



Rubber Interlaboratory Testing Program

Summary Report #217- 3rd Qtr 2023

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

[Key for Web Summary Report](#)

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

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

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

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

Common Problems Highlighted in Footnotes

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

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



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

Report #217
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WebCode	Data Flag	Sample C31-C32			Sample C33-C34		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
232X3N		3,239.5	18.6	0.15	3,199.0	-8.6	-0.07
2N2YER		3,200.5	-20.4	-0.16	3,100.5	-107.1	-0.83
2YZT9F		3,144.4	-76.4	-0.60	3,174.2	-33.4	-0.26
39LC7L		3,378.0	157.1	1.23	3,373.0	165.4	1.28
4474HL		3,423.7	202.8	1.58	3,373.2	165.6	1.28
4XHLXJ		3,112.0	-108.9	-0.85	3,059.0	-148.6	-1.15
6Y6MGC		3,447.0	226.1	1.77	3,381.0	173.4	1.34
7PZVRH		3,165.0	-55.9	-0.44	3,293.5	85.9	0.66
83H8EB		3,281.0	60.1	0.47	3,098.0	-109.6	-0.84
867E3E		3,280.0	59.1	0.46	3,275.0	67.4	0.52
88C2CC		3,309.5	88.6	0.69	3,307.7	100.1	0.77
8BT6FN		3,135.0	-85.9	-0.67	3,056.7	-150.9	-1.16
8HW9CM		3,309.8	88.9	0.69	3,198.8	-8.8	-0.07
99KFHH		3,299.5	78.6	0.61	3,444.0	236.4	1.82
9DGZPM		3,451.0	230.1	1.80	3,364.5	156.9	1.21
9FJZHT	X	2,802.5	-418.4	-3.27	2,723.4	-484.2	-3.73
9GH48P		3,335.9	115.0	0.90	3,430.2	222.6	1.72
9HUZLE		3,388.4	167.5	1.31	3,347.0	139.4	1.07
A9EHMD		3,224.5	3.6	0.03	3,158.0	-49.6	-0.38
A9JXZE		2,915.5	-305.4	-2.38	2,984.5	-223.1	-1.72
AB7G2C		3,245.0	24.1	0.19	3,215.0	7.4	0.06
AMEGBA		3,357.7	136.8	1.07	3,198.1	-9.5	-0.07
AYU8DL		3,311.5	90.6	0.71	3,301.0	93.4	0.72
AZPUPP		3,296.5	75.6	0.59	3,330.0	122.4	0.94
B6EUJB	X	3,582.5	361.6	2.82	3,771.0	563.4	4.34
B8GQZK		3,066.8	-154.0	-1.20	3,145.2	-62.4	-0.48
BH4TAD		3,319.2	98.3	0.77	3,370.7	163.1	1.26
BJC2GD		3,246.0	25.1	0.20	3,119.8	-87.8	-0.68
C364U8		3,260.0	39.1	0.31	3,262.7	55.1	0.43
CFVTTD		3,065.0	-155.9	-1.22	3,000.0	-207.6	-1.60
CZXLVC		3,200.3	-20.6	-0.16	3,181.4	-26.2	-0.20
DAYRVJ		3,290.0	69.1	0.54	3,215.0	7.4	0.06
DBB7RD		3,331.5	110.6	0.86	3,401.5	193.9	1.50
DCPUT6		3,209.0	-11.9	-0.09	3,254.5	46.9	0.36
DKFD8D		3,251.0	30.1	0.24	3,295.0	87.4	0.67
E9HV3J		3,285.0	64.1	0.50	3,382.0	174.4	1.34
F62QY8	X	3,770.0	549.1	4.29	3,825.0	617.4	4.76
FLLHX7		3,204.0	-16.9	-0.13	3,222.0	14.4	0.11



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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WebCode	Data Flag	Sample C31-C32			Sample C33-C34		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
FQH4UF		3,195.0	-25.9	-0.20	3,360.0	152.4	1.18
FZLJB8		3,279.4	58.5	0.46	3,117.7	-89.8	-0.69
GCEYZ9		3,268.6	47.7	0.37	3,261.8	54.2	0.42
GEMAWC		3,204.5	-16.4	-0.13	3,285.5	77.9	0.60
GH7AA8		3,327.0	106.1	0.83	3,270.5	62.9	0.49
GP7NZE		3,138.0	-82.9	-0.65	3,290.5	82.9	0.64
J2LNBD		3,090.1	-130.8	-1.02	3,077.7	-129.9	-1.00
JNLRHY		3,293.5	72.6	0.57	3,127.5	-80.1	-0.62
JZGZ69	X	2,991.5	-229.4	-1.79	2,806.5	-401.1	-3.09
K2NKMJ		3,242.5	21.6	0.17	3,087.0	-120.6	-0.93
K2ZCFX		3,151.7	-69.2	-0.54	3,201.6	-6.0	-0.05
KCKJG9		3,387.4	166.5	1.30	3,390.3	182.7	1.41
KHQHHC		3,058.9	-162.0	-1.26	3,095.8	-111.8	-0.86
KM7Q7C		3,108.9	-112.0	-0.87	3,114.0	-93.6	-0.72
KUH4R2		3,116.8	-104.0	-0.81	3,146.6	-61.0	-0.47
L89ZQE	X	2,913.7	-307.1	-2.40	3,181.1	-26.5	-0.20
LAVWY6		3,024.5	-196.4	-1.53	2,982.5	-225.1	-1.74
LPN9RE		3,277.3	56.4	0.44	3,234.7	27.1	0.21
LRVJQ4		3,201.0	-19.9	-0.16	3,188.7	-18.9	-0.15
LUXP23		3,194.6	-26.3	-0.21	3,169.4	-38.2	-0.29
MZKUD4		3,380.9	160.0	1.25	3,436.7	229.1	1.77
NN7YRD		3,183.5	-37.4	-0.29	3,266.5	58.9	0.45
P4XEB4		3,114.7	-106.2	-0.83	3,147.3	-60.2	-0.46
P7KXC2		3,326.5	105.6	0.82	3,175.0	-32.6	-0.25
PJKWYX		3,222.6	1.7	0.01	3,219.4	11.8	0.09
PQ9EJ2		3,061.5	-159.4	-1.24	3,169.0	-38.6	-0.30
Q93E8Q		3,205.0	-15.9	-0.12	3,152.5	-55.1	-0.42
QCLNX4		3,318.5	97.6	0.76	3,292.5	84.9	0.65
QMNRJ2		3,270.6	49.8	0.39	3,299.6	92.0	0.71
R47AQR		3,251.8	30.9	0.24	3,251.8	44.2	0.34
RGV6X8	*	2,867.8	-353.1	-2.76	2,868.9	-338.7	-2.61
RLLF86		2,987.8	-233.1	-1.82	2,893.5	-314.1	-2.42
RXEZGU		3,009.6	-211.3	-1.65	2,995.1	-212.5	-1.64
TBJHRU		3,366.0	145.1	1.13	3,343.5	135.9	1.05
TH6B4T		3,232.2	11.3	0.09	3,164.0	-43.6	-0.34
TV83PX		3,487.0	266.1	2.08	3,360.5	152.9	1.18
TYP33T		3,154.6	-66.3	-0.52	3,147.3	-60.2	-0.46



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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WebCode	Data Flag	Sample C31-C32			Sample C33-C34		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
U3KBQY		3,328.0	107.1	0.84	3,240.0	32.4	0.25
UDHFD7		3,190.9	-30.0	-0.23	3,125.6	-82.0	-0.63
VC62QW		3,317.5	96.6	0.75	3,286.0	78.4	0.60
VCPLN4	X	3,045.8	-175.1	-1.37	3,309.1	101.5	0.78
VKYA23		2,980.0	-240.9	-1.88	3,030.0	-177.6	-1.37
VMPDZN		3,207.0	-13.9	-0.11	3,259.0	51.4	0.40
W9ZXAU	X	3,410.7	189.8	1.48	3,683.2	475.6	3.67
WDZ4UR		3,040.0	-180.9	-1.41	3,170.0	-37.6	-0.29
WYY9PY		3,294.1	73.3	0.57	3,248.7	41.2	0.32
X892KZ		3,134.3	-86.6	-0.68	3,111.8	-95.8	-0.74
XAUXTQ		3,321.9	101.0	0.79	3,264.8	57.2	0.44
XDDX7L		3,311.5	90.6	0.71	3,305.0	97.4	0.75
XNCUY2	M	2,476.0	-744.9	-5.82	2,396.0	-811.6	-6.26
XP3WWN		3,281.0	60.2	0.47	3,274.8	67.2	0.52
Y7ABRQ	*	2,933.9	-287.0	-2.24	2,864.7	-342.9	-2.64
YK8HPR		3,066.5	-154.4	-1.21	3,073.0	-134.6	-1.04
YNQG3M		3,372.4	151.6	1.18	3,285.4	77.8	0.60
ZFRA2T		3,016.8	-204.1	-1.59	3,009.6	-198.0	-1.53

Grand Means		Summary Statistics	
	3,220.88 psi		3,207.59 psi
Stnd Dev Btwn Labs	128.05 psi		129.71 psi
Statistics based on 85 of 93 reporting participants			

Grand Means		Summary Statistics in SI Units	
	22.207 MPa		22.120 MPa
Stnd Dev Btwn Labs	0.883 MPa		0.890 MPa
Statistics based on 85 of 93 reporting participants			

Samples C31-C32: Polyisoprene compound, batch #1 & C33-C34: Polyisoprene compound, batch #2



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

Report #217
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Comments on Assigned Data Flags for Test #605

- 9FJZHT (X) - Data for all samples are low. Possible Systematic Error.
- B6EUJB (X) - Data for all samples are high. Possible Systematic Error.
- F62QY8 (X) - Data for all samples are high. Possible Systematic Error.
- JZGZ69 (X) - Data for sample group C33-C34 are low.
- L89ZQE (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group C31-C32.
- VCPLN4 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group C31-C32.
- W9ZXAU (X) - Data for sample group C33-C34 are high.
- XNCUY2 (M) - Data not reported for Sample C32 and C34

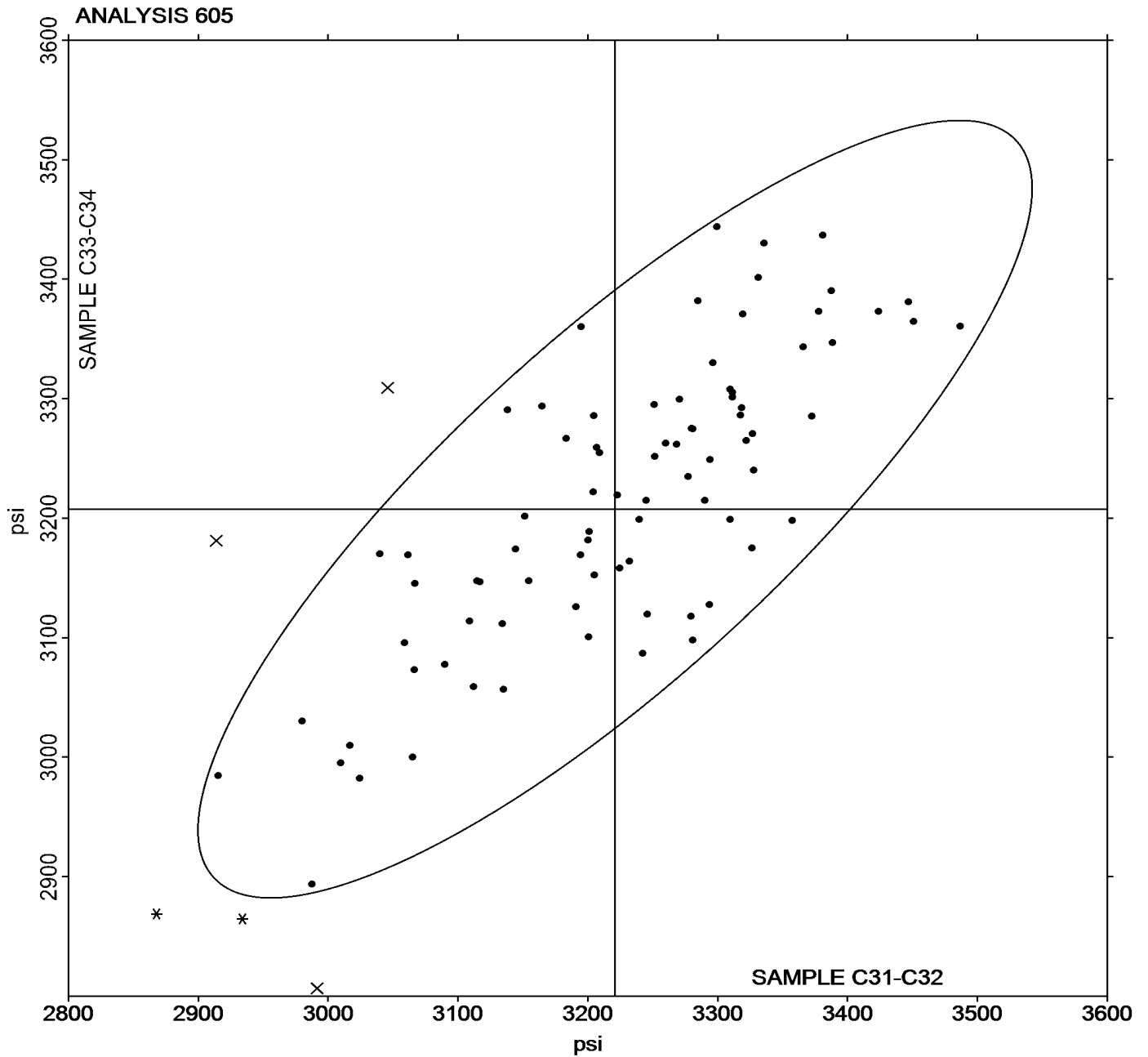


Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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Grand Mean Sample **C31-C32** = 3,220.88 psi

Grand Mean Sample **C33-C34** = 3,207.59 psi





Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample C31-C32			Sample C33-C34		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
232X3N		639.5	24.2	0.94	634.5	5.8	0.21
2N2YER		611.0	-4.3	-0.17	624.0	-4.7	-0.17
2YZT9F		607.5	-7.8	-0.30	621.0	-7.7	-0.28
39LC7L		629.5	14.2	0.55	641.5	12.8	0.46
4474HL		619.8	4.5	0.18	624.8	-3.9	-0.14
4XHLXJ		597.5	-17.8	-0.69	615.0	-13.7	-0.50
6Y6MGC	X	602.0	-13.3	-0.52	572.2	-56.5	-2.06
7PZVRH		578.5	-36.8	-1.43	619.0	-9.7	-0.35
83H8EB		625.5	10.2	0.40	639.5	10.8	0.39
867E3E		625.0	9.7	0.38	640.0	11.3	0.41
88C2CC		658.5	43.2	1.68	660.0	31.3	1.14
8BT6FN		622.0	6.7	0.26	641.5	12.8	0.46
8HW9CM		586.5	-28.8	-1.12	585.5	-43.2	-1.57
99KFHH		568.8	-46.5	-1.81	591.1	-37.7	-1.37
9DGZPM		636.5	21.2	0.82	658.0	29.3	1.06
9FJZHT	X	929.6	314.3	12.23	979.2	350.5	12.75
9GH48P	X	679.0	63.7	2.48	630.0	1.3	0.05
9HUZLE		637.0	21.7	0.85	638.5	9.8	0.36
A9EHMD		631.0	15.7	0.61	648.0	19.3	0.70
A9JXZE		559.5	-55.8	-2.17	562.0	-66.7	-2.43
AB7G2C		609.0	-6.3	-0.25	631.5	2.8	0.10
AMEGBA		628.5	13.2	0.51	633.0	4.3	0.15
AYU8DL		613.0	-2.3	-0.09	619.0	-9.7	-0.35
AZPUPP		606.5	-8.8	-0.34	627.5	-1.2	-0.05
B6EUJB	*	644.5	29.2	1.14	692.0	63.3	2.30
B8GQZK		629.0	13.6	0.53	642.6	13.9	0.50
BJC2GD		634.5	19.2	0.75	652.0	23.3	0.85
C364U8		633.7	18.3	0.71	649.1	20.4	0.74
CFVTTD		582.5	-32.8	-1.28	591.5	-37.2	-1.35
CZXLVC		651.0	35.7	1.39	654.5	25.8	0.94
DAYRVJ		606.5	-8.8	-0.34	615.0	-13.7	-0.50
DBB7RD		568.0	-47.3	-1.84	576.5	-52.2	-1.90
DCPUT6		611.0	-4.3	-0.17	650.5	21.8	0.79
DKFD8D		591.5	-23.8	-0.93	612.3	-16.5	-0.60
E9HV3J		612.0	-3.3	-0.13	628.5	-0.2	-0.01
F62QY8	X	852.0	236.7	9.21	946.5	317.8	11.56
FLHX7		626.5	11.2	0.44	649.5	20.8	0.75
FQH4UF	X	472.5	-142.8	-5.55	403.0	-225.7	-8.21



Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #217
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WebCode	Data Flag	Sample C31-C32			Sample C33-C34		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
FZLJB8		596.7	-18.7	-0.73	601.0	-27.8	-1.01
GCEYZ9		634.5	19.2	0.75	665.2	36.5	1.33
GEMAWC		605.0	-10.3	-0.40	637.0	8.3	0.30
GH7AA8		631.0	15.7	0.61	644.5	15.8	0.57
GP7NZE		620.5	5.2	0.20	644.5	15.8	0.57
J2LNBD		630.0	14.7	0.57	652.0	23.3	0.85
JNLRHY		587.0	-28.3	-1.10	593.5	-35.2	-1.28
JZGZ69	X	700.0	84.7	3.29	681.5	52.8	1.92
K2NKMVG		601.0	-14.3	-0.56	599.5	-29.2	-1.06
K2ZCFX		625.6	10.3	0.40	650.2	21.4	0.78
KCKJG9		640.0	24.7	0.96	670.5	41.8	1.52
KHQHHC		637.2	21.9	0.85	645.0	16.2	0.59
KM7Q7C		622.7	7.4	0.29	624.1	-4.7	-0.17
KUH4R2		608.6	-6.7	-0.26	613.7	-15.0	-0.55
L89ZQE		670.1	54.7	2.13	665.7	37.0	1.35
LAVWY6		582.0	-33.3	-1.30	598.5	-30.2	-1.10
LPN9RE		640.0	24.7	0.96	632.3	3.5	0.13
LRVJQ4		643.7	28.4	1.10	657.3	28.6	1.04
LUXP23		653.4	38.1	1.48	645.6	16.8	0.61
MZKUD4		603.9	-11.4	-0.44	635.3	6.6	0.24
NN7YRD	*	657.5	42.2	1.64	697.5	68.8	2.50
P4XEB4		587.5	-27.8	-1.08	580.0	-48.7	-1.77
P7KXC2		573.5	-41.8	-1.63	565.5	-63.2	-2.30
PJKWYX		600.0	-15.3	-0.60	604.0	-24.7	-0.90
PQ9EJ2		599.5	-15.8	-0.61	634.5	5.8	0.21
Q93E8Q		607.8	-7.6	-0.29	619.0	-9.7	-0.35
QCLNX4		634.5	19.2	0.75	650.5	21.8	0.79
QMNRJ2		614.5	-0.8	-0.03	630.0	1.3	0.05
R47AQR		646.0	30.7	1.19	666.5	37.8	1.37
RGV6X8	X	1,806.0	1,190.7	46.31	1,782.5	1,153.8	41.97
RLLF86		656.0	40.7	1.58	650.0	21.3	0.77
RXEZGU	X	751.0	135.7	5.28	764.0	135.3	4.92
TBJHRU		632.5	17.2	0.67	655.0	26.3	0.95
TH6B4T		584.0	-31.3	-1.22	594.5	-34.2	-1.25
TV83PX		579.5	-35.8	-1.39	611.0	-17.7	-0.65
TYP33T		628.5	13.2	0.51	642.0	13.3	0.48
U3KBQY		598.0	-17.3	-0.67	617.5	-11.2	-0.41



Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample C31-C32			Sample C33-C34		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
UDHFD7		623.5	8.1	0.32	623.8	-5.0	-0.18
VC62QW		590.0	-25.3	-0.98	625.5	-3.2	-0.12
VCPLN4		583.5	-31.8	-1.24	586.5	-42.2	-1.54
VKYA23		558.5	-56.8	-2.21	583.0	-45.7	-1.66
VMPDZN		629.5	14.2	0.55	642.5	13.8	0.50
W9ZXAU		636.3	20.9	0.81	655.5	26.8	0.97
WDZ4UR		604.6	-10.8	-0.42	607.1	-21.7	-0.79
WYY9PY	X	755.5	140.2	5.45	773.0	144.2	5.25
X892KZ		627.0	11.7	0.46	638.5	9.8	0.35
XAUXTQ		562.4	-53.0	-2.06	579.0	-49.7	-1.81
XDDX7L	*	653.5	38.2	1.49	635.0	6.3	0.23
XP3WWN		641.5	26.2	1.02	643.4	14.7	0.53
Y7ABRQ	X	291.4	-323.9	-12.60	292.5	-336.2	-12.23
YK8HPR		582.5	-32.8	-1.28	589.5	-39.2	-1.43
YNQG3M		609.9	-5.4	-0.21	639.7	11.0	0.40
ZFRA2T		623.5	8.2	0.32	618.0	-10.7	-0.39

Grand Means		Summary Statistics	
	615.30 percent		628.75 percent
Std Dev Btwn Labs	25.71 percent		27.49 percent
Statistics based on 81 of 91 reporting participants			

Samples C31-C32: Polyisoprene compound, batch #1 & C33-C34: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #606

- 6Y6MGC (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group C33-C34.
- 9FJZHT (X) - Extreme data.
- 9GH48P (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group C31-C32.
- F62QY8 (X) - Data for all samples are high. Inconsistent within the determinations of both sample groups.
- FQH4UF (X) - Data for all samples are low. Inconsistent within the determinations of both sample groups.
- JZGZ69 (X) - Data for sample group C31-C32 are high.
- RGV6X8 (X) - Extreme Data.
- RXEZGU (X) - Data for all samples are high. Possible Systematic Error.
- WYY9PY (X) - Data for all samples are high. Possible Systematic Error.
- Y7ABRQ (X) - Extreme data.

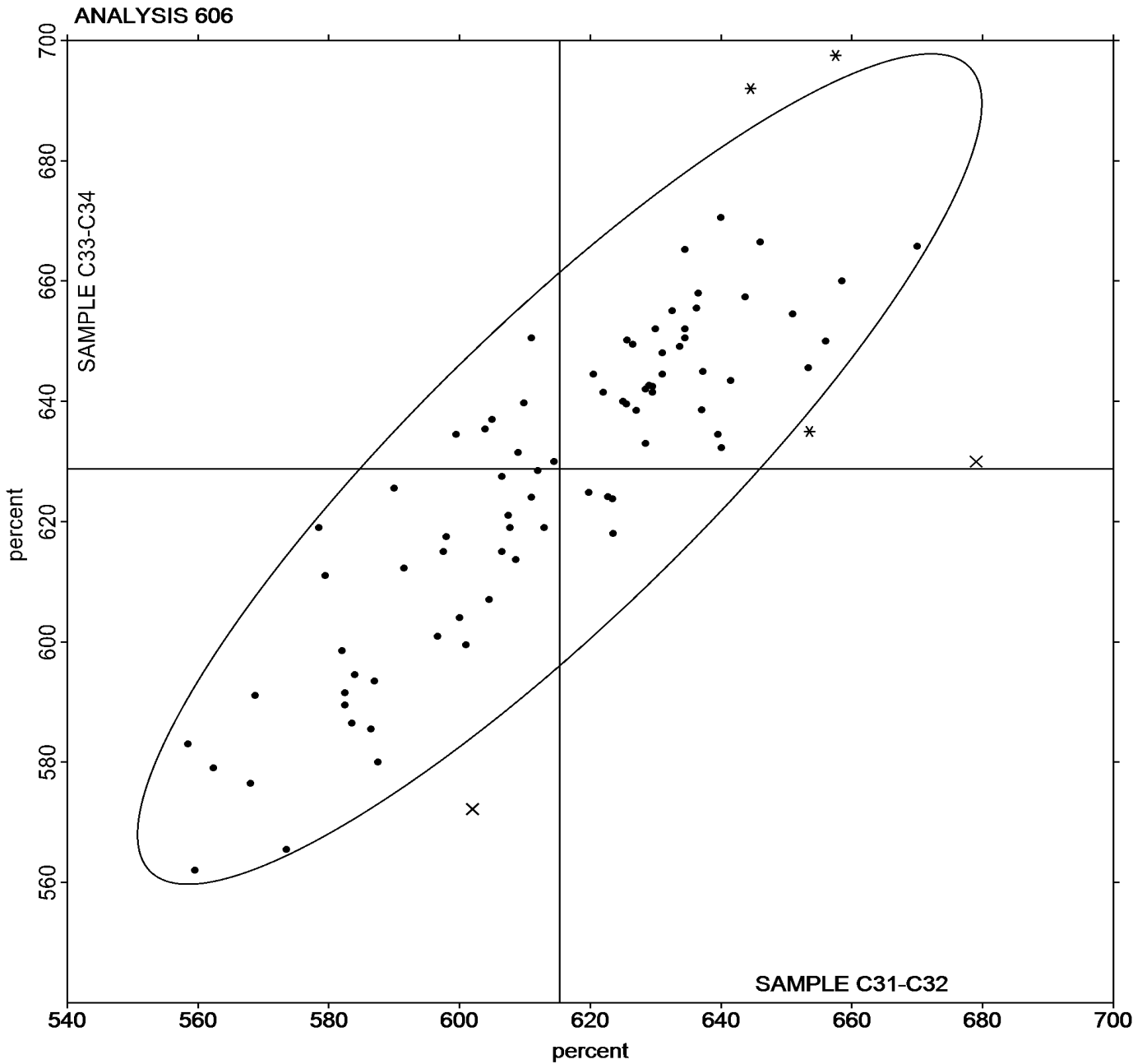


Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #217
3rd Qtr 2023

Grand Mean Sample **C31-C32** = 615.30 percent

Grand Mean Sample **C33-C34** = 628.75 percent





Rubber Interlaboratory Testing Program

Report #217

Analysis 607

3rd Qtr 2023

Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample C31-C32			Sample C33-C34		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
232X3N		859.5	-84.0	-1.13	846.5	-28.2	-0.48
2N2YER		878.5	-65.0	-0.88	818.5	-56.2	-0.96
2YZT9F		937.7	-5.9	-0.08	884.0	9.3	0.16
39LC7L		909.0	-34.5	-0.47	841.0	-33.7	-0.57
4474HL		971.6	28.0	0.38	897.8	23.1	0.39
4XHLXJ		928.5	-15.0	-0.20	830.5	-44.2	-0.75
6Y6MGC	X	1,057.2	113.7	1.53	1,094.6	219.9	3.74
7PZVRH		1,013.5	70.0	0.94	945.0	70.3	1.20
83H8EB		942.5	-1.0	-0.01	804.5	-70.2	-1.19
867E3E		937.5	-6.0	-0.08	874.5	-0.2	0.00
88C2CC		871.1	-72.5	-0.98	849.9	-24.8	-0.42
8BT6FN		915.2	-28.4	-0.38	788.3	-86.4	-1.47
8HW9CM		973.9	30.4	0.41	863.7	-11.0	-0.19
99KFHH		1,079.3	135.7	1.83	983.7	109.0	1.85
9DGZPM		962.0	18.5	0.25	823.0	-51.7	-0.88
9FJZHT	X	520.6	-422.9	-5.69	549.4	-325.3	-5.53
9GH48P		832.5	-111.0	-1.49	901.4	26.7	0.45
9HUZLE		960.3	16.8	0.23	907.8	33.1	0.56
A9EHMD		947.0	3.5	0.05	796.0	-78.7	-1.34
A9JXZE		986.5	43.0	0.58	986.5	111.8	1.90
AB7G2C		949.0	5.5	0.07	868.5	-6.2	-0.11
AMEGBA		960.2	16.6	0.22	865.9	-8.8	-0.15
AZPUPP		1,047.5	104.0	1.40	969.5	94.8	1.61
B6EUJB		1,121.2	177.6	2.39	973.9	99.2	1.69
B8GQZK		844.9	-98.7	-1.33	791.2	-83.5	-1.42
BJC2GD		922.4	-21.1	-0.28	763.6	-111.1	-1.89
C364U8		894.9	-48.7	-0.66	862.3	-12.4	-0.21
CFVTTD		1,034.5	91.0	1.22	909.5	34.8	0.59
CZXLVC		880.4	-63.2	-0.85	863.0	-11.7	-0.20
DAYRVJ		993.5	49.9	0.67	916.9	42.2	0.72
DBB7RD	X	1,077.6	134.1	1.80	1,122.8	248.1	4.22
DCPUT6		968.5	25.0	0.34	812.0	-62.7	-1.07
DKFD8D		1,032.0	88.5	1.19	940.3	65.6	1.11
E9HV3J		935.5	-8.0	-0.11	911.5	36.8	0.63
F62QY8	X	787.4	-156.2	-2.10	1,060.4	185.7	3.16
FLLHX7		885.5	-58.0	-0.78	831.5	-43.2	-0.73
FQH4UF	*	863.5	-80.0	-1.08	944.0	69.3	1.18
FZLJB8		1,098.2	154.7	2.08	978.7	104.0	1.77



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

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample C31-C32			Sample C33-C34		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
GCEYZ9		934.8	-8.8	-0.12	869.1	-5.6	-0.10
GEMAWC		991.5	48.0	0.65	895.5	20.8	0.35
GH7AA8		946.0	2.5	0.03	878.0	3.3	0.06
GP7NZE		911.0	-32.5	-0.44	846.0	-28.7	-0.49
J2LNBD		865.9	-77.7	-1.05	778.9	-95.8	-1.63
JNLRHY		1,027.5	84.0	1.13	938.0	63.3	1.08
K2ZCFX		891.0	-52.6	-0.71	867.8	-6.9	-0.12
KCKJG9		934.8	-8.8	-0.12	818.0	-56.7	-0.96
KHQHHC		840.0	-103.6	-1.39	796.7	-78.0	-1.33
KM7Q7C		888.4	-55.2	-0.74	897.1	22.4	0.38
KUH4R2		947.2	3.7	0.05	905.2	30.5	0.52
L89ZQE	X	692.0	-251.6	-3.39	766.3	-108.4	-1.84
LAVWY6		982.5	39.0	0.52	882.5	7.8	0.13
LPN9RE		886.3	-57.3	-0.77	880.0	5.3	0.09
LRVJQ4		857.9	-85.6	-1.15	829.6	-45.1	-0.77
LUXP23		849.6	-94.0	-1.27	803.2	-71.5	-1.22
MZKUD4		1,064.6	121.0	1.63	936.2	61.5	1.05
NN7YRD		829.0	-114.5	-1.54	739.0	-135.7	-2.31
P4XEB4	*	949.3	5.7	0.08	994.2	119.5	2.03
P7KXC2	X	1,182.8	239.2	3.22	1,073.9	199.2	3.39
PJKWYX		913.0	-30.5	-0.41	891.0	16.4	0.28
PQ9EJ2		920.0	-23.5	-0.32	835.0	-39.7	-0.67
Q93E8Q		994.0	50.5	0.68	885.0	10.3	0.18
QCLNX4		991.5	48.0	0.65	898.0	23.3	0.40
QMNRJ2		983.4	39.8	0.54	941.3	66.6	1.13
R47AQR		807.1	-136.4	-1.84	781.8	-92.9	-1.58
RGV6X8	X	242.6	-701.0	-9.44	244.4	-630.3	-10.71
RLLF86		797.0	-146.6	-1.97	762.2	-112.5	-1.91
RXEZGU	X	705.6	-237.9	-3.20	656.3	-218.4	-3.71
TBJHRU		958.5	15.0	0.20	836.5	-38.2	-0.65
TH6B4T		1,005.8	62.3	0.84	962.3	87.6	1.49
TV83PX	*	1,137.0	193.5	2.60	906.5	31.8	0.54
TYP33T		860.8	-82.7	-1.11	806.4	-68.3	-1.16
U3KBQY		1,018.0	74.5	1.00	894.0	19.3	0.33
UDHFD7		923.9	-19.6	-0.26	890.5	15.8	0.27
VC62QW		1,082.0	138.5	1.86	901.0	26.3	0.45
VKYA23		1,065.0	121.5	1.64	929.0	54.3	0.92



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

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample C31-C32			Sample C33-C34		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
W9ZXAU		940.6	-3.0	-0.04	919.3	44.6	0.76
WDZ4UR		917.0	-26.5	-0.36	939.0	64.3	1.09
WYY9PY	X	717.9	-225.6	-3.04	607.6	-267.1	-4.54
X892KZ		895.5	-48.0	-0.65	832.6	-42.1	-0.72
XAUXTQ	X	1,261.4	317.9	4.28	1,099.7	225.0	3.82
XDDX7L		930.0	-13.5	-0.18	870.5	-4.2	-0.07
XP3WWN		896.6	-46.9	-0.63	859.6	-15.1	-0.26
YK8HPR		979.5	35.9	0.48	915.0	40.3	0.68
YNQG3M		978.4	34.8	0.47	854.5	-20.2	-0.34
ZFRA2T		836.9	-106.7	-1.44	891.3	16.6	0.28

Summary Statistics			
Grand Means	943.55 psi	874.70 psi	
Std Dev Btwn Labs	74.28 psi	58.83 psi	
Statistics based on 75 of 85 reporting participants			

Summary Statistics in SI Units			
Grand Means	6.5055 MPa	6.0300 MPa	
Std Dev Btwn Labs	0.5121 MPa	0.4100 MPa	
Statistics based on 75 of 85 reporting participants			

Samples C31-C32: Polyisoprene compound, batch #1 & C33-C34: Polyisoprene compound, batch #2



Comments on Assigned Data Flags for Test #607

6Y6MGC (X) - Data for sample group C33-C34 are high. Inconsistent within the determinations of sample group C33-C34.

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

DBB7RD (X) - Data for sample group C33-C34 are high.

F62QY8 (X) - Data for sample group C33-C34 are high. Inconsistent within the determinations of sample group C31-C32.

L89ZQE (X) - Data for sample group C31-C32 are low.

P7KXC2 (X) - Data for all samples are high.

RGV6X8 (X) - Extreme Data.

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

WYY9PY (X) - Data for all samples are low.

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



Rubber Interlaboratory Testing Program

Report #217

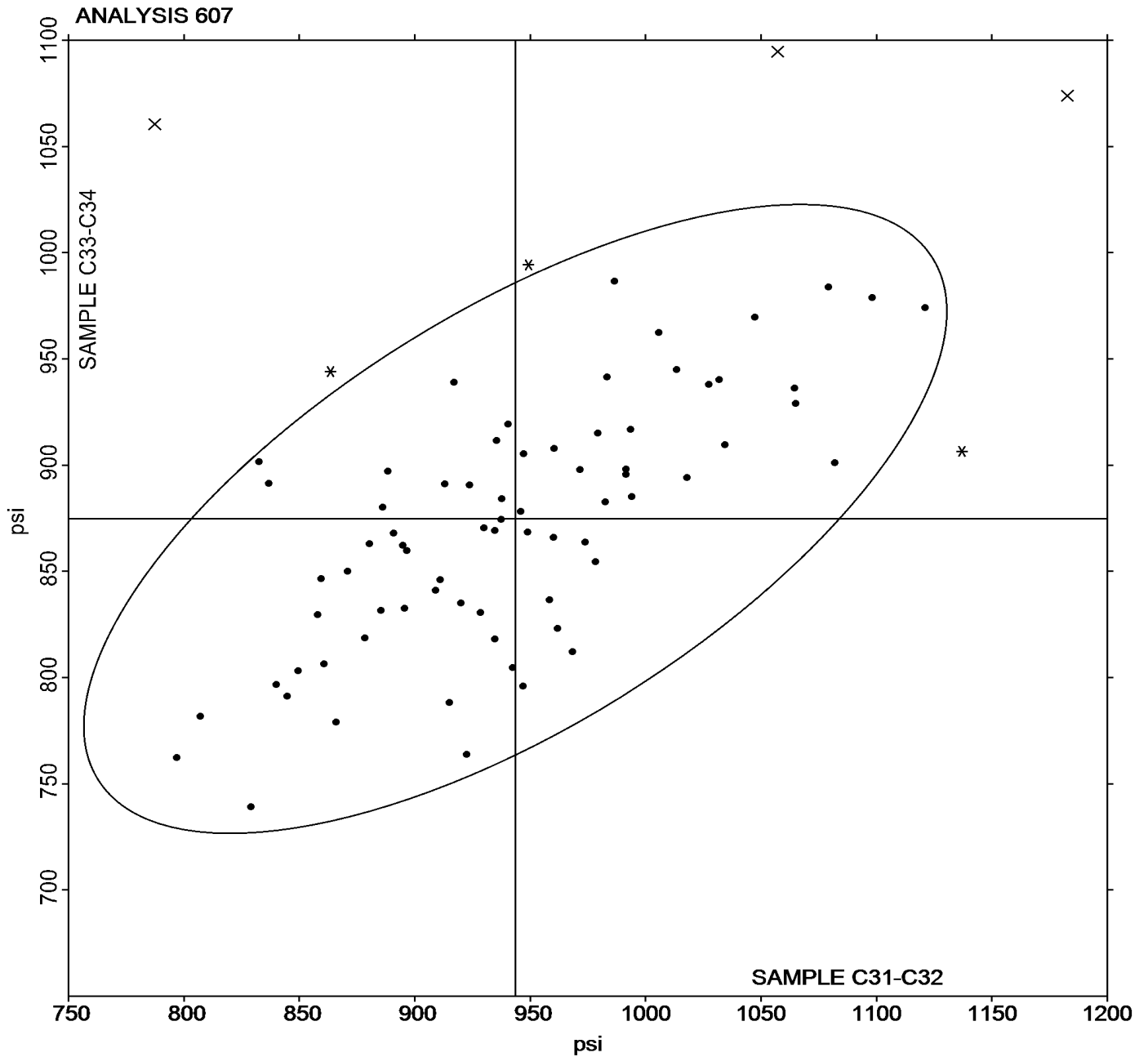
Analysis 607

3rd Qtr 2023

Stress at 300% Elongation (psi)

Grand Mean Sample C31-C32 = 943.55 psi

Grand Mean Sample C33-C34 = 874.70 psi





Rubber Interlaboratory Testing Program

Report #217

Analysis 608

3rd Qtr 2023

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample C31-C32			Sample C33-C34		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
232X3N		188.5	-16.9	-1.06	195.5	3.4	0.26
2N2YER		190.5	-14.9	-0.93	180.5	-11.6	-0.87
2YZT9F		216.1	10.7	0.67	202.3	10.3	0.77
39LC7L		196.0	-9.4	-0.59	184.5	-7.6	-0.57
4474HL		213.6	8.2	0.51	195.9	3.8	0.29
4XHLXJ		196.0	-9.4	-0.59	178.0	-14.1	-1.06
6Y6MGC	*	232.3	26.9	1.69	225.4	33.3	2.51
7PZVRH		216.0	10.6	0.66	207.5	15.4	1.16
83H8EB		219.5	14.1	0.88	191.5	-0.6	-0.04
867E3E		201.0	-4.4	-0.28	190.0	-2.1	-0.16
88C2CC		198.1	-7.3	-0.46	188.2	-3.9	-0.30
8BT6FN		203.1	-2.3	-0.15	181.3	-10.8	-0.81
8HW9CM		203.1	-2.3	-0.15	175.5	-16.6	-1.25
99KFHH		217.8	12.4	0.78	197.3	5.3	0.40
9DGZPM		216.5	11.1	0.70	186.5	-5.6	-0.42
9FJZHT	X	158.1	-47.3	-2.97	146.4	-45.6	-3.44
9GH48P		195.8	-9.6	-0.60	204.5	12.4	0.94
9HUZLE		191.6	-13.8	-0.86	182.5	-9.6	-0.73
A9EHMD		213.0	7.6	0.48	184.0	-8.1	-0.61
A9JXZE		193.0	-12.4	-0.78	197.5	5.4	0.41
AB7G2C		204.0	-1.4	-0.09	187.5	-4.6	-0.34
AMEGBA		215.4	10.0	0.63	198.7	6.6	0.50
AZPUPP		229.0	23.6	1.48	219.0	26.9	2.03
B6EUJB		232.5	27.1	1.70	209.4	17.4	1.31
B8GQZK		173.3	-32.1	-2.01	167.5	-24.5	-1.85
BJC2GD		195.8	-9.6	-0.60	170.4	-21.6	-1.63
C364U8		203.1	-2.3	-0.15	195.1	3.0	0.23
CFVTTD		212.0	6.6	0.41	192.5	0.4	0.03
CZXLVC		186.4	-19.0	-1.19	184.2	-7.9	-0.59
DAYRVJ		226.1	20.7	1.29	204.2	12.1	0.91
DBB7RD	X	235.5	30.1	1.89	249.5	57.4	4.33
DCPUT6	X	369.0	163.6	10.25	418.0	225.9	17.04
DKFD8D		213.5	8.1	0.51	194.8	2.7	0.20
E9HV3J		205.0	-0.4	-0.02	199.0	6.9	0.52
F62QY8	X	471.9	266.5	16.69	864.0	671.9	50.69
FLLHX7		192.0	-13.4	-0.84	185.0	-7.1	-0.53
FQH4UF	*	207.0	1.6	0.10	217.5	25.4	1.92
FZLJB8		243.7	38.3	2.40	207.2	15.1	1.14



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

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample C31-C32			Sample C33-C34		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
GCEYZ9		208.4	3.0	0.19	194.7	2.6	0.20
GEMAWC		217.5	12.1	0.76	198.0	5.9	0.45
GH7AA8		220.0	14.6	0.91	199.5	7.4	0.56
GP7NZE		209.0	3.6	0.23	195.5	3.4	0.26
J2LNBD		205.2	-0.2	-0.01	187.1	-5.0	-0.37
JNLRHY		216.0	10.6	0.66	200.5	8.4	0.64
K2NKMGM		198.5	-6.9	-0.43	181.0	-11.1	-0.83
K2ZCFX		195.9	-9.5	-0.59	196.5	4.4	0.33
KCKJG9		210.3	4.9	0.31	186.4	-5.7	-0.43
KHQHHC		177.5	-27.9	-1.74	167.3	-24.8	-1.87
KM7Q7C		184.2	-21.2	-1.33	177.7	-14.4	-1.09
KUH4R2		210.5	5.1	0.32	196.2	4.1	0.31
L89ZQE	*	168.5	-36.9	-2.31	183.7	-8.3	-0.63
LAVWY6		210.0	4.6	0.29	190.0	-2.1	-0.16
LPN9RE	X	640.0	434.6	27.22	632.3	440.2	33.21
LRVJQ4		190.1	-15.3	-0.96	186.9	-5.2	-0.39
LUXP23		194.6	-10.8	-0.67	184.1	-7.9	-0.60
MZKUD4		234.2	28.8	1.81	208.9	16.8	1.27
NN7YRD		194.0	-11.4	-0.71	178.0	-14.1	-1.06
P4XEB4		201.6	-3.8	-0.24	212.5	20.4	1.54
P7KXC2	X	283.0	77.6	4.86	201.5	9.4	0.71
PJKWYX		197.4	-8.0	-0.50	198.8	6.8	0.51
PQ9EJ2		201.5	-3.9	-0.24	185.0	-7.1	-0.53
Q93E8Q		214.5	9.1	0.57	188.7	-3.4	-0.26
QCLNX4	X	262.5	57.1	3.58	245.0	52.9	3.99
QMNRJ2		227.7	22.3	1.40	218.3	26.2	1.98
R47AQR		182.7	-22.6	-1.42	180.6	-11.5	-0.87
RGV6X8	X	97.9	-107.5	-6.73	96.5	-95.6	-7.21
RLLF86		188.6	-16.8	-1.06	181.3	-10.8	-0.81
RXEZGU		187.1	-18.3	-1.15	169.0	-23.1	-1.74
TBJHRU		208.5	3.1	0.19	187.0	-5.1	-0.38
TH6B4T		216.1	10.7	0.67	204.5	12.4	0.94
TV83PX	*	237.5	32.1	2.01	188.0	-4.1	-0.31
TYP33T		186.4	-19.0	-1.19	179.1	-12.9	-0.98
U3KBQY		221.0	15.6	0.98	194.5	2.4	0.18
UDHFD7		199.4	-6.0	-0.37	193.6	1.6	0.12
VC62QW		216.0	10.6	0.66	190.0	-2.1	-0.16



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

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample C31-C32			Sample C33-C34		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
VCPLN4	X	162.4	-43.0	-2.69	187.1	-5.0	-0.37
VKYA23		225.0	19.6	1.23	193.5	1.4	0.11
W9ZXAU		203.5	-1.9	-0.12	197.1	5.0	0.38
WDZ4UR		203.5	-1.9	-0.12	210.5	18.4	1.39
WYY9PY		182.5	-22.9	-1.43	159.5	-32.6	-2.46
X892KZ		191.0	-14.4	-0.90	167.0	-25.1	-1.89
XAUXTQ	*	247.0	41.6	2.61	226.2	34.1	2.57
XDDX7L		204.0	-1.4	-0.09	198.0	5.9	0.45
XP3WWN		195.5	-9.9	-0.62	190.2	-1.9	-0.14
YK8HPR		202.5	-2.9	-0.18	190.9	-1.2	-0.09
YNQG3M		212.3	6.9	0.43	193.3	1.2	0.09
ZFRA2T		183.5	-21.9	-1.37	192.2	0.1	0.01

Summary Statistics	
Grand Means	205.40 psi 192.07 psi
Stnd Dev Btwn Labs	15.96 psi 13.26 psi
Statistics based on 78 of 87 reporting participants	

Summary Statistics in SI Units	
Grand Means	1.4161 MPa 1.3200 MPa
Stnd Dev Btwn Labs	0.1101 MPa 0.0900 MPa
Statistics based on 78 of 87 reporting participants	

Samples C31-C32: Polyisoprene compound, batch #1 & C33-C34: Polyisoprene compound, batch #2



Comments on Assigned Data Flags for Test #608

- 9FJZHT (X) - Data for all samples are low.
- DBB7RD (X) - Data for sample group C33-C34 are high.
- DCPUT6 (X) - Extreme Data.
- F62QY8 (X) - Extreme Data.
- LPN9RE (X) - Extreme Data.
- P7KXC2 (X) - Data for sample group C31-C32 are high.
- QCLNX4 (X) - Data for all samples are high.
- RGV6X8 (X) - Data for all samples are low.
- VCPLN4 (X) - Inconsistent in testing between samples.



Rubber Interlaboratory Testing Program

Report #217

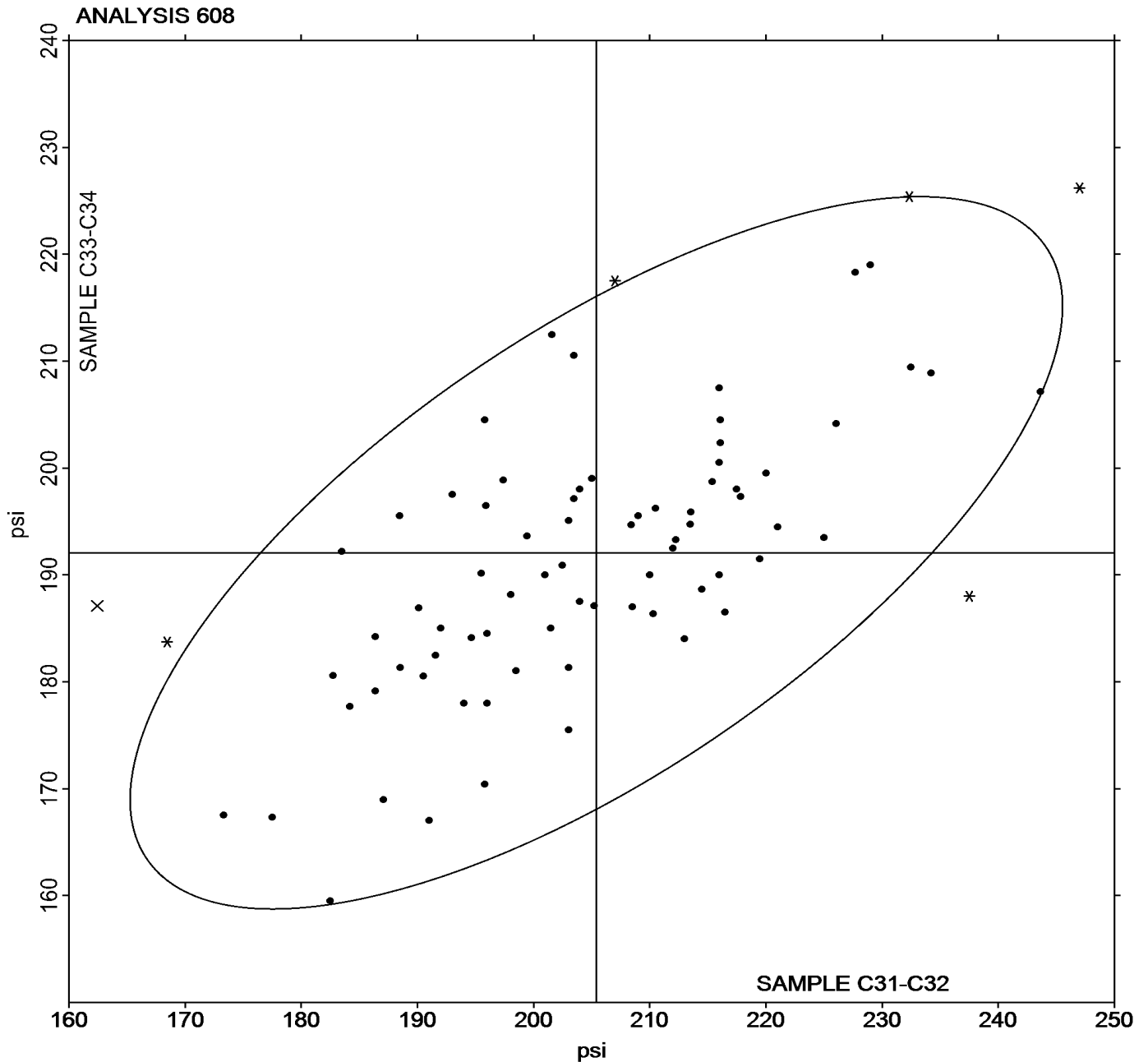
Analysis 608

3rd Qtr 2023

Stress at 100% Elongation (psi)

Grand Mean Sample C31-C32 = 205.40 psi

Grand Mean Sample C33-C34 = 192.07 psi





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

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample C31-C32			Sample C33-C34			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
232X3N		49.35	0.36	0.21	48.85	0.74	0.44	BT
2N2YER		48.50	-0.49	-0.28	47.50	-0.61	-0.36	HH
2V2HDF	*	47.00	-1.99	-1.16	49.00	0.89	0.53	BT
2YZT9F		49.30	0.31	0.18	47.75	-0.36	-0.21	BT
39LC7L	X	45.00	-3.99	-2.33	48.00	-0.11	-0.07	BT
4474HL		48.85	-0.14	-0.08	48.15	0.04	0.02	BT
4XHLXJ		48.65	-0.34	-0.20	47.40	-0.71	-0.42	BT
6Y6MGC		50.15	1.16	0.68	47.55	-0.56	-0.33	BT
7MTDTL	X	43.00	-5.99	-3.49	44.50	-3.61	-2.14	BT
7PZVRH	X	54.00	5.01	2.92	55.00	6.89	4.08	HH
83H8EB		51.00	2.01	1.17	48.00	-0.11	-0.07	HH
867E3E		52.50	3.51	2.05	50.50	2.39	1.42	BT
88C2CC		51.10	2.11	1.23	49.50	1.39	0.82	BT
8BT6FN		51.40	2.41	1.41	49.65	1.54	0.91	BT
8PU24U		49.05	0.06	0.04	47.95	-0.16	-0.10	BT
99KFHH		50.50	1.51	0.88	49.20	1.09	0.65	BT
9DGZPM		49.40	0.41	0.24	47.80	-0.31	-0.18	BT
9FJZHT		47.05	-1.94	-1.13	46.15	-1.96	-1.16	BT
9GH48P		47.40	-1.59	-0.93	46.85	-1.26	-0.75	BT
9HUZLE		52.25	3.26	1.90	51.50	3.39	2.01	HH
A9EHMD		48.90	-0.09	-0.05	48.00	-0.11	-0.07	BT
A9JXZE		50.50	1.51	0.88	51.00	2.89	1.71	HH
AB7G2C		50.80	1.81	1.06	49.00	0.89	0.53	BT
AMEGBA		48.50	-0.49	-0.28	47.00	-1.11	-0.66	BT
AYU8DL		48.50	-0.49	-0.28	47.50	-0.61	-0.36	BT
AZPUPP	*	50.25	1.26	0.74	51.75	3.64	2.16	BT
B6EUJB		48.55	-0.44	-0.26	46.80	-1.31	-0.78	BT
B8GQZK		49.50	0.51	0.30	48.00	-0.11	-0.07	HH
BH4TAD		46.50	-2.49	-1.45	46.00	-2.11	-1.25	BT
BJC2GD		49.00	0.01	0.01	47.50	-0.61	-0.36	HH
C364U8		48.00	-0.99	-0.58	48.50	0.39	0.23	BT
CFVTTD		49.00	0.01	0.01	48.50	0.39	0.23	HH
CWFLHG	X	55.00	6.01	3.51	54.50	6.39	3.79	BT
CZXLVC		48.50	-0.49	-0.28	48.00	-0.11	-0.07	BT
DAYRVJ		50.50	1.51	0.88	49.25	1.14	0.67	HH
DBB7RD		47.00	-1.99	-1.16	47.00	-1.11	-0.66	HH
DCPUT6		50.00	1.01	0.59	50.00	1.89	1.12	BT
DKFD8D		46.50	-2.49	-1.45	45.50	-2.61	-1.55	BT



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

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample C31-C32			Sample C33-C34			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
E9HV3J		46.00	-2.99	-1.74	45.50	-2.61	-1.55	BT
F62QY8		50.00	1.01	0.59	49.50	1.39	0.82	BT
FLLHX7		50.00	1.01	0.59	49.00	0.89	0.53	BT
FQH4UF		48.00	-0.99	-0.58	48.00	-0.11	-0.07	BT
FZLJB8		51.20	2.21	1.29	49.75	1.64	0.97	BT
GCEYZ9		49.10	0.11	0.07	47.75	-0.36	-0.21	BT
GEMAWC		52.00	3.01	1.76	50.50	2.39	1.42	BT
GH7AA8		49.15	0.16	0.09	47.20	-0.91	-0.54	BT
GP7NZE		49.85	0.86	0.50	48.75	0.64	0.38	BT
J2LNBD		47.25	-1.74	-1.01	45.60	-2.51	-1.49	BT
JNLRHY		51.45	2.46	1.44	48.70	0.59	0.35	BT
JZGZ69	*	52.50	3.51	2.05	52.50	4.39	2.60	HH
K2NKMVG		48.80	-0.19	-0.11	47.10	-1.01	-0.60	BT
K2ZCFX		49.00	0.01	0.01	47.00	-1.11	-0.66	HH
KCKJG9		50.00	1.01	0.59	48.50	0.39	0.23	BT
KHQHHC	X	16.00	-32.99	-19.24	21.50	-26.61	-15.77	BT
KM7Q7C		49.00	0.01	0.01	48.25	0.14	0.08	BT
KUH4R2		49.00	0.01	0.01	48.00	-0.11	-0.07	BT
L89ZQE		46.10	-2.89	-1.68	47.40	-0.71	-0.42	BT
LAVWY6		48.40	-0.59	-0.34	47.50	-0.61	-0.36	BT
LDDVCY		46.45	-2.54	-1.48	46.45	-1.66	-0.98	BT
LPN9RE		49.15	0.16	0.09	49.75	1.64	0.97	BT
LRVJQ4		46.60	-2.39	-1.39	46.05	-2.06	-1.22	BT
LUXP23		49.90	0.91	0.53	47.10	-1.01	-0.60	XX
MZKUD4		51.50	2.51	1.47	50.00	1.89	1.12	HH
NN7YRD		47.50	-1.49	-0.87	46.50	-1.61	-0.95	BT
P4XEB4		49.60	0.61	0.36	48.30	0.19	0.11	BT
P7KXC2		47.00	-1.99	-1.16	47.00	-1.11	-0.66	HH
PJKWYX		48.00	-0.99	-0.58	48.00	-0.11	-0.07	BT
PQ9EJ2		48.85	-0.14	-0.08	48.80	0.69	0.41	BT
Q93DC8	*	49.50	0.51	0.30	46.00	-2.11	-1.25	HH
Q93E8Q		49.00	0.01	0.01	47.00	-1.11	-0.66	BT
QCLNX4		47.50	-1.49	-0.87	45.50	-2.61	-1.55	BT
QMNRJ2		48.00	-0.99	-0.58	47.50	-0.61	-0.36	BT
R47AQR		47.00	-1.99	-1.16	47.00	-1.11	-0.66	BT
RGV6X8		50.50	1.51	0.88	50.50	2.39	1.42	BT
RLLF86		49.50	0.51	0.30	48.50	0.39	0.23	HH



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

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample C31-C32			Sample C33-C34			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
RXEZGU		45.25	-3.74	-2.18	44.80	-3.31	-1.96	BT
TBJHRU		48.50	-0.49	-0.28	49.50	1.39	0.82	BT
TH6B4T		45.95	-3.04	-1.77	45.55	-2.56	-1.52	BT
TV83PX		50.00	1.01	0.59	49.00	0.89	0.53	BT
TYP33T		47.65	-1.34	-0.78	46.75	-1.36	-0.81	BT
UDHFD7		50.15	1.16	0.68	50.55	2.44	1.45	BT
VC62QW		49.94	0.95	0.56	47.58	-0.53	-0.31	BT
VCPLN4	X	44.85	-4.14	-2.41	47.75	-0.36	-0.21	BT
VKYA23		47.00	-1.99	-1.16	45.00	-3.11	-1.84	BT
VMPDZN		50.15	1.16	0.68	50.15	2.04	1.21	HH
W9ZXAU		47.90	-1.09	-0.63	47.25	-0.86	-0.51	BT
WDZ4UR		47.70	-1.29	-0.75	48.50	0.39	0.23	BT
WYY9PY		51.05	2.06	1.20	49.00	0.89	0.53	BT
X892KZ		47.45	-1.54	-0.90	45.05	-3.06	-1.81	BT
XAUXTQ		51.50	2.51	1.47	51.50	3.39	2.01	HH
XDDX7L		48.20	-0.79	-0.46	47.85	-0.26	-0.15	HH
XP3WWN		48.00	-0.99	-0.58	48.00	-0.11	-0.07	BT
Y7ABRQ		46.00	-2.99	-1.74	46.00	-2.11	-1.25	BT
YK8HPR	*	54.00	5.01	2.92	53.00	4.89	2.90	BT
YNQG3M		49.50	0.51	0.30	47.50	-0.61	-0.36	BT
ZFRA2T		47.20	-1.79	-1.04	47.55	-0.56	-0.33	BT
ZWY97P		48.50	-0.49	-0.28	48.95	0.84	0.50	HH

Grand Means		Summary Statistics	
	48.988 Type A		48.111 Type A
Stnd Dev Btwn Labs	1.714 Type A		1.688 Type A
Statistics based on 91 of 97 reporting participants			

Samples C31-C32: Polyisoprene compound, batch #1 & C33-C34: Polyisoprene compound, batch #2

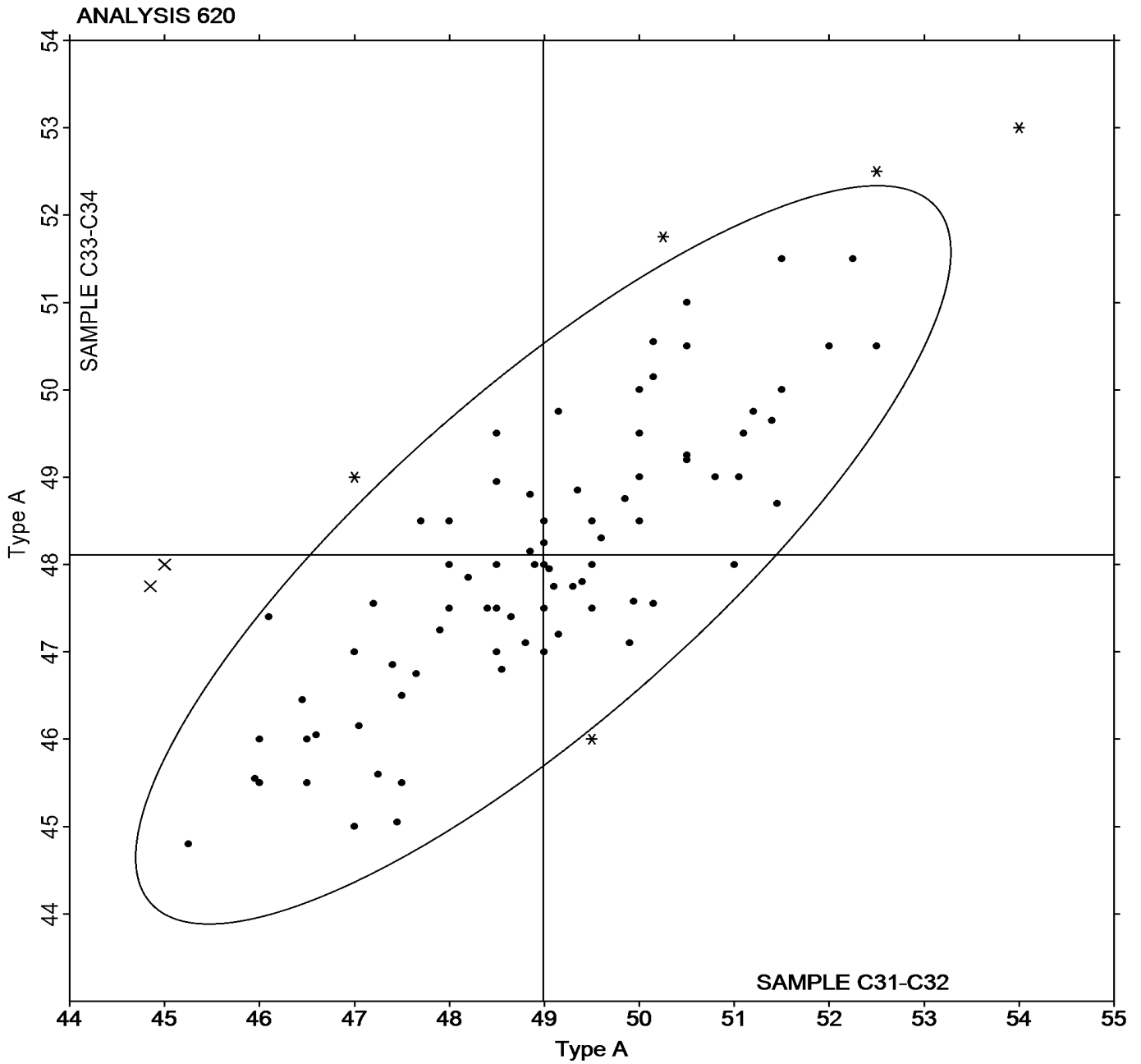


Rubber Interlaboratory Testing Program
Analysis 620
Hardness (Shore A/Type A)

Report #217
3rd Qtr 2023

Grand Mean Sample **C31-C32** = 48.988 Type A

Grand Mean Sample **C33-C34** = 48.111 Type A





Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample C31-C32			Sample C33-C34		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
232X3N		1.134	0.001	0.38	1.137	0.004	1.34
2N2YER		1.130	-0.003	-1.08	1.129	-0.004	-1.14
2YZT9F		1.137	0.003	1.22	1.134	0.002	0.59
39LC7L		1.135	0.001	0.50	1.135	0.002	0.71
4XHLXJ		1.137	0.004	1.53	1.136	0.004	1.13
6Y6MGC		1.133	0.000	0.11	1.130	-0.002	-0.74
7PZVRH	X	1.124	-0.009	-3.18	1.120	-0.012	-3.77
83H8EB		1.136	0.003	1.03	1.138	0.005	1.64
867E3E		1.134	0.000	0.15	1.132	0.000	-0.06
88C2CC		1.136	0.003	1.04	1.136	0.004	1.20
8BT6FN		1.133	0.000	-0.17	1.131	-0.001	-0.31
8PU24U	X	1.126	-0.007	-2.41	1.130	-0.002	-0.71
99KFHH		1.135	0.001	0.50	1.130	-0.002	-0.68
9DGZPM		1.128	-0.005	-1.78	1.126	-0.007	-2.07
9FJZHT		1.132	-0.001	-0.38	1.132	0.000	-0.06
A9EHMD		1.132	-0.001	-0.38	1.131	-0.001	-0.37
A9JXZE		1.135	0.002	0.69	1.136	0.003	1.05
AB7G2C		1.133	0.000	-0.03	1.134	0.001	0.40
AMEGBA	*	1.132	-0.001	-0.38	1.126	-0.006	-1.91
AYU8DL		1.134	0.001	0.39	1.135	0.002	0.72
AZPUPP		1.134	0.001	0.38	1.132	0.000	0.06
B6EUJB		1.135	0.002	0.67	1.133	0.000	0.09
B8GQZK		1.134	0.000	0.15	1.133	0.001	0.25
CFVTTD		1.137	0.003	1.20	1.137	0.005	1.48
CWFLHG		1.133	0.000	-0.03	1.134	0.001	0.40
CZXLVC		1.132	-0.001	-0.38	1.130	-0.002	-0.68
DAYRVJ		1.138	0.004	1.55	1.134	0.002	0.55
DBB7RD		1.130	-0.003	-1.15	1.129	-0.003	-0.93
DCPUT6		1.135	0.002	0.67	1.134	0.001	0.40
DKFD8D	X	1.111	-0.023	-7.91	1.111	-0.022	-6.70
E9HV3J	*	1.125	-0.008	-2.76	1.127	-0.006	-1.74
F62QY8	X	0.079	-1.054	-369.46	0.070	-1.063	-328.03
FLHX7		1.132	-0.001	-0.27	1.132	0.000	-0.11
FQH4UF		1.137	0.004	1.43	1.137	0.004	1.34
GEMAWC		1.139	0.006	2.08	1.138	0.006	1.79
GP7NZE		1.133	0.000	0.04	1.129	-0.004	-1.11
J2LNBD		1.130	-0.003	-1.04	1.129	-0.003	-0.97
JNLRHY		1.129	-0.005	-1.59	1.129	-0.003	-0.91



Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample C31-C32			Sample C33-C34		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
JZGZ69		1.130	-0.003	-1.08	1.130	-0.002	-0.68
K2NKMKG		1.138	0.005	1.73	1.137	0.005	1.48
K2ZCFX		1.129	-0.004	-1.32	1.128	-0.004	-1.16
KHQHHC		1.134	0.000	0.15	1.132	0.000	-0.06
KM7Q7C		1.131	-0.002	-0.73	1.133	0.000	0.09
L89ZQE		1.132	-0.001	-0.38	1.131	-0.002	-0.53
LPN9RE		1.129	-0.004	-1.46	1.130	-0.002	-0.57
LRVJQ4		1.130	-0.003	-1.04	1.131	-0.002	-0.51
NN7YRD		1.133	0.000	-0.03	1.130	-0.002	-0.68
P4XEB4		1.131	-0.003	-0.90	1.129	-0.003	-0.99
P7KXC2		1.130	-0.004	-1.24	1.127	-0.005	-1.68
PJKWYX		1.131	-0.002	-0.73	1.129	-0.003	-0.99
PQ9EJ2		1.136	0.002	0.85	1.134	0.002	0.55
QMNRJ2		1.133	0.000	-0.15	1.130	-0.002	-0.62
R47AQR		1.133	0.000	0.04	1.133	0.001	0.32
RGV6X8	X	1.147	0.013	4.71	1.146	0.013	4.10
RXEZGU		1.127	-0.006	-2.16	1.125	-0.008	-2.33
TBJHRU		1.134	0.001	0.31	1.134	0.002	0.49
TH6B4T		1.134	0.001	0.36	1.134	0.002	0.48
TV83PX		1.131	-0.002	-0.66	1.130	-0.002	-0.56
TYP33T		1.134	0.000	0.15	1.134	0.002	0.69
U3KBQY		1.133	0.000	-0.03	1.133	0.000	0.09
UDHFD7		1.139	0.005	1.90	1.138	0.006	1.79
VCPLN4	X	1.115	-0.018	-6.21	1.114	-0.018	-5.63
VKYA23		1.130	-0.004	-1.25	1.130	-0.003	-0.83
W9ZXAU	*	1.135	0.001	0.50	1.139	0.006	1.94
WYY9PY	X	1.135	0.002	0.67	1.127	-0.005	-1.61
XAUXTQ	X	1.118	-0.015	-5.23	1.118	-0.014	-4.26
XDDX7L		1.132	-0.001	-0.48	1.131	-0.001	-0.31
XP3WWN		1.134	0.001	0.36	1.133	0.001	0.31
Y7ABRQ		1.137	0.004	1.50	1.136	0.004	1.17
YK8HPR		1.133	0.000	0.04	1.133	0.001	0.29
YNQG3M		1.136	0.003	0.96	1.132	0.000	0.05
ZFRA2T		1.134	0.000	0.15	1.133	0.001	0.25
ZWY97P		1.134	0.001	0.32	1.136	0.004	1.17



Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #217
3rd Qtr 2023

		Summary Statistics	
Grand Means	1.1331 g/cm ³ (Mg/m ³)	1.1322 g/cm ³ (Mg/m ³)	
Stnd Dev Btwn Labs	0.0029 g/cm ³ (Mg/m ³)	0.0032 g/cm ³ (Mg/m ³)	
Statistics based on 65 of 73 reporting participants			

Samples C31-C32: Polyisoprene compound, batch #1 & C33-C34: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #621

- 7PZVRH (X) - Data for all samples are low. Possible Systematic Error.
- 8PU24U (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group C33-C34.
- DKFD8D (X) - Data for all samples are low. Possible Systematic Error.
- F62QY8 (X) - Extreme Data.
- RGV6X8 (X) - Data for all samples are high. Possible Systematic Error.
- VCPLN4 (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of sample group C31-C32.
- WYY9PY (X) - Inconsistent in testing between samples.
- XAUXTQ (X) - Data for all samples are low. Possible Systematic Error.

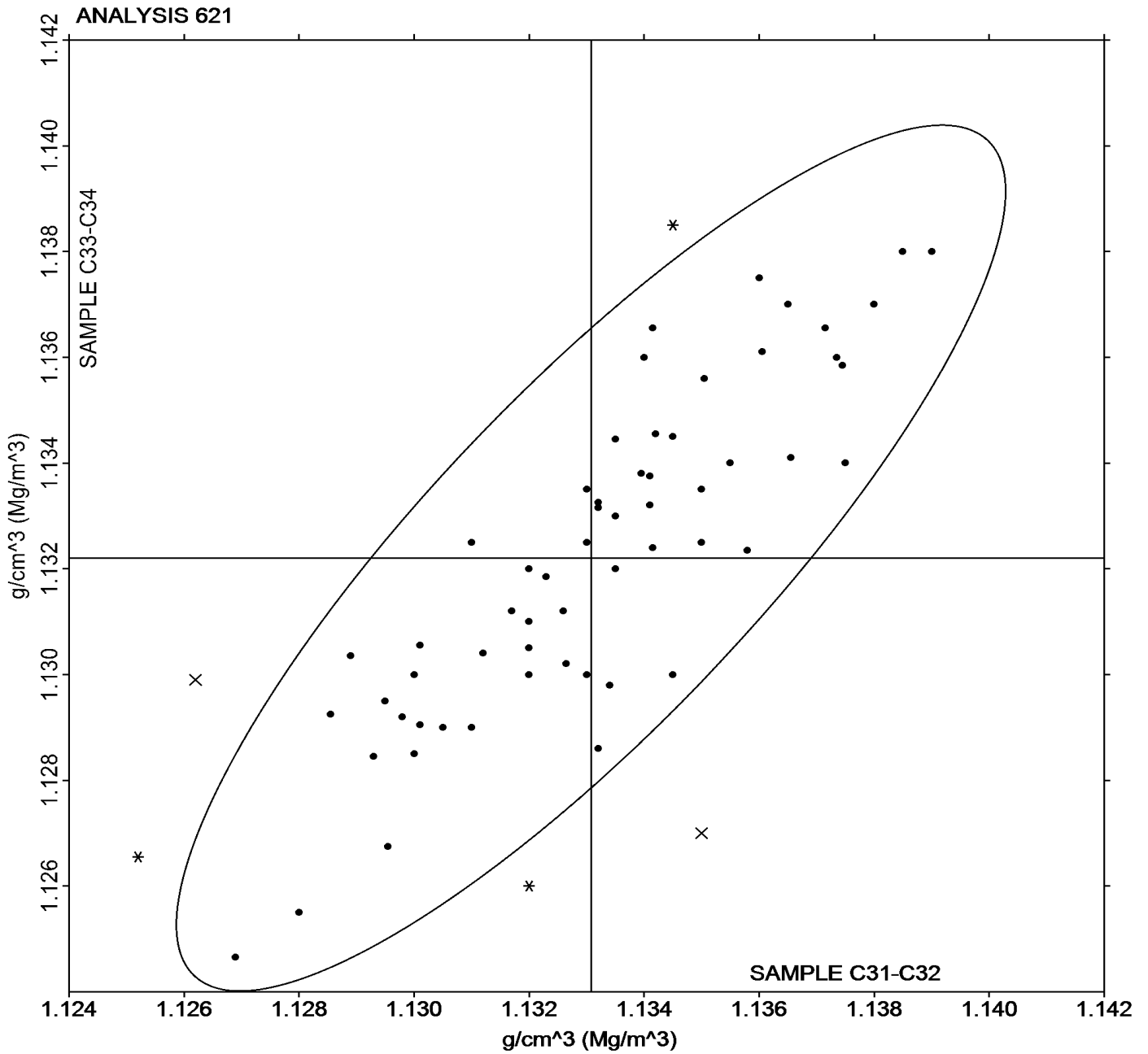


Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #217
3rd Qtr 2023

Grand Mean Sample **C31-C32** = 1.1331 g/cm³
(Mg/m³)

Grand Mean Sample **C33-C34** = 1.1322 g/cm³
(Mg/m³)





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

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample HC31-HC32			Sample HC33-HC34			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3Q3L8L		57.50	4.45	1.25	71.00	4.13	1.43	HH
7A78GJ		57.05	4.00	1.13	68.35	1.48	0.51	BT
83H8EB		59.50	6.45	1.82	72.50	5.63	1.95	HH
867E3E		51.50	-1.55	-0.44	66.00	-0.87	-0.30	BT
8BT6FN		51.45	-1.60	-0.45	66.20	-0.67	-0.23	BT
8PU24U		54.60	1.55	0.44	67.60	0.73	0.25	BT
8R2FRM		56.50	3.45	0.97	71.00	4.13	1.43	HH
9FJZHT		51.35	-1.70	-0.48	66.00	-0.87	-0.30	BT
9GH48P		50.40	-2.65	-0.75	66.35	-0.52	-0.18	BT
A9FE3P		52.50	-0.55	-0.16	68.50	1.63	0.56	BT
BEFA9F		52.00	-1.05	-0.30	67.00	0.13	0.05	XX
DAXVF7		56.80	3.75	1.06	69.15	2.28	0.79	HH
DKFD8D		48.00	-5.05	-1.43	63.50	-3.37	-1.16	HH
DN6KWG		57.05	4.00	1.13	68.10	1.23	0.43	HH
ETQYUL		57.00	3.95	1.11	68.10	1.23	0.43	BT
FMHWFK		52.35	-0.70	-0.20	67.65	0.78	0.27	BT
GCEYZ9		49.90	-3.15	-0.89	65.40	-1.47	-0.51	BT
GJRBZ	X	42.00	-11.05	-3.12	47.50	-19.37	-6.69	HH
KHQHHC		51.00	-2.05	-0.58	65.00	-1.87	-0.64	BT
KUH4R2		54.00	0.95	0.27	66.00	-0.87	-0.30	XX
KVZTG9		56.50	3.45	0.97	71.00	4.13	1.43	HH
LDDVCY		51.85	-1.20	-0.34	66.10	-0.77	-0.26	BT
PQ9EJ2	X	93.50	40.45	11.42	93.75	26.88	9.29	BT
Q93E8Q		52.50	-0.55	-0.16	67.00	0.13	0.05	BT
T9WYQV		51.50	-1.55	-0.44	66.00	-0.87	-0.30	BT
UDHFD7		53.75	0.70	0.20	67.90	1.03	0.36	BT
UEZ3CN		46.25	-6.80	-1.92	60.75	-6.12	-2.11	BT
VCPLN4		48.70	-4.35	-1.23	64.00	-2.87	-0.99	BT
WKXTBV		58.80	5.75	1.62	69.95	3.08	1.07	BT
XUXMB2		51.50	-1.55	-0.44	62.50	-4.37	-1.51	HH
ZLHMTV		46.75	-6.30	-1.78	60.50	-6.37	-2.20	BT

Grand Means		Summary Statistics	
	53.053 Type D		66.866 Type D
Std Dev Btwn Labs	3.543 Type D		2.893 Type D
Statistics based on 29 of 31 reporting participants			



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

Report #217
3rd Qtr 2023

Samples HC31-HC32: Hardness Disc, batch #1 & HC33-HC34: Hardness Disc, batch #2

Comments on Assigned Data Flags for Test #625

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

PQ9EJ2 (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

BT Benchtop

HH Handheld

XX Specify Benchtop or Handheld Instrument



Rubber Interlaboratory Testing Program

Report #217

Analysis 630

3rd Qtr 2023

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

WebCode	Data Flag	Sample C31-C32			Sample L31-L32		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
232X3N		3,239.5	32.4	0.27	2,415.0	-106.3	-0.30
2N2YER		3,200.5	-6.6	-0.05	2,267.0	-254.3	-0.72
6Y6MGC		3,447.0	239.9	1.98	2,990.2	468.9	1.33
88C2CC		3,309.5	102.4	0.84	2,750.3	229.0	0.65
8BT6FN		3,135.0	-72.1	-0.59	2,612.9	91.6	0.26
8PU24U	M	No data reported for this sample			2,620.9	99.6	0.28
AMEGBA		3,357.7	150.6	1.24	2,610.7	89.4	0.25
AZPUPP		3,296.5	89.4	0.74	1,967.0	-554.3	-1.57
B8GQZK		3,066.8	-140.2	-1.15	1,654.9	-866.4	-2.45
BJC2GD		3,246.0	38.9	0.32	2,240.9	-280.4	-0.79
CFVTTD		3,065.0	-142.1	-1.17	2,590.0	68.7	0.19
DAYRVJ		3,290.0	82.9	0.68	2,920.0	398.7	1.13
DCPUT6		3,209.0	1.9	0.02	2,402.5	-118.8	-0.34
DKFD8D		3,251.0	43.9	0.36	2,726.0	204.7	0.58
FZLJB8		3,279.4	72.3	0.60	2,423.0	-98.3	-0.28
GH7AA8		3,327.0	119.9	0.99	2,697.0	175.7	0.50
J2LNBD		3,090.1	-117.0	-0.96	2,713.0	191.7	0.54
K2ZCFX		3,151.7	-55.4	-0.46	2,112.3	-409.0	-1.16
LPN9RE		3,277.3	70.2	0.58	2,720.3	199.0	0.56
LRVJQ4		3,201.0	-6.1	-0.05	3,002.3	481.0	1.36
PQ9EJ2		3,061.5	-145.6	-1.20	2,612.5	91.2	0.26
RLLF86		2,987.8	-219.3	-1.81	2,016.0	-505.3	-1.43
UDHFD7		3,190.9	-16.2	-0.13	2,915.3	394.0	1.12
VKYA23		2,980.0	-227.1	-1.87	2,945.0	423.7	1.20
XAUXTQ		3,321.9	114.8	0.95	2,502.5	-18.8	-0.05
XDDX7L		3,311.5	104.4	0.86	2,785.5	264.2	0.75
XP3WWN		3,281.0	73.9	0.61	1,937.6	-583.7	-1.65
ZFRA2T		3,016.8	-190.3	-1.57	2,545.4	24.1	0.07

Grand Means		Summary Statistics	
	3,207.08 psi		2,521.30 psi
Std Dev Btwn Labs	121.42 psi		353.35 psi
Statistics based on 27 of 28 reporting participants			



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

Report #217
3rd Qtr 2023

		Summary Statistics in SI Units	
Grand Means	22.112 MPa		17.380 MPa
Stnd Dev Btwn Labs	0.837 MPa		2.440 MPa
Statistics based on 27 of 28 reporting participants			

Samples C31-C32: Polyisoprene compound, batch #1 & L31-L32: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #630

8PU24U (M) - Participant did not submit data for sample group C31-C32.



Rubber Interlaboratory Testing Program

Report #217

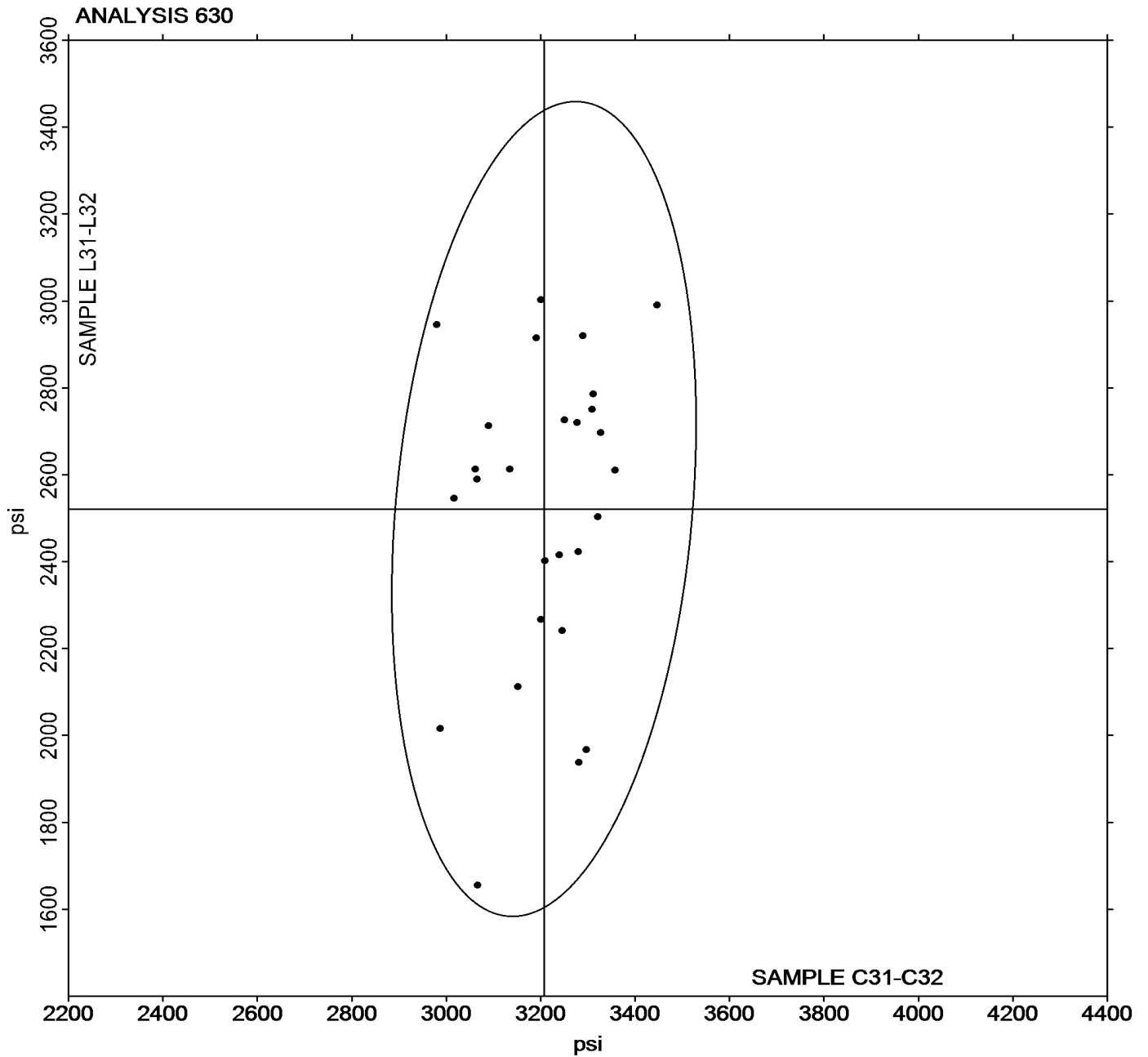
Analysis 630

3rd Qtr 2023

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

Grand Mean Sample C31-C32 = 3,207.08 psi

Grand Mean Sample L31-L32 = 2,521.30 psi





Rubber Interlaboratory Testing Program

Report #217

Analysis 631

3rd Qtr 2023

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

WebCode	Data Flag	Sample C31-C32			Sample L31-L32		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
232X3N		639.5	20.7	0.80	524.5	-17.3	-0.55
2N2YER		611.0	-7.8	-0.30	517.0	-24.8	-0.80
6Y6MGC		602.0	-16.9	-0.65	546.1	4.2	0.14
88C2CC		658.5	39.7	1.53	556.0	14.2	0.45
8BT6FN		622.0	3.2	0.12	543.5	1.7	0.05
8PU24U	M	No data reported for this sample			554.0	12.2	0.39
AMEGBA		628.5	9.7	0.37	556.5	14.7	0.47
AZPUPP		606.5	-12.3	-0.48	481.0	-60.8	-1.95
B8GQZK		629.0	10.1	0.39	513.8	-28.0	-0.90
BJC2GD		634.5	15.7	0.61	557.0	15.2	0.49
CFVTTD		582.5	-36.3	-1.40	523.5	-18.3	-0.59
DAYRVJ		606.5	-12.3	-0.48	548.5	6.7	0.21
DCPUT6		611.0	-7.8	-0.30	526.5	-15.3	-0.49
DKFD8D		591.5	-27.3	-1.05	521.5	-20.3	-0.65
FZLJB8		596.7	-22.2	-0.86	490.9	-51.0	-1.63
GH7AA8		631.0	12.2	0.47	560.0	18.2	0.58
J2LNBD		630.0	11.2	0.43	583.5	41.7	1.34
K2ZCFX		625.6	6.8	0.26	511.7	-30.1	-0.97
LPN9RE		640.0	21.2	0.82	572.3	30.5	0.98
LRVJQ4		643.7	24.9	0.96	620.7	78.9	2.53
PQ9EJ2		599.5	-19.3	-0.75	570.0	28.2	0.90
RLLF86		656.0	37.2	1.44	540.0	-1.8	-0.06
UDHFD7		623.5	4.6	0.18	583.7	41.9	1.34
VKYA23	*	558.5	-60.3	-2.33	572.5	30.7	0.98
XAUXTQ		562.4	-56.5	-2.18	501.1	-40.8	-1.31
XDDX7L		653.5	34.7	1.34	542.5	0.7	0.02
XP3WWN		641.5	22.6	0.87	524.2	-17.6	-0.57
ZFRA2T		623.5	4.7	0.18	540.5	-1.3	-0.04

		Summary Statistics	
Grand Means	618.82 percent	541.81 percent	
Stnd Dev Btwn Labs	25.91 percent	31.19 percent	
Statistics based on 27 of 28 reporting participants			

Samples C31-C32: Polyisoprene compound, batch #1 & L31-L32: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #631

8PU24U (M) - Participant did not submit data for sample group C31-C32.



Rubber Interlaboratory Testing Program

Report #217

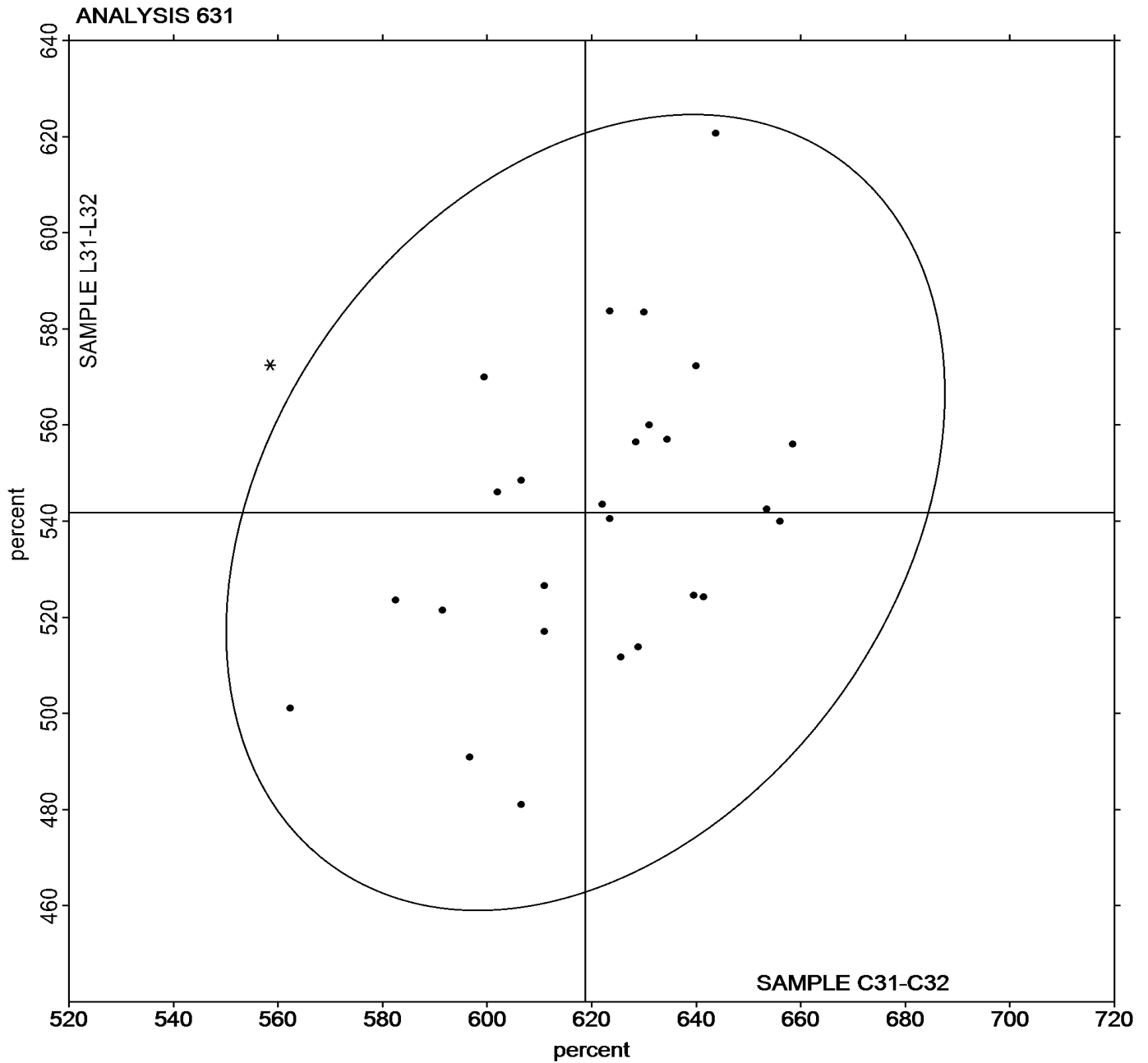
Analysis 631

3rd Qtr 2023

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

Grand Mean Sample C31-C32 = 618.82 percent

Grand Mean Sample L31-L32 = 541.81 percent





Rubber Interlaboratory Testing Program

Report #217

Analysis 632

3rd Qtr 2023

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

WebCode	Data Flag	Sample C31-C32			Sample L31-L32		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
232X3N		859.5	-87.2	-0.86	927.5	-6.7	-0.06
2N2YER		878.5	-68.2	-0.67	896.0	-38.2	-0.32
6Y6MGC		1,057.2	110.5	1.09	941.2	7.0	0.06
88C2CC		871.1	-75.7	-0.75	1,023.4	89.2	0.74
8BT6FN		915.2	-31.5	-0.31	966.7	32.5	0.27
8PU24U	M	No data reported for this sample			931.4	-2.8	-0.02
AMEGBA		960.2	13.5	0.13	913.0	-21.2	-0.17
AZPUPP		1,047.5	100.8	1.00	893.5	-40.7	-0.34
B8GQZK	*	844.9	-101.8	-1.01	618.6	-315.6	-2.61
BJC2GD		922.4	-24.3	-0.24	770.9	-163.3	-1.35
CFVTTD		1,034.5	87.8	0.87	1,043.0	108.8	0.90
DAYRVJ		993.5	46.7	0.46	1,138.3	204.0	1.68
DCPUT6		968.5	21.8	0.22	926.5	-7.7	-0.06
DKFD8D		1,032.0	85.3	0.84	1,084.8	150.5	1.24
FZLJB8		1,098.2	151.5	1.50	1,127.1	192.8	1.59
GH7AA8		946.0	-0.7	-0.01	928.0	-6.2	-0.05
J2LNBD		865.9	-80.8	-0.80	928.2	-6.0	-0.05
K2ZCFX		891.0	-55.7	-0.55	920.8	-13.4	-0.11
LPN9RE		886.3	-60.4	-0.60	954.3	20.1	0.17
LRVJQ4		857.9	-88.8	-0.88	899.2	-35.0	-0.29
PQ9EJ2		920.0	-26.7	-0.26	838.0	-96.2	-0.79
RLLF86		797.0	-149.7	-1.48	756.4	-177.8	-1.47
UDHFD7		923.9	-22.8	-0.23	930.4	-3.8	-0.03
VKYA23		1,065.0	118.3	1.17	1,018.5	84.3	0.70
XAUXTQ	*	1,261.4	314.7	3.11	1,133.1	198.9	1.64
XDDX7L		930.0	-16.7	-0.17	869.5	-64.7	-0.53
XP3WWN		896.6	-50.1	-0.50	763.2	-171.0	-1.41
ZFRA2T		836.9	-109.8	-1.09	1,013.8	79.6	0.66

Grand Means		Summary Statistics	
	946.70 psi		934.22 psi
Stnd Dev Btwn Labs	101.11 psi		121.14 psi
Statistics based on 27 of 28 reporting participants			



Rubber Interlaboratory Testing Program

Report #217

Analysis 632

3rd Qtr 2023

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

		Summary Statistics in SI Units	
Grand Means	6.5272 MPa	6.4400 MPa	
Std Dev Btwn Labs	0.6971 MPa	0.8400 MPa	
Statistics based on 27 of 28 reporting participants			

Samples C31-C32: Polyisoprene compound, batch #1 & L31-L32: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #632

8PU24U (M) - Participant did not submit data for sample group C31-C32.



Rubber Interlaboratory Testing Program

Report #217

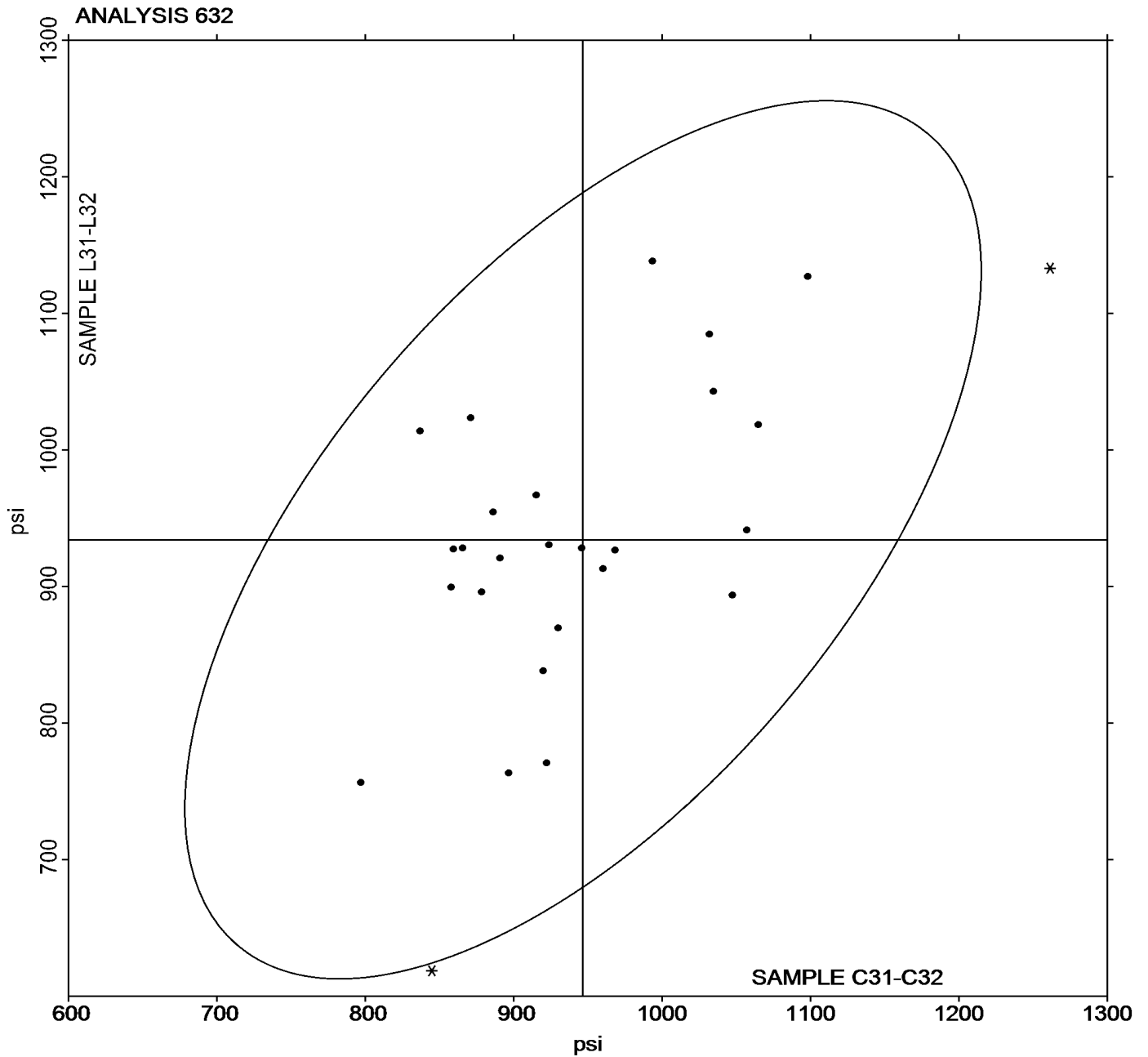
Analysis 632

3rd Qtr 2023

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

Grand Mean Sample C31-C32 = 946.70 psi

Grand Mean Sample L31-L32 = 934.22 psi





Rubber Interlaboratory Testing Program

Report #217

Analysis 633

3rd Qtr 2023

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

WebCode	Data Flag	Sample C31-C32			Sample L31-L32		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
232X3N		188.5	-18.6	-0.98	210.5	-2.8	-0.10
2N2YER		190.5	-16.6	-0.88	200.0	-13.3	-0.49
6Y6MGC		232.3	25.3	1.34	208.3	-5.0	-0.18
88C2CC		198.1	-9.0	-0.48	223.0	9.6	0.35
8BT6FN		203.1	-4.0	-0.21	219.7	6.4	0.24
8PU24U	M	No data reported for this sample			214.1	0.8	0.03
AMEGBA		215.4	8.3	0.44	220.5	7.2	0.26
AZPUPP		229.0	21.9	1.16	199.0	-14.3	-0.52
B8GQZK	*	173.3	-33.8	-1.79	130.5	-82.8	-3.03
BJC2GD		195.8	-11.3	-0.60	177.7	-35.6	-1.30
CFVTTD		212.0	4.9	0.26	225.0	11.7	0.43
DAYRVJ		226.1	19.0	1.00	258.7	45.4	1.66
DCPUT6	X	369.0	161.9	8.57	208.5	-4.8	-0.18
DKFD8D		213.5	6.4	0.34	225.0	11.7	0.43
FZLJB8		243.7	36.6	1.94	257.5	44.2	1.62
GH7AA8		220.0	12.9	0.68	213.5	0.2	0.01
J2LNBD		205.2	-1.8	-0.10	229.2	15.9	0.58
K2ZCFX		195.9	-11.1	-0.59	207.3	-6.0	-0.22
LPN9RE	X	640.0	433.0	22.92	572.3	359.0	13.14
LRVJQ4		190.1	-16.9	-0.90	216.8	3.5	0.13
PQ9EJ2		201.5	-5.6	-0.30	199.5	-13.8	-0.51
RLLF86		188.6	-18.5	-0.98	181.3	-32.0	-1.17
UDHFD7		199.4	-7.6	-0.40	213.2	-0.1	0.00
VKYA23		225.0	17.9	0.95	237.0	23.7	0.87
XAUXTQ		247.0	39.9	2.11	241.1	27.7	1.02
XDDX7L		204.0	-3.1	-0.16	233.5	20.2	0.74
XP3WWN		195.5	-11.5	-0.61	175.9	-37.4	-1.37
ZFRA2T		183.5	-23.6	-1.25	229.2	15.9	0.58

		Summary Statistics	
Grand Means	207.08 psi	213.31 psi	
Std Dev Btwn Labs	18.89 psi	27.32 psi	
Statistics based on 25 of 28 reporting participants			



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

		Summary Statistics in SI Units	
Grand Means	1.4277 MPa	1.4700 MPa	
Stnd Dev Btwn Labs	0.1302 MPa	0.1900 MPa	
Statistics based on 25 of 28 reporting participants			

Samples C31-C32: Polyisoprene compound, batch #1 & L31-L32: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #633

8PU24U (M) - Participant did not submit data for sample group C31-C32.

DCPUT6 (X) - Data for sample group C31-C32 are high. Inconsistent within the determinations of sample group C31-C32.

LPN9RE (X) - Extreme Data.



Rubber Interlaboratory Testing Program

Report #217

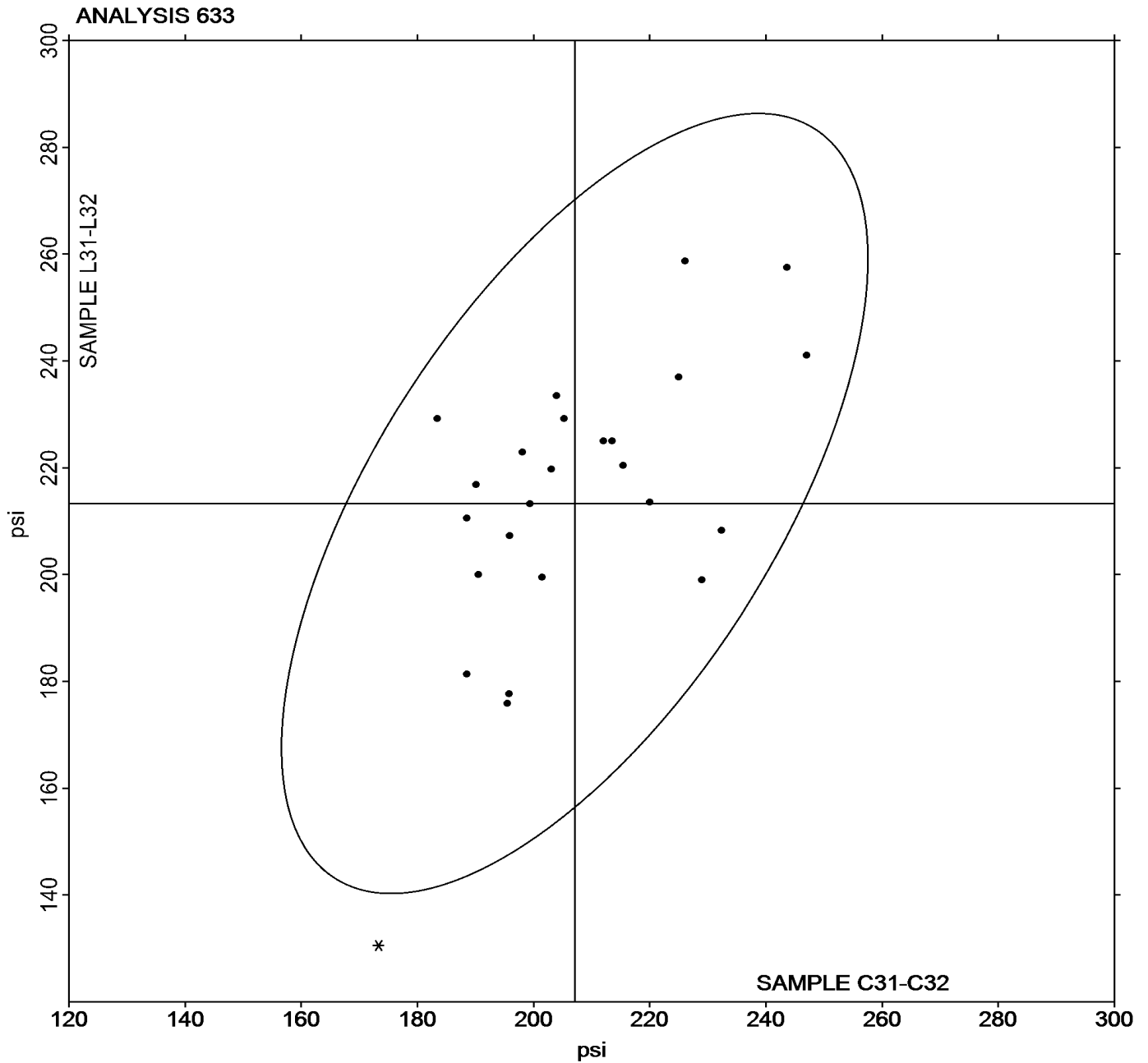
Analysis 633

3rd Qtr 2023

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

Grand Mean Sample C31-C32 = 207.08 psi

Grand Mean Sample L31-L32 = 213.31 psi





Rubber Interlaboratory Testing Program
Analysis 635
Compression Set Method B

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample P31			Sample P32		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2DJGMK		24.00	-7.60	-1.03	20.50	-12.67	-1.51
2N2YER		28.00	-3.60	-0.49	31.33	-1.84	-0.22
7A78GJ		33.57	1.97	0.27	36.53	3.36	0.40
867E3E		34.00	2.40	0.32	27.00	-6.17	-0.73
8BT6FN		35.33	3.74	0.51	41.00	7.83	0.93
8PU24U		36.53	4.93	0.67	30.28	-2.89	-0.34
99KFHH		29.27	-2.33	-0.32	27.80	-5.37	-0.64
9GH48P		27.77	-3.83	-0.52	43.93	10.76	1.28
AYU8DL		27.33	-4.26	-0.58	30.67	-2.50	-0.30
AZPUPP	*	52.33	20.74	2.80	57.67	24.50	2.92
B6EUJB		31.18	-0.42	-0.06	38.41	5.24	0.62
C364U8		40.61	9.01	1.22	41.22	8.05	0.96
CFVTTD		33.00	1.40	0.19	30.33	-2.84	-0.34
DCPUT6		26.67	-4.93	-0.67	35.67	2.50	0.30
DKFD8D		27.53	-4.06	-0.55	42.83	9.66	1.15
EP76Y8		34.00	2.40	0.32	37.33	4.16	0.50
FLLHX7		28.00	-3.60	-0.49	27.00	-6.17	-0.73
FZLJB8		21.73	-9.86	-1.33	25.90	-7.27	-0.87
GEMAWC		33.67	2.07	0.28	20.67	-12.50	-1.49
H2CZXF		13.64	-17.96	-2.43	17.66	-15.51	-1.85
HLYQZ7		28.23	-3.36	-0.45	35.50	2.33	0.28
JNLRHY		28.81	-2.78	-0.38	26.79	-6.38	-0.76
K2NKMJ		24.67	-6.93	-0.94	25.27	-7.90	-0.94
KCKJG9		42.22	10.63	1.44	35.24	2.07	0.25
KZVPXE		38.33	6.73	0.91	39.70	6.53	0.78
LPN9RE		32.57	0.97	0.13	31.93	-1.24	-0.15
NN7YRD		23.70	-7.90	-1.07	24.87	-8.30	-0.99
PQ9EJ2		28.67	-2.93	-0.40	29.33	-3.84	-0.46
PVZQDC		44.60	13.00	1.76	44.90	11.73	1.40
QMNRJ2	X	70.67	39.07	5.28	60.67	27.50	3.27
R47AQR		41.44	9.84	1.33	40.70	7.53	0.90
TH6B4T		41.30	9.70	1.31	47.30	14.13	1.68
TV83PX		35.67	4.07	0.55	31.67	-1.50	-0.18
TYP33T		30.33	-1.26	-0.17	31.33	-1.84	-0.22
XAUXTQ		25.75	-5.84	-0.79	26.10	-7.07	-0.84
XDDX7L		26.08	-5.52	-0.75	26.78	-6.39	-0.76
XUXMB2	X	59.33	27.74	3.75	31.67	-1.50	-0.18
YK8HPR		27.00	-4.60	-0.62	33.00	-0.17	-0.02



Rubber Interlaboratory Testing Program
Analysis 635
Compression Set Method B

Report #217
3rd Qtr 2023

		Summary Statistics	
Grand Means	31.598 % Compression	33.171 % Compression	
Std Dev Btwn Labs	7.397 % Compression	8.401 % Compression	
Statistics based on 36 of 38 reporting participants			

Samples P31: EPDM compound, batch #1 & P32: EPDM compound, batch #1

Comments on Assigned Data Flags for Test #635

QMNRJ2 (X) - Data for all samples are high. Possible Systematic Error.

XUXMB2 (X) - Data for sample group P31 are high.

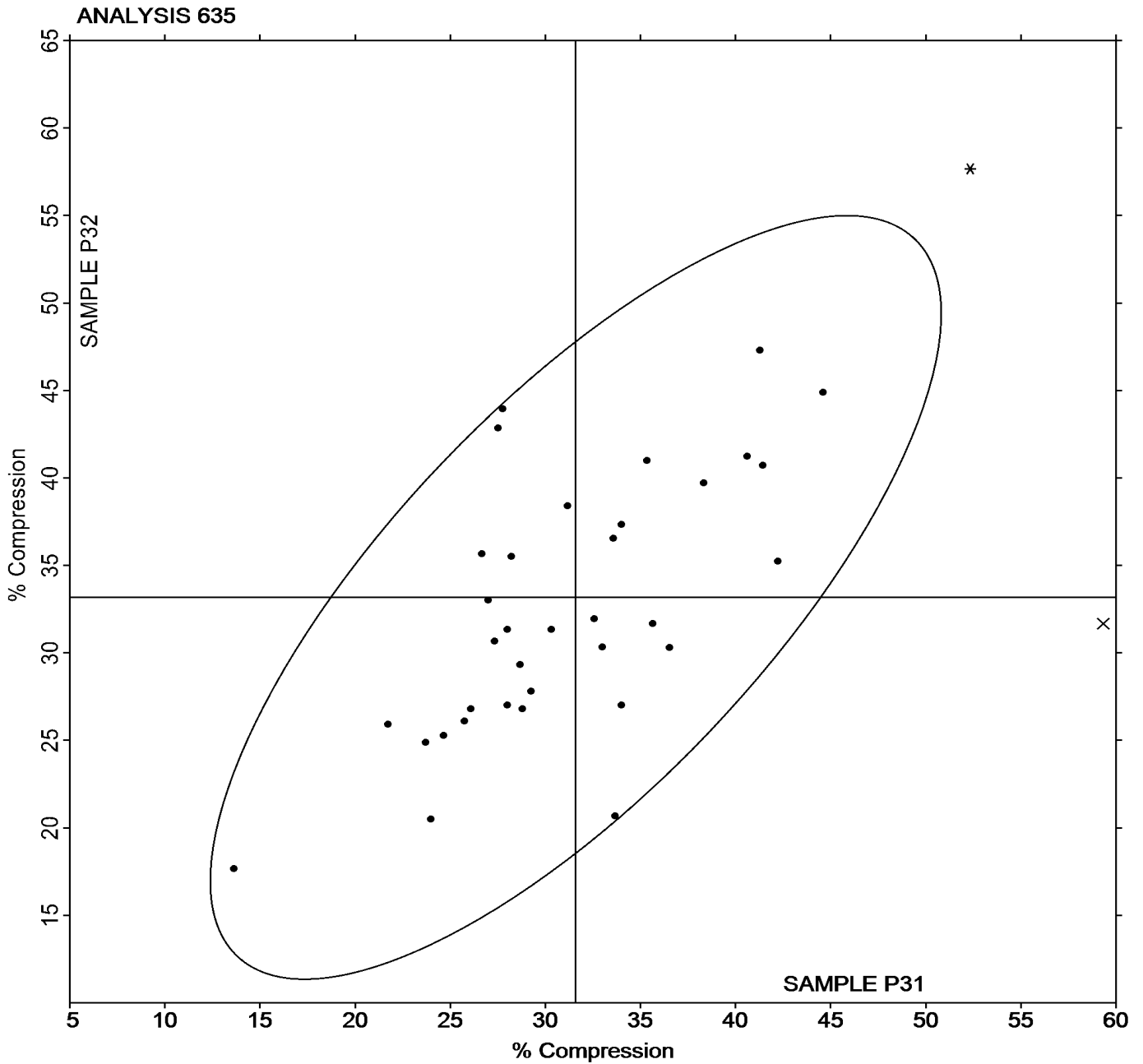


Rubber Interlaboratory Testing Program
Analysis 635
Compression Set Method B

Report #217
3rd Qtr 2023

Grand Mean Sample **P31** = 31.598 % Compression

Grand Mean Sample **P32** = 33.171 % Compression





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

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample RC31			Sample RC32		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
8BT6FN		2,380.1	2.4	0.08	2,354.9	-22.1	-0.53
AZPUPP		2,384.0	6.3	0.22	2,360.4	-16.5	-0.40
EP76Y8	X	73.2	-2,304.5	-78.23	72.8	-2,304.1	-55.51
FLLHX7		2,348.6	-29.1	-0.99	2,306.2	-70.7	-1.70
GEMAWC		2,384.2	6.5	0.22	2,371.2	-5.7	-0.14
JNLRHY		2,409.0	31.3	1.06	2,449.2	72.3	1.74
KZVPXE		2,310.3	-67.3	-2.29	2,368.3	-8.6	-0.21
TBJHRU		2,388.6	10.9	0.37	2,358.0	-18.9	-0.46
U3KBQY		2,406.4	28.7	0.98	2,440.4	63.5	1.53
XDDX7L		2,396.2	18.5	0.63	2,381.4	4.5	0.11
YK8HPR		2,369.2	-8.5	-0.29	2,379.2	2.3	0.05

Summary Statistics	
Grand Means	2,377.66 psi 2,376.92 psi
Std Dev Btwn Labs	29.46 psi 41.51 psi
Statistics based on 10 of 11 reporting participants	

Samples RC31: Nitrile O-Ring & RC32: Nitrile O-Ring

Comments on Assigned Data Flags for Test #640

EP76Y8 (X) - Extreme Data.

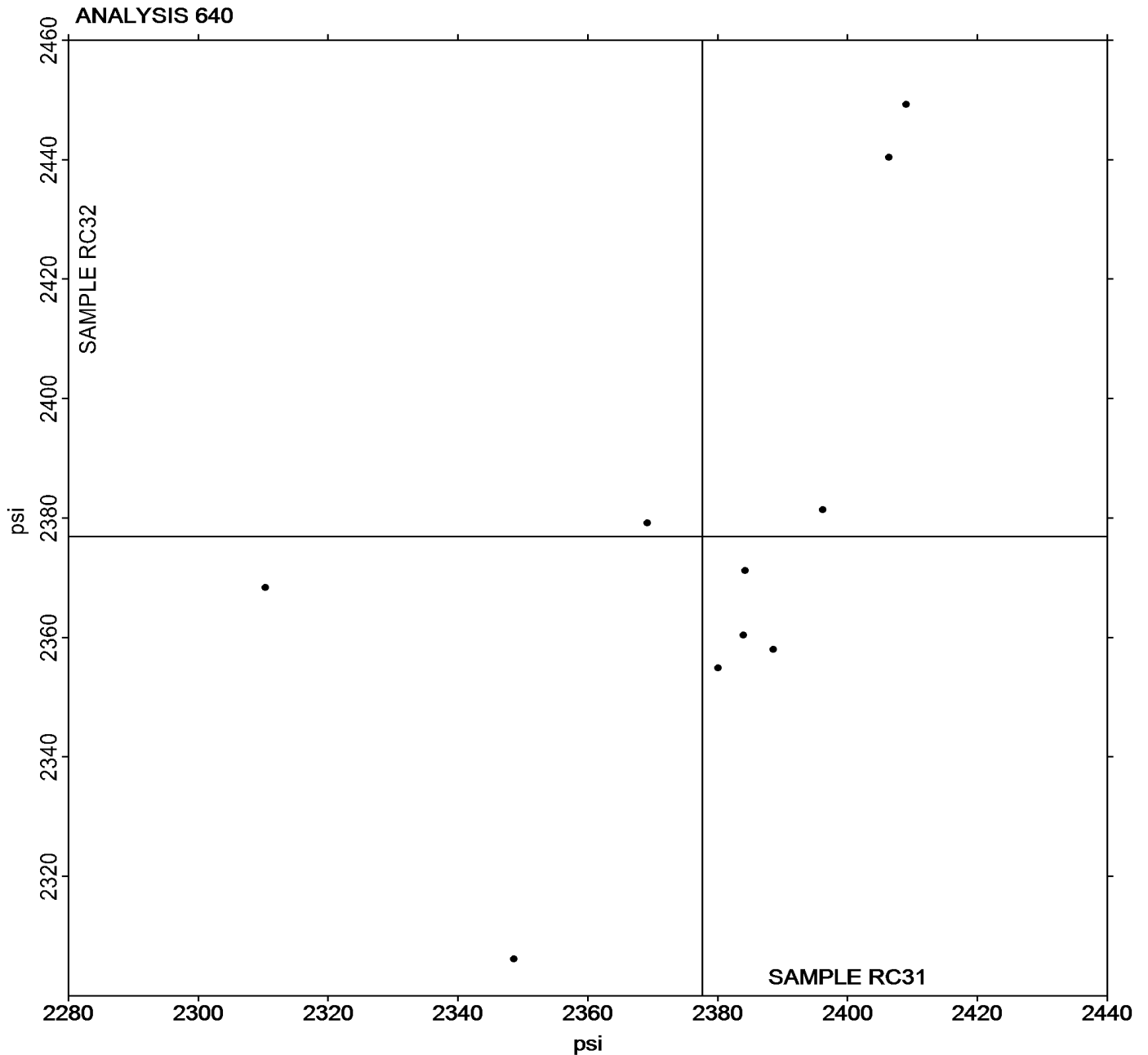


Rubber Interlaboratory Testing Program
Analysis 640
O-Ring Tensile Strength at Break (psi)

Report #217
3rd Qtr 2023

Grand Mean Sample RC31 = 2,377.66 psi

Grand Mean Sample RC32 = 2,376.92 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 #217
3rd Qtr 2023

WebCode	Data Flag	Sample RC31			Sample RC32		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
8BT6FN		453.6	40.0	0.97	447.8	35.8	0.77
AZPUPP		443.2	29.6	0.72	439.0	27.0	0.58
EP76Y8		304.8	-108.8	-2.65	291.2	-120.8	-2.61
FLLHX7		387.8	-25.8	-0.63	380.2	-31.8	-0.69
GEMAWC		438.2	24.6	0.60	433.4	21.4	0.46
JNLRHY		415.0	1.4	0.03	427.6	15.6	0.34
KZVPXE		417.8	4.2	0.10	438.7	26.7	0.58
TBJHRU		397.2	-16.4	-0.40	388.4	-23.6	-0.51
U3KBQY		437.2	23.6	0.57	449.0	37.0	0.80
XDDX7L		420.6	7.0	0.17	403.0	-9.0	-0.19
YK8HPR		434.2	20.6	0.50	433.4	21.4	0.46

Summary Statistics	
Grand Means	413.60 percent
Std Dev Btwn Labs	41.11 percent
	411.97 percent
	46.36 percent
Statistics based on 11 of 11 reporting participants	

Samples RC31: Nitrile O-Ring & RC32: Nitrile O-Ring



Rubber Interlaboratory Testing Program

Report #217

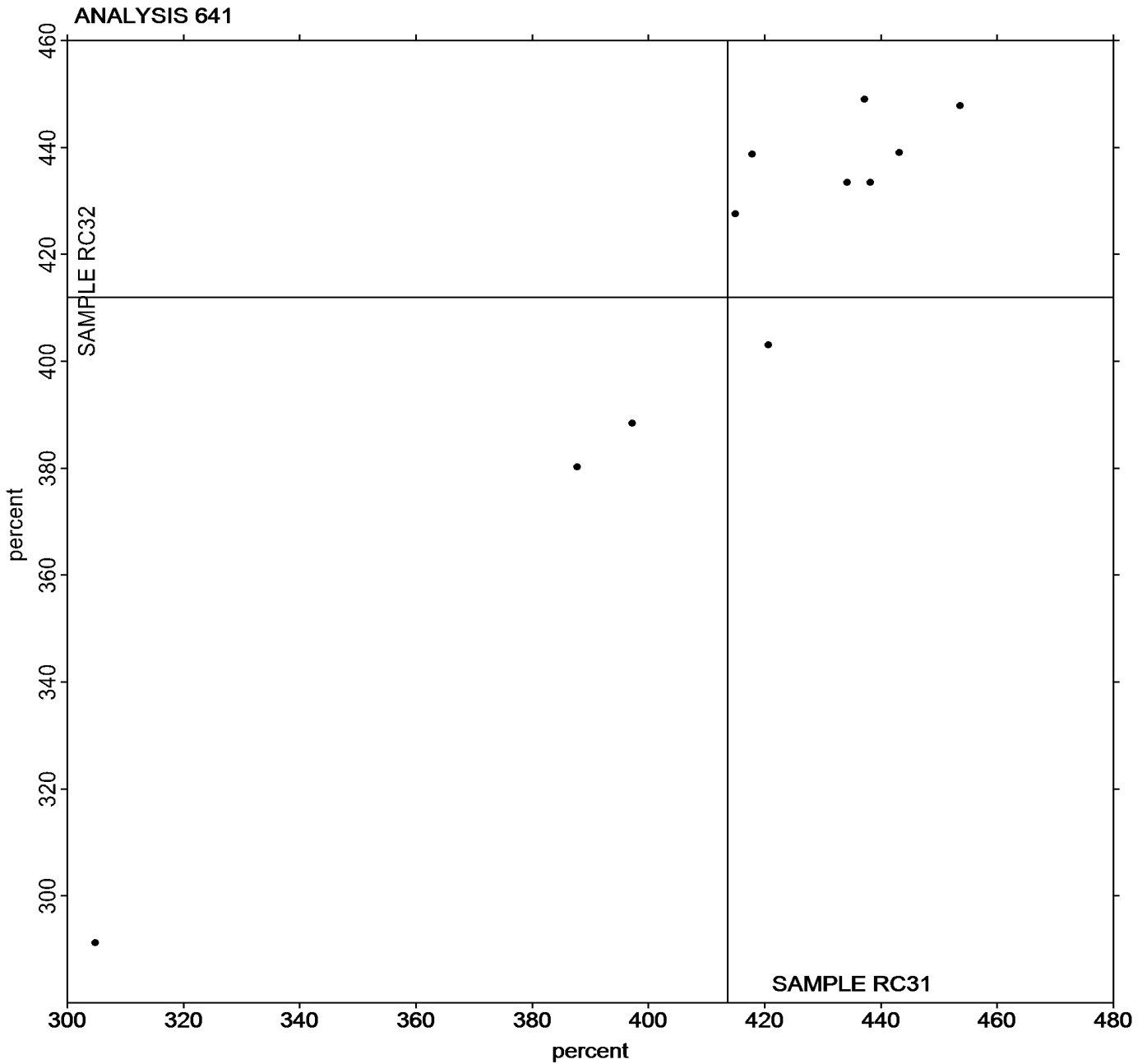
Analysis 641

3rd Qtr 2023

O-Ring Ultimate Elongation (%)

Grand Mean Sample **RC31** = 413.60 percent

Grand Mean Sample **RC32** = 411.97 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
Analysis 642
O-Ring Stress at 100% Elongation (psi)

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample RC31			Sample RC32		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
8BT6FN		343.2	-123.7	-2.15	342.9	-124.0	-2.15
8PU24U		478.6	11.7	0.20	475.0	8.1	0.14
AZPUPP		393.4	-73.5	-1.28	393.8	-73.1	-1.27
FLLHX7		516.2	49.3	0.86	519.0	52.1	0.91
GEMAWC		457.4	-9.5	-0.16	467.6	0.7	0.01
JNLRHY		479.0	12.1	0.21	475.2	8.3	0.14
KZVPXE		447.2	-19.6	-0.34	439.0	-27.9	-0.48
TBJHRU		523.8	56.9	0.99	523.4	56.5	0.98
U3KBQY		469.0	2.1	0.04	465.2	-1.7	-0.03
XDDX7L		541.6	74.7	1.30	533.4	66.5	1.16
YK8HPR		486.2	19.3	0.34	501.2	34.3	0.60

Summary Statistics	
Grand Means	466.87 psi
Std Dev Btwn Labs	57.53 psi
	466.88 psi
	57.58 psi
Statistics based on 11 of 11 reporting participants	

Samples RC31: Nitrile O-Ring & RC32: Nitrile O-Ring

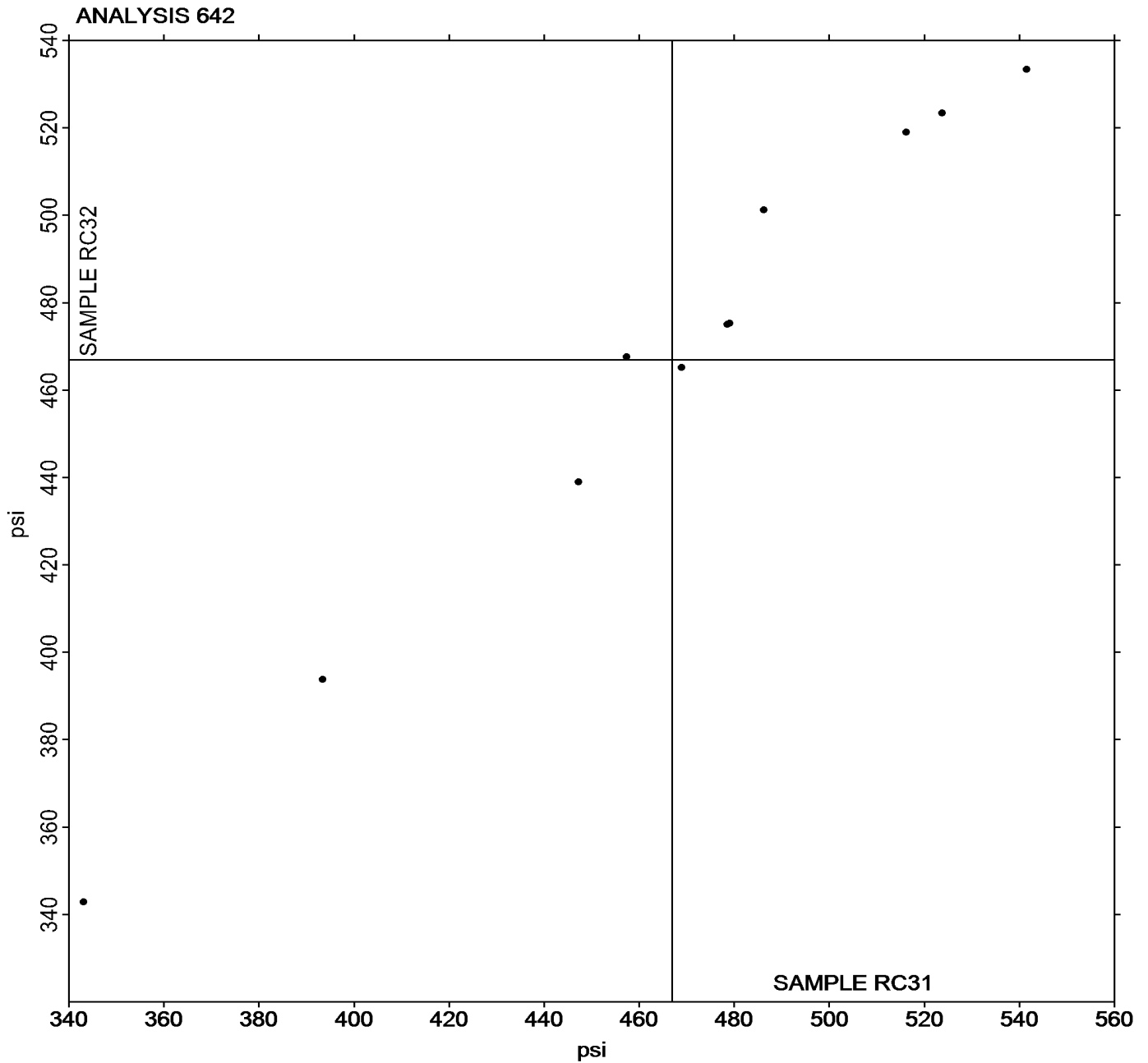


Rubber Interlaboratory Testing Program
Analysis 642
O-Ring Stress at 100% Elongation (psi)

Report #217
3rd Qtr 2023

Grand Mean Sample RC31 = 466.87 psi

Grand Mean Sample RC32 = 466.88 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 #217
3rd Qtr 2023

WebCode	Data Flag	Sample RC31			Sample RC32		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
8BT6FN		67.96	-2.69	-0.66	68.22	-3.14	-0.63
8PU24U		69.88	-0.77	-0.19	70.54	-0.82	-0.16
AZPUPP		70.16	-0.49	-0.12	70.68	-0.68	-0.14
CWFLHG		80.00	9.35	2.28	83.80	12.44	2.48
EP76Y8		72.00	1.35	0.33	72.80	1.44	0.29
FLLHX7		70.40	-0.25	-0.06	70.40	-0.96	-0.19
GEMAWC		75.40	4.75	1.16	76.00	4.64	0.93
JNLRHY		65.36	-5.29	-1.29	65.56	-5.80	-1.16
TBJHRU		70.40	-0.25	-0.06	70.60	-0.76	-0.15
XDDX7L		69.20	-1.45	-0.35	69.96	-1.40	-0.28
YK8HPR		66.40	-4.25	-1.04	66.40	-4.96	-0.99

Summary Statistics			
Grand Means	70.651	Type A	71.360
Std Dev Btwn Labs	4.101	Type A	5.011
Statistics based on 11 of 11 reporting participants			

Samples RC31: Nitrile O-Ring & RC32: Nitrile O-Ring

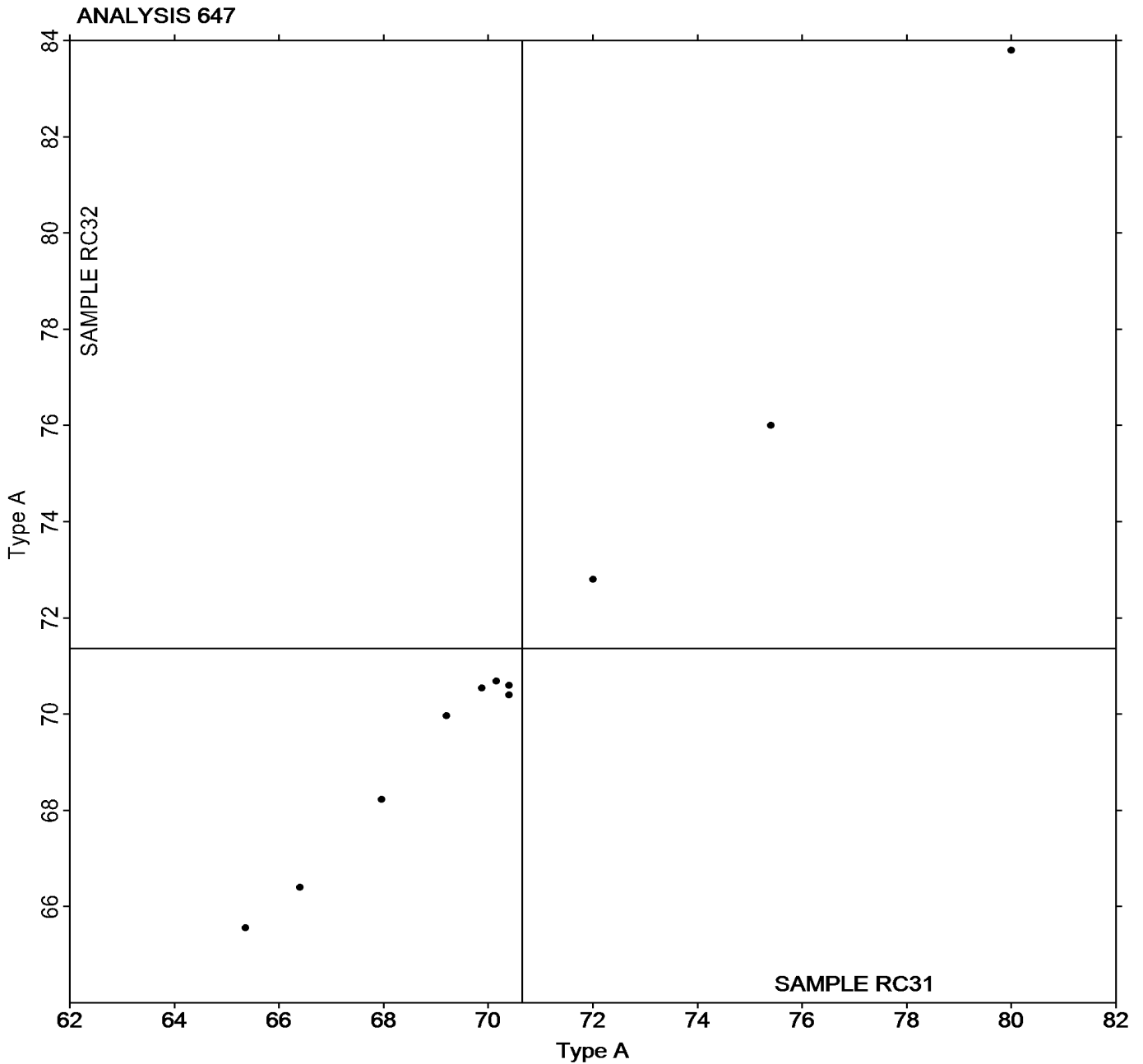


Rubber Interlaboratory Testing Program
Analysis 647
O-Ring Hardness (Shore A)

Report #217
3rd Qtr 2023

Grand Mean Sample RC31 = 70.651 Type A

Grand Mean Sample RC32 = 71.360 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 #217
3rd Qtr 2023

WebCode	Data Flag	Sample RC31			Sample RC32		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
8PU24U		74.64	-1.58	-1.33	75.36	-1.05	-0.76
AZPUPP		76.76	0.54	0.46	78.48	2.07	1.49
FLLHX7		76.52	0.30	0.26	76.56	0.15	0.11
GEMAWC		77.12	0.90	0.76	77.88	1.47	1.06
JNLRHY		77.12	0.90	0.76	76.96	0.55	0.40
KZVPXE		77.20	0.98	0.83	76.60	0.19	0.14
TBJHRU		76.08	-0.14	-0.11	75.64	-0.77	-0.56
XDDX7L		76.64	0.42	0.36	76.44	0.03	0.02
YK8HPR		73.86	-2.36	-1.99	73.78	-2.63	-1.90

		Summary Statistics	
Grand Means		76.216 Type M	76.411 Type M
Std Dev Btwn Labs		1.184 Type M	1.388 Type M
Statistics based on 9 of 9 reporting participants			

Samples RC31: Nitrile O-Ring & RC32: Nitrile O-Ring

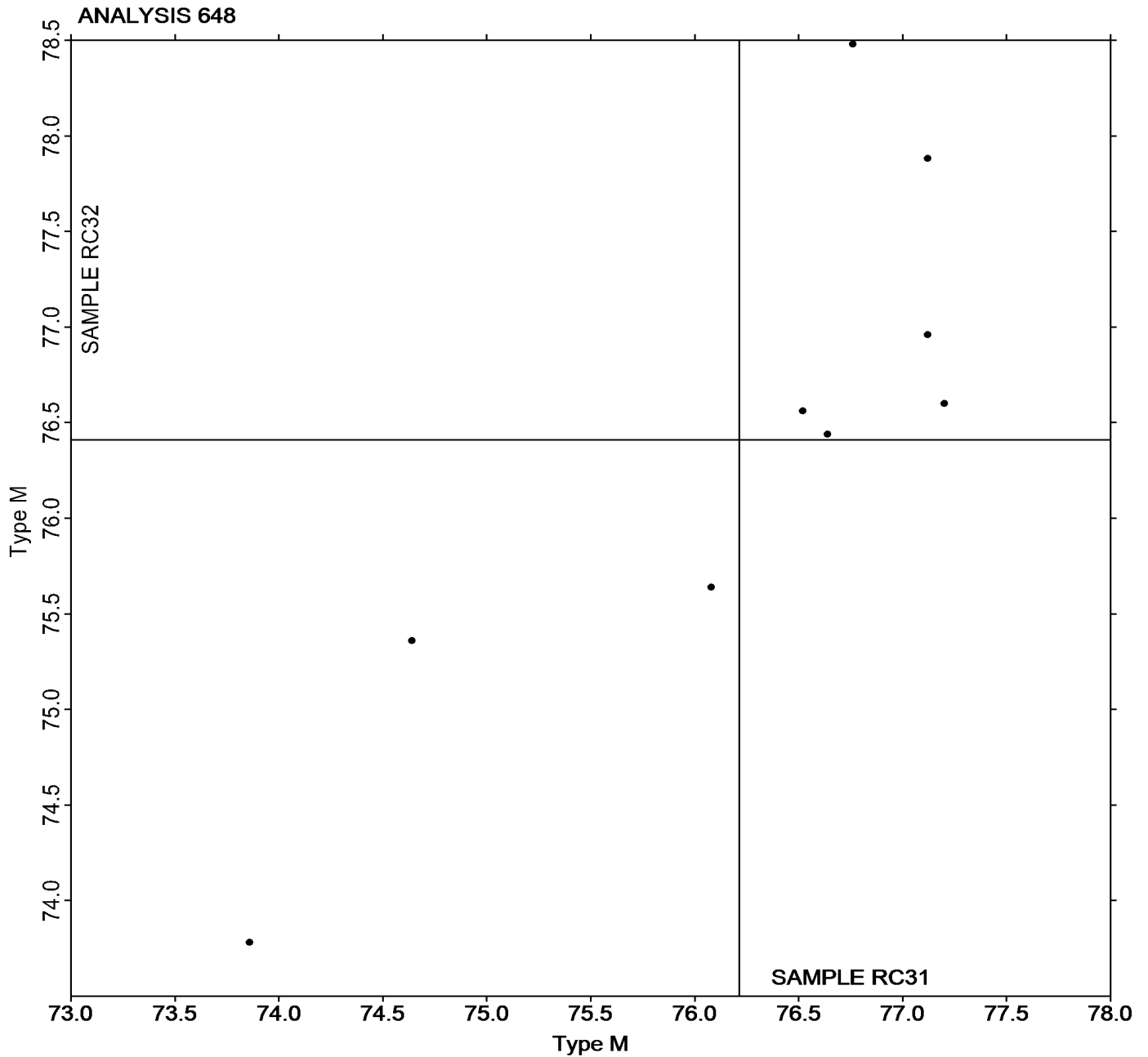


Rubber Interlaboratory Testing Program
Analysis 648
O-Ring Hardness (Shore M)

Report #217
3rd Qtr 2023

Grand Mean Sample **RC31** = 76.216 Type M

Grand Mean Sample **RC32** = 76.411 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 #217
3rd Qtr 2023

WebCode	Data Flag	Sample RC31			Sample RC32		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
8BT6FN		1.217	0.006	1.57	1.216	0.004	0.97
8PU24U		1.214	0.002	0.50	1.219	0.007	1.65
AZPUPP		1.209	-0.002	-0.68	1.209	-0.003	-0.62
CWFLHG		1.213	0.001	0.22	1.212	0.000	-0.07
EP76Y8		1.217	0.005	1.44	1.214	0.002	0.57
FLLHX7		1.209	-0.003	-0.80	1.211	-0.001	-0.22
GEMAWC		1.212	0.000	-0.06	1.213	0.001	0.21
JNLRHY		1.207	-0.005	-1.31	1.212	0.000	0.01
KZVPXE		1.211	0.000	-0.11	1.211	-0.001	-0.21
TBJHRU		1.213	0.001	0.30	1.209	-0.003	-0.63
U3KBQY		1.215	0.003	0.94	1.217	0.005	1.15
XDDX7L		1.211	-0.001	-0.19	1.210	-0.002	-0.42
YK8HPR		1.205	-0.007	-1.82	1.202	-0.010	-2.37

Summary Statistics			
Grand Means	1.2118 g/cm ³ (Mg/m ³)	1.2119 g/cm ³ (Mg/m ³)	
Std Dev Btwn Labs	0.0036 g/cm ³ (Mg/m ³)	0.0043 g/cm ³ (Mg/m ³)	
Statistics based on 13 of 13 reporting participants			

Samples RC31: Nitrile O-Ring & RC32: Nitrile O-Ring

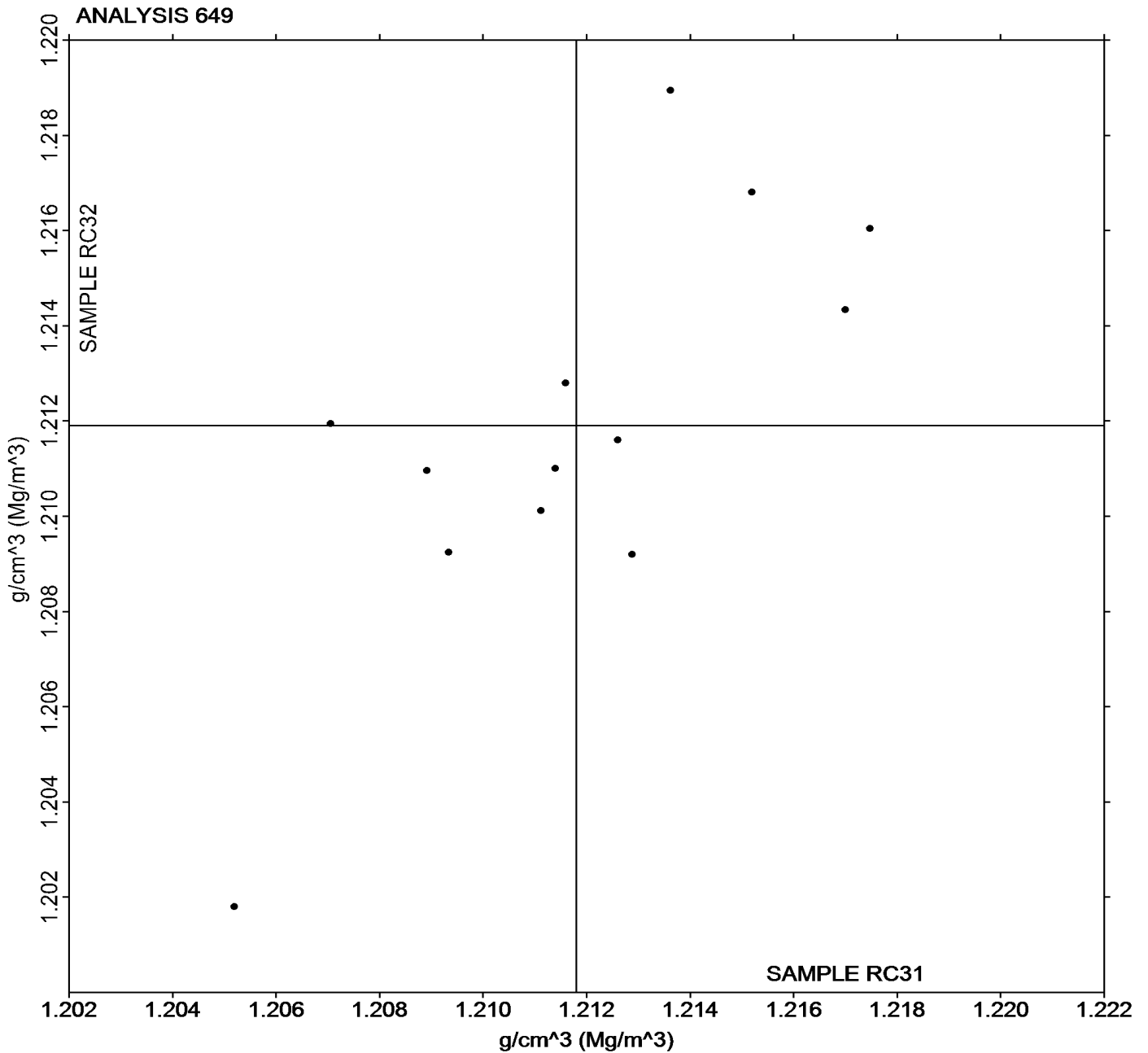


Rubber Interlaboratory Testing Program
Analysis 649
O-Ring Density

Report #217
3rd Qtr 2023

Grand Mean Sample **RC31** = 1.2118 g/cm³
(Mg/m³)

Grand Mean Sample **RC32** = 1.2119 g/cm³
(Mg/m³)



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 #217
3rd Qtr 2023

WebCode	Data Flag	Sample RC33			Sample RC34		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
39LC7L		8.800	0.090	0.09	8.600	0.088	0.08
8BT6FN		9.100	0.390	0.40	9.700	1.188	1.13
8PU24U		9.733	1.023	1.06	8.800	0.288	0.27
AZPUPP		9.000	0.290	0.30	8.000	-0.512	-0.49
FLLHX7		7.333	-1.377	-1.42	7.333	-1.179	-1.12
GEMAWC		8.200	-0.510	-0.53	7.700	-0.812	-0.77
JNLRHY		9.870	1.160	1.20	10.637	2.125	2.03
KZVPXE		9.090	0.380	0.39	8.143	-0.369	-0.35
TBJHRU		6.667	-2.044	-2.11	7.000	-1.512	-1.44
XDDX7L		8.820	0.110	0.11	8.820	0.308	0.29
YK8HPR		9.200	0.490	0.51	8.900	0.388	0.37

Summary Statistics			
Grand Means	8.7103 % Compression	8.5121 % Compression	
Std Dev Btwn Labs	0.9677 % Compression	1.0485 % Compression	
Statistics based on 11 of 11 reporting participants			

Samples RC33: Nitrile O-Ring & RC34: Nitrile O-Ring

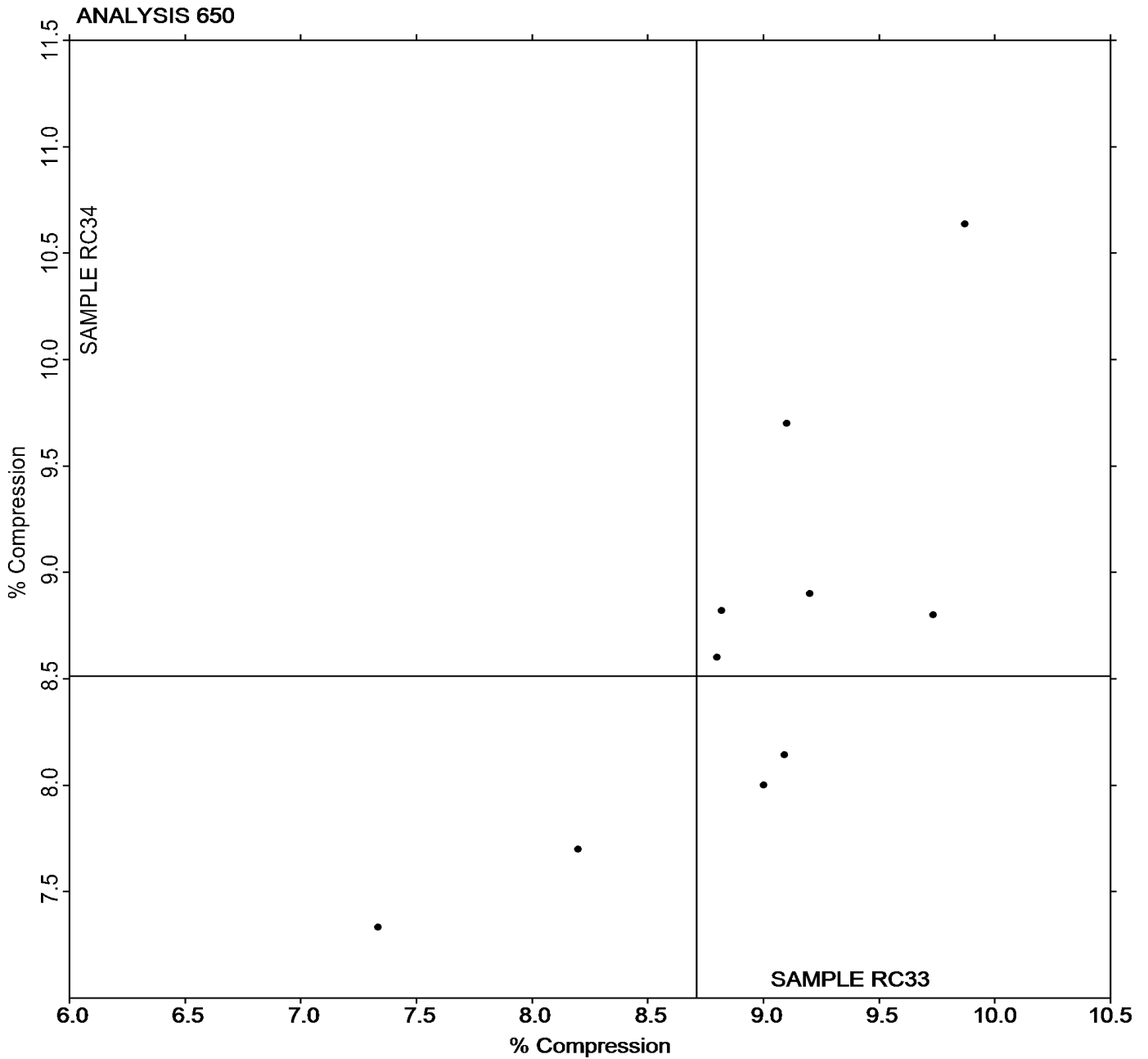


Rubber Interlaboratory Testing Program
Analysis 650
O-Ring Compression Set Method B

Report #217
3rd Qtr 2023

Grand Mean Sample **RC33** = 8.7103 % Compression

Grand Mean Sample **RC34** = 8.5121 % 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 #217

Analysis 660

3rd Qtr 2023

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

WebCode	Data Flag	Sample U31-U32			Sample U33-U34			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
232X3N		45.38	-0.51	-0.55	53.50	-1.46	-1.17	MR
2N2YER		45.47	-0.43	-0.46	53.50	-1.46	-1.17	MP
39LC7L		46.02	0.12	0.13	55.72	0.76	0.60	MV
4474HL		45.37	-0.53	-0.57	53.39	-1.57	-1.25	MR
6Y6MGC		46.74	0.84	0.90	54.42	-0.54	-0.43	MR
88C2CC		45.77	-0.13	-0.14	54.47	-0.49	-0.40	MR
8BT6FN		45.45	-0.45	-0.48	54.45	-0.51	-0.41	ML
8PU24U		46.25	0.35	0.38	55.85	0.89	0.71	MR
9LA9AE		45.17	-0.73	-0.78	54.95	-0.01	-0.01	MR
B6EUJB		46.58	0.69	0.73	56.17	1.21	0.96	MR
B8HLBN		44.88	-1.01	-1.09	54.20	-0.76	-0.61	MV
BJC2GD		45.42	-0.48	-0.52	56.62	1.66	1.32	MR
CFVTTD	X	40.78	-5.11	-5.48	49.87	-5.09	-4.07	MR
DAYRVJ	X	42.35	-3.55	-3.81	53.54	-1.42	-1.13	MV
G9GLDJ		47.62	1.72	1.84	57.62	2.66	2.12	MR
GEMAWC		45.82	-0.08	-0.09	53.87	-1.09	-0.88	MR
GH7AA8		45.15	-0.75	-0.80	54.15	-0.81	-0.65	MR
J2LNBD		46.87	0.97	1.04	55.59	0.63	0.50	XX
L7WHDZ		45.35	-0.55	-0.59	54.67	-0.29	-0.24	MR
LPN9RE		46.39	0.49	0.52	54.91	-0.05	-0.04	MR
LRVJQ4		45.32	-0.57	-0.62	54.01	-0.95	-0.76	MV
LUXP23		45.72	-0.18	-0.19	54.95	-0.01	-0.01	MR
NN7YRD		47.19	1.29	1.38	56.21	1.25	1.00	MR
PQ9EJ2		44.98	-0.91	-0.98	54.25	-0.71	-0.57	MM
RLLF86		45.07	-0.83	-0.89	54.21	-0.76	-0.60	MV
UDHFD7		44.65	-1.25	-1.34	53.50	-1.46	-1.17	MR
UWZFKP		46.22	0.32	0.34	56.59	1.63	1.30	MR
WMKDCT		46.68	0.78	0.84	57.35	2.39	1.91	TA
WQKN9T	*	48.73	2.84	3.04	57.35	2.39	1.91	MR
XP3WWN		45.11	-0.79	-0.85	53.04	-1.92	-1.54	TV
XZ4F6W		45.02	-0.88	-0.95	54.48	-0.48	-0.38	MR
ZFRA2T		45.37	-0.53	-0.57	54.60	-0.36	-0.29	MR
ZWY97P		47.12	1.22	1.31	55.22	0.26	0.20	MR



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

Report #217
3rd Qtr 2023

		Summary Statistics	
Grand Means	45.898 ML 1 + 4	54.961 ML 1 + 4	
Stnd Dev Btwn Labs	0.933 ML 1 + 4	1.251 ML 1 + 4	
Statistics based on 31 of 33 reporting participants			

Samples U31-U32: NBR & U33-U34: Butyl

Comments on Assigned Data Flags for Test #660

CFVTTD (X) - Data for all samples are low. Inconsistent within the determinations of sample group U31-U32.
 DAYRVJ (X) - Data for sample group U31-U32 are low.

Key to Instrument Codes Reported by Participants

ML	Alpha Technologies/Monsanto model not specified	MM	Alpha Technologies Model 1xxx or OSM
MP	Monsanto Compact Mooney Viscometer	MR	Alpha Technologies Model MV2000/MV2000E
MV	MonTech	TA	TA Instruments (any model)
TV	Tech Pro Visc Tech (any model)	XX	Instrument make/model not specified by lab

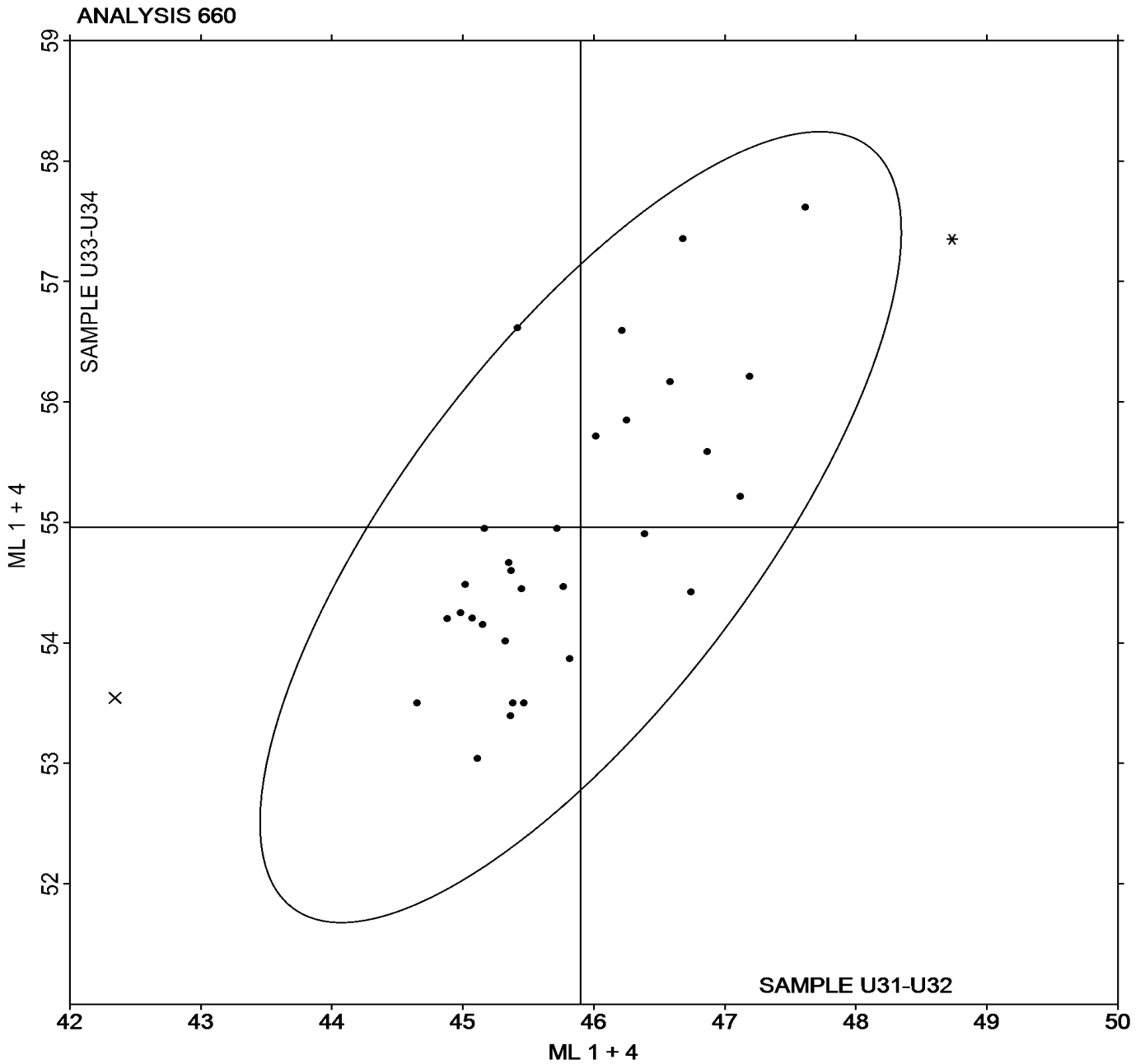


Rubber Interlaboratory Testing Program
Analysis 660
Mooney Viscosity: 4-minute readings (ML 1 + 4)

Report #217
3rd Qtr 2023

Grand Mean Sample **U31-U32** = 45.898 ML 1 + 4

Grand Mean Sample **U33-U34** = 54.961 ML 1 + 4





Rubber Interlaboratory Testing Program

Report #217

Analysis 661

3rd Qtr 2023

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

WebCode	Data Flag	Sample U31-U32			Sample U33-U34			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
232X3N		45.38	-0.53	-0.56	51.47	-1.26	-1.03	MR
2N2YER		45.47	-0.45	-0.48	51.22	-1.51	-1.23	MP
39LC7L		46.02	0.10	0.10	53.45	0.72	0.59	MV
4474HL		45.37	-0.55	-0.58	51.34	-1.38	-1.13	MR
6Y6MGC		46.74	0.82	0.87	51.85	-0.88	-0.71	MR
88C2CC		45.77	-0.15	-0.16	51.65	-1.08	-0.88	MR
8BT6FN		45.45	-0.47	-0.49	52.52	-0.21	-0.17	ML
8PU24U		46.25	0.33	0.35	53.85	1.12	0.92	MR
9LA9AE		45.17	-0.75	-0.79	51.90	-0.83	-0.67	MR
B6EUJB		46.58	0.67	0.70	53.47	0.74	0.60	MR
B8HLBN		44.88	-1.03	-1.09	52.64	-0.09	-0.07	MV
BJC2GD		45.42	-0.50	-0.53	53.88	1.16	0.94	MR
CFVTTD	X	40.78	-5.13	-5.41	46.86	-5.87	-4.78	MR
DAYRVJ	X	42.35	-3.57	-3.77	40.10	-12.63	-10.28	MV
G9GLDJ		47.62	1.70	1.79	55.42	2.69	2.19	MR
GEMAWC		45.82	-0.10	-0.11	51.72	-1.01	-0.82	MR
GH7AA8		45.15	-0.77	-0.81	52.13	-0.59	-0.48	MR
J2LNBD		46.87	0.95	1.00	52.66	-0.07	-0.06	XX
L7WHDZ		45.35	-0.57	-0.60	52.08	-0.64	-0.52	MR
LPN9RE		46.39	0.47	0.49	52.83	0.10	0.08	MR
LRVJQ4		45.32	-0.59	-0.63	51.83	-0.89	-0.73	MV
LUXP23		45.72	-0.20	-0.21	52.67	-0.06	-0.05	MR
NN7YRD		47.19	1.27	1.34	54.07	1.34	1.09	MR
PQ9EJ2	*	44.98	-0.93	-0.98	54.42	1.69	1.38	MR
RLLF86		45.07	-0.85	-0.89	51.85	-0.87	-0.71	MV
UDHFD7		44.65	-1.27	-1.34	51.37	-1.36	-1.11	MR
WMKDCT		46.68	0.76	0.81	55.18	2.45	1.99	TA
WQKN9T	*	48.73	2.82	2.97	55.03	2.31	1.88	MR
XP3WWN		45.11	-0.81	-0.85	51.50	-1.22	-1.00	TV
ZFRA2T		45.37	-0.55	-0.58	52.30	-0.43	-0.35	MR
ZWY97P		47.12	1.20	1.26	52.78	0.06	0.05	MR

Grand Means		Summary Statistics	
	45.918 ML 1 + 8		52.726 ML 1 + 8
Std Dev Btwn Labs	0.949 ML 1 + 8		1.228 ML 1 + 8
Statistics based on 29 of 31 reporting participants			



Rubber Interlaboratory Testing Program

Report #217

Analysis 661

3rd Qtr 2023

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

Samples U31-U32: NBR & U33-U34: Butyl

Comments on Assigned Data Flags for Test #661

CFVTTD (X) - Data for all samples are low. Inconsistent within the determinations of sample group U31-U32.

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

Key to Instrument Codes Reported by Participants

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



Rubber Interlaboratory Testing Program

Report #217

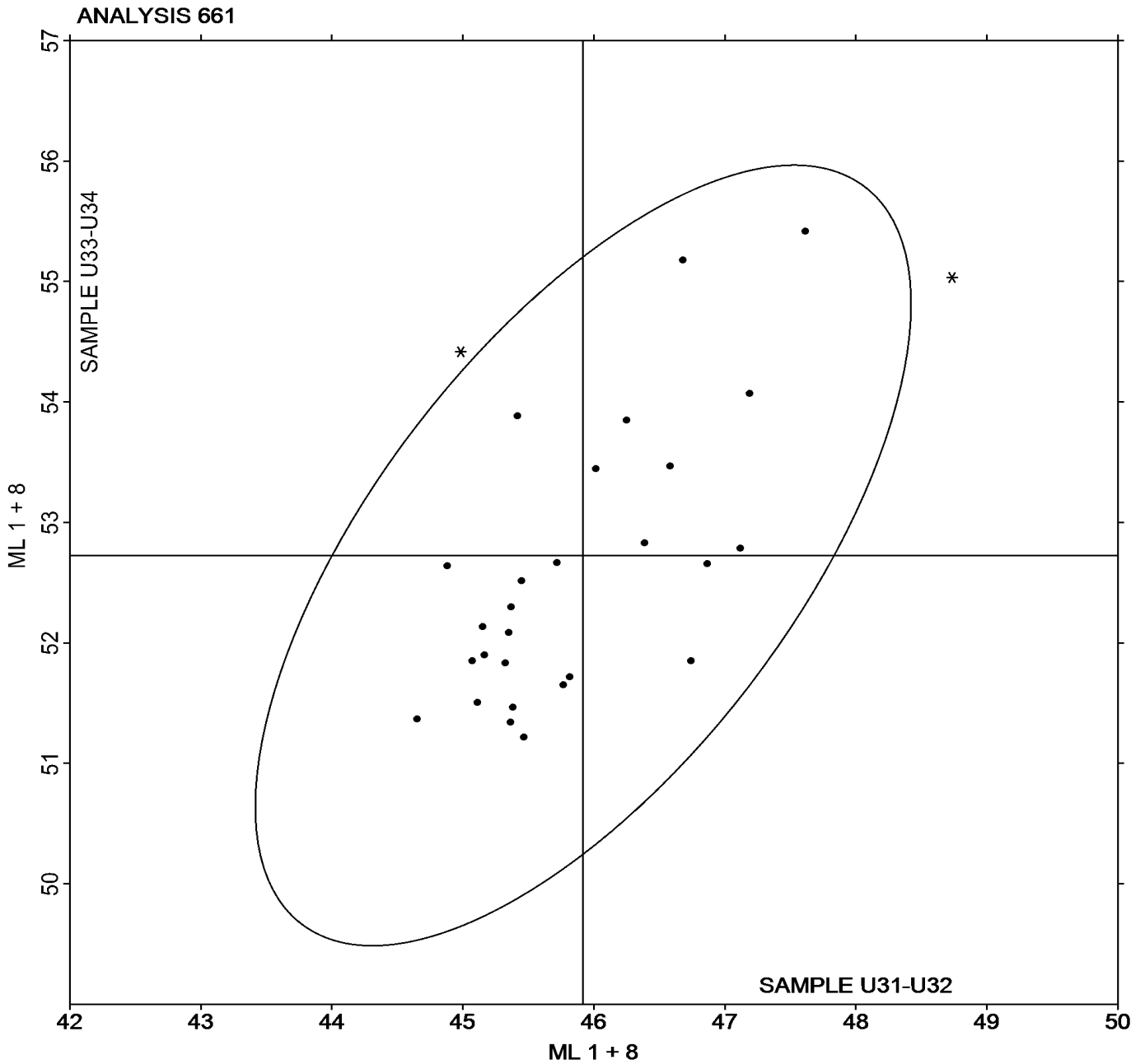
Analysis 661

3rd Qtr 2023

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

Grand Mean Sample **U31-U32** = 45.918 ML 1 + 8

Grand Mean Sample **U33-U34** = 52.726 ML 1 + 8





Rubber Interlaboratory Testing Program

Report #217

Analysis 662

3rd Qtr 2023

Mooney Stress Relaxation: t80 (seconds)

WebCode	Data Flag	Sample U31-U32			Sample U33-U34			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
39LC7L		4.650	-0.252	-0.40	7.362	-0.101	-0.11	MV
88C2CC		5.277	0.374	0.59	7.537	0.074	0.08	MR
8BT6FN		5.137	0.234	0.37	7.807	0.344	0.36	ML
9LA9AE		4.900	-0.002	0.00	8.583	1.120	1.18	MR
DAYRVJ		3.567	-1.336	-2.11	7.200	-0.263	-0.28	MV
GH7AA8		4.973	0.071	0.11	7.507	0.044	0.05	MR
J2LNBD		5.000	0.098	0.15	8.167	0.704	0.74	XX
LPN9RE		5.638	0.736	1.16	7.998	0.535	0.57	MR
LRVJQ4		5.080	0.178	0.28	5.140	-2.323	-2.46	MV
RLLF86		3.600	-1.302	-2.06	6.000	-1.463	-1.55	MV
UDHFD7		5.330	0.428	0.68	7.670	0.207	0.22	MR
XP3WWN	X	663.600	658.698	1,039.99	667.200	659.737	697.55	TV
ZFRA2T		5.333	0.431	0.68	8.400	0.937	0.99	MR
ZWY97P		5.247	0.344	0.54	7.650	0.187	0.20	MR

Summary Statistics	
Grand Means	
	4.9024 seconds
	7.4631 seconds
Std Dev Btwn Labs	
	0.6334 seconds
	0.9458 seconds
	Statistics based on 13 of 14 reporting participants

Samples U31-U32: NBR & U33-U34: Butyl

Comments on Assigned Data Flags for Test #662

XP3WWN (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	TV	Tech Pro Visc Tech (any model)
XX	Instrument make/model not specified by lab		

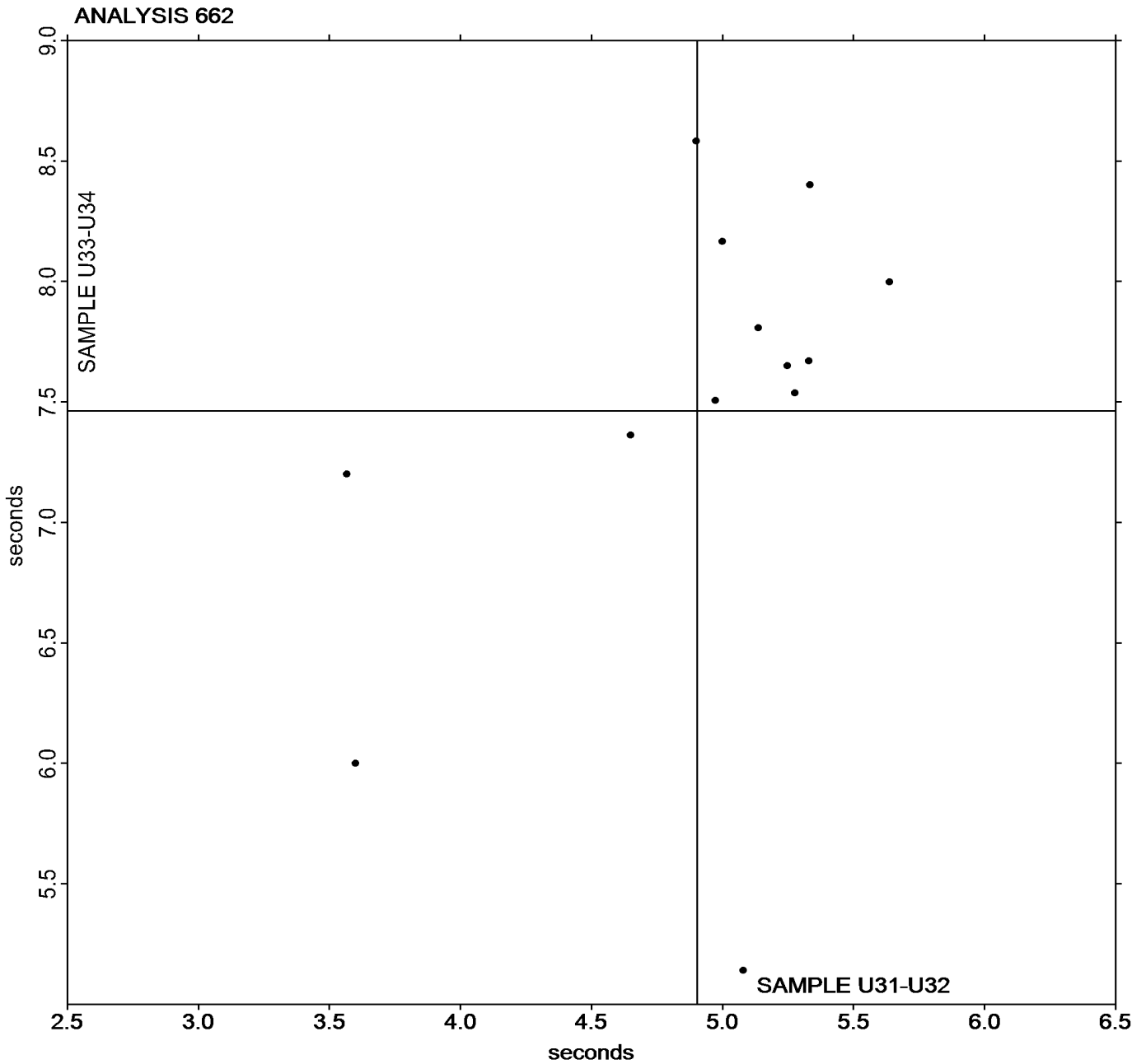


Rubber Interlaboratory Testing Program
Analysis 662
Mooney Stress Relaxation: t80 (seconds)

Report #217
3rd Qtr 2023

Grand Mean Sample **U31-U32** = 4.9024 seconds

Grand Mean Sample **U33-U34** = 7.4631 seconds



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



Rubber Interlaboratory Testing Program

Report #217

Analysis 663

3rd Qtr 2023

Mooney Stress Relaxation: X30 (percent)

WebCode	Data Flag	Sample U31-U32			Sample U33-U34			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
39LC7L		91.11	6.58	0.27	91.90	6.14	0.25	MV
88C2CC		91.19	6.66	0.27	92.49	6.73	0.28	MR
8BT6FN		91.13	6.60	0.27	91.92	6.17	0.25	ML
9LA9AE		91.55	7.02	0.29	91.43	5.68	0.23	MR
DAYRVJ		94.16	9.63	0.40	93.07	7.32	0.30	MV
GH7AA8		91.17	6.64	0.27	92.11	6.35	0.26	MR
J2LNBD	*	81.28	-3.26	-0.13	91.60	5.84	0.24	XX
LPN9RE		90.03	5.50	0.23	91.58	5.82	0.24	MR
LRVJQ4		90.62	6.09	0.25	91.05	5.29	0.22	MV
RLLF86		94.91	10.38	0.43	95.46	9.70	0.40	MV
UDHFD7		91.53	7.00	0.29	92.51	6.76	0.28	MR
XP3WWN		92.79	8.26	0.34	92.17	6.41	0.26	TV
ZFRA2T	*	0.71	-83.82	-3.45	0.93	-84.82	-3.47	MR
ZWY97P		91.26	6.73	0.28	92.36	6.60	0.27	MR

Summary Statistics	
Grand Means	84.532 percent
Std Dev Btwn Labs	24.325 percent
	85.755 percent
	24.436 percent
Statistics based on 14 of 14 reporting participants	

Samples U31-U32: NBR & U33-U34: 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
- TV Tech Pro Visc Tech (any model)

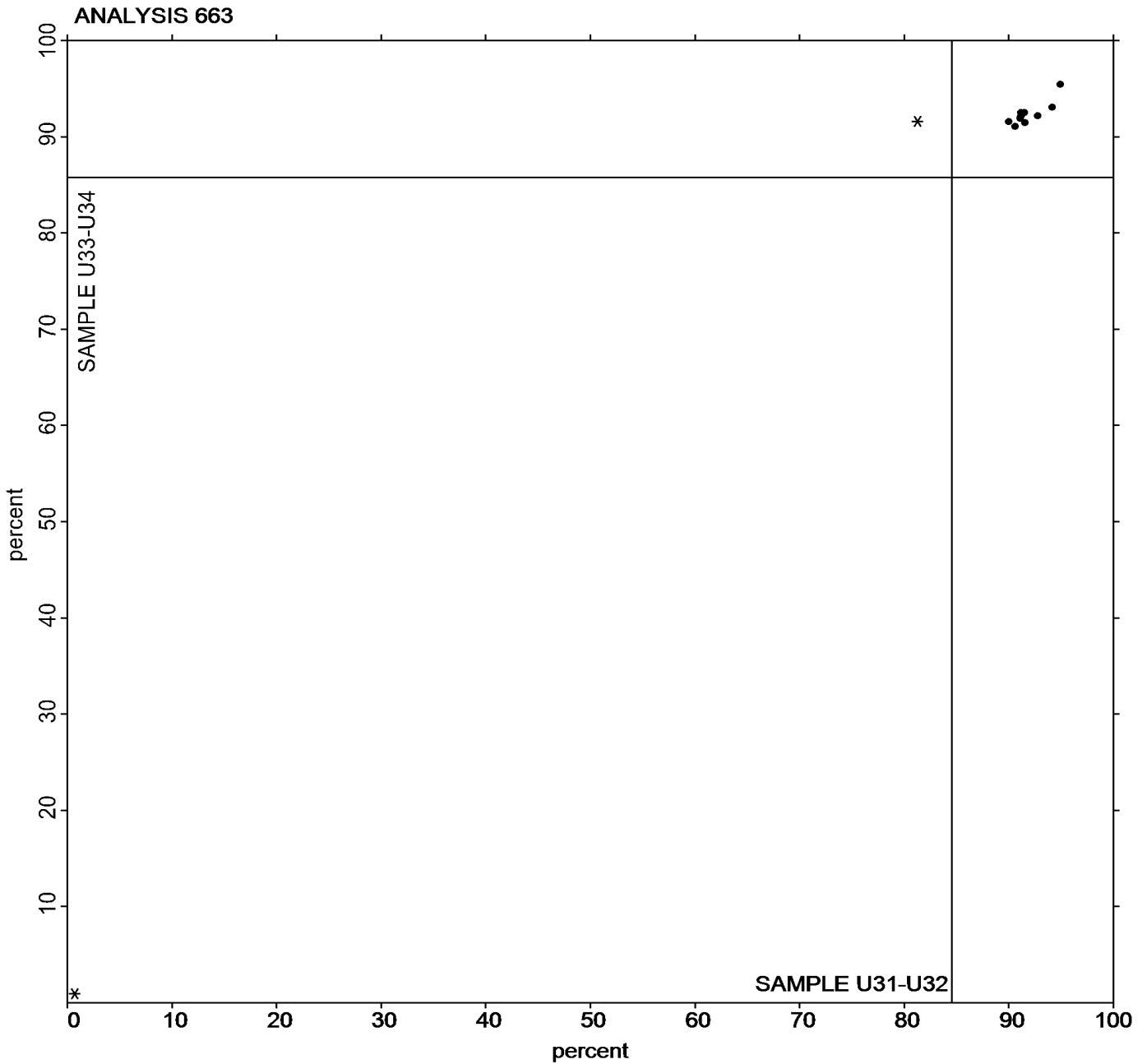


Rubber Interlaboratory Testing Program
Analysis 663
Mooney Stress Relaxation: X30 (percent)

Report #217
3rd Qtr 2023

Grand Mean Sample **U31-U32** = 84.532 percent

Grand Mean Sample **U33-U34** = 85.755 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 #217

Analysis 664

3rd Qtr 2023

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

WebCode	Data Flag	Sample U31-U32			Sample U33-U34			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
39LC7L		439.1	42.3	0.49	478.4	22.4	0.29	MV
88C2CC		433.2	36.4	0.43	442.4	-13.7	-0.17	MR
8BT6FN		435.6	38.9	0.45	479.6	23.5	0.30	ML
9LA9AE		323.8	-72.9	-0.85	410.0	-46.1	-0.59	MR
DAYRVJ		250.4	-146.3	-1.71	391.1	-64.9	-0.83	MV
GH7AA8		428.7	31.9	0.37	464.7	8.6	0.11	MR
J2LNBD		442.5	45.7	0.53	530.7	74.7	0.95	XX
LPN9RE		502.2	105.5	1.23	504.7	48.7	0.62	MR
LRVJQ4		461.2	64.5	0.75	534.4	78.4	1.00	MV
RLLF86		226.8	-169.9	-1.99	250.3	-205.7	-2.62	MV
UDHFD7		409.5	12.8	0.15	438.5	-17.6	-0.22	XX
XP3WWN		335.1	-61.7	-0.72	450.1	-6.0	-0.08	TV
ZFRA2T		469.6	72.9	0.85	553.8	97.7	1.24	MR

Grand Means		Summary Statistics	
	396.74 M-s		456.05 M-s
Stnd Dev Btwn Labs	85.59 M-s		78.51 M-s
Statistics based on 13 of 13 reporting participants			

Samples U31-U32: NBR & U33-U34: 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
- TV Tech Pro Visc Tech (any model)

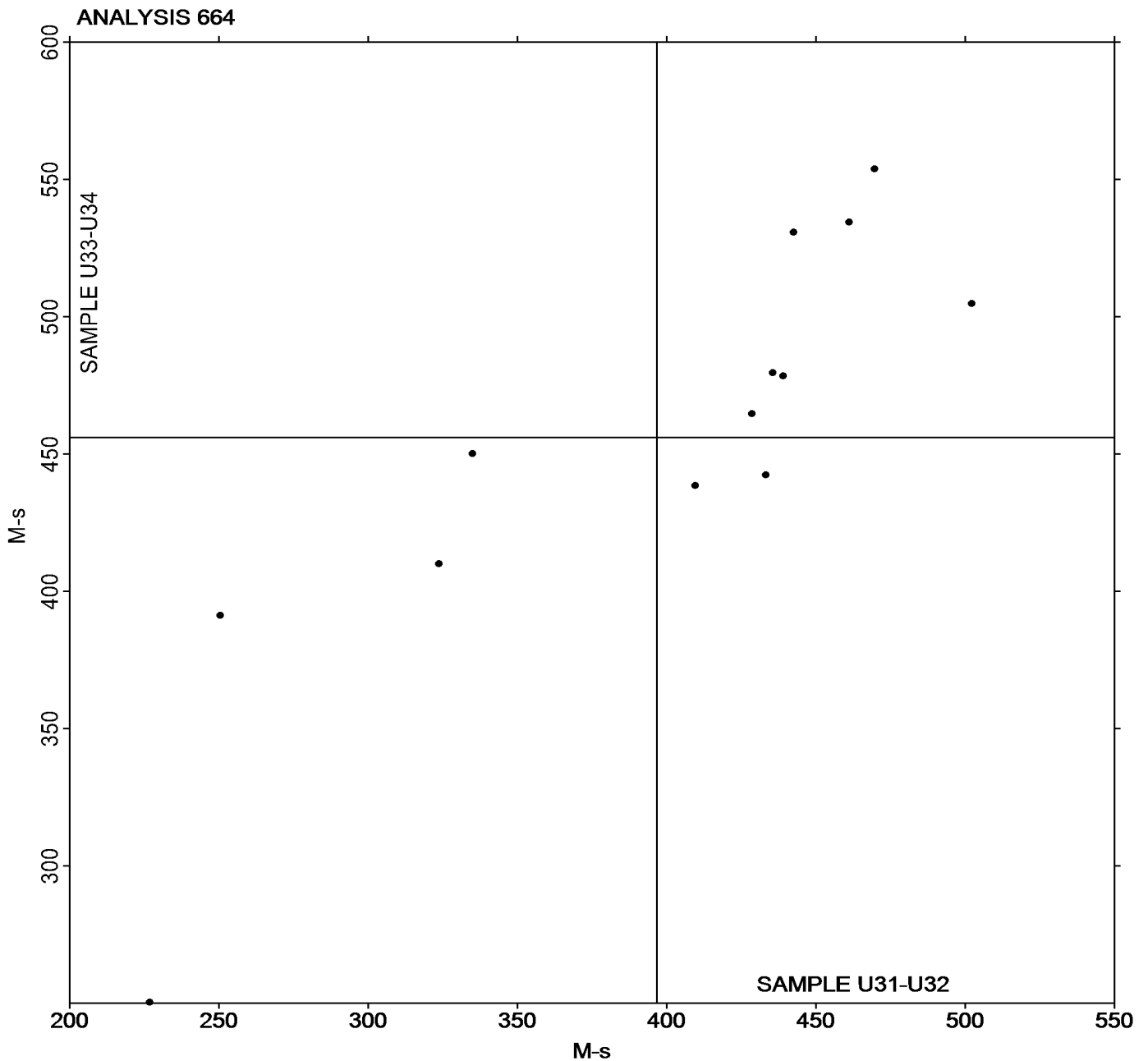


Rubber Interlaboratory Testing Program
Analysis 664
Mooney Stress Relaxation: Area under curve (M-s)

Report #217
3rd Qtr 2023

Grand Mean Sample **U31-U32** = 396.74 M-s

Grand Mean Sample **U33-U34** = 456.05 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 #217
3rd Qtr 2023

WebCode	Data Flag	Sample Y35-Y36			Sample Y37-Y38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
232X3N		2.298	-0.003	-0.03	2.358	-0.098	-0.89	MC
2N2YER		2.428	0.127	1.21	2.528	0.072	0.66	ME
39LC7L		2.347	0.045	0.43	2.532	0.076	0.69	XX
4474HL		2.328	0.027	0.25	2.430	-0.026	-0.24	MC
6PKB8K		2.223	-0.078	-0.74	2.392	-0.064	-0.59	MM
6Y6MGC	X	2.358	0.057	0.54	2.935	0.479	4.36	MC
83H8EB		2.138	-0.163	-1.55	2.313	-0.143	-1.30	XX
88C2CC		2.280	-0.022	-0.21	2.542	0.086	0.78	MC
8BT6FN		2.390	0.088	0.84	2.533	0.077	0.70	ME
8PU24U		2.268	-0.033	-0.32	2.427	-0.029	-0.27	MC
A9EHMD		2.222	-0.080	-0.76	2.338	-0.118	-1.07	MP
AB7G2C		2.352	0.050	0.48	2.432	-0.024	-0.22	MD
AMEGBA		2.514	0.212	2.02	2.697	0.241	2.19	MC
AZPUPP		2.315	0.013	0.13	2.433	-0.023	-0.21	ME
B6EUJB		2.417	0.115	1.10	2.618	0.162	1.48	ME
B8HLBN	*	2.032	-0.270	-2.57	2.138	-0.318	-2.89	MC
DCPUT6		2.253	-0.049	-0.46	2.433	-0.023	-0.21	MC
DKFD8D		2.305	0.003	0.03	2.358	-0.098	-0.89	MC
E9HV3J		2.113	-0.188	-1.79	2.335	-0.121	-1.10	ME
F63MEJ		2.290	-0.012	-0.11	2.467	0.011	0.10	MR
FZLJB8		2.367	0.065	0.62	2.640	0.184	1.67	MC
GEMAWC		2.275	-0.027	-0.25	2.427	-0.029	-0.27	MC
GH7AA8	*	2.137	-0.165	-1.57	2.440	-0.016	-0.15	MC
J2LNBD		2.250	-0.052	-0.49	2.418	-0.038	-0.34	ME
LPN9RE		2.273	-0.028	-0.27	2.352	-0.104	-0.95	MD
LRVJQ4		2.155	-0.147	-1.40	2.330	-0.126	-1.15	MR
LUXP23		2.296	-0.005	-0.05	2.525	0.069	0.63	MC
NN7YRD		2.382	0.080	0.76	2.582	0.126	1.14	MC
PQ9EJ2		2.327	0.025	0.24	2.497	0.041	0.37	XX
RLLF86		2.340	0.038	0.37	2.530	0.074	0.67	MC
U8F3YW		2.257	-0.045	-0.43	2.393	-0.063	-0.57	ME
UHXN27		2.377	0.075	0.72	2.545	0.089	0.81	MC
UWZFKP		2.505	0.203	1.94	2.570	0.114	1.04	MC
XAUXTQ		2.268	-0.033	-0.32	2.403	-0.053	-0.48	XX
XP3WWN		2.472	0.170	1.62	2.585	0.129	1.17	MM
ZFRA2T		2.343	0.042	0.40	2.405	-0.051	-0.46	MC
ZWY97P		2.320	0.018	0.18	2.470	0.014	0.13	MC



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

Report #217
3rd Qtr 2023

		Summary Statistics	
Grand Means	2.3016 minutes	2.4560 minutes	
Stnd Dev Btwn Labs	0.1050 minutes	0.1099 minutes	
Statistics based on 36 of 37 reporting participants			

Samples Y35-Y36: EPDM compound, batch #1 & Y37-Y38: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #684

6Y6MGC (X) - Data for sample group Y37-Y38 are high. Inconsistent within the determinations of sample group Y35-Y36.

Key to Instrument Codes Reported by Participants

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

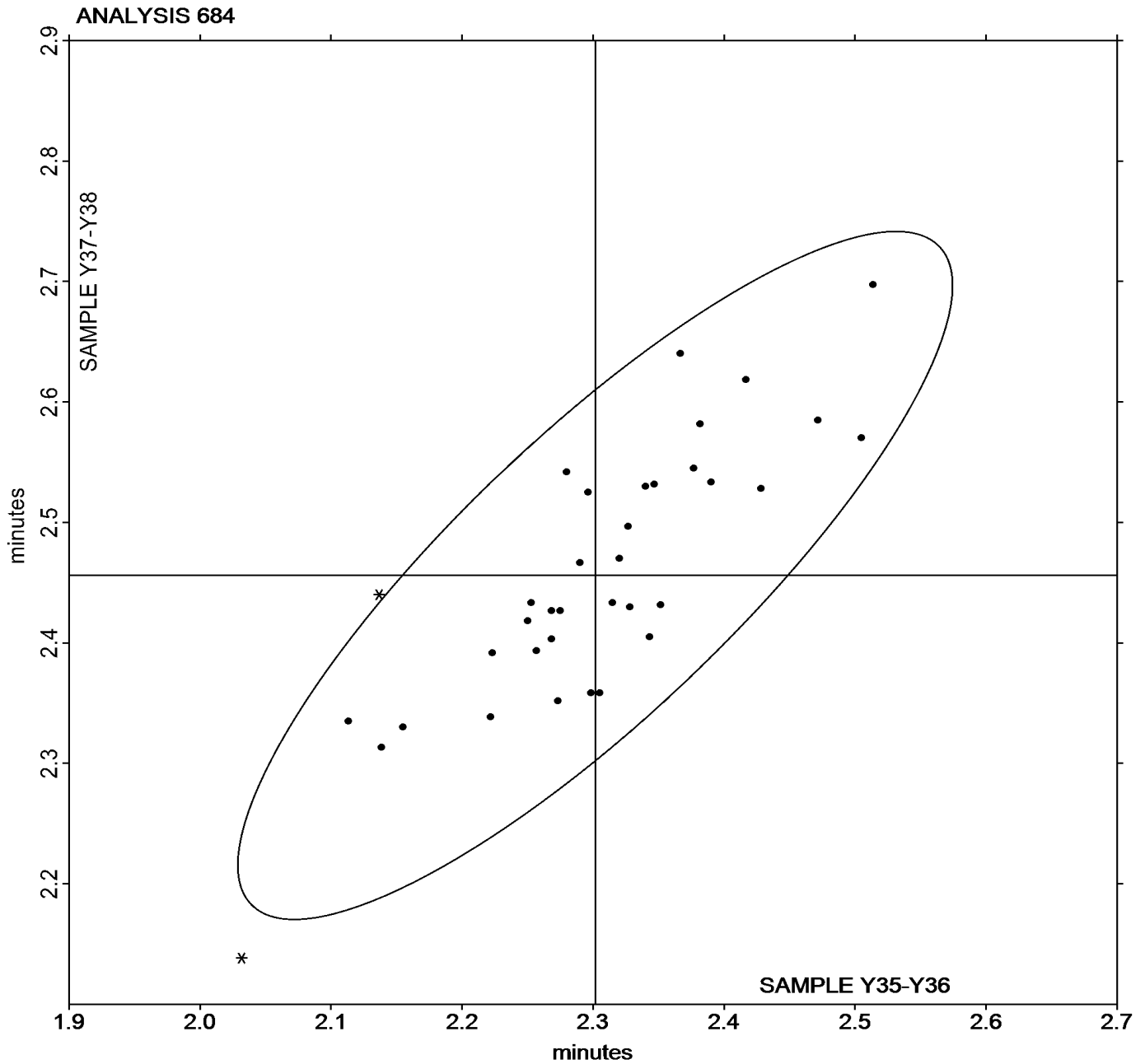


Rubber Interlaboratory Testing Program
Analysis 684
MDR Vulcanization-Cure Time 10% (minutes)

Report #217
3rd Qtr 2023

Grand Mean Sample **Y35-Y36** = 2.3016 minutes

Grand Mean Sample **Y37-Y38** = 2.4560 minutes





Rubber Interlaboratory Testing Program

Report #217

Analysis 685

3rd Qtr 2023

MDR Vulcanization-Scorch Time, Ts1 (minutes)

WebCode	Data Flag	Sample Y35-Y36			Sample Y37-Y38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
232X3N		2.263	0.128	0.89	2.207	0.006	0.03	MC
2N2YER		2.295	0.160	1.10	2.332	0.131	0.77	ME
39LC7L		2.228	0.093	0.64	2.353	0.152	0.90	XX
4474HL		2.215	0.080	0.55	2.238	0.037	0.22	MC
6PKB8K		2.158	0.023	0.16	2.273	0.072	0.43	MM
6Y6MGC	X	2.237	0.101	0.70	2.773	0.572	3.38	MC
83H8EB		1.827	-0.309	-2.13	1.940	-0.261	-1.54	XX
88C2CC		2.118	-0.017	-0.12	2.340	0.139	0.82	MC
8BT6FN		2.148	0.013	0.09	2.133	-0.068	-0.40	ME
8PU24U		2.163	0.028	0.19	2.260	0.059	0.35	MC
A9EHMD		2.083	-0.052	-0.36	2.128	-0.073	-0.43	MP
AB7G2C		2.268	0.133	0.92	2.243	0.042	0.25	MD
AMEGBA		2.422	0.287	1.98	2.575	0.374	2.21	MC
AZPUPP		2.045	-0.090	-0.62	2.090	-0.111	-0.66	ME
B6EUJB		2.133	-0.002	-0.01	2.260	0.059	0.35	ME
B8HLBN		1.842	-0.294	-2.03	1.783	-0.418	-2.47	MC
CFVTTD	*	1.767	-0.369	-2.55	1.677	-0.524	-3.10	MR
DCPUT6		2.092	-0.044	-0.30	2.192	-0.009	-0.06	MC
DKFD8D		2.118	-0.017	-0.12	2.098	-0.103	-0.61	MC
E9HV3J		1.917	-0.219	-1.51	2.070	-0.131	-0.77	ME
F63MEJ		2.137	0.001	0.01	2.223	0.022	0.13	MR
FZLJB8		2.015	-0.120	-0.83	2.228	0.026	0.16	MC
GEMAWC		2.178	0.043	0.30	2.255	0.054	0.32	MC
GH7AA8		1.977	-0.159	-1.10	2.253	0.052	0.31	MC
J2LNBD		2.037	-0.099	-0.68	2.245	0.044	0.26	ME
LPN9RE		2.182	0.046	0.32	2.215	0.014	0.08	MD
LRVJQ4	X	2.950	0.815	5.63	3.140	0.939	5.54	MR
LUXP23		2.197	0.061	0.42	2.350	0.149	0.88	MC
NN7YRD		2.273	0.138	0.95	2.397	0.196	1.15	MC
PQ9EJ2		2.072	-0.064	-0.44	2.182	-0.019	-0.11	XX
RLLF86		2.210	0.075	0.52	2.388	0.187	1.11	MC
U8F3YW		2.203	0.068	0.47	2.233	0.032	0.19	ME
UDHFD7		2.032	-0.104	-0.72	1.963	-0.238	-1.41	MC
UHXN27		2.138	0.003	0.02	2.178	-0.023	-0.13	MC
UWZFKP		2.242	0.106	0.74	2.175	-0.026	-0.15	MC
XAUXTQ		2.125	-0.010	-0.07	2.155	-0.046	-0.27	MR
XP3WWN		2.455	0.320	2.21	2.508	0.307	1.81	MM
YNQG3M		2.285	0.150	1.04	2.205	0.004	0.02	MC



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

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample Y35-Y36			Sample Y37-Y38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
ZFRA2T		2.133	-0.002	-0.01	2.067	-0.134	-0.79	MC
ZWY97P		2.145	0.010	0.07	2.227	0.026	0.15	MC

Summary Statistics	
Grand Means	
2.1352 minutes	2.2011 minutes
Std Dev Btwn Labs	
0.1447 minutes	0.1694 minutes
Statistics based on 38 of 40 reporting participants	

Samples Y35-Y36: EPDM compound, batch #1 & Y37-Y38: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #685

6Y6MGC (X) - Data for sample group Y37-Y38 are high.

LRVJQ4 (X) - Data for all samples are high.

Key to Instrument Codes Reported by Participants

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

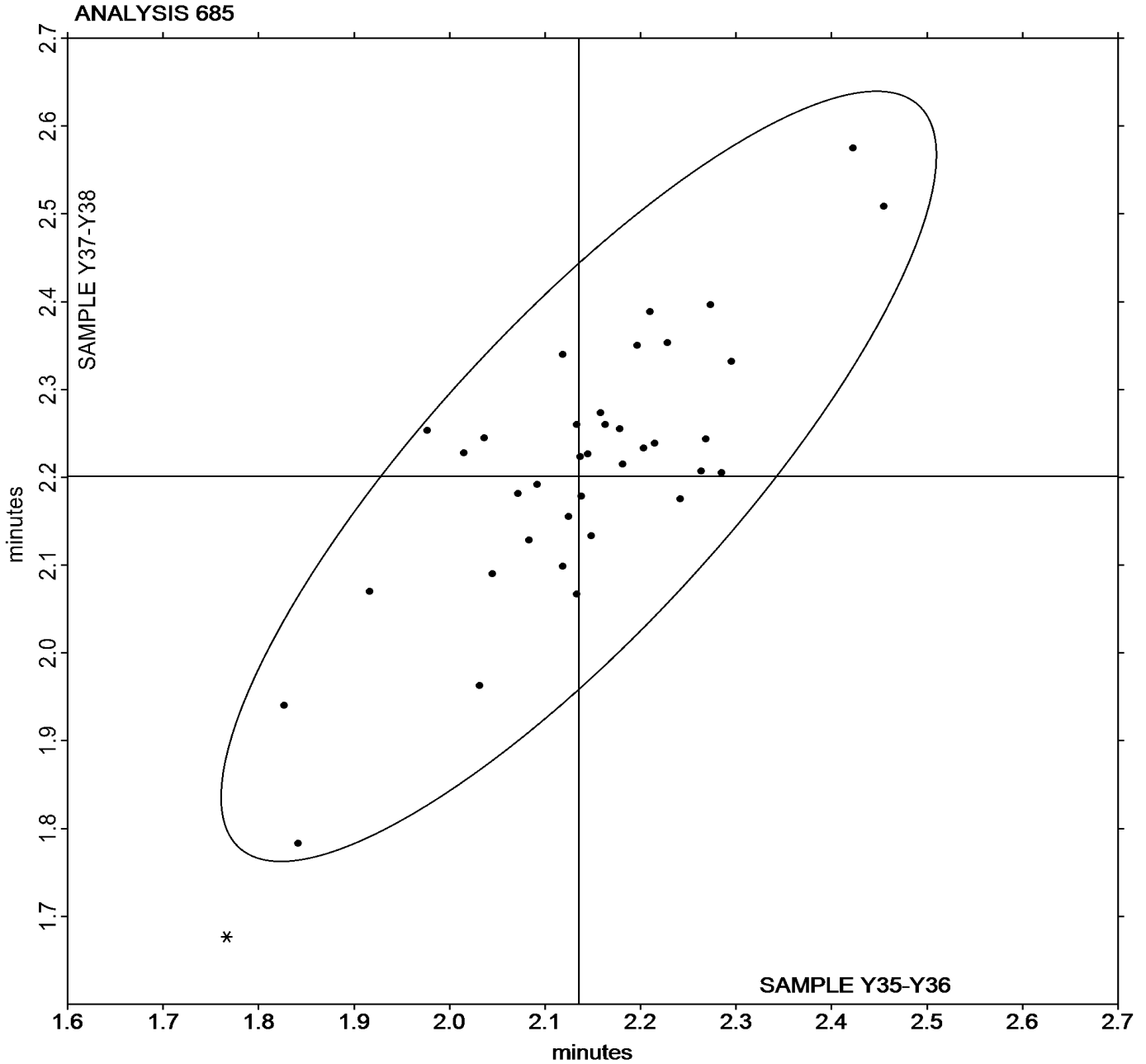


Rubber Interlaboratory Testing Program
Analysis 685
MDR Vulcanization-Scorch Time, Ts1 (minutes)

Report #217
3rd Qtr 2023

Grand Mean Sample **Y35-Y36** = 2.1352 minutes

Grand Mean Sample **Y37-Y38** = 2.2011 minutes





Rubber Interlaboratory Testing Program

Report #217

Analysis 686

3rd Qtr 2023

MDR Vulcanization-Cure Time 50% (minutes)

WebCode	Data Flag	Sample Y35-Y36			Sample Y37-Y38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
232X3N		5.443	0.033	0.20	6.185	0.042	0.19	MC
2N2YER		5.638	0.228	1.39	6.343	0.200	0.93	ME
39LC7L		5.233	-0.177	-1.08	5.772	-0.371	-1.73	XX
4474HL		5.550	0.139	0.85	6.363	0.220	1.02	MC
6PKB8K		5.327	-0.084	-0.51	5.908	-0.235	-1.09	MM
6Y6MGC	*	5.370	-0.041	-0.25	6.523	0.380	1.77	MC
83H8EB		5.632	0.221	1.35	6.225	0.082	0.38	XX
88C2CC		5.133	-0.277	-1.69	5.945	-0.198	-0.92	MC
8BT6FN		5.537	0.126	0.77	6.402	0.259	1.20	ME
8PU24U		5.403	-0.007	-0.04	6.183	0.040	0.19	MC
A9EHMD		5.508	0.098	0.60	6.213	0.070	0.33	MC
AB7G2C		5.417	0.006	0.04	5.967	-0.176	-0.82	MD
AMEGBA		5.581	0.170	1.04	6.267	0.124	0.57	MC
AZPUPP		5.387	-0.024	-0.15	6.097	-0.046	-0.22	ME
B6EUJB		5.258	-0.152	-0.93	5.980	-0.163	-0.76	ME
B8HLBN		5.268	-0.142	-0.87	5.988	-0.155	-0.72	MC
CFVTTD		5.230	-0.181	-1.10	5.790	-0.353	-1.64	MR
DAYRVJ	X	6.138	0.728	4.44	7.018	0.875	4.07	ME
DCPUT6		5.311	-0.099	-0.61	6.117	-0.026	-0.12	MC
DKFD8D		5.475	0.064	0.39	6.207	0.064	0.30	MC
E9HV3J		5.415	0.004	0.03	6.273	0.130	0.61	ME
F63MEJ		5.438	0.028	0.17	6.352	0.209	0.97	MR
FZLJB8		5.653	0.243	1.48	6.435	0.292	1.36	MC
GEMAWC		5.270	-0.141	-0.86	5.960	-0.183	-0.85	MC
GH7AA8	*	4.972	-0.439	-2.68	5.658	-0.485	-2.25	MC
J2LNBD		5.347	-0.064	-0.39	5.920	-0.223	-1.04	ME
LPN9RE		5.247	-0.164	-1.00	6.058	-0.085	-0.39	MD
LRVJQ4		5.285	-0.126	-0.77	5.943	-0.200	-0.93	MR
LUXP23		5.392	-0.018	-0.11	6.161	0.017	0.08	MC
NN7YRD		5.513	0.103	0.63	6.555	0.412	1.92	MC
PQ9EJ2		5.193	-0.217	-1.32	5.770	-0.373	-1.74	XX
RLLF86		5.253	-0.157	-0.96	6.038	-0.105	-0.49	MC
U8F3YW		5.283	-0.127	-0.78	6.025	-0.118	-0.55	ME
UDHFD7		5.571	0.160	0.98	6.193	0.050	0.23	MC
UHXN27		5.503	0.093	0.57	6.203	0.060	0.28	MC
UWZFKP	*	5.733	0.323	1.97	6.208	0.065	0.30	MC
XAUXTQ		5.580	0.169	1.03	6.282	0.139	0.64	MR
XP3WWN		5.640	0.229	1.40	6.495	0.352	1.64	MM



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

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample Y35-Y36			Sample Y37-Y38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
YNQG3M		5.573	0.163	0.99	6.263	0.120	0.56	MC
ZFRA2T		5.417	0.006	0.04	6.222	0.079	0.37	MC
ZWY97P		5.440	0.029	0.18	6.235	0.092	0.43	MC

Grand Means		Summary Statistics	
	5.4105 minutes		6.1431 minutes
Stnd Dev Btwn Labs	0.1640 minutes		0.2150 minutes
Statistics based on 40 of 41 reporting participants			

Samples Y35-Y36: EPDM compound, batch #1 & Y37-Y38: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #686

DAYRVJ (X) - Data for all samples are high. Inconsistent within the determinations of sample group Y37-Y38.

Key to Instrument Codes Reported by Participants

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

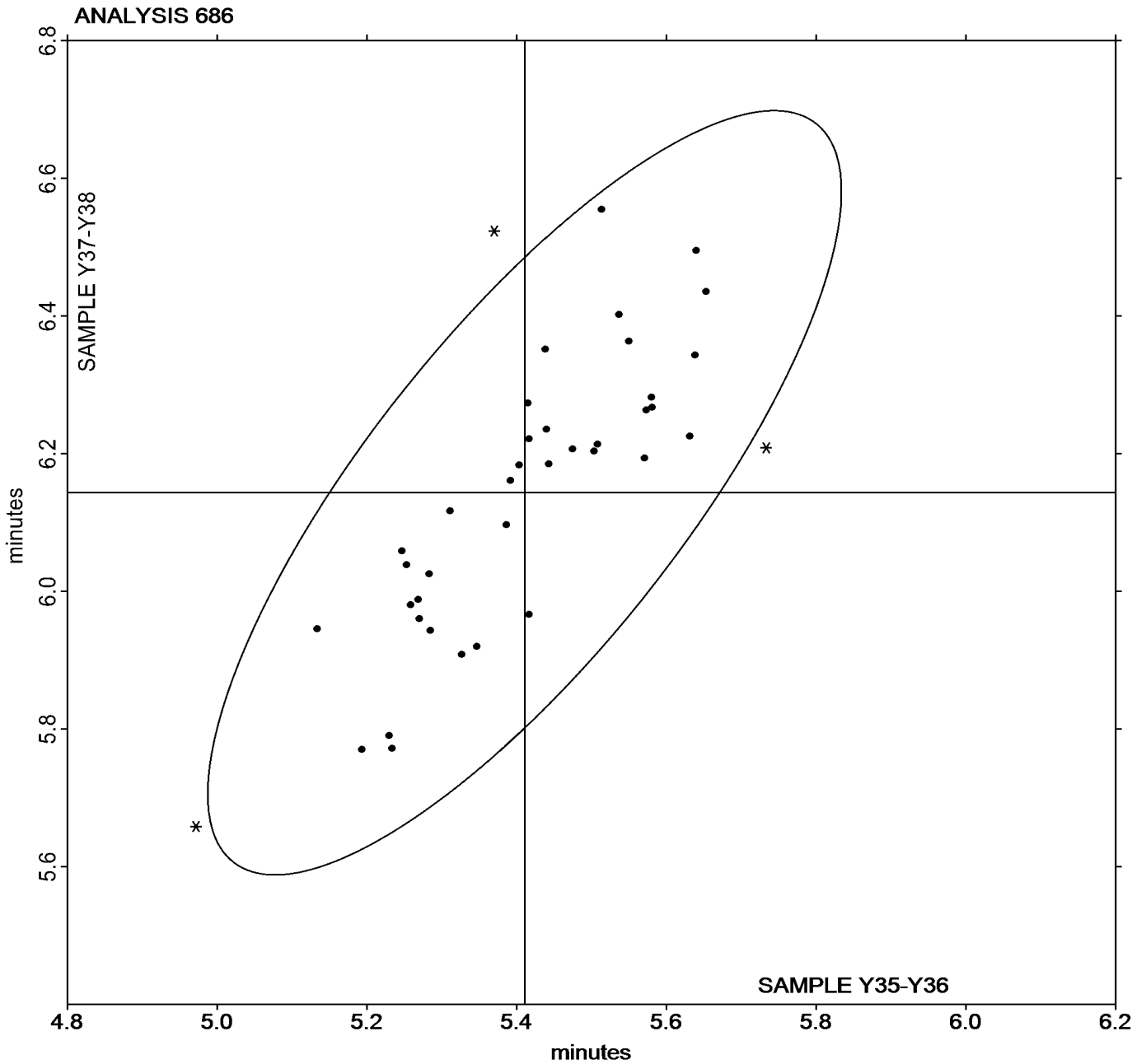


Rubber Interlaboratory Testing Program
Analysis 686
MDR Vulcanization-Cure Time 50% (minutes)

Report #217
3rd Qtr 2023

Grand Mean Sample **Y35-Y36** = 5.4105 minutes

Grand Mean Sample **Y37-Y38** = 6.1431 minutes





Rubber Interlaboratory Testing Program

Report #217

Analysis 687

3rd Qtr 2023

MDR Vulcanization-Cure Time 90% (minutes)

WebCode	Data Flag	Sample Y35-Y36			Sample Y37-Y38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
232X3N		9.275	-0.158	-0.48	10.57	0.00	0.01	MC
2N2YER		9.533	0.101	0.31	10.63	0.06	0.18	ME
39LC7L		9.418	-0.014	-0.04	10.24	-0.33	-1.01	XX
4474HL		9.548	0.116	0.35	10.83	0.26	0.80	MC
6PKB8K		9.513	0.081	0.25	10.44	-0.13	-0.39	MM
6Y6MGC	X	10.118	0.686	2.10	12.28	1.71	5.29	MC
83H8EB		10.113	0.681	2.08	11.17	0.60	1.87	XX
88C2CC		9.117	-0.316	-0.97	10.19	-0.37	-1.16	MC
8BT6FN		9.332	-0.101	-0.31	10.72	0.16	0.48	ME
8PU24U		9.470	0.037	0.11	10.59	0.02	0.06	MC
A9EHMD		9.640	0.207	0.63	10.78	0.21	0.66	MC
AB7G2C		9.222	-0.211	-0.64	10.19	-0.37	-1.16	MD
AMEGBA		9.761	0.329	1.01	10.65	0.08	0.25	MC
AZPUPP		9.555	0.122	0.37	10.58	0.01	0.03	ME
B6EUJB		9.148	-0.284	-0.87	10.09	-0.48	-1.49	ME
B8HLBN		9.240	-0.193	-0.59	10.49	-0.07	-0.23	MC
CFVTTD		9.015	-0.418	-1.28	10.35	-0.21	-0.66	MR
DAYRVJ		10.155	0.722	2.21	11.37	0.80	2.49	ME
DCPUT6		9.311	-0.121	-0.37	10.60	0.03	0.10	MC
DKFD8D		9.558	0.126	0.38	10.64	0.07	0.21	MC
E9HV3J		9.518	0.086	0.26	10.90	0.33	1.03	ME
F63MEJ		9.527	0.094	0.29	10.89	0.32	0.99	MR
FZLJB8		9.969	0.537	1.64	10.90	0.33	1.03	MC
GEMAWC		9.100	-0.333	-1.02	10.32	-0.24	-0.76	MC
GH7AA8		8.973	-0.459	-1.40	9.98	-0.59	-1.83	MC
J2LNBD		9.715	0.282	0.86	10.36	-0.21	-0.65	ME
LPN9RE		9.205	-0.228	-0.70	10.48	-0.09	-0.27	MD
LRVJQ4	*	8.583	-0.849	-2.60	10.13	-0.44	-1.36	MR
LUXP23		9.310	-0.123	-0.37	10.36	-0.21	-0.66	MC
NN7YRD		9.457	0.024	0.07	11.05	0.48	1.48	MC
PQ9EJ2		9.048	-0.384	-1.17	10.00	-0.57	-1.76	XX
RLLF86		9.353	-0.079	-0.24	10.48	-0.09	-0.29	MC
U8F3YW		9.187	-0.246	-0.75	10.32	-0.25	-0.76	ME
UDHFD7		9.583	0.151	0.46	10.59	0.02	0.07	MC
UHXN27		9.172	-0.261	-0.80	10.36	-0.21	-0.66	MC
UWZFKP		10.112	0.679	2.08	10.93	0.36	1.11	MC
XAUXTQ		9.492	0.059	0.18	10.62	0.06	0.17	MR
XP3WWN		9.518	0.086	0.26	10.99	0.42	1.30	MM



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

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample Y35-Y36			Sample Y37-Y38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
YNQG3M		9.720	0.287	0.88	10.86	0.29	0.91	MC
ZFRA2T		9.160	-0.273	-0.83	10.28	-0.29	-0.89	MC
ZWY97P		9.675	0.242	0.74	10.81	0.24	0.75	MC

		Summary Statistics	
Grand Means		9.4326 minutes	10.568 minutes
Stnd Dev Btwn Labs		0.3271 minutes	0.323 minutes
Statistics based on 40 of 41 reporting participants			

Samples Y35-Y36: EPDM compound, batch #1 & Y37-Y38: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #687

6Y6MGC (X) - Data for sample group Y37-Y38 are high. Inconsistent within the determinations of both sample groups.

Key to Instrument Codes Reported by Participants

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

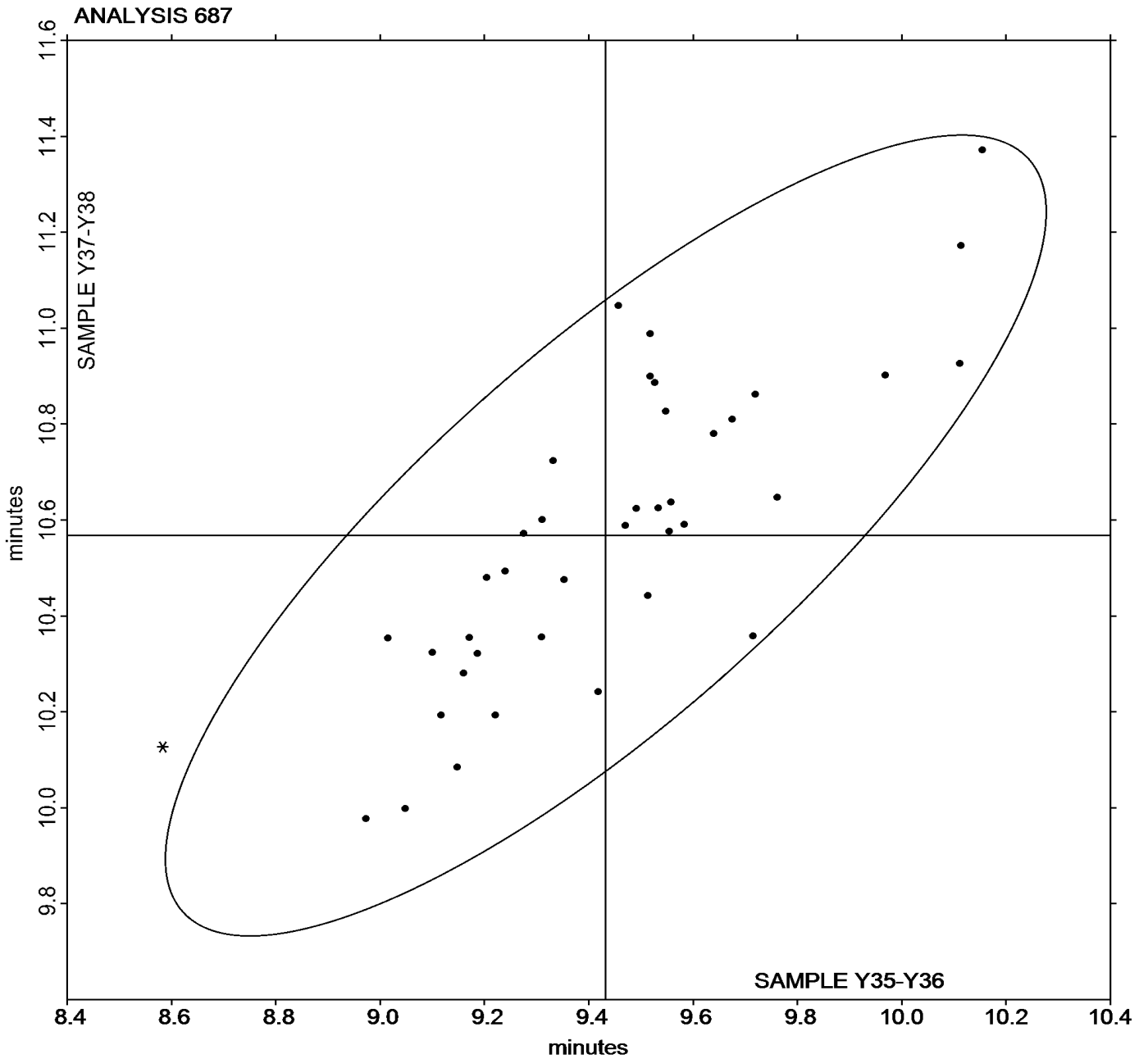


Rubber Interlaboratory Testing Program
Analysis 687
MDR Vulcanization-Cure Time 90% (minutes)

Report #217
3rd Qtr 2023

Grand Mean Sample Y35-Y36 = 9.4326 minutes

Grand Mean Sample Y37-Y38 = 10.568 minutes





Rubber Interlaboratory Testing Program

Report #217

Analysis 688

3rd Qtr 2023

MDR Vulcanization: Minimum Torque (lbf.in)

WebCode	Data Flag	Sample Y35-Y36			Sample Y37-Y38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
232X3N		3.617	0.060	0.21	2.783	-0.244	-0.62	MC
2N2YER		3.125	-0.432	-1.52	2.530	-0.497	-1.27	ME
39LC7L		3.948	0.392	1.38	3.577	0.549	1.40	MM
4474HL		3.362	-0.195	-0.69	2.745	-0.282	-0.72	MC
6PKB8K		3.328	-0.228	-0.80	2.908	-0.119	-0.30	MM
6Y6MGC	*	4.145	0.588	2.07	4.228	1.201	3.07	MC
83H8EB		3.779	0.222	0.78	3.375	0.348	0.89	XX
88C2CC		3.842	0.285	1.00	3.587	0.559	1.43	MC
8BT6FN		3.467	-0.090	-0.32	2.885	-0.142	-0.36	ME
8PU24U		3.590	0.033	0.12	2.968	-0.059	-0.15	MC
A9EHMD		3.293	-0.263	-0.93	2.765	-0.262	-0.67	MC
AB7G2C		3.347	-0.210	-0.74	2.687	-0.341	-0.87	MD
AMEGBA		4.023	0.467	1.64	3.317	0.289	0.74	MC
AZPUPP		4.068	0.512	1.80	3.587	0.559	1.43	ME
B6EUJB		3.570	0.013	0.05	3.231	0.203	0.52	ME
B8HLBN		3.937	0.380	1.34	3.093	0.066	0.17	MC
CFVTTD		3.383	-0.173	-0.61	2.843	-0.184	-0.47	MR
DAYRVJ		3.380	-0.177	-0.62	2.788	-0.239	-0.61	ME
DCPUT6		3.547	-0.010	-0.04	3.112	0.084	0.21	MC
DKFD8D		3.498	-0.058	-0.21	2.875	-0.152	-0.39	MC
E9HV3J		2.962	-0.595	-2.10	2.595	-0.432	-1.10	ME
F63MEJ		3.457	-0.100	-0.35	2.883	-0.144	-0.37	MR
FZLJB8		3.753	0.196	0.69	3.469	0.442	1.13	MC
GEMAWC		3.710	0.153	0.54	3.115	0.088	0.22	MC
GH7AA8		4.017	0.460	1.62	3.877	0.849	2.17	MC
J2LNBD	*	3.453	-0.103	-0.36	3.455	0.428	1.09	ME
LPN9RE		3.173	-0.384	-1.35	2.533	-0.494	-1.26	MD
LRVJQ4		3.383	-0.173	-0.61	2.843	-0.184	-0.47	MR
LUXP23		3.813	0.257	0.90	3.305	0.278	0.71	MC
NN7YRD		3.393	-0.163	-0.58	2.803	-0.224	-0.57	MC
PQ9EJ2	X	4.670	1.113	3.92	4.172	1.144	2.92	XX
RLLF86		3.683	0.127	0.45	3.210	0.183	0.47	MC
U8F3YW		3.427	-0.130	-0.46	2.725	-0.302	-0.77	ME
UDHFD7		3.232	-0.325	-1.14	2.633	-0.394	-1.01	MC
UHXN27		3.723	0.166	0.59	3.145	0.118	0.30	MC
UWZFKP		3.822	0.265	0.93	3.071	0.044	0.11	MC
XAUXTQ		3.155	-0.402	-1.41	2.645	-0.382	-0.98	MR
XP3WWN		3.563	0.007	0.02	2.892	-0.136	-0.35	MM



Rubber Interlaboratory Testing Program

Report #217

Analysis 688

3rd Qtr 2023

MDR Vulcanization: Minimum Torque (lbf.in)

WebCode	Data Flag	Sample Y35-Y36			Sample Y37-Y38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
YNQG3M		3.232	-0.325	-1.14	2.513	-0.514	-1.31	MC
ZFRA2T		3.502	-0.055	-0.19	2.614	-0.414	-1.06	MC
ZWY97P		3.570	0.013	0.05	2.887	-0.141	-0.36	MC

Grand Means		Summary Statistics	
	3.5568 lbf.in		3.0275 lbf.in
Stnd Dev Btwn Labs	0.2841 lbf.in		0.3918 lbf.in
Statistics based on 40 of 41 reporting participants			

Grand Means		Summary Statistics in SI Units	
	4.0186 dN.m		3.4206 dN.m
Stnd Dev Btwn Labs	0.3209 dN.m		0.4427 dN.m
Statistics based on 40 of 41 reporting participants			

Samples Y35-Y36: EPDM compound, batch #1 & Y37-Y38: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #688

PQ9EJ2 (X) - Data for all samples are high.

Key to Instrument Codes Reported by Participants

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

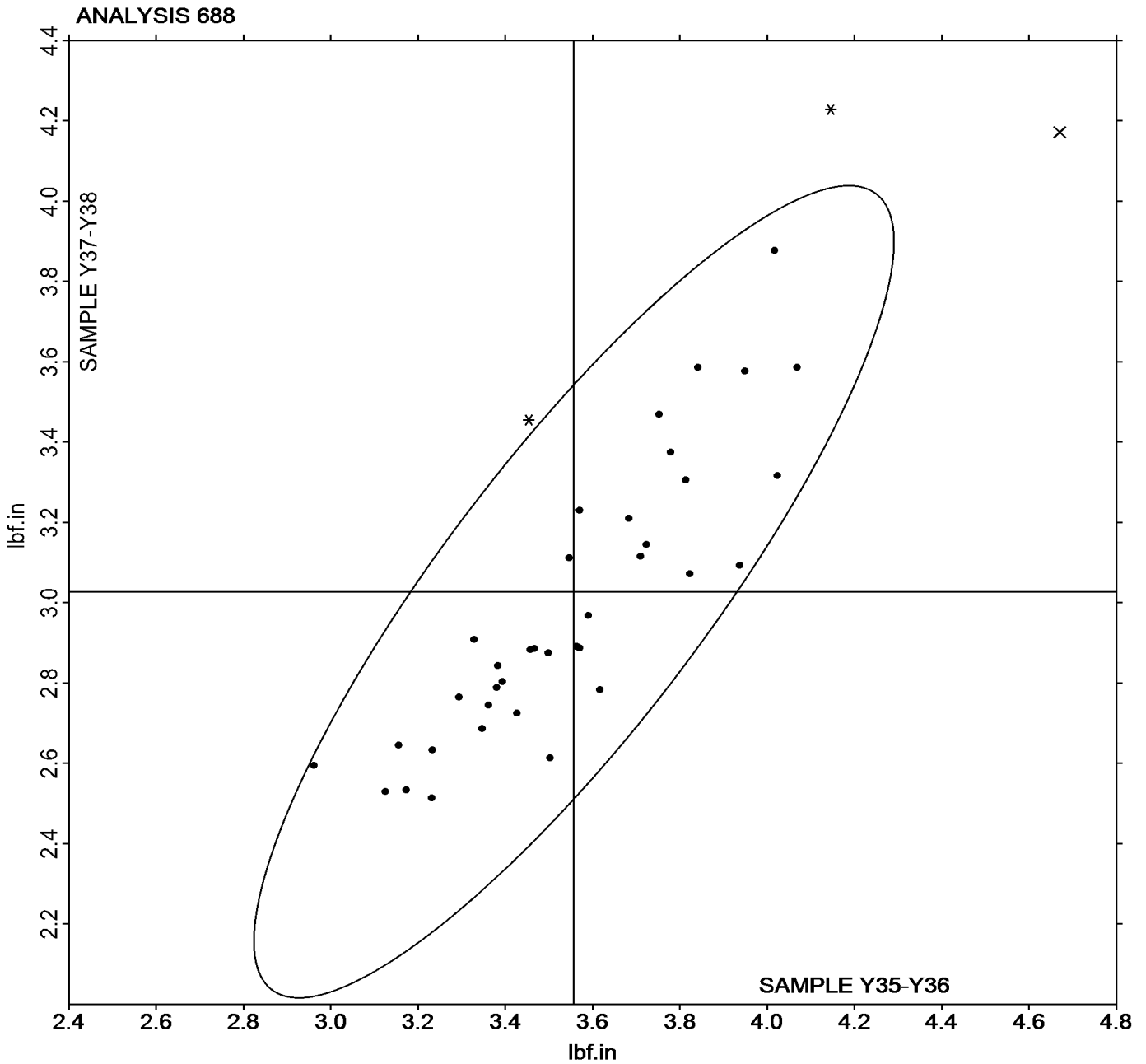


Rubber Interlaboratory Testing Program
Analysis 688
MDR Vulcanization: Minimum Torque (lbf.in)

Report #217
3rd Qtr 2023

Grand Mean Sample **Y35-Y36** = 3.5568 lbf.in

Grand Mean Sample **Y37-Y38** = 3.0275 lbf.in





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

Report #217
3rd Qtr 2023

WebCode	Data Flag	Sample Y35-Y36			Sample Y37-Y38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
232X3N		13.54	-1.19	-1.79	13.79	-0.80	-1.16	MC
2N2YER		14.26	-0.47	-0.70	13.94	-0.64	-0.93	ME
39LC7L		15.05	0.32	0.47	15.03	0.45	0.65	MM
4474HL		14.43	-0.30	-0.46	14.14	-0.45	-0.65	MC
6PKB8K		13.94	-0.79	-1.19	13.90	-0.69	-0.99	MM
6Y6MGC		15.23	0.50	0.75	15.55	0.97	1.40	MC
83H8EB		15.30	0.57	0.86	15.09	0.51	0.74	XX
88C2CC		15.37	0.64	0.96	15.22	0.63	0.92	MC
8BT6FN		14.49	-0.24	-0.36	14.58	-0.01	-0.01	ME
8PU24U		14.52	-0.21	-0.32	14.19	-0.39	-0.57	MC
A9EHMD		14.46	-0.27	-0.40	14.25	-0.33	-0.49	MC
AB7G2C		14.13	-0.61	-0.91	14.17	-0.41	-0.60	MD
AMEGBA		14.84	0.11	0.16	14.27	-0.31	-0.45	MC
AZPUPP	*	16.83	2.09	3.15	16.52	1.93	2.80	ME
B6EUJB		14.65	-0.08	-0.12	14.77	0.18	0.27	ME
B8HLBN		15.77	1.04	1.56	15.99	1.41	2.04	MC
CFVTTD		14.90	0.17	0.25	15.11	0.53	0.76	MR
DAYRVJ		14.72	-0.01	-0.02	14.32	-0.26	-0.38	ME
DCPUT6		15.07	0.34	0.51	14.96	0.38	0.55	MC
DKFD8D		15.28	0.55	0.83	14.84	0.26	0.37	MC
E9HV3J		14.66	-0.07	-0.11	14.52	-0.07	-0.10	ME
F63MEJ		14.91	0.18	0.27	14.72	0.13	0.19	MR
FZLJB8		15.41	0.67	1.01	15.19	0.60	0.87	MC
GEMAWC		14.69	-0.04	-0.06	14.51	-0.07	-0.10	MC
GH7AA8		15.67	0.94	1.42	15.63	1.05	1.52	MC
J2LNBD		15.34	0.61	0.91	14.87	0.29	0.42	ME
LPN9RE		13.91	-0.82	-1.23	13.58	-1.01	-1.46	MD
LRVJQ4		14.38	-0.36	-0.54	14.77	0.19	0.27	MR
LUXP23		14.85	0.12	0.18	14.74	0.15	0.22	MC
NN7YRD		14.35	-0.38	-0.57	14.10	-0.49	-0.71	MC
PQ9EJ2	X	17.72	2.99	4.49	17.62	3.04	4.40	XX
RLLF86		14.94	0.21	0.32	14.35	-0.24	-0.34	MC
U8F3YW		13.92	-0.82	-1.23	13.90	-0.68	-0.99	ME
UDHFD7		14.79	0.05	0.08	14.76	0.18	0.26	MC
UHXN27		14.72	-0.01	-0.02	14.79	0.21	0.30	MC
UWZFKP		15.04	0.31	0.47	14.82	0.23	0.34	MC
XAUXTQ		14.49	-0.24	-0.36	14.61	0.03	0.04	MR
XP3WWN		13.72	-1.01	-1.52	13.41	-1.17	-1.70	MM



**Rubber Interlaboratory Testing Program
Analysis 689**

**Report #217
3rd Qtr 2023**

MDR Vulcanization: Maximum Torque (lbf.in)

WebCode	Data Flag	Sample Y35-Y36			Sample Y37-Y38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
YNQG3M		13.26	-1.47	-2.21	12.93	-1.66	-2.40	MC
ZFRA2T		14.18	-0.55	-0.82	13.85	-0.73	-1.06	MC
ZWY97P		15.26	0.53	0.79	14.70	0.11	0.16	MC

		Summary Statistics	
Grand Means		14.732 lbf.in	14.583 lbf.in
Stnd Dev Btwn Labs		0.665 lbf.in	0.690 lbf.in
Statistics based on 40 of 41 reporting participants			

		Summary Statistics in SI Units	
Grand Means		16.644 dN.m	16.477 dN.m
Stnd Dev Btwn Labs		0.751 dN.m	0.779 dN.m
Statistics based on 40 of 41 reporting participants			

Samples Y35-Y36: EPDM compound, batch #1 & Y37-Y38: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #689

PQ9EJ2 (X) - Data for all samples are high. Possible Systematic Error.

Key to Instrument Codes Reported by Participants

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

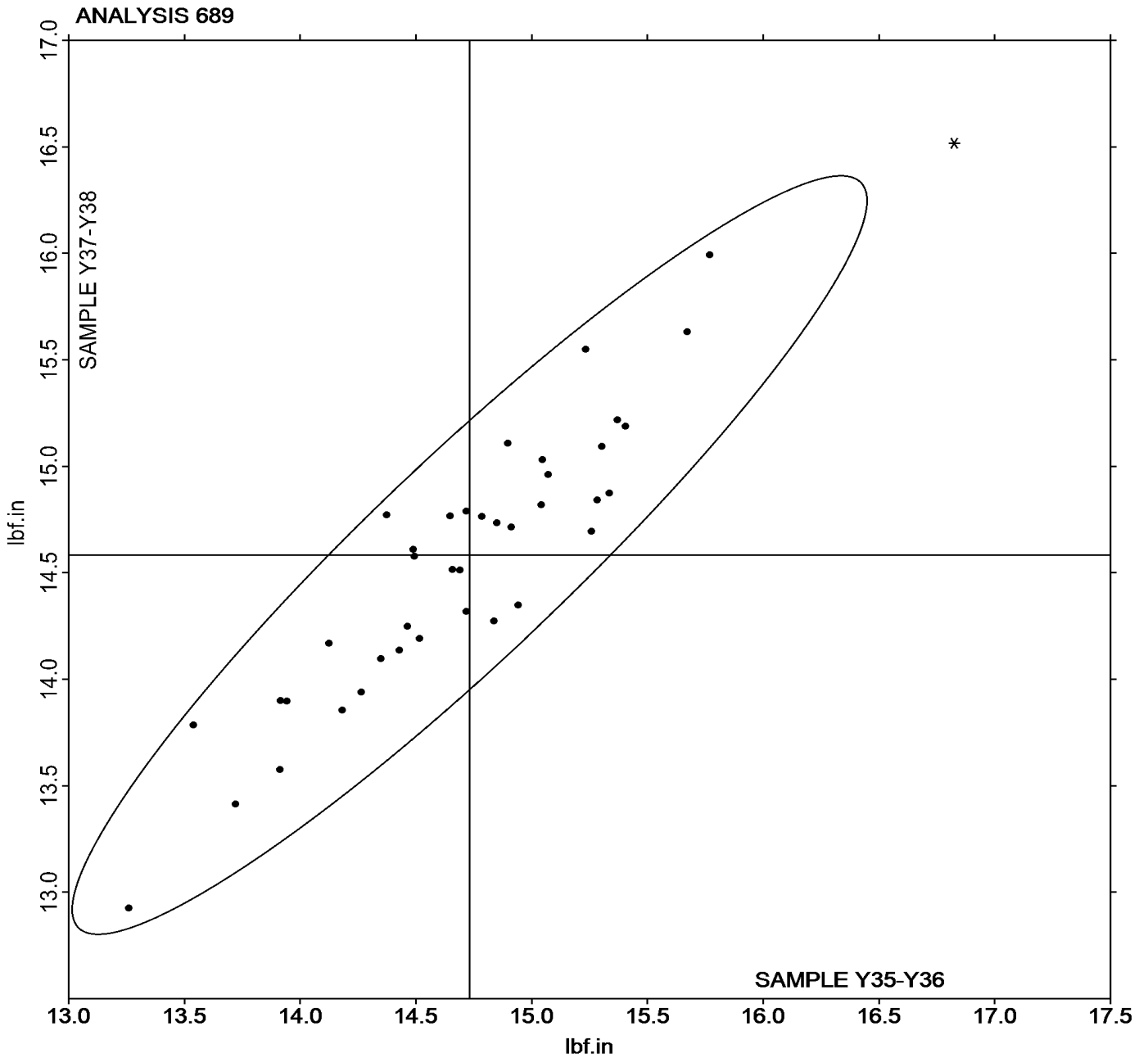


Rubber Interlaboratory Testing Program
Analysis 689
MDR Vulcanization: Maximum Torque (lbf.in)

Report #217
3rd Qtr 2023

Grand Mean Sample **Y35-Y36** = 14.732 lbf.in

Grand Mean Sample **Y37-Y38** = 14.583 lbf.in





Rubber Interlaboratory Testing Program

Report #217

Analysis 690

3rd Qtr 2023

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

WebCode	Data Flag	Sample G31-G32			Sample G33-G34			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
83H8EB		812.8	73.8	1.01	741.2	60.5	0.96	XX
8BT6FN		797.6	58.6	0.80	741.4	60.7	0.97	XX
8PU24U		655.2	-83.8	-1.15	609.6	-71.1	-1.13	PR
DAYRVJ		807.1	68.0	0.93	731.7	51.0	0.81	RP
E9HV3J		747.8	8.8	0.12	689.0	8.2	0.13	RP
LPN9RE		718.9	-20.1	-0.27	662.4	-18.4	-0.29	RP
UDHFD7		633.7	-105.3	-1.44	589.9	-90.9	-1.45	RP

Grand Means		Summary Statistics	
	739.01 kPa		680.73 kPa
Std Dev Btwn Labs	73.14 kPa		62.78 kPa
Statistics based on 7 of 7 reporting participants			

Samples G31-G32: EPDM compound, batch #1 & G33-G34: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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

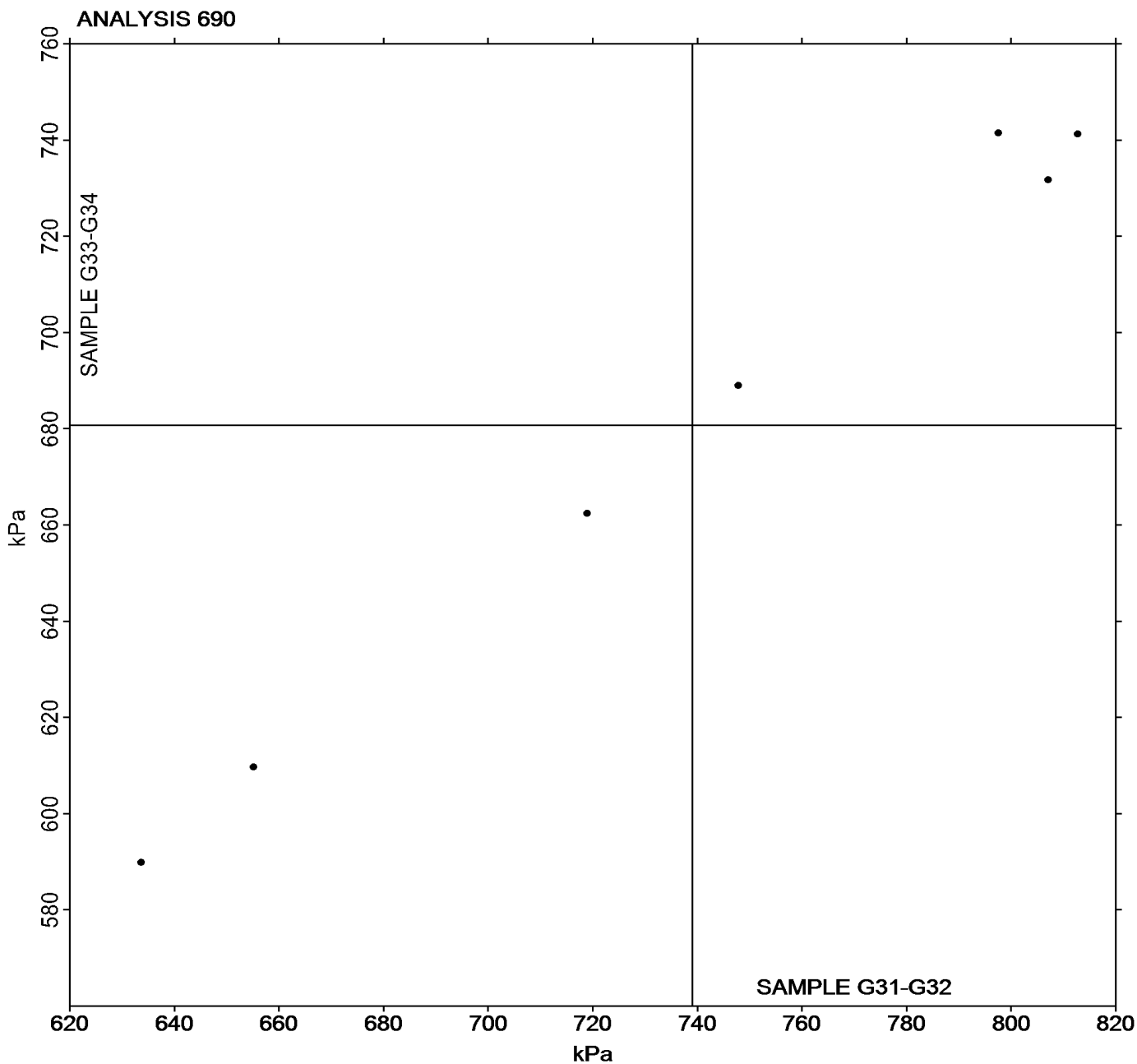


Rubber Interlaboratory Testing Program
Analysis 690
RPA Rheological Properties: Part A - G' at 20Hz (kPa)

Report #217
3rd Qtr 2023

Grand Mean Sample G31-G32 = 739.01 kPa

Grand Mean Sample G33-G34 = 680.73 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 #217

Analysis 691

3rd Qtr 2023

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

WebCode	Data Flag	Sample G31-G32			Sample G33-G34			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
83H8EB		286.8	35.6	1.34	279.9	31.7	1.35	XX
8BT6FN		277.3	26.0	0.98	272.7	24.5	1.04	XX
8PU24U		227.0	-24.2	-0.91	229.7	-18.6	-0.79	PR
E9HV3J		251.2	0.0	0.00	246.9	-1.4	-0.06	RP
LPN9RE		244.6	-6.6	-0.25	238.8	-9.4	-0.40	RP
UDHFD7		220.3	-30.9	-1.16	221.6	-26.7	-1.14	RP

Summary Statistics	
Grand Means	251.21 kPa
Std Dev Btwn Labs	26.57 kPa
	248.28 kPa
	23.45 kPa
Statistics based on 6 of 6 reporting participants	

Samples G31-G32: EPDM compound, batch #1 & G33-G34: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

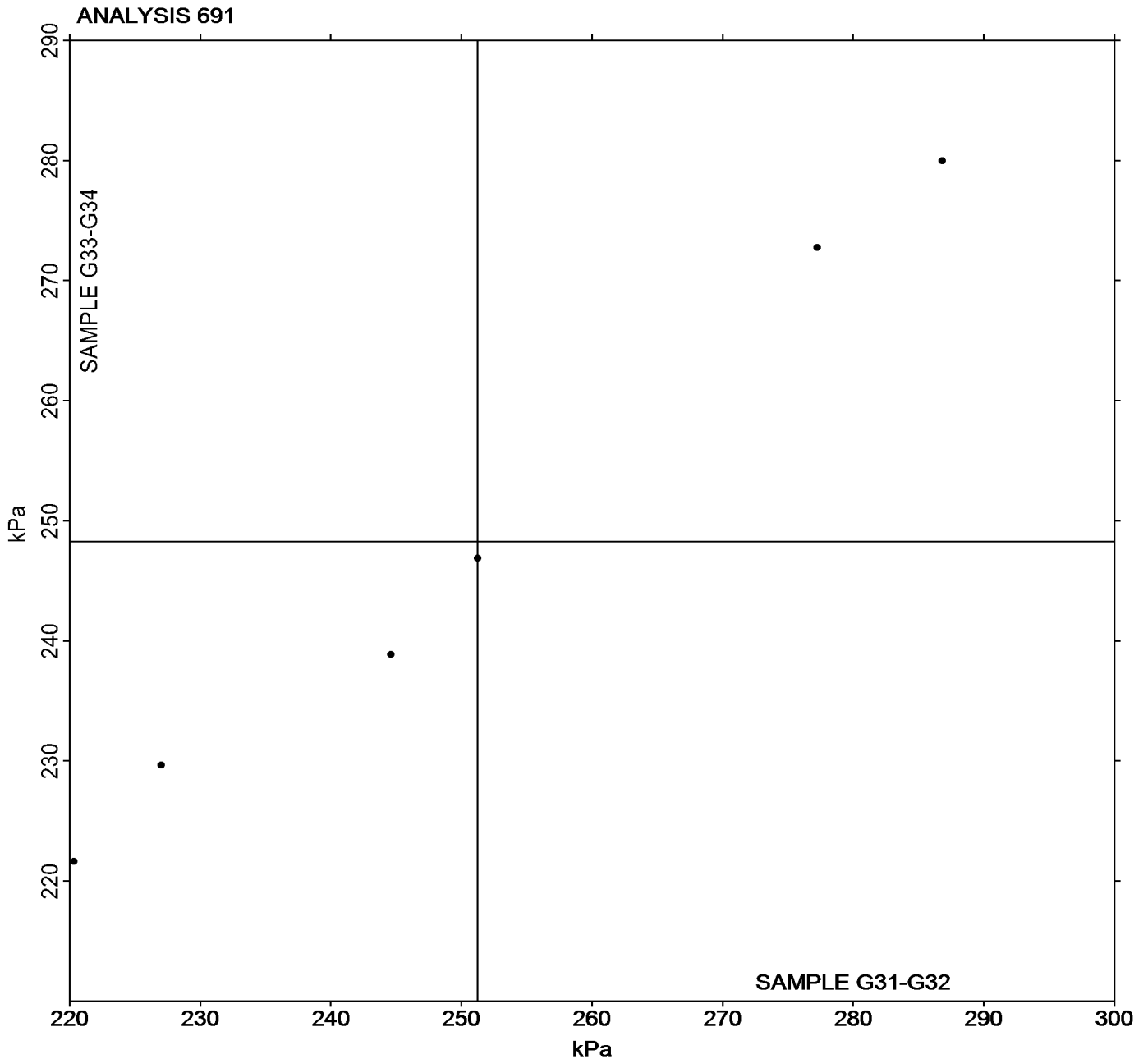
- PR PRPA 2000
- RP RPA 2000
- XX Instrument model not specified by lab



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

Grand Mean Sample G31-G32 = 251.21 kPa

Grand Mean Sample G33-G34 = 248.28 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 #217

Analysis 695

3rd Qtr 2023

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

WebCode	Data Flag	Sample G31-G32			Sample G33-G34			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
83H8EB		122.5	3.5	0.60	103.4	0.9	0.15	XX
8BT6FN		125.8	6.8	1.18	110.1	7.6	1.24	XX
8PU24U		117.5	-1.6	-0.27	100.9	-1.6	-0.27	PR
E9HV3J		119.8	0.8	0.14	104.1	1.5	0.25	RP
LPN9RE		119.8	0.8	0.13	104.9	2.4	0.40	RP
UDHFD7		108.7	-10.3	-1.78	91.7	-10.9	-1.77	RP

Summary Statistics	
Grand Means	
	119.02 kPa
	102.52 kPa
Std Dev Btwn Labs	
	5.80 kPa
	6.13 kPa
Statistics based on 6 of 6 reporting participants	

Samples G31-G32: EPDM compound, batch #1 & G33-G34: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

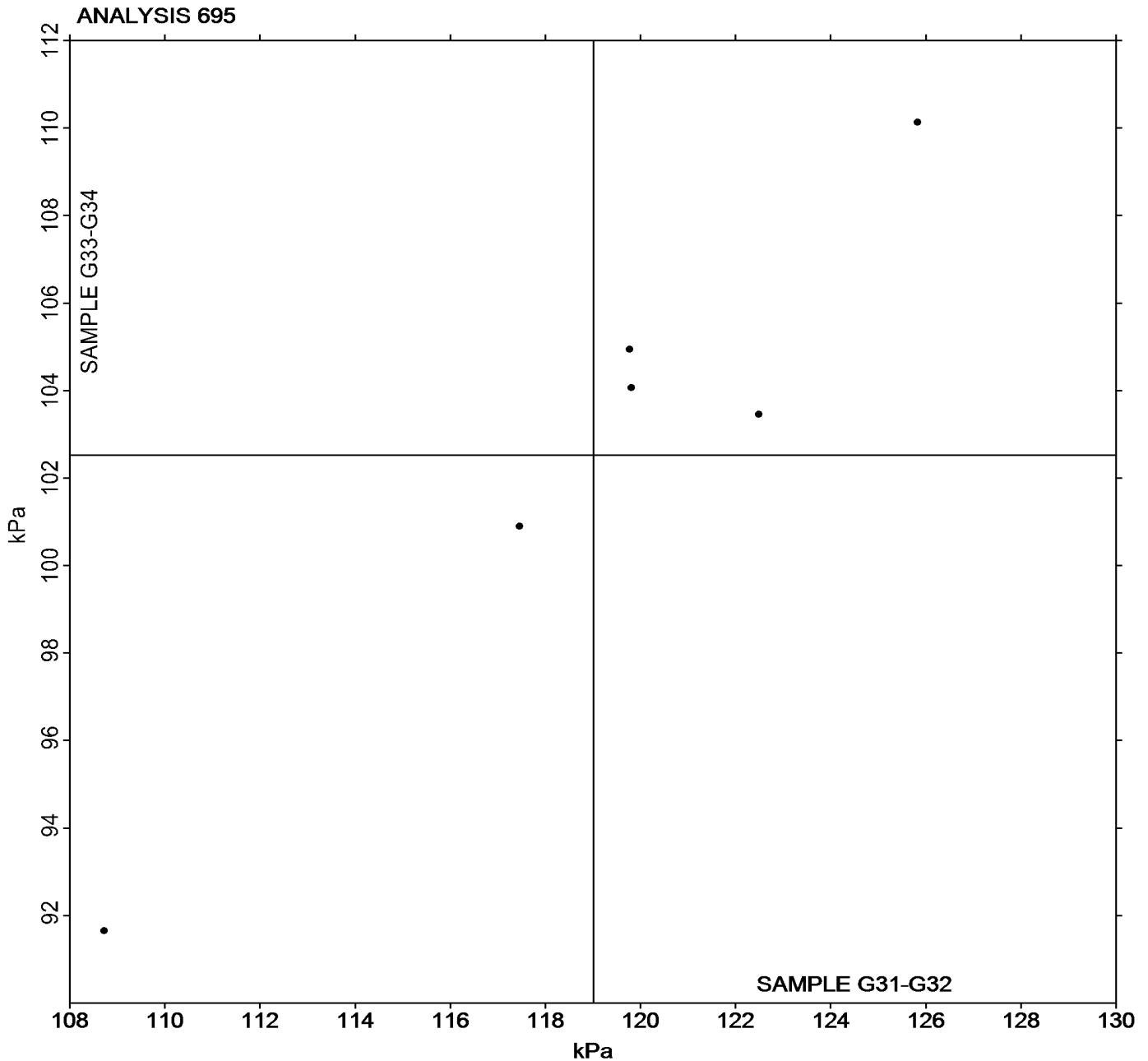
- PR PRPA 2000
- RP RPA 2000
- XX Instrument model not specified by lab



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

Grand Mean Sample G31-G32 = 119.02 kPa

Grand Mean Sample G33-G34 = 102.52 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 #217

Analysis 696

3rd Qtr 2023

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

WebCode	Data Flag	Sample G31-G32			Sample G33-G34			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
83H8EB		106.1	4.4	0.49	100.72	2.46	0.26	XX
8BT6FN		113.2	11.5	1.28	111.49	13.23	1.41	XX
8PU24U		93.8	-7.9	-0.88	90.24	-8.02	-0.86	PR
E9HV3J		104.3	2.6	0.29	101.25	2.98	0.32	RP
LPN9RE		104.3	2.6	0.29	100.89	2.63	0.28	RP
UDHFD7		88.4	-13.3	-1.48	84.98	-13.28	-1.42	RP

Summary Statistics			
Grand Means	101.68 kPa	98.264 kPa	
Std Dev Btwn Labs	8.99 kPa	9.355 kPa	
Statistics based on 6 of 6 reporting participants			

Samples G31-G32: EPDM compound, batch #1 & G33-G34: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

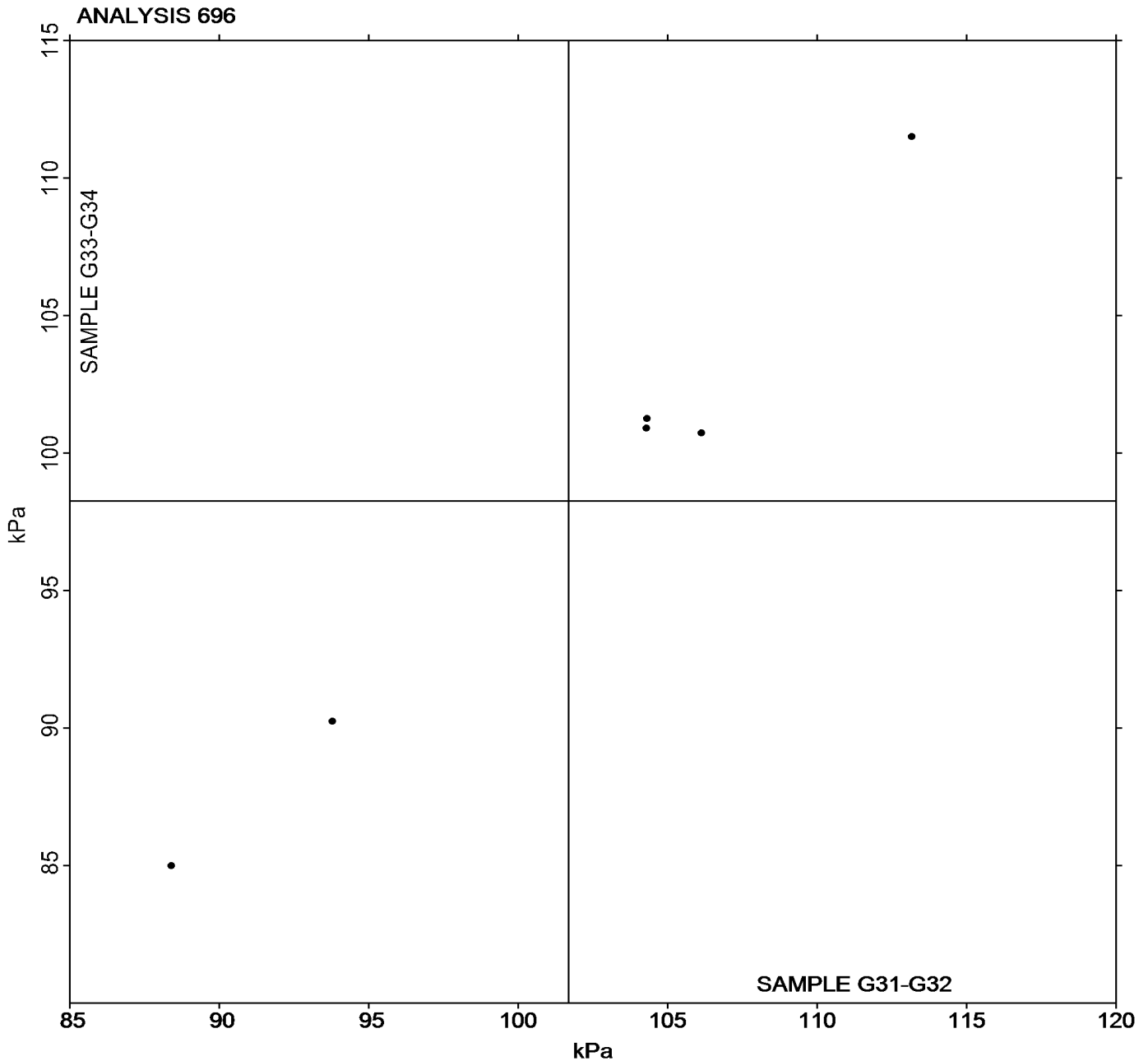
- PR PRPA 2000
- RP RPA 2000
- XX Instrument model not specified by lab



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

Grand Mean Sample G31-G32 = 101.68 kPa

Grand Mean Sample G33-G34 = 98.264 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-