



## Rubber Interlaboratory Testing Program

### Summary Report #221- 3rd Qtr 2024

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[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="#">689</a>	<a href="#">MDR Vulcanization Charac.: Maximum Torque</a>
<a href="#">606</a>	<a href="#">Ultimate Elongation: Precured Rubber Samples</a>	<a href="#">690</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="#">691</a>	<a href="#">RPA Rheological Properties: Part A - G'' at 20Hz</a>
<a href="#">608</a>	<a href="#">Stress at 100% Elongation: Precured Samples</a>	<a href="#">695</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="#">696</a>	<a href="#">RPA Rheological Properties: Part B - G'' at 1.0Hz</a>
<a href="#">621</a>	<a href="#">Density: Precured Rubber Samples @ 25C</a>		
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## **ABOUT THE PROGRAM**

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

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

## **ABOUT CTS**

Founded in 1971, CTS is a privately-owned company that specializes in interlaboratory tests for a wide variety of industries including rubber, plastics, fasteners and metals, containerboard, paper and color, wine, and hemp, 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 100 countries, currently participate in CTS programs.

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

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<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.

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### 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.**

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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 #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample C41-C42			Sample C43-C44		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2243H9		3,217.5	169.7	0.89	2,897.1	141.7	0.74
2LBZRC		2,908.5	-139.4	-0.73	2,637.5	-117.9	-0.62
2VL2DD		3,005.0	-42.9	-0.23	2,775.0	19.6	0.10
3J4Y9Q		3,261.2	213.4	1.12	3,070.3	314.9	1.65
3ULJQ2		2,950.0	-97.9	-0.51	2,690.0	-65.4	-0.34
3YEMHK		3,185.0	137.1	0.72	2,800.0	44.6	0.23
42G373		2,654.2	-393.6	-2.07	2,443.9	-311.5	-1.64
4E2HA2		2,992.2	-55.7	-0.29	2,799.3	43.8	0.23
4FHGPK		3,059.6	11.7	0.06	2,713.0	-42.5	-0.22
4H2T62		2,959.5	-88.4	-0.46	2,801.5	46.1	0.24
4JJKG8	X	2,059.6	-988.3	-5.20	1,979.8	-775.6	-4.07
4JWC83		3,122.0	74.1	0.39	2,879.7	124.3	0.65
4XFYG2		2,746.0	-301.9	-1.59	2,394.0	-361.4	-1.90
6GLP9N		3,179.7	131.8	0.69	2,822.8	67.4	0.35
6MFQB4		2,866.0	-181.9	-0.96	2,503.3	-252.1	-1.32
6QWTH9		3,062.0	14.1	0.07	2,869.0	113.6	0.60
7A3NN6		3,280.0	232.1	1.22	2,715.5	-39.9	-0.21
7EZ8NH	*	3,399.0	351.1	1.85	2,651.3	-104.1	-0.55
7MUAUZ		2,981.0	-66.9	-0.35	2,699.0	-56.4	-0.30
8GX847		2,857.0	-190.9	-1.00	2,607.5	-147.9	-0.78
8J6MDX		2,915.0	-132.9	-0.70	2,335.0	-420.4	-2.21
8ZBMNL		3,040.7	-7.2	-0.04	2,734.0	-21.5	-0.11
9E67M2		3,167.5	119.6	0.63	2,671.0	-84.4	-0.44
9MKE26		3,160.0	112.1	0.59	2,785.5	30.1	0.16
9Z7PQV		3,005.2	-42.7	-0.22	2,713.7	-41.8	-0.22
AACW6V		2,923.5	-124.4	-0.65	2,392.0	-363.4	-1.91
AJEEED		3,266.0	218.1	1.15	2,976.5	221.1	1.16
BQUCNH		3,029.9	-18.0	-0.09	2,745.6	-9.8	-0.05
C2NKRX		3,134.3	86.4	0.45	2,791.3	35.8	0.19
CAHQKY		3,030.0	-17.9	-0.09	2,570.0	-185.4	-0.97
CAMDDT		3,230.5	182.6	0.96	3,014.0	258.6	1.36
CD2AHV		2,758.0	-289.9	-1.52	2,903.0	147.6	0.77
CGJDPZ		2,968.9	-78.9	-0.41	2,775.3	19.9	0.10
CM8U4C		2,839.3	-208.5	-1.10	2,347.1	-408.3	-2.14
CQNK6Z		2,944.3	-103.6	-0.54	2,900.8	145.3	0.76
CZDH6Y		3,038.5	-9.4	-0.05	2,633.5	-121.9	-0.64
DERVPQ		3,238.5	190.6	1.00	2,865.5	110.1	0.58
DH9XWW		3,140.1	92.2	0.48	2,702.1	-53.4	-0.28



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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample C41-C42			Sample C43-C44		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
DV2MPB		3,290.0	242.1	1.27	2,780.0	24.6	0.13
E6HNMW		2,810.4	-237.5	-1.25	2,723.4	-32.1	-0.17
FUGKYE		3,202.0	154.1	0.81	3,170.0	414.6	2.18
FX366H		2,730.0	-317.9	-1.67	2,555.0	-200.4	-1.05
G3QADC		3,085.0	37.1	0.20	2,828.9	73.4	0.39
G9UDZP		2,920.5	-127.4	-0.67	2,819.0	63.6	0.33
GCBF8V	*	2,864.5	-183.3	-0.96	2,211.8	-543.6	-2.85
GQU3F9		3,459.9	412.0	2.17	2,803.6	48.2	0.25
GV7LMU		3,002.0	-45.9	-0.24	2,561.5	-193.9	-1.02
GY4RT7		3,079.0	31.1	0.16	2,673.0	-82.4	-0.43
KDWH6L		3,303.5	255.6	1.34	2,734.5	-20.9	-0.11
KGEKBQ		2,985.2	-62.7	-0.33	2,791.0	35.5	0.19
L7R4XB		2,708.5	-339.4	-1.78	2,603.1	-152.4	-0.80
L9X2EP		2,744.5	-303.4	-1.59	2,559.0	-196.4	-1.03
LF37JB		2,875.5	-172.4	-0.91	2,662.0	-93.4	-0.49
LVU69P		2,963.7	-84.1	-0.44	2,907.4	151.9	0.80
MEYZFL		3,335.5	287.7	1.51	2,766.2	10.8	0.06
N67CXN		2,995.1	-52.8	-0.28	2,951.5	196.1	1.03
NCR6AN		3,070.5	22.6	0.12	3,070.5	315.0	1.65
NKL8F7		3,161.9	114.0	0.60	3,099.5	344.1	1.81
PCP6VM		2,709.5	-338.4	-1.78	2,574.5	-180.9	-0.95
PYKE8F		2,944.5	-103.4	-0.54	2,543.0	-212.4	-1.11
Q7D7TF		3,279.5	231.6	1.22	2,756.0	0.6	0.00
QPRMZE		2,978.4	-69.5	-0.37	2,487.4	-268.0	-1.41
QVEBW6		3,154.0	106.1	0.56	2,937.0	181.6	0.95
RFK8QK		3,028.4	-19.4	-0.10	2,704.3	-51.2	-0.27
RMVNYL	*	3,393.9	346.0	1.82	3,234.4	478.9	2.51
RMWL9G		3,086.5	38.6	0.20	3,108.5	353.1	1.85
RRBWN7		2,657.8	-390.0	-2.05	2,465.7	-289.8	-1.52
RZ9RL4		2,799.3	-248.6	-1.31	2,813.8	58.3	0.31
U3L9RE		3,293.0	245.1	1.29	2,732.5	-22.9	-0.12
UD3XQJ		3,167.0	119.1	0.63	2,822.0	66.6	0.35
UM7AMD		3,015.3	-32.6	-0.17	2,866.3	110.9	0.58
UTUR4A		2,932.0	-115.9	-0.61	2,623.8	-131.7	-0.69
UWH662		3,145.9	98.0	0.52	2,794.2	38.7	0.20
V3H6FE		3,099.0	51.1	0.27	2,641.5	-113.9	-0.60
VNVXGT		2,698.5	-349.4	-1.84	2,687.5	-67.9	-0.36



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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample C41-C42			Sample C43-C44		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
VQPL2A		3,066.5	18.6	0.10	2,629.5	-125.9	-0.66
VTRKAG		2,924.4	-123.4	-0.65	2,720.2	-35.2	-0.18
W886AZ		3,414.9	367.1	1.93	3,031.3	275.9	1.45
W8QQ2Q		3,289.8	241.9	1.27	2,995.0	239.5	1.26
WBQ3ZC		2,804.1	-243.8	-1.28	2,939.2	183.8	0.96
WECL6F		3,052.0	4.1	0.02	2,529.5	-225.9	-1.19
XH7Z8V		3,112.3	64.4	0.34	2,833.2	77.7	0.41
XN8C28		3,025.5	-22.4	-0.12	2,565.0	-190.4	-1.00
XU2LHD		3,353.3	305.4	1.61	2,776.0	20.6	0.11
XZLCVF		3,039.5	-8.3	-0.04	2,972.9	217.5	1.14
Y3PNR8		3,068.2	20.4	0.11	2,784.5	29.1	0.15
Y6B9XC		3,076.6	28.7	0.15	2,872.4	117.0	0.61
Y77QYD		3,125.6	77.7	0.41	2,814.5	59.1	0.31
Z74LVN	X	2,406.5	-641.4	-3.37	2,062.0	-693.4	-3.64
ZAP4FU		3,118.3	70.5	0.37	2,958.8	203.4	1.07
ZPGZF4		2,854.0	-193.9	-1.02	2,625.5	-129.9	-0.68
ZR6CGV		2,859.3	-188.6	-0.99	2,893.8	138.4	0.73
ZTEM77		3,441.7	393.8	2.07	2,976.2	220.8	1.16
ZXVPDC		3,292.4	244.5	1.29	2,893.5	138.1	0.72

Grand Means		Summary Statistics	
	3,047.86 psi		2,755.43 psi
Std Dev Btw Labs			
	190.20 psi		190.53 psi
Statistics based on 92 of 94 reporting participants			

Grand Means		Summary Statistics in SI Units	
	21.014 MPa		19.000 MPa
Std Dev Btw Labs			
	1.311 MPa		1.310 MPa
Statistics based on 92 of 94 reporting participants			

Samples C41-C42: Polyisoprene Compound & C43-C44: Polyisoprene Compound

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

4JJKG8 (X) - Data for all samples are low.

Z74LVN (X) - Data for all samples are low.

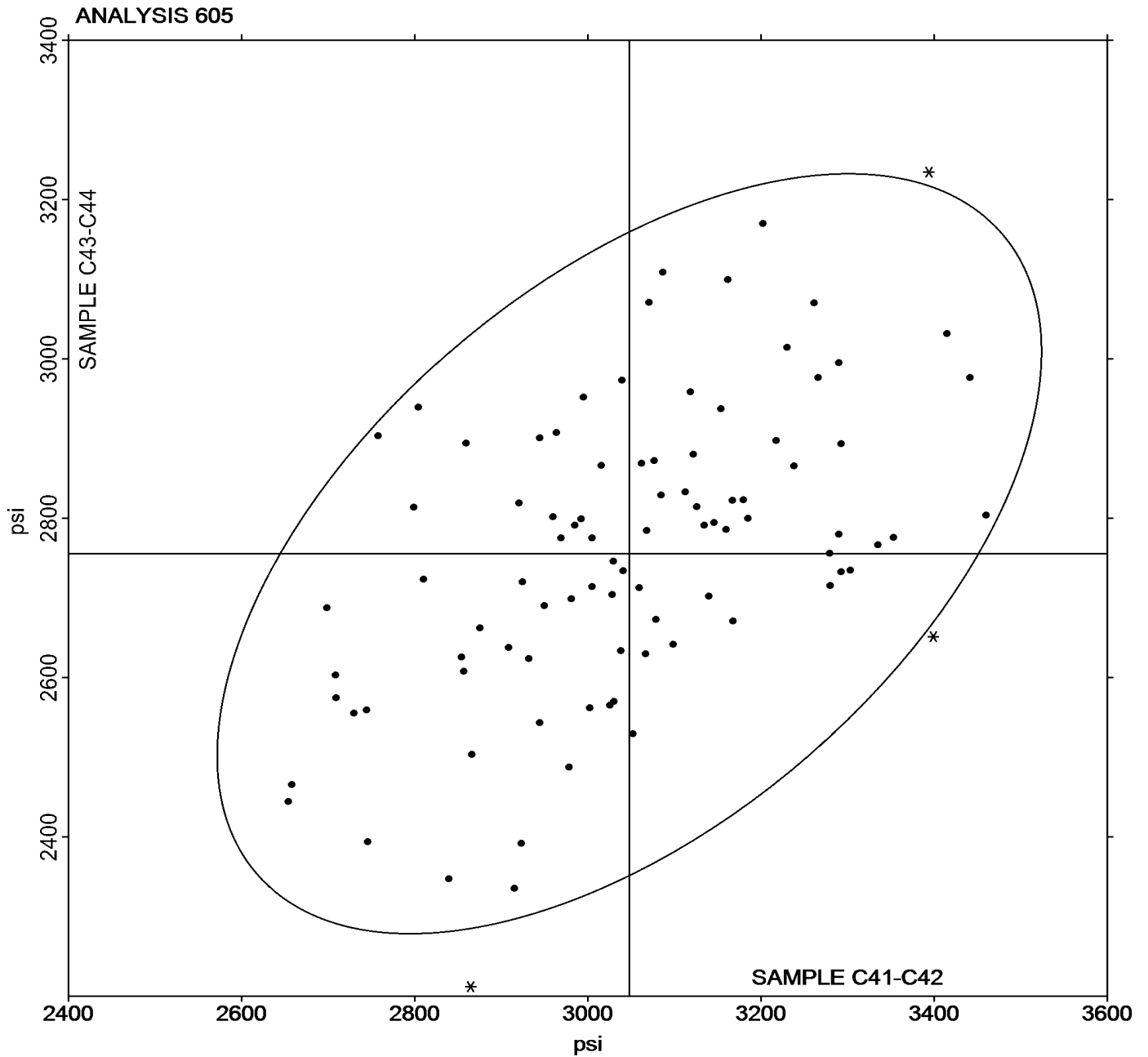


**Rubber Interlaboratory Testing Program**  
**Analysis 605**  
**Tensile Strength (psi)**

**Report #221**  
**3rd Qtr 2024**

Grand Mean Sample **C41-C42** = 3,047.86 psi

Grand Mean Sample **C43-C44** = 2,755.43 psi







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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample C41-C42			Sample C43-C44		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2243H9		632.1	37.0	1.03	606.7	15.2	0.45
2LBZRC		535.0	-60.0	-1.67	570.5	-21.0	-0.63
2VL2DD	*	688.0	93.0	2.59	688.5	97.0	2.89
3J4Y9Q		563.3	-31.8	-0.88	575.6	-15.9	-0.47
3ULJQ2		590.0	-5.0	-0.14	585.0	-6.5	-0.19
3YEMHK		601.0	6.0	0.17	583.5	-8.0	-0.24
42G373		575.6	-19.4	-0.54	577.6	-13.9	-0.42
4E2HA2		532.5	-62.5	-1.74	537.3	-54.1	-1.62
4FHGPK		580.5	-14.5	-0.40	558.5	-33.0	-0.98
4H2T62		595.0	0.0	0.00	585.0	-6.5	-0.19
4JJKG8		650.0	55.0	1.53	632.0	40.5	1.21
4JWC83		576.4	-18.6	-0.52	580.2	-11.3	-0.34
4XFYG2		666.0	71.0	1.97	674.0	82.5	2.46
6GLP9N		581.8	-13.3	-0.37	597.7	6.2	0.18
6MFQB4		552.1	-43.0	-1.20	555.1	-36.4	-1.09
6QWTH9		602.0	7.0	0.19	577.5	-14.0	-0.42
7A3NN6		609.0	14.0	0.39	566.5	-25.0	-0.75
7EZ8NH		630.5	35.5	0.99	608.6	17.1	0.51
7MUAUZ		551.5	-43.5	-1.21	555.5	-36.0	-1.07
8GX847		572.0	-23.0	-0.64	593.5	2.0	0.06
8J6MDX	*	569.0	-26.0	-0.72	526.0	-65.5	-1.95
8ZBMNL		598.0	2.9	0.08	592.1	0.6	0.02
9E67M2		610.0	15.0	0.42	595.5	4.0	0.12
9MKE26		661.0	66.0	1.83	649.5	58.0	1.73
9Z7PQV		562.0	-33.0	-0.92	558.5	-33.0	-0.98
AACW6V	*	510.0	-85.0	-2.37	546.0	-45.5	-1.36
AJEEED		615.0	20.0	0.56	609.0	17.5	0.52
C2NKRX		588.5	-6.5	-0.18	583.5	-8.0	-0.24
CAHQKY		625.0	30.0	0.83	610.0	18.5	0.55
CAMDDT		581.5	-13.5	-0.38	592.5	1.0	0.03
CD2AHV		549.0	-46.0	-1.28	559.0	-32.5	-0.97
CGJDPZ	*	532.9	-62.1	-1.73	573.3	-18.2	-0.54
CM8U4C		581.0	-14.0	-0.39	576.2	-15.3	-0.46
CQNK6Z		619.0	24.0	0.67	602.5	11.0	0.33
CZDH6Y		595.5	0.5	0.01	587.0	-4.5	-0.13
DERVPQ		612.0	17.0	0.47	593.0	1.5	0.05
DH9XWW		594.5	-0.5	-0.02	583.0	-8.5	-0.25
DV2MPB		667.5	72.5	2.02	653.5	62.0	1.85



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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample C41-C42			Sample C43-C44		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
E6HNMW		563.9	-31.2	-0.87	584.2	-7.3	-0.22
FUGKYE		630.5	35.5	0.99	623.5	32.0	0.96
FX366H	X	409.5	-185.5	-5.16	433.5	-158.0	-4.71
G3QADC		623.4	28.3	0.79	618.2	26.7	0.80
G9UDZP		609.5	14.5	0.40	616.0	24.5	0.73
GCBF8V		550.8	-44.3	-1.23	530.1	-61.4	-1.83
GQU3F9		629.0	34.0	0.94	611.5	20.0	0.60
GV7LMU	X	333.5	-261.5	-7.27	345.0	-246.5	-7.35
GY4RT7		574.0	-21.0	-0.59	562.5	-29.0	-0.86
KDWH6L		613.0	18.0	0.50	589.0	-2.5	-0.07
KGEKBQ		622.1	27.1	0.75	618.7	27.2	0.81
L7R4XB		545.9	-49.2	-1.37	538.2	-53.3	-1.59
L9X2EP		566.5	-28.5	-0.79	577.5	-14.0	-0.42
LF37JB		621.5	26.5	0.74	610.0	18.5	0.55
LVU69P		596.2	1.1	0.03	603.8	12.3	0.37
MEYZFL		600.4	5.3	0.15	572.0	-19.5	-0.58
N67CXN		637.0	42.0	1.17	653.0	61.5	1.84
NCR6AN		615.5	20.5	0.57	611.0	19.5	0.58
NKL8F7		595.6	0.6	0.02	614.2	22.7	0.68
PCP6VM		518.5	-76.5	-2.13	526.5	-65.0	-1.94
PYKE8F		598.5	3.5	0.10	586.5	-5.0	-0.15
Q7D7TF		614.0	19.0	0.53	602.5	11.0	0.33
QPRMZE		530.0	-65.0	-1.81	535.3	-56.2	-1.68
QVEBW6		585.1	-10.0	-0.28	585.2	-6.3	-0.19
RFK8QK		583.0	-12.0	-0.34	579.0	-12.5	-0.37
RMVNYL		575.5	-19.5	-0.54	572.0	-19.5	-0.58
RMWL9G		580.5	-14.5	-0.40	593.0	1.5	0.05
RRBWN7		540.4	-54.6	-1.52	540.7	-50.8	-1.51
RZ9RL4		610.5	15.5	0.43	609.0	17.5	0.52
U3L9RE		629.0	34.0	0.94	599.5	8.0	0.24
UD3XQJ		636.5	41.5	1.15	635.5	44.0	1.31
UM7AMD	*	694.5	99.5	2.77	667.5	76.0	2.27
UTUR4A		622.0	27.0	0.75	602.5	11.0	0.33
UWH662		587.6	-7.4	-0.21	571.8	-19.7	-0.59
V3H6FE		595.0	0.0	0.00	583.5	-8.0	-0.24
VNVXGT		569.0	-26.0	-0.72	585.0	-6.5	-0.19
VQPL2A		553.5	-41.5	-1.16	549.5	-42.0	-1.25



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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample C41-C42			Sample C43-C44		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
VTRKAG		576.7	-18.3	-0.51	563.6	-27.9	-0.83
W886AZ		573.5	-21.5	-0.60	570.5	-21.0	-0.63
W8QQ2Q		618.7	23.6	0.66	627.9	36.4	1.09
WBQ3ZC		582.1	-12.9	-0.36	594.9	3.4	0.10
WECL6F		594.0	-1.0	-0.03	567.5	-24.0	-0.72
XH7Z8V		620.5	25.5	0.71	632.0	40.5	1.21
XN8C28		600.5	5.5	0.15	595.5	4.0	0.12
XU2LHD		629.5	34.5	0.96	600.5	9.0	0.27
XZLCVF		604.0	8.9	0.25	615.1	23.6	0.70
Y3PNR8		601.0	5.9	0.17	621.0	29.5	0.88
Y6B9XC		628.1	33.1	0.92	631.0	39.5	1.18
Y77QYD		601.0	6.0	0.17	622.5	31.0	0.93
Z74LVN	X	456.5	-138.5	-3.85	472.5	-119.0	-3.55
ZAP4FU		620.5	25.5	0.71	629.0	37.5	1.12
ZPGZF4	*	540.0	-55.0	-1.53	506.5	-85.0	-2.53
ZR6CGV		573.0	-22.0	-0.61	597.0	5.5	0.16
ZTEM77		624.1	29.1	0.81	611.0	19.5	0.58
ZXVPDC		593.5	-1.5	-0.04	591.0	-0.5	-0.01

		Summary Statistics	
Grand Means	595.05 percent	591.48 percent	
Stnd Dev Btwn Labs	35.95 percent	33.52 percent	
Statistics based on 90 of 93 reporting participants			

Samples C41-C42: Polyisoprene Compound & C43-C44: Polyisoprene Compound

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

FX366H (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of sample group C41-C42.

GV7LMU (X) - Data for all samples are low. Possible Systematic Error.

Z74LVN (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of sample group C41-C42.

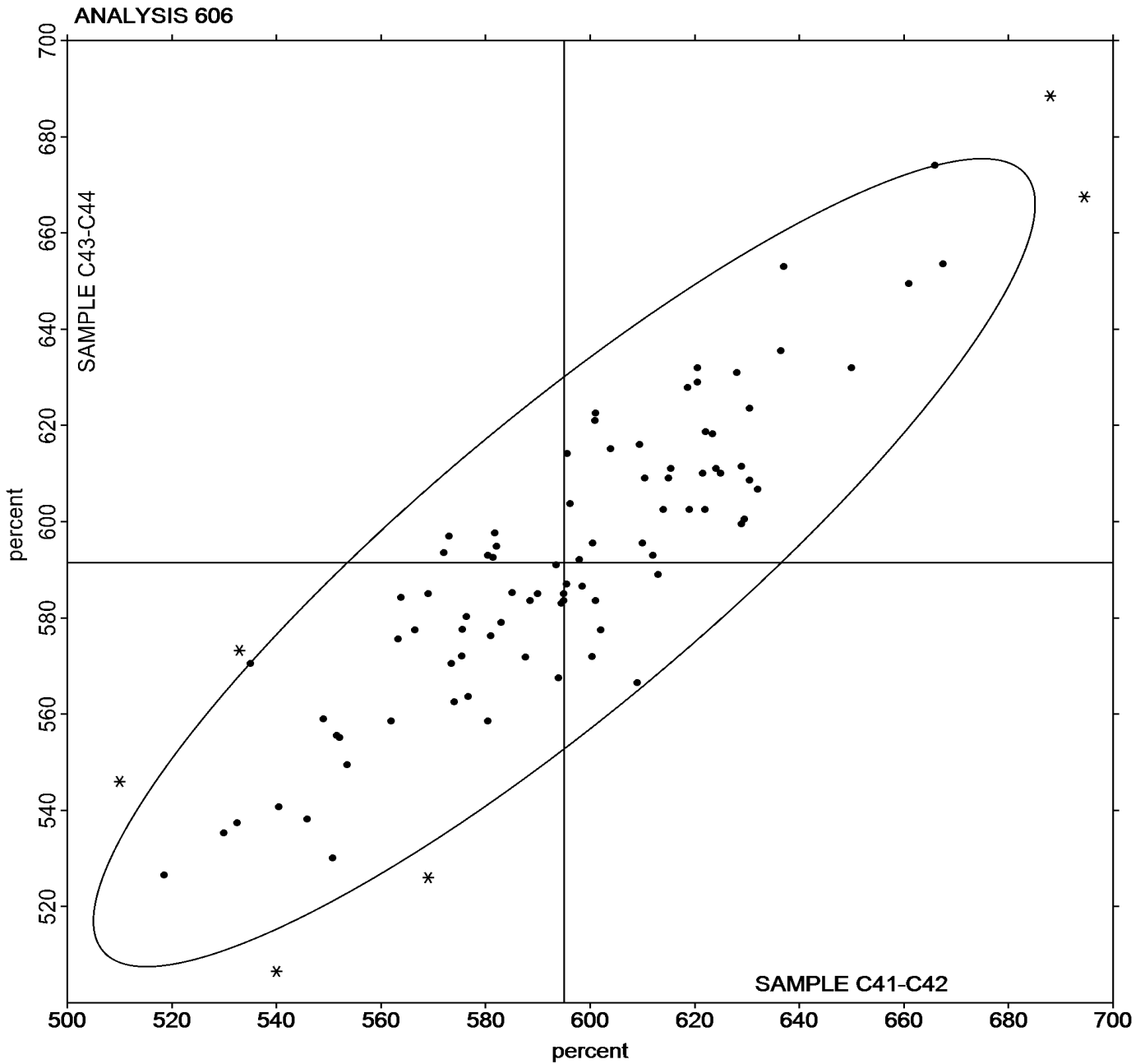


Rubber Interlaboratory Testing Program  
Analysis 606  
Ultimate Elongation (percent)

Report #221  
3rd Qtr 2024

Grand Mean Sample C41-C42 = 595.05 percent

Grand Mean Sample C43-C44 = 591.48 percent





# Rubber Interlaboratory Testing Program

Report #221

## Analysis 607

3rd Qtr 2024

### Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample C41-C42			Sample C43-C44		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2243H9		988.1	25.3	0.33	876.3	14.5	0.23
2LBZRC		1,065.1	102.3	1.33	890.6	28.8	0.45
2VL2DD		789.8	-173.0	-2.25	729.5	-132.3	-2.08
3J4Y9Q		1,043.7	80.9	1.05	935.2	73.4	1.15
3ULJQ2		950.0	-12.8	-0.17	847.5	-14.3	-0.22
3YEMHK		1,001.5	38.7	0.50	850.0	-11.8	-0.18
42G373		855.7	-107.1	-1.39	792.6	-69.1	-1.08
4E2HA2	*	1,112.4	149.7	1.95	1,037.8	176.0	2.76
4FHGPK		918.1	-44.7	-0.58	820.9	-40.9	-0.64
4H2T62		965.0	2.2	0.03	868.0	6.2	0.10
4JJKG8	X	647.6	-315.2	-4.10	646.9	-214.9	-3.37
4JWC83		1,083.4	120.7	1.57	992.1	130.3	2.04
6GLP9N		1,046.2	83.4	1.09	862.6	0.8	0.01
6MFQB4		1,031.4	68.6	0.89	869.4	7.6	0.12
6QWTH9		914.0	-48.8	-0.63	928.5	66.7	1.05
7A3NN6		971.0	8.2	0.11	869.0	7.2	0.11
7EZ8NH		1,018.2	55.4	0.72	835.4	-26.4	-0.41
8GX847		995.4	32.6	0.42	842.2	-19.6	-0.31
8J6MDX		962.0	-0.8	-0.01	897.5	35.7	0.56
8ZBMNL		924.3	-38.5	-0.50	824.1	-37.7	-0.59
9E67M2		937.0	-25.8	-0.34	838.5	-23.3	-0.37
9MKE26		852.5	-110.3	-1.43	771.5	-90.3	-1.42
9Z7PQV		1,061.0	98.2	1.28	975.4	113.6	1.78
AACW6V	X	1,388.0	425.2	5.53	1,112.5	250.7	3.93
AJEEED		972.0	9.2	0.12	879.5	17.7	0.28
C2NKRX		983.4	20.6	0.27	876.8	15.0	0.24
CAHQKY		889.5	-73.3	-0.95	754.5	-107.3	-1.68
CAMDDT		1,051.0	88.2	1.15	944.0	82.2	1.29
CD2AHV		1,050.5	87.7	1.14	990.5	128.7	2.02
CGJDPZ		1,118.3	155.5	2.02	904.3	42.5	0.67
CM8U4C		1,032.6	69.8	0.91	940.2	78.4	1.23
CQNK6Z		826.7	-136.1	-1.77	841.2	-20.6	-0.32
CZDH6Y		944.5	-18.3	-0.24	831.5	-30.3	-0.48
DERVPQ		998.0	35.2	0.46	911.0	49.2	0.77
DH9XWW		969.6	6.8	0.09	842.7	-19.1	-0.30
DV2MPB		1,017.5	54.7	0.71	847.1	-14.7	-0.23
E6HNMW		960.0	-2.7	-0.04	919.4	57.7	0.90
FX366H	X	1,435.0	472.2	6.14	1,460.0	598.2	9.39



# Rubber Interlaboratory Testing Program

Report #221

## Analysis 607

3rd Qtr 2024

### Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample C41-C42			Sample C43-C44		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
G3QADC		877.4	-85.4	-1.11	792.1	-69.7	-1.09
G9UDZP		890.5	-72.3	-0.94	837.0	-24.8	-0.39
GCBF8V		1,037.0	74.2	0.97	838.3	-23.5	-0.37
GQU3F9		995.0	32.2	0.42	822.4	-39.4	-0.62
GV7LMU	X	2,581.5	1,618.7	21.06	2,069.5	1,207.7	18.95
GY4RT7		992.0	29.2	0.38	875.5	13.7	0.22
KDWH6L		997.0	34.2	0.45	894.5	32.7	0.51
KGEKBQ		837.0	-125.8	-1.64	795.0	-66.7	-1.05
L7R4XB		929.3	-33.5	-0.44	915.3	53.5	0.84
L9X2EP		925.5	-37.3	-0.49	834.0	-27.8	-0.44
LF37JB		949.5	-13.3	-0.17	869.5	7.7	0.12
LVU69P		895.6	-67.2	-0.87	867.3	5.6	0.09
MEYZFL		1,021.0	58.2	0.76	938.6	76.8	1.20
N67CXN		934.1	-28.7	-0.37	889.8	28.0	0.44
NCR6AN		881.1	-81.7	-1.06	879.7	17.9	0.28
NKL8F7		982.6	19.9	0.26	907.2	45.4	0.71
PCP6VM		1,055.5	92.7	1.21	950.0	88.2	1.38
Q7D7TF		1,016.0	53.2	0.69	851.5	-10.3	-0.16
QPRMZE		1,080.5	117.8	1.53	891.3	29.5	0.46
QVEBW6		1,000.5	37.7	0.49	923.5	61.7	0.97
RFK8QK		994.2	31.5	0.41	865.9	4.1	0.06
RMVNYL	X	1,176.3	213.5	2.78	1,096.5	234.7	3.68
RMWL9G		978.0	15.2	0.20	949.0	87.2	1.37
RRBWN7		892.7	-70.1	-0.91	820.2	-41.6	-0.65
U3L9RE		931.5	-31.3	-0.41	840.5	-21.3	-0.33
UD3XQJ		859.0	-103.8	-1.35	769.0	-92.8	-1.46
UM7AMD	*	779.1	-183.7	-2.39	708.4	-153.4	-2.41
UTUR4A		828.2	-134.6	-1.75	789.7	-72.0	-1.13
UWH662		934.1	-28.7	-0.37	820.2	-41.6	-0.65
V3H6FE		953.5	-9.3	-0.12	829.5	-32.3	-0.51
VNVXGT		883.0	-79.8	-1.04	803.5	-58.3	-0.91
VQPL2A		1,031.0	68.2	0.89	897.5	35.7	0.56
VTRKAG		988.4	25.6	0.33	952.6	90.8	1.43
W8QQ2Q		1,001.3	38.5	0.50	887.2	25.4	0.40
WBQ3ZC		925.9	-36.9	-0.48	890.5	28.7	0.45
WECL6F		972.0	9.2	0.12	832.5	-29.3	-0.46
XH7Z8V		866.3	-96.5	-1.26	764.6	-97.2	-1.52



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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample C41-C42			Sample C43-C44		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
XN8C28		989.5	26.7	0.35	831.0	-30.8	-0.48
XU2LHD		874.6	-88.2	-1.15	769.4	-92.3	-1.45
XZLCVF		851.3	-111.5	-1.45	723.3	-138.4	-2.17
Y3PNR8		935.9	-26.9	-0.35	856.9	-4.9	-0.08
Y6B9XC		902.8	-60.0	-0.78	773.3	-88.5	-1.39
Y77QYD		973.9	11.2	0.15	797.0	-64.8	-1.02
Z74LVN	*	1,176.5	213.7	2.78	948.5	86.7	1.36
ZAP4FU		884.7	-78.0	-1.02	818.7	-43.0	-0.68
ZPGZF4	X	1,059.5	96.7	1.26	1,096.0	234.2	3.68
ZR6CGV		973.3	10.5	0.14	895.8	34.0	0.53
ZTEM77		1,008.3	45.5	0.59	871.9	10.1	0.16
ZXVPDC		1,000.0	37.3	0.48	887.6	25.9	0.41

Grand Means		Summary Statistics	
	962.78 psi		861.78 psi
Stnd Dev Btwn Labs	76.87 psi		63.73 psi
Statistics based on 81 of 87 reporting participants			

Grand Means		Summary Statistics in SI Units	
	6.6381 MPa		5.9400 MPa
Stnd Dev Btwn Labs	0.5300 MPa		0.4400 MPa
Statistics based on 81 of 87 reporting participants			

Samples C41-C42: Polyisoprene Compound & C43-C44: Polyisoprene Compound

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

- 4JJKG8 (X) - Data for all samples are low.
- AACW6V (X) - Data for all samples are high. Inconsistent within the determinations of sample group C43-C44.
- FX366H (X) - Data for all Samples are high.
- GV7LMU (X) - Extreme Data.
- RMVNYL (X) - Data for all samples are high.
- ZPGZF4 (X) - Data for sample group C43-C44 are high.



# Rubber Interlaboratory Testing Program

Report #221

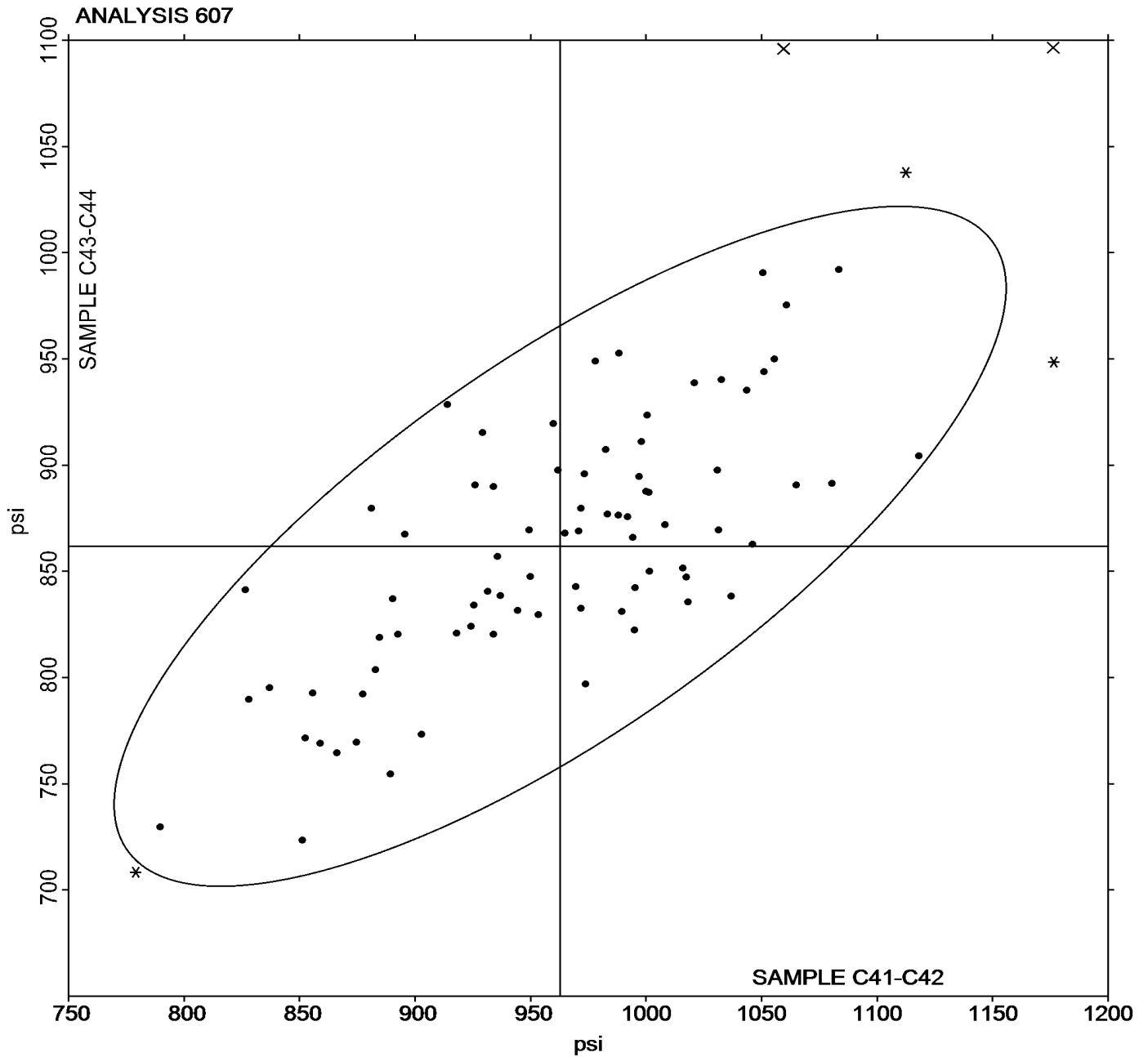
## Analysis 607

3rd Qtr 2024

### Stress at 300% Elongation (psi)

Grand Mean Sample C41-C42 = 962.78 psi

Grand Mean Sample C43-C44 = 861.78 psi







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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample C41-C42			Sample C43-C44		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2243H9		200.3	-13.6	-0.78	176.0	-17.5	-1.16
2LBZRC	*	259.0	45.1	2.59	240.5	47.0	3.12
2VL2DD		215.3	1.4	0.08	197.9	4.5	0.30
3J4Y9Q		221.3	7.3	0.42	202.8	9.3	0.62
3ULJQ2		206.5	-7.4	-0.43	183.5	-10.0	-0.66
3YEMHK		217.0	3.1	0.18	184.5	-9.0	-0.60
42G373		188.6	-25.4	-1.46	173.3	-20.1	-1.34
4E2HA2		216.1	2.2	0.13	192.9	-0.6	-0.04
4FHGPK		204.5	-9.4	-0.54	180.6	-12.9	-0.86
4H2T62		216.0	2.1	0.12	193.0	-0.5	-0.03
4JJKG8		178.4	-35.5	-2.04	168.2	-25.2	-1.67
4JWC83		231.3	17.4	1.00	206.7	13.2	0.88
6GLP9N		230.5	16.5	0.95	195.8	2.3	0.15
6MFQB4		211.7	-2.2	-0.13	194.0	0.5	0.04
6QWTH9	*	203.0	-10.9	-0.63	209.5	16.0	1.06
7A3NN6		211.0	-2.9	-0.17	187.0	-6.5	-0.43
7EZ8NH		215.5	1.6	0.09	182.4	-11.1	-0.74
7MUAUZ		215.5	1.6	0.09	197.0	3.5	0.23
8GX847	*	267.0	53.1	3.05	225.5	32.0	2.13
8J6MDX		215.0	1.1	0.06	199.5	6.0	0.40
8ZBMNL		199.7	-14.2	-0.82	182.8	-10.7	-0.71
9E67M2		213.0	-0.9	-0.05	190.0	-3.5	-0.23
9MKE26		211.0	-2.9	-0.17	191.0	-2.5	-0.16
9Z7PQV		221.9	8.0	0.46	205.2	11.8	0.78
AACW6V		195.0	-18.9	-1.09	160.0	-33.5	-2.22
AJEEED		216.5	2.6	0.15	192.5	-1.0	-0.06
C2NKRX		206.0	-8.0	-0.46	185.6	-7.8	-0.52
CAHQKY		208.0	-5.9	-0.34	179.5	-14.0	-0.93
CAMDDT		225.0	11.1	0.64	203.0	9.5	0.63
CD2AHV	X	260.5	46.6	2.67	250.0	56.5	3.75
CGJDPZ		239.3	25.4	1.46	196.5	3.1	0.20
CM8U4C		229.2	15.3	0.88	210.4	16.9	1.12
CQNK6Z		188.6	-25.4	-1.46	195.8	2.3	0.15
CZDH6Y		211.5	-2.4	-0.14	185.0	-8.5	-0.56
DERVPQ		225.0	11.1	0.64	205.5	12.0	0.80
DH9XWW		218.3	4.4	0.25	189.3	-4.2	-0.28
DV2MPB	*	264.7	50.7	2.91	221.2	27.7	1.84
E6HNMW		207.0	-6.9	-0.39	199.7	6.2	0.41



# Rubber Interlaboratory Testing Program

Report #221

## Analysis 608

3rd Qtr 2024

### Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample C41-C42			Sample C43-C44		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
FX366H		234.5	20.6	1.18	226.5	33.0	2.19
G3QADC		201.0	-12.9	-0.74	184.7	-8.8	-0.58
G9UDZP		198.5	-15.4	-0.89	190.0	-3.5	-0.23
GCBF8V		227.7	13.8	0.79	186.4	-7.1	-0.47
GQU3F9		223.4	9.4	0.54	186.4	-7.1	-0.47
GV7LMU	X	411.0	197.1	11.31	308.5	115.0	7.64
GY4RT7		218.0	4.1	0.23	194.5	1.0	0.07
KDWH6L		214.5	0.6	0.03	194.5	1.0	0.07
KGEKBQ		178.7	-35.2	-2.02	170.7	-22.7	-1.51
L7R4XB		201.9	-12.1	-0.69	206.8	13.3	0.88
L9X2EP		202.0	-11.9	-0.68	182.5	-11.0	-0.73
LF37JB		252.5	38.6	2.21	229.5	36.0	2.39
LVU69P		198.7	-15.2	-0.87	193.6	0.2	0.01
MEYZFL		223.8	9.9	0.57	199.6	6.1	0.40
N67CXN		200.5	-13.4	-0.77	191.9	-1.6	-0.11
NCR6AN		213.2	-0.7	-0.04	206.7	13.2	0.88
NKL8F7		207.4	-6.5	-0.37	195.1	1.6	0.11
PCP6VM		223.0	9.1	0.52	199.0	5.5	0.37
Q7D7TF		233.0	19.1	1.09	197.0	3.5	0.23
QPRMZE		232.1	18.1	1.04	187.8	-5.6	-0.37
QVEBW6		226.5	12.6	0.72	211.5	18.0	1.20
RFK8QK		215.4	1.5	0.08	197.3	3.8	0.25
RMVNYL	X	290.1	76.2	4.37	270.5	77.0	5.11
RMWL9G		221.5	7.6	0.43	220.0	26.5	1.76
RRBWN7		196.5	-17.4	-1.00	172.6	-20.9	-1.39
U3L9RE		211.0	-2.9	-0.17	189.5	-4.0	-0.26
UD3XQJ		194.0	-19.9	-1.14	182.5	-11.0	-0.73
UM7AMD		193.2	-20.8	-1.19	177.9	-15.6	-1.03
UTUR4A		194.4	-19.6	-1.12	187.1	-6.4	-0.42
UWH662		202.3	-11.6	-0.67	178.4	-15.1	-1.00
V3H6FE		209.5	-4.4	-0.25	185.5	-8.0	-0.53
VNVXGT		195.5	-18.4	-1.06	180.5	-13.0	-0.86
VQPL2A		220.5	6.6	0.38	191.5	-2.0	-0.13
VTRKAG		220.6	6.6	0.38	213.7	20.2	1.34
W886AZ		201.6	-12.3	-0.71	192.2	-1.3	-0.09
W8QQ2Q		234.5	20.6	1.18	207.6	14.1	0.93
WBQ3ZC		197.0	-16.9	-0.97	191.2	-2.3	-0.15



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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample C41-C42			Sample C43-C44		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
WECL6F		217.0	3.1	0.18	184.5	-9.0	-0.60
XH7Z8V		194.0	-19.9	-1.14	173.3	-20.2	-1.34
XN8C28	*	263.0	49.1	2.82	230.5	37.0	2.46
XU2LHD		191.5	-22.5	-1.29	165.3	-28.1	-1.87
XZLCVF		201.3	-12.7	-0.73	179.0	-14.5	-0.96
Y3PNR8		202.0	-11.9	-0.68	182.7	-10.8	-0.72
Y6B9XC		202.2	-11.7	-0.67	180.4	-13.0	-0.87
Y77QYD		214.7	0.7	0.04	179.8	-13.6	-0.90
Z74LVN		223.0	9.1	0.52	183.5	-10.0	-0.66
ZAP4FU		202.3	-11.6	-0.67	186.4	-7.1	-0.47
ZPGZF4		211.0	-2.9	-0.17	208.5	15.0	1.00
ZR6CGV		211.9	-2.0	-0.11	204.1	10.7	0.71
ZTEM77		225.4	11.4	0.66	196.8	3.3	0.22
ZXVPDC		216.8	2.9	0.17	198.0	4.5	0.30

Summary Statistics	
Grand Means	213.92 psi                      193.47 psi
Stnd Dev Btwn Labs	17.42 psi                              15.06 psi
Statistics based on 86 of 89 reporting participants	

Summary Statistics in SI Units	
Grand Means	1.4749 MPa                      1.3300 MPa
Stnd Dev Btwn Labs	0.1201 MPa                              0.1000 MPa
Statistics based on 86 of 89 reporting participants	

Samples C41-C42: Polyisoprene Compound & C43-C44: Polyisoprene Compound

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

- CD2AHV (X) - Data for sample group C43-C44 are high.
- GV7LMU (X) - Data for all samples are high. Inconsistent within the determinations of sample group C43-C44.
- RMVNYL (X) - Data for all samples are high. Possible Systematic Error.



# Rubber Interlaboratory Testing Program

## Analysis 608

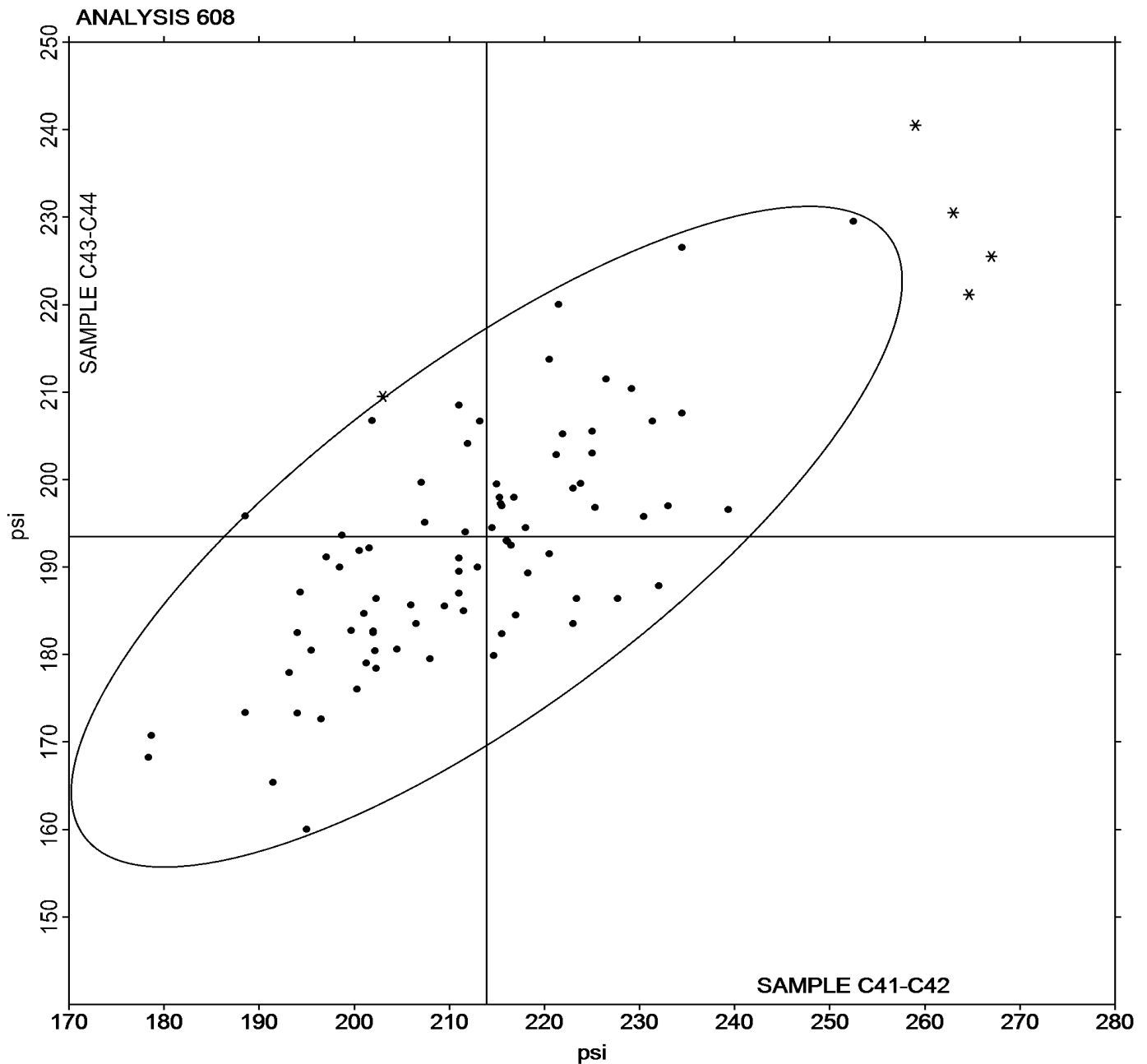
### Stress at 100% Elongation (psi)

Report #221

3rd Qtr 2024

Grand Mean Sample C41-C42 = 213.92 psi

Grand Mean Sample C43-C44 = 193.47 psi





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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample C41-C42			Sample C43-C44			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2243H9		52.50	2.76	1.77	50.25	1.73	1.03	HH
2BQTV9		49.00	-0.74	-0.47	49.00	0.48	0.28	BT
2LBZRC		50.00	0.26	0.17	50.00	1.48	0.88	HH
2VL2DD		51.50	1.76	1.13	48.50	-0.02	-0.01	BT
3J4Y9Q		48.60	-1.14	-0.73	48.35	-0.17	-0.10	BT
3ULJQ2		49.70	-0.04	-0.02	47.25	-1.27	-0.76	BT
3YEMHK		50.50	0.76	0.49	50.00	1.48	0.88	HH
42G373		50.00	0.26	0.17	47.70	-0.82	-0.49	BT
4E2HA2		50.00	0.26	0.17	49.40	0.88	0.52	BT
4FHGPK		47.90	-1.84	-1.18	44.70	-3.82	-2.27	BT
4H2T62		50.50	0.76	0.49	50.50	1.98	1.17	HH
4JJKG8		50.85	1.11	0.71	50.30	1.78	1.06	BT
4JWC83		48.30	-1.44	-0.92	47.80	-0.72	-0.43	BT
4XFYG2		53.50	3.76	2.41	51.00	2.48	1.47	HH
6GLP9N		50.90	1.16	0.74	50.80	2.28	1.35	BT
6MFQB4		50.00	0.26	0.17	49.50	0.98	0.58	BT
6QWTH9		50.00	0.26	0.17	49.50	0.98	0.58	BT
7A3NN6		51.05	1.31	0.84	51.20	2.68	1.59	HH
7EZ8NH	X	47.40	-2.34	-1.50	42.90	-5.62	-3.34	BT
7MUAUZ		48.40	-1.34	-0.86	47.55	-0.97	-0.58	BT
8GX847		50.00	0.26	0.17	50.00	1.48	0.88	HH
8J6MDX		52.00	2.26	1.45	50.00	1.48	0.88	BT
8ZBMNL		49.00	-0.74	-0.47	49.00	0.48	0.28	BT
9E67M2		52.55	2.81	1.80	49.95	1.43	0.85	BT
9MKE26		49.95	0.21	0.14	47.65	-0.87	-0.52	BT
9Z7PQV		49.75	0.01	0.01	50.35	1.83	1.08	BT
AACW6V	*	45.00	-4.74	-3.03	45.00	-3.52	-2.10	BT
AJEEED		49.70	-0.04	-0.02	46.60	-1.92	-1.14	BT
BQUCNH		47.50	-2.24	-1.43	44.50	-4.02	-2.39	BT
C2NKRX	X	44.00	-5.74	-3.67	43.00	-5.52	-3.28	BT
CAHQKY		51.50	1.76	1.13	49.00	0.48	0.28	BT
CAMDDT		49.50	-0.24	-0.15	48.10	-0.42	-0.25	BT
CD2AHV		53.20	3.46	2.22	52.00	3.48	2.07	BT
CGJDPZ		49.65	-0.09	-0.06	48.90	0.38	0.22	BT
CM8U4C		50.20	0.46	0.30	47.85	-0.67	-0.40	BT
CQNK6Z		49.00	-0.74	-0.47	49.00	0.48	0.28	BT
CZDH6Y	X	56.50	6.76	4.33	54.50	5.98	3.55	HH
DERVPQ		51.00	1.26	0.81	49.50	0.98	0.58	BT



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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample C41-C42			Sample C43-C44			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
DH9XWW		50.35	0.61	0.39	47.85	-0.67	-0.40	BT
DV2MPB		52.00	2.26	1.45	51.00	2.48	1.47	HH
E6HNMW	*	46.20	-3.54	-2.26	44.45	-4.07	-2.42	BT
FUGKYE		49.00	-0.74	-0.47	48.80	0.28	0.16	BT
FX366H		49.10	-0.64	-0.41	48.25	-0.27	-0.16	BT
G3QADC		50.50	0.76	0.49	48.70	0.18	0.10	XX
G9UDZP		50.25	0.51	0.33	49.25	0.73	0.43	BT
GCBF8V		48.05	-1.69	-1.08	46.15	-2.37	-1.41	BT
GQU3F9	*	49.50	-0.24	-0.15	45.00	-3.52	-2.10	HH
GV7LMU		52.00	2.26	1.45	50.00	1.48	0.88	HH
GY4RT7		49.50	-0.24	-0.15	48.00	-0.52	-0.31	BT
J8ADWQ		47.35	-2.39	-1.53	46.70	-1.82	-1.08	BT
K4RBPL		52.00	2.26	1.45	51.50	2.98	1.77	BT
KDWH6L		48.00	-1.74	-1.11	47.50	-1.02	-0.61	BT
KGEKBQ		47.50	-2.24	-1.43	47.50	-1.02	-0.61	BT
L7R4XB		48.00	-1.74	-1.11	48.00	-0.52	-0.31	HH
L9X2EP		52.00	2.26	1.45	51.00	2.48	1.47	BT
LF37JB		49.00	-0.74	-0.47	48.00	-0.52	-0.31	BT
LVU69P		47.90	-1.84	-1.18	47.40	-1.12	-0.67	BT
MEYZFL		50.15	0.41	0.26	47.25	-1.27	-0.76	BT
N67CXN		46.90	-2.84	-1.82	47.55	-0.97	-0.58	BT
NCR6AN		49.50	-0.24	-0.15	49.00	0.48	0.28	BT
NKL8F7		49.00	-0.74	-0.47	49.00	0.48	0.28	HH
PCP6VM		51.50	1.76	1.13	50.50	1.98	1.17	BT
PNEVAH		52.00	2.26	1.45	50.00	1.48	0.88	HH
PYKE8F		50.00	0.26	0.17	47.50	-1.02	-0.61	BT
QPRMZE		50.00	0.26	0.17	48.00	-0.52	-0.31	HH
QVEBW6		48.65	-1.09	-0.70	48.20	-0.32	-0.19	BT
RFK8QK		50.00	0.26	0.17	49.00	0.48	0.28	BT
RMVNYL		49.00	-0.74	-0.47	49.00	0.48	0.28	BT
RMWL9G		51.31	1.57	1.01	50.75	2.23	1.32	HH
RRBWN7		51.50	1.76	1.13	49.00	0.48	0.28	BT
RZ9RL4		47.80	-1.94	-1.24	49.10	0.58	0.34	BT
TPXGEH		50.00	0.26	0.17	48.00	-0.52	-0.31	BT
U3L9RE		48.00	-1.74	-1.11	45.00	-3.52	-2.10	BT
UD3XQJ		49.90	0.16	0.10	49.20	0.68	0.40	BT
UM7AMD		48.60	-1.14	-0.73	47.85	-0.67	-0.40	BT



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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample C41-C42			Sample C43-C44			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
UTUR4A		47.50	-2.24	-1.43	47.00	-1.52	-0.91	BT
UTXRBH		51.00	1.26	0.81	49.50	0.98	0.58	HH
UWH662		50.25	0.51	0.33	47.65	-0.87	-0.52	BT
V3H6FE		51.35	1.61	1.03	49.35	0.83	0.49	BT
VNVXGT		52.50	2.76	1.77	49.00	0.48	0.28	HH
VQPL2A		48.50	-1.24	-0.79	47.00	-1.52	-0.91	BT
VTRKAG		50.25	0.51	0.33	49.50	0.98	0.58	BT
W886AZ	X	45.05	-4.69	-3.00	42.80	-5.72	-3.40	BT
W8QQ2Q		48.00	-1.74	-1.11	47.95	-0.57	-0.34	BT
WBQ3ZC		50.50	0.76	0.49	51.00	2.48	1.47	HH
WECL6F		49.50	-0.24	-0.15	48.50	-0.02	-0.01	BT
XH7Z8V		49.20	-0.54	-0.34	48.15	-0.37	-0.22	BT
XN8C28	*	47.00	-2.74	-1.75	43.50	-5.02	-2.99	BT
XU2LHD		50.95	1.21	0.78	48.00	-0.52	-0.31	BT
XZLCVF		50.00	0.26	0.17	50.50	1.98	1.17	BT
Y3PNR8	X	43.60	-6.14	-3.93	45.25	-3.27	-1.95	BT
Y6B9XC		48.75	-0.99	-0.63	46.25	-2.27	-1.35	BT
Y77QYD		48.50	-1.24	-0.79	48.50	-0.02	-0.01	BT
Z74LVN		50.00	0.26	0.17	49.25	0.73	0.43	HH
ZAP4FU		49.85	0.11	0.07	48.30	-0.22	-0.13	BT
ZPGZF4		49.00	-0.74	-0.47	46.70	-1.82	-1.08	BT
ZR6CGV		50.20	0.46	0.30	49.65	1.13	0.67	BT
ZTEM77		49.30	-0.44	-0.28	47.95	-0.57	-0.34	BT
ZXVPDC		48.50	-1.24	-0.79	48.50	-0.02	-0.01	BT

Summary Statistics	
Grand Means	49.737 Type A                      48.525 Type A
Stnd Dev Btwn Labs	1.562 Type A                              1.682 Type A
Statistics based on 94 of 99 reporting participants	

Samples C41-C42: Polyisoprene Compound & C43-C44: Polyisoprene Compound



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

**Report #221**  
**3rd Qtr 2024**

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

- 7EZ8NH (X) - Data for sample group C43-C44 are low.
- C2NKRX (X) - Data for all samples are low. Possible Systematic Error.
- CZDH6Y (X) - Data for all samples are high. Possible Systematic Error.
- W886AZ (X) - Data for all samples are low. Possible Systematic Error.
- Y3PNR8 (X) - Data for sample group C41-C42 are low.

**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 C41-C42 <i>Polyisoprene Compound</i>			Sample C43-C44 <i>Polyisoprene Compound</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Readings taken within 0 - 5 seconds	50.02	1.43	0.29	48.92	1.28	0.40	64	67
Readings taken at 5 seconds	49.54	1.77	-0.19	48.17	2.05	-0.35	9	10
Readings taken after 5+ seconds	48.83	1.22	-0.90	47.62	2.18	-0.91	6	9
Maximum hardness indicator used	49.74	1.08	0.00	48.47	1.40	-0.06	11	13



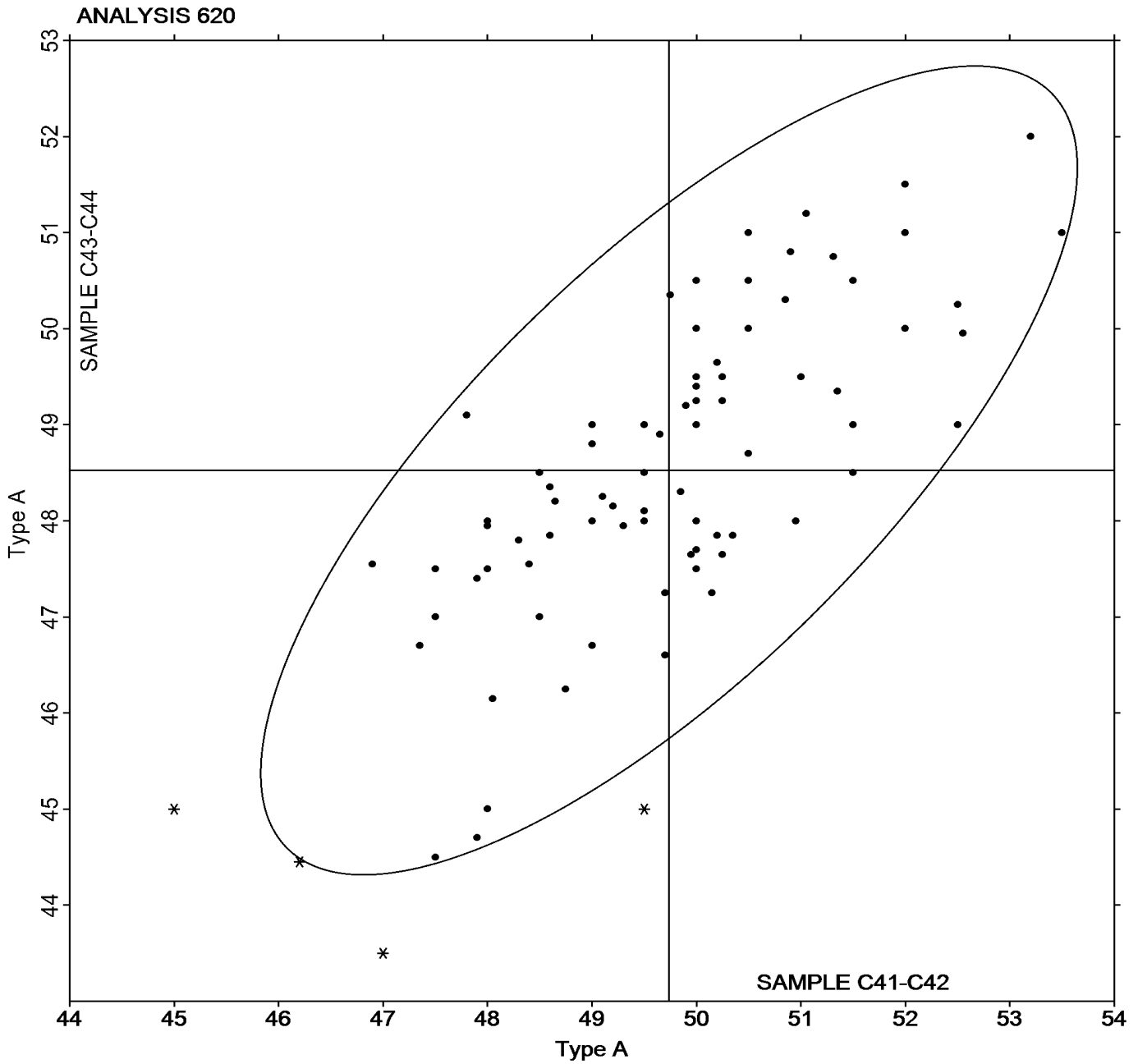


Rubber Interlaboratory Testing Program  
Analysis 620  
Hardness (Shore A/Type A)

Report #221  
3rd Qtr 2024

Grand Mean Sample C41-C42 = 49.737 Type A

Grand Mean Sample C43-C44 = 48.525 Type A





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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample C41-C42			Sample C43-C44		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2LBZRC		1.127	-0.007	-2.00	1.130	-0.005	-1.42
2VL2DD	X	1.141	0.007	2.01	1.247	0.112	34.83
3J4Y9Q		1.130	-0.004	-1.21	1.130	-0.004	-1.37
3YEMHK		1.137	0.003	0.78	1.138	0.003	0.96
42G373		1.139	0.005	1.55	1.139	0.004	1.27
4H2T62		1.136	0.002	0.63	1.137	0.003	0.80
4JJKG8	X	1.124	-0.010	-3.20	1.121	-0.014	-4.26
4XFYG2		1.132	-0.002	-0.48	1.131	-0.003	-0.95
6GLP9N		1.130	-0.004	-1.21	1.130	-0.004	-1.37
6QWTH9		1.136	0.002	0.62	1.136	0.002	0.49
7A3NN6		1.130	-0.004	-1.15	1.130	-0.005	-1.47
7EZ8NH		1.138	0.004	1.38	1.138	0.004	1.11
7MUAUZ		1.131	-0.003	-0.91	1.132	-0.002	-0.75
8GX847		1.129	-0.005	-1.40	1.130	-0.004	-1.39
8J6MDX		1.134	0.000	0.15	1.135	0.001	0.16
8ZBMNL	X	1.122	-0.012	-3.83	1.118	-0.017	-5.26
9E67M2		1.139	0.005	1.40	1.139	0.005	1.42
9MKE26		1.141	0.007	2.01	1.140	0.005	1.58
9Z7PQV		1.131	-0.003	-1.06	1.130	-0.005	-1.53
AACW6V		1.132	-0.002	-0.65	1.132	-0.003	-0.80
AJEEED		1.136	0.002	0.62	1.138	0.003	1.08
C2NKRX		1.131	-0.003	-0.91	1.132	-0.003	-0.91
CAHQKY		1.135	0.001	0.17	1.135	0.000	0.02
CAMDDT		1.134	0.000	-0.14	1.134	0.000	-0.13
CGJDPZ		1.136	0.002	0.71	1.136	0.002	0.55
CM8U4C		1.140	0.006	1.86	1.140	0.006	1.73
CZDH6Y		1.135	0.001	0.17	1.137	0.002	0.65
DERVPQ		1.131	-0.003	-0.91	1.131	-0.004	-1.22
DH9XWW		1.133	-0.001	-0.17	1.136	0.002	0.63
DV2MPB		1.134	0.000	0.02	1.132	-0.002	-0.75
E6HNMW		1.134	0.000	0.02	1.135	0.001	0.18
FUGKYE		1.134	0.000	0.00	1.135	0.001	0.18
FX366H	*	1.130	-0.004	-1.21	1.135	0.001	0.18
G9UDZP	X	1.149	0.015	4.57	1.152	0.018	5.49
GV7LMU		1.136	0.002	0.58	1.137	0.002	0.72
GY4RT7	*	1.130	-0.004	-1.21	1.135	0.001	0.18
K4RBPL		1.131	-0.003	-0.91	1.132	-0.002	-0.75
KDWH6L		1.137	0.003	0.94	1.139	0.004	1.27



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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample C41-C42			Sample C43-C44		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
KGEKBQ	*	1.125	-0.009	-2.86	1.127	-0.007	-2.24
L7R4XB		1.135	0.001	0.18	1.135	0.000	0.02
L9X2EP		1.134	0.000	-0.12	1.135	0.000	0.02
LF37JB	*	1.136	0.002	0.63	1.132	-0.003	-0.91
MEYZFL		1.131	-0.003	-0.89	1.131	-0.003	-0.98
N67CXN	*	1.131	-0.003	-0.91	1.128	-0.006	-1.99
NCR6AN		1.131	-0.003	-1.06	1.132	-0.002	-0.75
NKL8F7		1.141	0.007	2.17	1.142	0.007	2.20
PCP6VM	X	1.127	-0.007	-2.14	1.135	0.000	0.02
PYKE8F		1.131	-0.003	-0.82	1.132	-0.003	-0.89
Q7D7TF		1.131	-0.003	-1.06	1.131	-0.003	-1.06
QVEBW6		1.130	-0.004	-1.25	1.131	-0.004	-1.19
RMVNYL		1.135	0.001	0.42	1.136	0.001	0.44
RMWL9G		1.134	0.000	0.06	1.135	0.000	0.02
RRBWN7		1.136	0.002	0.66	1.135	0.001	0.27
RZ9RL4		1.139	0.005	1.55	1.139	0.005	1.42
U3L9RE		1.132	-0.002	-0.51	1.132	-0.002	-0.74
UD3XQJ		1.136	0.002	0.71	1.136	0.002	0.57
UM7AMD		1.133	-0.001	-0.34	1.135	0.000	0.07
UWH662		1.136	0.002	0.58	1.137	0.003	0.80
V3H6FE		1.133	-0.001	-0.22	1.136	0.002	0.52
VNVXGT		1.139	0.005	1.40	1.138	0.004	1.11
VQPL2A		1.135	0.001	0.17	1.135	0.001	0.18
WBQ3ZC		1.134	0.000	0.15	1.133	-0.001	-0.41
XH7Z8V		1.134	0.000	-0.03	1.132	-0.002	-0.75
XU2LHD		1.134	0.000	0.02	1.134	-0.001	-0.29
Y3PNR8		1.133	-0.001	-0.29	1.134	0.000	-0.13
Y6B9XC		1.137	0.003	1.00	1.140	0.005	1.69
Y77QYD		1.134	0.000	0.00	1.135	0.001	0.29
Z74LVN		1.137	0.003	0.83	1.137	0.002	0.69
ZR6CGV		1.138	0.004	1.09	1.135	0.000	0.02
ZTEM77		1.137	0.003	0.78	1.138	0.003	0.96
ZXVPDC		1.134	0.000	-0.14	1.137	0.002	0.65



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

**Report #221**  
**3rd Qtr 2024**

		Summary Statistics	
Grand Means	1.1340 g/cm <sup>3</sup> (Mg/m <sup>3</sup> )	1.1344 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> )	0.0032 g/cm <sup>3</sup> (Mg/m <sup>3</sup> )	
Statistics based on 66 of 71 reporting participants			

Samples C41-C42: Polyisoprene Compound & C43-C44: Polyisoprene Compound

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

- 2VL2DD (X) - Extreme Data for sample group C43-C44.
- 4JJKG8 (X) - Data for all samples are low. Possible Systematic Error.
- 8ZBMNL (X) - Data for all samples are low. Possible Systematic Error.
- G9UDZP (X) - Data for all samples are high. Possible Systematic Error.
- PCP6VM (X) - Inconsistent in testing between samples.

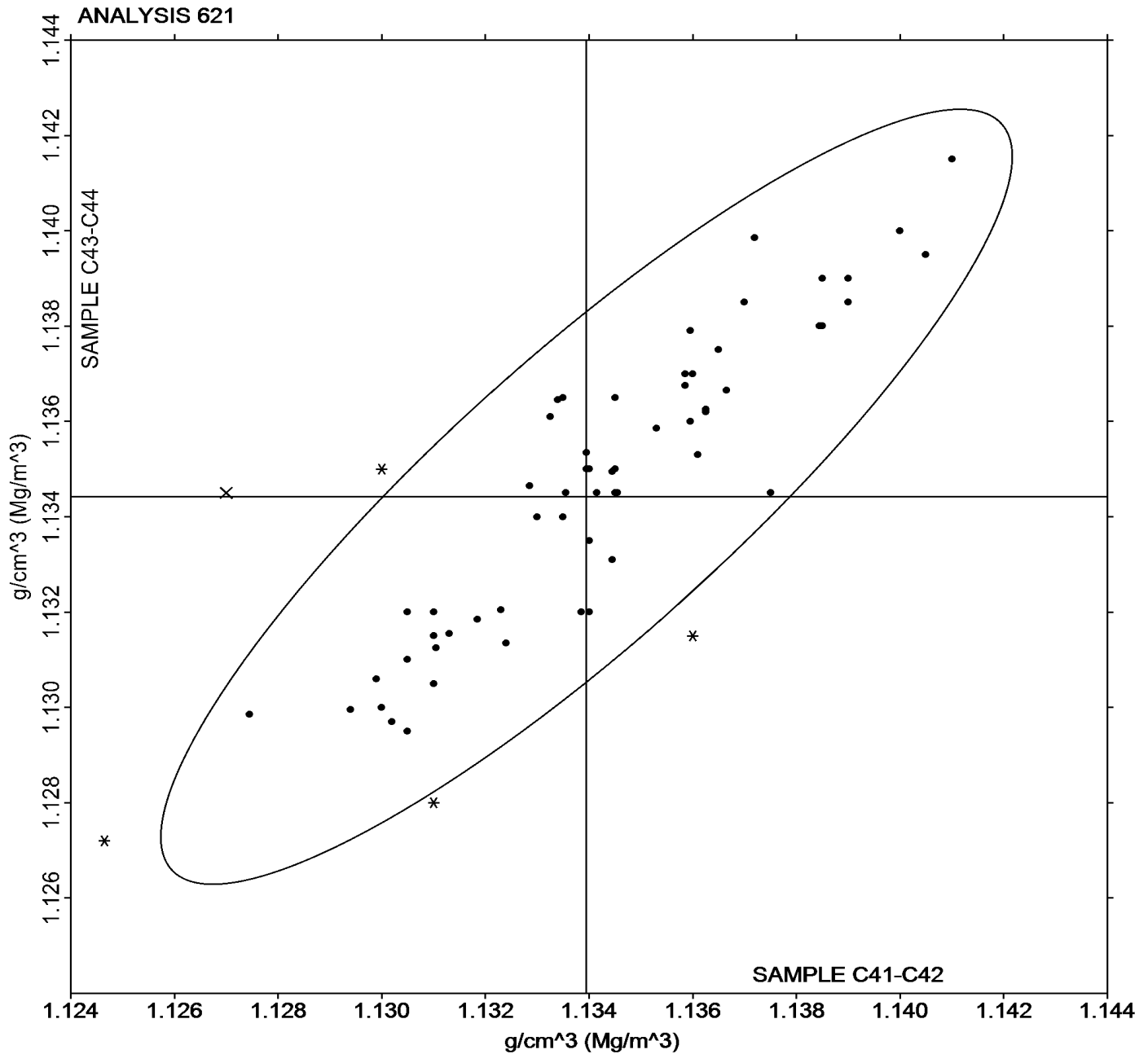


Rubber Interlaboratory Testing Program  
Analysis 621  
Density

Report #221  
3rd Qtr 2024

Grand Mean Sample C41-C42 = 1.1340 g/cm<sup>3</sup>  
(Mg/m<sup>3</sup>)

Grand Mean Sample C43-C44 = 1.1344 g/cm<sup>3</sup>  
(Mg/m<sup>3</sup>)





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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample HC41-HC42			Sample HC43-HC44			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
42G373		52.90	-0.62	-0.17	66.80	-0.09	-0.03	BT
46X6D8		53.20	-0.32	-0.09	66.90	0.01	0.01	BT
6GLP9N		52.20	-1.32	-0.37	65.45	-1.44	-0.53	BT
7WWR74		49.00	-4.52	-1.26	65.00	-1.89	-0.69	HH
8MLPK3	X	49.60	-3.92	-1.09	55.55	-11.34	-4.18	BT
8ZBMNL		58.50	4.98	1.39	70.50	3.61	1.33	HH
CAHQKY		53.50	-0.02	-0.01	66.00	-0.89	-0.33	BT
DC7RGU		53.85	0.33	0.09	68.05	1.16	0.43	HH
E6HNMW		46.20	-7.32	-2.04	61.35	-5.54	-2.04	BT
G9UDZP		54.50	0.98	0.27	67.85	0.96	0.36	BT
GY4RT7	X	94.20	40.68	11.33	95.00	28.11	10.36	BT
HBEKZD		58.50	4.98	1.39	71.50	4.61	1.70	BT
J8ADWQ		51.80	-1.72	-0.48	66.40	-0.49	-0.18	BT
KVFGAJ		57.15	3.63	1.01	68.45	1.56	0.58	BT
LZNZ9C	X	88.00	34.48	9.60	88.50	21.61	7.96	HH
NHXVEF		48.60	-4.92	-1.37	63.45	-3.44	-1.27	BT
PCP6VM		56.50	2.98	0.83	69.00	2.11	0.78	BT
QEUKX7		56.75	3.23	0.90	69.75	2.86	1.06	HH
T6T7Q2		44.75	-8.77	-2.44	60.50	-6.39	-2.35	BT
TPXGEH		53.50	-0.02	-0.01	67.00	0.11	0.04	BT
TXVG8C		52.00	-1.52	-0.42	65.75	-1.14	-0.42	BT
W3CN4E		54.00	0.48	0.13	66.50	-0.39	-0.14	BT
W886AZ		49.50	-4.02	-1.12	63.35	-3.54	-1.30	BT
WWRV7G		56.10	2.58	0.72	68.45	1.56	0.58	HH
WX239A		57.60	4.08	1.14	69.65	2.76	1.02	HH
XZLCVF	*	55.00	1.48	0.41	66.00	-0.89	-0.33	XX
Y3PNR8		53.15	-0.37	-0.10	66.15	-0.74	-0.27	BT
Z2T7Q7		58.50	4.98	1.39	71.50	4.61	1.70	HH
Z74LVN		55.00	1.48	0.41	68.50	1.61	0.59	HH
ZAP4FU		52.90	-0.62	-0.17	66.10	-0.79	-0.29	BT

Summary Statistics			
Grand Means	53.524	Type D	66.885
Std Dev Btwn Labs	3.591	Type D	2.714
Statistics based on 27 of 30 reporting participants			



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

**Report #221**  
**3rd Qtr 2024**

Samples HC41-HC42: Hardness Disc & HC43-HC44: Hardness Disc

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

8MLPK3 (X) - Data for sample group HC43-HC44 are low. Inconsistent within the determinations of sample group HC43-HC44.

GY4RT7 (X) - Extreme Data.

LZNZ9C (X) - Data for all samples are high. Inconsistent within the determinations of both sample groups.

**Key to Instrument Codes Reported by Participants**

BT	Benchtop	HH	Handheld
XX	Specify Benchtop or Handheld Instrument		

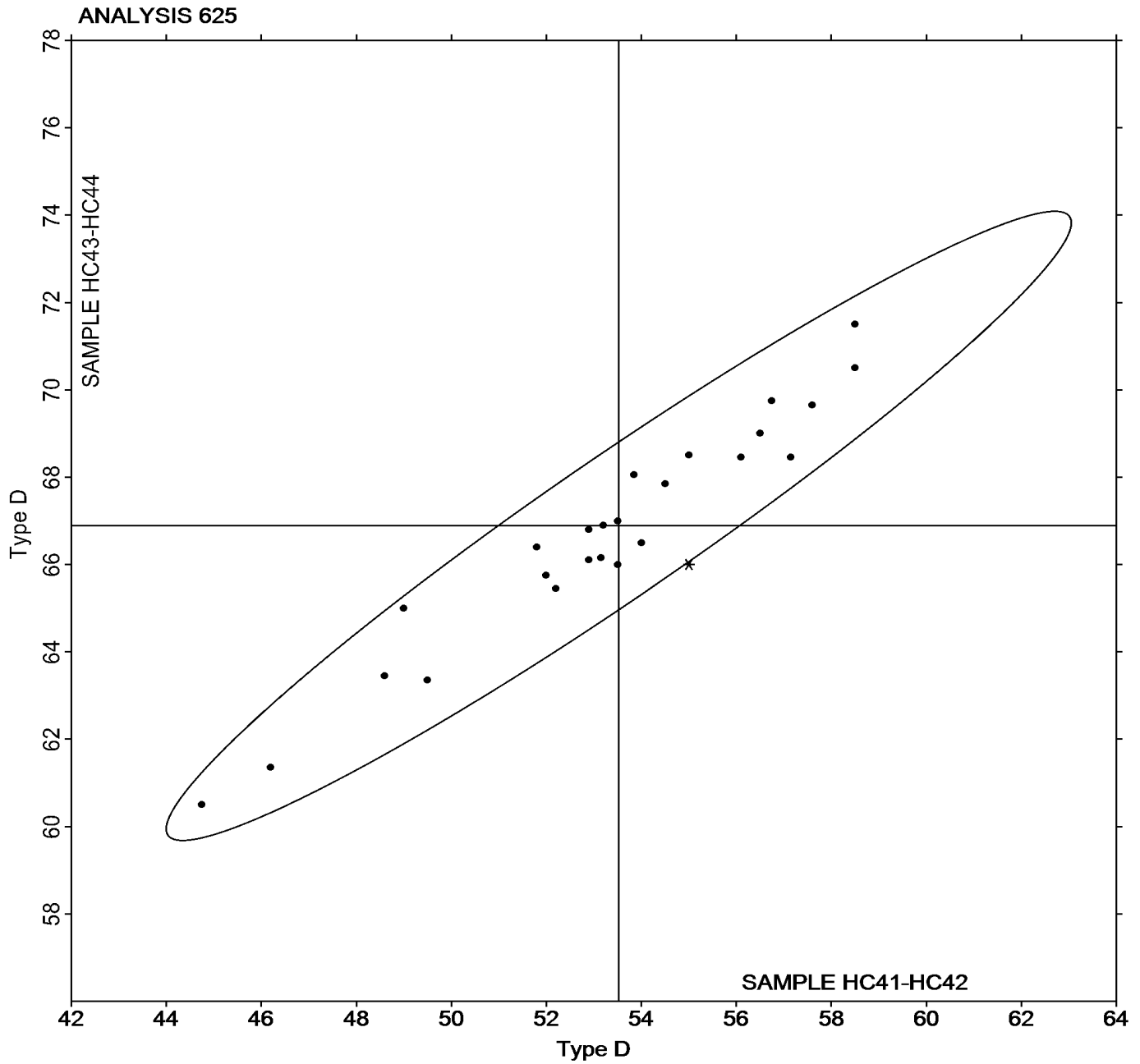


**Rubber Interlaboratory Testing Program**  
**Analysis 625**  
**Hardness (Shore D/Type D)**

**Report #221**  
**3rd Qtr 2024**

Grand Mean Sample **HC41-HC42** = 53.524 Type D

Grand Mean Sample **HC43-HC44** = 66.885 Type D







# Rubber Interlaboratory Testing Program

Report #221

## Analysis 630

3rd Qtr 2024

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

WebCode	Data Flag	Sample C41-C42			Sample L41-L42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3YEMHK		3,185.0	96.5	0.47	3,310.0	273.4	0.86
42G373		2,654.2	-434.3	-2.11	2,668.7	-367.9	-1.16
7EZ8NH		3,399.0	310.5	1.50	3,283.7	247.1	0.78
8ZBMNL		3,040.7	-47.8	-0.23	2,981.5	-55.1	-0.17
9E67M2		3,167.5	79.0	0.38	3,114.5	77.9	0.25
AJEEED		3,266.0	177.5	0.86	3,394.0	357.4	1.13
C2NKRX		3,134.3	45.8	0.22	3,100.2	63.6	0.20
DH9XWW		3,140.1	51.6	0.25	2,310.5	-726.1	-2.30
G9UDZP		2,920.5	-168.0	-0.81	3,254.5	217.9	0.69
GQU3F9		3,459.9	371.4	1.80	3,272.1	235.5	0.74
GY4RT7		3,079.0	-9.5	-0.05	3,180.5	143.9	0.46
JFM6LP	M	No data reported for this sample			3,125.7	89.1	0.28
KGEKBQ		2,985.2	-103.3	-0.50	2,820.3	-216.3	-0.68
MEYZFL		3,335.5	247.0	1.20	3,414.5	377.9	1.20
N33GEL	M	No data reported for this sample			3,421.2	384.6	1.22
NKL8F7		3,161.9	73.3	0.36	2,822.5	-214.2	-0.68
RMWL9G		3,086.5	-2.0	-0.01	2,833.5	-203.1	-0.64
UM7AMD		3,015.3	-73.2	-0.35	2,286.5	-750.1	-2.37
UWH662		3,145.9	57.4	0.28	3,224.2	187.6	0.59
VNVXGT		2,698.5	-390.0	-1.89	2,867.0	-169.6	-0.54
VTRKAG		2,924.4	-164.1	-0.80	3,017.0	-19.6	-0.06
WBQ3ZC		2,804.1	-284.5	-1.38	3,180.1	143.4	0.45
WECL6F		3,052.0	-36.5	-0.18	3,105.0	68.4	0.22
ZXVPDC		3,292.4	203.8	0.99	3,364.9	328.3	1.04

Grand Means		Summary Statistics	
	3,088.54 psi		3,036.62 psi
Std Dev Btwn Labs	206.32 psi		316.20 psi
Statistics based on 22 of 24 reporting participants			

Grand Means		Summary Statistics in SI Units	
	21.295 MPa		20.940 MPa
Std Dev Btwn Labs	1.423 MPa		2.180 MPa
Statistics based on 22 of 24 reporting participants			



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

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**Report #221**  
**3rd Qtr 2024**

Samples C41-C42: Polyisoprene Compound & L41-L42: Polyisoprene Compound

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

JFM6LP (M) - Participant did not submit data for sample group C41-C42.

N33GEL (M) - Participant did not submit data for sample group C41-C42.



# Rubber Interlaboratory Testing Program

Report #221

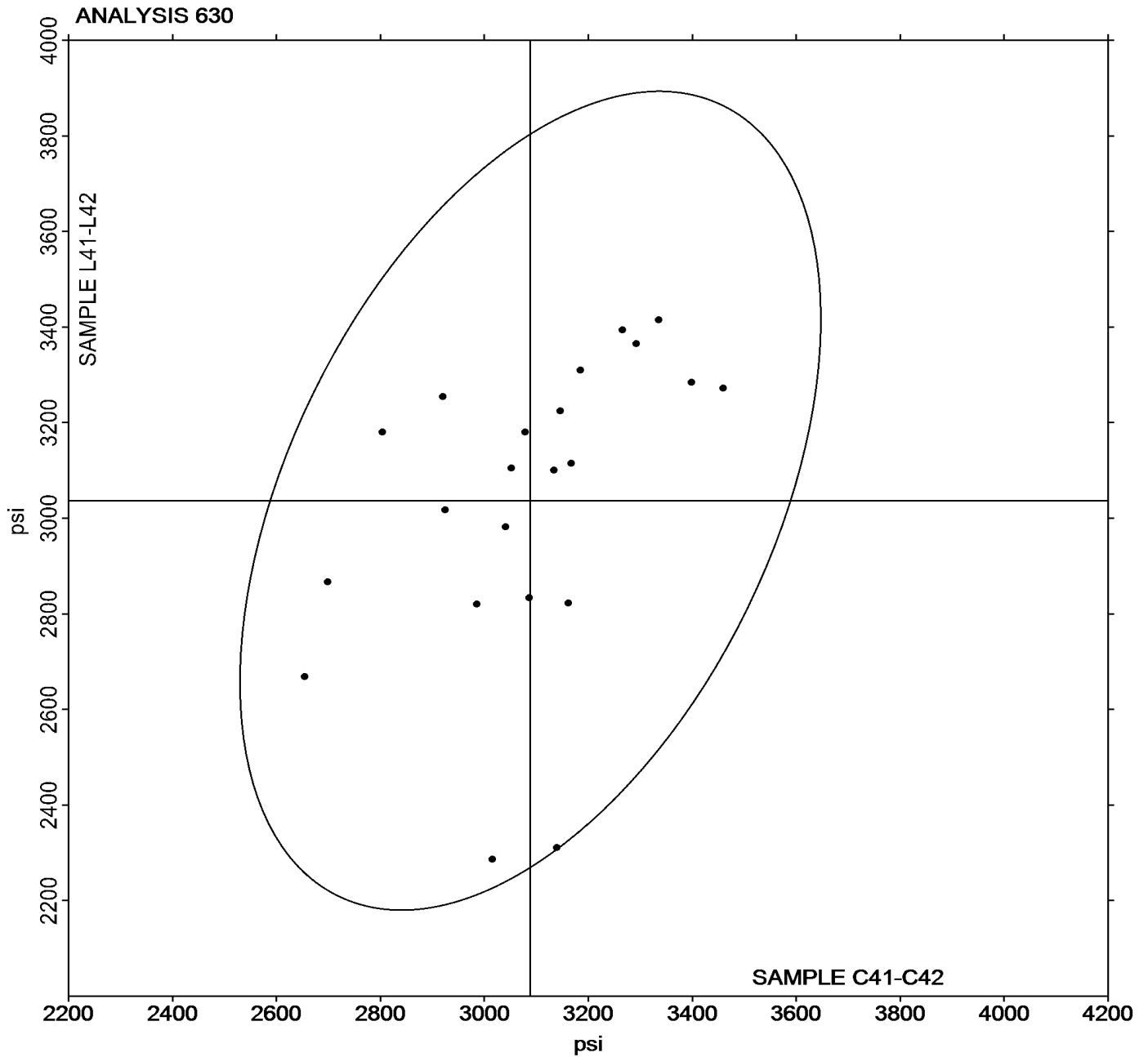
## Analysis 630

3rd Qtr 2024

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

Grand Mean Sample C41-C42 = 3,088.54 psi

Grand Mean Sample L41-L42 = 3,036.62 psi





# Rubber Interlaboratory Testing Program

Report #221

## Analysis 631

3rd Qtr 2024

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

WebCode	Data Flag	Sample C41-C42			Sample L41-L42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3YEMHK		601.0	4.5	0.25	621.0	19.5	0.64
42G373		575.6	-20.9	-1.18	568.3	-33.2	-1.09
7EZ8NH		630.5	34.0	1.91	644.7	43.2	1.42
8ZBMNL		598.0	1.4	0.08	595.0	-6.5	-0.21
9E67M2		610.0	13.5	0.76	596.5	-5.0	-0.16
AJEEED	*	615.0	18.5	1.04	682.0	80.5	2.64
C2NKRX		588.5	-8.0	-0.45	588.0	-13.5	-0.44
DH9XWW		594.5	-2.0	-0.11	535.0	-66.5	-2.18
G9UDZP		609.5	13.0	0.73	633.5	32.0	1.05
GQU3F9		629.0	32.5	1.83	634.5	33.0	1.08
GY4RT7		574.0	-22.5	-1.27	600.0	-1.5	-0.05
JFM6LP	M	No data reported for this sample			644.0	42.5	1.40
KGEKBQ		622.1	25.6	1.44	610.1	8.6	0.28
MEYZFL		600.4	3.9	0.22	593.3	-8.2	-0.27
N33GEL	M	No data reported for this sample			630.7	29.2	0.96
NKL8F7		595.6	-0.9	-0.05	581.0	-20.5	-0.67
RMWL9G		580.5	-16.0	-0.90	591.0	-10.5	-0.34
UM7AMD	X	694.5	98.0	5.51	585.5	-16.0	-0.52
UWH662		587.6	-8.9	-0.50	598.0	-3.5	-0.11
VNVXGT		569.0	-27.5	-1.55	601.5	0.0	0.00
VTRKAG		576.7	-19.8	-1.12	567.9	-33.6	-1.10
WBQ3ZC		582.1	-14.4	-0.81	591.3	-10.1	-0.33
WECL6F		594.0	-2.5	-0.14	598.5	-3.0	-0.10
ZXVPDC		593.5	-3.0	-0.17	600.0	-1.5	-0.05

Grand Means		Summary Statistics	
	596.53 percent		601.48 percent
Stnd Dev Btwn Labs	17.77 percent		30.45 percent
Statistics based on 21 of 24 reporting participants			

Samples C41-C42: Polyisoprene Compound & L41-L42: Polyisoprene Compound

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

- JFM6LP (M) - Participant did not submit data for sample group C41-C42.
- N33GEL (M) - Participant did not submit data for sample group C41-C42.
- UM7AMD (X) - Data for sample group C41-C42 are high. Inconsistent within the determinations of both sample groups.



# Rubber Interlaboratory Testing Program

## Analysis 631

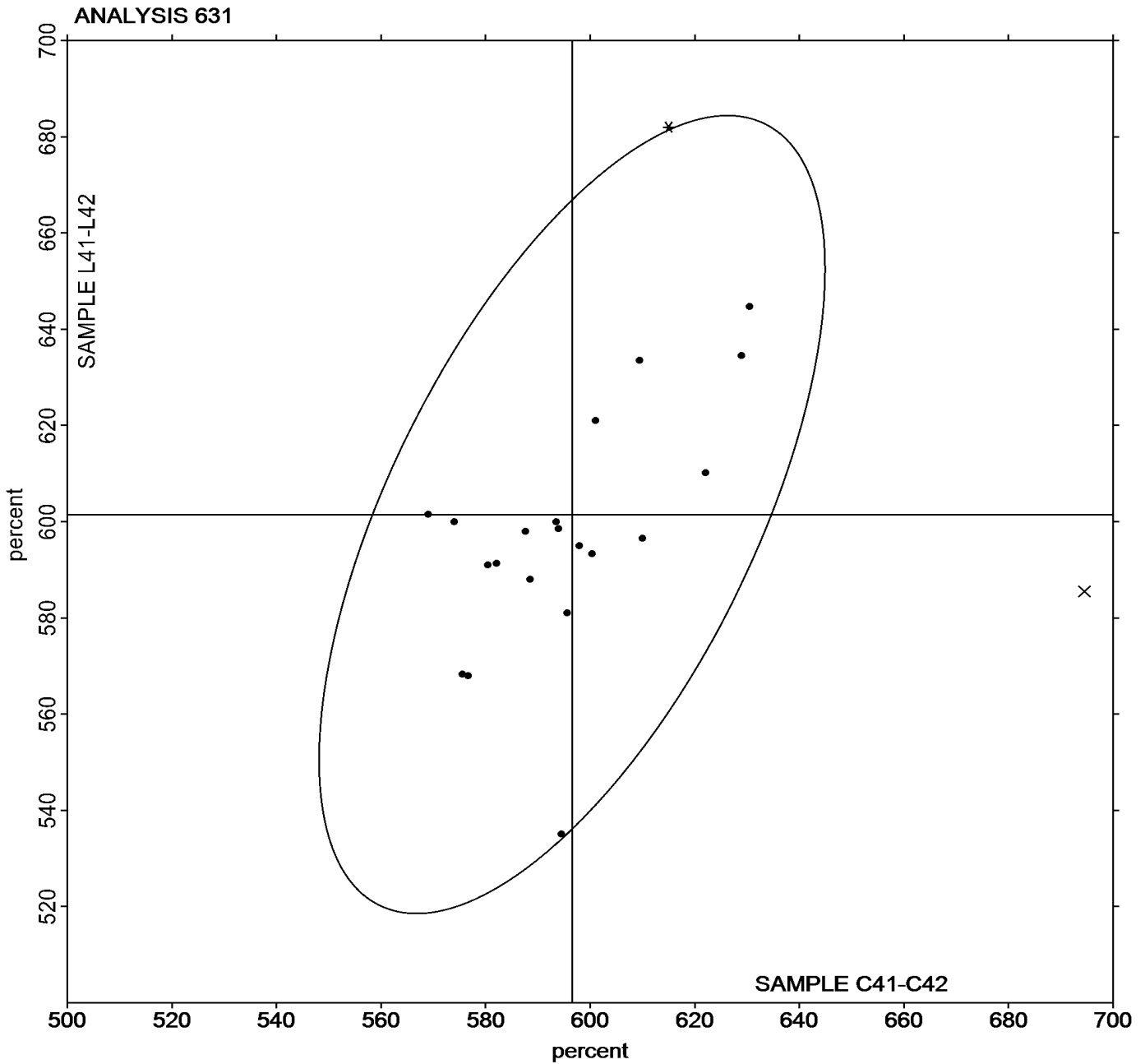
Report #221

3rd Qtr 2024

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

Grand Mean Sample C41-C42 = 596.53 percent

Grand Mean Sample L41-L42 = 601.48 percent





# Rubber Interlaboratory Testing Program

Report #221

## Analysis 632

3rd Qtr 2024

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

WebCode	Data Flag	Sample C41-C42			Sample L41-L42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3YEMHK		1,001.5	54.2	0.85	985.5	65.3	0.69
42G373		855.7	-91.6	-1.44	859.4	-60.8	-0.64
7EZ8NH		1,018.2	70.9	1.12	915.2	-5.0	-0.05
8ZBMNL		924.3	-23.0	-0.36	914.5	-5.7	-0.06
9E67M2		937.0	-10.3	-0.16	949.0	28.8	0.30
AJEEED		972.0	24.7	0.39	817.5	-102.7	-1.08
C2NKRX		983.4	36.1	0.57	911.6	-8.6	-0.09
DH9XWW		969.6	22.3	0.35	829.6	-90.6	-0.95
G9UDZP		890.5	-56.8	-0.89	922.0	1.8	0.02
GQU3F9		995.0	47.7	0.75	924.6	4.4	0.05
GY4RT7		992.0	44.7	0.70	969.5	49.3	0.52
JFM6LP	M	No data reported for this sample			818.6	-101.6	-1.07
KGEKBQ		837.0	-110.3	-1.74	780.9	-139.3	-1.46
MEYZFL		1,021.0	73.7	1.16	1,031.8	111.6	1.17
N33GEL	M	No data reported for this sample			854.1	-66.1	-0.70
NKL8F7		982.6	35.4	0.56	934.8	14.6	0.15
RMWL9G		978.0	30.7	0.48	1,077.5	157.3	1.65
UM7AMD		779.1	-168.2	-2.65	711.0	-209.2	-2.20
UWH662		934.1	-13.2	-0.21	836.9	-83.3	-0.88
VNVXGT		883.0	-64.3	-1.01	840.5	-79.7	-0.84
VTRKAG		988.4	41.1	0.65	1,064.5	144.3	1.52
WBQ3ZC		925.9	-21.4	-0.34	1,013.0	92.8	0.98
WECL6F		972.0	24.7	0.39	907.0	-13.2	-0.14
ZXVPDC		1,000.0	52.8	0.83	1,047.9	127.7	1.34

Grand Means		Summary Statistics	
	947.28 psi		920.19 psi
Stnd Dev Btwn Labs	63.55 psi		95.10 psi
Statistics based on 22 of 24 reporting participants			

Grand Means		Summary Statistics in SI Units	
	6.5312 MPa		6.3400 MPa
Stnd Dev Btwn Labs	0.4381 MPa		0.6600 MPa
Statistics based on 22 of 24 reporting participants			



## Rubber Interlaboratory Testing Program

Report #221

### Analysis 632

3rd Qtr 2024

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

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Samples C41-C42: Polyisoprene Compound & L41-L42: Polyisoprene Compound

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

JFM6LP (M) - Participant did not submit data for sample group C41-C42.

N33GEL (M) - Participant did not submit data for sample group C41-C42.



# Rubber Interlaboratory Testing Program

Report #221

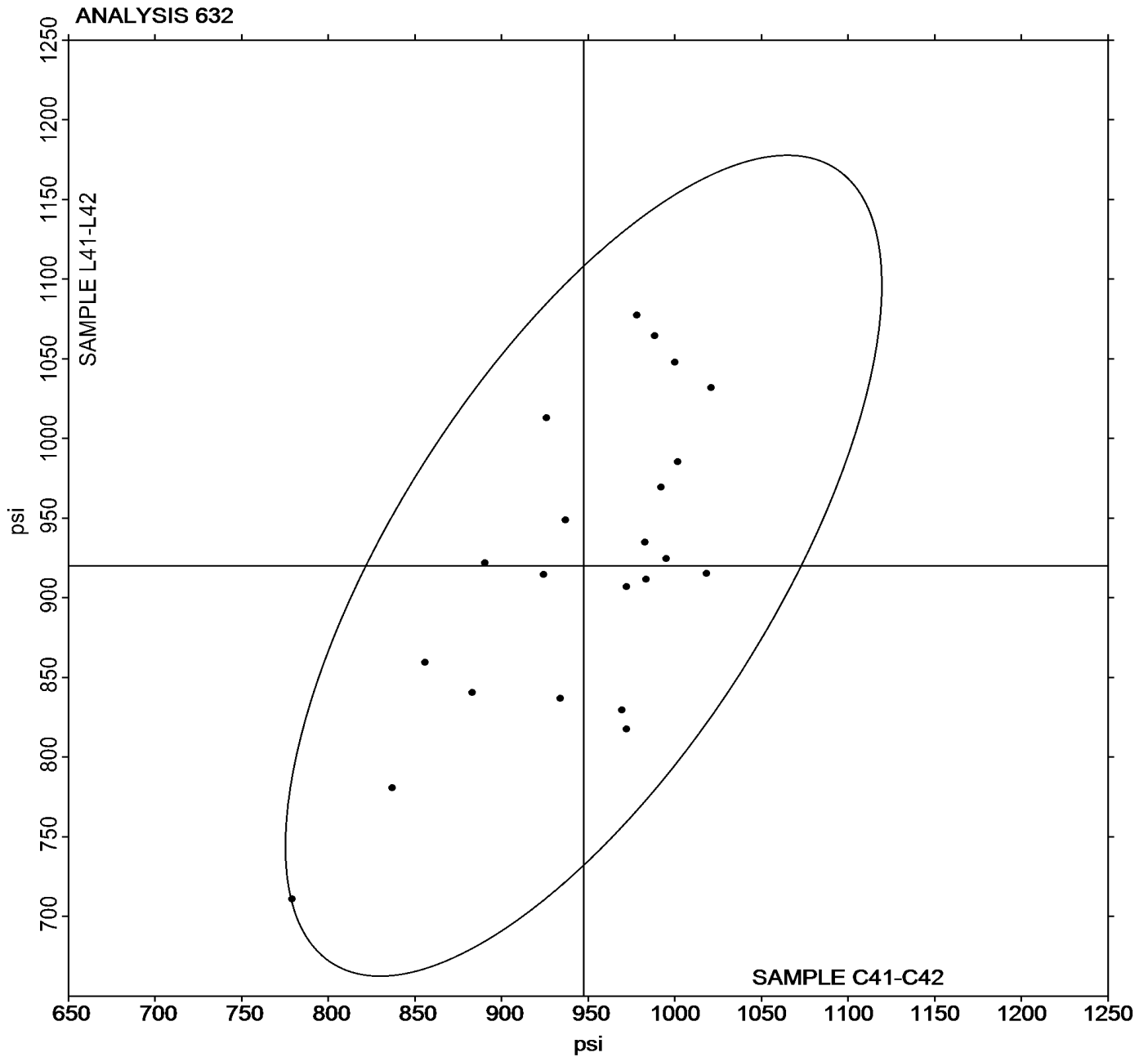
## Analysis 632

3rd Qtr 2024

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

Grand Mean Sample C41-C42 = 947.28 psi

Grand Mean Sample L41-L42 = 920.19 psi







# Rubber Interlaboratory Testing Program

Report #221

## Analysis 633

3rd Qtr 2024

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

WebCode	Data Flag	Sample C41-C42			Sample L41-L42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3YEMHK		217.0	8.4	0.67	226.0	20.6	0.99
42G373		188.6	-20.0	-1.58	193.6	-11.7	-0.56
7EZ8NH		215.5	7.0	0.55	201.7	-3.7	-0.18
8ZBMNL		199.7	-8.9	-0.70	197.0	-8.4	-0.40
9E67M2		213.0	4.4	0.35	211.0	5.6	0.27
AJEEED		216.5	7.9	0.63	192.0	-13.4	-0.64
C2NKRX		206.0	-2.6	-0.21	196.5	-8.8	-0.42
DH9XWW		218.3	9.7	0.77	186.4	-19.0	-0.91
G9UDZP		198.5	-10.1	-0.80	211.0	5.6	0.27
GQU3F9		223.4	14.8	1.17	206.0	0.6	0.03
GY4RT7		218.0	9.4	0.75	217.5	12.1	0.58
JFM6LP	M	No data reported for this sample			195.5	-9.9	-0.47
KGEKBQ		178.7	-29.9	-2.37	171.6	-33.7	-1.61
MEYZFL		223.8	15.3	1.21	233.6	28.2	1.35
N33GEL	M	No data reported for this sample			195.2	-10.2	-0.49
NKL8F7		207.4	-1.1	-0.09	203.8	-1.6	-0.08
RMWL9G		221.5	12.9	1.03	227.5	22.1	1.06
UM7AMD		193.2	-15.4	-1.22	155.5	-49.9	-2.38
UWH662		202.3	-6.2	-0.49	189.3	-16.1	-0.77
VNVXGT		195.5	-13.1	-1.03	191.0	-14.4	-0.69
VTRKAG		220.6	12.0	0.95	238.3	32.9	1.58
WBQ3ZC		197.0	-11.5	-0.91	220.9	15.5	0.74
WECL6F		217.0	8.4	0.67	211.5	6.1	0.29
ZXVPDC		216.8	8.3	0.66	236.4	31.0	1.48

Grand Means		Summary Statistics	
	208.55 psi		205.37 psi
Stnd Dev Btwn Labs	12.63 psi		20.91 psi
Statistics based on 22 of 24 reporting participants			

Grand Means		Summary Statistics in SI Units	
	1.4379 MPa		1.4200 MPa
Stnd Dev Btwn Labs	0.0871 MPa		0.1400 MPa
Statistics based on 22 of 24 reporting participants			



## Rubber Interlaboratory Testing Program

Report #221

### Analysis 633

3rd Qtr 2024

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

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Samples C41-C42: Polyisoprene Compound & L41-L42: Polyisoprene Compound

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

JFM6LP (M) - Participant did not submit data for sample group C41-C42.

N33GEL (M) - Participant did not submit data for sample group C41-C42.



# Rubber Interlaboratory Testing Program

Report #221

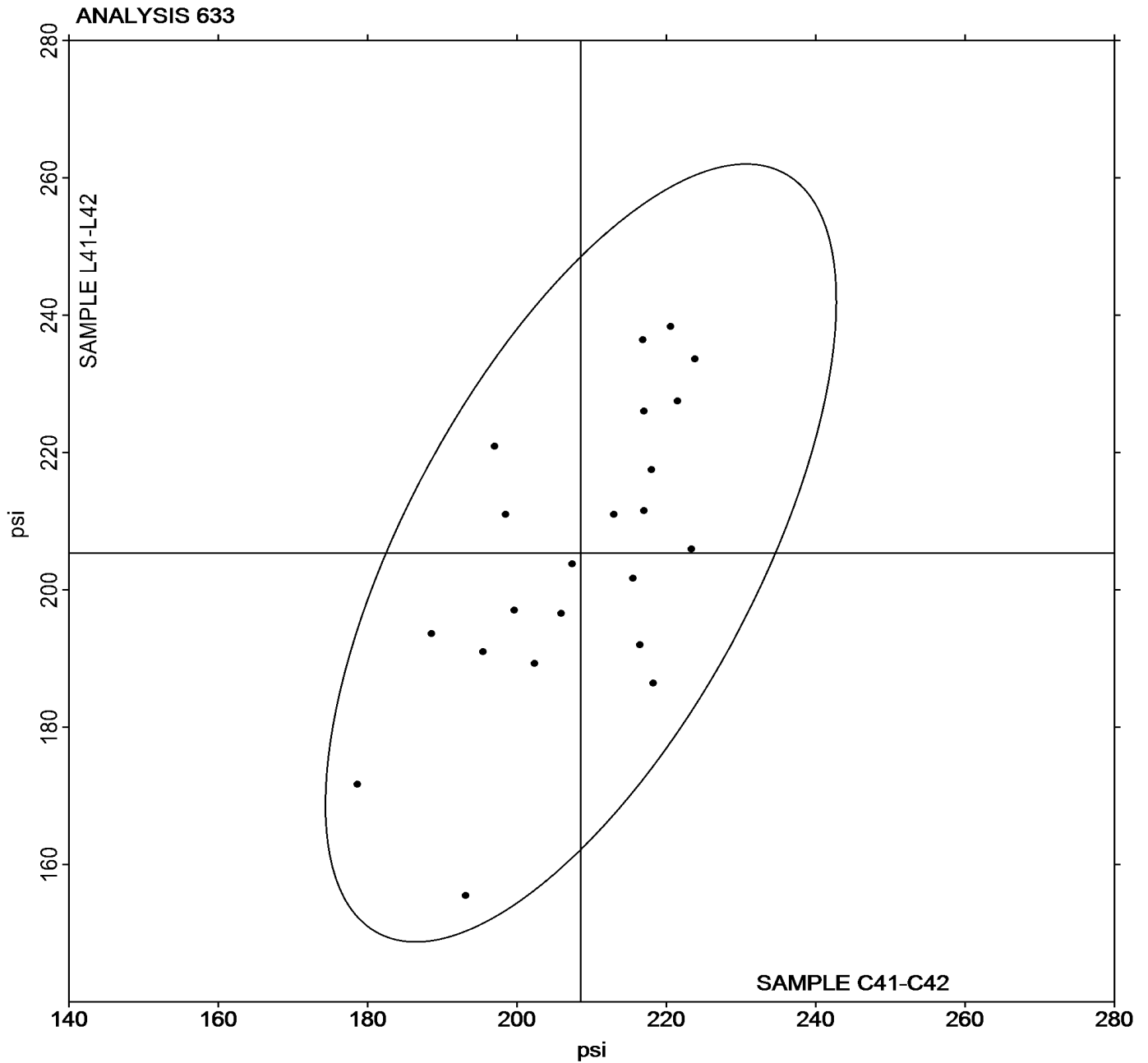
## Analysis 633

3rd Qtr 2024

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

Grand Mean Sample C41-C42 = 208.55 psi

Grand Mean Sample L41-L42 = 205.37 psi





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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample P41			Sample P42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2LBZRC		34.84	-0.28	-0.07	35.60	0.49	0.13
3J4Y9Q		34.93	-0.19	-0.05	34.57	-0.54	-0.14
3YEMHK		39.00	3.88	1.00	39.00	3.89	0.99
4E2HA2		39.23	4.11	1.06	40.33	5.23	1.33
6QWTH9		29.33	-5.79	-1.49	30.33	-4.77	-1.21
7A3NN6		34.00	-1.12	-0.29	29.00	-6.11	-1.55
7MUAUZ		32.17	-2.95	-0.76	30.33	-4.77	-1.21
8RFPYX		38.18	3.06	0.79	35.75	0.64	0.16
8ZBMNL		39.10	3.98	1.02	38.56	3.45	0.88
94U2RL		35.90	0.78	0.20	36.96	1.85	0.47
9CY97L		42.67	7.55	1.94	42.00	6.89	1.75
AACW6V		41.00	5.88	1.51	38.00	2.89	0.74
CAHQKY	*	42.00	6.88	1.76	36.00	0.89	0.23
CGJDPZ		37.60	2.48	0.64	37.40	2.29	0.58
DERVPQ		33.00	-2.12	-0.54	33.33	-1.77	-0.45
DH9XWW	X	48.67	13.55	3.48	51.00	15.89	4.04
DTTA8A		28.00	-7.12	-1.83	28.00	-7.11	-1.81
E6HNMW	X	28.66	-6.46	-1.66	39.84	4.73	1.20
G9UDZP		35.38	0.26	0.07	37.98	2.87	0.73
GY4RT7		28.95	-6.17	-1.58	29.70	-5.41	-1.38
KDWH6L		35.93	0.81	0.21	34.03	-1.07	-0.27
KYBK9A		29.30	-5.82	-1.49	29.13	-5.97	-1.52
LVU69P		36.73	1.61	0.41	36.72	1.61	0.41
N67CXN		33.76	-1.36	-0.35	36.12	1.01	0.26
PREY26		29.72	-5.40	-1.39	29.16	-5.95	-1.51
PYKE8F		38.33	3.21	0.82	37.67	2.56	0.65
QVEBW6		35.24	0.12	0.03	31.32	-3.78	-0.96
RMVNYL		28.00	-7.12	-1.83	30.00	-5.11	-1.30
RMWL9G		35.76	0.64	0.16	35.42	0.31	0.08
U3L9RE		32.01	-3.11	-0.80	33.38	-1.73	-0.44
UD3XQJ		30.67	-4.45	-1.14	30.33	-4.77	-1.21
UM7AMD	*	32.33	-2.79	-0.72	40.33	5.23	1.33
UTUR4A		34.49	-0.63	-0.16	35.58	0.48	0.12
UWH662		32.58	-2.54	-0.65	37.07	1.96	0.50
V3H6FE		36.67	1.55	0.40	37.67	2.56	0.65
VQPL2A		34.67	-0.45	-0.12	30.67	-4.44	-1.13
VTRKAG		40.90	5.78	1.48	43.33	8.23	2.09
XU2LHD		38.14	3.02	0.78	38.04	2.94	0.75



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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample P41			Sample P42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
Y77QYD		38.88	3.76	0.96	36.39	1.29	0.33
ZAP4FU		33.67	-1.45	-0.37	36.33	1.23	0.31
ZXVPDC		36.67	1.55	0.40	37.67	2.56	0.65

Summary Statistics	
Grand Means	
	35.121 % Compression
Stnd Dev Btwn Labs	
	3.897 % Compression
	35.108 % Compression
	3.930 % Compression
	Statistics based on 39 of 41 reporting participants

Samples P41: EPDM Compound & P42: EPDM Compound

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

DH9XWW (X) - Data for all samples are high. Possible Systematic Error.

E6HNMW (X) - Inconsistent in testing between samples.





# Rubber Interlaboratory Testing Program

Report #221

## Analysis 640

3rd Qtr 2024

### O-Ring Tensile Strength at Break (psi)

WebCode	Data Flag	Sample RC41			Sample RC42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
49Z7D6		2,344.6	-80.7	-1.06	2,332.2	-63.9	-0.66
6QWTH9		2,282.2	-143.1	-1.89	2,218.8	-177.3	-1.83
A2UMFD		2,307.4	-117.9	-1.56	2,210.8	-185.3	-1.92
AACW6V		2,468.4	43.1	0.57	2,484.6	88.5	0.92
CM8U4C		2,373.6	-51.7	-0.68	2,403.7	7.6	0.08
DERVPQ		2,484.4	59.1	0.78	2,445.6	49.5	0.51
DTTA8A		2,405.8	-19.5	-0.26	2,397.8	1.7	0.02
G9UDZP		2,490.6	65.3	0.86	2,514.4	118.3	1.22
JFM6LP	*	2,529.3	103.9	1.37	2,253.2	-142.9	-1.48
Q7D7TF		2,376.2	-49.1	-0.65	2,443.4	47.3	0.49
RMWL9G		2,444.6	19.3	0.25	2,451.4	55.3	0.57
U3L9RE		2,577.8	152.5	2.01	2,558.8	162.7	1.68
UD3XQJ		2,436.0	10.7	0.14	2,398.4	2.3	0.02
UM7AMD		2,423.0	-2.3	-0.03	2,400.0	3.9	0.04
UWH662		2,402.7	-22.6	-0.30	2,397.5	1.4	0.01
Z74LVN		2,456.0	30.7	0.40	2,447.4	51.3	0.53
ZXVPDC		2,428.0	2.6	0.03	2,375.7	-20.4	-0.21

Summary Statistics	
Grand Means	2,425.32 psi
Std Dev Btwn Labs	75.82 psi
	2,396.10 psi
	96.64 psi
Statistics based on 17 of 17 reporting participants	

Samples RC41: Nitrile O-Ring & RC42: Nitrile O-Ring

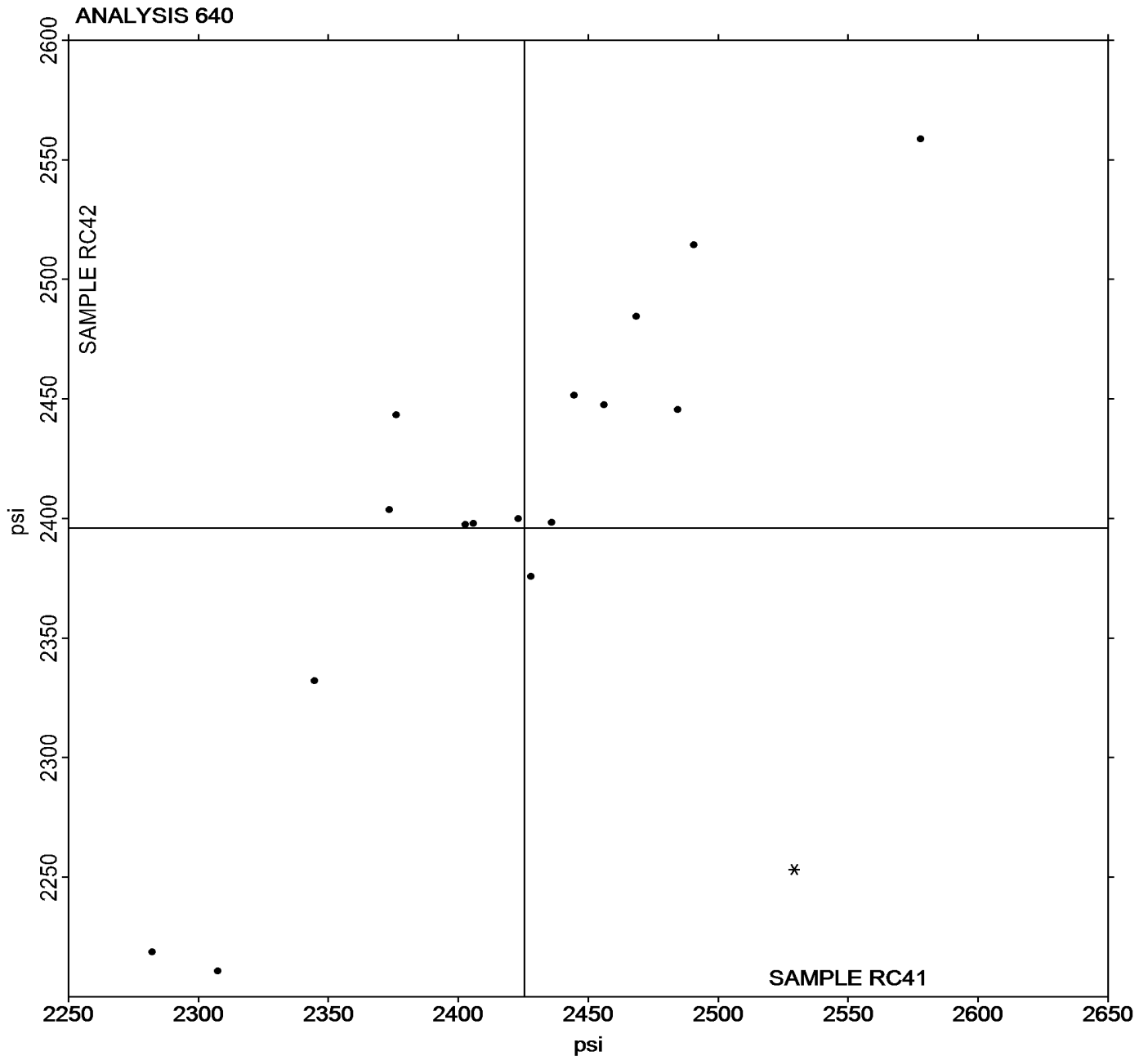


**Rubber Interlaboratory Testing Program**  
**Analysis 640**  
**O-Ring Tensile Strength at Break (psi)**

**Report #221**  
**3rd Qtr 2024**

Grand Mean Sample **RC41** = 2,425.32 psi

Grand Mean Sample **RC42** = 2,396.10 psi



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 641**  
**O-Ring Ultimate Elongation (%)**

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample RC41			Sample RC42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
49Z7D6		403.0	25.6	0.73	392.0	19.1	0.50
6QWTH9		336.6	-40.8	-1.17	335.2	-37.7	-0.99
A2UMFD		350.6	-26.8	-0.77	333.0	-39.9	-1.04
AACW6V		371.6	-5.8	-0.17	378.6	5.7	0.15
CM8U4C		359.0	-18.4	-0.53	377.8	4.9	0.13
DERVPQ		404.8	27.4	0.78	399.4	26.5	0.69
DTTA8A		324.2	-53.2	-1.52	310.8	-62.1	-1.62
G9UDZP		415.8	38.4	1.10	426.2	53.3	1.40
JFM6LP	*	423.8	46.4	1.33	368.2	-4.7	-0.12
Q7D7TF		379.4	2.0	0.06	394.6	21.7	0.57
RMWL9G		383.6	6.2	0.18	388.4	15.5	0.41
U3L9RE		422.2	44.8	1.28	407.8	34.9	0.91
UD3XQJ		338.8	-38.6	-1.11	332.2	-40.7	-1.06
UM7AMD		400.8	23.4	0.67	399.8	26.9	0.70
UWH662		420.3	42.9	1.23	431.2	58.3	1.52
Z74LVN		353.2	-24.2	-0.69	358.6	-14.3	-0.37
ZXVPDC		328.6	-48.8	-1.40	305.0	-67.9	-1.78

Grand Means		Summary Statistics	
	377.43 percent		372.87 percent
Stnd Dev Btwn Labs	34.92 percent		38.22 percent
Statistics based on 17 of 17 reporting participants			

Samples RC41: Nitrile O-Ring & RC42: Nitrile O-Ring

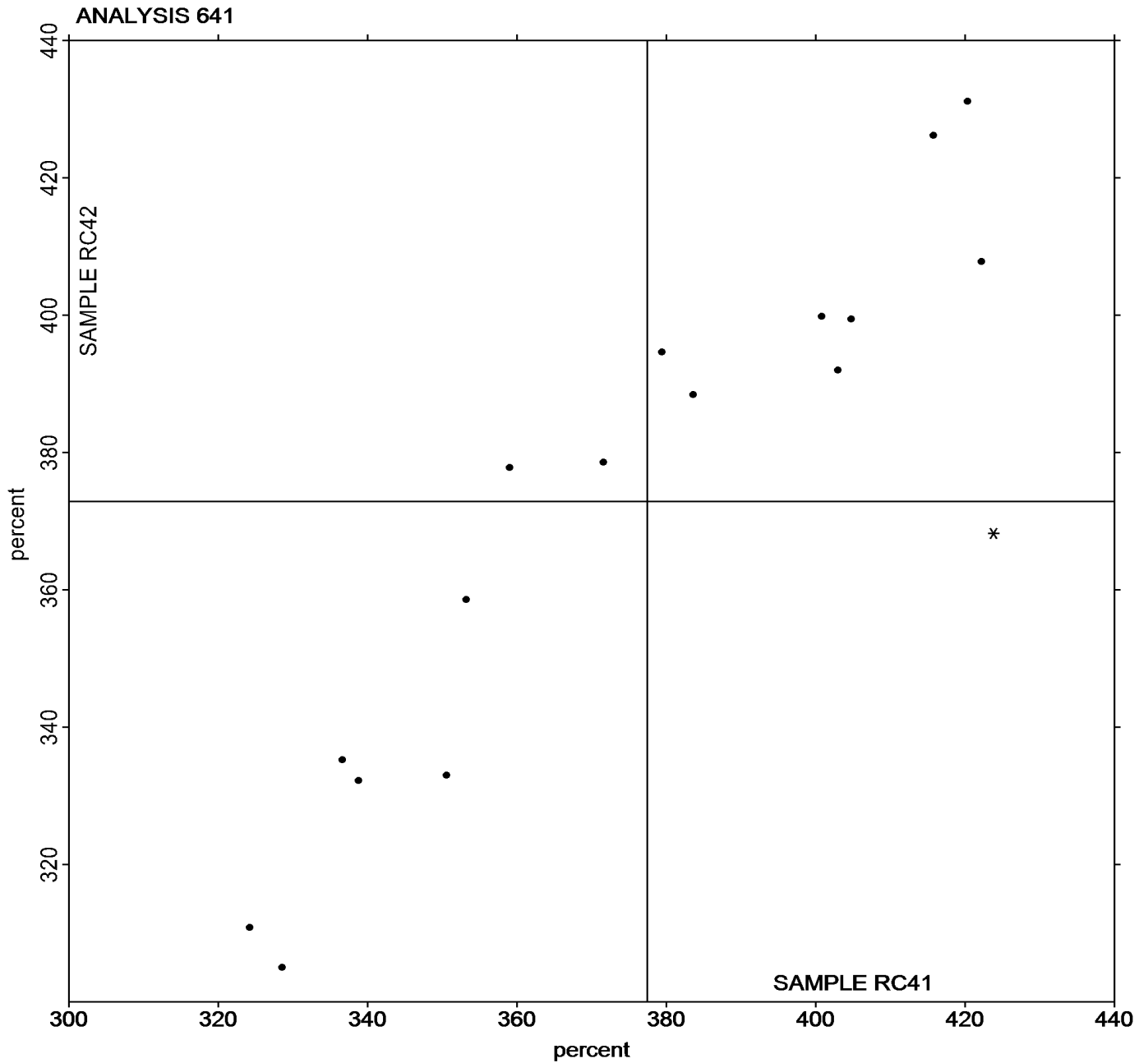


Rubber Interlaboratory Testing Program  
Analysis 641  
O-Ring Ultimate Elongation (%)

Report #221  
3rd Qtr 2024

Grand Mean Sample RC41 = 377.43 percent

Grand Mean Sample RC42 = 372.87 percent



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



# Rubber Interlaboratory Testing Program

Report #221

## Analysis 642

3rd Qtr 2024

### O-Ring Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample RC41			Sample RC42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
49Z7D6		477.8	9.2	0.12	477.6	11.6	0.16
6QWTH9		513.0	44.4	0.59	511.8	45.8	0.62
A2UMFD		422.0	-46.6	-0.62	437.0	-29.0	-0.39
AACW6V		589.2	120.6	1.61	576.0	110.0	1.50
CM8U4C	X	2,373.6	1,904.9	25.42	2,403.7	1,937.7	26.33
DERVPQ		466.4	-2.2	-0.03	458.6	-7.4	-0.10
G9UDZP		472.0	3.4	0.04	478.6	12.6	0.17
JFM6LP		392.9	-75.7	-1.01	382.8	-83.2	-1.13
Q7D7TF		467.2	-1.4	-0.02	464.0	-2.0	-0.03
RMWL9G		520.4	51.8	0.69	527.8	61.8	0.84
U3L9RE		490.2	21.6	0.29	485.2	19.2	0.26
UD3XQJ		605.2	136.6	1.82	594.2	128.2	1.74
UM7AMD		384.4	-84.2	-1.12	380.8	-85.2	-1.16
UWH662		335.6	-133.0	-1.77	332.7	-133.2	-1.81
ZXVPDC		424.7	-44.0	-0.59	416.3	-49.7	-0.68

Summary Statistics	
Grand Means	468.64 psi      465.96 psi
Stnd Dev Btwn Labs	74.95 psi      73.61 psi
Statistics based on 14 of 15 reporting participants	

Samples RC41: Nitrile O-Ring & RC42: Nitrile O-Ring

#### Comments on Assigned Data Flags for Test #642

CM8U4C (X) - Extreme Data.

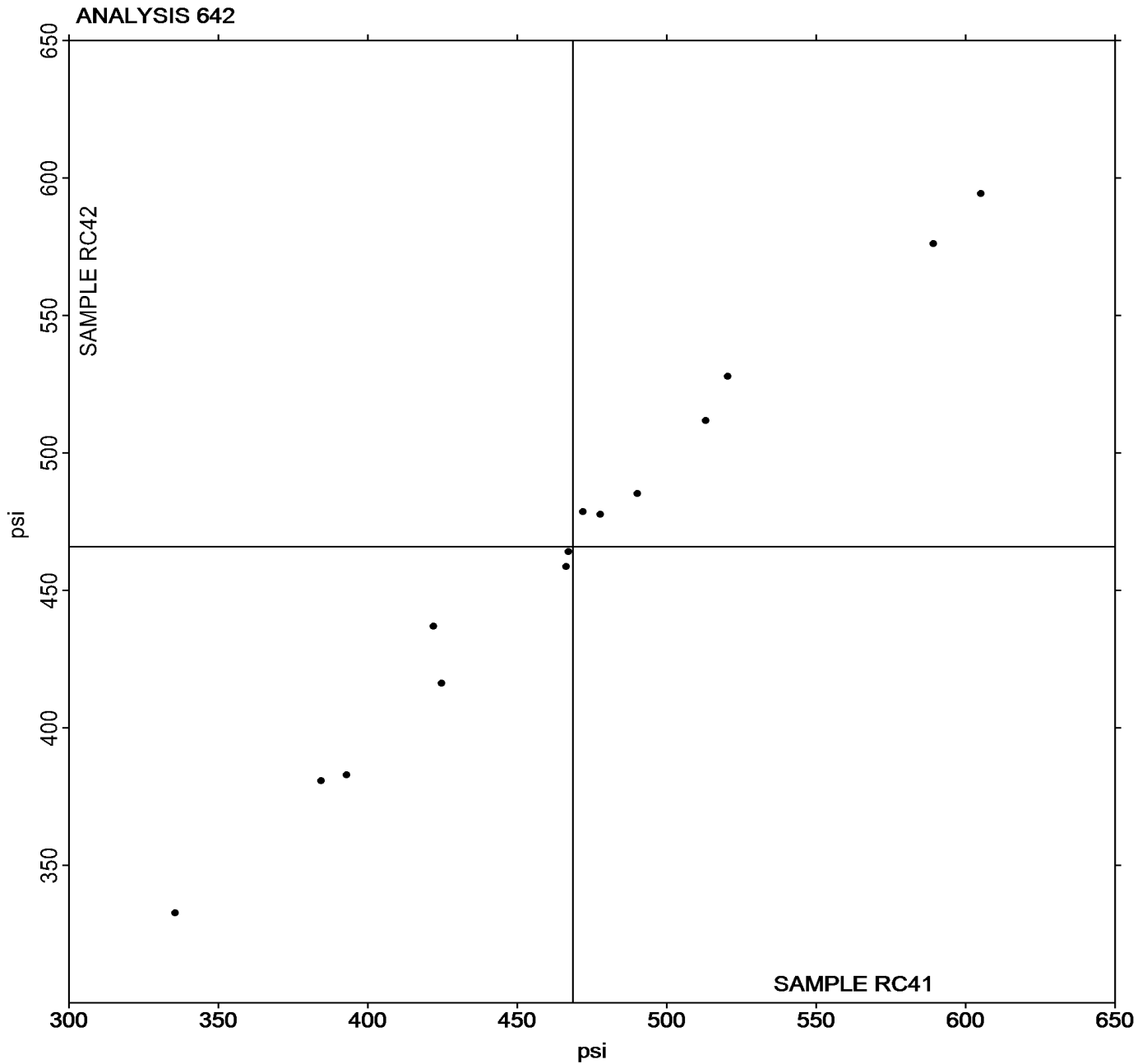


**Rubber Interlaboratory Testing Program**  
**Analysis 642**  
**O-Ring Stress at 100% Elongation (psi)**

**Report #221**  
**3rd Qtr 2024**

Grand Mean Sample **RC41** = 468.64 psi

Grand Mean Sample **RC42** = 465.96 psi



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 647**  
**O-Ring Hardness (Shore A)**

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample RC41			Sample RC42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
49Z7D6	*	68.40	-1.36	-0.91	66.40	-3.37	-1.99
6QWTH9		69.34	-0.42	-0.28	69.80	0.03	0.01
A2UMFD		68.20	-1.56	-1.04	68.40	-1.37	-0.81
AACW6V		67.00	-2.76	-1.84	67.40	-2.37	-1.40
DERVPQ		70.80	1.04	0.69	71.40	1.63	0.96
DTTA8A		71.60	1.84	1.22	71.60	1.83	1.08
G9UDZP		71.52	1.76	1.17	71.06	1.29	0.76
JFM6LP		68.38	-1.38	-0.92	68.56	-1.21	-0.72
K4RBPL		71.60	1.84	1.22	72.20	2.43	1.43
RMWL9G		69.72	-0.05	-0.03	70.33	0.55	0.33
UD3XQJ		71.80	2.04	1.35	71.40	1.63	0.96
UM7AMD		69.38	-0.38	-0.25	69.52	-0.25	-0.15
UWH662		69.34	-0.42	-0.28	69.40	-0.37	-0.22
ZXVPDC		69.60	-0.16	-0.11	69.38	-0.39	-0.23

Summary Statistics	
Grand Means	69.763 Type A      69.775 Type A
Std Dev Btwn Labs	1.505 Type A      1.692 Type A
	Statistics based on 14 of 14 reporting participants

Samples RC41: Nitrile O-Ring & RC42: Nitrile O-Ring

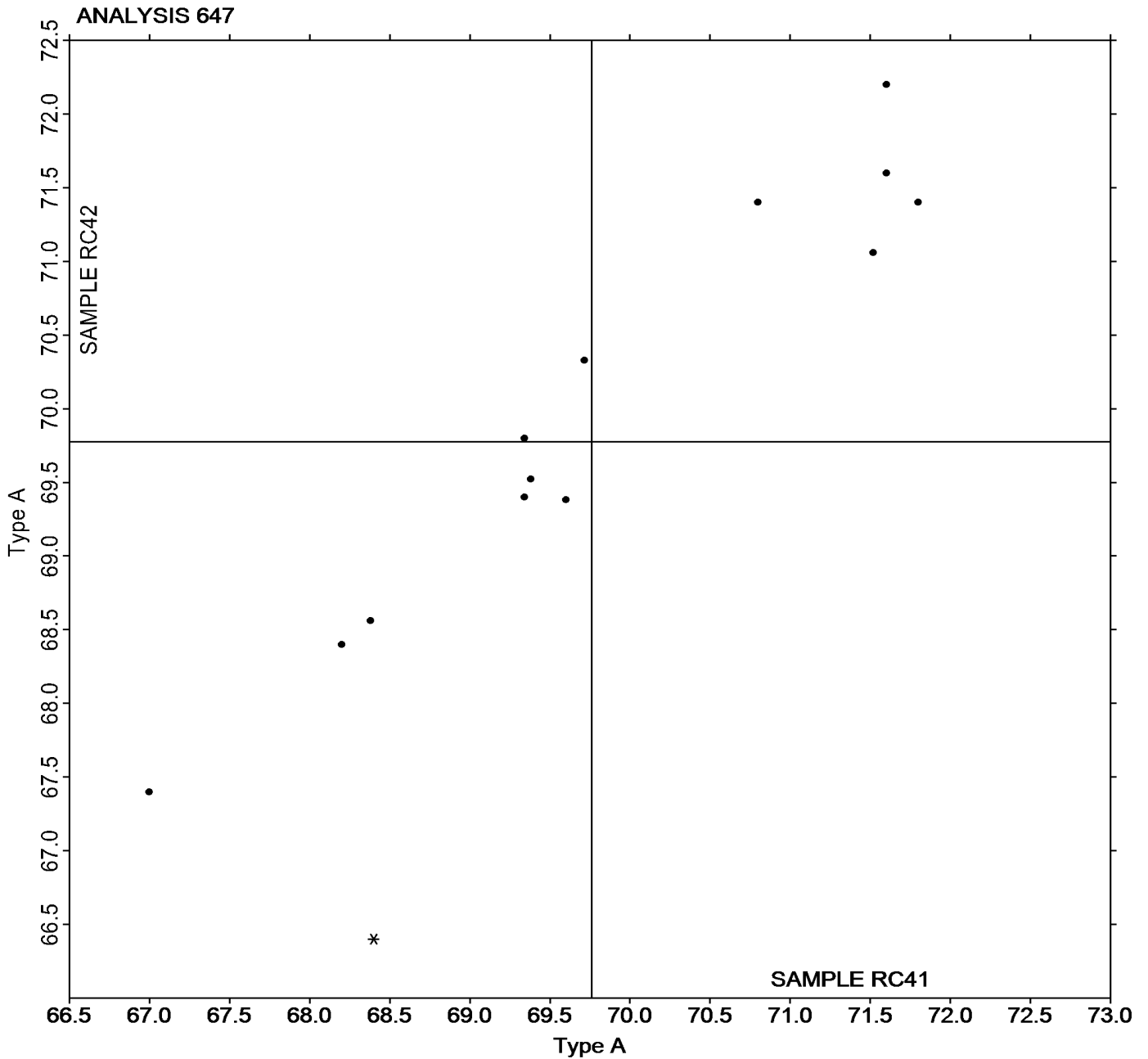


Rubber Interlaboratory Testing Program  
Analysis 647  
O-Ring Hardness (Shore A)

Report #221  
3rd Qtr 2024

Grand Mean Sample RC41 = 69.763 Type A

Grand Mean Sample RC42 = 69.775 Type A



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 648**  
**O-Ring Hardness (Shore M)**

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample RC41			Sample RC42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
49Z7D6		76.00	2.32	0.52	75.80	2.25	0.49
6QWTH9		76.00	2.32	0.52	75.76	2.21	0.48
A2UMFD		64.40	-9.28	-2.07	63.60	-9.95	-2.17
AACW6V		74.40	0.72	0.16	73.80	0.25	0.05
CM8U4C		75.66	1.98	0.44	75.78	2.23	0.49
DERVPQ		78.68	5.00	1.12	78.50	4.95	1.08
G9UDZP		72.20	-1.48	-0.33	72.16	-1.39	-0.30
RMWL9G		75.74	2.06	0.46	76.03	2.48	0.54
U3L9RE		77.68	4.00	0.89	77.84	4.29	0.94
UD3XQJ		76.02	2.34	0.52	75.76	2.21	0.48
UM7AMD		71.60	-2.08	-0.46	71.60	-1.95	-0.43
ZXVPDC		65.80	-7.88	-1.76	66.00	-7.55	-1.65

Summary Statistics	
Grand Means	73.682 Type M      73.553 Type M
Stnd Dev Btwn Labs	4.479 Type M      4.579 Type M
Statistics based on 12 of 12 reporting participants	

Samples RC41: Nitrile O-Ring & RC42: Nitrile O-Ring

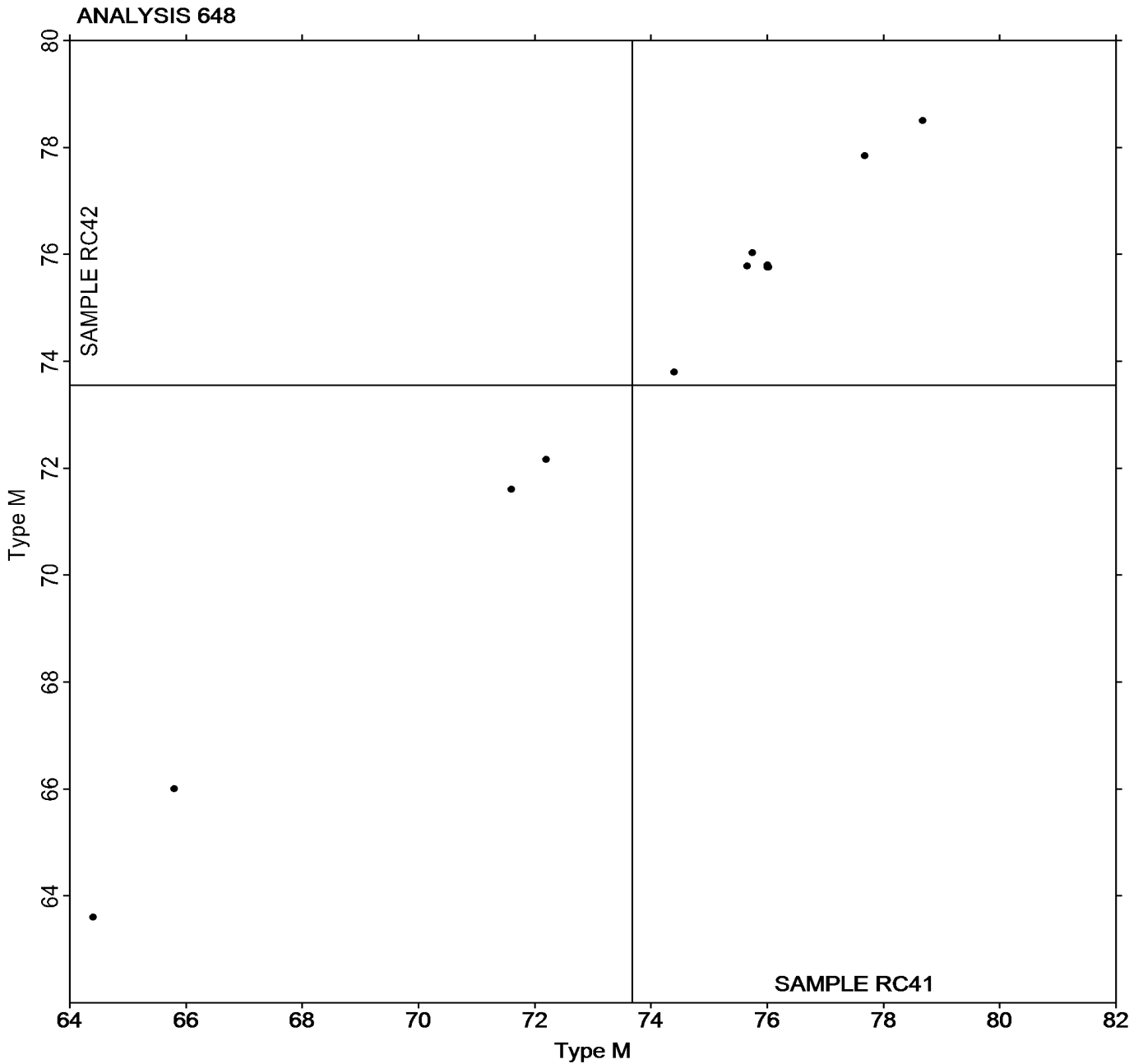


Rubber Interlaboratory Testing Program  
Analysis 648  
O-Ring Hardness (Shore M)

Report #221  
3rd Qtr 2024

Grand Mean Sample RC41 = 73.682 Type M

Grand Mean Sample RC42 = 73.553 Type M



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 649**  
**O-Ring Density**

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample RC41			Sample RC42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
49Z7D6		1.202	-0.002	-0.34	1.198	-0.006	-0.85
6QWTH9		1.203	-0.002	-0.26	1.202	-0.002	-0.33
A2UMFD		1.219	0.014	2.07	1.218	0.014	2.10
AACW6V		1.195	-0.010	-1.38	1.194	-0.010	-1.54
CM8U4C		1.212	0.007	1.09	1.208	0.004	0.60
DERVPQ		1.199	-0.006	-0.83	1.199	-0.005	-0.79
DTTA8A		1.203	-0.001	-0.19	1.200	-0.004	-0.55
G9UDZP		1.220	0.016	2.31	1.220	0.016	2.47
JFM6LP		1.201	-0.003	-0.47	1.202	-0.002	-0.25
K4RBPL		1.199	-0.006	-0.83	1.199	-0.005	-0.76
Q7D7TF		1.199	-0.006	-0.80	1.200	-0.004	-0.58
RMWL9G		1.201	-0.004	-0.54	1.201	-0.003	-0.41
U3L9RE		1.207	0.003	0.42	1.205	0.001	0.16
UD3XQJ		1.203	-0.001	-0.21	1.205	0.001	0.11
UM7AMD		1.199	-0.006	-0.83	1.201	-0.003	-0.51
UWH662		1.204	-0.001	-0.14	1.207	0.003	0.40
Z74LVN		1.206	0.001	0.17	1.208	0.004	0.63
ZXVPDC		1.210	0.005	0.77	1.205	0.001	0.08

		Summary Statistics	
Grand Means		1.2045 g/cm <sup>3</sup> (Mg/m <sup>3</sup> )	1.2040 g/cm <sup>3</sup> (Mg/m <sup>3</sup> )
Stnd Dev Btwn Labs		0.0069 g/cm <sup>3</sup> (Mg/m <sup>3</sup> )	0.0066 g/cm <sup>3</sup> (Mg/m <sup>3</sup> )
Statistics based on 18 of 18 reporting participants			

Samples RC41: Nitrile O-Ring & RC42: Nitrile O-Ring

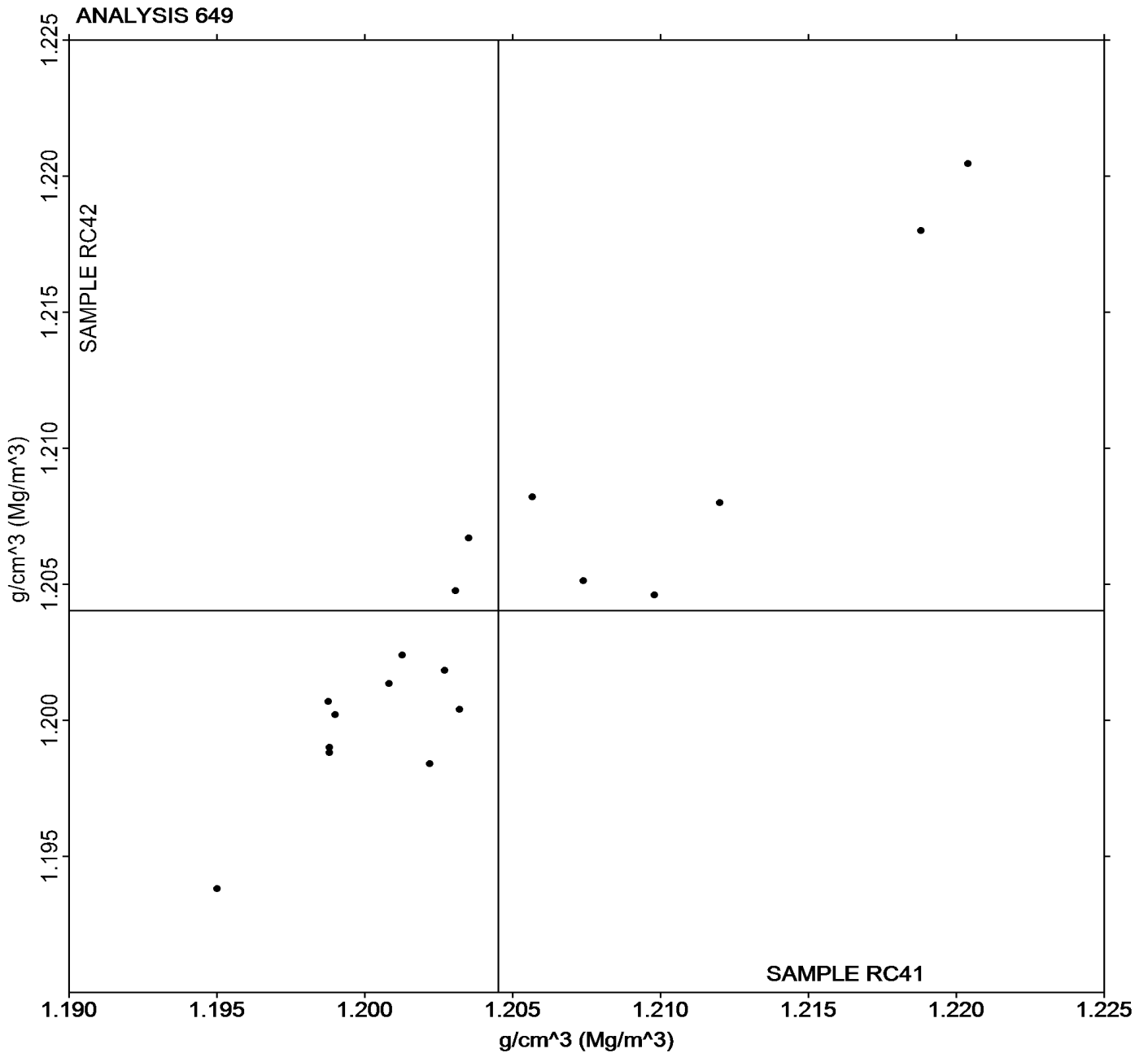


Rubber Interlaboratory Testing Program  
Analysis 649  
O-Ring Density

Report #221  
3rd Qtr 2024

Grand Mean Sample **RC41** = 1.2045 g/cm<sup>3</sup>  
(Mg/m<sup>3</sup>)

Grand Mean Sample **RC42** = 1.2040 g/cm<sup>3</sup>  
(Mg/m<sup>3</sup>)



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 650**  
**O-Ring Compression Set Method B**

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample RC43			Sample RC44		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
49Z7D6		9.000	-0.161	-0.11	9.000	-0.181	-0.11
6QWTH9		9.000	-0.161	-0.11	9.333	0.153	0.09
AACW6V		9.733	0.572	0.39	9.667	0.486	0.30
CM8U4C		5.700	-3.461	-2.37	5.533	-3.647	-2.22
DERVPQ		8.900	-0.261	-0.18	8.967	-0.214	-0.13
G9UDZP		11.680	2.519	1.73	11.707	2.526	1.54
JFM6LP		7.833	-1.328	-0.91	7.833	-1.347	-0.82
RMWL9G		9.113	-0.048	-0.03	8.983	-0.197	-0.12
U3L9RE		10.050	0.889	0.61	11.617	2.436	1.48
UD3XQJ		9.000	-0.161	-0.11	8.000	-1.181	-0.72
UM7AMD		9.000	-0.161	-0.11	9.000	-0.181	-0.11
UWH662		11.187	2.025	1.39	10.910	1.729	1.05
ZXVPDC		8.900	-0.261	-0.18	8.800	-0.381	-0.23

**Summary Statistics**

Grand Means

9.1613 % Compression

9.1808 % Compression

Std Dev Btwn Labs

1.4592 % Compression

1.6425 % Compression

Statistics based on 13 of 13 reporting participants

Samples RC43: Nitrile O-Ring & RC44: Nitrile O-Ring

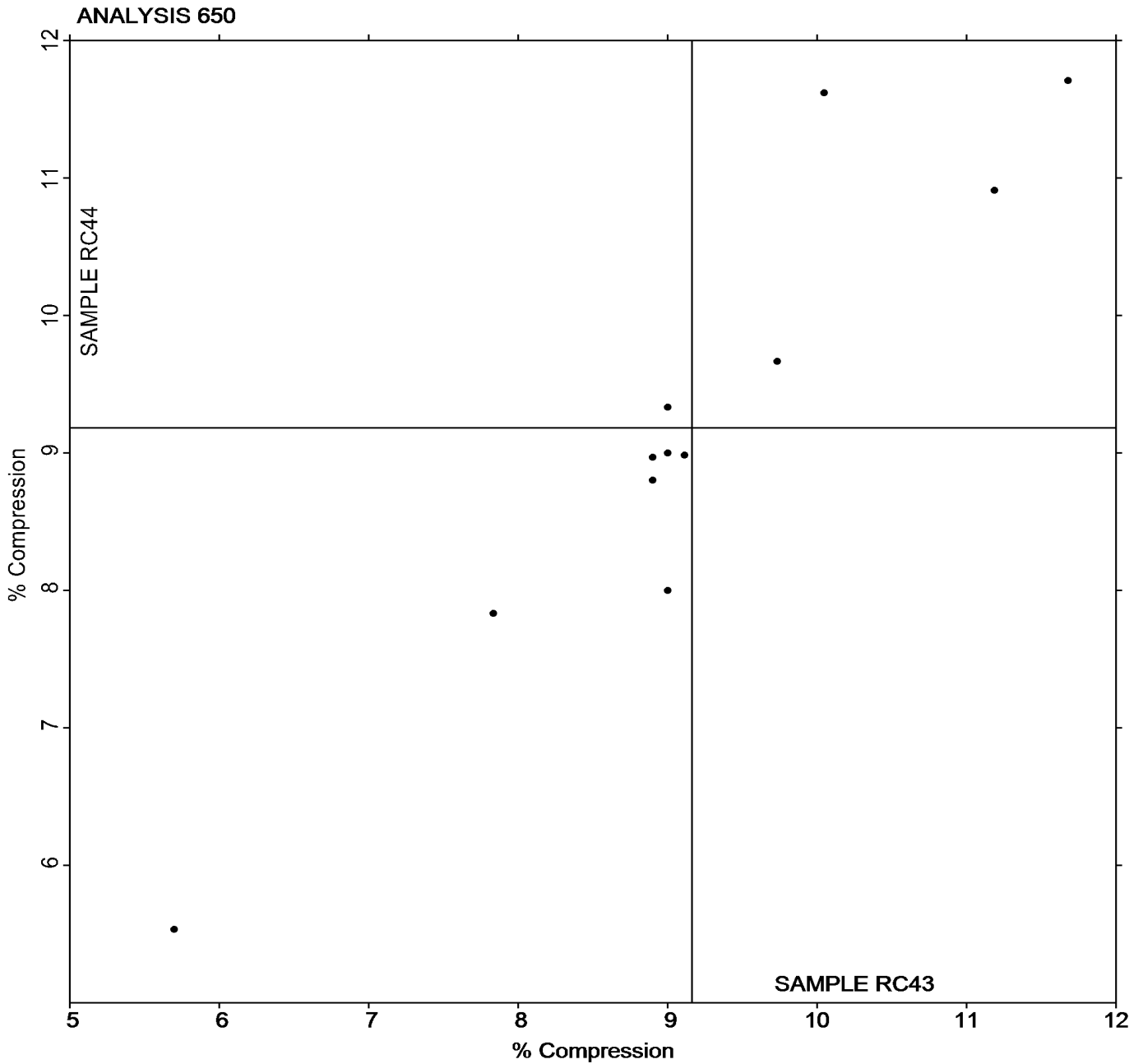


Rubber Interlaboratory Testing Program  
Analysis 650  
O-Ring Compression Set Method B

Report #221  
3rd Qtr 2024

Grand Mean Sample **RC43** = 9.1613 % Compression

Grand Mean Sample **RC44** = 9.1808 % Compression



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 #221

## Analysis 660

3rd Qtr 2024

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

WebCode	Data Flag	Sample U41-U42			Sample U43-U44			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3YEMHK		42.55	-2.71	-2.39	54.32	-2.83	-2.25	MR
42G373		44.28	-0.98	-0.87	56.35	-0.80	-0.63	MR
4PNUU8		44.20	-1.06	-0.94	55.67	-1.48	-1.18	MR
7EZ8NH		44.70	-0.56	-0.50	56.64	-0.51	-0.40	MV
9EAV3E		44.50	-0.76	-0.67	57.60	0.45	0.36	MR
A2UMFD		45.80	0.54	0.47	58.54	1.39	1.11	MV
AJEEED		46.57	1.31	1.15	58.17	1.03	0.82	MR
BHYAHZ		45.67	0.40	0.35	57.32	0.17	0.13	MR
CGJDPZ		44.60	-0.66	-0.59	56.65	-0.50	-0.40	MR
DERVPQ		45.33	0.07	0.06	56.95	-0.20	-0.16	MR
DXM6AG		45.13	-0.13	-0.12	57.17	0.02	0.02	MR
FT4QHT		47.05	1.78	1.57	58.60	1.45	1.16	MV
G3QADC		44.97	-0.30	-0.26	57.08	-0.07	-0.06	MR
G9UDZP		47.40	2.14	1.88	58.02	0.87	0.69	MR
GCBF8V	X	40.81	-4.46	-3.93	56.48	-0.67	-0.53	TA
GQU3F9	X	30.55	-14.71	-12.98	43.62	-13.53	-10.77	MR
GY4RT7		45.18	-0.08	-0.07	56.10	-1.05	-0.83	ML
KGEKBQ		43.42	-1.85	-1.63	56.52	-0.63	-0.50	MV
MEYZFL		45.91	0.65	0.57	56.04	-1.11	-0.88	MR
N67CXN		45.41	0.15	0.13	56.44	-0.71	-0.56	MR
P8T8YN	*	45.71	0.44	0.39	60.44	3.29	2.62	TA
UWH662		46.79	1.53	1.35	57.61	0.46	0.37	ML
W8QQ2Q		44.84	-0.42	-0.37	56.01	-1.14	-0.91	MR
WAE33G		46.80	1.54	1.35	59.18	2.04	1.62	MR
WECL6F		45.57	0.30	0.27	57.63	0.49	0.39	MR
WTATYB		44.30	-0.96	-0.85	57.17	0.02	0.02	MR
XW4ANA		44.94	-0.33	-0.29	56.48	-0.67	-0.53	MR

Grand Means		Summary Statistics	
	45.265 ML 1 + 4		57.147 ML 1 + 4
Stnd Dev Btwn Labs	1.134 ML 1 + 4		1.256 ML 1 + 4
Statistics based on 25 of 27 reporting participants			

Samples U41-U42: NBR & U43-U44: Butyl



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

**Report #221**  
**3rd Qtr 2024**

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

GCBF8V (X) - Data for sample group U41-U42 are low. Inconsistent within the determinations of both sample groups.  
GQU3F9 (X) - Data for all Samples are low.

**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>TA</b>	TA Instruments (any model)

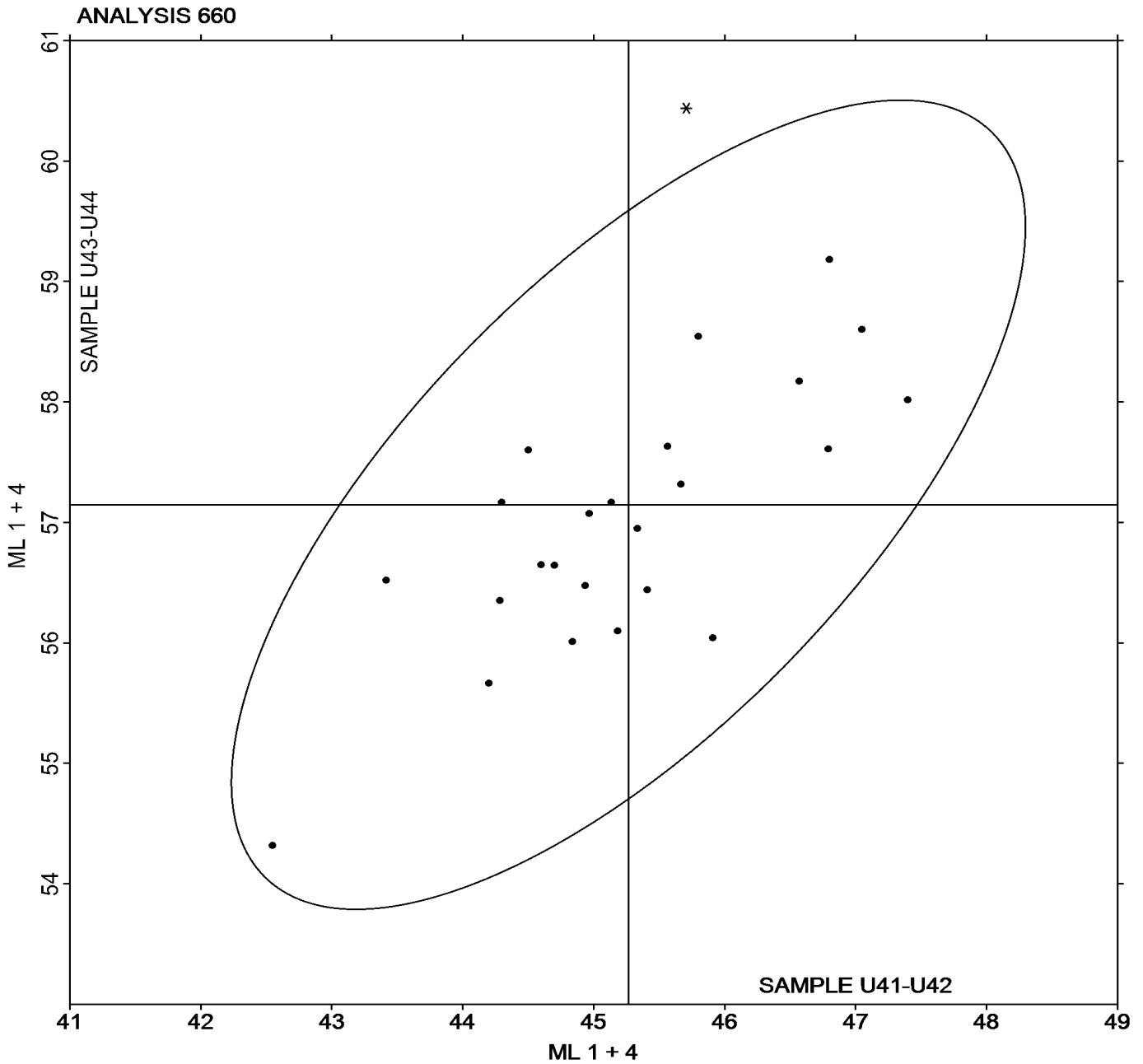


**Rubber Interlaboratory Testing Program**  
**Analysis 660**  
**Mooney Viscosity: 4-minute readings (ML 1 + 4)**

**Report #221**  
**3rd Qtr 2024**

Grand Mean Sample **U41-U42** = 45.265 ML 1 + 4

Grand Mean Sample **U43-U44** = 57.147 ML 1 + 4





# Rubber Interlaboratory Testing Program

Report #221

## Analysis 661

3rd Qtr 2024

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

WebCode	Data Flag	Sample U41-U42			Sample U43-U44			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3YEMHK		42.55	-2.70	-2.29	51.48	-3.21	-2.35	MR
42G373		44.28	-0.97	-0.82	53.82	-0.88	-0.64	MR
4PNUU8		44.20	-1.05	-0.89	52.58	-2.11	-1.54	MR
7EZ8NH		44.70	-0.55	-0.47	54.15	-0.55	-0.40	MV
9EAV3E		44.50	-0.75	-0.64	54.42	-0.28	-0.21	MR
A2UMFD		45.80	0.55	0.46	56.15	1.45	1.06	MV
AJEEED		46.57	1.32	1.12	55.83	1.13	0.83	MR
CGJDPZ		44.60	-0.65	-0.55	54.42	-0.28	-0.21	MR
DERVPQ		45.33	0.08	0.07	54.63	-0.06	-0.05	MR
FT4QHT		47.05	1.80	1.52	56.63	1.93	1.41	MV
G3QADC		44.97	-0.29	-0.24	54.64	-0.05	-0.04	MR
G9UDZP		47.40	2.15	1.82	55.45	0.75	0.55	MR
GQU3F9	X	30.55	-14.70	-12.45	41.05	-13.65	-9.96	MR
GY4RT7		45.18	-0.07	-0.06	55.99	1.29	0.94	MR
KGEKBQ		43.42	-1.84	-1.55	53.56	-1.14	-0.83	MV
MEYZFL		45.91	0.66	0.56	53.55	-1.14	-0.84	MR
N67CXN		45.41	0.16	0.13	53.62	-1.08	-0.79	MR
P8T8YN		45.71	0.45	0.38	57.40	2.70	1.97	TA
UWH662		46.79	1.54	1.30	55.36	0.66	0.48	ML
W8QQ2Q		44.84	-0.41	-0.35	53.96	-0.73	-0.54	MR
WAE33G		46.80	1.55	1.31	56.40	1.70	1.24	MR
WECL6F		45.57	0.31	0.27	55.47	0.77	0.56	MR
WTATYB		44.30	-0.95	-0.81	54.22	-0.48	-0.35	MR
XW4ANA		44.94	-0.32	-0.27	54.33	-0.36	-0.27	XX

Grand Means		Summary Statistics	
	45.253 ML 1 + 8		54.698 ML 1 + 8
Stnd Dev Btwn Labs	1.181 ML 1 + 8		1.370 ML 1 + 8
Statistics based on 23 of 24 reporting participants			

Samples U41-U42: NBR & U43-U44: Butyl

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

GQU3F9 (X) - Data for all Samples are low.





# Rubber Interlaboratory Testing Program

Report #221

## Analysis 661

3rd Qtr 2024

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

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#### Key to Instrument Codes Reported by Participants

ML	Alpha Technologies/Monsanto model not specified	MR	Alpha Technologies Model MV2000/MV2000E
MV	Montech	TA	TA Instruments (any model)
XX	Instrument make/model not specified by lab		



# Rubber Interlaboratory Testing Program

Report #221

## Analysis 661

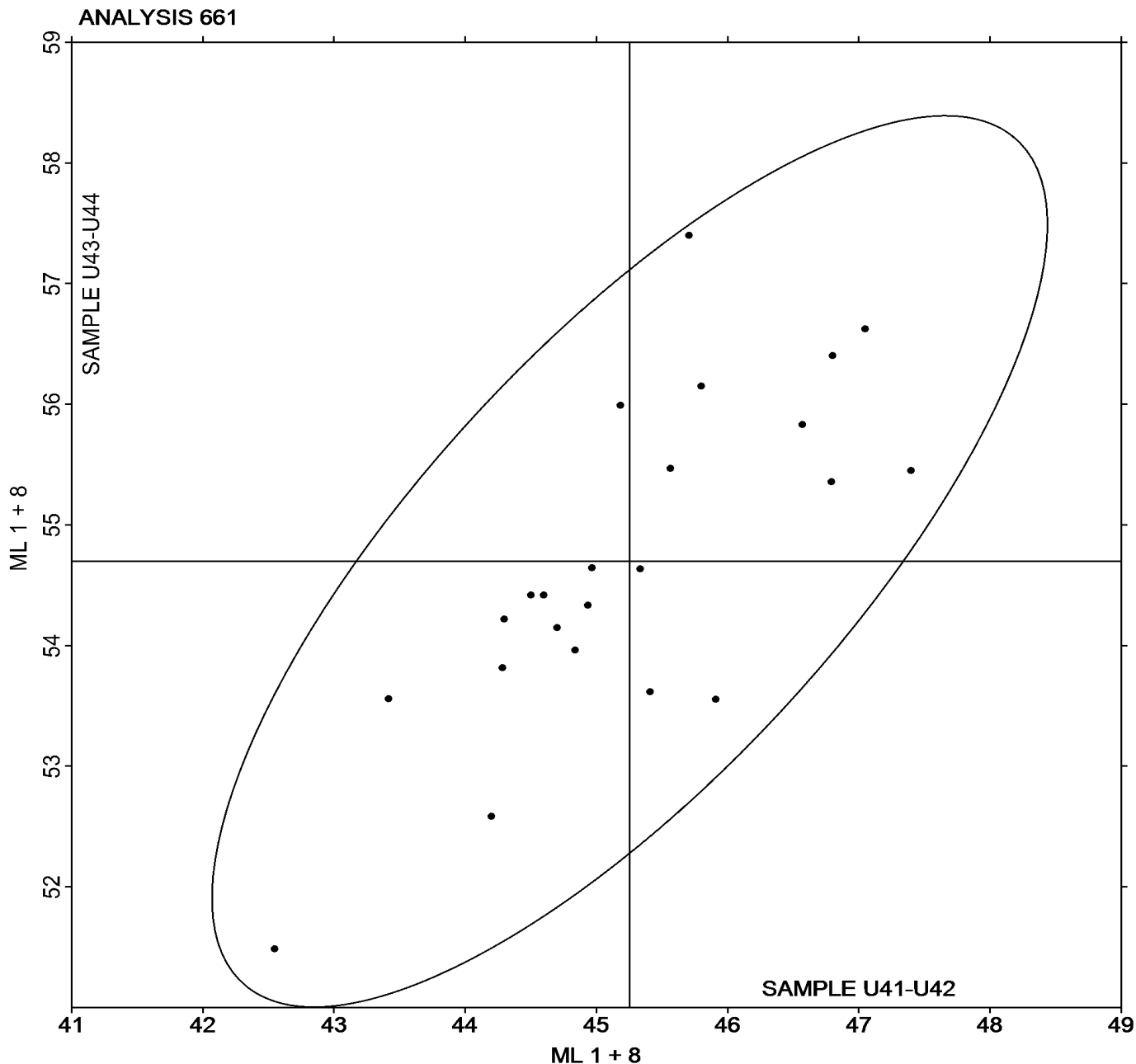
3rd Qtr 2024

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

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Grand Mean Sample **U41-U42** = 45.253 ML 1 + 8

Grand Mean Sample **U43-U44** = 54.698 ML 1 + 8





# Rubber Interlaboratory Testing Program

Report #221

## Analysis 662

3rd Qtr 2024

### Mooney Stress Relaxation: t80 (seconds)

WebCode	Data Flag	Sample U41-U42			Sample U43-U44			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
42G373		5.170	0.150	0.21	8.820	0.243	0.14	MR
7EZ8NH		5.435	0.415	0.58	5.335	-3.242	-1.83	MV
A2UMFD		4.500	-0.520	-0.73	8.382	-0.196	-0.11	MV
GCBF8V		6.167	1.146	1.61	11.450	2.873	1.62	TA
KGEKBQ	X	663.600	658.580	923.13	668.500	659.923	371.85	MV
UWH662		5.078	0.058	0.08	8.695	0.118	0.07	ML
WECL6F		4.893	-0.127	-0.18	8.660	0.083	0.05	MR
XW4ANA		3.900	-1.120	-1.57	8.700	0.123	0.07	MR

Grand Means		Summary Statistics	
	5.0205 seconds		8.5774 seconds
Std Dev Btwn Labs	0.7134 seconds		1.7747 seconds
Statistics based on 7 of 8 reporting participants			

Samples U41-U42: NBR & U43-U44: Butyl

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

KGEKBQ (X) - Extreme Data.

### Key to Instrument Codes Reported by Participants

ML	Alpha Technologies/Monsanto model not specified	MR	Alpha Technologies Model MV2000/MV2000E
MV	MonTech	TA	TA Instruments (any model)

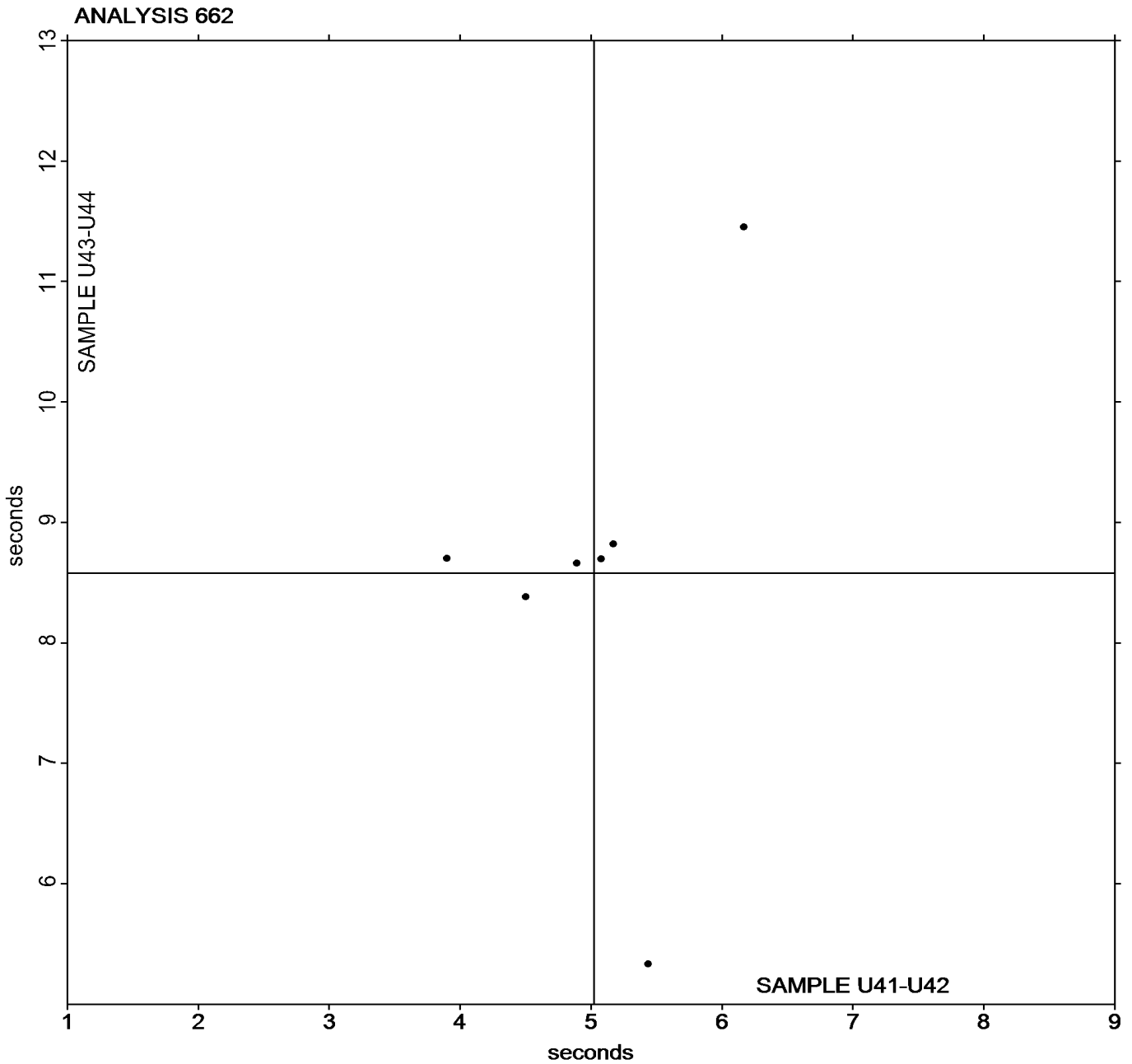


**Rubber Interlaboratory Testing Program**  
**Analysis 662**  
**Mooney Stress Relaxation: t80 (seconds)**

**Report #221**  
**3rd Qtr 2024**

Grand Mean Sample **U41-U42** = 5.0205 seconds

Grand Mean Sample **U43-U44** = 8.5774 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**  
**Analysis 663**  
**Mooney Stress Relaxation: X30 (percent)**

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample U41-U42			Sample U43-U44			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
42G373		91.42	1.16	0.44	91.18	1.49	0.66	MR
7EZ8NH		84.53	-5.73	-2.16	84.92	-4.76	-2.10	MV
A2UMFD		91.17	0.91	0.34	90.85	1.16	0.51	MV
GCBF8V		90.02	-0.25	-0.09	88.58	-1.10	-0.49	TA
KGEKBQ		92.76	2.50	0.94	90.73	1.05	0.46	MV
UWH662		90.88	0.62	0.23	90.76	1.07	0.47	ML
WECL6F		91.06	0.79	0.30	90.79	1.10	0.49	MR
XW4ANA	X	7.33	-82.93	-31.21	9.33	-80.35	-35.40	MR

Grand Means		Summary Statistics	
	90.263 percent		89.686 percent
Std Dev Btwn Labs	2.657 percent		2.270 percent
Statistics based on 7 of 8 reporting participants			

Samples U41-U42: NBR & U43-U44: Butyl

**Comments on Assigned Data Flags for Test #663**

XW4ANA (X) - Extreme Data.

**Key to Instrument Codes Reported by Participants**

ML	Alpha Technologies/Monsanto model not specified	MR	Alpha Technologies Model MV2000/MV2000E
MV	Montech	TA	TA Instruments (any model)

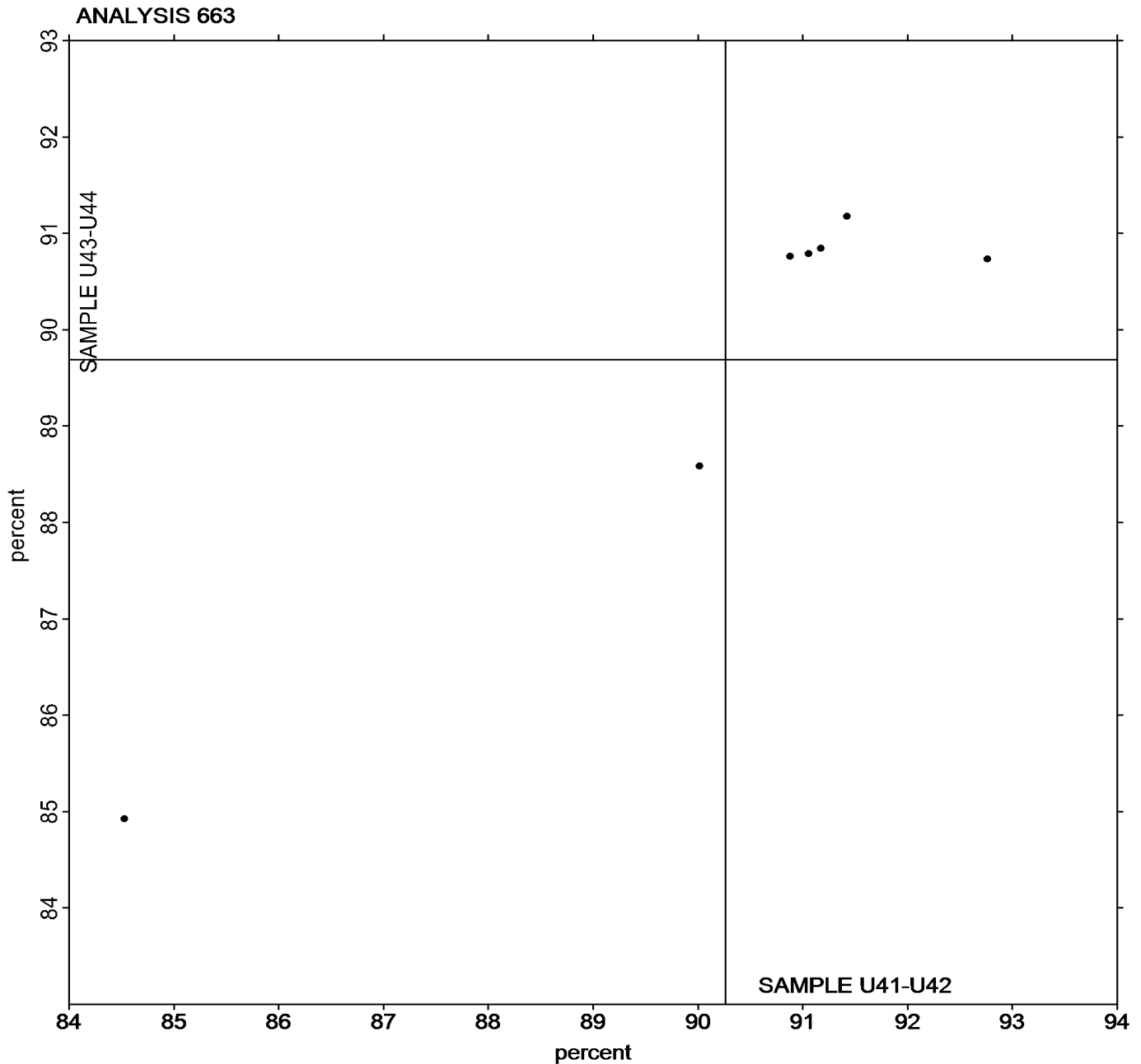


**Rubber Interlaboratory Testing Program**  
**Analysis 663**  
**Mooney Stress Relaxation: X30 (percent)**

**Report #221**  
**3rd Qtr 2024**

Grand Mean Sample **U41-U42** = 90.263 percent

Grand Mean Sample **U43-U44** = 89.686 percent



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



# Rubber Interlaboratory Testing Program

Report #221

## Analysis 664

3rd Qtr 2024

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

WebCode	Data Flag	Sample U41-U42			Sample U43-U44			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
42G373		412.3	15.7	0.27	531.8	-24.5	-1.23	XX
7EZ8NH		437.5	40.8	0.70	589.4	33.0	1.65	MV
A2UMFD		434.9	38.2	0.65	556.9	0.5	0.03	MV
GCBF8V		322.0	-74.7	-1.27	528.4	-28.0	-1.40	TA
KGEKBQ		321.0	-75.6	-1.29	551.6	-4.7	-0.24	MV
UWH662		462.0	65.4	1.12	569.8	13.5	0.67	ML
WECL6F		441.8	45.2	0.77	567.0	10.6	0.53	MR
XW4ANA		341.7	-55.0	-0.94	556.0	-0.4	-0.02	MR

Grand Means		Summary Statistics	
	396.66 M-s		556.36 M-s
Stnd Dev Btwn Labs	58.56 M-s		19.98 M-s
Statistics based on 8 of 8 reporting participants			

Samples U41-U42: NBR & U43-U44: Butyl

### Key to Instrument Codes Reported by Participants

- ML Alpha Technologies/Monsanto model not specified
- MV MonTech
- XX Instrument make/model not specified by lab
- MR Alpha Technologies Model MV2000/MV2000E
- TA TA Instruments (any model)

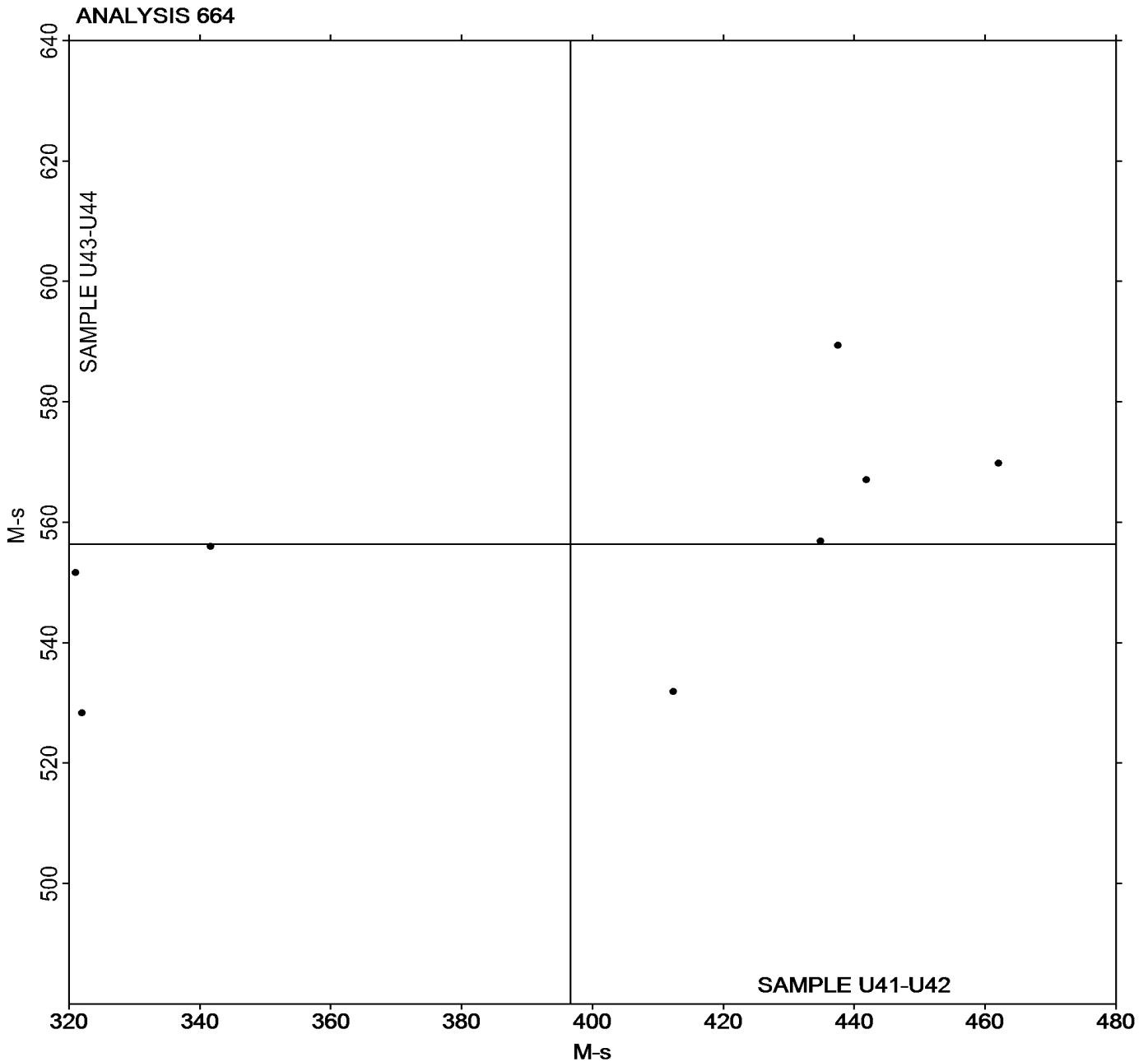


**Rubber Interlaboratory Testing Program**  
**Analysis 664**  
**Mooney Stress Relaxation: Area under curve (M-s)**

**Report #221**  
**3rd Qtr 2024**

Grand Mean Sample **U41-U42** = 396.66 M-s

Grand Mean Sample **U43-U44** = 556.36 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 684**  
**MDR Vulcanization-Cure Time 10% (minutes)**

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample Y45-Y46			Sample Y47-Y48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2LBZRC		0.7283	0.0836	1.16	0.9767	-0.0106	-0.15	XX
49Z7D6		0.6250	-0.0197	-0.27	0.9695	-0.0178	-0.24	MC
7EZ8NH		0.6717	0.0269	0.37	1.0067	0.0194	0.27	MR
8TQU8F		0.6583	0.0136	0.19	0.9883	0.0010	0.01	ME
8ZBMNL		0.6467	0.0019	0.03	1.0550	0.0677	0.93	XX
9MKE26		0.6083	-0.0364	-0.51	0.9417	-0.0456	-0.62	MP
A2UMFD		0.6333	-0.0114	-0.16	0.9417	-0.0456	-0.62	XX
AJEEED		0.6683	0.0236	0.33	0.9783	-0.0090	-0.12	MC
BHYAHZ		0.7017	0.0569	0.79	1.0217	0.0344	0.47	MC
CGJDPZ		0.6217	-0.0231	-0.32	0.9150	-0.0723	-0.99	MD
DERVPQ		0.6667	0.0219	0.30	0.9517	-0.0356	-0.49	MC
DV2MPB		0.7433	0.0986	1.37	1.0967	0.1094	1.50	XX
FT4QHT		0.5717	-0.0731	-1.01	1.0217	0.0344	0.47	ME
G3QADC		0.5903	-0.0545	-0.76	0.9526	-0.0347	-0.47	MC
G9UDZP		0.6300	-0.0147	-0.20	1.0150	0.0277	0.38	MC
GCBF8V		0.4650	-0.1797	-2.49	0.8867	-0.1006	-1.38	MD
GY4RT7		0.6767	0.0319	0.44	1.1383	0.1510	2.07	XX
JFM6LP		0.6450	0.0003	0.00	0.9767	-0.0106	-0.15	MC
KGEKBQ	X	0.3017	-0.3431	-4.76	0.9283	-0.0590	-0.81	MM
L7R4XB		0.5717	-0.0731	-1.01	1.0317	0.0444	0.61	ME
MEYZFL	*	0.5567	-0.0881	-1.22	0.7933	-0.1940	-2.66	MC
N67CXN		0.6650	0.0203	0.28	1.0150	0.0277	0.38	ME
Q66VXW	*	0.8267	0.1819	2.52	1.0083	0.0210	0.29	MM
RJY394		0.7133	0.0686	0.95	0.9717	-0.0156	-0.21	MR
UM7AMD		0.6633	0.0186	0.26	0.9517	-0.0356	-0.49	ME
UWH662		0.7183	0.0736	1.02	1.0867	0.0994	1.36	ME
VTRKAG		0.5217	-0.1231	-1.71	0.9417	-0.0456	-0.62	MC
W8QQ2Q		0.6833	0.0386	0.54	1.0400	0.0527	0.72	MC
WECL6F		0.5700	-0.0747	-1.04	0.8633	-0.1240	-1.70	MC
ZXVPDC		0.6556	0.0108	0.15	1.0945	0.1072	1.47	MC

Summary Statistics			
Grand Means	0.64474 minutes	0.98730 minutes	
Std Dev Btwn Labs	0.07210 minutes	0.07304 minutes	
Statistics based on 29 of 30 reporting participants			



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

**Report #221**  
**3rd Qtr 2024**

Samples Y45-Y46: EPDM Compound & Y47-Y48: EPDM Compound

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

KGEKBQ (X) - Data for sample group Y45-Y46 are low. Inconsistent within the determinations of sample group Y47-Y48.

**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>XX</b>	Instrument model not specified by lab		

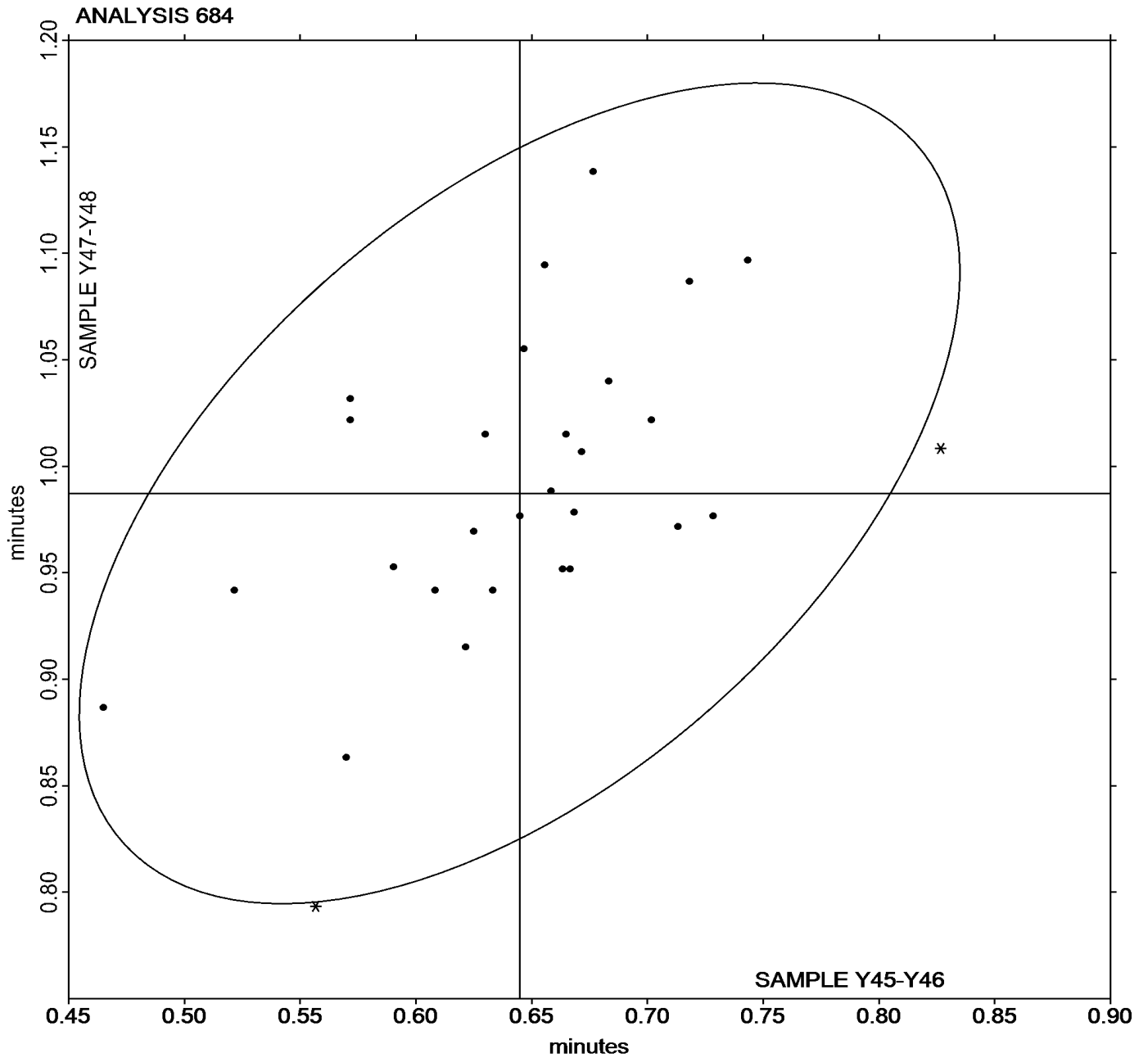


**Rubber Interlaboratory Testing Program**  
**Analysis 684**  
**MDR Vulcanization-Cure Time 10% (minutes)**

**Report #221**  
**3rd Qtr 2024**

Grand Mean Sample **Y45-Y46** = 0.64474 minutes

Grand Mean Sample **Y47-Y48** = 0.98730 minutes





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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample Y45-Y46			Sample Y47-Y48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2LBZRC		0.8350	0.0746	0.92	1.040	-0.052	-0.52	XX
3YEMHK		0.7217	-0.0387	-0.48	1.062	-0.030	-0.30	MR
42G373		0.7328	-0.0275	-0.34	1.041	-0.051	-0.51	MC
49Z7D6		0.7389	-0.0215	-0.26	1.075	-0.017	-0.17	MC
6QWTH9		0.7383	-0.0220	-0.27	1.040	-0.052	-0.52	MC
7EZ8NH	*	0.9817	0.2213	2.73	1.410	0.318	3.19	MR
8TQU8F		0.7800	0.0196	0.24	1.110	0.018	0.18	ME
8ZBMNL		0.7733	0.0130	0.16	1.175	0.083	0.83	XX
9MKE26		0.7317	-0.0287	-0.35	1.080	-0.012	-0.12	MP
A2UMFD		0.7533	-0.0070	-0.09	1.085	-0.007	-0.07	XX
AJEEED		0.7950	0.0346	0.43	1.110	0.018	0.18	MC
BHYAHZ		0.7850	0.0246	0.30	1.080	-0.012	-0.12	MC
CGJDPZ		0.7183	-0.0420	-0.52	1.000	-0.092	-0.92	MD
DERVPQ		0.7967	0.0363	0.45	1.083	-0.009	-0.09	MC
DV2MPB		0.8583	0.0980	1.21	1.225	0.133	1.33	MR
FT4QHT		0.7283	-0.0320	-0.39	1.162	0.070	0.70	ME
G3QADC		0.7133	-0.0470	-0.58	1.078	-0.014	-0.14	MC
G9UDZP		0.7517	-0.0087	-0.11	1.138	0.046	0.47	MC
GCBF8V		0.5617	-0.1987	-2.45	0.973	-0.119	-1.19	MD
GY4RT7		0.7833	0.0230	0.28	1.217	0.125	1.25	XX
JFM6LP		0.7267	-0.0337	-0.42	1.030	-0.062	-0.62	MC
KGEKBQ	X	0.3717	-0.3887	-4.79	1.070	-0.022	-0.22	MM
L7R4XB		0.7350	-0.0254	-0.31	1.152	0.060	0.60	ME
MEYZFL		0.6950	-0.0654	-0.81	0.910	-0.182	-1.82	MC
N67CXN		0.7517	-0.0087	-0.11	1.083	-0.009	-0.09	ME
Q66VXW	*	0.9700	0.2096	2.58	1.160	0.068	0.68	MM
RJY394		0.8200	0.0596	0.73	1.063	-0.029	-0.29	MR
UM7AMD		0.7417	-0.0187	-0.23	0.992	-0.100	-1.01	ME
UWH662		0.8050	0.0446	0.55	1.172	0.080	0.80	ME
VTRKAG		0.5956	-0.1648	-2.03	0.975	-0.117	-1.18	MC
W8QQ2Q		0.8000	0.0396	0.49	1.175	0.083	0.83	MC
WECL6F		0.6950	-0.0654	-0.81	0.982	-0.110	-1.11	MC
Y6B9XC		0.6950	-0.0654	-0.81	0.935	-0.157	-1.57	MC
ZXVPDC		0.7833	0.0230	0.28	1.222	0.130	1.31	MC



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

**Report #221**  
**3rd Qtr 2024**

		Summary Statistics	
Grand Means	0.76037 minutes	1.0920 minutes	
Stnd Dev Btwn Labs	0.08116 minutes	0.0997 minutes	
Statistics based on 33 of 34 reporting participants			

Samples Y45-Y46: EPDM Compound & Y47-Y48: EPDM Compound

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

KGEKBQ (X) - Data for sample group Y45-Y46 are 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>XX</b>	Instrument model not specified by lab		

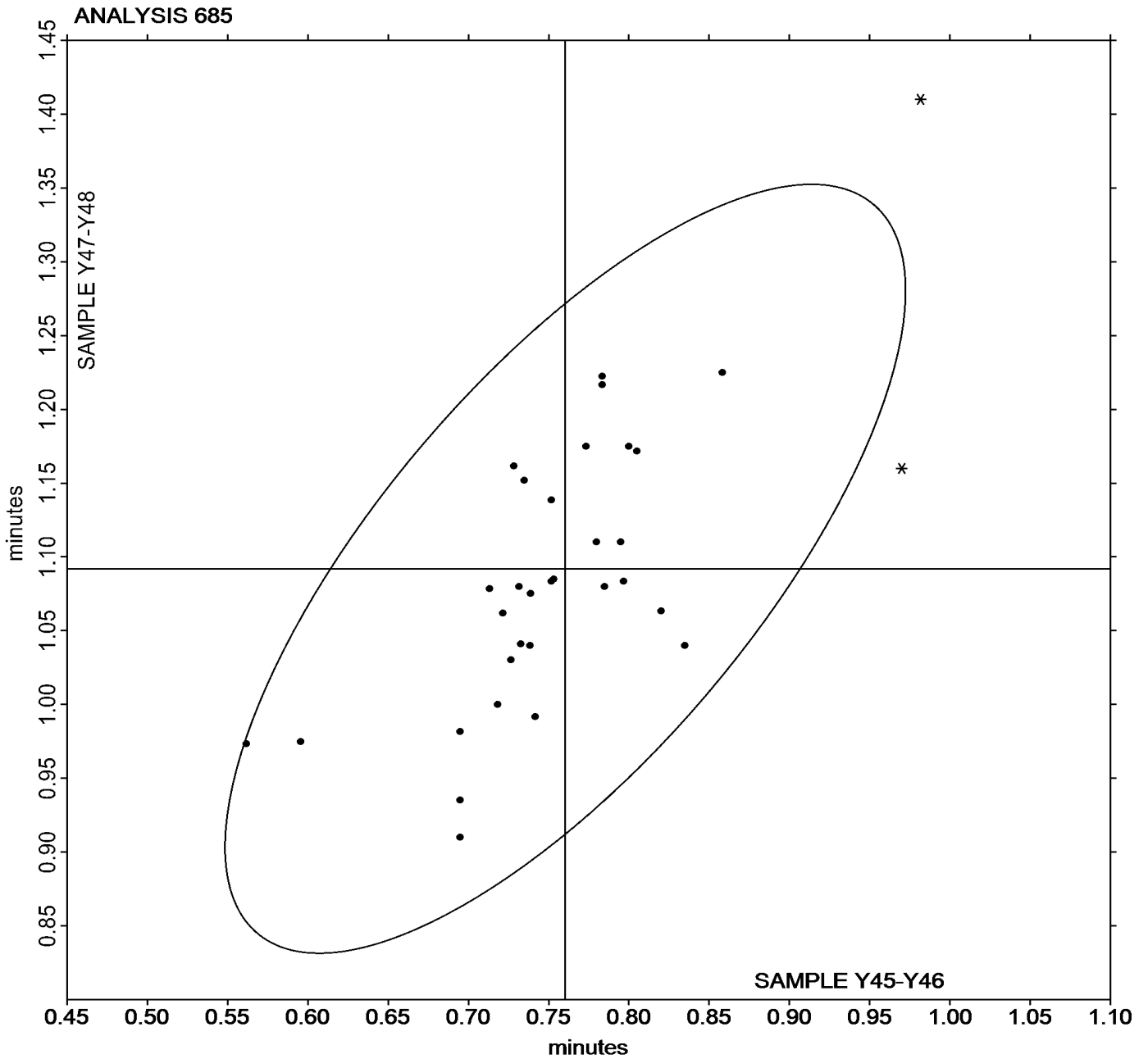


**Rubber Interlaboratory Testing Program**  
**Analysis 685**  
**MDR Vulcanization-Scorch Time, Ts1 (minutes)**

**Report #221**  
**3rd Qtr 2024**

Grand Mean Sample **Y45-Y46** = 0.76037 minutes

Grand Mean Sample **Y47-Y48** = 1.0920 minutes





# Rubber Interlaboratory Testing Program

Report #221

## Analysis 686

3rd Qtr 2024

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

WebCode	Data Flag	Sample Y45-Y46			Sample Y47-Y48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2LBZRC	X	1.373	0.116	1.88	1.663	-0.190	-1.29	XX
3YEMHK		1.272	0.014	0.23	1.862	0.009	0.06	MR
42G373		1.332	0.075	1.21	1.891	0.038	0.26	MC
49Z7D6		1.242	-0.016	-0.26	1.811	-0.042	-0.28	MC
6QWTH9		1.168	-0.089	-1.45	1.657	-0.196	-1.33	MC
7EZ8NH		1.262	0.004	0.07	1.845	-0.008	-0.05	MR
8TQU8F		1.255	-0.003	-0.04	1.792	-0.061	-0.42	ME
8ZBMNL		1.320	0.062	1.01	2.020	0.167	1.13	XX
9MKE26		1.260	0.002	0.04	1.853	0.000	0.00	MC
A2UMFD		1.200	-0.058	-0.93	1.782	-0.071	-0.48	XX
AJEEED		1.270	0.012	0.20	1.832	-0.021	-0.14	MC
BHYAHZ		1.360	0.102	1.66	2.023	0.170	1.16	MC
CGJDPZ		1.193	-0.064	-1.04	1.652	-0.201	-1.37	MD
DERVPQ		1.272	0.014	0.23	1.753	-0.100	-0.68	MC
DV2MPB		1.390	0.132	2.15	2.058	0.205	1.39	MR
FT4QHT		1.307	0.049	0.80	1.915	0.062	0.42	ME
G3QADC		1.194	-0.064	-1.03	1.769	-0.084	-0.57	MC
G9UDZP		1.270	0.012	0.20	1.927	0.074	0.50	MC
GCBF8V		1.170	-0.088	-1.42	1.717	-0.136	-0.92	MD
GY4RT7		1.288	0.031	0.50	2.067	0.214	1.45	XX
JFM6LP		1.232	-0.026	-0.42	1.775	-0.078	-0.53	MC
KGEKBQ		1.233	-0.024	-0.39	1.975	0.122	0.83	MM
L7R4XB		1.332	0.074	1.20	2.027	0.174	1.18	ME
MEYZFL	*	1.183	-0.074	-1.20	1.518	-0.335	-2.27	MC
N67CXN		1.300	0.042	0.69	1.938	0.085	0.58	ME
Q66VXW	X	1.505	0.247	4.01	1.883	0.030	0.21	MM
RJY394	X	1.357	0.099	1.61	1.742	-0.111	-0.75	MR
UM7AMD		1.245	-0.013	-0.20	1.873	0.020	0.14	ME
UWH662		1.318	0.061	0.99	2.013	0.160	1.09	ME
VTRKAG		1.212	-0.046	-0.75	1.855	0.002	0.01	MC
W8QQ2Q		1.315	0.057	0.93	1.998	0.145	0.99	MC
WECL6F		1.178	-0.079	-1.29	1.668	-0.185	-1.25	MC
Y6B9XC		1.135	-0.123	-1.99	1.552	-0.301	-2.04	MC
ZXVPDC		1.278	0.020	0.33	2.019	0.167	1.13	MC



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

**Report #221**  
**3rd Qtr 2024**

		Summary Statistics	
Grand Means	1.2576 minutes	1.8528 minutes	
Stnd Dev Btwn Labs	0.0616 minutes	0.1474 minutes	
Statistics based on 31 of 34 reporting participants			

Samples Y45-Y46: EPDM Compound & Y47-Y48: EPDM Compound

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

- 2LBZRC (X) - Inconsistent in testing between samples.
- Q66VXW (X) - Data for sample group Y45-Y46 are high.
- RJY394 (X) - Inconsistent in testing between samples.

**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>XX</b>	Instrument model not specified by lab



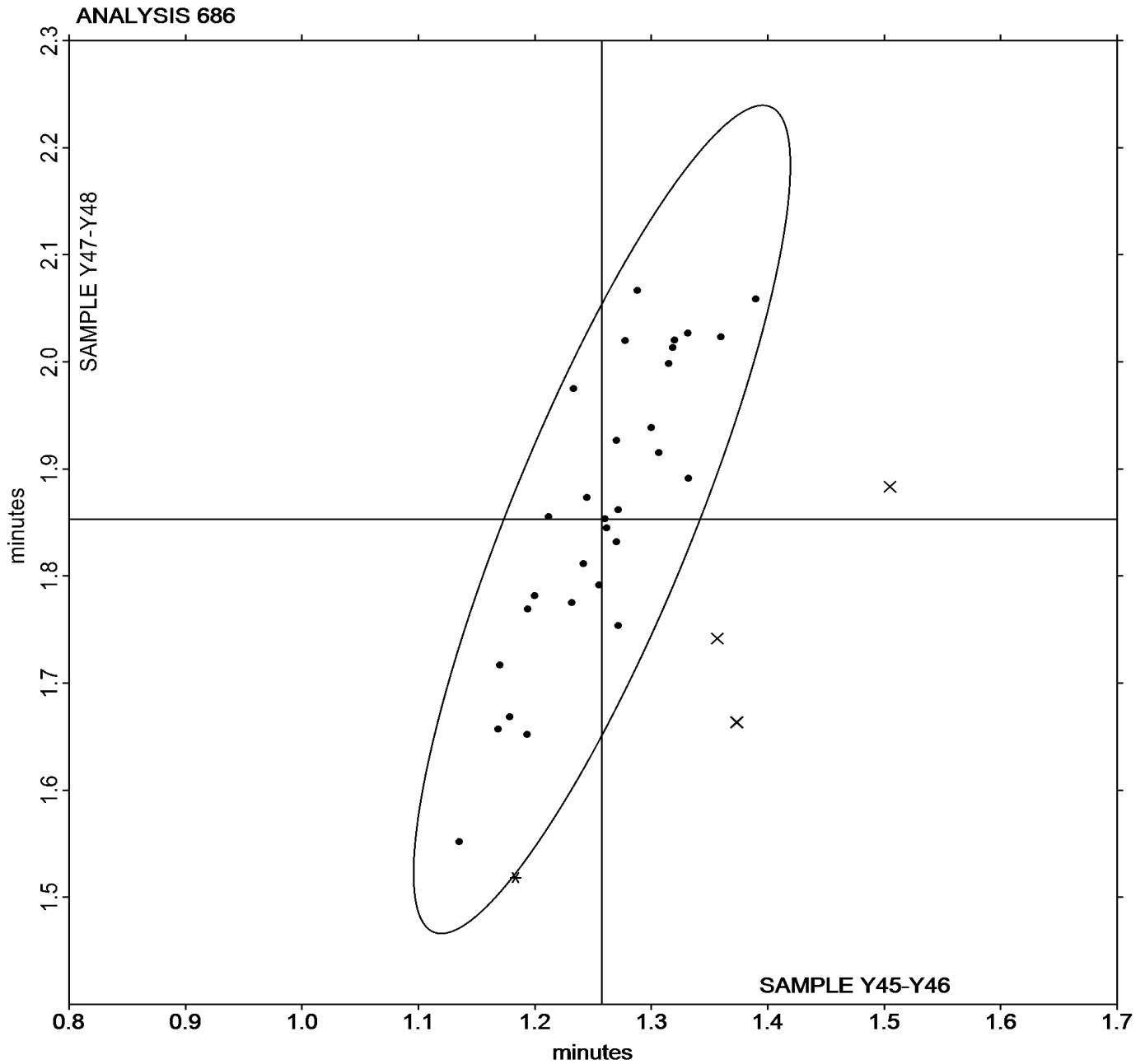


**Rubber Interlaboratory Testing Program**  
**Analysis 686**  
**MDR Vulcanization-Cure Time 50% (minutes)**

**Report #221**  
**3rd Qtr 2024**

Grand Mean Sample **Y45-Y46** = 1.2576 minutes

Grand Mean Sample **Y47-Y48** = 1.8528 minutes





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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample Y45-Y46			Sample Y47-Y48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2LBZRC		3.510	0.176	0.87	3.607	-0.282	-1.05	XX
3YEMHK		3.307	-0.028	-0.14	4.047	0.158	0.59	MR
42G373		3.480	0.146	0.72	4.057	0.168	0.62	MC
49Z7D6		3.372	0.038	0.19	3.797	-0.091	-0.34	MC
6QWTH9		3.143	-0.191	-0.95	3.440	-0.449	-1.67	XX
7EZ8NH		3.202	-0.133	-0.66	3.868	-0.020	-0.08	MR
8TQU8F		3.123	-0.211	-1.05	3.597	-0.292	-1.09	ME
8ZBMNL		3.387	0.052	0.26	4.160	0.271	1.01	XX
9MKE26		3.418	0.084	0.42	3.977	0.088	0.33	MC
A2UMFD		3.592	0.257	1.28	3.895	0.006	0.02	XX
AJEEED		3.212	-0.123	-0.61	3.752	-0.137	-0.51	MC
BHYAHZ		3.635	0.301	1.49	4.267	0.378	1.41	MC
CGJDPZ		3.205	-0.129	-0.64	3.608	-0.280	-1.04	MD
DERVPQ		3.255	-0.079	-0.39	3.613	-0.275	-1.02	MC
DV2MPB		3.558	0.224	1.11	4.388	0.500	1.86	MR
FT4QHT		3.427	0.092	0.46	4.020	0.131	0.49	ME
G3QADC		3.334	0.000	0.00	3.807	-0.082	-0.30	MC
G9UDZP		3.148	-0.186	-0.92	3.877	-0.012	-0.04	MC
GCBF8V		3.192	-0.143	-0.71	3.713	-0.175	-0.65	MD
GY4RT7		3.367	0.032	0.16	4.433	0.545	2.02	XX
JFM6LP		3.218	-0.116	-0.58	3.603	-0.285	-1.06	MC
KGEKBQ		3.005	-0.329	-1.63	3.955	0.066	0.25	MM
L7R4XB		3.438	0.104	0.52	4.198	0.310	1.15	ME
MEYZFL	*	3.695	0.361	1.79	3.668	-0.220	-0.82	MC
N67CXN		3.498	0.164	0.81	4.170	0.281	1.05	ME
Q66VXW	*	3.895	0.561	2.78	4.217	0.328	1.22	MM
RJY394		3.228	-0.106	-0.53	3.608	-0.280	-1.04	MR
UM7AMD		3.218	-0.116	-0.58	3.852	-0.037	-0.14	ME
UWH662		3.192	-0.143	-0.71	4.023	0.135	0.50	ME
VTRKAG		3.384	0.050	0.25	4.041	0.152	0.56	MC
W8QQ2Q		3.365	0.031	0.15	4.057	0.168	0.62	MC
WECL6F		3.355	0.021	0.10	3.655	-0.234	-0.87	MC
Y6B9XC		3.020	-0.314	-1.56	3.308	-0.580	-2.16	MC
ZXVPDC		2.989	-0.345	-1.71	3.939	0.050	0.19	MC



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

**Report #221**  
**3rd Qtr 2024**

		Summary Statistics	
Grand Means	3.3344 minutes		3.8887 minutes
Stnd Dev Btwn Labs	0.2017 minutes		0.2689 minutes
Statistics based on 34 of 34 reporting participants			

Samples Y45-Y46: EPDM Compound & Y47-Y48: EPDM Compound

**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>XX</b> Instrument model not specified by lab          |

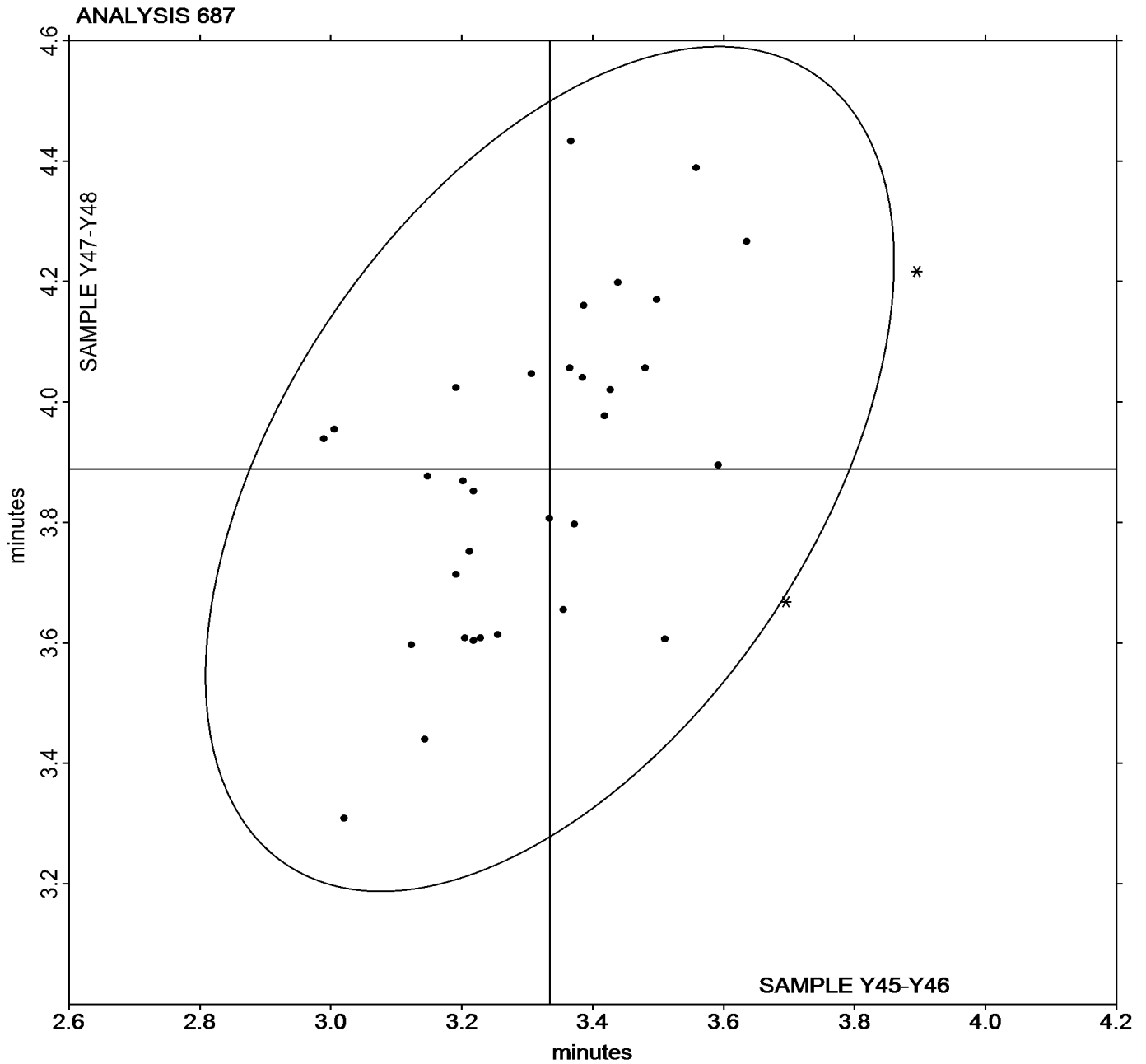


Rubber Interlaboratory Testing Program  
Analysis 687  
MDR Vulcanization-Cure Time 90% (minutes)

Report #221  
3rd Qtr 2024

Grand Mean Sample Y45-Y46 = 3.3344 minutes

Grand Mean Sample Y47-Y48 = 3.8887 minutes





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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample Y45-Y46			Sample Y47-Y48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2LBZRC		4.750	0.098	0.18	3.778	0.497	1.33	XX
3YEMHK		4.167	-0.485	-0.91	2.992	-0.290	-0.77	MR
42G373		4.182	-0.470	-0.88	2.978	-0.303	-0.81	MC
49Z7D6		4.373	-0.279	-0.52	3.262	-0.020	-0.05	MC
6QWTH9		5.820	1.168	2.20	3.810	0.529	1.41	MC
7EZ8NH		4.438	-0.214	-0.40	3.048	-0.233	-0.62	MR
8TQU8F		4.712	0.060	0.11	3.472	0.190	0.51	ME
8ZBMNL		4.250	-0.402	-0.76	2.965	-0.316	-0.84	XX
9MKE26		4.367	-0.285	-0.54	3.105	-0.176	-0.47	MC
A2UMFD		5.128	0.476	0.90	3.517	0.235	0.63	MM
AJEEED		4.872	0.220	0.41	3.433	0.152	0.41	MC
BHYAHZ		4.186	-0.466	-0.88	2.773	-0.508	-1.35	MC
CGJDPZ		5.378	0.726	1.37	3.698	0.417	1.11	MD
DERVPQ		4.693	0.041	0.08	3.158	-0.123	-0.33	MC
DV2MPB		4.087	-0.565	-1.06	2.818	-0.463	-1.23	MR
FT4QHT		4.338	-0.314	-0.59	3.075	-0.206	-0.55	ME
G3QADC		5.230	0.578	1.09	3.662	0.380	1.01	MC
G9UDZP		4.683	0.031	0.06	3.328	0.047	0.13	MC
GCBF8V		4.250	-0.402	-0.76	3.303	0.021	0.06	MD
GY4RT7	X	7.197	2.545	4.79	5.542	2.260	6.03	XX
JFM6LP		5.321	0.669	1.26	3.821	0.539	1.44	MC
KGEKBQ		4.165	-0.487	-0.92	3.358	0.077	0.21	MM
L7R4XB		3.590	-1.062	-2.00	2.595	-0.686	-1.83	ME
MEYZFL		5.503	0.851	1.60	4.143	0.862	2.30	MC
N67CXN		4.706	0.054	0.10	3.124	-0.157	-0.42	ME
Q66VXW		3.775	-0.877	-1.65	2.798	-0.483	-1.29	MM
RJY394		3.955	-0.697	-1.31	2.866	-0.415	-1.11	MR
UM7AMD		5.203	0.551	1.04	3.223	-0.058	-0.16	ME
UWH662		4.725	0.073	0.14	2.986	-0.296	-0.79	ME
VTRKAG		4.741	0.089	0.17	3.213	-0.068	-0.18	MC
W8QQ2Q		4.490	-0.162	-0.30	3.008	-0.273	-0.73	MC
WECL6F		5.005	0.353	0.66	3.737	0.455	1.21	MC
Y6B9XC		5.137	0.485	0.91	3.845	0.564	1.50	MC
ZXVPDC		5.297	0.645	1.21	3.390	0.109	0.29	MC



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

**Report #221**  
**3rd Qtr 2024**

		Summary Statistics	
Grand Means			
	4.6520 lbf.in		3.2813 lbf.in
Stnd Dev Btwn Labs			
	0.5318 lbf.in		0.3751 lbf.in
Statistics based on 33 of 34 reporting participants			

		Summary Statistics in SI Units	
Grand Means			
	5.2561 dN.m		3.7074 dN.m
Stnd Dev Btwn Labs			
	0.6008 dN.m		0.4238 dN.m
Statistics based on 33 of 34 reporting participants			

Samples Y45-Y46: EPDM Compound & Y47-Y48: EPDM Compound

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

GY4RT7 (X) - Data for all samples are high.

**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>XX</b>	Instrument model not specified by lab

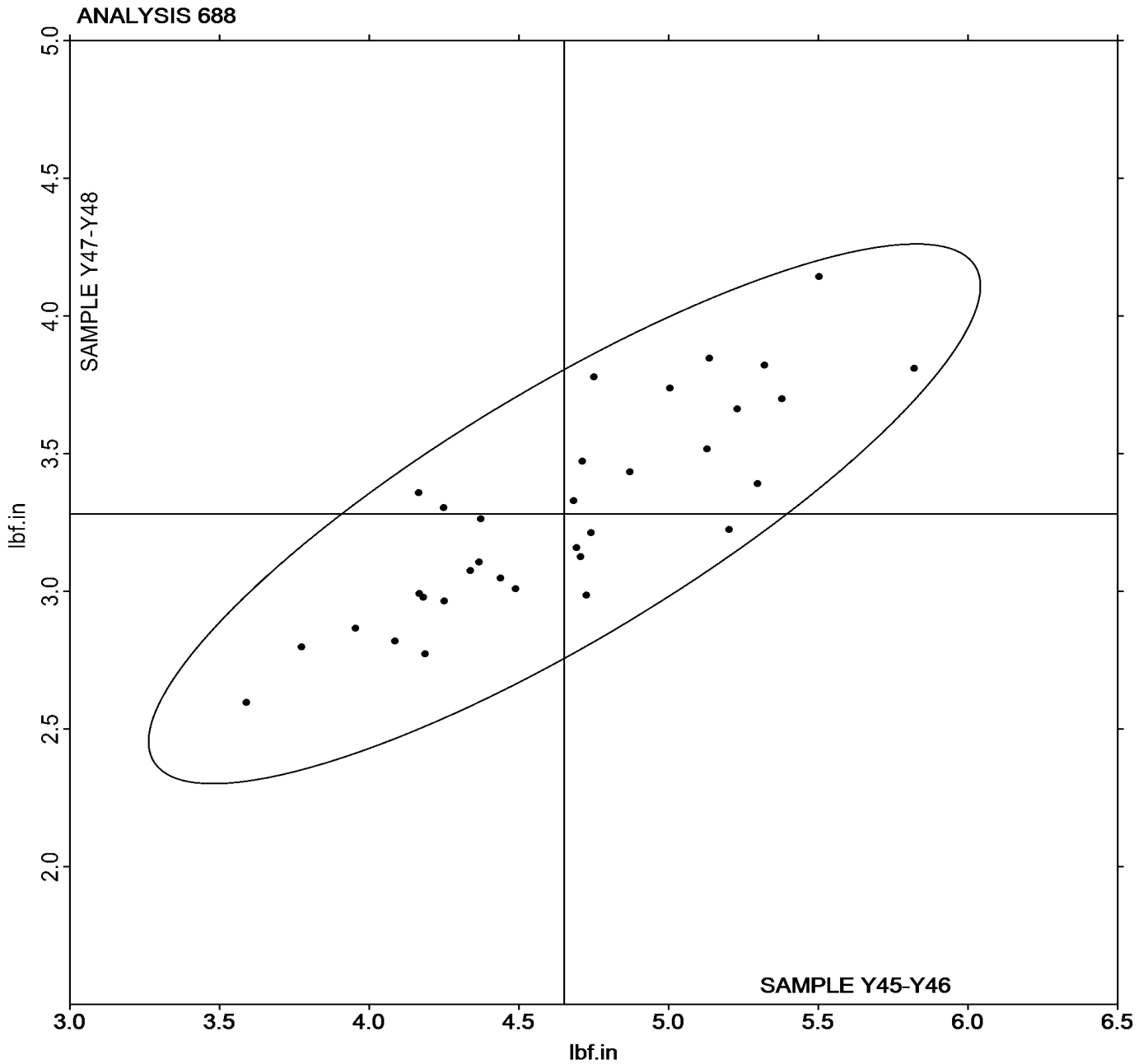


**Rubber Interlaboratory Testing Program**  
**Analysis 688**  
**MDR Vulcanization: Minimum Torque (lbf.in)**

**Report #221**  
**3rd Qtr 2024**

Grand Mean Sample **Y45-Y46** = 4.6520 lbf.in

Grand Mean Sample **Y47-Y48** = 3.2813 lbf.in





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

**Report #221**  
**3rd Qtr 2024**

WebCode	Data Flag	Sample Y45-Y46			Sample Y47-Y48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2LBZRC		10.34	-0.48	-1.01	10.92	0.21	0.53	XX
3YEMHK		10.86	0.03	0.07	10.83	0.12	0.31	MR
42G373		10.72	-0.10	-0.22	10.68	-0.03	-0.07	MC
49Z7D6		10.65	-0.17	-0.36	10.96	0.25	0.63	MC
6QWTH9		11.55	0.72	1.51	10.97	0.26	0.64	MC
7EZ8NH		10.88	0.06	0.12	10.72	0.02	0.04	MR
8TQU8F		10.80	-0.02	-0.04	10.75	0.04	0.10	ME
8ZBMNL		10.79	-0.04	-0.07	10.70	-0.01	-0.02	XX
9MKE26		10.64	-0.18	-0.37	10.47	-0.24	-0.60	MC
A2UMFD		10.43	-0.39	-0.81	10.34	-0.36	-0.90	MM
AJEEED		10.86	0.04	0.08	10.71	0.00	-0.01	MC
BHYAHZ		10.58	-0.24	-0.50	10.60	-0.11	-0.27	MC
CGJDPZ		10.95	0.13	0.28	10.54	-0.17	-0.43	MD
DERVPQ		10.56	-0.27	-0.55	10.34	-0.36	-0.90	MC
DV2MPB		10.31	-0.51	-1.07	10.40	-0.31	-0.78	MR
FT4QHT		10.74	-0.08	-0.17	10.35	-0.36	-0.90	ME
G3QADC		11.06	0.23	0.49	10.87	0.16	0.40	MC
G9UDZP		11.23	0.40	0.84	10.92	0.21	0.53	MC
GCBF8V		10.79	-0.03	-0.07	10.49	-0.22	-0.55	MD
GY4RT7	X	13.65	2.83	5.91	13.76	3.05	7.56	XX
JFM6LP		11.47	0.65	1.36	11.40	0.70	1.73	MC
KGEKBQ		11.56	0.73	1.53	11.11	0.41	1.00	MM
L7R4XB		10.22	-0.61	-1.27	10.44	-0.27	-0.67	ME
MEYZFL		10.81	-0.02	-0.04	11.00	0.29	0.72	MC
N67CXN		10.78	-0.04	-0.09	10.65	-0.06	-0.15	ME
Q66VXW	*	9.52	-1.30	-2.71	9.66	-1.05	-2.60	MM
RJY394		9.89	-0.93	-1.95	9.73	-0.98	-2.43	MR
UM7AMD		11.30	0.47	0.99	11.30	0.59	1.46	ME
UWH662		10.91	0.09	0.18	10.31	-0.40	-0.98	ME
VTRKAG		11.69	0.87	1.82	11.42	0.71	1.77	MC
W8QQ2Q		10.81	-0.01	-0.03	10.62	-0.09	-0.23	MC
WECL6F		10.81	-0.02	-0.04	11.04	0.34	0.83	MC
Y6B9XC		10.92	0.10	0.21	11.19	0.48	1.19	MC
ZXVPDC		11.73	0.91	1.89	10.96	0.25	0.62	MC





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

**Report #221**  
**3rd Qtr 2024**

		Summary Statistics	
Grand Means	10.822 lbf.in	10.708 lbf.in	
Stnd Dev Btwn Labs	0.479 lbf.in	0.403 lbf.in	
Statistics based on 33 of 34 reporting participants			

		Summary Statistics in SI Units	
Grand Means	12.227 dN.m	12.099 dN.m	
Stnd Dev Btwn Labs	0.541 dN.m	0.456 dN.m	
Statistics based on 33 of 34 reporting participants			

Samples Y45-Y46: EPDM Compound & Y47-Y48: EPDM Compound

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

GY4RT7 (X) - Data for all samples are high.

**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>XX</b>	Instrument model not specified by lab

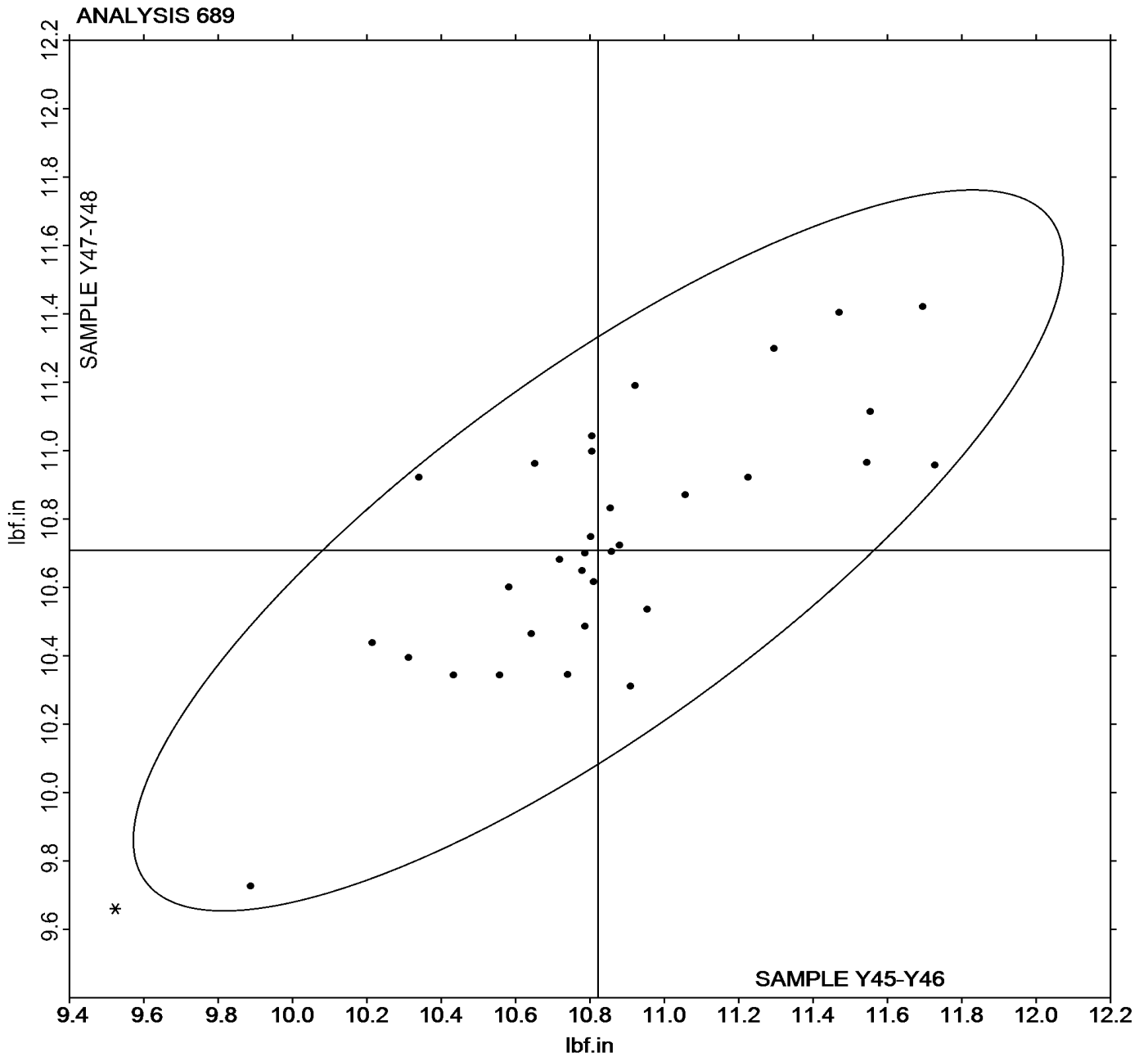


Rubber Interlaboratory Testing Program  
Analysis 689  
MDR Vulcanization: Maximum Torque (lbf.in)

Report #221  
3rd Qtr 2024

Grand Mean Sample Y45-Y46 = 10.822 lbf.in

Grand Mean Sample Y47-Y48 = 10.708 lbf.in





# Rubber Interlaboratory Testing Program

Report #221

## Analysis 690

3rd Qtr 2024

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

WebCode	Data Flag	Sample G41-G42			Sample G43-G44			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
42G373		950.3	-26.8	-0.27	659.4	-38.8	-1.00	RP
G9UDZP		1,035.2	58.1	0.59	703.3	5.2	0.13	PR
L7R4XB		836.2	-140.9	-1.42	673.6	-24.6	-0.63	RP
UWH662		897.0	-80.1	-0.81	678.6	-19.6	-0.50	XX
VTRKAG		1,055.3	78.2	0.79	705.3	7.2	0.19	RP
XW4ANA		1,088.6	111.5	1.13	768.6	70.5	1.82	PR

Summary Statistics	
Grand Means	977.08 kPa
Std Dev Btwn Labs	98.90 kPa
	698.13 kPa
	38.82 kPa
Statistics based on 6 of 6 reporting participants	

Samples G41-G42: EPDM Compound & G43-G44: EPDM Compound

### Key to Instrument Codes Reported by Participants

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

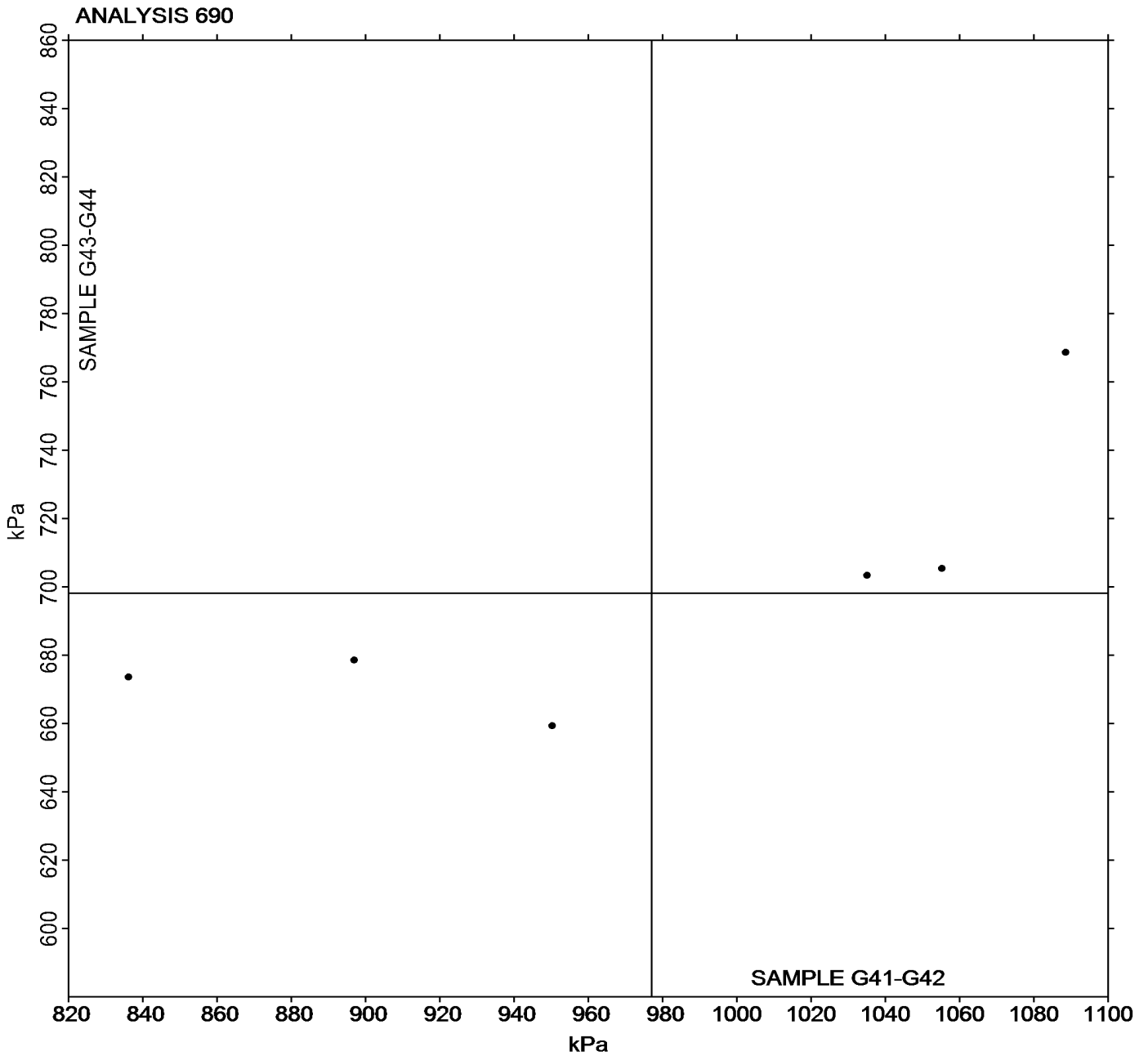


Rubber Interlaboratory Testing Program  
Analysis 690  
RPA Rheological Properties: Part A - G' at 20Hz (kPa)

Report #221  
3rd Qtr 2024

Grand Mean Sample G41-G42 = 977.08 kPa

Grand Mean Sample G43-G44 = 698.13 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 #221

## Analysis 691

3rd Qtr 2024

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

WebCode	Data Flag	Sample G41-G42			Sample G43-G44			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
42G373		202.8	-34.6	-1.56	193.9	-25.9	-1.73	RP
G9UDZP		244.3	6.9	0.31	228.7	8.9	0.59	PR
L7R4XB		242.2	4.8	0.22	224.9	5.0	0.33	RP
UWH662		269.7	32.3	1.46	235.5	15.6	1.04	XX
VTRKAG		225.9	-11.5	-0.52	211.3	-8.5	-0.57	RP
XW4ANA		239.6	2.2	0.10	224.9	5.0	0.33	PR

Summary Statistics	
Grand Means	
	237.43 kPa
	219.86 kPa
Std Dev Btwn Labs	
	22.11 kPa
	14.95 kPa
Statistics based on 6 of 6 reporting participants	

Samples G41-G42: EPDM Compound & G43-G44: EPDM Compound

### Key to Instrument Codes Reported by Participants

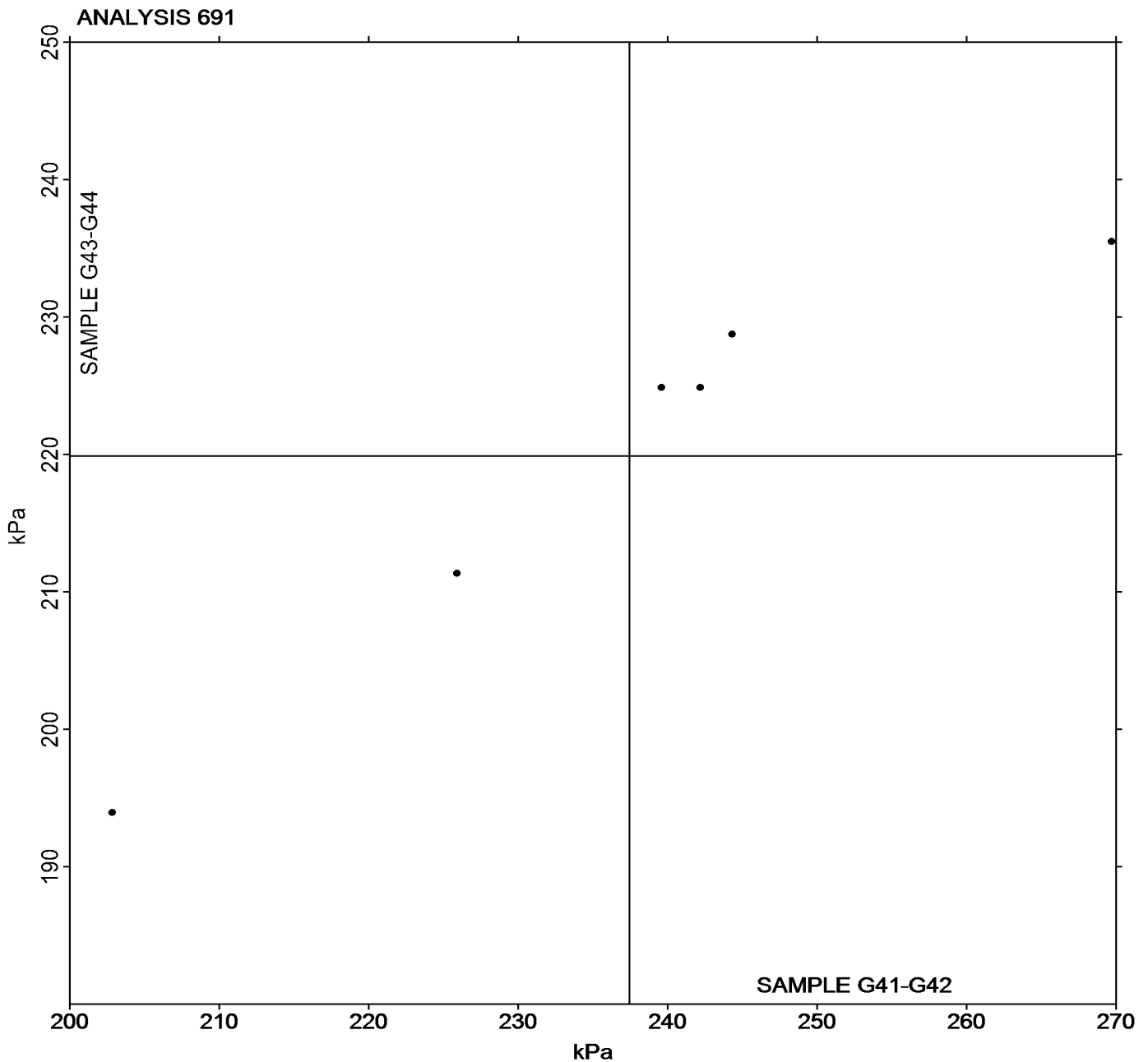
- PR PRPA 2000
- RP RPA 2000
- XX Instrument model not specified by lab



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

Grand Mean Sample G41-G42 = 237.43 kPa

Grand Mean Sample G43-G44 = 219.86 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 #221

## Analysis 695

3rd Qtr 2024

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

WebCode	Data Flag	Sample G41-G42			Sample G43-G44			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
42G373		224.1	0.2	0.00	138.6	-5.9	-0.20	RP
G9UDZP		252.9	28.9	0.50	147.0	2.5	0.08	PR
L7R4XB		149.9	-74.0	-1.28	113.2	-31.4	-1.06	RP
UWH662		158.9	-65.1	-1.12	113.4	-31.1	-1.05	XX
VTRKAG		269.7	45.8	0.79	166.8	22.3	0.75	RP
XW4ANA		288.1	64.2	1.11	188.1	43.6	1.47	PR

Summary Statistics			
Grand Means	223.92 kPa	144.51 kPa	
Std Dev Btwn Labs	57.90 kPa	29.62 kPa	
Statistics based on 6 of 6 reporting participants			

Samples G41-G42: EPDM Compound & G43-G44: EPDM Compound

### Key to Instrument Codes Reported by Participants

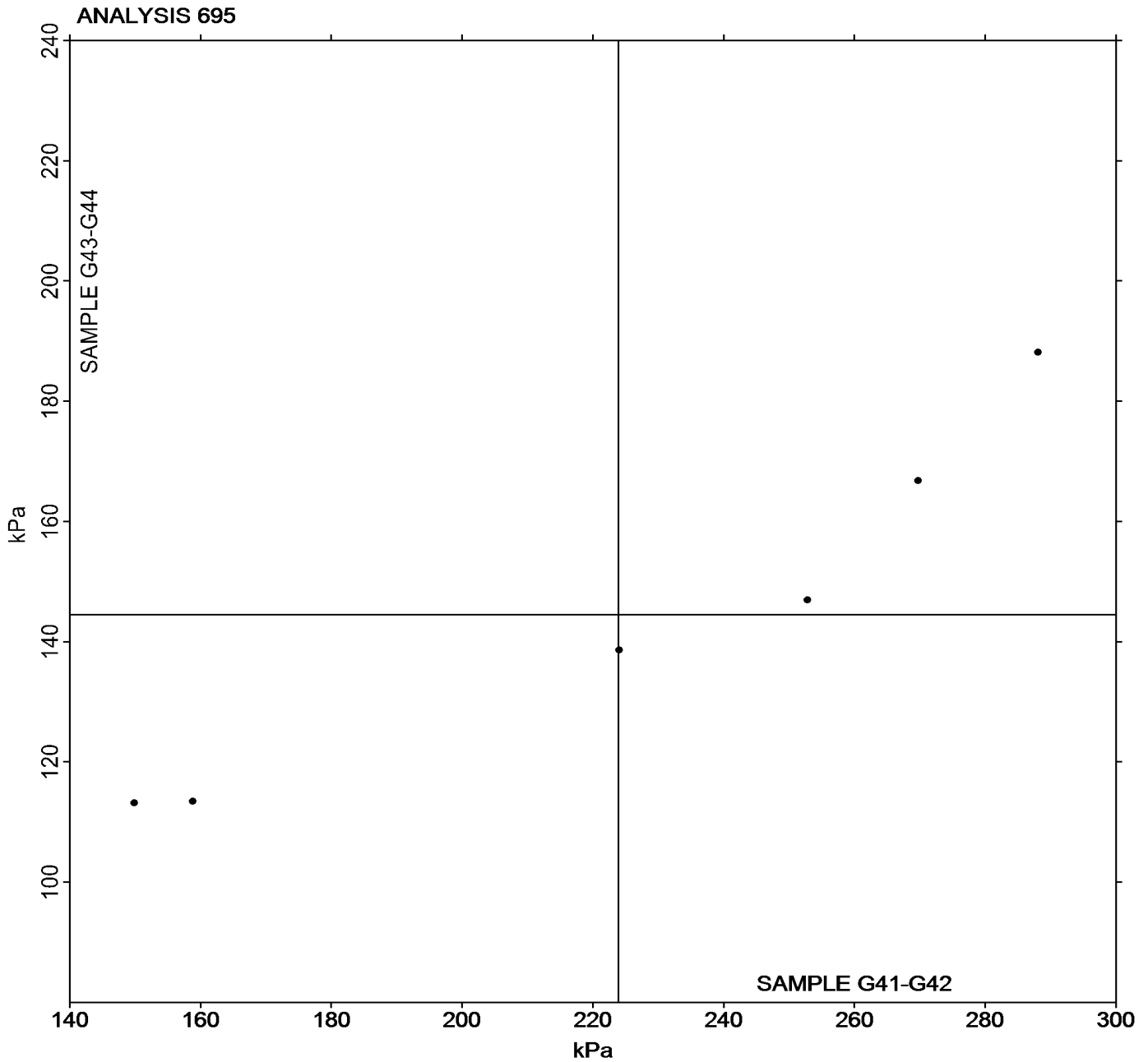
- PR PRPA 2000
- RP RPA 2000
- XX Instrument model not specified by lab



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

Grand Mean Sample G41-G42 = 223.92 kPa

Grand Mean Sample G43-G44 = 144.51 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 #221

## Analysis 696

3rd Qtr 2024

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

WebCode	Data Flag	Sample G41-G42			Sample G43-G44			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
42G373		134.2	-6.7	-0.31	96.0	-8.5	-0.99	RP
G9UDZP		157.0	16.1	0.75	106.6	2.1	0.24	PR
L7R4XB		112.4	-28.4	-1.33	97.0	-7.5	-0.88	RP
UWH662		120.9	-19.9	-0.93	99.3	-5.2	-0.61	XX
VTRKAG		164.4	23.5	1.10	110.7	6.1	0.72	RP
XW4ANA		156.2	15.4	0.72	117.6	13.0	1.52	PR

Summary Statistics	
Grand Means	140.87 kPa
Std Dev Btwn Labs	21.44 kPa
	104.55 kPa
	8.59 kPa
Statistics based on 6 of 6 reporting participants	

Samples G41-G42: EPDM Compound & G43-G44: EPDM Compound

### 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 #221

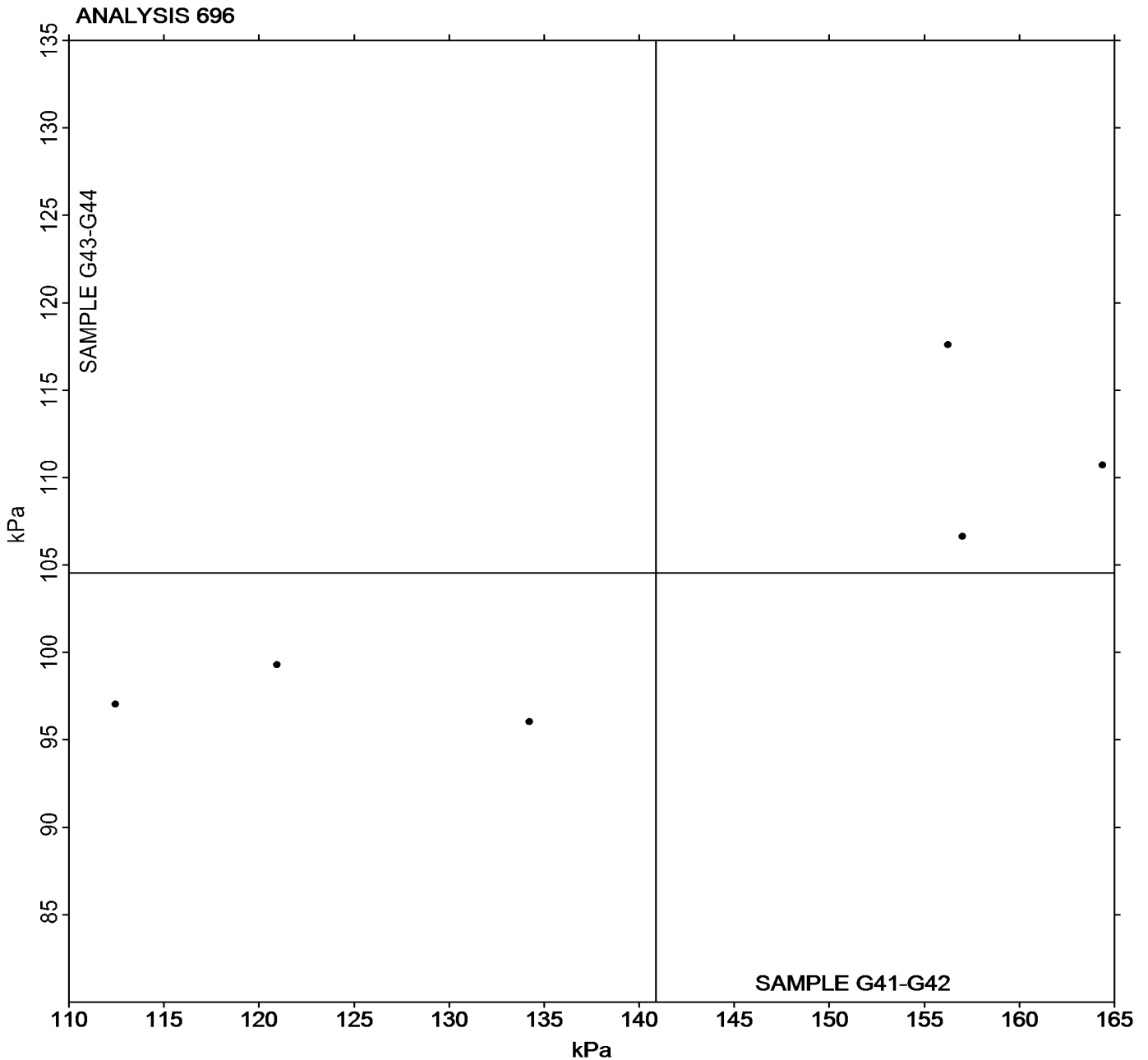
## Analysis 696

3rd Qtr 2024

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

Grand Mean Sample **G41-G42** = 140.87 kPa

Grand Mean Sample **G43-G44** = 104.55 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-