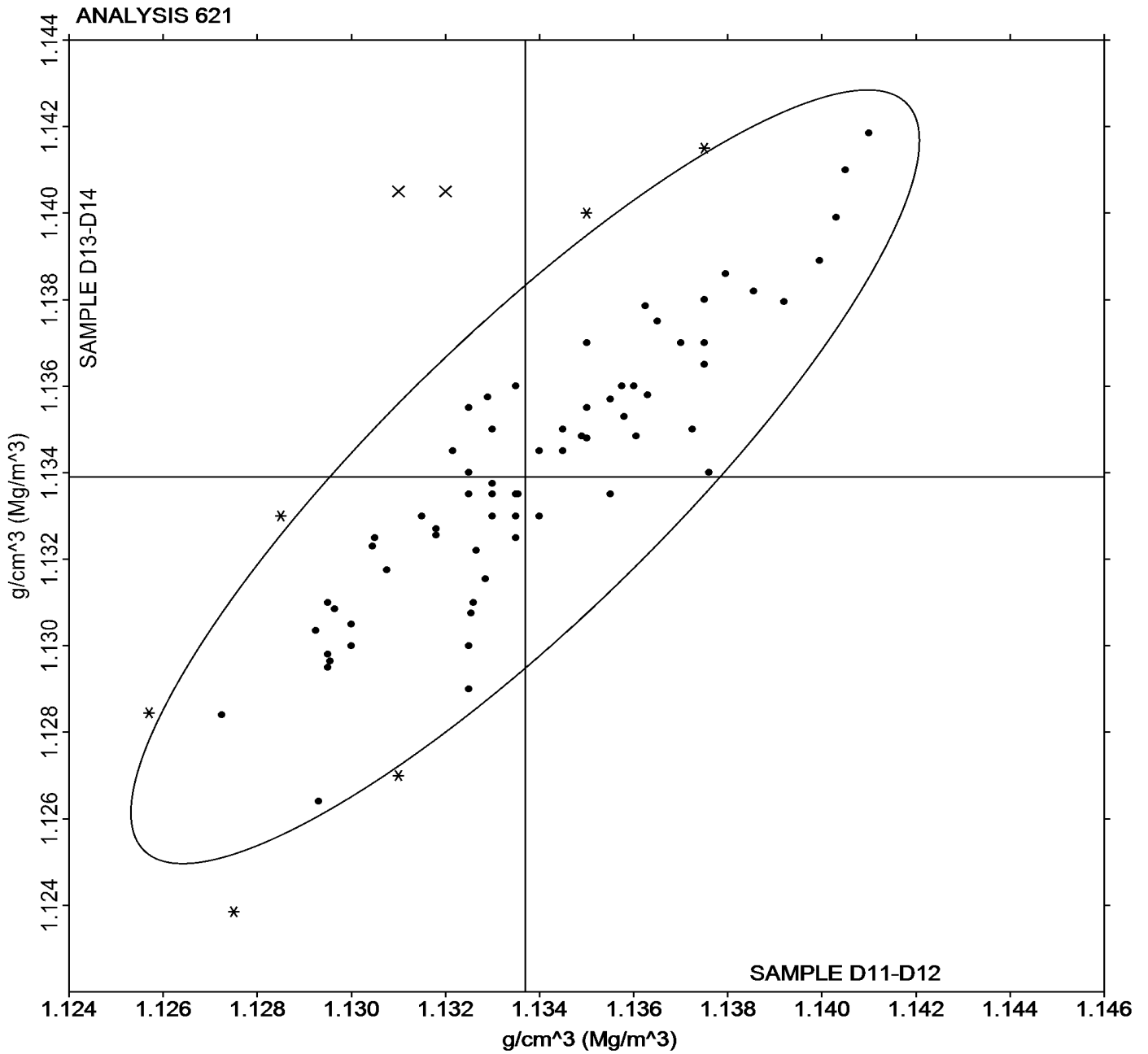


Rubber Interlaboratory Testing Program  
Analysis 621  
Density

Report #210  
4th Qtr 2021

Grand Mean Sample **D11-D12** = 1.1337 g/cm<sup>3</sup>  
(Mg/m<sup>3</sup>)

Grand Mean Sample **D13-D14** = 1.1339 g/cm<sup>3</sup>  
(Mg/m<sup>3</sup>)





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

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample HD11-HD12			Sample HD13-HD14			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2C4T2V		76.50	0.95	0.34	86.00	2.34	1.26	BT
42JX6T		71.00	-4.55	-1.63	80.00	-3.66	-1.98	BT
46KY9W		72.20	-3.35	-1.20	83.05	-0.61	-0.33	BT
4W4PCM		74.90	-0.65	-0.23	82.05	-1.61	-0.87	BT
7MTAJK		71.00	-4.55	-1.63	81.00	-2.66	-1.44	BT
7YKPQU		74.30	-1.25	-0.45	83.30	-0.36	-0.20	BT
8U8BHU		75.00	-0.55	-0.20	83.00	-0.66	-0.36	BT
9PR3QN		74.40	-1.15	-0.41	82.10	-1.56	-0.84	BT
9RWTUH		81.75	6.20	2.21	87.00	3.34	1.80	BT
BMF3QY		74.00	-1.55	-0.56	82.85	-0.81	-0.44	BT
CQUZVZ		81.50	5.95	2.13	86.00	2.34	1.26	BT
DYFMXG		74.00	-1.55	-0.56	82.50	-1.16	-0.63	HH
EC38YP	*	83.00	7.45	2.66	89.00	5.34	2.88	HH
FE4KCG	X	72.00	-3.55	-1.27	77.50	-6.16	-3.33	BT
G7PB7Y		76.80	1.25	0.45	85.40	1.74	0.94	HH
GH2FG2		77.00	1.45	0.52	83.00	-0.66	-0.36	BT
HD2LYQ		75.00	-0.55	-0.20	83.00	-0.66	-0.36	HH
HFUFXF		74.15	-1.40	-0.50	82.85	-0.81	-0.44	BT
J2QFJH		76.50	0.95	0.34	85.00	1.34	0.72	HH
JFA4TF		78.00	2.45	0.87	84.00	0.34	0.18	BT
KTUXLL		77.00	1.45	0.52	85.50	1.84	0.99	HH
LE96BJ		73.60	-1.95	-0.70	83.70	0.04	0.02	BT
LFZ4KB		75.50	-0.05	-0.02	83.00	-0.66	-0.36	HH
M4HND3		75.00	-0.55	-0.20	84.00	0.34	0.18	XX
NBD9T3		73.70	-1.85	-0.66	83.05	-0.61	-0.33	BT
PBBXA6		75.00	-0.55	-0.20	83.00	-0.66	-0.36	HH
PQN24D		77.85	2.30	0.82	85.05	1.39	0.75	HH
RDVLQN		76.00	0.45	0.16	83.00	-0.66	-0.36	BT
TK9URP		75.50	-0.05	-0.02	84.00	0.34	0.18	XX
U7Q8G7		76.05	0.50	0.18	83.60	-0.06	-0.03	BT
V6RL37		74.00	-1.55	-0.56	84.00	0.34	0.18	XX
XMJ9LZ		72.00	-3.55	-1.27	80.50	-3.16	-1.71	BT



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

**Report #210**  
**4th Qtr 2021**

		Summary Statistics	
Grand Means	75.555 Type D	83.661 Type D	
Stnd Dev Btwn Labs	2.798 Type D	1.852 Type D	
Statistics based on 31 of 32 reporting participants			

Samples HD11-HD12: Hardness Disc, batch #1 & HD13-HD14: Hardness Disc, batch #2

**Comments on Assigned Data Flags for Test #625**

FE4KCG (X) - Data for sample group HD13-HD14 are low. Inconsistent within the determinations of sample group HD13-HD14.

**Key to Instrument Codes Reported by Participants**

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

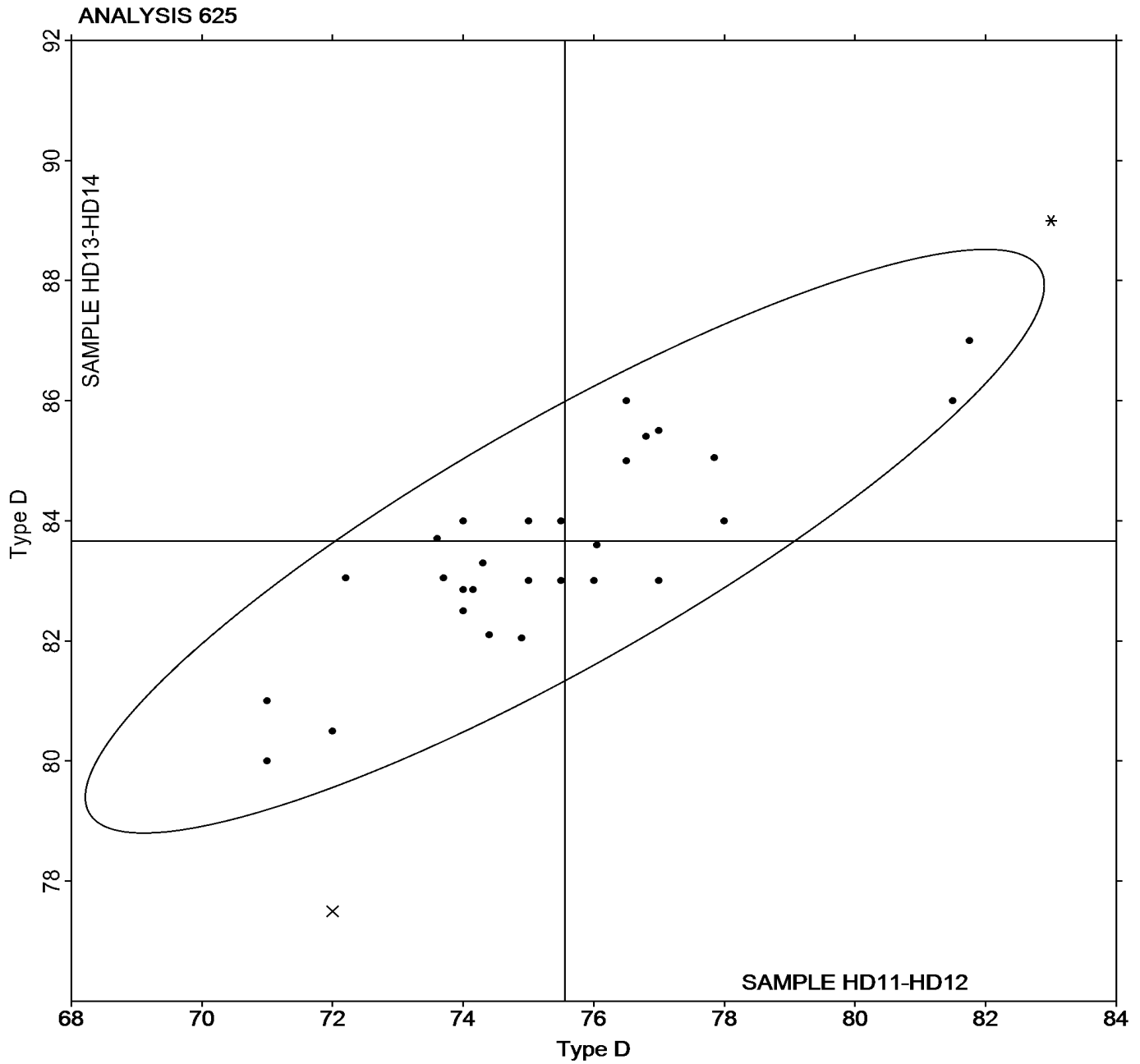


Rubber Interlaboratory Testing Program  
Analysis 625  
Hardness (Shore D/Type D)

Report #210  
4th Qtr 2021

Grand Mean Sample **HD11-HD12** = 75.555 Type D

Grand Mean Sample **HD13-HD14** = 83.661 Type D





# Rubber Interlaboratory Testing Program

Report #210

## Analysis 630

4th Qtr 2021

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

WebCode	Data Flag	Sample D11-D12			Sample M11-M12		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3VE2GM		3,088.9	1.0	0.01	2,939.2	46.4	0.19
4BLDRC		2,968.5	-119.4	-0.72	2,759.0	-133.8	-0.54
4RWXQ6		3,022.0	-65.9	-0.40	2,890.0	-2.8	-0.01
92KMBK		3,137.0	49.1	0.30	2,989.0	96.2	0.39
9DD3ZL		3,023.0	-64.9	-0.39	2,975.0	82.2	0.33
9Q2ATG		2,958.9	-129.0	-0.78	2,963.6	70.8	0.29
AMJ63X		3,263.6	175.6	1.06	3,054.9	162.1	0.66
ARP2HR	X	3,827.7	739.8	4.47	3,736.7	843.9	3.42
BJEYWQ		3,392.7	304.8	1.84	3,001.7	108.9	0.44
BMF3QY		2,923.3	-164.7	-1.00	2,720.9	-171.9	-0.70
DHYGUX		3,073.0	-14.9	-0.09	2,863.0	-29.8	-0.12
G4JPFE		3,159.5	71.6	0.43	3,126.0	233.2	0.94
GH2FG2		2,870.5	-217.5	-1.31	2,795.1	-97.7	-0.40
HFUFXF		2,821.0	-266.9	-1.61	2,770.2	-122.6	-0.50
HKLUEB		3,055.0	-32.9	-0.20	3,240.0	347.2	1.41
HPV3MR		3,321.4	233.4	1.41	3,140.1	247.3	1.00
J9RV6J		3,082.1	-5.9	-0.04	2,937.0	44.2	0.18
KRGB47		3,018.0	-69.9	-0.42	3,129.0	236.2	0.96
MKN4FH		3,042.2	-45.7	-0.28	2,982.7	89.9	0.36
ML7WE8		3,286.5	198.6	1.20	3,180.5	287.7	1.16
N2UPGJ		3,158.7	70.7	0.43	2,947.8	55.0	0.22
NBFTNJ		3,231.5	143.6	0.87	2,685.8	-207.0	-0.84
PNJHX6		3,288.0	200.1	1.21	3,120.5	227.7	0.92
QQ23HY		2,720.9	-367.0	-2.22	2,308.3	-584.5	-2.37
R9E4P7	*	3,291.7	203.7	1.23	2,449.0	-443.8	-1.80
RCJMWE		3,266.9	178.9	1.08	3,231.4	338.6	1.37
RDVLQN		3,002.5	-85.4	-0.52	2,922.5	29.7	0.12
RYWFYD		3,117.8	29.8	0.18	2,859.2	-33.7	-0.14
T3PYEG		3,208.4	120.4	0.73	3,111.5	218.7	0.89
V2QDZG		2,937.9	-150.1	-0.91	2,599.8	-293.0	-1.19
VGHHZX	*	2,770.0	-317.9	-1.92	2,225.0	-667.8	-2.70
Y6W843		3,165.5	77.6	0.47	2,952.0	59.2	0.24
YMDCU2		3,147.6	59.7	0.36	2,699.9	-193.0	-0.78



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

**Report #210**  
**4th Qtr 2021**

		Summary Statistics	
Grand Means	3,087.95 psi		2,892.80 psi
Stnd Dev Btwn Labs	165.43 psi		247.06 psi
Statistics based on 32 of 33 reporting participants			

		Summary Statistics in SI Units	
Grand Means	21.290 MPa		19.94 MPa
Stnd Dev Btwn Labs	1.141 MPa		1.70 MPa
Statistics based on 32 of 33 reporting participants			

Samples D11-D12: Polyisoprene compound, batch #1 & M11-M12: Polyisoprene compound, batch #1

**Comments on Assigned Data Flags for Test #630**

ARP2HR (X) - Data for all Samples are high. Possible systematic error.

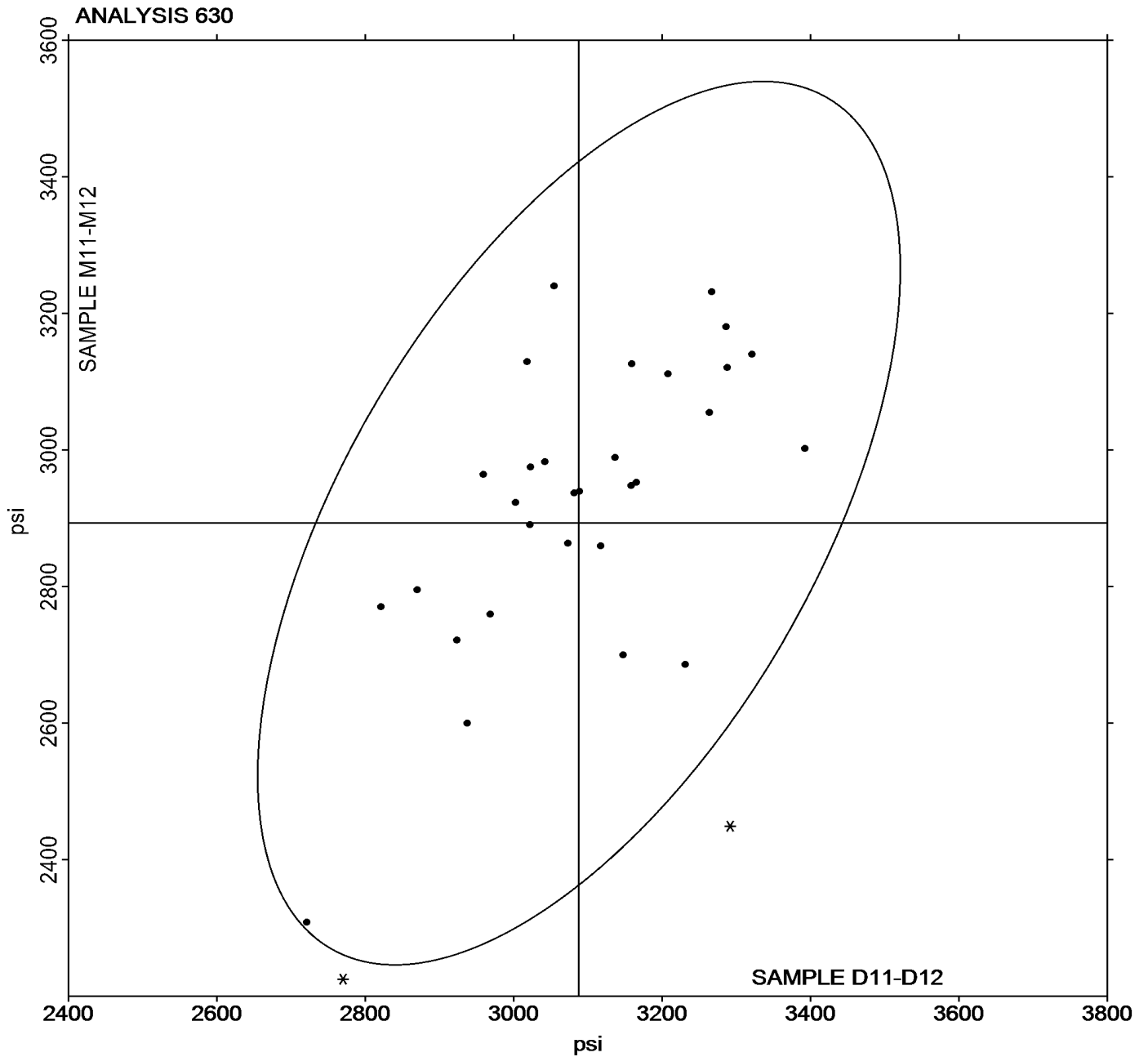


**Rubber Interlaboratory Testing Program**  
**Analysis 630**  
**Tensile Strength: Precured vs. Lab-Cured Samples (psi)**

**Report #210**  
**4th Qtr 2021**

Grand Mean Sample **D11-D12** = 3,087.95 psi

Grand Mean Sample **M11-M12** = 2,892.80 psi





# Rubber Interlaboratory Testing Program

Report #210

## Analysis 631

4th Qtr 2021

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

WebCode	Data Flag	Sample D11-D12			Sample M11-M12		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3VE2GM		593.6	-38.6	-0.94	550.9	-42.9	-1.19
4BLDRC		606.4	-25.8	-0.63	555.4	-38.5	-1.07
4RWXQ6		638.0	5.8	0.14	582.0	-11.8	-0.33
92KMBK		610.0	-22.2	-0.54	567.5	-26.3	-0.73
9DD3ZL		626.0	-6.2	-0.15	571.5	-22.3	-0.62
9Q2ATG		645.0	12.8	0.31	623.0	29.2	0.81
AMJ63X		628.0	-4.2	-0.10	591.0	-2.8	-0.08
ARP2HR		673.5	41.3	1.00	670.7	76.8	2.13
BJEYWQ		653.5	21.4	0.52	598.6	4.8	0.13
BMF3QY	*	509.5	-122.7	-2.98	507.2	-86.7	-2.41
DHYGUX		621.5	-10.7	-0.26	579.0	-14.8	-0.41
G4JPFE		621.5	-10.7	-0.26	598.5	4.7	0.13
GH2FG2	X	301.1	-331.1	-8.03	280.7	-313.2	-8.70
HFUFXF		623.1	-9.1	-0.22	573.2	-20.6	-0.57
HKLUEB		633.0	0.8	0.02	608.5	14.7	0.41
HPV3MR		635.5	3.3	0.08	603.0	9.2	0.25
J9RV6J		628.0	-4.2	-0.10	605.0	11.2	0.31
KRGB47		707.5	75.3	1.83	657.0	63.2	1.75
MKN4FH		620.8	-11.3	-0.28	599.1	5.2	0.14
ML7WE8		640.0	7.8	0.19	611.5	17.7	0.49
N2UPGJ	X	2,267.0	1,634.8	39.66	583.5	-10.4	-0.29
NBFTNJ		699.0	66.8	1.62	636.0	42.2	1.17
PNJHX6		696.0	63.8	1.55	653.0	59.2	1.64
QQ23HY		615.0	-17.2	-0.42	581.0	-12.8	-0.36
R9E4P7		664.9	32.7	0.79	613.5	19.7	0.55
RCJMWE		627.9	-4.3	-0.10	594.2	0.3	0.01
RDVLQN	*	546.0	-86.2	-2.09	564.5	-29.3	-0.82
RYWFYD		660.8	28.6	0.69	611.1	17.2	0.48
T3PYEG		651.5	19.3	0.47	617.5	23.7	0.66
V2QDZG		644.1	12.0	0.29	603.2	9.4	0.26
VGHHZX	X	682.0	49.8	1.21	549.0	-44.8	-1.25
Y6W843		577.5	-54.7	-1.33	525.5	-68.3	-1.90
YMDCU2	*	668.0	35.8	0.87	563.5	-30.3	-0.84





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

		Summary Statistics	
Grand Means	632.16 percent		593.85 percent
Stnd Dev Btwn Labs	41.22 percent		36.01 percent
Statistics based on 30 of 33 reporting participants			

Samples D11-D12: Polyisoprene compound, batch #1 & M11-M12: Polyisoprene compound, batch #1

**Comments on Assigned Data Flags for Test #631**

GH2FG2 (X) - Data for all samples are low. Possible Systematic Error.

N2UPGJ (X) - Extreme Data for sample group D11-D12.

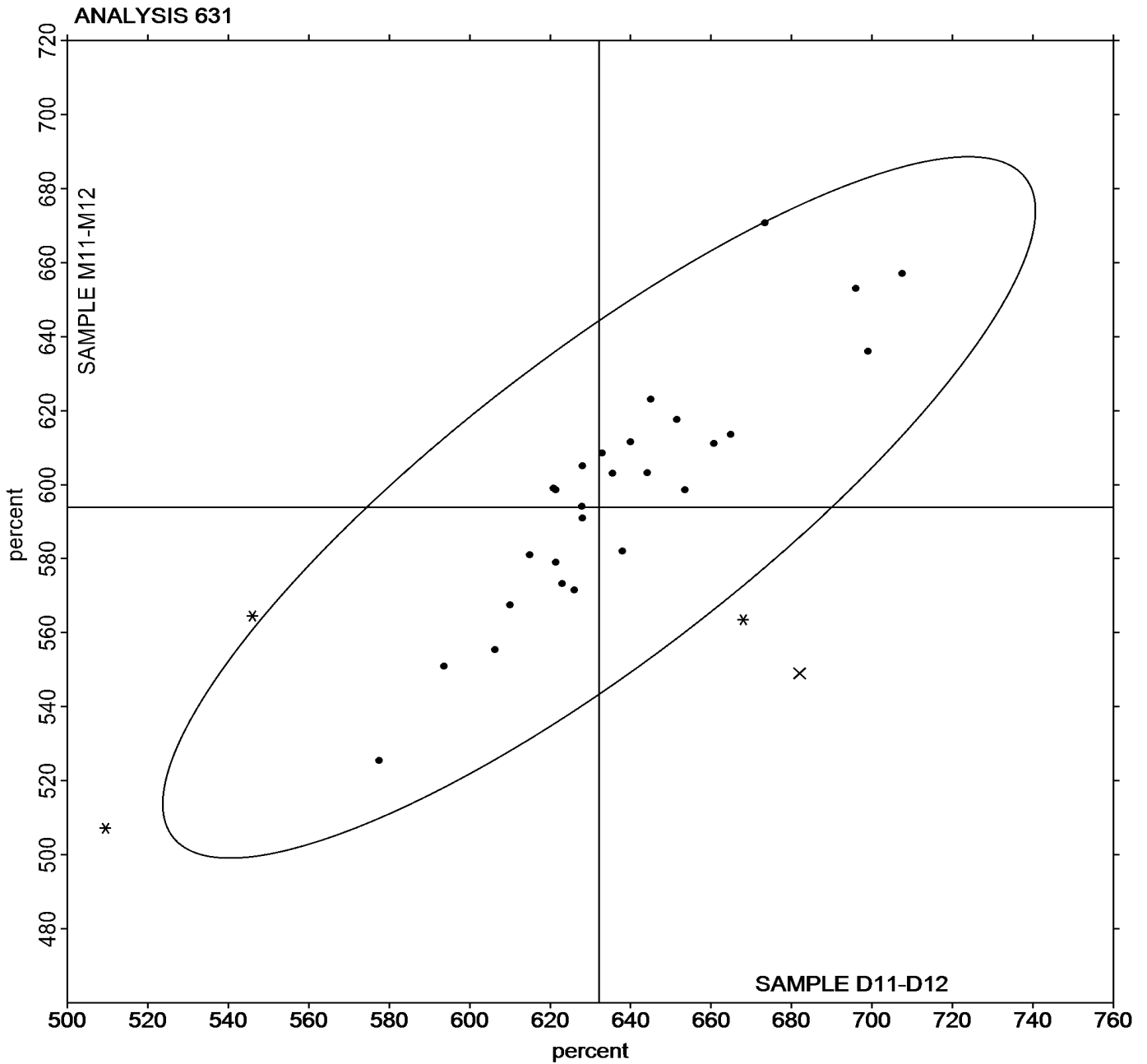
VGHHZX (X) - Inconsistent in testing between samples.



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

Grand Mean Sample D11-D12 = 632.16 percent

Grand Mean Sample M11-M12 = 593.85 percent





# Rubber Interlaboratory Testing Program

Report #210

## Analysis 632

4th Qtr 2021

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

WebCode	Data Flag	Sample D11-D12			Sample M11-M12		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3VE2GM		965.2	106.6	1.10	952.7	33.4	0.32
4BLDRC		886.7	28.0	0.29	979.4	60.1	0.57
4RWXQ6		772.5	-86.1	-0.89	879.0	-40.3	-0.38
92KMBK		869.5	10.9	0.11	1,025.0	105.7	1.01
9DD3ZL		817.5	-41.1	-0.42	1,019.0	99.7	0.95
9Q2ATG		809.4	-49.2	-0.51	896.3	-23.1	-0.22
AMJ63X		913.0	54.4	0.56	939.0	19.7	0.19
ARP2HR		1,016.5	157.9	1.63	1,045.4	126.0	1.20
BJEYWQ		891.8	33.2	0.34	930.1	10.8	0.10
BMF3QY	*	1,137.1	278.5	2.87	1,094.3	175.0	1.67
DHYGUX		790.5	-68.1	-0.70	866.5	-52.8	-0.50
G4JPFE		901.0	42.4	0.44	1,008.0	88.7	0.84
GH2FG2	X	2,951.0	2,092.4	21.55	2,808.9	1,889.5	17.98
HFUFXF		808.6	-50.0	-0.52	952.9	33.6	0.32
HKLUEB		828.5	-30.1	-0.31	1,007.8	88.4	0.84
HPV3MR		862.3	3.6	0.04	940.6	21.2	0.20
J9RV6J		900.0	41.3	0.43	904.3	-15.0	-0.14
KRGB47		676.0	-182.6	-1.88	797.5	-121.8	-1.16
MKN4FH		863.8	5.2	0.05	871.8	-47.6	-0.45
ML7WE8		863.0	4.4	0.05	894.5	-24.8	-0.24
N2UPGJ		937.3	78.7	0.81	944.1	24.7	0.24
NBFTNJ		739.7	-119.0	-1.23	743.9	-175.5	-1.67
PNJHX6		760.0	-98.6	-1.02	842.5	-76.8	-0.73
QQ23HY		821.6	-37.0	-0.38	715.0	-204.3	-1.94
R9E4P7		810.8	-47.9	-0.49	701.3	-218.1	-2.08
RCJMWE		933.0	74.4	0.77	1,043.3	123.9	1.18
RDVLQN		1,003.5	144.9	1.49	913.5	-5.8	-0.06
RYWFYD		815.4	-43.2	-0.45	935.9	16.5	0.16
T3PYEG		787.6	-71.0	-0.73	903.7	-15.6	-0.15
V2QDZG		752.5	-106.1	-1.09	786.6	-132.7	-1.26
VGHHZX		745.1	-113.5	-1.17	775.1	-144.2	-1.37
Y6W843		1,004.5	145.9	1.50	1,131.0	211.7	2.01
YMDCU2		792.1	-66.5	-0.69	979.0	59.7	0.57



# Rubber Interlaboratory Testing Program

Report #210

## Analysis 632

4th Qtr 2021

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

		Summary Statistics	
Grand Means	858.62 psi	919.34 psi	
Stnd Dev Btwn Labs	97.11 psi	105.08 psi	
Statistics based on 32 of 33 reporting participants			

		Summary Statistics in SI Units	
Grand Means	5.9199 MPa	6.34 MPa	
Stnd Dev Btwn Labs	0.6695 MPa	0.72 MPa	
Statistics based on 32 of 33 reporting participants			

Samples D11-D12: Polyisoprene compound, batch #1 & M11-M12: Polyisoprene compound, batch #1

#### Comments on Assigned Data Flags for Test #632

GH2FG2 (X) - Extreme Data.



# Rubber Interlaboratory Testing Program

Report #210

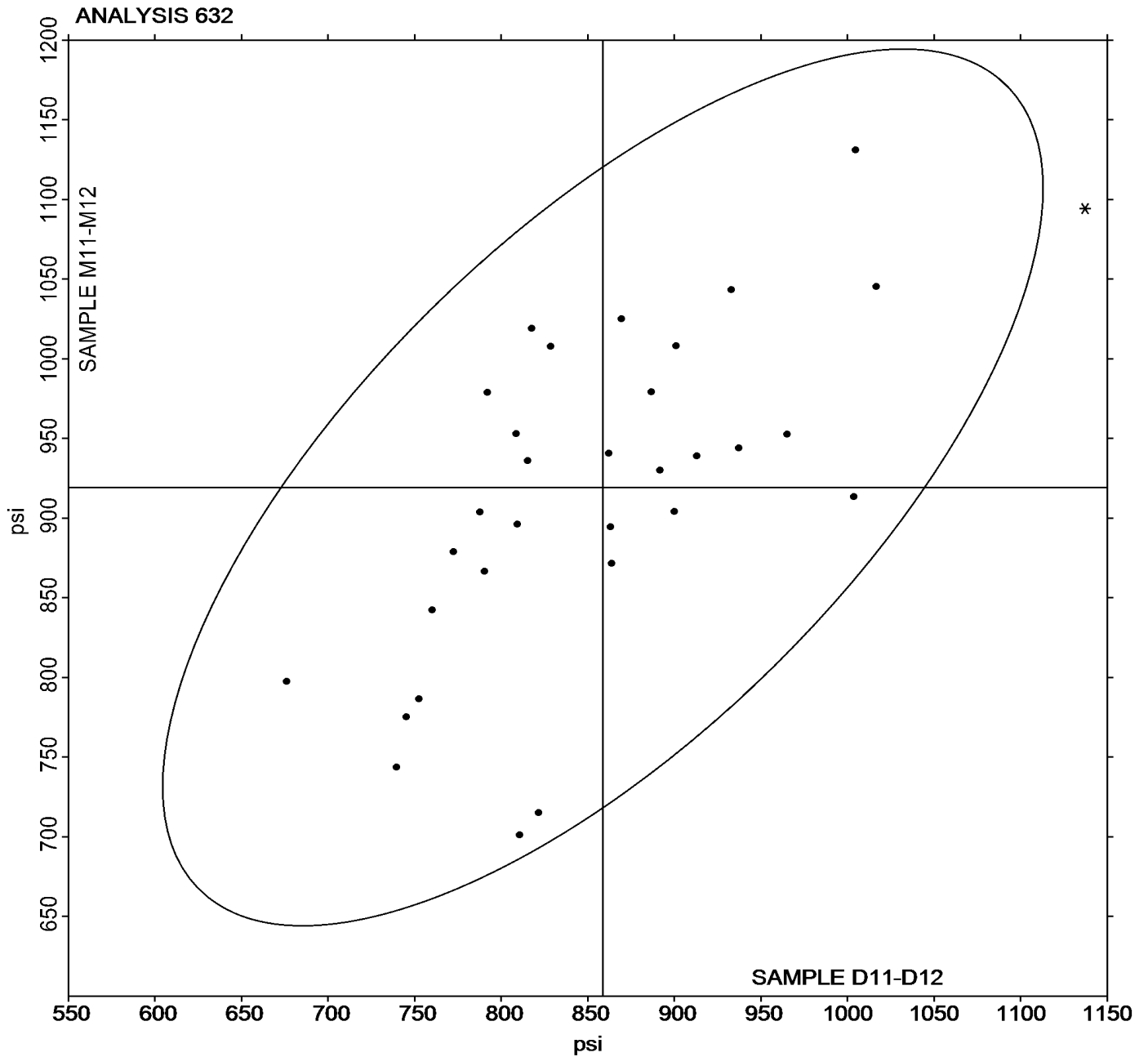
## Analysis 632

4th Qtr 2021

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

Grand Mean Sample **D11-D12** = 858.62 psi

Grand Mean Sample **M11-M12** = 919.34 psi





# Rubber Interlaboratory Testing Program

Report #210

## Analysis 633

4th Qtr 2021

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

WebCode	Data Flag	Sample D11-D12			Sample M11-M12		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3VE2GM		220.8	27.2	1.69	235.1	23.3	1.06
4BLDRC		206.2	12.6	0.78	225.5	13.6	0.62
4RWXQ6		181.0	-12.6	-0.78	201.0	-10.8	-0.49
92KMBK		193.0	-0.6	-0.04	234.5	22.7	1.03
9DD3ZL		179.5	-14.1	-0.88	223.0	11.2	0.51
9Q2ATG		199.8	6.3	0.39	243.7	31.9	1.45
AMJ63X		207.5	13.9	0.87	212.0	0.2	0.01
ARP2HR		226.4	32.8	2.04	242.4	30.6	1.39
BJEYWQ		202.9	9.3	0.58	212.4	0.6	0.03
BMF3QY		221.9	28.3	1.76	224.8	13.0	0.59
DHYGUX		182.0	-11.6	-0.72	201.0	-10.8	-0.49
G4JPFE		201.0	7.4	0.46	232.0	20.2	0.92
GH2FG2	X	476.5	282.9	17.60	515.9	304.0	13.84
HFUFXF		174.8	-18.8	-1.17	216.8	5.0	0.23
HKLUEB		195.5	1.9	0.12	236.5	24.7	1.12
HPV3MR		201.6	8.0	0.50	227.7	15.9	0.72
J9RV6J		200.9	7.3	0.45	208.1	-3.7	-0.17
KRGB47		170.5	-23.1	-1.44	197.5	-14.3	-0.65
MKN4FH		193.9	0.3	0.02	204.7	-7.1	-0.32
ML7WE8		195.0	1.4	0.09	207.5	-4.3	-0.20
N2UPGJ		199.3	5.8	0.36	202.9	-8.9	-0.41
NBFTNJ		163.6	-30.0	-1.87	174.5	-37.4	-1.70
PNJHX6		181.5	-12.1	-0.75	203.5	-8.3	-0.38
QQ23HY		198.7	5.1	0.32	179.8	-32.0	-1.46
R9E4P7	*	178.4	-15.2	-0.94	149.4	-62.5	-2.84
RCJMWE		217.5	23.9	1.49	241.9	30.1	1.37
RDVLQN		187.5	-6.1	-0.38	197.0	-14.8	-0.68
RYWFYD		201.2	7.6	0.47	228.0	16.2	0.74
T3PYEG		170.1	-23.5	-1.46	199.6	-12.3	-0.56
V2QDZG		170.7	-22.9	-1.42	185.2	-26.7	-1.21
VGHHZX		190.3	-3.3	-0.20	186.6	-25.3	-1.15
Y6W843		202.0	8.4	0.52	229.0	17.2	0.78
YMDCU2		179.7	-13.9	-0.87	215.5	3.6	0.16



# Rubber Interlaboratory Testing Program

Report #210

## Analysis 633

4th Qtr 2021

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

		Summary Statistics	
Grand Means	193.58 psi	211.85 psi	
Stnd Dev Btwn Labs	16.07 psi	21.97 psi	
Statistics based on 32 of 33 reporting participants			

		Summary Statistics in SI Units	
Grand Means	1.3347 MPa	1.46 MPa	
Stnd Dev Btwn Labs	0.1108 MPa	0.15 MPa	
Statistics based on 32 of 33 reporting participants			

Samples D11-D12: Polyisoprene compound, batch #1 & M11-M12: Polyisoprene compound, batch #1

#### **Comments on Assigned Data Flags for Test #633**

GH2FG2 (X) - Data for all samples are very high.



# Rubber Interlaboratory Testing Program

Report #210

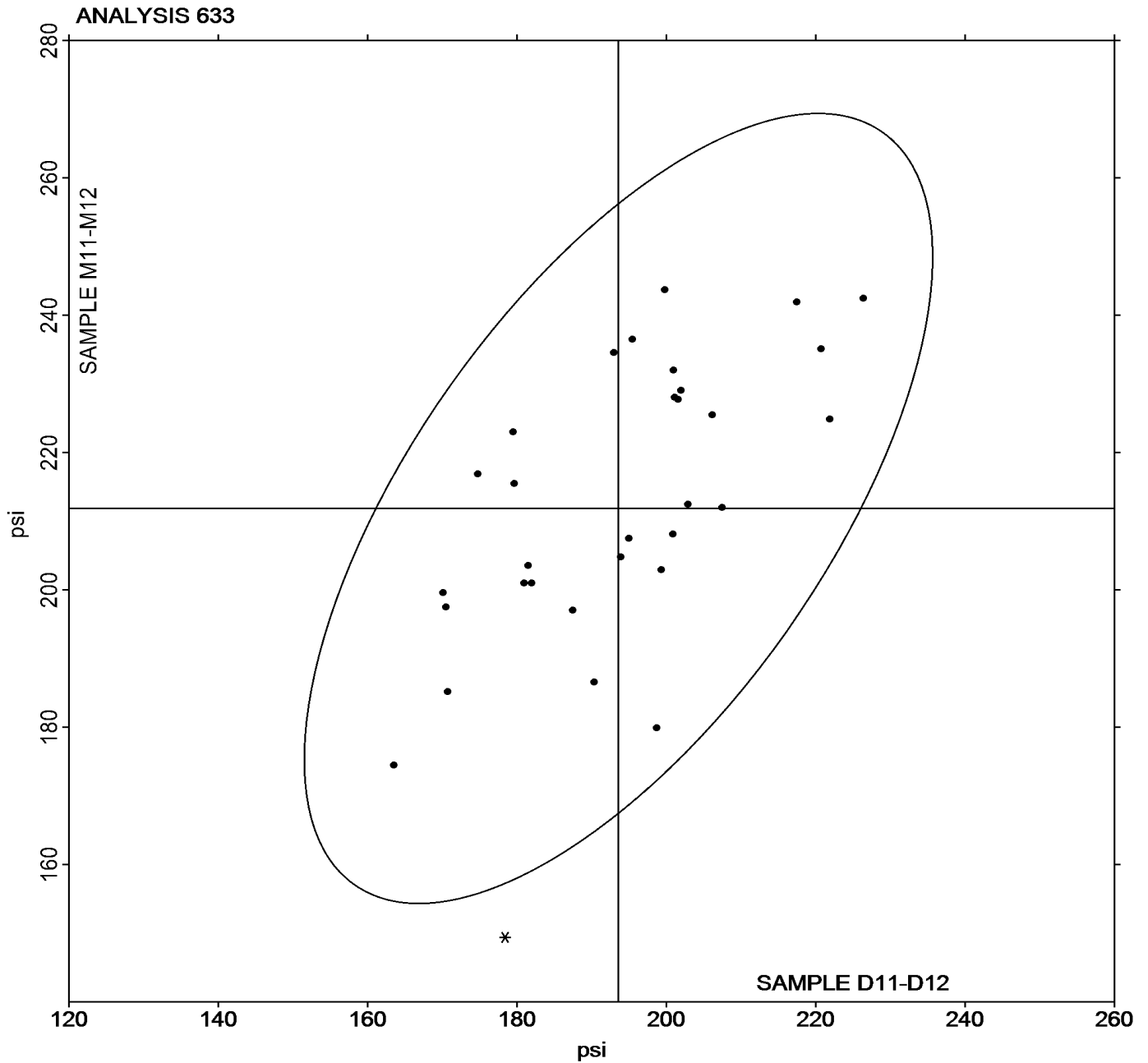
## Analysis 633

4th Qtr 2021

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

Grand Mean Sample **D11-D12** = 193.58 psi

Grand Mean Sample **M11-M12** = 211.85 psi







**Rubber Interlaboratory Testing Program**  
**Analysis 635**  
**Compression Set Method B**

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample Q11			Sample Q12		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
42JX6T		28.38	2.29	0.51	27.65	1.67	0.39
4BLDRC		26.57	0.47	0.10	26.90	0.92	0.21
4RWXQ6		27.00	0.91	0.20	28.00	2.02	0.47
4W4PCM		33.93	7.84	1.74	32.00	6.02	1.40
7QC3YT		26.33	0.24	0.05	27.33	1.35	0.31
7YKPQU		29.21	3.12	0.69	28.00	2.01	0.47
92KMBK		33.67	7.57	1.68	33.33	7.35	1.71
9PPDLQ		18.26	-7.84	-1.74	18.30	-7.68	-1.79
AMJ63X		27.00	0.91	0.20	27.73	1.75	0.41
BMF3QY		28.10	2.01	0.44	27.30	1.32	0.31
BV8MNK		26.33	0.24	0.05	27.47	1.48	0.35
CN4XNR		30.33	4.24	0.94	28.00	2.02	0.47
DTUR34		23.00	-3.09	-0.69	22.00	-3.98	-0.93
G4JPFE		23.33	-2.76	-0.61	23.00	-2.98	-0.69
GH2FG2		31.64	5.55	1.23	30.04	4.06	0.94
H7JDCF		23.97	-2.13	-0.47	24.20	-1.78	-0.41
HF928H		27.33	1.24	0.27	27.67	1.68	0.39
HKNEAQ		21.33	-4.76	-1.06	22.67	-3.32	-0.77
HWE7VU		29.67	3.58	0.79	29.53	3.55	0.83
J2QFJH	X	35.37	9.27	2.06	39.97	13.98	3.25
JJ9D4H		23.67	-2.43	-0.54	23.33	-2.65	-0.62
KJ6APX		25.33	-0.76	-0.17	23.00	-2.98	-0.69
KRGB47		24.37	-1.72	-0.38	24.59	-1.39	-0.32
KWN28C		18.66	-7.43	-1.65	19.18	-6.80	-1.58
LQK9WG		24.00	-2.09	-0.46	26.00	0.02	0.00
MRAYGL	X	16.00	-10.09	-2.24	21.67	-4.32	-1.00
N37LNA		24.77	-1.33	-0.29	24.23	-1.75	-0.41
NBFTNJ		31.73	5.64	1.25	31.77	5.78	1.35
PBBXA6		25.67	-0.43	-0.09	26.00	0.02	0.00
RCJMWE		25.87	-0.23	-0.05	26.17	0.18	0.04
RDVLQN		29.34	3.24	0.72	29.64	3.65	0.85
RM32YG	X	29.33	3.24	0.72	22.67	-3.32	-0.77
RYWFYD		22.63	-3.46	-0.77	22.70	-3.28	-0.76
T9X8X7		18.61	-7.48	-1.66	18.00	-7.98	-1.86
UD3MN7		24.67	-1.43	-0.32	23.00	-2.98	-0.69
XMJ9LZ		26.00	-0.09	-0.02	26.00	0.02	0.00
XZBVV2	*	40.20	14.11	3.13	39.70	13.72	3.19
Y6W843		21.82	-4.27	-0.95	21.67	-4.31	-1.00



**Rubber Interlaboratory Testing Program**  
**Analysis 635**  
**Compression Set Method B**

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample Q11			Sample Q12		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
YMDCU2		20.33	-5.76	-1.28	20.67	-5.32	-1.24
Z7KZHH		23.00	-3.09	-0.69	23.67	-2.32	-0.54
ZR8RHE		25.50	-0.59	-0.13	26.90	0.92	0.21

Summary Statistics	
Grand Means	
	26.094 % Compression
	25.983 % Compression
Stnd Dev Btwn Labs	
	4.510 % Compression
	4.297 % Compression
	Statistics based on 38 of 41 reporting participants

Samples Q11: EPDM compound, batch #1 & Q12: EPDM compound, batch #1

**Comments on Assigned Data Flags for Test #635**

- J2QFJH (X) - Data for sample group Q12 are high.
- MRAYGL (X) - Inconsistent in testing between samples.
- RM32YG (X) - Inconsistent in testing between samples.

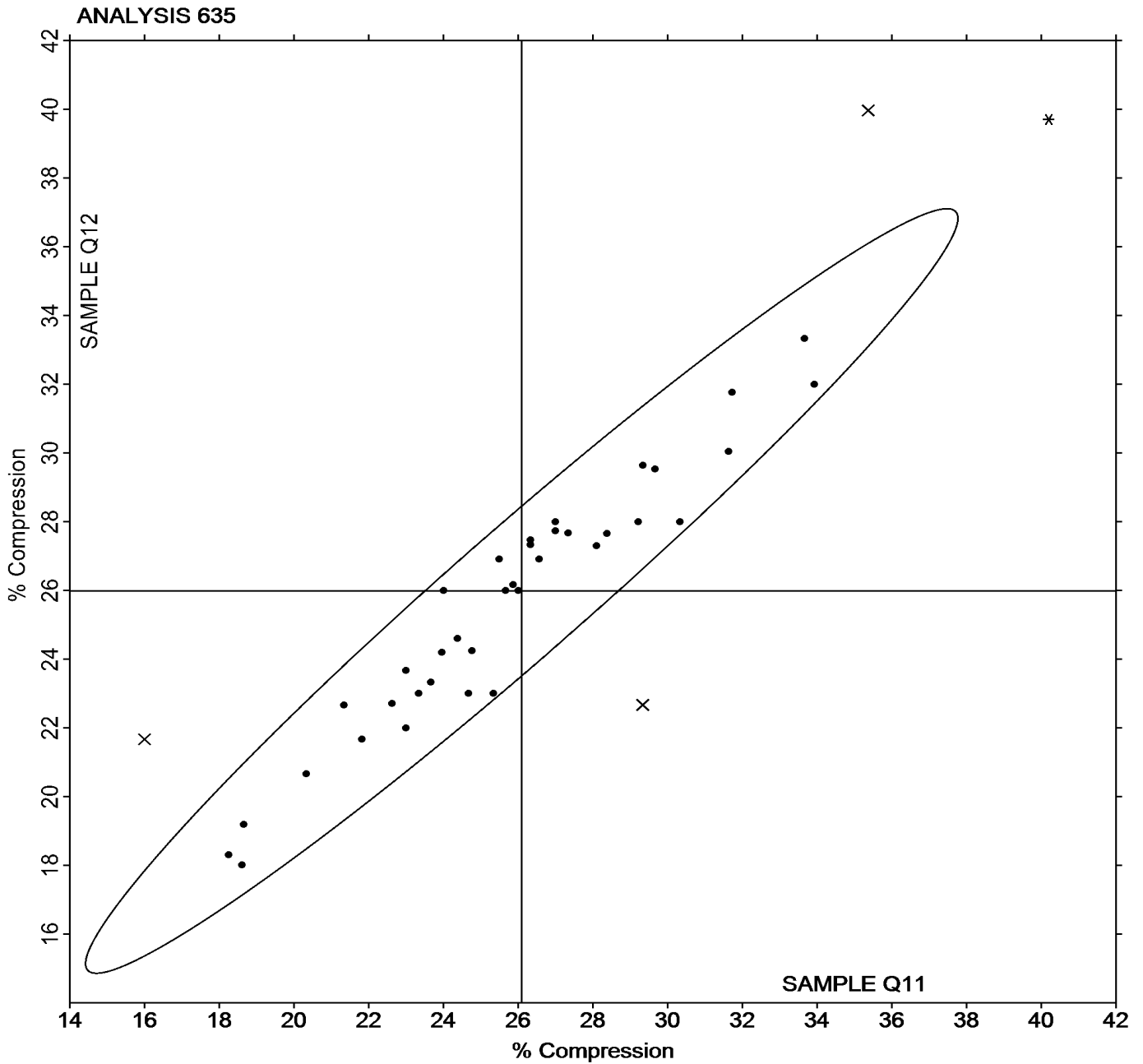


Rubber Interlaboratory Testing Program  
Analysis 635  
Compression Set Method B

Report #210  
4th Qtr 2021

Grand Mean Sample Q11 = 26.094 % Compression

Grand Mean Sample Q12 = 25.983 % Compression





# Rubber Interlaboratory Testing Program

Report #210

## Analysis 660

4th Qtr 2021

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

WebCode	Data Flag	Sample V11-V12			Sample V13-V14			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3VE2GM		43.12	-1.28	-1.19	52.38	-1.16	-1.15	ML
6VQDF4		43.52	-0.89	-0.83	53.18	-0.35	-0.35	MR
8NGWXT		45.40	1.00	0.93	54.10	0.56	0.56	MR
92KMBK		44.10	-0.30	-0.28	52.43	-1.10	-1.10	MR
9DD3ZL		46.13	1.73	1.61	55.35	1.81	1.81	MV
9Q2ATG		46.84	2.44	2.27	55.28	1.74	1.74	XX
AMJ63X		46.32	1.92	1.79	55.39	1.85	1.85	ML
ARP2HR		44.17	-0.24	-0.22	54.32	0.78	0.78	MR
BJEYWQ		44.38	-0.03	-0.03	53.61	0.07	0.07	MV
BMF3QY		43.47	-0.94	-0.87	52.90	-0.64	-0.64	MR
BW32EJ		44.79	0.38	0.36	52.50	-1.04	-1.04	MR
BY7YNQ		44.87	0.46	0.43	53.85	0.31	0.31	MP
D9BNHZ	X	49.35	4.95	4.61	56.17	2.63	2.62	MR
DHYGUX		44.15	-0.25	-0.24	53.87	0.33	0.33	MR
EYZLWZ	X	46.51	2.11	1.96	58.22	4.68	4.67	TA
FDE9GH		43.25	-1.15	-1.08	53.50	-0.04	-0.04	MR
G4JPFE		42.67	-1.74	-1.62	51.70	-1.84	-1.83	MR
GYPQ7P		43.39	-1.01	-0.94	52.38	-1.16	-1.16	MV
HFUFXF		44.02	-0.39	-0.36	52.82	-0.72	-0.72	MR
HKLUEB		42.73	-1.67	-1.56	52.83	-0.70	-0.70	MV
J9RV6J		44.15	-0.25	-0.24	54.42	0.88	0.88	MR
JNF8E6		44.95	0.55	0.51	54.47	0.93	0.93	MR
KJ6APX		42.28	-2.12	-1.98	51.13	-2.40	-2.40	MR
KRGB47		44.75	0.34	0.32	54.59	1.05	1.05	MR
LQK9WG		44.47	0.06	0.06	52.88	-0.65	-0.65	MR
MGNYH4		43.98	-0.42	-0.39	53.52	-0.02	-0.02	MR
MKN4FH		43.98	-0.43	-0.40	52.62	-0.92	-0.91	MR
ML7WE8		45.47	1.06	0.99	53.73	0.20	0.20	MR
MW4XVH		43.83	-0.57	-0.53	54.00	0.46	0.46	MR
PNJHX6		45.00	0.60	0.56	53.00	-0.54	-0.54	MV
QQ23HY		44.42	0.02	0.02	53.22	-0.32	-0.32	MV
RCJMWE		43.75	-0.65	-0.61	52.96	-0.58	-0.58	MR
T3PYEG		44.70	0.30	0.28	53.97	0.43	0.43	MR
TXWYXZ		43.62	-0.79	-0.73	53.53	0.00	0.00	MR
URNXEH		44.84	0.44	0.41	53.93	0.40	0.40	MR
V2QDZG		43.89	-0.52	-0.48	52.85	-0.69	-0.69	TV
VGHHZX		46.29	1.88	1.75	55.20	1.66	1.66	MZ
XZBVV2		45.99	1.58	1.48	54.38	0.84	0.84	MR



# Rubber Interlaboratory Testing Program

Report #210

## Analysis 660

4th Qtr 2021

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

WebCode	Data Flag	Sample V11-V12			Sample V13-V14			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
ZZDENU		45.30	0.90	0.84	54.10	0.56	0.56	MR

Summary Statistics	
Grand Means	
	44.404 ML 1 + 4
	53.537 ML 1 + 4
Stnd Dev Btwn Labs	
	1.072 ML 1 + 4
	1.003 ML 1 + 4
Statistics based on 37 of 39 reporting participants	

Samples V11-V12: NBR & V13-V14: Butyl

#### Comments on Assigned Data Flags for Test #660

D9BNHZ (X) - Data for sample group V11-V12 are high.

EYZLWZ (X) - Data for sample group V13-V14 are high.

#### Key to Instrument Codes Reported by Participants

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

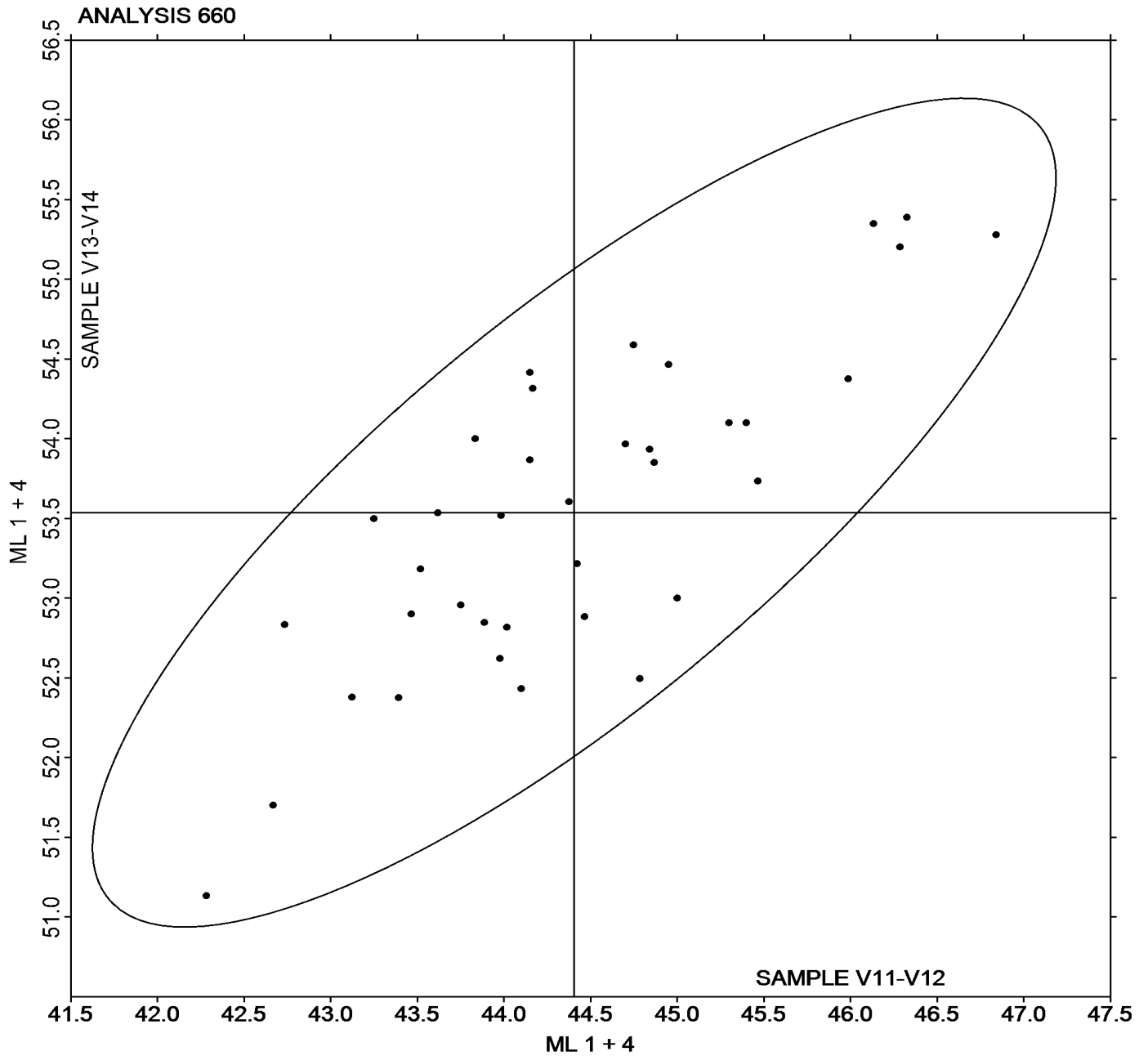


**Rubber Interlaboratory Testing Program**  
**Analysis 660**  
**Mooney Viscosity: 4-minute readings (ML 1 + 4)**

**Report #210**  
**4th Qtr 2021**

Grand Mean Sample **V11-V12** = 44.404 ML 1 + 4

Grand Mean Sample **V13-V14** = 53.537 ML 1 + 4





# Rubber Interlaboratory Testing Program

Report #210

## Analysis 661

4th Qtr 2021

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

WebCode	Data Flag	Sample V11-V12			Sample V13-V14			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3VE2GM		43.12	-1.36	-1.18	50.03	-1.22	-1.06	ML
6VQDF4		43.52	-0.96	-0.84	50.02	-1.23	-1.07	MR
8NGWXT		45.40	0.92	0.80	51.68	0.44	0.38	MR
92KMBK		44.10	-0.38	-0.33	50.12	-1.13	-0.98	MR
9DD3ZL		46.13	1.65	1.44	53.07	1.82	1.58	MV
9Q2ATG		46.84	2.36	2.05	51.65	0.40	0.35	XX
AMJ63X		46.32	1.84	1.60	53.15	1.90	1.65	ML
ARP2HR		44.17	-0.31	-0.27	51.55	0.30	0.26	MR
BJEYWQ		44.38	-0.11	-0.09	51.56	0.31	0.27	MV
BMF3QY		43.47	-1.01	-0.88	50.58	-0.66	-0.57	MR
BW32EJ		44.79	0.30	0.27	50.24	-1.01	-0.87	MR
BY7YNQ		44.87	0.39	0.34	50.27	-0.98	-0.85	MP
D9BNHZ	X	49.35	4.87	4.24	53.12	1.87	1.62	MR
DHYGUX		44.15	-0.33	-0.29	51.58	0.34	0.29	MR
EYZLWZ	*	46.51	2.03	1.77	54.94	3.69	3.20	TA
FDE9GH		43.25	-1.23	-1.07	50.78	-0.46	-0.40	MR
G4JPFE	*	42.67	-1.81	-1.58	52.63	1.39	1.20	MR
GYPQ7P		43.39	-1.09	-0.95	50.84	-0.41	-0.35	MV
HFUFXF		44.02	-0.46	-0.40	50.35	-0.90	-0.78	MR
HKLUEB		42.73	-1.75	-1.52	51.78	0.54	0.47	MV
J9RV6J		44.15	-0.33	-0.29	51.58	0.34	0.29	MR
JNF8E6		44.95	0.47	0.41	51.78	0.54	0.47	MR
KJ6APX		42.28	-2.20	-1.91	48.50	-2.75	-2.38	MR
KRGB47		44.75	0.27	0.23	52.07	0.82	0.71	MR
LQK9WG		44.47	-0.01	-0.01	50.47	-0.78	-0.68	MR
MKN4FH		43.98	-0.50	-0.44	50.23	-1.02	-0.88	MR
ML7WE8		45.47	0.99	0.86	51.27	0.02	0.02	MR
PNJHX6		45.00	0.52	0.45	50.86	-0.39	-0.34	MV
QQ23HY		44.42	-0.06	-0.05	50.96	-0.28	-0.24	MV
RCJMWE		43.75	-0.73	-0.64	50.76	-0.49	-0.42	MR
T3PYEG		44.70	0.22	0.19	50.67	-0.58	-0.50	MR
TXWYXZ		43.62	-0.86	-0.75	50.90	-0.35	-0.30	MR
V2QDZG		43.89	-0.59	-0.52	50.78	-0.47	-0.40	TV
VGHHZX		46.29	1.80	1.57	52.75	1.51	1.30	MZ
XZBVV2		45.99	1.51	1.31	51.70	0.45	0.39	MR
ZZDENU		45.30	0.82	0.71	51.52	0.27	0.23	MR



# Rubber Interlaboratory Testing Program

Report #210

## Analysis 661

4th Qtr 2021

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

		Summary Statistics	
Grand Means	44.480 ML 1 + 8	51.246 ML 1 + 8	
Stnd Dev Btwn Labs	1.149 ML 1 + 8	1.154 ML 1 + 8	
Statistics based on 35 of 36 reporting participants			

Samples V11-V12: NBR & V13-V14: Butyl

#### Comments on Assigned Data Flags for Test #661

D9BNHZ (X) - Data for sample group V11-V12 are high.

#### Key to Instrument Codes Reported by Participants

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





# Rubber Interlaboratory Testing Program

## Analysis 661

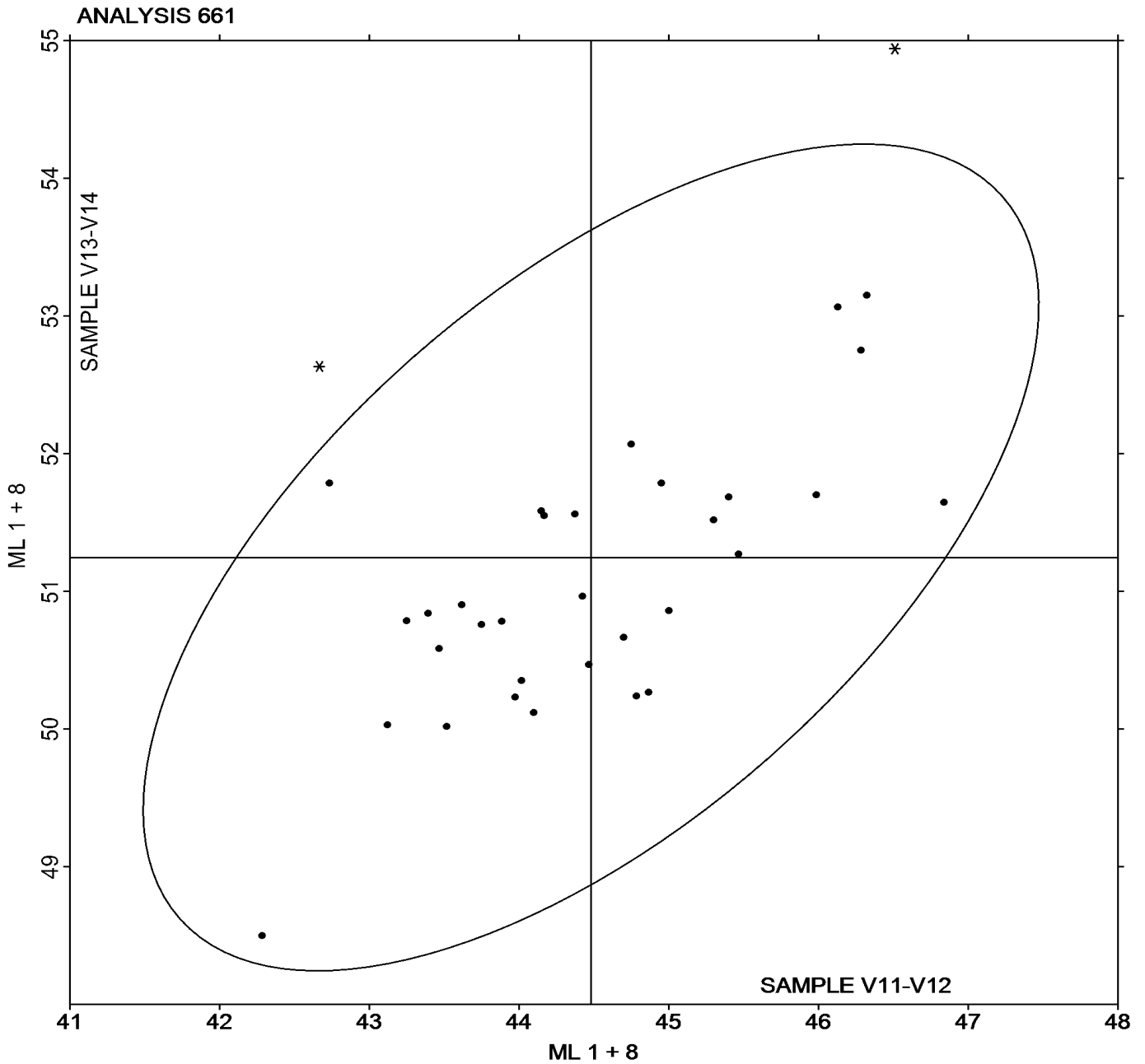
Report #210

4th Qtr 2021

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

Grand Mean Sample V11-V12 = 44.480 ML 1 + 8

Grand Mean Sample V13-V14 = 51.246 ML 1 + 8





# Rubber Interlaboratory Testing Program

Report #210

## Analysis 662

4th Qtr 2021

### Mooney Stress Relaxation: t80 (seconds)

WebCode	Data Flag	Sample V11-V12			Sample V13-V14			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3VE2GM		5.500	0.305	0.29	7.063	-0.012	-0.01	ML
9DD3ZL		4.300	-0.895	-0.84	6.100	-0.975	-0.94	MV
9Q2ATG		5.167	-0.029	-0.03	8.000	0.925	0.89	XX
AMJ63X		5.702	0.507	0.48	7.153	0.078	0.08	ML
BJEYWQ	X	305.500	300.305	281.81	310.000	302.925	291.78	MV
DHYGUX		5.090	-0.105	-0.10	6.762	-0.313	-0.30	MR
FDE9GH		5.283	0.088	0.08	7.900	0.825	0.79	MR
HFUFXF		4.920	-0.275	-0.26	6.750	-0.325	-0.31	MR
HKLUEB		3.333	-1.862	-1.75	6.167	-0.908	-0.87	MV
J9RV6J		4.738	-0.457	-0.43	6.675	-0.400	-0.39	MR
JNF8E6		6.443	1.248	1.17	7.403	0.328	0.32	MR
KJ6APX	X	14.582	9.386	8.81	9.850	2.775	2.67	MR
KRGB47		5.115	-0.080	-0.08	6.733	-0.342	-0.33	MR
MW4XVH		5.500	0.305	0.29	7.800	0.725	0.70	MR
PNJHX6		4.367	-0.829	-0.78	6.033	-1.042	-1.00	MV
QQ23HY		4.000	-1.195	-1.12	6.000	-1.075	-1.04	MV
RCJMWE		4.922	-0.274	-0.26	6.638	-0.437	-0.42	MR
T3PYEG		5.373	0.178	0.17	6.883	-0.192	-0.18	MR
V2QDZG	X	663.600	658.405	617.86	666.400	659.325	635.07	TV
VGHHZX	*	8.433	3.238	3.04	10.447	3.372	3.25	MZ
ZZDENU		5.330	0.135	0.13	6.840	-0.235	-0.23	MR

Grand Means		Summary Statistics	
	5.1954 seconds		7.0749 seconds
Std Dev Btwn Labs	1.0656 seconds		1.0382 seconds
Statistics based on 18 of 21 reporting participants			

Samples V11-V12: NBR & V13-V14: Butyl

#### Comments on Assigned Data Flags for Test #662

BJEYWQ (X) - Extreme Data.

KJ6APX (X) - Data for all samples are high. Possible Systematic Error. Inconsistent within the determinations of sample group V11-V12.

V2QDZG (X) - Extreme Data. Lab indicated reporting in minutes, but data may be in seconds.



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

**Report #210**  
**4th Qtr 2021**

**Key to Instrument Codes Reported by Participants**

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

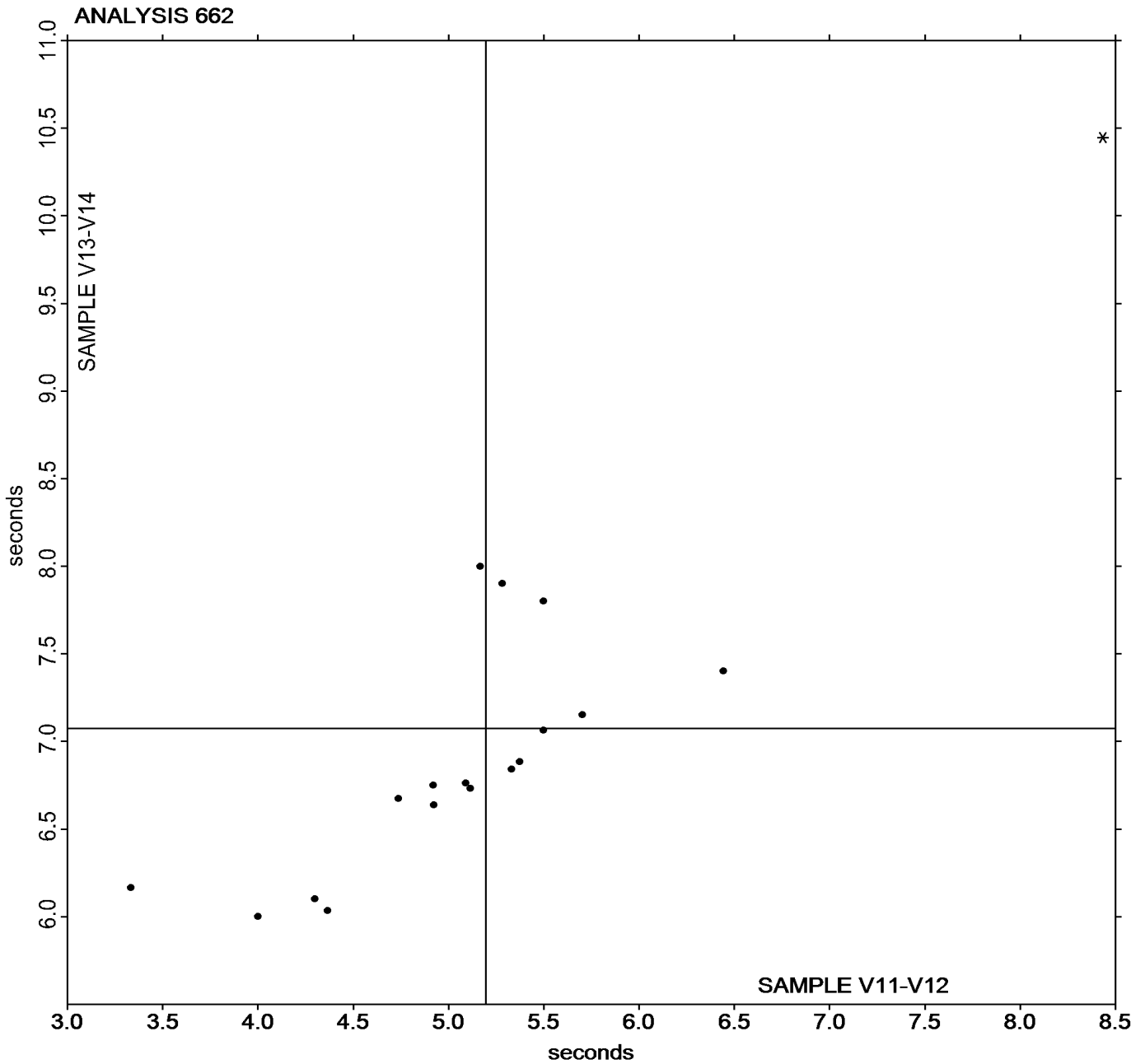


Rubber Interlaboratory Testing Program  
Analysis 662  
Mooney Stress Relaxation: t80 (seconds)

Report #210  
4th Qtr 2021

Grand Mean Sample V11-V12 = 5.1954 seconds

Grand Mean Sample V13-V14 = 7.0749 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 #210

## Analysis 663

4th Qtr 2021

### Mooney Stress Relaxation: X30 (percent)

WebCode	Data Flag	Sample V11-V12			Sample V13-V14			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3VE2GM		90.54	-0.99	-0.51	92.68	-0.71	-0.60	ML
9DD3ZL		92.09	0.56	0.28	93.80	0.41	0.35	MV
9Q2ATG		90.74	-0.79	-0.40	91.61	-1.79	-1.52	XX
AMJ63X		89.98	-1.55	-0.79	92.26	-1.13	-0.96	ML
BJEYWQ		94.96	3.43	1.75	95.39	2.00	1.70	MV
DHYGUX		90.71	-0.82	-0.42	92.67	-0.72	-0.61	MR
FDE9GH		90.88	-0.65	-0.33	91.73	-1.66	-1.41	MR
HFUFXF		91.75	0.22	0.11	93.63	0.24	0.20	MR
HKLUEB		94.63	3.10	1.58	94.85	1.46	1.24	MV
J9RV6J		91.69	0.16	0.08	93.13	-0.26	-0.22	MR
JNF8E6		88.75	-2.78	-1.42	91.72	-1.67	-1.42	MR
KJ6APX	*	86.75	-4.78	-2.44	93.14	-0.25	-0.21	MR
KRGB47		91.12	-0.41	-0.21	93.13	-0.26	-0.22	MR
PNJHX6		91.62	0.09	0.05	95.26	1.87	1.59	MV
QQ23HY		93.93	2.40	1.22	95.51	2.11	1.79	MV
RCJMWE		91.66	0.13	0.07	93.64	0.25	0.21	MR
T3PYEG		90.94	-0.59	-0.30	93.16	-0.24	-0.20	MR
V2QDZG		93.66	2.13	1.09	93.96	0.57	0.48	TV
VGHZHX		93.50	1.97	1.01	93.71	0.32	0.27	MZ
ZZDENU		90.69	-0.84	-0.43	92.87	-0.53	-0.45	MR

Grand Means		Summary Statistics	
	91.528 percent		93.393 percent
Stnd Dev Btwn Labs	1.959 percent		1.178 percent
Statistics based on 20 of 20 reporting participants			

Samples V11-V12: NBR & V13-V14: Butyl

### Key to Instrument Codes Reported by Participants

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

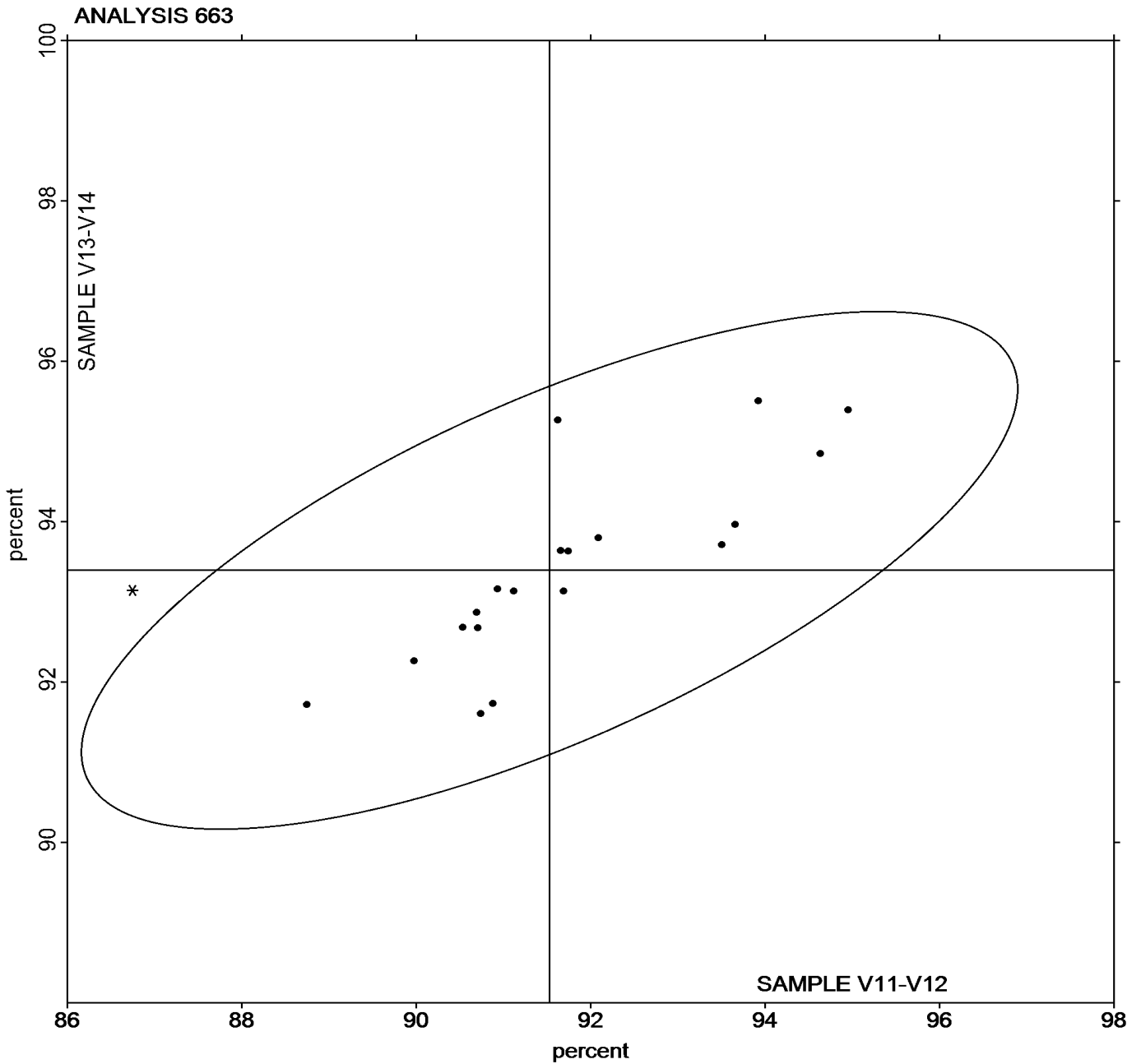


Rubber Interlaboratory Testing Program  
Analysis 663  
Mooney Stress Relaxation: X30 (percent)

Report #210  
4th Qtr 2021

Grand Mean Sample V11-V12 = 91.528 percent

Grand Mean Sample V13-V14 = 93.393 percent





# Rubber Interlaboratory Testing Program

Report #210

## Analysis 664

4th Qtr 2021

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

WebCode	Data Flag	Sample V11-V12			Sample V13-V14			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3VE2GM		443.3	56.4	0.60	420.3	30.2	0.38	ML
9DD3ZL		387.0	0.1	0.00	363.5	-26.5	-0.34	MV
9Q2ATG		472.9	86.0	0.92	527.8	137.7	1.75	XX
AMJ63X		547.5	160.6	1.72	519.1	129.0	1.64	ML
BJEYWQ		222.4	-164.5	-1.76	261.6	-128.4	-1.63	MV
DHYGUX		444.2	57.3	0.61	428.0	37.9	0.48	MR
FDE9GH		427.3	40.5	0.43	489.8	99.8	1.27	MR
HFUFXF		391.2	4.3	0.05	375.3	-14.7	-0.19	XX
HKLUEB		233.1	-153.7	-1.65	295.0	-95.0	-1.21	MV
J9RV6J		394.4	7.5	0.08	406.8	16.8	0.21	MR
JNF8E6		547.7	160.8	1.73	488.3	98.2	1.25	MR
KJ6APX		341.1	-45.8	-0.49	346.9	-43.1	-0.55	MR
KRGB47		429.6	42.8	0.46	407.3	17.3	0.22	MR
PNJHX6		390.2	3.3	0.04	344.7	-45.4	-0.58	MV
QQ23HY		273.3	-113.6	-1.22	249.2	-140.9	-1.79	MV
RCJMWE		391.2	4.3	0.05	369.9	-20.2	-0.26	MR
T3PYEG		435.7	48.8	0.52	400.6	10.6	0.13	MR
V2QDZG		279.7	-107.2	-1.15	345.6	-44.5	-0.57	TV
VGHHZX		299.1	-87.8	-0.94	371.3	-18.7	-0.24	MZ

Grand Means		Summary Statistics	
	386.88 M-s		390.06 M-s
Stnd Dev Btwn Labs			
	93.20 M-s		78.59 M-s
Statistics based on 19 of 19 reporting participants			

Samples V11-V12: NBR & V13-V14: Butyl

### Key to Instrument Codes Reported by Participants

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

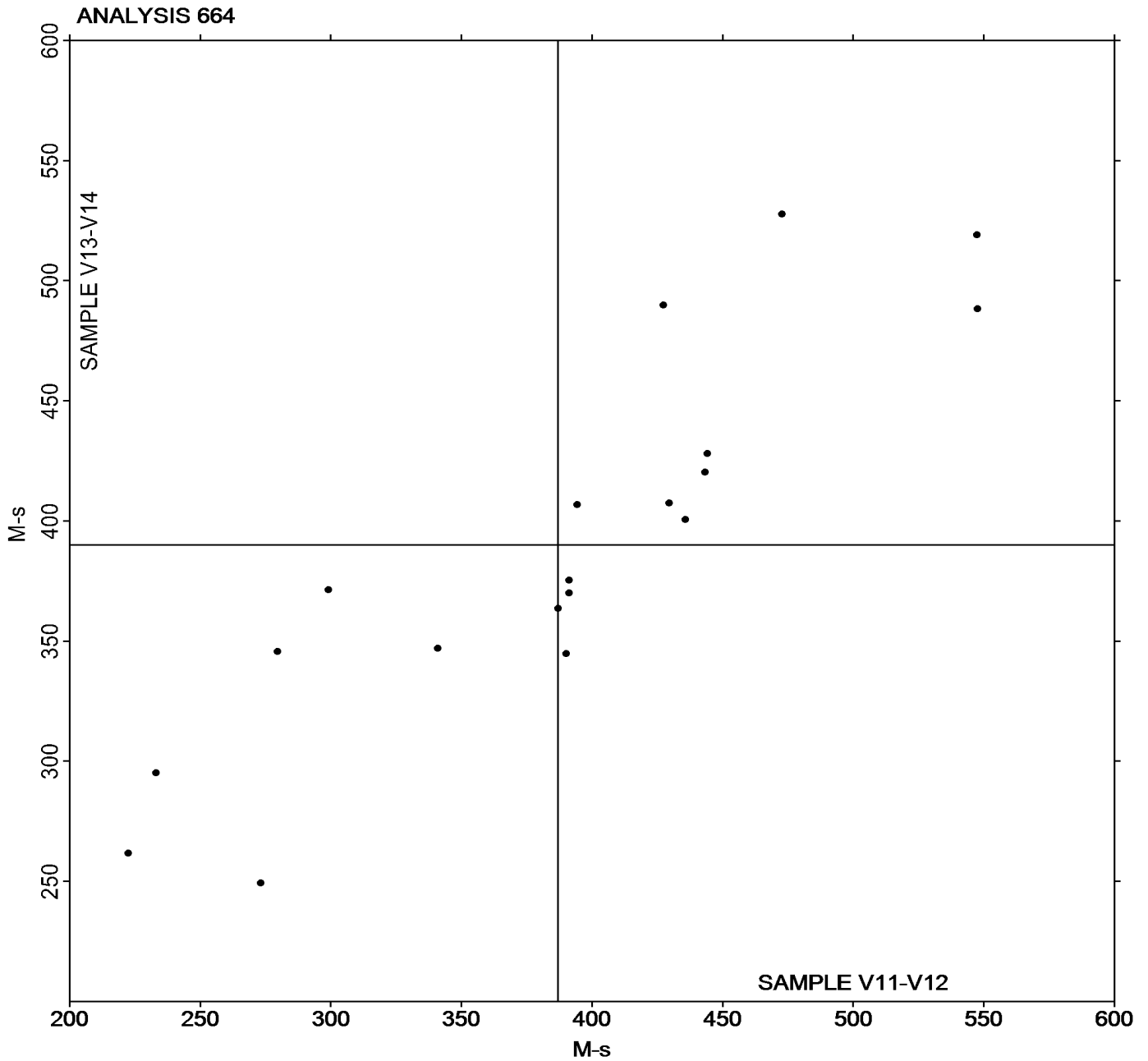


**Rubber Interlaboratory Testing Program**  
**Analysis 664**  
**Mooney Stress Relaxation: Area under curve (M-s)**

**Report #210**  
**4th Qtr 2021**

Grand Mean Sample **V11-V12** = 386.88 M-s

Grand Mean Sample **V13-V14** = 390.06 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 #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample Z11-Z12			Sample Z13-Z14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
9DD3ZL		1.907	0.002	0.02	3.205	0.169	0.76
ARP2HR		1.903	-0.001	-0.01	2.955	-0.081	-0.36
BW32EJ		2.070	0.165	1.61	3.368	0.332	1.50
HKLUEB		1.850	-0.055	-0.53	2.765	-0.271	-1.22
MKN4FH		1.760	-0.145	-1.41	2.873	-0.163	-0.73
Y6W843		1.938	0.034	0.33	3.048	0.013	0.06

Summary Statistics	
Grand Means	
	1.9047 minutes                      3.0358 minutes
Std Dev Btwn Labs	
	0.1024 minutes                      0.2216 minutes
	Statistics based on 6 of 6 reporting participants

Samples Z11-Z12: EPDM compound, batch #1 & Z13-Z14: EPDM compound, batch #2

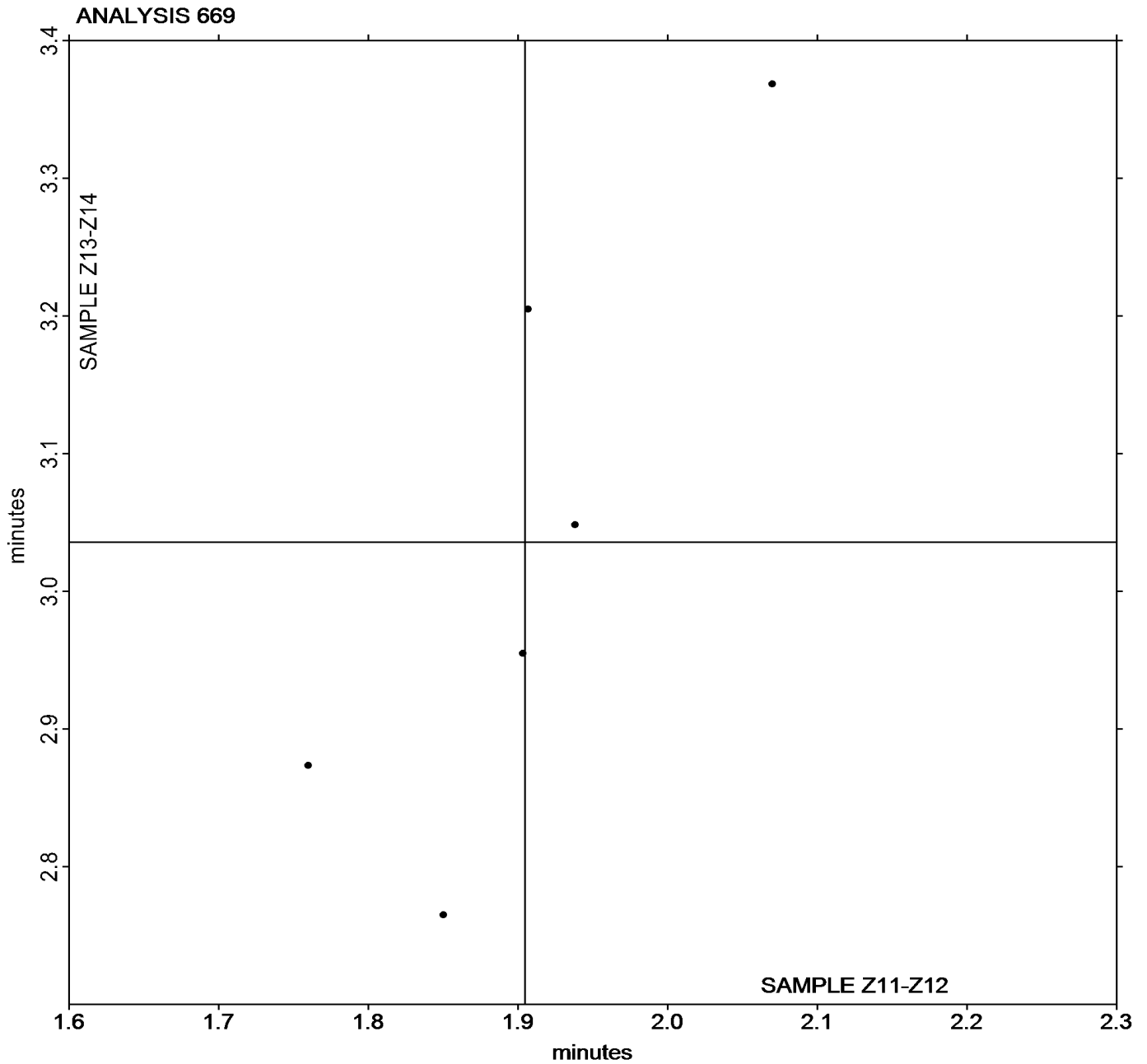


**Rubber Interlaboratory Testing Program**  
**Analysis 669**  
**ODR Vulcanization-Cure Time 10% (minutes)**

**Report #210**  
**4th Qtr 2021**

Grand Mean Sample **Z11-Z12** = 1.9047 minutes

Grand Mean Sample **Z13-Z14** = 3.0358 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 #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample Z11-Z12			Sample Z13-Z14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
9DD3ZL		1.423	0.010	0.09	2.458	0.187	1.00
ARP2HR		1.382	-0.032	-0.30	2.183	-0.088	-0.47
BW32EJ		1.573	0.160	1.49	2.555	0.284	1.51
HKLUEB		1.415	0.001	0.01	2.152	-0.119	-0.64
MKN4FH		1.242	-0.172	-1.61	2.095	-0.176	-0.94
Y6W843		1.447	0.033	0.31	2.183	-0.088	-0.47

Summary Statistics	
Grand Means	1.4136 minutes                      2.2711 minutes
Std Dev Btwn Labs	0.1070 minutes                      0.1878 minutes
Statistics based on 6 of 6 reporting participants	

Samples Z11-Z12: EPDM compound, batch #1 & Z13-Z14: EPDM compound, batch #2

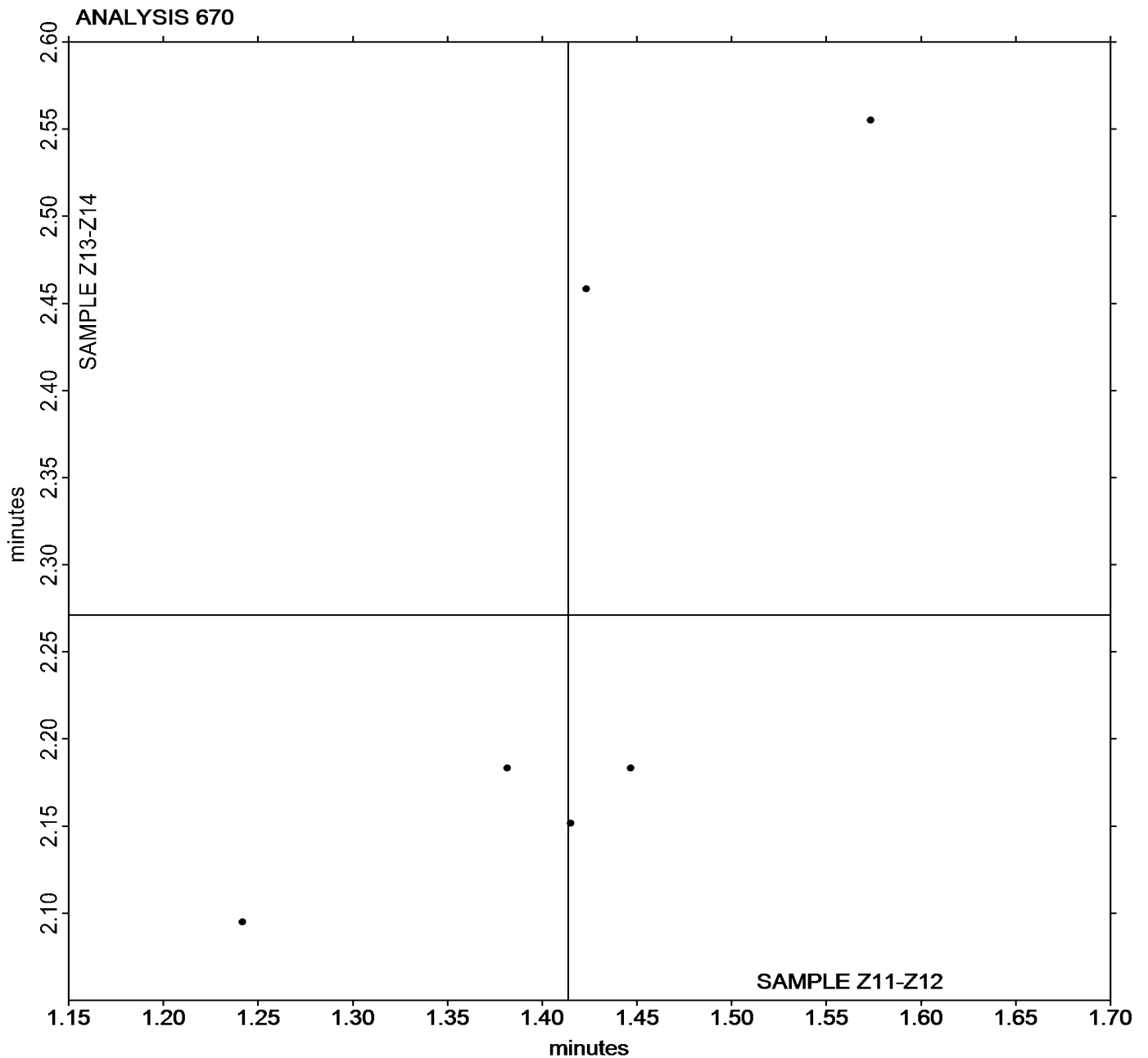


**Rubber Interlaboratory Testing Program**  
**Analysis 670**  
**ODR Vulcanization-Scorch Time, Ts1 (minutes)**

**Report #210**  
**4th Qtr 2021**

Grand Mean Sample **Z11-Z12** = 1.4136 minutes

Grand Mean Sample **Z13-Z14** = 2.2711 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 #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample Z11-Z12			Sample Z13-Z14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
9DD3ZL		3.518	-0.009	-0.05	5.678	0.149	0.41
ARP2HR		3.630	0.103	0.52	5.382	-0.147	-0.40
BW32EJ		3.767	0.239	1.21	5.837	0.308	0.84
HKLUEB		3.215	-0.313	-1.58	4.982	-0.547	-1.50
MKN4FH		3.393	-0.134	-0.68	5.332	-0.197	-0.54
Y6W843		3.642	0.114	0.58	5.963	0.434	1.19

Summary Statistics	
Grand Means	
	3.5275 minutes                      5.5289 minutes
Std Dev Btwn Labs	
	0.1982 minutes                      0.3649 minutes
	Statistics based on 6 of 6 reporting participants

Samples Z11-Z12: EPDM compound, batch #1 & Z13-Z14: EPDM compound, batch #2

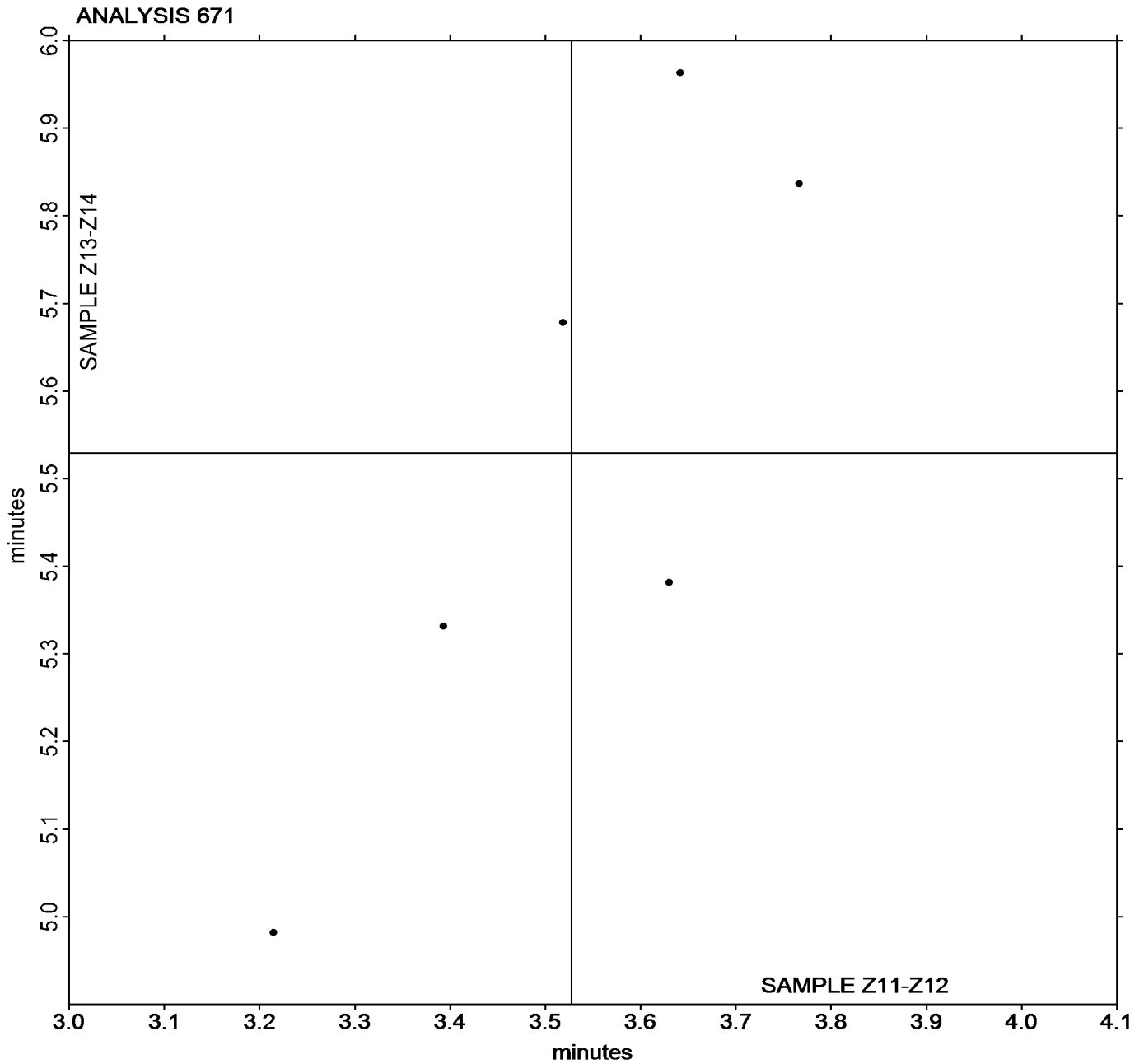


**Rubber Interlaboratory Testing Program**  
**Analysis 671**  
**ODR Vulcanization-Cure Time 50% (minutes)**

**Report #210**  
**4th Qtr 2021**

Grand Mean Sample **Z11-Z12** = 3.5275 minutes

Grand Mean Sample **Z13-Z14** = 5.5289 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 #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample Z11-Z12			Sample Z13-Z14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
9DD3ZL		11.09	-1.44	-1.02	10.54	-0.83	-0.56
ARP2HR		13.69	1.16	0.82	10.22	-1.14	-0.77
BW32EJ		12.37	-0.16	-0.11	13.48	2.12	1.43
HKLUEB		10.66	-1.86	-1.32	10.38	-0.99	-0.67
MKN4FH		14.11	1.59	1.12	10.52	-0.85	-0.57
Y6W843		13.25	0.72	0.51	13.05	1.69	1.14

Summary Statistics	
Grand Means	
	12.528 minutes
	11.364 minutes
Std Dev Btwn Labs	
	1.411 minutes
	1.484 minutes
Statistics based on 6 of 6 reporting participants	

Samples Z11-Z12: EPDM compound, batch #1 & Z13-Z14: EPDM compound, batch #2

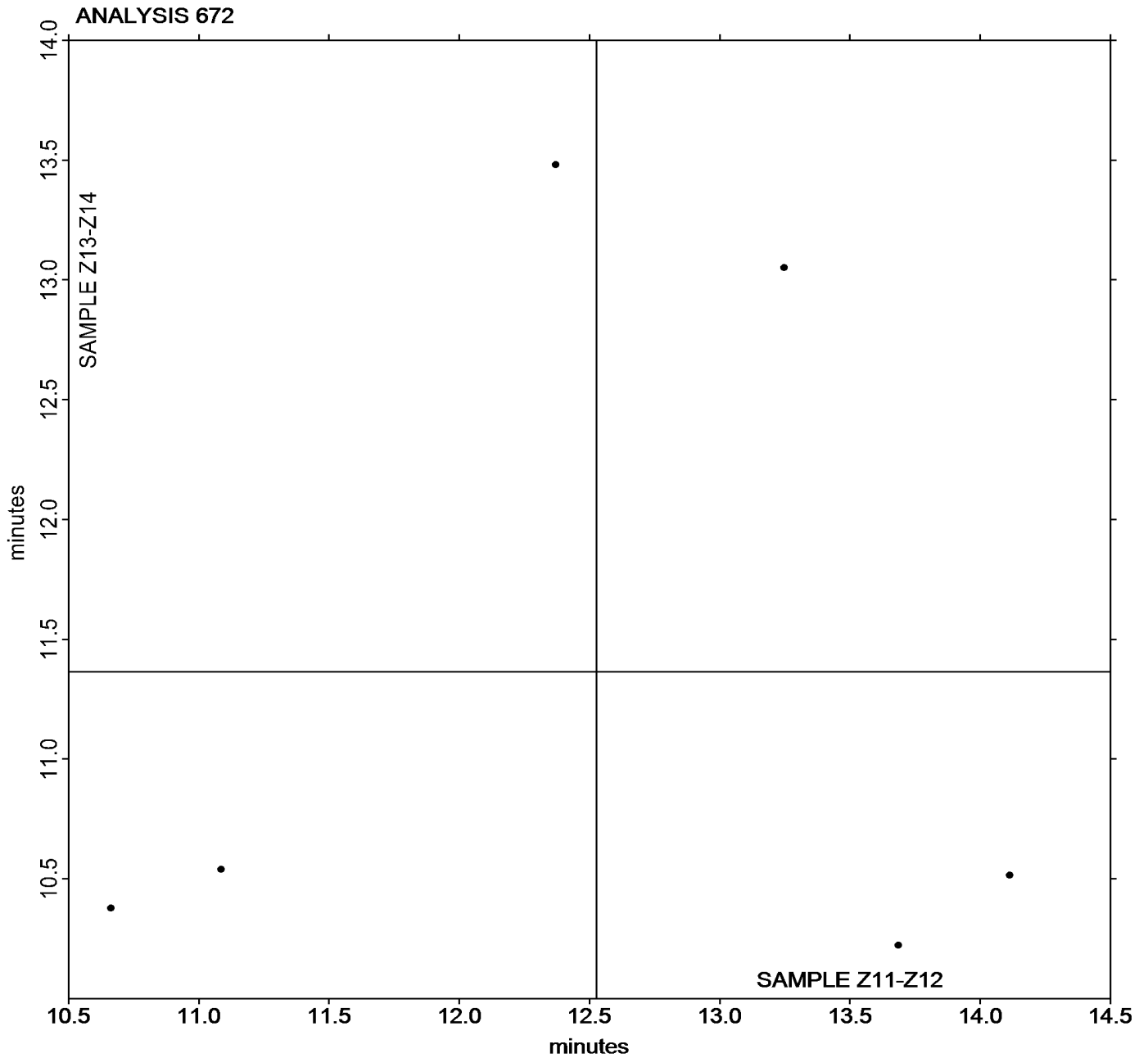


**Rubber Interlaboratory Testing Program**  
**Analysis 672**  
**ODR Vulcanization-Cure Time 90% (minutes)**

**Report #210**  
**4th Qtr 2021**

Grand Mean Sample **Z11-Z12** = 12.528 minutes

Grand Mean Sample **Z13-Z14** = 11.364 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 #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample Z11-Z12			Sample Z13-Z14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
9DD3ZL		7.152	-0.535	-0.37	10.27	-1.72	-0.61
ARP2HR		7.023	-0.663	-0.46	11.28	-0.70	-0.25
BW32EJ		9.952	2.265	1.55	14.26	2.27	0.80
HKLUEB		6.205	-1.481	-1.02	8.96	-3.03	-1.07
MKN4FH		6.780	-0.906	-0.62	10.64	-1.34	-0.48
Y6W843		9.007	1.320	0.91	16.51	4.52	1.60

Summary Statistics	
Grand Means	
	7.6864 lbf.in                      11.984 lbf.in
Std Dev Btwn Labs	
	1.4571 lbf.in                      2.830 lbf.in
Statistics based on 6 of 6 reporting participants	

Summary Statistics in SI Units	
Grand Means	
	8.6844 dN.m                      13.541 dN.m
Std Dev Btwn Labs	
	1.6463 dN.m                      3.198 dN.m
Statistics based on 6 of 6 reporting participants	

Samples Z11-Z12: EPDM compound, batch #1 & Z13-Z14: EPDM compound, batch #2

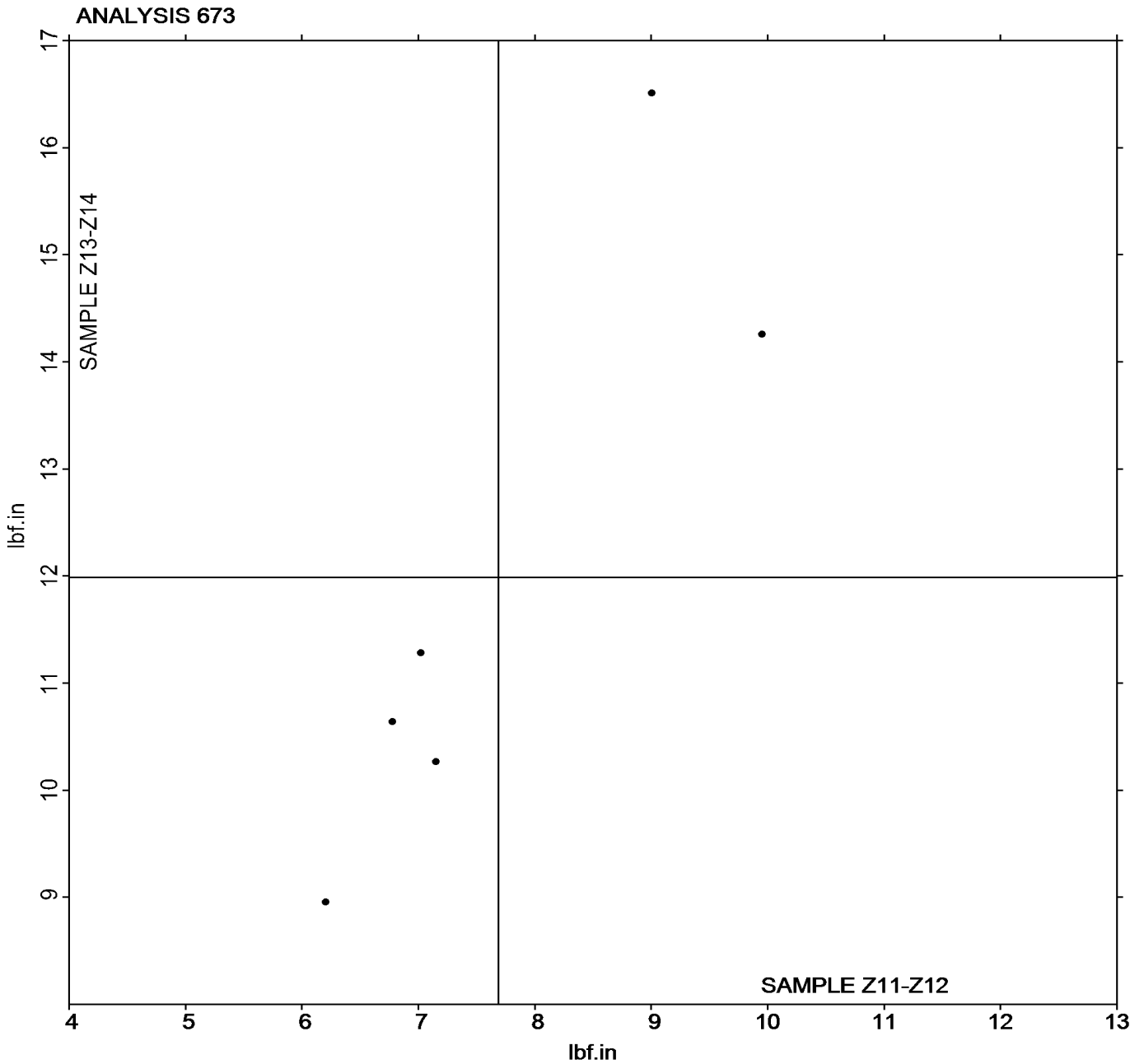


**Rubber Interlaboratory Testing Program**  
**Analysis 673**  
**ODR Vulcanization: Minimum Torque (lbf.in)**

**Report #210**  
**4th Qtr 2021**

Grand Mean Sample **Z11-Z12** = 7.6864 lbf.in

Grand Mean Sample **Z13-Z14** = 11.984 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 #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample Z11-Z12			Sample Z13-Z14		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
9DD3ZL		42.72	-3.16	-1.21	37.81	-2.53	-0.69
ARP2HR		48.75	2.86	1.10	40.80	0.46	0.13
BW32EJ		43.17	-2.72	-1.04	40.33	-0.01	0.00
HKLUEB		46.07	0.18	0.07	35.95	-4.39	-1.20
MKN4FH		48.80	2.92	1.12	40.38	0.04	0.01
Y6W843		45.79	-0.09	-0.03	46.78	6.44	1.75

Summary Statistics			
Grand Means		45.882 lbf.in	40.341 lbf.in
Std Dev Btwn Labs		2.614 lbf.in	3.669 lbf.in
Statistics based on 6 of 6 reporting participants			

Summary Statistics in SI Units			
Grand Means		51.840 dN.m	45.580 dN.m
Std Dev Btwn Labs		2.953 dN.m	4.145 dN.m
Statistics based on 6 of 6 reporting participants			

Samples Z11-Z12: EPDM compound, batch #1 & Z13-Z14: EPDM compound, batch #2

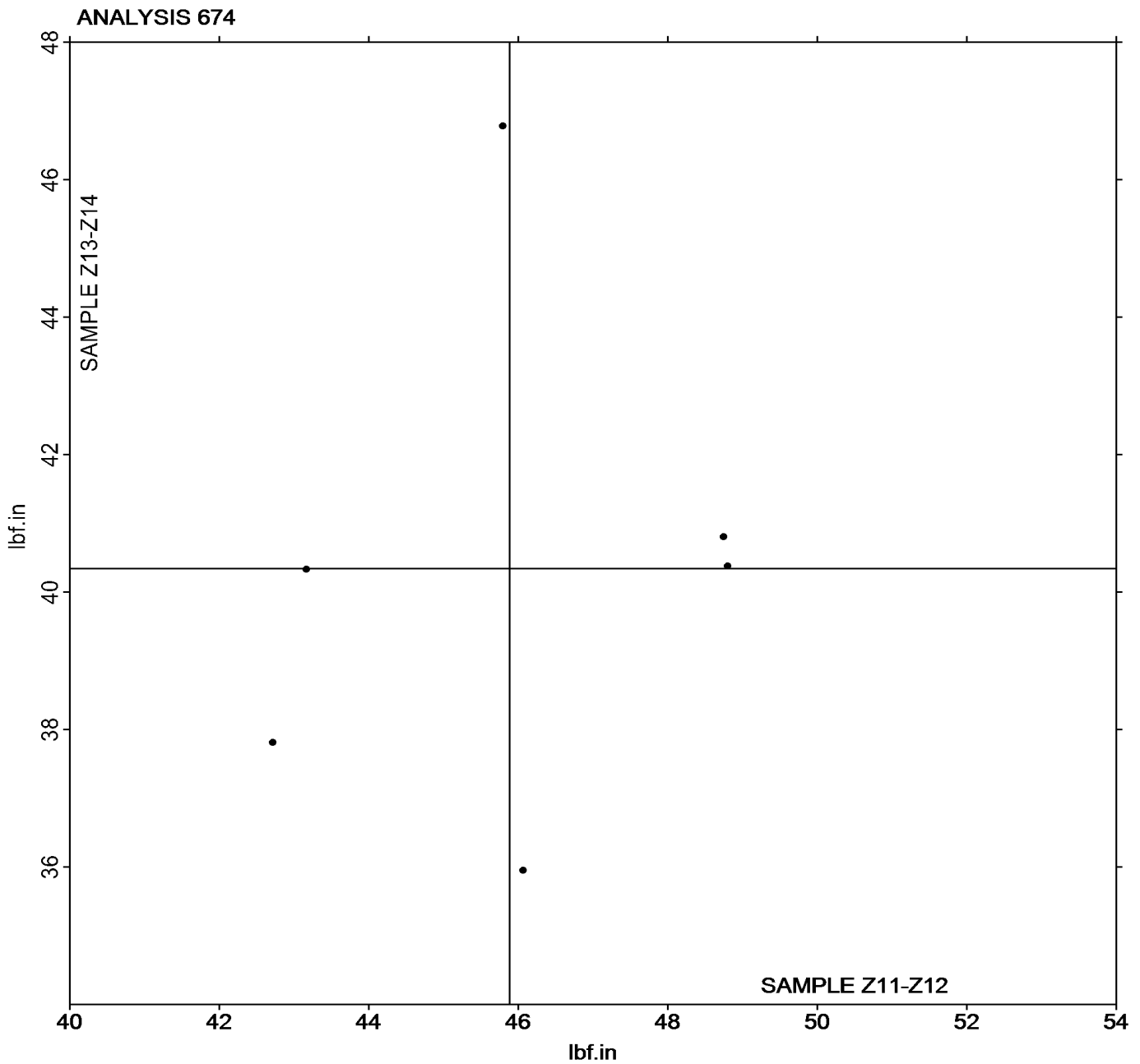


**Rubber Interlaboratory Testing Program**  
**Analysis 674**  
**ODR Vulcanization: Maximum Torque (lbf.in)**

**Report #210**  
**4th Qtr 2021**

Grand Mean Sample **Z11-Z12** = 45.882 lbf.in

Grand Mean Sample **Z13-Z14** = 40.341 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 #210

## Analysis 684

4th Qtr 2021

### MDR Vulcanization-Cure Time 10% (minutes)

WebCode	Data Flag	Sample Z15-Z16			Sample Z17-Z18			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2EXEYT		2.167	0.077	0.68	2.352	0.026	0.25	MM
3VE2GM		2.205	0.115	1.02	2.232	-0.094	-0.89	ME
4BLDRC	*	1.777	-0.313	-2.75	2.082	-0.244	-2.33	MC
4RWXQ6		2.094	0.005	0.04	2.408	0.083	0.80	MC
7YKPQU		2.000	-0.090	-0.79	2.387	0.061	0.59	MC
8YYDQZ		2.063	-0.026	-0.23	2.402	0.076	0.73	ME
9DD3ZL	X	1.777	-0.313	-2.75	1.922	-0.404	-3.86	XX
9Q2ATG		2.142	0.052	0.46	2.245	-0.080	-0.77	ME
AMJ63X		2.125	0.035	0.31	2.445	0.120	1.15	MM
BJEYWQ		1.855	-0.235	-2.07	2.135	-0.190	-1.82	MR
BMF3QY		2.128	0.039	0.34	2.322	-0.004	-0.03	MD
BW32EJ		2.177	0.087	0.77	2.383	0.058	0.56	MC
DHYGUX		2.155	0.065	0.58	2.323	-0.002	-0.02	MC
EC38YP		2.287	0.197	1.73	2.488	0.163	1.56	XX
EGFY7H		2.108	0.019	0.16	2.272	-0.054	-0.51	MR
G4JPFE		2.045	-0.045	-0.39	2.248	-0.077	-0.73	XX
GYPQ7P		1.875	-0.215	-1.89	2.118	-0.207	-1.98	MC
HKLUEB		2.110	0.020	0.18	2.337	0.011	0.11	MM
HPV3MR		2.192	0.102	0.90	2.489	0.164	1.57	MC
J9RV6J		2.238	0.149	1.31	2.260	-0.065	-0.62	MC
JNF8E6		1.897	-0.193	-1.70	2.285	-0.040	-0.38	MD
KBQNFU		2.222	0.132	1.16	2.532	0.206	1.97	MP
KJ6APX		2.073	-0.016	-0.14	2.467	0.141	1.35	ME
KRGB47		2.075	-0.015	-0.13	2.415	0.090	0.86	ME
LQK9WG		2.007	-0.083	-0.73	2.222	-0.104	-0.99	MC
MKN4FH		2.015	-0.075	-0.66	2.385	0.060	0.57	MC
ML7WE8		2.012	-0.078	-0.69	2.175	-0.150	-1.44	MC
MW4XVH		1.965	-0.125	-1.10	2.255	-0.070	-0.67	MC
NBFTNJ		2.002	-0.088	-0.77	2.387	0.061	0.59	MC
PEWHNL		2.122	0.032	0.28	2.342	0.016	0.16	MD
PNJHX6		2.087	-0.003	-0.03	2.270	-0.055	-0.53	MM
QQ23HY		2.257	0.167	1.47	2.318	-0.007	-0.07	MC
RCJMWE		2.192	0.102	0.90	2.293	-0.032	-0.30	MD
RDVLQN		2.052	-0.038	-0.33	2.363	0.038	0.36	MC
T3PYEG		2.110	0.020	0.18	2.293	-0.032	-0.30	MC
URNXEH		2.150	0.060	0.53	2.342	0.016	0.16	MP
V2QDZG		2.157	0.067	0.59	2.443	0.118	1.13	MM
VGHHZX		2.148	0.059	0.52	2.365	0.040	0.38	MX



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

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample Z15-Z16			Sample Z17-Z18			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
VQ9V8A		2.155	0.065	0.58	2.240	-0.085	-0.81	MC
XZBVV2		2.265	0.175	1.54	2.487	0.161	1.54	MC
YDNPKW		1.983	-0.106	-0.94	2.187	-0.139	-1.32	ME
YMDCU2		1.970	-0.120	-1.05	2.323	-0.002	-0.02	ME
ZZDENU		2.108	0.019	0.16	2.342	0.016	0.16	MC

Summary Statistics	
Grand Means	
	2.0896 minutes
	2.3252 minutes
Std Dev Btwn Labs	
	0.1136 minutes
	0.1046 minutes
	Statistics based on 42 of 43 reporting participants

Samples Z15-Z16: EPDM compound, batch #1 & Z17-Z18: EPDM compound, batch #2

**Comments on Assigned Data Flags for Test #684**

9DD3ZL (X) - Data for all samples are low. Inconsistent within the determinations of sample group Z17-Z18.

**Key to Instrument Codes Reported by Participants**

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

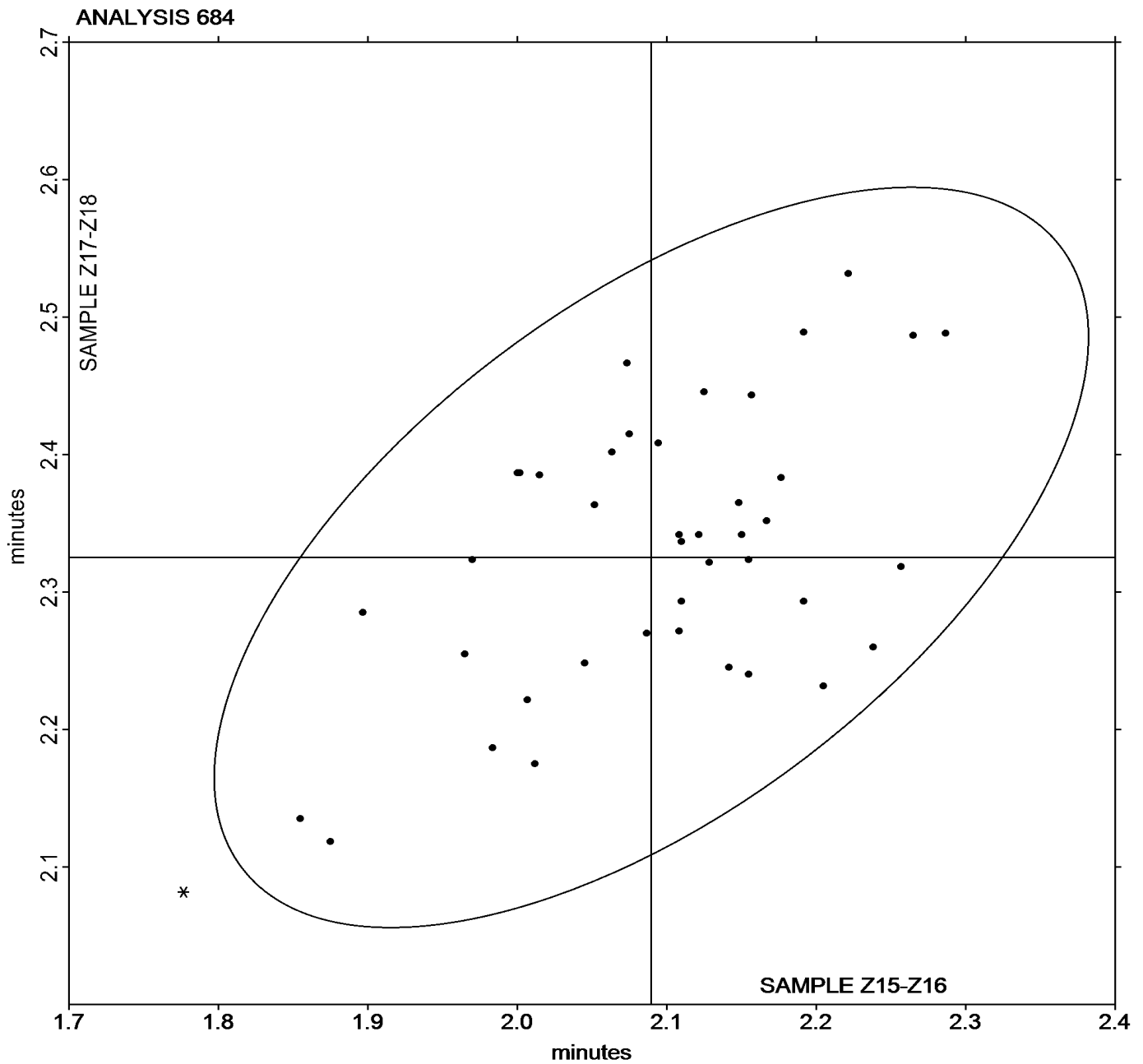


**Rubber Interlaboratory Testing Program**  
**Analysis 684**  
**MDR Vulcanization-Cure Time 10% (minutes)**

**Report #210**  
**4th Qtr 2021**

Grand Mean Sample **Z15-Z16** = 2.0896 minutes

Grand Mean Sample **Z17-Z18** = 2.3252 minutes





# Rubber Interlaboratory Testing Program

Report #210

## Analysis 685

4th Qtr 2021

### MDR Vulcanization-Scorch Time, Ts1 (minutes)

WebCode	Data Flag	Sample Z15-Z16			Sample Z17-Z18			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2EXEYT		2.197	0.175	1.22	2.388	0.174	1.28	MM
3VE2GM		2.172	0.150	1.05	2.200	-0.014	-0.11	ME
4BLDRC	*	1.587	-0.435	-3.04	1.863	-0.352	-2.58	MC
4RWXQ6		2.064	0.042	0.29	2.344	0.130	0.96	MC
7YKPU		1.978	-0.044	-0.30	2.238	0.024	0.18	MC
8YYDQZ		1.975	-0.047	-0.33	2.260	0.046	0.34	ME
92KMBK		1.727	-0.295	-2.07	1.910	-0.304	-2.23	MR
9DD3ZL		1.780	-0.242	-1.69	1.922	-0.293	-2.15	XX
9Q2ATG		2.107	0.085	0.59	2.200	-0.014	-0.11	ME
9YFRT3	X	0.750	-1.272	-8.90	0.793	-1.421	-10.43	MC
AMJ63X		2.121	0.099	0.69	2.212	-0.002	-0.02	MM
BJEYWQ		1.885	-0.137	-0.96	2.120	-0.094	-0.69	MR
BMF3QY		2.097	0.075	0.52	2.285	0.071	0.52	MD
BW32EJ		2.180	0.158	1.11	2.357	0.142	1.05	MC
DHYGUX		2.147	0.125	0.87	2.280	0.066	0.48	MC
EC38YP		2.130	0.108	0.76	2.278	0.064	0.47	XX
EGFY7H		2.028	0.006	0.05	2.222	0.007	0.05	MR
G4JPFE		1.868	-0.154	-1.07	2.007	-0.208	-1.52	XX
GYPQ7P		1.793	-0.229	-1.60	1.988	-0.226	-1.66	MC
HFUFXF		1.908	-0.114	-0.80	2.003	-0.212	-1.56	MC
HKLUEB		2.147	0.125	0.87	2.348	0.134	0.98	MM
HPV3MR		2.128	0.106	0.74	2.342	0.127	0.94	MC
J9RV6J		2.117	0.095	0.66	2.133	-0.081	-0.59	MC
JNF8E6		1.785	-0.237	-1.66	2.153	-0.061	-0.45	MD
KBQNFU		2.125	0.103	0.72	2.402	0.187	1.38	MC
KJ6APX		1.880	-0.142	-0.99	2.170	-0.044	-0.33	ME
KRGB47		2.013	-0.009	-0.06	2.280	0.066	0.48	ME
LQK9WG		1.998	-0.024	-0.16	2.203	-0.011	-0.08	MC
MKN4FH		2.015	-0.007	-0.05	2.315	0.101	0.74	MC
ML7WE8		2.008	-0.014	-0.09	2.173	-0.041	-0.30	MC
MW4XVH		2.005	-0.017	-0.12	2.260	0.046	0.34	MC
NBFTNJ		1.937	-0.085	-0.60	2.272	0.057	0.42	MC
PEWHNL		2.128	0.106	0.74	2.293	0.079	0.58	MD
PNJHX6		1.987	-0.035	-0.25	2.180	-0.034	-0.25	MM
QQ23HY		2.192	0.170	1.19	2.255	0.041	0.30	MC
RCJMWE		2.193	0.171	1.20	2.245	0.031	0.23	MD
RDVLQN		2.013	-0.009	-0.06	2.302	0.087	0.64	MC
T3PYEG		2.133	0.111	0.78	2.303	0.089	0.65	MC





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

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample Z15-Z16			Sample Z17-Z18			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
URNXEH		1.937	-0.085	-0.60	2.083	-0.131	-0.96	MP
V2QDZG		2.232	0.210	1.47	2.508	0.294	2.16	MM
VGHHZX		1.963	-0.059	-0.41	2.157	-0.058	-0.42	MX
VQ9V8A		2.095	0.073	0.51	2.135	-0.079	-0.58	MC
XZBVV2		2.218	0.196	1.37	2.370	0.156	1.14	MC
YDNPKW		1.955	-0.067	-0.47	2.130	-0.084	-0.62	ME
YMDCU2		1.970	-0.052	-0.36	2.298	0.084	0.62	ME
ZZDENU		2.068	0.046	0.32	2.257	0.042	0.31	MC

Grand Means		Summary Statistics	
	2.0219 minutes		2.2143 minutes
Std Dev Btwn Labs	0.1429 minutes		0.1362 minutes
Statistics based on 45 of 46 reporting participants			

Samples Z15-Z16: EPDM compound, batch #1 & Z17-Z18: EPDM compound, batch #2

**Comments on Assigned Data Flags for Test #685**

9YFRT3 (X) - Data for all samples are very low.

**Key to Instrument Codes Reported by Participants**

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

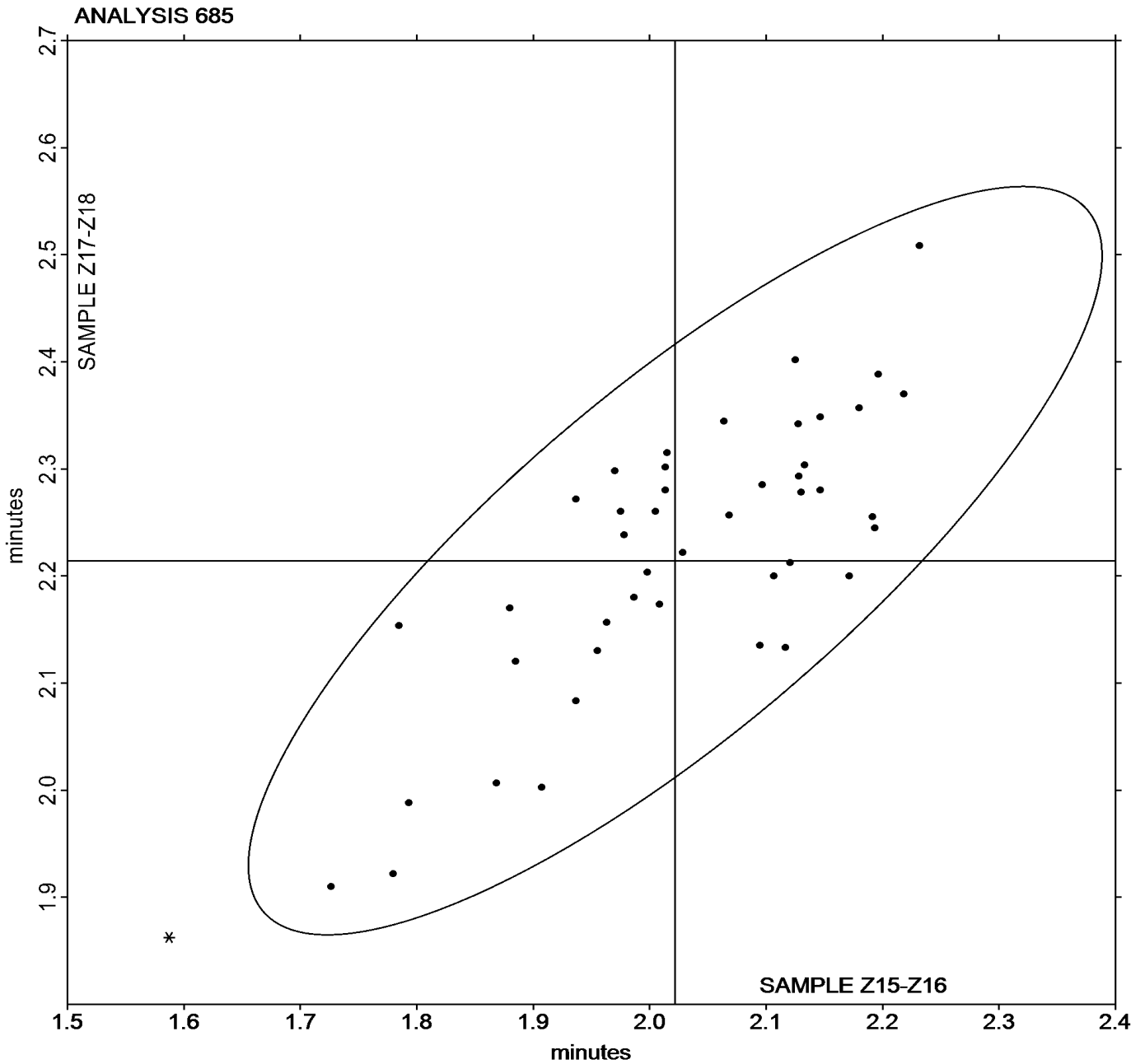


Rubber Interlaboratory Testing Program  
Analysis 685  
MDR Vulcanization-Scorch Time, Ts1 (minutes)

Report #210  
4th Qtr 2021

Grand Mean Sample Z15-Z16 = 2.0219 minutes

Grand Mean Sample Z17-Z18 = 2.2143 minutes





# Rubber Interlaboratory Testing Program

Report #210

## Analysis 686

4th Qtr 2021

### MDR Vulcanization-Cure Time 50% (minutes)

WebCode	Data Flag	Sample Z15-Z16			Sample Z17-Z18			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2EXEYT		4.927	0.288	1.16	5.273	0.136	0.67	MM
3VE2GM		4.847	0.208	0.84	4.997	-0.141	-0.69	ME
4BLDRC	*	4.018	-0.620	-2.50	4.653	-0.484	-2.38	MC
4RWXQ6		4.739	0.100	0.40	5.378	0.241	1.18	MC
7YKPQU		4.423	-0.215	-0.87	5.177	0.039	0.19	MC
8YYDQZ		4.573	-0.065	-0.26	5.233	0.096	0.47	ME
92KMBK		4.477	-0.162	-0.65	5.028	-0.109	-0.54	MR
9DD3ZL		4.363	-0.275	-1.11	4.782	-0.356	-1.75	XX
9Q2ATG		4.832	0.193	0.78	5.062	-0.076	-0.37	ME
9YFRT3	X	1.313	-3.325	-13.38	1.392	-3.746	-18.45	MC
AMJ63X		4.898	0.259	1.04	5.218	0.080	0.40	MM
BJEYWQ		4.470	-0.169	-0.68	5.150	0.013	0.06	MR
BMF3QY		4.688	0.050	0.20	5.128	-0.009	-0.04	MD
BW32EJ		4.882	0.243	0.98	5.362	0.224	1.10	MC
DHYGUX		4.807	0.168	0.68	5.227	0.089	0.44	MC
EC38YP	*	5.237	0.598	2.41	5.662	0.524	2.58	XX
EGFY7H		4.617	-0.022	-0.09	5.068	-0.069	-0.34	MR
G4JPFE		4.427	-0.212	-0.85	4.902	-0.236	-1.16	XX
GYPQ7P		4.422	-0.217	-0.87	4.995	-0.142	-0.70	MC
HFUFXF		4.840	0.201	0.81	5.116	-0.022	-0.11	MC
HKLUEB		4.507	-0.132	-0.53	5.053	-0.084	-0.41	MM
HPV3MR		4.772	0.134	0.54	5.314	0.177	0.87	MC
J9RV6J		5.048	0.410	1.65	5.115	-0.022	-0.11	MC
JNF8E6		4.158	-0.480	-1.93	5.000	-0.137	-0.68	MD
KBQNFU	*	5.007	0.368	1.48	5.680	0.543	2.67	MC
KJ6APX		4.545	-0.094	-0.38	5.278	0.141	0.69	ME
KRGB47		4.582	-0.057	-0.23	5.322	0.184	0.91	ME
LQK9WG		4.475	-0.164	-0.66	4.942	-0.196	-0.96	MC
MKN4FH		4.457	-0.182	-0.73	5.210	0.073	0.36	MC
ML7WE8		4.462	-0.177	-0.71	4.827	-0.311	-1.53	MC
MW4XVH		4.378	-0.260	-1.05	5.012	-0.126	-0.62	MC
NBFTNJ		4.352	-0.287	-1.16	5.185	0.048	0.23	MC
PEWHNL		4.670	0.031	0.13	5.155	0.018	0.09	MD
PNJHX6		4.515	-0.124	-0.50	4.972	-0.166	-0.82	MM
QQ23HY		5.053	0.415	1.67	5.210	0.073	0.36	MC
RCJMWE		4.852	0.213	0.86	5.078	-0.059	-0.29	MD
RDVLQN		4.620	-0.019	-0.08	5.307	0.169	0.83	MC
T3PYEG		4.742	0.103	0.41	5.148	0.011	0.05	MC



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

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample Z15-Z16			Sample Z17-Z18			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
URNXEH		4.648	0.010	0.04	5.090	-0.047	-0.23	MC
V2QDZG		4.633	-0.005	-0.02	5.253	0.116	0.57	MM
VGHHZX		4.590	-0.049	-0.20	5.133	-0.004	-0.02	MX
VQ9V8A		4.865	0.226	0.91	5.115	-0.022	-0.11	MC
XZBVV2		4.933	0.295	1.19	5.410	0.273	1.34	MC
YDNPKW		4.337	-0.302	-1.22	4.735	-0.402	-1.98	ME
YMDCU2		4.477	-0.162	-0.65	5.223	0.086	0.42	ME
ZZDENU		4.577	-0.062	-0.25	5.005	-0.132	-0.65	MC

Grand Means		Summary Statistics	
	4.6386 minutes		5.1374 minutes
Std Dev Btwn Labs	0.2484 minutes		0.2030 minutes
Statistics based on 45 of 46 reporting participants			

Samples Z15-Z16: EPDM compound, batch #1 & Z17-Z18: EPDM compound, batch #2

**Comments on Assigned Data Flags for Test #686**

9YFRT3 (X) - Data for all samples are very low.

**Key to Instrument Codes Reported by Participants**

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

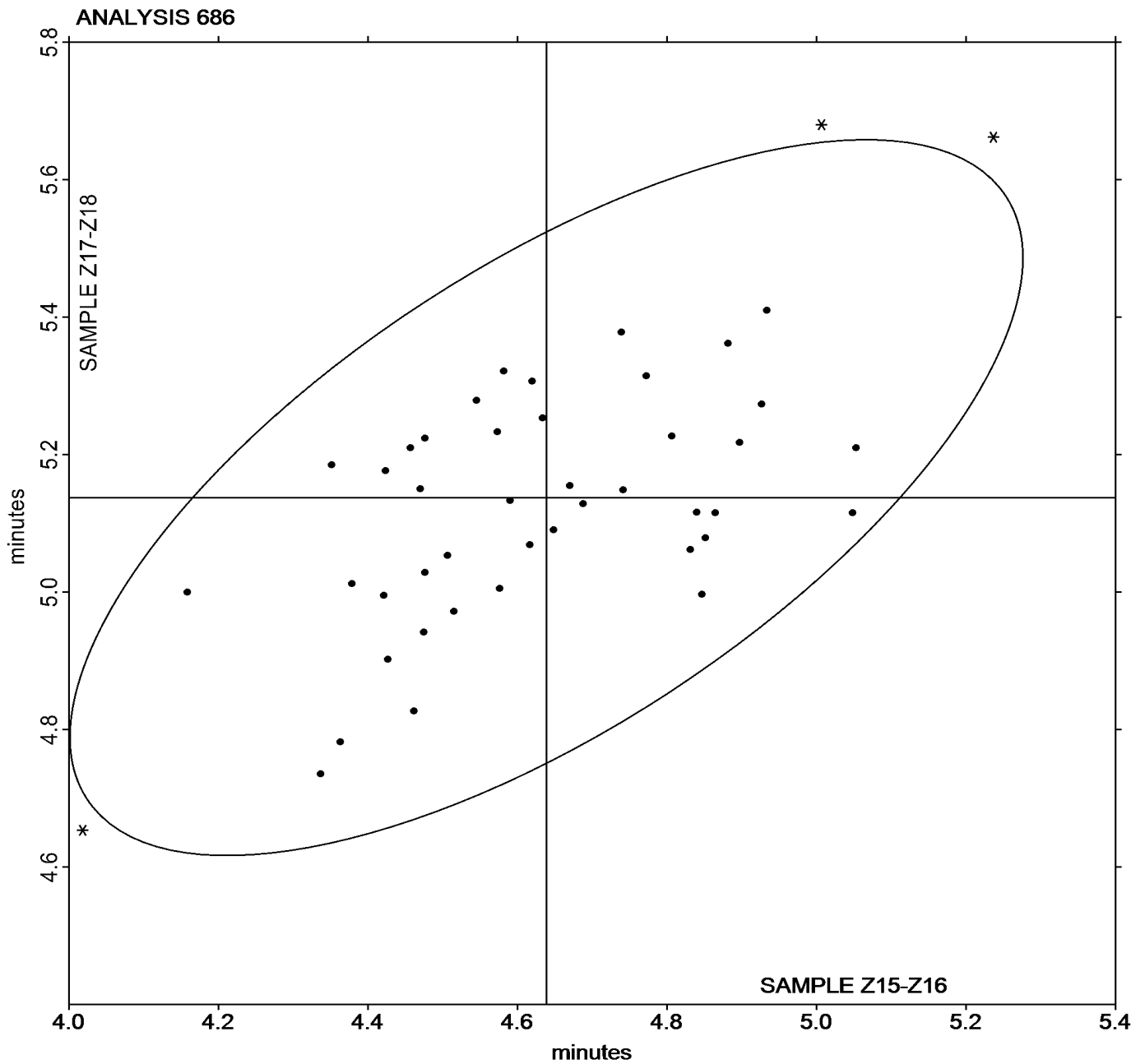


**Rubber Interlaboratory Testing Program**  
**Analysis 686**  
**MDR Vulcanization-Cure Time 50% (minutes)**

**Report #210**  
**4th Qtr 2021**

Grand Mean Sample **Z15-Z16** = 4.6386 minutes

Grand Mean Sample **Z17-Z18** = 5.1374 minutes





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

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample Z15-Z16			Sample Z17-Z18			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2EXEYT		8.563	0.674	1.63	9.035	0.440	1.04	MM
3VE2GM		8.020	0.131	0.32	8.108	-0.487	-1.15	ME
4BLDRC		7.378	-0.511	-1.23	8.060	-0.536	-1.27	MC
4RWXQ6		7.911	0.022	0.05	8.892	0.296	0.70	MC
7YKPQU		7.595	-0.294	-0.71	8.722	0.126	0.30	MC
8YYDQZ		7.695	-0.194	-0.47	8.620	0.025	0.06	ME
92KMBK		7.777	-0.112	-0.27	8.502	-0.094	-0.22	MR
9DD3ZL		7.818	-0.071	-0.17	8.265	-0.330	-0.78	XX
9Q2ATG		8.357	0.468	1.13	8.572	-0.024	-0.06	ME
9YFRT3	X	2.095	-5.794	-13.97	2.172	-6.424	-15.20	MC
AMJ63X	*	7.932	0.043	0.10	9.466	0.870	2.06	MM
BJEYWQ		7.315	-0.574	-1.38	8.405	-0.190	-0.45	MR
BMF3QY		7.927	0.038	0.09	8.400	-0.195	-0.46	MD
BW32EJ		8.217	0.328	0.79	8.825	0.230	0.54	MC
DHYGUX		7.993	0.104	0.25	8.653	0.058	0.14	MC
EC38YP	*	9.032	1.143	2.75	9.562	0.966	2.29	XX
EGFY7H		7.988	0.099	0.24	8.402	-0.194	-0.46	MR
G4JPFE		7.403	-0.486	-1.17	8.032	-0.564	-1.33	XX
GYPQ7P		7.343	-0.546	-1.32	8.185	-0.410	-0.97	MC
HFUFXF		8.233	0.343	0.83	8.735	0.140	0.33	MC
HKLUEB		7.188	-0.701	-1.69	7.955	-0.640	-1.52	MM
HPV3MR		8.042	0.153	0.37	8.950	0.355	0.84	MC
J9RV6J		8.137	0.248	0.60	8.240	-0.355	-0.84	MC
JNF8E6		7.952	0.063	0.15	8.970	0.375	0.89	MD
KBQNFU		8.713	0.824	1.99	9.615	1.020	2.41	MC
KJ6APX		7.925	0.036	0.09	9.108	0.513	1.21	ME
KRGB47		7.803	-0.086	-0.21	8.730	0.135	0.32	ME
LQK9WG		7.288	-0.601	-1.45	7.915	-0.680	-1.61	MC
MKN4FH		7.620	-0.269	-0.65	8.838	0.243	0.57	MC
ML7WE8		7.630	-0.259	-0.62	7.997	-0.599	-1.42	MC
MW4XVH		7.435	-0.454	-1.09	8.357	-0.239	-0.57	MC
NBFTNJ		7.268	-0.621	-1.50	8.272	-0.324	-0.77	MC
PEWHNL		7.882	-0.007	-0.02	8.508	-0.087	-0.21	MD
PNJHX6		7.832	-0.057	-0.14	8.475	-0.120	-0.29	MM
QQ23HY		8.668	0.779	1.88	8.853	0.258	0.61	MC
RCJMWE		8.030	0.141	0.34	8.458	-0.137	-0.32	MD
RDVLQN		7.672	-0.217	-0.52	8.478	-0.117	-0.28	MC
T3PYEG		7.968	0.079	0.19	8.593	-0.002	-0.01	MC



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

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample Z15-Z16			Sample Z17-Z18			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
URNXEH		8.132	0.243	0.58	8.785	0.190	0.45	MP
V2QDZG		7.600	-0.289	-0.70	8.485	-0.110	-0.26	MM
VGHHZX		7.995	0.106	0.26	8.690	0.095	0.22	MX
VQ9V8A		7.725	-0.164	-0.40	8.400	-0.195	-0.46	MC
XZBVV2		8.297	0.408	0.98	9.080	0.485	1.15	MC
YDNPKW		7.288	-0.601	-1.45	7.795	-0.800	-1.89	ME
YMDCU2		7.988	0.099	0.24	8.673	0.078	0.18	ME
ZZDENU		8.435	0.546	1.32	9.137	0.541	1.28	MC

Grand Means		Summary Statistics	
	7.8891 minutes		8.5955 minutes
Std Dev Btwn Labs	0.4148 minutes		0.4227 minutes
Statistics based on 45 of 46 reporting participants			

Samples Z15-Z16: EPDM compound, batch #1 & Z17-Z18: EPDM compound, batch #2

**Comments on Assigned Data Flags for Test #687**

9YFRT3 (X) - Data for all samples are very low.

**Key to Instrument Codes Reported by Participants**

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

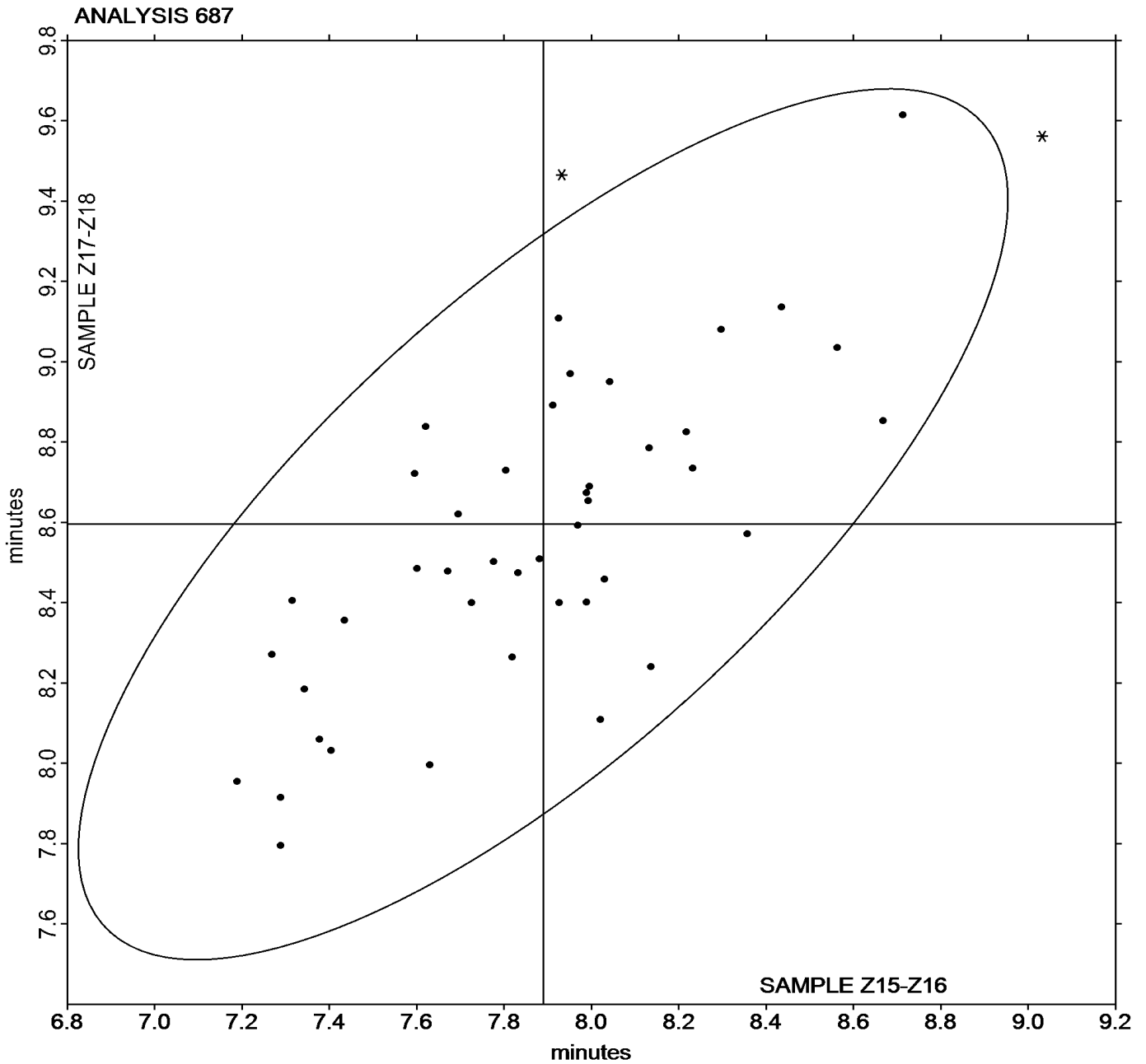


Rubber Interlaboratory Testing Program  
Analysis 687  
MDR Vulcanization-Cure Time 90% (minutes)

Report #210  
4th Qtr 2021

Grand Mean Sample Z15-Z16 = 7.8891 minutes

Grand Mean Sample Z17-Z18 = 8.5955 minutes







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

**Report #210**  
**4th Qtr 2021**

WebCode	Data Flag	Sample Z15-Z16			Sample Z17-Z18			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2EXEYT		2.502	0.029	0.13	2.380	0.110	0.49	MM
3VE2GM		2.322	-0.151	-0.66	2.028	-0.242	-1.07	ME
4BLDRC	*	3.070	0.597	2.63	2.832	0.562	2.48	MC
4RWXQ6	*	2.402	-0.071	-0.31	2.417	0.147	0.65	MC
7YKPQU		2.490	0.018	0.08	2.187	-0.083	-0.37	MC
8YYDQZ		2.310	-0.162	-0.71	2.167	-0.103	-0.46	ME
92KMBK		2.342	-0.131	-0.57	2.152	-0.118	-0.52	MR
9DD3ZL		2.145	-0.327	-1.44	1.968	-0.302	-1.33	MM
9Q2ATG		2.453	-0.019	-0.08	2.205	-0.065	-0.29	ME
9YFRT3		2.190	-0.282	-1.24	2.057	-0.213	-0.94	MC
AMJ63X	*	2.348	-0.124	-0.55	2.388	0.118	0.52	MM
BJEYWQ		2.400	-0.072	-0.32	2.215	-0.055	-0.24	MR
BMF3QY		2.361	-0.111	-0.49	2.163	-0.107	-0.47	MD
BW32EJ		2.270	-0.202	-0.89	2.122	-0.148	-0.66	MC
DHYGUX		2.413	-0.059	-0.26	2.208	-0.062	-0.27	MC
EC38YP		3.015	0.543	2.39	2.716	0.446	1.97	XX
EGFY7H		2.040	-0.432	-1.90	1.888	-0.382	-1.69	MR
G4JPFE		2.788	0.316	1.39	2.562	0.292	1.29	XX
GYPQ7P		2.670	0.198	0.87	2.422	0.152	0.67	MC
HFUFXF		2.443	-0.030	-0.13	2.185	-0.085	-0.38	MC
HKLUEB		2.563	0.091	0.40	2.328	0.058	0.26	MM
HPV3MR		2.467	-0.006	-0.02	2.218	-0.052	-0.23	MC
J9RV6J		2.260	-0.212	-0.93	1.990	-0.280	-1.24	MC
JNF8E6	X	4.085	1.612	7.09	3.636	1.366	6.03	MD
KBQNFU		2.600	0.128	0.56	2.437	0.167	0.74	MC
KJ6APX		2.629	0.156	0.69	2.449	0.179	0.79	ME
KRGB47		2.542	0.069	0.30	2.224	-0.046	-0.20	ME
LQK9WG		2.327	-0.146	-0.64	2.120	-0.150	-0.66	MC
MKN4FH	*	2.735	0.263	1.16	2.698	0.428	1.89	MC
ML7WE8		2.738	0.266	1.17	2.538	0.268	1.18	MC
MW4XVH		2.692	0.219	0.96	2.467	0.197	0.87	MC
NBFTNJ		2.680	0.208	0.91	2.391	0.121	0.54	MC
PEWHNL		2.282	-0.191	-0.84	2.053	-0.217	-0.96	MD
PNJHX6		2.895	0.423	1.86	2.667	0.397	1.75	MM
QQ23HY		2.243	-0.229	-1.01	2.023	-0.247	-1.09	MC
RCJMWE		2.312	-0.161	-0.71	2.051	-0.219	-0.97	MD
RDVLQN		2.422	-0.051	-0.22	2.263	-0.007	-0.03	MC
T3PYEG		2.598	0.126	0.55	2.442	0.172	0.76	MC



# Rubber Interlaboratory Testing Program

Report #210

## Analysis 688

4th Qtr 2021

### MDR Vulcanization: Minimum Torque (lbf.in)

WebCode	Data Flag	Sample Z15-Z16			Sample Z17-Z18			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
URNXEH		2.286	-0.186	-0.82	2.064	-0.206	-0.91	MP
V2QDZG		2.425	-0.047	-0.21	2.225	-0.045	-0.20	MM
VGHHZX		2.285	-0.187	-0.82	2.115	-0.155	-0.68	MX
VQ9V8A		2.337	-0.136	-0.60	2.046	-0.224	-0.99	MC
XZBVV2		2.360	-0.112	-0.49	2.065	-0.205	-0.91	MC
YDNPKW		2.820	0.348	1.53	2.612	0.342	1.51	ME
YMDCU2		2.220	-0.252	-1.11	2.037	-0.233	-1.03	ME
ZZDENU		2.563	0.091	0.40	2.367	0.097	0.43	MC

Grand Means		Summary Statistics	
	2.4723 lbf.in		2.2700 lbf.in
Std Dev Btwn Labs	0.2273 lbf.in		0.2264 lbf.in
Statistics based on 45 of 46 reporting participants			

Grand Means		Summary Statistics in SI Units	
	2.7933 dN.m		2.5648 dN.m
Std Dev Btwn Labs	0.2569 dN.m		0.2558 dN.m
Statistics based on 45 of 46 reporting participants			

Samples Z15-Z16: EPDM compound, batch #1 & Z17-Z18: EPDM compound, batch #2

### Comments on Assigned Data Flags for Test #688

JNF8E6 (X) - Data for all samples are high. Possible Systematic Error. Inconsistent within the determinations of sample group Z15-Z16.

### Key to Instrument Codes Reported by Participants

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

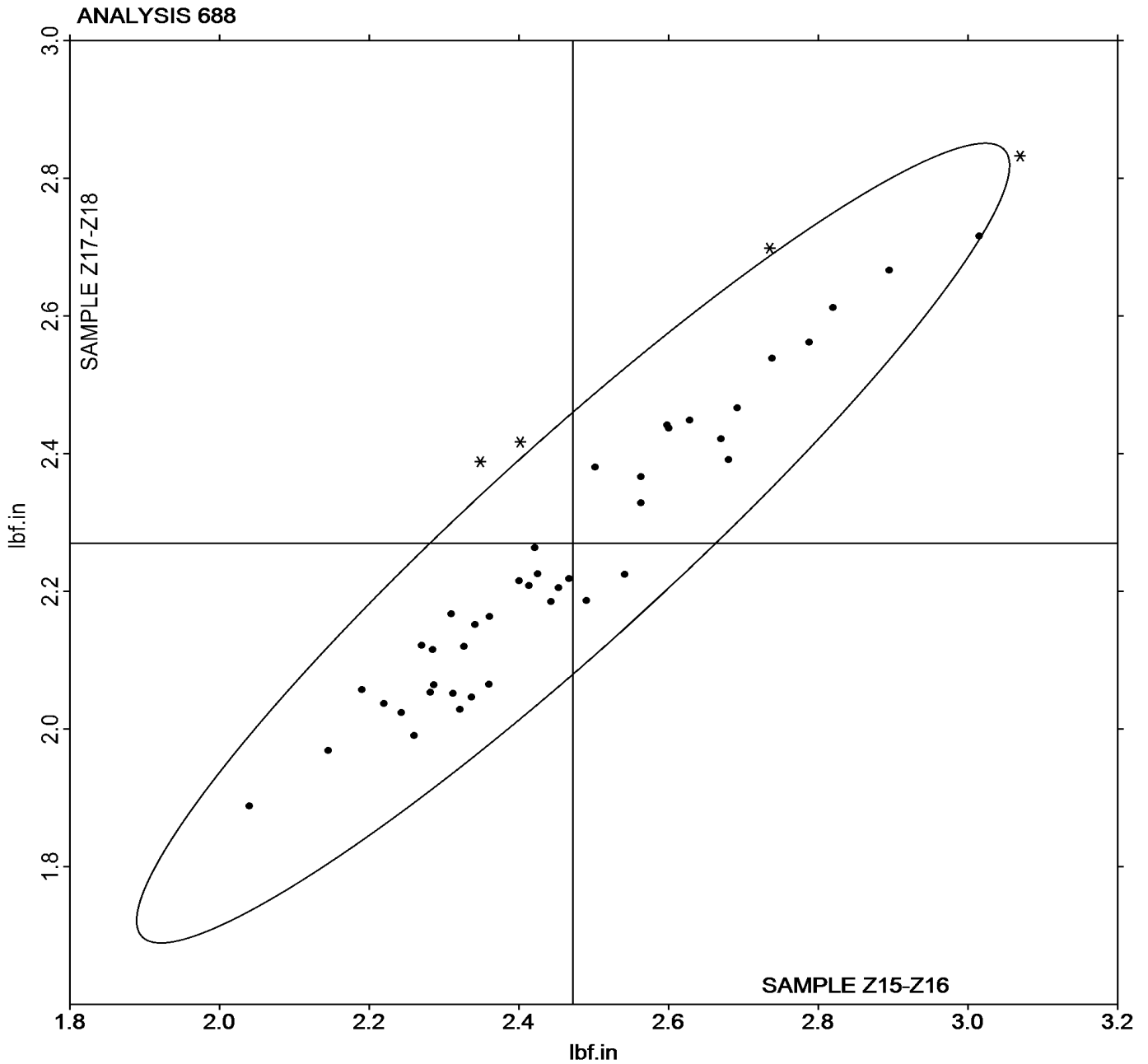


**Rubber Interlaboratory Testing Program**  
**Analysis 688**  
**MDR Vulcanization: Minimum Torque (lbf.in)**

**Report #210**  
**4th Qtr 2021**

Grand Mean Sample **Z15-Z16** = 2.4723 lbf.in

Grand Mean Sample **Z17-Z18** = 2.2700 lbf.in





# Rubber Interlaboratory Testing Program

Report #210

## Analysis 689

4th Qtr 2021

### MDR Vulcanization: Maximum Torque (lbf.in)

WebCode	Data Flag	Sample Z15-Z16			Sample Z17-Z18			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2EXEYT		12.28	-0.49	-0.64	12.12	-0.66	-0.82	MM
3VE2GM		12.69	-0.07	-0.09	12.26	-0.52	-0.65	ME
4BLDRC		14.11	1.34	1.77	13.83	1.05	1.32	MC
4RWXQ6		12.74	-0.03	-0.04	12.99	0.22	0.27	MC
7YKPQU	*	12.72	-0.04	-0.06	13.65	0.87	1.09	MC
8YYDQZ		11.95	-0.81	-1.07	12.20	-0.57	-0.72	ME
92KMBK		13.08	0.31	0.41	12.93	0.15	0.19	MR
9DD3ZL		13.34	0.58	0.76	13.33	0.55	0.69	MM
9Q2ATG		12.82	0.06	0.08	12.67	-0.11	-0.13	ME
9YFRT3		10.89	-1.88	-2.47	10.76	-2.02	-2.54	MC
AMJ63X	X	12.39	-0.38	-0.50	14.58	1.80	2.26	MM
BJEYWQ		12.19	-0.57	-0.76	12.41	-0.37	-0.46	MR
BMF3QY		11.53	-1.23	-1.63	11.35	-1.43	-1.79	MD
BW32EJ		12.25	-0.52	-0.68	12.37	-0.41	-0.51	MC
DHYGUX		12.84	0.07	0.10	12.65	-0.13	-0.16	MC
EC38YP		13.43	0.66	0.87	13.46	0.69	0.86	XX
EGFY7H		12.88	0.12	0.16	12.39	-0.39	-0.49	MR
G4JPFE	*	14.93	2.17	2.85	15.26	2.48	3.12	XX
GYPQ7P		13.54	0.77	1.02	13.59	0.81	1.02	MC
HFUFXF		13.68	0.91	1.20	13.52	0.74	0.93	MC
HKLUEB		12.21	-0.55	-0.73	12.29	-0.48	-0.61	MM
HPV3MR		13.13	0.36	0.48	13.59	0.81	1.02	MC
J9RV6J		12.20	-0.56	-0.74	11.85	-0.93	-1.17	MC
JNF8E6	*	14.31	1.55	2.04	13.80	1.02	1.28	MD
KBQNFU		13.49	0.73	0.96	13.50	0.72	0.91	MC
KJ6APX		13.44	0.68	0.90	14.07	1.29	1.62	ME
KRGB47		12.01	-0.76	-1.00	12.14	-0.64	-0.80	ME
LQK9WG		12.38	-0.38	-0.50	12.30	-0.47	-0.60	MC
MKN4FH		12.74	-0.03	-0.03	13.36	0.58	0.73	MC
ML7WE8		12.77	0.01	0.01	12.57	-0.21	-0.26	MC
MW4XVH		12.37	-0.40	-0.52	12.43	-0.35	-0.44	MC
NBFTNJ		12.22	-0.54	-0.71	12.24	-0.54	-0.68	MC
PEWHNL		12.20	-0.57	-0.75	12.48	-0.30	-0.38	MD
PNJHX6		14.12	1.36	1.79	13.65	0.87	1.10	MM
QQ23HY		12.84	0.08	0.10	12.55	-0.23	-0.29	MC
RCJMWE		12.33	-0.44	-0.57	12.50	-0.27	-0.34	MD
RDVLQN		12.82	0.06	0.07	12.86	0.08	0.10	MC
T3PYEG		12.38	-0.39	-0.51	12.35	-0.43	-0.54	MC



# Rubber Interlaboratory Testing Program

Report #210

## Analysis 689

4th Qtr 2021

### MDR Vulcanization: Maximum Torque (lbf.in)

WebCode	Data Flag	Sample Z15-Z16			Sample Z17-Z18			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
URNXEH		12.11	-0.66	-0.87	12.07	-0.71	-0.89	MC
V2QDZG		11.78	-0.99	-1.30	11.66	-1.12	-1.40	MM
VGHHZX		13.14	0.38	0.50	12.91	0.13	0.16	MX
VQ9V8A		12.45	-0.31	-0.41	12.44	-0.33	-0.42	MC
XZBVV2		12.81	0.04	0.06	13.08	0.30	0.38	MC
YDNPKW		13.14	0.38	0.49	13.18	0.40	0.50	ME
YMDCU2		12.20	-0.57	-0.75	12.24	-0.54	-0.68	ME
ZZDENU		12.95	0.19	0.24	13.13	0.35	0.45	MC

Grand Means		Summary Statistics	
	12.764 lbf.in		12.777 lbf.in
Stnd Dev Btwn Labs	0.759 lbf.in		0.796 lbf.in
Statistics based on 45 of 46 reporting participants			

Grand Means		Summary Statistics in SI Units	
	14.422 dN.m		14.436 dN.m
Stnd Dev Btwn Labs	0.857 dN.m		0.899 dN.m
Statistics based on 45 of 46 reporting participants			

Samples Z15-Z16: EPDM compound, batch #1 & Z17-Z18: EPDM compound, batch #2

### Comments on Assigned Data Flags for Test #689

AMJ63X (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
XX	Instrument model not specified by lab		





# Rubber Interlaboratory Testing Program

Report #210

## Analysis 690

4th Qtr 2021

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

WebCode	Data Flag	Sample H11-H12			Sample H13-H14			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
4BLDRC		561.0	-11.8	-0.15	535.5	-5.5	-0.08	RP
7YKPQU		517.6	-55.2	-0.71	493.5	-47.5	-0.69	PR
8NGWXT		479.7	-93.0	-1.20	452.8	-88.2	-1.28	RP
AMJ63X		533.5	-39.2	-0.51	503.1	-37.9	-0.55	XX
EC38YP		723.2	150.4	1.94	673.3	132.3	1.93	XX
HFUFXF		496.0	-76.8	-0.99	478.2	-62.7	-0.91	RP
HKLUEB		613.1	40.4	0.52	567.6	26.6	0.39	RP
KRGB47		636.6	63.9	0.82	600.9	59.9	0.87	RP
RCJMWE		594.1	21.3	0.28	563.9	22.9	0.33	RP

Summary Statistics	
Grand Means	572.76 kPa
Stnd Dev Btwn Labs	77.51 kPa
	540.97 kPa
	68.71 kPa
Statistics based on 9 of 9 reporting participants	

Samples H11-H12: EPDM compound, batch #1 & H13-H14: EPDM compound, batch #2

### Key to Instrument Codes Reported by Participants

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

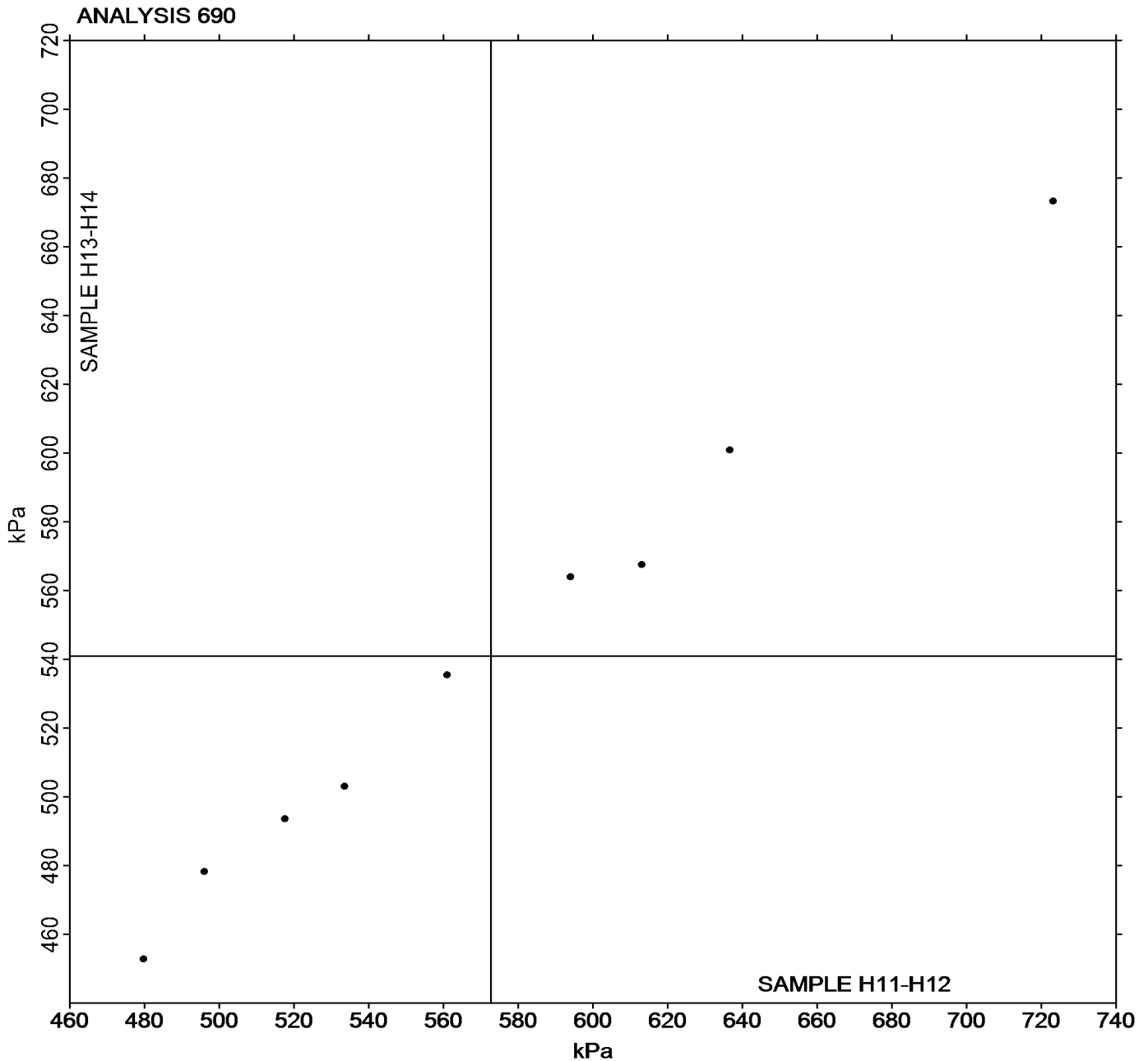


Rubber Interlaboratory Testing Program  
Analysis 690  
RPA Rheological Properties: Part A - G' at 20Hz (kPa)

Report #210  
4th Qtr 2021

Grand Mean Sample H11-H12 = 572.76 kPa

Grand Mean Sample H13-H14 = 540.97 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 #210

## Analysis 691

4th Qtr 2021

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

WebCode	Data Flag	Sample H11-H12			Sample H13-H14			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
4BLDRC		207.4	-13.3	-0.41	205.9	-11.5	-0.39	RP
7YKPQU		219.4	-1.3	-0.04	215.8	-1.6	-0.05	PR
8NGWXT		193.4	-27.3	-0.83	194.7	-22.7	-0.78	RP
AMJ63X		209.2	-11.5	-0.35	205.3	-12.0	-0.41	XX
EC38YP		281.9	61.2	1.87	271.6	54.2	1.86	XX
HFUFXF		199.4	-21.4	-0.65	201.1	-16.3	-0.56	RP
HKLUEB		182.6	-38.1	-1.17	180.8	-36.6	-1.25	RP
KRGB47		262.3	41.6	1.27	255.1	37.7	1.29	RP
RCJMWE		230.7	10.0	0.31	226.1	8.7	0.30	RP

Grand Means		Summary Statistics	
	220.71 kPa		217.38 kPa
Stnd Dev Btwn Labs	32.68 kPa		29.24 kPa
Statistics based on 9 of 9 reporting participants			

Samples H11-H12: EPDM compound, batch #1 & H13-H14: EPDM compound, batch #2

### Key to Instrument Codes Reported by Participants

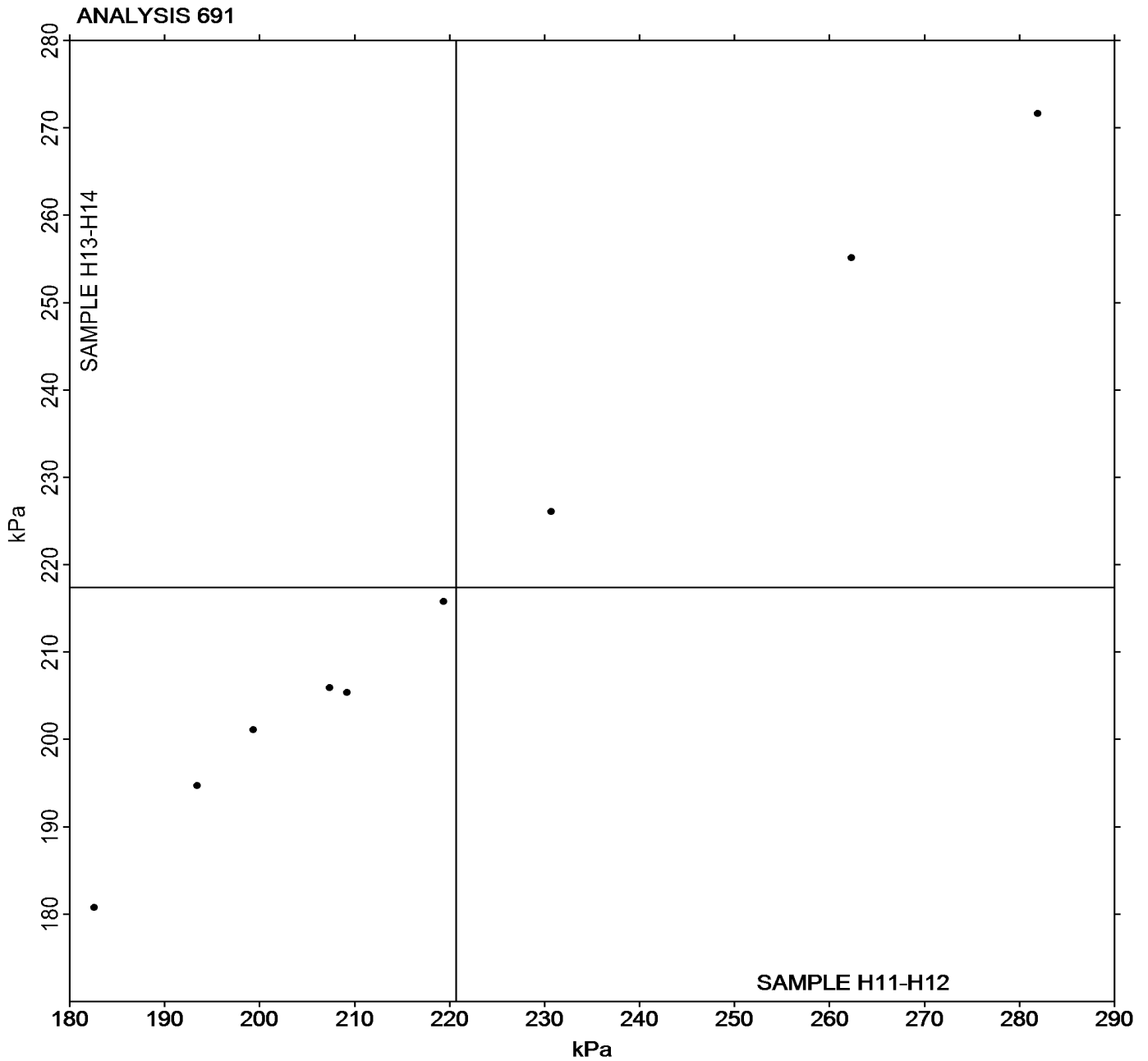
- PR PRPA 2000
- RP RPA 2000
- XX Instrument model not specified by lab



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

Grand Mean Sample H11-H12 = 220.71 kPa

Grand Mean Sample H13-H14 = 217.38 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 #210

## Analysis 695

4th Qtr 2021

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

WebCode	Data Flag	Sample H11-H12			Sample H13-H14			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
4BLDRC		104.05	7.53	0.37	94.14	8.36	0.61	RP
7YKPQU		78.52	-18.00	-0.89	71.57	-14.21	-1.03	PR
8NGWXT		80.25	-16.27	-0.80	71.30	-14.48	-1.05	RP
AMJ63X		92.41	-4.11	-0.20	83.39	-2.39	-0.17	XX
EC38YP		107.60	11.08	0.55	96.22	10.44	0.76	XX
HFUFXF		78.69	-17.83	-0.88	71.96	-13.82	-1.00	RP
HKLUEB		142.79	46.27	2.28	112.56	26.78	1.95	RP
KRGB47		94.84	-1.69	-0.08	87.58	1.81	0.13	RP
RCJMWE		89.55	-6.97	-0.34	83.29	-2.49	-0.18	RP

Summary Statistics	
Grand Means	96.523 kPa
Stnd Dev Btwn Labs	20.297 kPa
	85.778 kPa
	13.756 kPa
Statistics based on 9 of 9 reporting participants	

Samples H11-H12: EPDM compound, batch #1 & H13-H14: EPDM compound, batch #2

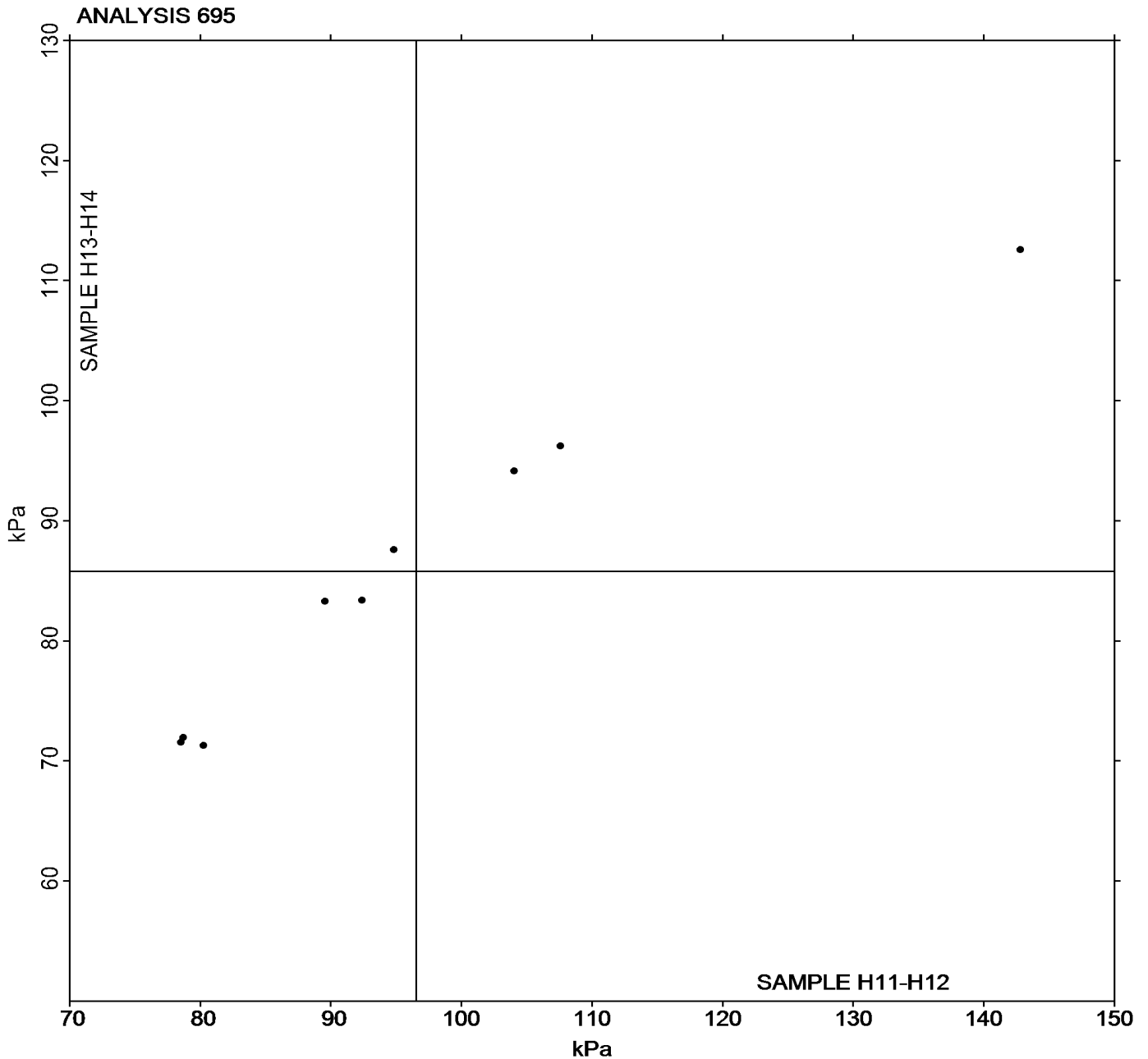
### Key to Instrument Codes Reported by Participants

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



Grand Mean Sample H11-H12 = 96.523 kPa

Grand Mean Sample H13-H14 = 85.778 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 #210

## Analysis 696

4th Qtr 2021

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

WebCode	Data Flag	Sample H11-H12			Sample H13-H14			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
4BLDRC		72.80	-4.42	-0.46	70.96	-3.02	-0.35	RP
7YKPQU		70.94	-6.28	-0.65	68.48	-5.50	-0.63	PR
8NGWXT		66.65	-10.57	-1.10	64.27	-9.71	-1.12	XX
AMJ63X		72.80	-4.42	-0.46	70.15	-3.83	-0.44	XX
EC38YP		92.10	14.88	1.54	86.96	12.98	1.49	XX
HFUFXF		65.86	-11.35	-1.18	65.11	-8.87	-1.02	RP
HKLUEB		81.17	3.95	0.41	72.34	-1.64	-0.19	XX
KRGB47		89.70	12.49	1.29	86.38	12.40	1.43	RP
RCJMWE		82.92	5.71	0.59	81.17	7.19	0.83	RP

Summary Statistics	
Grand Means	77.216 kPa
Stnd Dev Btwn Labs	9.648 kPa
	73.980 kPa
	8.687 kPa
Statistics based on 9 of 9 reporting participants	

Samples H11-H12: EPDM compound, batch #1 & H13-H14: 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 #210

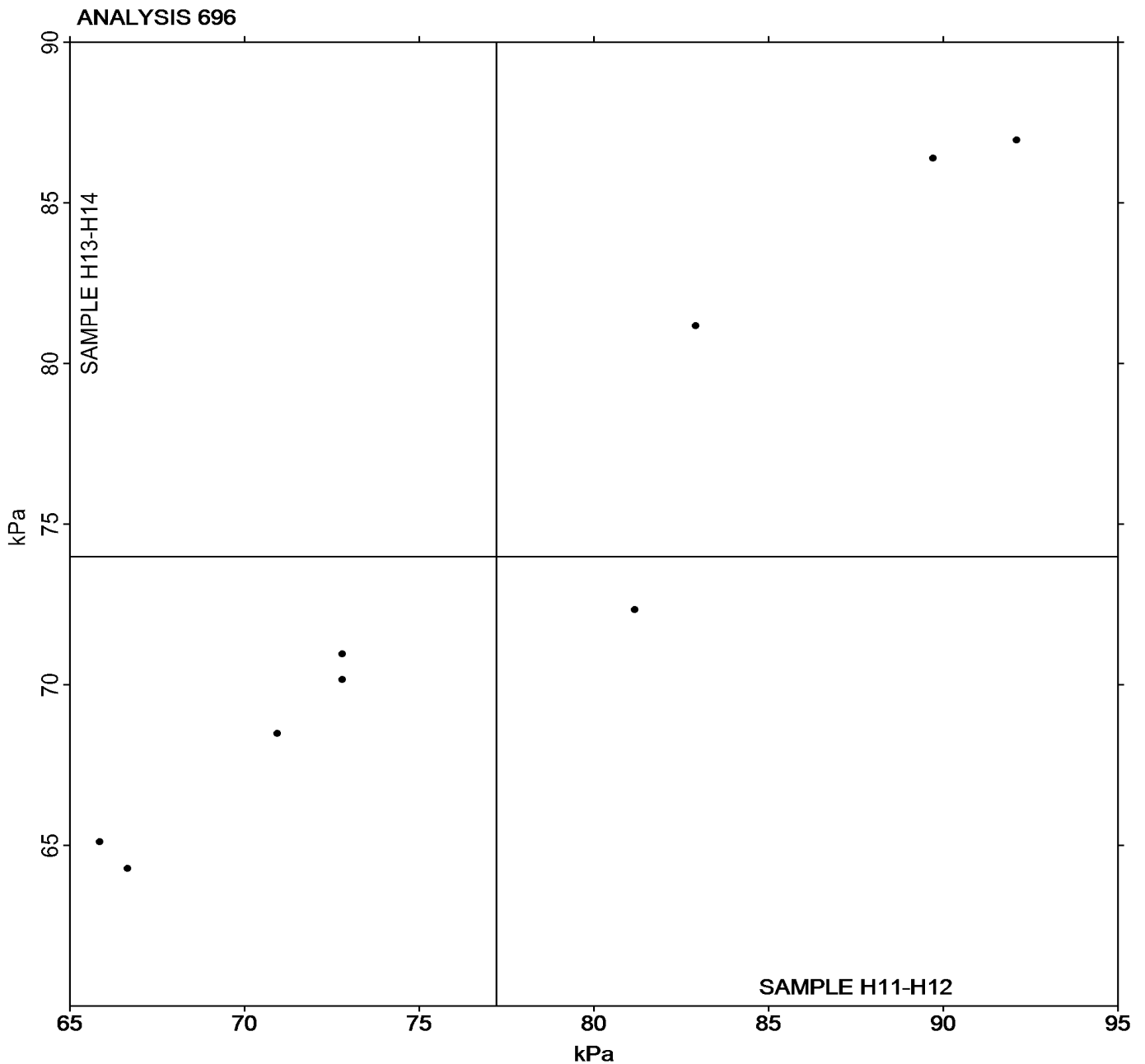
## Analysis 696

4th Qtr 2021

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

Grand Mean Sample **H11-H12** = 77.216 kPa

Grand Mean Sample **H13-H14** = 73.980 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-