



Rubber Interlaboratory Testing Program

Summary Report #206- 4th Qtr 2020

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

[Key for Web Summary Report](#)

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

ABOUT THE PROGRAM

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

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

ABOUT CTS

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

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

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

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

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

Common Problems Highlighted in Footnotes

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

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



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample D01-D02			Sample D03-D04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
29TQ8F		3,524.0	104.1	0.59	3,486.5	101.2	0.62
2PCJX4		3,142.0	-277.9	-1.56	3,331.5	-53.8	-0.33
2U8B4F		3,660.1	240.2	1.35	3,586.8	201.5	1.24
394P4A		3,629.8	209.9	1.18	3,630.4	245.1	1.51
6E98F8		3,282.2	-137.6	-0.77	3,343.1	-42.1	-0.26
6YVWPY		3,352.0	-67.9	-0.38	3,363.0	-22.3	-0.14
7MB6EU		3,349.7	-70.2	-0.39	3,329.2	-56.1	-0.35
7QT8JE		3,224.8	-195.1	-1.10	3,303.5	-81.8	-0.50
829GMY		3,240.5	-179.4	-1.01	3,414.5	29.2	0.18
8A4JNA		3,357.7	-62.2	-0.35	3,306.9	-78.4	-0.48
8G2BW4		3,200.0	-219.9	-1.24	3,155.0	-230.3	-1.42
8LYPKU		3,495.5	75.6	0.43	3,253.0	-132.3	-0.82
8Q9Q4C		3,549.2	129.3	0.73	3,516.0	130.7	0.81
9CPMW8		3,588.3	168.4	0.95	3,542.6	157.3	0.97
A6HFUA		3,425.5	5.6	0.03	3,570.0	184.7	1.14
A9JGWR		3,361.0	-58.9	-0.33	3,227.0	-158.3	-0.98
AKDVU4		3,557.0	137.1	0.77	3,555.5	170.2	1.05
AP8RJU		3,350.4	-69.4	-0.39	3,256.1	-129.2	-0.80
BFWPXU	*	3,619.5	199.6	1.12	3,313.5	-71.8	-0.44
BLLA2A		3,455.5	35.6	0.20	3,317.0	-68.3	-0.42
BPMB4R		3,285.0	-134.9	-0.76	3,280.0	-105.3	-0.65
C828WQ		3,581.5	161.7	0.91	3,605.9	220.6	1.36
CFVCQR		3,360.0	-59.9	-0.34	3,480.0	94.7	0.58
CGMB4P	*	3,702.4	282.6	1.59	3,797.6	412.3	2.54
CYTFR3		3,332.3	-87.6	-0.49	3,099.5	-285.8	-1.76
D263GR		3,335.9	-84.0	-0.47	3,370.0	-15.3	-0.09
D8UMK8		3,429.4	9.6	0.05	3,502.7	117.4	0.72
DAKKX6		3,462.0	42.1	0.24	3,283.0	-102.3	-0.63
DU98G8		3,681.2	261.3	1.47	3,595.2	209.9	1.29
DY347Y		3,464.0	44.1	0.25	3,440.5	55.2	0.34
EHUAC4		3,226.9	-193.0	-1.08	3,179.6	-205.7	-1.27
ERKVG3	*	2,921.8	-498.0	-2.80	3,087.2	-298.1	-1.84
EZULK6		3,457.3	37.5	0.21	3,517.1	131.8	0.81
F4TXF6		3,069.6	-350.3	-1.97	3,029.2	-356.1	-2.20
FB6CZL		3,429.5	9.6	0.05	3,521.5	136.2	0.84
FLQF8L		3,178.5	-241.3	-1.36	3,325.7	-59.5	-0.37
FP9HD7		3,639.1	219.2	1.23	3,438.6	53.3	0.33
FTP3XZ		3,177.1	-242.8	-1.36	3,066.1	-319.2	-1.97



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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WebCode	Data Flag	Sample D01-D02			Sample D03-D04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
FX2QXW		3,539.0	119.1	0.67	3,351.5	-33.8	-0.21
G9XFR3		3,472.5	52.6	0.30	3,435.4	50.1	0.31
GENQ22		3,412.8	-7.1	-0.04	3,461.8	76.5	0.47
GGUBRL		3,590.5	170.6	0.96	3,460.5	75.2	0.46
GWPDTZ		3,643.0	223.1	1.25	3,371.0	-14.3	-0.09
GZMRGP		3,422.5	2.6	0.01	3,294.0	-91.3	-0.56
HJCPVM		3,412.0	-7.8	-0.04	3,382.3	-3.0	-0.02
HP4Z6K		3,330.0	-89.9	-0.50	3,320.0	-65.3	-0.40
HWJJMY		3,345.0	-74.9	-0.42	3,360.0	-25.3	-0.16
J4WRNZ	*	3,090.4	-329.4	-1.85	3,350.1	-35.2	-0.22
J74AMW		3,713.5	293.6	1.65	3,479.0	93.7	0.58
JJT7NU		3,650.6	230.8	1.30	3,617.2	231.9	1.43
JPEYZU		3,400.0	-19.9	-0.11	3,475.0	89.7	0.55
JUBMG2	*	2,960.0	-459.9	-2.58	2,965.0	-420.3	-2.59
JV62UZ		3,275.7	-144.1	-0.81	3,275.7	-109.6	-0.68
KCLYLW		3,335.0	-84.9	-0.48	3,322.0	-63.3	-0.39
KWT82V		3,649.9	230.1	1.29	3,497.6	112.3	0.69
L4R9GF		3,598.5	178.6	1.00	3,411.0	25.7	0.16
L9KDAK		3,496.0	76.1	0.43	3,509.0	123.7	0.76
LCLEAG		3,741.5	321.6	1.81	3,641.0	255.7	1.58
LKVQPZ		3,349.0	-70.9	-0.40	3,314.9	-70.4	-0.43
LX2Y7H		3,403.5	-16.4	-0.09	3,479.0	93.7	0.58
MAVJVJ		3,537.0	117.1	0.66	3,453.0	67.7	0.42
MXHFYP		3,451.3	31.5	0.18	3,332.4	-52.9	-0.33
NGN8GH		3,266.0	-153.9	-0.86	3,368.5	-16.8	-0.10
NY6DQT		3,499.9	80.0	0.45	3,436.7	51.4	0.32
P4XUFR		3,510.9	91.0	0.51	3,448.8	63.5	0.39
PUTPQW		3,618.7	198.9	1.12	3,495.4	110.1	0.68
QA4Q2D		3,399.0	-20.9	-0.12	3,403.0	17.7	0.11
QC42VR		3,319.3	-100.6	-0.56	3,230.8	-154.5	-0.95
QWTDKC		3,587.0	167.1	0.94	3,623.5	238.2	1.47
RJNG2B		3,459.6	39.7	0.22	3,491.9	106.6	0.66
RVDFRD		3,393.5	-26.4	-0.15	3,389.0	3.7	0.02
T9XFWK		3,128.7	-291.2	-1.64	3,150.3	-235.0	-1.45
TBLRVQ		3,483.5	63.6	0.36	3,395.6	10.3	0.06
TV8HUM		3,140.5	-279.4	-1.57	3,139.0	-246.3	-1.52
UBHLV8		3,123.5	-296.4	-1.67	3,118.5	-266.8	-1.65



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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4th Qtr 2020

WebCode	Data Flag	Sample D01-D02			Sample D03-D04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
UD8TDJ		3,201.7	-218.2	-1.23	3,141.6	-243.7	-1.50
UEHUZH		3,437.1	17.2	0.10	3,425.7	40.4	0.25
UFV6DN		3,602.3	182.4	1.03	3,508.1	122.8	0.76
UK7HVM		3,487.0	67.1	0.38	3,536.0	150.7	0.93
UR7WHA		3,255.0	-164.9	-0.93	3,354.5	-30.8	-0.19
UW4ZL		3,586.8	167.0	0.94	3,441.8	56.5	0.35
UWKFZQ		3,346.0	-73.9	-0.41	3,348.5	-36.8	-0.23
V38KA7		3,264.0	-155.9	-0.88	3,110.5	-274.8	-1.69
V4WQRH		3,250.5	-169.3	-0.95	3,095.9	-289.4	-1.78
VHH7VH		3,633.2	213.4	1.20	3,495.4	110.1	0.68
VPUGN9		3,495.4	75.6	0.42	3,401.2	15.9	0.10
VVLRX8	X	1,482.3	-1,937.6	-10.89	1,285.8	-2,099.5	-12.95
VZFLV9		3,686.5	266.6	1.50	3,587.5	202.2	1.25
W27736		3,690.0	270.1	1.52	3,675.5	290.2	1.79
WJ48CP		3,541.5	121.6	0.68	3,487.5	102.2	0.63
WU6U4L		3,339.0	-80.9	-0.45	3,340.5	-44.8	-0.28
XKDVQL		3,409.0	-10.9	-0.06	3,328.0	-57.3	-0.35
XRW2PE		3,454.1	34.2	0.19	3,542.6	157.3	0.97
XT4GWK	*	3,019.0	-400.8	-2.25	2,959.1	-426.2	-2.63
XUKDNJ		3,542.6	122.7	0.69	3,504.8	119.5	0.74
XX4RRK		3,534.2	114.3	0.64	3,453.8	68.5	0.42
XZPAA6		3,295.0	-124.9	-0.70	3,325.0	-60.3	-0.37
YAAZA3		3,397.3	-22.6	-0.13	3,309.8	-75.5	-0.47
YHLZ4D		3,304.1	-115.8	-0.65	3,246.3	-139.0	-0.86
YTPAA3		3,551.0	131.1	0.74	3,550.5	165.2	1.02
Z38B4H		3,580.3	160.4	0.90	3,427.3	42.0	0.26
ZJCHHJ		3,655.0	235.1	1.32	3,647.7	262.4	1.62

		Summary Statistics	
Grand Means	3,419.85 psi	3,385.29 psi	
Std Dev Btwn Labs	177.98 psi	162.16 psi	
Statistics based on 101 of 102 reporting participants			



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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4th Qtr 2020

Summary Statistics in SI Units

Grand Means

23.579 MPa

23.34 MPa

Std Dev Btwn Labs

1.227 MPa

1.12 MPa

Statistics based on 101 of 102 reporting participants

Samples D01-D02: Polyisoprene compound, batch #1 & D03-D04: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #605

VLRX8 (X) - Extreme Data.

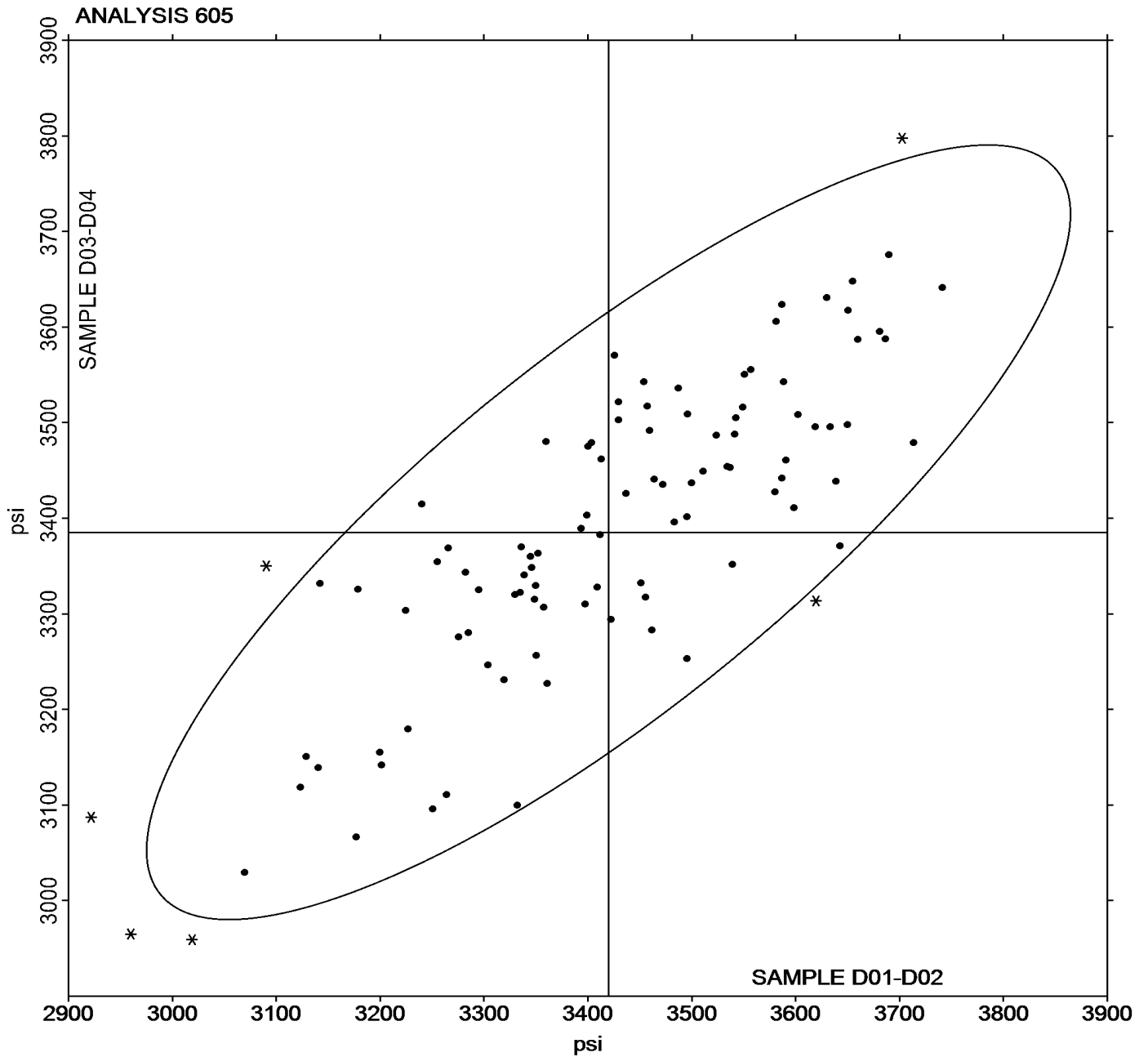


Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

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4th Qtr 2020

Grand Mean Sample **D01-D02** = 3,419.85 psi

Grand Mean Sample **D03-D04** = 3,385.29 psi





Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample D01-D02			Sample D03-D04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
29TQ8F		634.5	25.0	0.84	643.5	30.7	1.04
2PCJX4		604.0	-5.5	-0.18	613.5	0.7	0.02
2U8B4F		605.0	-4.5	-0.15	619.5	6.7	0.23
394P4A		633.8	24.3	0.82	652.8	40.1	1.36
6E98F8		613.0	3.5	0.12	609.5	-3.3	-0.11
6YVWPY		615.0	5.5	0.19	607.5	-5.3	-0.18
7MB6EU		590.0	-19.5	-0.65	585.0	-27.8	-0.94
7QT8JE		595.8	-13.6	-0.46	597.2	-15.6	-0.53
829GMY		585.0	-24.5	-0.82	618.5	5.7	0.19
8A4JNA	X	642.0	32.5	1.09	688.5	75.7	2.57
8G2BW4		674.5	65.0	2.18	670.5	57.7	1.96
8LYPKU		624.0	14.5	0.49	615.0	2.2	0.08
8Q9Q4C		600.4	-9.0	-0.30	626.1	13.4	0.45
9CPMW8	X	645.8	36.3	1.22	605.3	-7.5	-0.25
A6HFUA		603.5	-6.0	-0.20	616.5	3.7	0.13
A9JGWR		595.0	-14.5	-0.49	599.0	-13.8	-0.47
AKDVU4		606.0	-3.5	-0.12	600.0	-12.8	-0.43
AP8RJU		598.9	-10.6	-0.35	592.7	-20.1	-0.68
BFWPXU		595.0	-14.5	-0.49	613.5	0.7	0.02
BLLA2A		627.5	18.0	0.60	624.0	11.2	0.38
BPMB4R		575.0	-34.5	-1.16	585.0	-27.8	-0.94
C828WQ		630.9	21.4	0.72	640.7	27.9	0.95
CFVCQR		664.0	54.5	1.83	648.0	35.2	1.19
CGMB4P		634.2	24.7	0.83	646.2	33.5	1.13
CYTFR3	*	656.3	46.8	1.57	629.0	16.2	0.55
D263GR		595.0	-14.5	-0.49	599.5	-13.3	-0.45
D8UMK8		614.0	4.5	0.15	642.0	29.2	0.99
DAKKX6		619.0	9.5	0.32	622.0	9.2	0.31
DU98G8		609.0	-0.5	-0.02	603.5	-9.3	-0.31
DY347Y		591.0	-18.5	-0.62	594.0	-18.8	-0.64
EHUAC4		599.5	-10.0	-0.33	594.0	-18.8	-0.64
ERKVG3	X	1,067.0	457.5	15.35	1,099.5	486.7	16.49
EZULK6		655.0	45.5	1.53	662.8	50.1	1.70
F4TXF6		593.5	-16.0	-0.54	604.8	-8.0	-0.27
FB6CZL		589.0	-20.5	-0.69	596.0	-16.8	-0.57
FLQF8L	X	839.5	230.0	7.72	922.5	309.7	10.49
FP9HD7		650.2	40.7	1.36	645.3	32.6	1.10
FTP3XZ	X	626.5	17.0	0.57	564.0	-48.8	-1.65



Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample D01-D02			Sample D03-D04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
FX2QXW		642.0	32.5	1.09	638.0	25.2	0.85
G9XFR3		620.6	11.1	0.37	635.1	22.3	0.76
GENQ22		664.5	55.0	1.85	668.0	55.2	1.87
GGUBRL		639.0	29.5	0.99	626.0	13.2	0.45
GWPDTZ		575.0	-34.5	-1.16	589.5	-23.3	-0.79
GZMRGP		559.0	-50.5	-1.69	563.0	-49.8	-1.69
HJCPVM		588.0	-21.5	-0.72	589.5	-23.3	-0.79
HP4Z6K		599.5	-10.0	-0.33	598.5	-14.3	-0.48
J4WRNZ	*	546.6	-62.9	-2.11	572.6	-40.2	-1.36
J74AMW		647.0	37.5	1.26	666.5	53.7	1.82
JT7NU		597.7	-11.8	-0.40	576.2	-36.5	-1.24
JPEYZU		570.0	-39.5	-1.32	576.5	-36.3	-1.23
JUBMG2		610.0	0.5	0.02	600.0	-12.8	-0.43
JV62UZ		623.3	13.8	0.46	624.6	11.9	0.40
KCLYLW		644.0	34.5	1.16	656.5	43.7	1.48
KWT82V	X	713.0	103.5	3.47	723.5	110.7	3.75
L4R9GF		634.5	25.0	0.84	615.5	2.7	0.09
L9KDAK		593.5	-16.0	-0.54	583.5	-29.3	-0.99
LCLEAG		637.0	27.5	0.92	642.0	29.2	0.99
LKVQPZ		608.2	-1.2	-0.04	600.7	-12.1	-0.41
LX2Y7H		597.5	-12.0	-0.40	604.5	-8.3	-0.28
MAVJVJ		634.0	24.5	0.82	627.5	14.7	0.50
MXHFYP		561.7	-47.8	-1.60	571.3	-41.5	-1.40
NGN8GH		582.0	-27.5	-0.92	590.3	-22.5	-0.76
NY6DQT		621.1	11.6	0.39	613.1	0.3	0.01
P4XUFR	X	518.1	-91.4	-3.07	512.2	-100.6	-3.41
PUTPQW		612.5	3.0	0.10	607.0	-5.8	-0.20
QA4Q2D		611.5	2.0	0.07	611.0	-1.8	-0.06
QC42VR		600.0	-9.5	-0.32	597.0	-15.8	-0.53
QWTDKC		637.0	27.5	0.92	634.0	21.2	0.72
RJNG2B	*	570.1	-39.4	-1.32	603.1	-9.6	-0.33
RVDFRD		635.5	26.0	0.87	653.5	40.7	1.38
T9XFWK		600.0	-9.5	-0.32	610.5	-2.3	-0.08
TBLRVQ		635.0	25.5	0.86	639.0	26.2	0.89
TV8HUM	*	560.0	-49.5	-1.66	539.0	-73.8	-2.50
UBHLV8	*	526.3	-83.2	-2.79	546.0	-66.8	-2.26
UD8TDJ		584.0	-25.5	-0.85	579.4	-33.3	-1.13



Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample D01-D02			Sample D03-D04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
UEHUZH		619.4	9.9	0.33	624.3	11.5	0.39
UFV6DN		626.2	16.8	0.56	618.8	6.0	0.20
UK7HVM		620.5	11.0	0.37	630.5	17.7	0.60
UR7WHA		635.0	25.5	0.86	650.0	37.2	1.26
UUW4ZL		672.2	62.7	2.10	671.7	58.9	1.99
UWKFZQ		589.5	-20.0	-0.67	583.0	-29.8	-1.01
V38KA7		579.0	-30.5	-1.02	570.5	-42.3	-1.43
V4WQRH		586.5	-23.0	-0.77	581.5	-31.3	-1.06
VHH7VH		622.5	13.0	0.44	618.5	5.7	0.19
VPUGN9	*	531.5	-78.0	-2.62	528.0	-84.8	-2.87
VVLRX8	X	412.0	-197.5	-6.63	409.4	-203.4	-6.89
VZFLV9		621.0	11.5	0.39	637.0	24.2	0.82
W27736		631.5	22.0	0.74	643.0	30.2	1.02
WJ48CP		623.5	14.0	0.47	621.0	8.2	0.28
WU6U4L		605.5	-4.0	-0.13	604.5	-8.3	-0.28
XKDVQL		627.5	18.0	0.60	624.5	11.7	0.40
XRW2PE		589.6	-19.9	-0.67	604.9	-7.9	-0.27
XT4GWK		587.7	-21.8	-0.73	605.4	-7.4	-0.25
XUKDNJ	*	551.9	-57.6	-1.93	584.7	-28.0	-0.95
XX4RRK		571.2	-38.3	-1.28	558.1	-54.7	-1.85
XZPAA6		607.0	-2.5	-0.08	616.0	3.2	0.11
YAAZA3		608.5	-1.0	-0.03	603.1	-9.7	-0.33
YHLZ4D		634.0	24.5	0.82	636.0	23.2	0.79
YTPAA3	X	890.0	280.5	9.41	929.0	316.2	10.71
Z38B4H		632.5	23.1	0.77	635.6	22.9	0.77
ZJCHHJ		654.0	44.5	1.49	658.5	45.7	1.55

Grand Means		Summary Statistics	
	609.47 percent		612.77 percent
Std Dev Btwn Labs	29.80 percent		29.52 percent
Statistics based on 92 of 101 reporting participants			

Samples D01-D02: Polyisoprene compound, batch #1 & D03-D04: Polyisoprene compound, batch #2



Comments on Assigned Data Flags for Test #606

8A4JNA (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group D01-D02.

9CPMW8 (X) - Inconsistent in testing between samples.

ERKVG3 (X) - Extreme Data.

FLQF8L (X) - Extreme Data.

FTP3XZ (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group D01-D02.

KWT82V (X) - Data for all samples are high. Possible Systematic Error.

P4XUFR (X) - Data for all samples are low. Possible Systematic Error.

VVLRX8 (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of sample group D01-D02.

YTPAA3 (X) - Extreme Data.

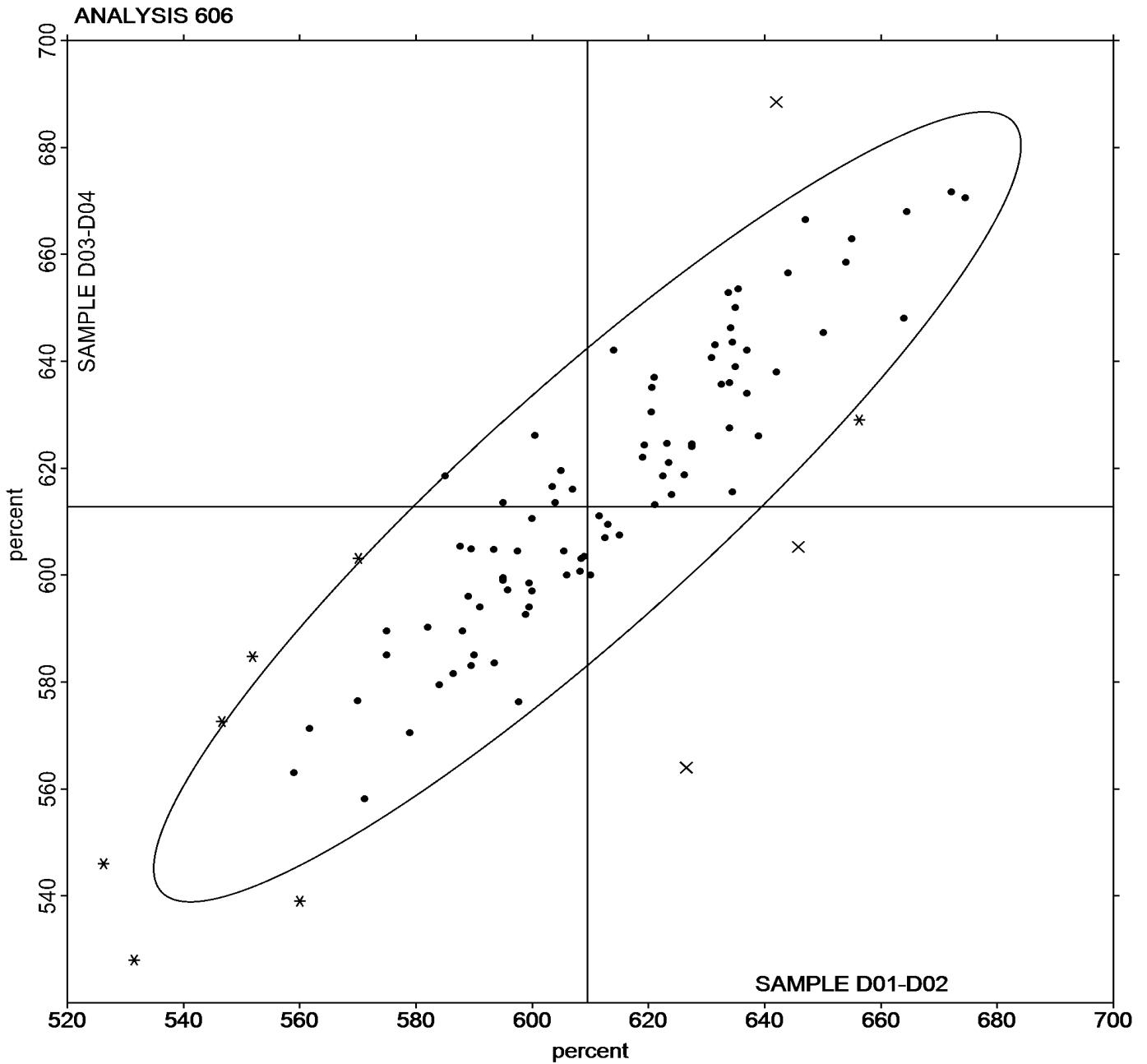


Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #206
4th Qtr 2020

Grand Mean Sample D01-D02 = 609.47 percent

Grand Mean Sample D03-D04 = 612.77 percent





Rubber Interlaboratory Testing Program

Report #206

Analysis 607

4th Qtr 2020

Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample D01-D02			Sample D03-D04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
29TQ8F		1,007.5	-74.4	-0.86	984.0	-64.9	-0.69
2PCJX4	X	857.5	-224.4	-2.58	1,041.0	-7.9	-0.08
2U8B4F		1,187.9	106.0	1.22	1,109.5	60.7	0.65
394P4A		1,073.3	-8.6	-0.10	970.6	-78.3	-0.84
6E98F8		1,048.6	-33.2	-0.38	1,053.7	4.8	0.05
7MB6EU		1,054.0	-27.9	-0.32	1,030.5	-18.4	-0.20
7QT8JE		1,068.0	-13.8	-0.16	1,059.0	10.1	0.11
8A4JNA	*	1,258.2	176.3	2.03	1,105.9	57.0	0.61
8G2BW4		918.8	-163.1	-1.88	898.2	-150.7	-1.61
8LYPKU		1,070.0	-11.9	-0.14	993.5	-55.4	-0.59
8Q9Q4C		1,158.4	76.5	0.88	1,072.5	23.7	0.25
9CPMW8		1,034.1	-47.7	-0.55	1,003.7	-45.2	-0.48
A6HFUA		1,111.0	29.1	0.34	1,072.5	23.6	0.25
A9JGWR		1,092.5	10.6	0.12	997.5	-51.4	-0.55
AKDVU4		1,137.5	55.6	0.64	1,198.0	149.1	1.60
AP8RJU		1,099.4	17.5	0.20	1,069.7	20.8	0.22
BLLA2A		1,071.0	-10.9	-0.13	951.5	-97.4	-1.04
BPMB4R		1,220.0	138.1	1.59	1,125.0	76.1	0.82
C828WQ		1,126.5	44.6	0.51	1,049.3	0.5	0.00
CFVCQR		977.5	-104.4	-1.20	1,034.5	-14.4	-0.15
CGMB4P		1,140.2	58.4	0.67	1,119.7	70.8	0.76
CYTFR3		974.5	-107.4	-1.24	926.5	-122.4	-1.31
D263GR		1,022.5	-59.3	-0.68	1,013.1	-35.8	-0.38
D8UMK8		1,077.6	-4.2	-0.05	1,017.4	-31.4	-0.34
DAKKX6		1,044.5	-37.4	-0.43	956.5	-92.4	-0.99
DU98G8		1,170.5	88.7	1.02	1,127.3	78.4	0.84
DY347Y		1,196.5	114.6	1.32	1,157.5	108.6	1.16
EHUAC4		1,003.1	-78.8	-0.91	1,029.9	-19.0	-0.20
ERKVG3	X	488.1	-593.8	-6.83	479.4	-569.5	-6.10
EZULK6		980.3	-101.5	-1.17	1,001.7	-47.2	-0.51
F4TXF6		919.7	-162.2	-1.87	914.9	-134.0	-1.43
FB6CZL		1,121.0	39.1	0.45	1,121.5	72.6	0.78
FLQF8L		1,025.4	-56.4	-0.65	1,018.2	-30.7	-0.33
FP9HD7		1,040.9	-41.0	-0.47	989.5	-59.4	-0.64
FTP3XZ		1,091.6	9.7	0.11	1,103.5	54.7	0.59
FX2QXW		1,017.0	-64.9	-0.75	947.5	-101.4	-1.09
G9XFR3		1,063.4	-18.5	-0.21	998.9	-50.0	-0.54



Rubber Interlaboratory Testing Program

Report #206

Analysis 607

4th Qtr 2020

Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample D01-D02			Sample D03-D04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
GENQ22		959.9	-122.0	-1.40	908.0	-140.9	-1.51
GGUBRL		1,061.0	-20.9	-0.24	1,060.5	11.6	0.12
GWPDTZ	*	1,167.3	85.4	0.98	1,013.2	-35.7	-0.38
GZMRGP		1,203.0	121.1	1.39	1,116.0	67.1	0.72
HJCPVM		1,174.8	92.9	1.07	1,149.4	100.6	1.08
HP4Z6K		1,122.5	40.6	0.47	1,082.5	33.6	0.36
J4WRNZ		1,237.0	155.1	1.79	1,250.9	202.0	2.16
J74AMW		986.3	-95.6	-1.10	898.0	-150.9	-1.62
JT7NU		1,090.9	9.0	0.10	1,160.3	111.4	1.19
JPEYZU		1,155.0	73.1	0.84	1,160.0	111.1	1.19
JUBMG2		927.0	-154.9	-1.78	957.0	-91.9	-0.98
JV62UZ		1,040.1	-41.8	-0.48	1,037.1	-11.8	-0.13
KCLYLW		972.5	-109.4	-1.26	911.0	-137.9	-1.48
KWT82V	*	904.3	-177.5	-2.04	785.4	-263.5	-2.82
L4R9GF		1,075.5	-6.4	-0.07	1,088.0	39.1	0.42
L9KDAK		1,135.5	53.6	0.62	1,159.5	110.6	1.18
LCLEAG		1,138.5	56.6	0.65	1,078.5	29.6	0.32
LKVQPZ		1,031.2	-50.6	-0.58	1,074.7	25.9	0.28
LX2Y7H		1,054.5	-27.4	-0.31	1,061.5	12.6	0.14
MAFVJ		1,024.5	-57.4	-0.66	966.0	-82.9	-0.89
MXHFYP	*	1,304.2	222.3	2.56	1,200.3	151.4	1.62
NGN8GH		1,089.0	7.1	0.08	1,137.5	88.6	0.95
NY6DQT		1,080.3	-1.5	-0.02	1,011.1	-37.8	-0.40
P4XUFR	X	1,459.0	377.2	4.34	1,421.9	373.0	3.99
PUTPQW		1,116.8	34.9	0.40	1,096.5	47.6	0.51
QA4Q2D		1,156.5	74.6	0.86	1,097.5	48.6	0.52
QC42VR		1,020.0	-61.9	-0.71	996.7	-52.2	-0.56
QWTDKC		1,150.0	68.1	0.78	1,177.5	128.6	1.38
RJNG2B		1,199.4	117.5	1.35	1,173.2	124.3	1.33
RVDFRD		1,033.0	-48.9	-0.56	964.5	-84.4	-0.90
TBLRVQ		1,003.0	-78.9	-0.91	945.0	-103.9	-1.11
TV8HUM	*	1,100.5	18.6	0.21	1,202.5	153.6	1.64
UBHLV8		1,194.5	112.6	1.30	1,155.0	106.1	1.14
UD8TDJ		1,168.5	86.6	1.00	1,106.0	57.1	0.61
UEHUZH		1,077.4	-4.5	-0.05	1,053.9	5.1	0.05
UFV6DN		1,075.8	-6.1	-0.07	1,091.8	42.9	0.46
UK7HVM		1,048.0	-33.9	-0.39	1,015.5	-33.4	-0.36
UR7WHA		961.0	-120.9	-1.39	942.5	-106.4	-1.14



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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample D01-D02			Sample D03-D04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
UUW4ZL		973.2	-108.7	-1.25	857.2	-191.7	-2.05
UWKZFZQ		1,122.5	40.6	0.47	1,103.5	54.6	0.58
V38KA7		1,080.5	-1.4	-0.02	1,079.0	30.1	0.32
V4WQRH		1,141.7	59.8	0.69	1,108.3	59.5	0.64
VHH7VH	*	1,309.0	227.1	2.61	1,230.7	181.8	1.95
VPUGN9	*	1,295.0	213.1	2.45	1,280.0	231.1	2.47
VVLRX8		950.0	-131.9	-1.52	908.7	-140.2	-1.50
VZFLV9		1,055.0	-26.9	-0.31	986.5	-62.4	-0.67
W27736		1,107.5	25.6	0.29	1,072.5	23.6	0.25
WJ48CP		1,060.0	-21.9	-0.25	1,008.0	-40.9	-0.44
WU6U4L		1,112.0	30.1	0.35	1,095.5	46.6	0.50
XKDVQL		1,001.0	-80.9	-0.93	995.0	-53.9	-0.58
XRW2PE		1,101.6	19.8	0.23	1,102.8	54.0	0.58
XT4GWK		1,021.3	-60.6	-0.70	920.4	-128.5	-1.38
XUKDNJ		1,099.0	17.1	0.20	1,050.5	1.6	0.02
XX4RRK		1,216.7	134.9	1.55	1,233.5	184.6	1.98
XZPAA6		1,071.0	-10.9	-0.13	1,065.5	16.6	0.18
YAAZA3	X	221.5	-860.3	-9.90	216.0	-832.8	-8.92
YHLZ4D		1,028.8	-53.1	-0.61	997.4	-51.5	-0.55
YTPAA3		993.5	-88.4	-1.02	975.0	-73.9	-0.79
Z38B4H		1,062.6	-19.3	-0.22	1,014.8	-34.1	-0.37
ZJCHHJ		969.6	-112.3	-1.29	953.6	-95.2	-1.02

Grand Means		Summary Statistics	
	1,081.87 psi		1,048.87 psi
Std Dev Btwn Labs	86.90 psi		93.39 psi
			Statistics based on 93 of 97 reporting participants

Grand Means		Summary Statistics in SI Units	
	7.4592 MPa		7.23 MPa
Std Dev Btwn Labs	0.5991 MPa		0.64 MPa
			Statistics based on 93 of 97 reporting participants



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

Report #206
4th Qtr 2020

Samples D01-D02: Polyisoprene compound, batch #1 & D03-D04: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #607

2PCJX4 (X) - Inconsistent in testing between samples.

ERKVG3 (X) - Data for all samples are low. Possible Systematic Error.

P4XUFR (X) - Data for all samples are high. Possible Systematic Error.

YAAZA3 (X) - Extreme Data.

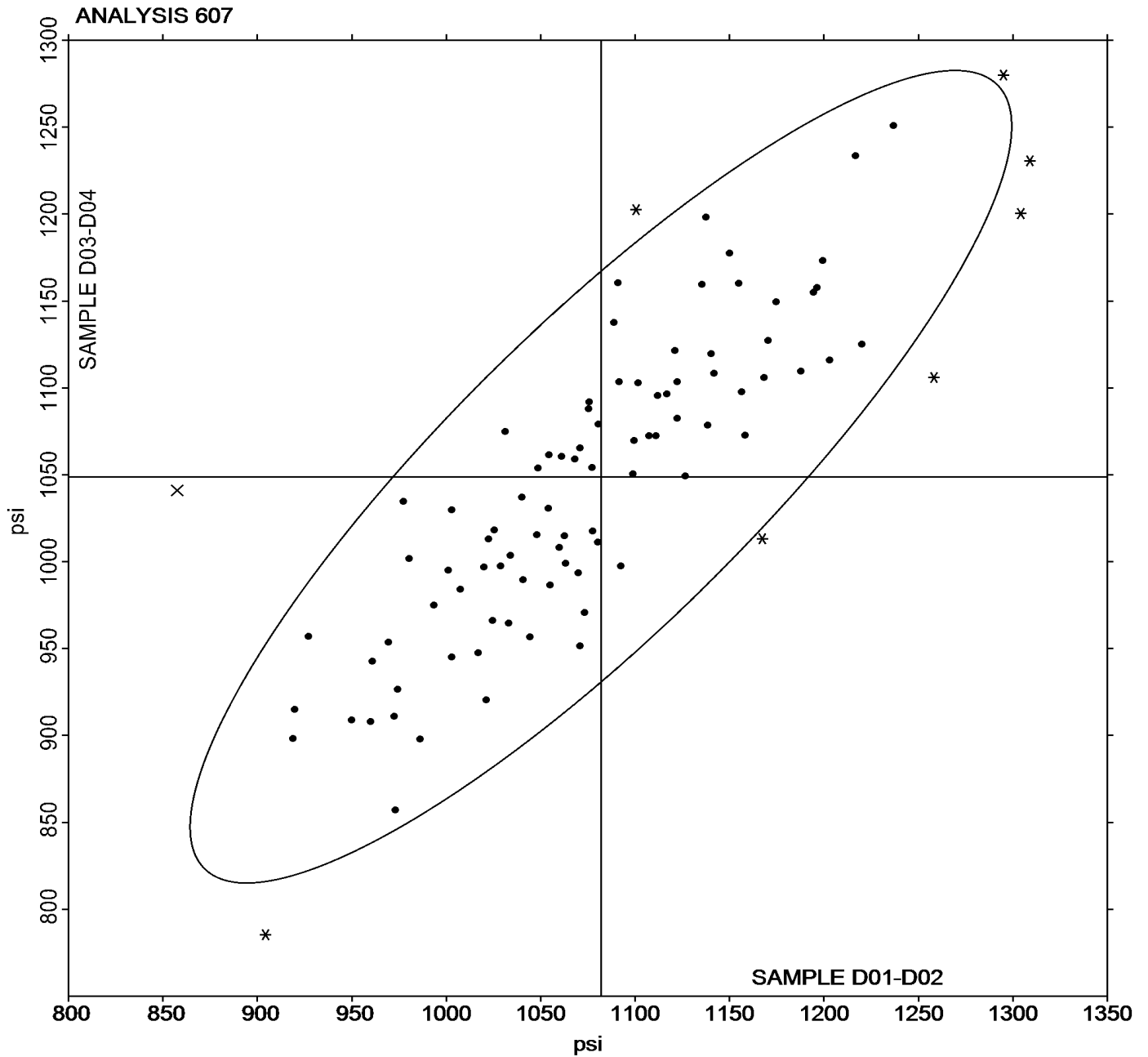


Rubber Interlaboratory Testing Program
Analysis 607
Stress at 300% Elongation (psi)

Report #206
4th Qtr 2020

Grand Mean Sample **D01-D02** = 1,081.87 psi

Grand Mean Sample **D03-D04** = 1,048.87 psi





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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample D01-D02			Sample D03-D04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
29TQ8F		219.5	-8.0	-0.53	216.0	-8.1	-0.47
2PCJX4	X	185.0	-42.5	-2.80	218.0	-6.1	-0.36
2U8B4F		248.0	20.5	1.35	233.5	9.4	0.55
394P4A		226.2	-1.4	-0.09	206.4	-17.7	-1.03
6E98F8		231.3	3.8	0.25	232.8	8.7	0.51
7MB6EU		223.0	-4.5	-0.30	227.0	2.9	0.17
7QT8JE		226.6	-1.0	-0.06	226.3	2.2	0.13
8A4JNA	X	320.5	93.0	6.12	277.0	52.9	3.09
8G2BW4		237.8	10.3	0.67	232.1	8.0	0.47
8LYPKU		224.5	-3.0	-0.20	212.0	-12.1	-0.71
8Q9Q4C		238.9	11.4	0.75	228.9	4.8	0.28
9CPMW8		215.4	-12.1	-0.80	209.6	-14.5	-0.85
A6HFUA		229.5	2.0	0.13	218.0	-6.1	-0.36
A9JGWR		229.5	2.0	0.13	213.0	-11.1	-0.65
AKDVU4		242.5	15.0	0.98	251.0	26.9	1.57
AP8RJU		224.1	-3.4	-0.23	216.1	-8.0	-0.47
BFWPXU		222.0	-5.5	-0.36	213.5	-10.6	-0.62
BLLA2A	*	223.5	-4.0	-0.26	196.5	-27.6	-1.61
BPMB4R		249.0	21.5	1.41	235.5	11.4	0.66
C828WQ		215.2	-12.4	-0.81	203.9	-20.1	-1.17
CFVCQR		224.0	-3.5	-0.23	234.5	10.4	0.61
CGMB4P		235.5	7.9	0.52	242.1	18.0	1.05
CYTFR3		216.5	-11.0	-0.73	215.0	-9.1	-0.53
D263GR		207.4	-20.1	-1.32	208.1	-16.0	-0.93
D8UMK8		228.4	0.9	0.06	220.5	-3.6	-0.21
DAKKX6		215.0	-12.5	-0.82	205.5	-18.6	-1.08
DU98G8		230.2	2.6	0.17	229.0	4.9	0.29
DY347Y		230.0	2.5	0.16	230.0	5.9	0.34
EHUAC4		207.2	-20.3	-1.34	212.2	-11.9	-0.69
ERKVG3	X	147.2	-80.3	-5.28	150.8	-73.3	-4.27
EZULK6		211.4	-16.2	-1.06	218.6	-5.5	-0.32
F4TXF6		211.1	-16.4	-1.08	205.8	-18.3	-1.07
FB6CZL		232.0	4.5	0.29	232.5	8.4	0.49
FLQF8L		213.9	-13.6	-0.89	208.1	-16.0	-0.93
FP9HD7		218.7	-8.8	-0.58	212.1	-12.0	-0.70
FTP3XZ		215.1	-12.4	-0.82	214.4	-9.7	-0.57
FX2QXW		218.5	-9.0	-0.59	209.5	-14.6	-0.85
G9XFR3		212.0	-15.6	-1.02	203.8	-20.3	-1.18



Rubber Interlaboratory Testing Program

Report #206

Analysis 608

4th Qtr 2020

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample D01-D02			Sample D03-D04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
GENQ22		222.3	-5.3	-0.35	211.9	-12.2	-0.71
GGUBRL		233.0	5.5	0.36	231.0	6.9	0.40
GWPDTZ	*	242.5	14.9	0.98	217.4	-6.7	-0.39
GZMRGP		234.0	6.5	0.43	221.0	-3.1	-0.18
HJCPVM		237.1	9.6	0.63	237.1	13.0	0.76
HP4Z6K		232.0	4.5	0.29	224.5	0.4	0.02
J4WRNZ		259.5	31.9	2.10	260.1	36.0	2.10
J74AMW		215.0	-12.5	-0.82	204.0	-20.1	-1.17
JT7NU	*	214.5	-13.1	-0.86	237.9	13.8	0.80
JPEYZU		250.5	23.0	1.51	263.0	38.9	2.27
JUBMG2		202.5	-25.0	-1.65	211.0	-13.1	-0.76
JV62UZ		216.7	-10.8	-0.71	213.9	-10.2	-0.59
KCLYLW		210.0	-17.5	-1.15	203.0	-21.1	-1.23
KWT82V		203.1	-24.5	-1.61	187.8	-36.3	-2.11
L4R9GF		221.0	-6.5	-0.43	232.5	8.4	0.49
L9KDAK		231.0	3.5	0.23	234.5	10.4	0.61
LCLEAG		248.5	21.0	1.38	238.0	13.9	0.81
LKVQPZ		213.9	-13.6	-0.89	229.2	5.1	0.30
LX2Y7H		228.0	0.5	0.03	234.5	10.4	0.61
MAVJVJ		212.5	-15.0	-0.99	199.5	-24.6	-1.43
MXHFYP	*	268.4	40.9	2.69	257.5	33.4	1.95
NGN8GH		219.0	-8.5	-0.56	226.5	2.4	0.14
NY6DQT		247.3	19.8	1.30	242.3	18.2	1.06
P4XUFR	*	266.9	39.3	2.59	263.5	39.4	2.30
PUTPQW		230.6	3.1	0.20	231.3	7.2	0.42
QA4Q2D		237.5	10.0	0.66	223.5	-0.6	-0.03
QC42VR		207.2	-20.3	-1.34	206.3	-17.8	-1.04
QWTDKC		242.5	15.0	0.98	250.5	26.4	1.54
RJNG2B		238.7	11.2	0.73	241.6	17.5	1.02
RVDFRD		221.5	-6.0	-0.40	211.5	-12.6	-0.73
TBLRVQ		214.0	-13.5	-0.89	205.5	-18.6	-1.08
TV8HUM		212.5	-15.0	-0.99	223.5	-0.6	-0.03
UBHLV8		232.0	4.5	0.29	227.0	2.9	0.17
UD8TDJ		256.2	28.7	1.88	251.8	27.7	1.61
UEHUZH		230.4	2.9	0.19	231.1	7.0	0.41
UFV6DN		225.8	-1.7	-0.12	232.1	8.0	0.46
UK7HVM		216.5	-11.0	-0.73	220.5	-3.6	-0.21



Rubber Interlaboratory Testing Program

Report #206

Analysis 608

4th Qtr 2020

Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample D01-D02			Sample D03-D04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
UR7WHA		206.5	-21.0	-1.38	204.5	-19.6	-1.14
UUW4ZL	*	200.2	-27.4	-1.80	182.0	-42.1	-2.45
UWKFZQ		228.0	0.5	0.03	223.0	-1.1	-0.06
V38KA7		220.5	-7.0	-0.46	226.5	2.4	0.14
V4WQRH		257.1	29.5	1.94	253.1	29.0	1.69
VHH7VH	*	266.9	39.3	2.59	255.3	31.2	1.82
VPUGN9		247.0	19.5	1.28	247.5	23.4	1.36
VVLRX8	X	594.7	367.1	24.14	593.9	369.8	21.56
VZFLV9		224.0	-3.5	-0.23	215.5	-8.6	-0.50
W27736		225.5	-2.0	-0.13	223.5	-0.6	-0.03
WJ48CP		224.0	-3.5	-0.23	215.5	-8.6	-0.50
WU6U4L		243.5	16.0	1.05	244.5	20.4	1.19
XKDVQL		210.5	-17.0	-1.12	208.5	-15.6	-0.91
XRW2PE		245.1	17.6	1.16	252.6	28.5	1.66
XT4GWK		210.8	-16.7	-1.10	203.2	-20.9	-1.22
XUKDNJ		235.8	8.3	0.55	221.3	-2.8	-0.16
XX4RRK		251.2	23.6	1.55	255.3	31.2	1.82
XZPAA6		226.5	-1.0	-0.07	223.0	-1.1	-0.06
YAAZA3	X	1,080.8	853.2	56.11	1,026.9	802.8	46.80
YHLZ4D		233.3	5.8	0.38	230.1	6.0	0.35
YTPAA3		220.0	-7.5	-0.50	226.0	1.9	0.11
Z38B4H		222.2	-5.4	-0.35	212.6	-11.5	-0.67
ZJCHHJ		213.9	-13.6	-0.89	206.0	-18.1	-1.06

Summary Statistics	
Grand Means	227.53 psi 224.10 psi
Std Dev Btwn Labs	15.21 psi 17.15 psi
Statistics based on 93 of 98 reporting participants	

Summary Statistics in SI Units	
Grand Means	1.5687 MPa 1.55 MPa
Std Dev Btwn Labs	0.1048 MPa 0.12 MPa
Statistics based on 93 of 98 reporting participants	



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

Report #206
4th Qtr 2020

Samples D01-D02: Polyisoprene compound, batch #1 & D03-D04: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #608

2PCJX4 (X) - Data for sample group D01-D02 are low.

8A4JNA (X) - Data for all samples are high. Possible Systematic Error. Inconsistent within the determinations of sample group D01-D02.

ERKVG3 (X) - Data for all samples are low. Possible Systematic Error.

VVLRX8 (X) - Extreme Data.

YAAZA3 (X) - Extreme Data.



Rubber Interlaboratory Testing Program

Report #206

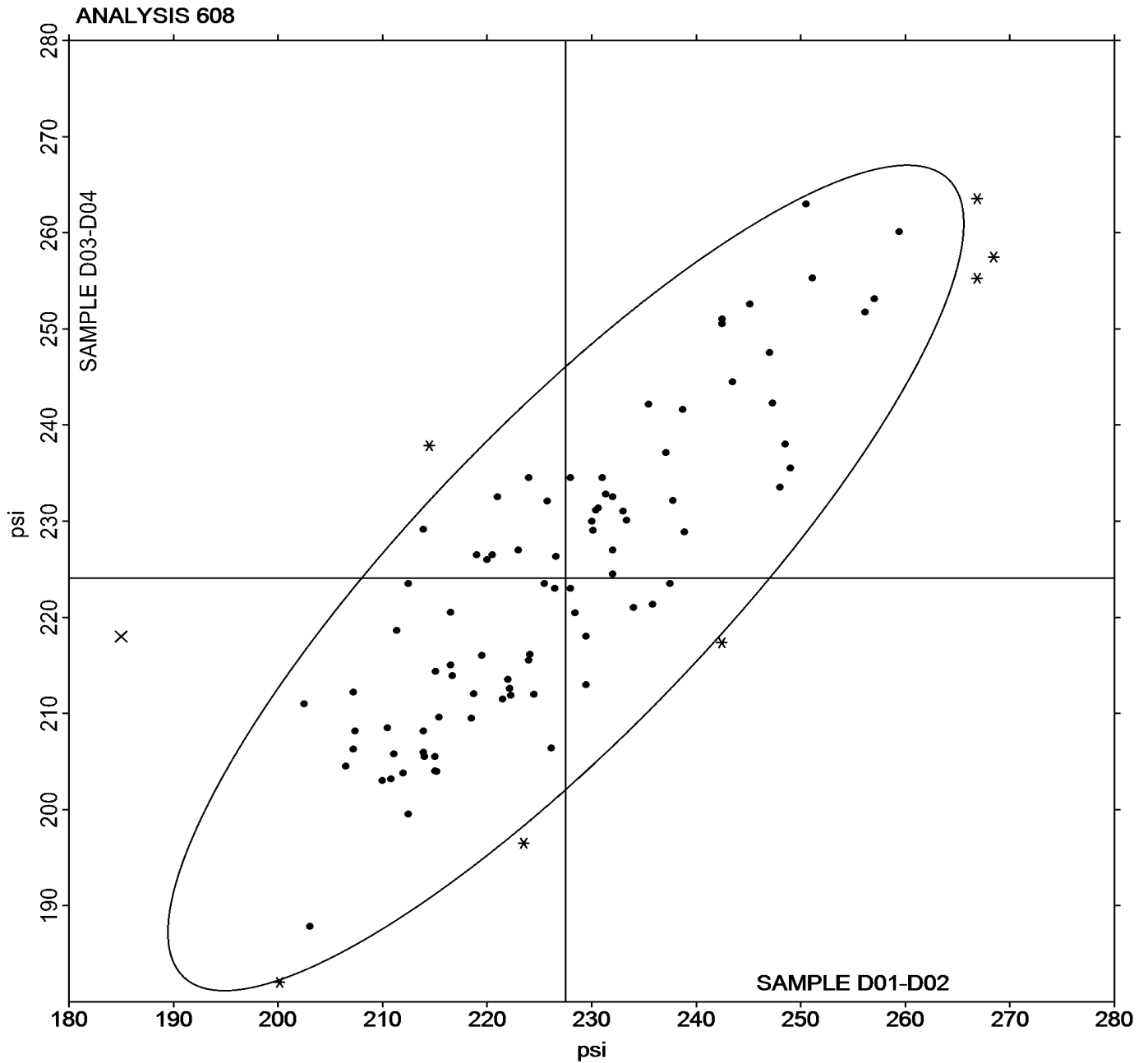
Analysis 608

4th Qtr 2020

Stress at 100% Elongation (psi)

Grand Mean Sample **D01-D02** = 227.53 psi

Grand Mean Sample **D03-D04** = 224.10 psi





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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample D01-D02			Sample D03-D04			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
29TQ8F		51.65	1.99	1.27	51.65	2.03	1.28	HH
2PCJX4	X	46.50	-3.16	-2.01	44.50	-5.12	-3.23	BT
2U8B4F		49.55	-0.11	-0.07	49.60	-0.02	-0.02	BT
394P4A		50.50	0.84	0.54	50.00	0.38	0.24	HH
3K2QGD		50.30	0.64	0.41	50.45	0.83	0.52	XX
4FLHTE		49.50	-0.16	-0.10	49.50	-0.12	-0.08	BT
69HX69	X	53.50	3.84	2.45	49.00	-0.62	-0.39	HH
6E98F8		50.00	0.34	0.22	50.00	0.38	0.24	HH
6YVWPY		49.00	-0.66	-0.42	49.50	-0.12	-0.08	BT
7MB6EU		50.75	1.09	0.70	50.95	1.33	0.83	BT
7QT8JE		49.50	-0.16	-0.10	48.50	-1.12	-0.71	HH
829GMY	*	46.00	-3.66	-2.33	47.00	-2.62	-1.65	HH
8A4JNA		49.30	-0.36	-0.23	49.10	-0.52	-0.33	BT
8G2BW4	X	40.50	-9.16	-5.83	40.50	-9.12	-5.74	HH
8LYPKU		50.50	0.84	0.54	51.00	1.38	0.87	BT
8Q9Q4C		51.10	1.44	0.92	51.25	1.63	1.02	BT
9CPMW8		49.00	-0.66	-0.42	49.50	-0.12	-0.08	BT
A6HFUA		50.00	0.34	0.22	50.00	0.38	0.24	HH
A9JGWR		50.00	0.34	0.22	50.00	0.38	0.24	HH
AKDVU4		51.45	1.79	1.14	50.80	1.18	0.74	BT
AP8RJU		50.40	0.74	0.47	50.80	1.18	0.74	BT
B7WYE8		50.00	0.34	0.22	50.00	0.38	0.24	XX
BFWPXU		49.35	-0.31	-0.20	49.90	0.28	0.17	BT
BLLA2A		49.50	-0.16	-0.10	50.10	0.48	0.30	BT
BPMB4R		52.50	2.84	1.81	52.50	2.88	1.81	BT
C828WQ		52.00	2.34	1.49	52.00	2.38	1.50	HH
CFVCQR		51.50	1.84	1.17	52.00	2.38	1.50	BT
CGMB4P	*	45.55	-4.11	-2.61	45.75	-3.87	-2.44	BT
CYTFR3		50.25	0.59	0.38	51.05	1.43	0.90	BT
D263GR		47.50	-2.16	-1.37	47.50	-2.12	-1.34	BT
D8UMK8		48.50	-1.16	-0.74	48.00	-1.62	-1.02	BT
DAKKX6		50.20	0.54	0.35	49.95	0.33	0.20	BT
DBTXF8		48.85	-0.81	-0.51	48.50	-1.12	-0.71	BT
DU98G8		52.90	3.24	2.06	52.75	3.13	1.97	BT
DY347Y		52.15	2.49	1.59	52.05	2.43	1.53	BT
EHUAC4		49.20	-0.46	-0.29	49.30	-0.32	-0.20	BT
ENZ7XP		50.00	0.34	0.22	50.00	0.38	0.24	BT



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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample D01-D02			Sample D03-D04			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
ERKVG3	*	46.50	-3.16	-2.01	47.50	-2.12	-1.34	BT
EZULK6		48.50	-1.16	-0.74	48.50	-1.12	-0.71	HH
F4TXF6		51.50	1.84	1.17	52.00	2.38	1.50	BT
FB6CZL		49.00	-0.66	-0.42	48.50	-1.12	-0.71	HH
FLQF8L	X	54.95	5.29	3.37	53.85	4.23	2.66	BT
FP9HD7		48.00	-1.66	-1.05	47.50	-2.12	-1.34	BT
FTP3XZ		51.00	1.34	0.85	51.00	1.38	0.87	HH
FX2QXW	*	53.50	3.84	2.45	53.00	3.38	2.13	XX
G9XFR3		48.00	-1.66	-1.05	47.00	-2.62	-1.65	BT
GENQ22		48.95	-0.71	-0.45	48.95	-0.67	-0.42	BT
GGUBRL		50.00	0.34	0.22	50.00	0.38	0.24	BT
GZMRGP		49.90	0.24	0.15	49.65	0.03	0.02	BT
HJCPVM		50.20	0.54	0.35	49.05	-0.57	-0.36	BT
HP4Z6K		50.00	0.34	0.22	50.00	0.38	0.24	HH
HWJJMY		46.50	-3.16	-2.01	46.50	-3.12	-1.97	BT
J4WRNZ		49.90	0.24	0.15	49.60	-0.02	-0.02	BT
J74AMW		48.40	-1.26	-0.80	47.55	-2.07	-1.31	BT
JJT7NU		50.10	0.44	0.28	50.85	1.23	0.77	BT
JPEYZU		49.50	-0.16	-0.10	50.50	0.88	0.55	BT
JUBMG2		50.00	0.34	0.22	49.00	-0.62	-0.39	BT
JV62UZ		47.95	-1.71	-1.09	47.60	-2.02	-1.27	XX
KCLYLW		50.50	0.84	0.54	50.00	0.38	0.24	HH
KWT82V		51.90	2.24	1.43	51.80	2.18	1.37	BT
L4R9GF		48.10	-1.56	-0.99	48.40	-1.22	-0.77	BT
L9KDAK		52.00	2.34	1.49	51.20	1.58	0.99	BT
LCLEAG		50.15	0.49	0.31	50.25	0.63	0.39	BT
LKVQPZ		49.30	-0.36	-0.23	48.80	-0.82	-0.52	BT
LX2Y7H		49.65	-0.01	0.00	50.10	0.48	0.30	BT
MAVFVJ		49.50	-0.16	-0.10	49.50	-0.12	-0.08	BT
MXHFYP	*	45.00	-4.66	-2.96	45.50	-4.12	-2.60	BT
NGN8GH		49.00	-0.66	-0.42	48.00	-1.62	-1.02	HH
NY6DQT		49.00	-0.66	-0.42	49.00	-0.62	-0.39	HH
P4XUFR		49.50	-0.16	-0.10	49.75	0.13	0.08	BT
PUTPQW		49.30	-0.36	-0.23	48.65	-0.97	-0.61	BT
QA4Q2D		50.00	0.34	0.22	49.50	-0.12	-0.08	BT
QKZU4L		49.00	-0.66	-0.42	48.50	-1.12	-0.71	BT
QWTDKC		50.00	0.34	0.22	50.50	0.88	0.55	HH
RJNG2B		49.50	-0.16	-0.10	49.50	-0.12	-0.08	HH



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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample D01-D02			Sample D03-D04			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
RVDFRD		49.50	-0.16	-0.10	50.00	0.38	0.24	BT
TBLRVQ		52.00	2.34	1.49	52.50	2.88	1.81	HH
TV8HUM		49.55	-0.11	-0.07	50.15	0.53	0.33	BT
UBHLV8	*	54.00	4.34	2.76	53.50	3.88	2.44	HH
UD8TDJ		50.00	0.34	0.22	50.00	0.38	0.24	HH
UEHUZH		49.50	-0.16	-0.10	49.00	-0.62	-0.39	BT
UFV6DN		48.15	-1.51	-0.96	48.15	-1.47	-0.93	BT
UK7HVM		47.00	-2.66	-1.69	47.00	-2.62	-1.65	BT
UR7WHA		50.00	0.34	0.22	50.00	0.38	0.24	HH
UUW4ZL		47.50	-2.16	-1.37	47.00	-2.62	-1.65	BT
UWKFZQ		50.00	0.34	0.22	50.00	0.38	0.24	HH
V38KA7		48.00	-1.66	-1.05	48.00	-1.62	-1.02	BT
V4WQRH		50.00	0.34	0.22	50.00	0.38	0.24	HH
VHH7VH		48.80	-0.86	-0.55	48.70	-0.92	-0.58	BT
VPUGN9		49.55	-0.11	-0.07	49.60	-0.02	-0.02	BT
VVLRX8		48.25	-1.41	-0.90	48.00	-1.62	-1.02	BT
W27736		51.25	1.59	1.01	51.50	1.88	1.18	BT
WGFVDJ		47.70	-1.96	-1.25	47.55	-2.07	-1.31	HH
WU6U4L		51.00	1.34	0.85	51.00	1.38	0.87	BT
XKDVQL		49.60	-0.06	-0.04	49.30	-0.32	-0.20	BT
XRW2PE		50.50	0.84	0.54	50.75	1.13	0.71	HH
XT4GWK		49.00	-0.66	-0.42	49.00	-0.62	-0.39	BT
XUKDNJ		50.40	0.74	0.47	50.20	0.58	0.36	BT
XX4RRK	X	52.00	2.34	1.49	50.50	0.88	0.55	HH
XZPAA6		50.00	0.34	0.22	50.00	0.38	0.24	BT
YAAZA3		50.40	0.74	0.47	50.05	0.43	0.27	BT
YHLZ4D		48.00	-1.66	-1.05	47.50	-2.12	-1.34	BT
YTPAA3		47.00	-2.66	-1.69	47.50	-2.12	-1.34	HH
Z38B4H		50.80	1.14	0.73	50.85	1.23	0.77	BT
ZJCHHJ		51.00	1.34	0.85	51.50	1.88	1.18	BT
ZT34NH	X	44.00	-5.66	-3.60	44.00	-5.62	-3.54	BT

Grand Means		Summary Statistics	
	49.657 Type A		49.625 Type A
Std Dev Btwn Labs	1.571 Type A		1.588 Type A
Statistics based on 100 of 106 reporting participants			

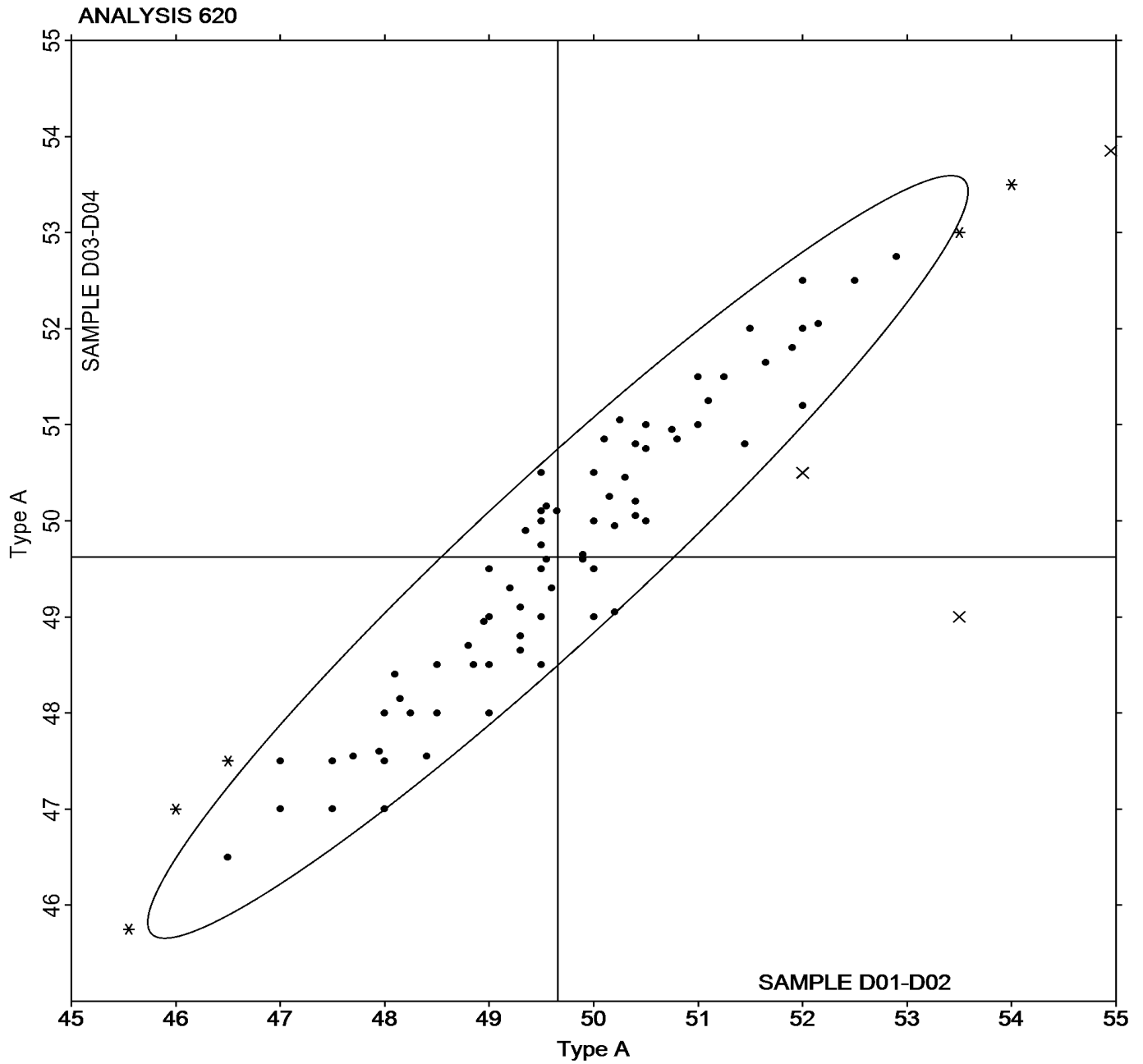


Rubber Interlaboratory Testing Program
Analysis 620
Hardness (Shore A/Type A)

Report #206
4th Qtr 2020

Grand Mean Sample **D01-D02** = 49.657 Type A

Grand Mean Sample **D03-D04** = 49.625 Type A





Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample D01-D02			Sample D03-D04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
29TQ8F		1.134	0.001	0.42	1.134	0.002	0.44
2U8B4F	*	1.126	-0.006	-1.83	1.122	-0.010	-2.65
394P4A		1.131	-0.002	-0.60	1.130	-0.003	-0.75
3K2QGD	X	1.104	-0.029	-8.61	1.102	-0.030	-8.05
69HX69		1.133	0.000	0.14	1.131	-0.002	-0.48
6YVWPY		1.131	-0.002	-0.45	1.132	-0.001	-0.22
7MB6EU		1.131	-0.001	-0.32	1.134	0.002	0.57
8A4JNA		1.135	0.002	0.73	1.137	0.005	1.25
8G2BW4		1.136	0.004	1.09	1.136	0.004	1.05
8LYPKU	X	1.136	0.004	1.16	1.144	0.011	3.02
8Q9Q4C		1.130	-0.002	-0.71	1.130	-0.002	-0.52
9CPMW8		1.138	0.005	1.47	1.136	0.004	0.98
A6HFUA		1.126	-0.007	-1.97	1.127	-0.005	-1.36
A9JGWR		1.132	-0.001	-0.31	1.128	-0.004	-1.15
AKDVU4		1.131	-0.002	-0.53	1.133	0.000	0.09
BFWPXU	*	1.139	0.006	1.77	1.135	0.003	0.71
BLLA2A		1.134	0.001	0.39	1.134	0.001	0.40
BPMB4R		1.136	0.003	1.03	1.136	0.004	0.98
CFVCQR		1.134	0.001	0.44	1.134	0.001	0.36
CGMB4P	X	1.121	-0.012	-3.57	1.133	0.001	0.14
CYTFR3		1.135	0.002	0.58	1.135	0.002	0.58
D263GR		1.134	0.001	0.29	1.133	0.000	0.05
D8UMK8		1.134	0.001	0.30	1.131	-0.002	-0.45
DAKKX6		1.133	0.000	0.05	1.133	0.000	0.08
DBTXF8		1.134	0.001	0.39	1.134	0.002	0.44
DU98G8		1.132	0.000	-0.02	1.134	0.002	0.50
DY347Y		1.136	0.003	0.97	1.135	0.002	0.61
EHUAC4		1.137	0.005	1.35	1.137	0.005	1.28
ENZ7XP		1.129	-0.004	-1.20	1.129	-0.004	-1.01
ERKVG3	X	1.118	-0.015	-4.46	1.107	-0.025	-6.72
EZULK6		1.129	-0.003	-0.96	1.129	-0.003	-0.92
FB6CZL		1.132	-0.001	-0.31	1.133	0.000	0.05
FP9HD7		1.131	-0.001	-0.35	1.131	-0.001	-0.28
FTP3XZ		1.134	0.001	0.44	1.136	0.003	0.85
FX2QXW		1.136	0.003	0.88	1.135	0.002	0.58
G9XFR3		1.131	-0.002	-0.60	1.130	-0.003	-0.75
GENQ22		1.133	0.000	0.06	1.133	0.001	0.18



Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample D01-D02			Sample D03-D04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
GGUBRL		1.129	-0.004	-1.20	1.128	-0.005	-1.28
GZMRGP		1.132	-0.001	-0.22	1.132	0.000	-0.11
HJCPVM		1.133	0.000	-0.01	1.132	0.000	-0.08
HP4Z6K		1.137	0.004	1.32	1.135	0.003	0.71
J74AMW	X	1.125	-0.008	-2.32	1.129	-0.003	-0.85
JJT7NU		1.134	0.001	0.44	1.135	0.003	0.71
JPEYZU	*	1.124	-0.009	-2.60	1.125	-0.007	-1.98
JUBMG2		1.133	0.000	0.01	1.131	-0.001	-0.35
JV62UZ		1.133	0.000	-0.01	1.133	0.000	0.05
KCLYLW		1.137	0.004	1.18	1.137	0.004	1.11
KWT82V		1.134	0.001	0.29	1.135	0.003	0.71
L9KDAK		1.132	-0.001	-0.16	1.133	0.001	0.18
LKVQPZ		1.135	0.002	0.63	1.136	0.004	1.02
LX2Y7H		1.131	-0.002	-0.45	1.133	0.000	0.05
MXHFYP	X	1.120	-0.013	-3.72	1.120	-0.012	-3.27
NGN8GH	*	1.125	-0.007	-2.13	1.122	-0.010	-2.62
NY6DQT		1.130	-0.003	-0.90	1.127	-0.005	-1.41
P4XUFR	*	1.133	0.000	0.12	1.137	0.004	1.18
PUTPQW		1.131	-0.002	-0.51	1.129	-0.003	-0.89
QA4Q2D		1.139	0.006	1.86	1.139	0.007	1.79
QWTDKC		1.138	0.006	1.72	1.137	0.005	1.32
RJNG2B	*	1.123	-0.010	-2.97	1.122	-0.010	-2.71
RVDFRD		1.133	0.000	0.11	1.132	0.000	-0.07
TBLRVQ		1.128	-0.005	-1.36	1.127	-0.005	-1.32
UBHLV8		1.137	0.004	1.19	1.138	0.005	1.46
UD8TDJ		1.135	0.002	0.58	1.136	0.003	0.85
UEHUZH		1.135	0.003	0.79	1.135	0.003	0.79
UFV6DN		1.130	-0.003	-0.77	1.129	-0.003	-0.80
UK7HVM		1.135	0.002	0.58	1.131	-0.001	-0.32
UR7WHA		1.135	0.002	0.73	1.135	0.003	0.71
UUW4ZL		1.140	0.007	2.21	1.140	0.008	2.04
UWKFZQ		1.127	-0.006	-1.67	1.126	-0.006	-1.64
V38KA7		1.129	-0.004	-1.20	1.129	-0.003	-0.88
V4WQRH		1.135	0.002	0.58	1.136	0.003	0.85
VPUGN9		1.133	0.000	0.14	1.134	0.002	0.53
VVLRX8		1.130	-0.003	-0.75	1.130	-0.002	-0.61
VZFLV9		1.131	-0.002	-0.60	1.132	-0.001	-0.22
W27736	X	1.142	0.010	2.84	1.138	0.006	1.52



Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample D01-D02			Sample D03-D04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
WU6U4L		1.134	0.001	0.44	1.134	0.001	0.32
XKDVQL		1.134	0.002	0.48	1.134	0.002	0.54
XRW2PE		1.132	-0.001	-0.28	1.132	0.000	-0.10
XT4GWK		1.130	-0.003	-0.90	1.128	-0.005	-1.28
XUKDNJ	X	1.146	0.013	3.99	1.143	0.011	2.84
XX4RRK	X	1.130	-0.002	-0.63	1.122	-0.010	-2.63
XZPAA6		1.134	0.001	0.44	1.136	0.003	0.85
YAAZA3	X	1.121	-0.011	-3.34	1.119	-0.013	-3.54
YHLZ4D		1.132	-0.001	-0.26	1.129	-0.004	-0.95
YTPAA3		1.133	0.000	-0.01	1.134	0.001	0.32
Z38B4H		1.135	0.002	0.64	1.133	0.001	0.25
ZJCHHJ		1.132	-0.001	-0.16	1.132	-0.001	-0.22

Summary Statistics			
Grand Means	1.1325	g/cm ³ (Mg/m ³)	1.1323 g/cm ³ (Mg/m ³)
Std Dev Btwn Labs	0.0034	g/cm ³ (Mg/m ³)	0.0038 g/cm ³ (Mg/m ³)
Statistics based on 77 of 87 reporting participants			

Samples D01-D02: Polyisoprene compound, batch #1 & D03-D04: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #621

- 3K2QGD (X) - Data for all samples are low. Possible Systematic Error.
- 8LYPKU (X) - Data for sample group D03-D04 are high.
- CGMB4P (X) - Data for sample group D01-D02 are low. Inconsistent within the determinations of sample group D01-D02.
- ERKVG3 (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of both sample groups.
- J74AMW (X) - Inconsistent in testing between samples.
- MXHFYP (X) - Data for all samples are low. Possible Systematic Error.
- W27736 (X) - Data for sample group D01-D02 are high.
- XUKDNJ (X) - Data for all samples are high. Possible Systematic Error.
- XX4RRK (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group D03-D04.
- YAAZA3 (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of sample group D03-D04.

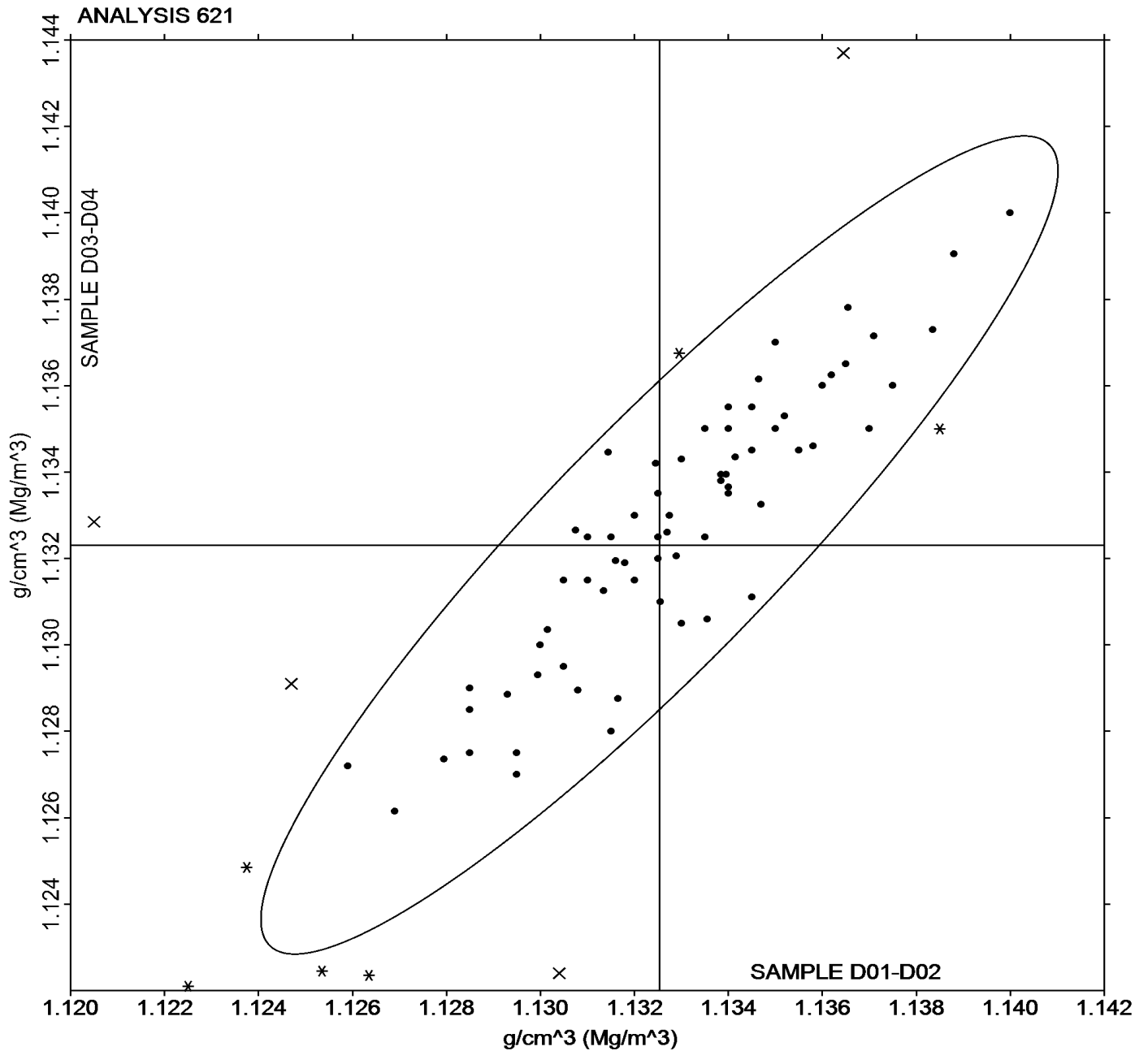


Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #206
4th Qtr 2020

Grand Mean Sample **D01-D02** = 1.1325 g/cm³
(Mg/m³)

Grand Mean Sample **D03-D04** = 1.1323 g/cm³
(Mg/m³)





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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample HD01-HD02			Sample HD03-HD04			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2C9XVE		79.00	3.51	1.57	88.00	3.61	2.22	BT
2VN8XZ		76.70	1.21	0.54	84.25	-0.14	-0.09	BT
7BJH9Y		73.50	-1.99	-0.89	84.50	0.11	0.07	BT
7Y9D9D		76.50	1.01	0.45	85.00	0.61	0.37	HH
88W2QE		76.05	0.56	0.25	84.55	0.16	0.10	HH
8V6A8V		74.00	-1.49	-0.67	82.50	-1.89	-1.16	BT
AP8RJU		74.45	-1.04	-0.47	83.85	-0.54	-0.33	BT
B39MF2		76.00	0.51	0.23	86.00	1.61	0.99	XX
BD7NR7		76.00	0.51	0.23	85.00	0.61	0.37	HH
DLGRUP	X	73.50	-1.99	-0.89	74.50	-9.89	-6.09	BT
DXVNYT		76.25	0.76	0.34	84.00	-0.39	-0.24	HH
EHUAC4		74.85	-0.64	-0.29	83.35	-1.04	-0.64	BT
F4TXF6	*	71.00	-4.49	-2.01	84.50	0.11	0.07	XX
F8T9C6		76.50	1.01	0.45	84.00	-0.39	-0.24	HH
FTP3XZ		76.00	0.51	0.23	84.00	-0.39	-0.24	HH
GCJXAN		76.55	1.06	0.47	84.80	0.41	0.25	HH
HFDEYM		70.85	-4.64	-2.07	81.35	-3.04	-1.87	XX
JV62UZ		73.70	-1.79	-0.80	82.75	-1.64	-1.01	XX
KNG98K		75.40	-0.09	-0.04	83.15	-1.24	-0.76	BT
QNJN8D		78.50	3.01	1.34	85.85	1.46	0.90	HH
QWTDKC		78.75	3.26	1.45	87.25	2.86	1.76	HH
UR7WHA		75.00	-0.49	-0.22	85.00	0.61	0.37	HH
VHH7VH		72.30	-3.19	-1.43	81.35	-3.04	-1.87	BT
XB9NBL		78.50	3.01	1.34	86.00	1.61	0.99	XX

Grand Means		Summary Statistics	
	75.493 Type D		84.391 Type D
Std Dev Btwn Labs			
	2.240 Type D		1.624 Type D
Statistics based on 23 of 24 reporting participants			

Samples HD01-HD02: Hardness Disc, batch #1 & HD03-HD04: Hardness Disc, batch #2

Comments on Assigned Data Flags for Test #625

DLGRUP (X) - Data for sample group HD03-HD04 are low. Inconsistent within the determinations of sample group HD01-HD02.

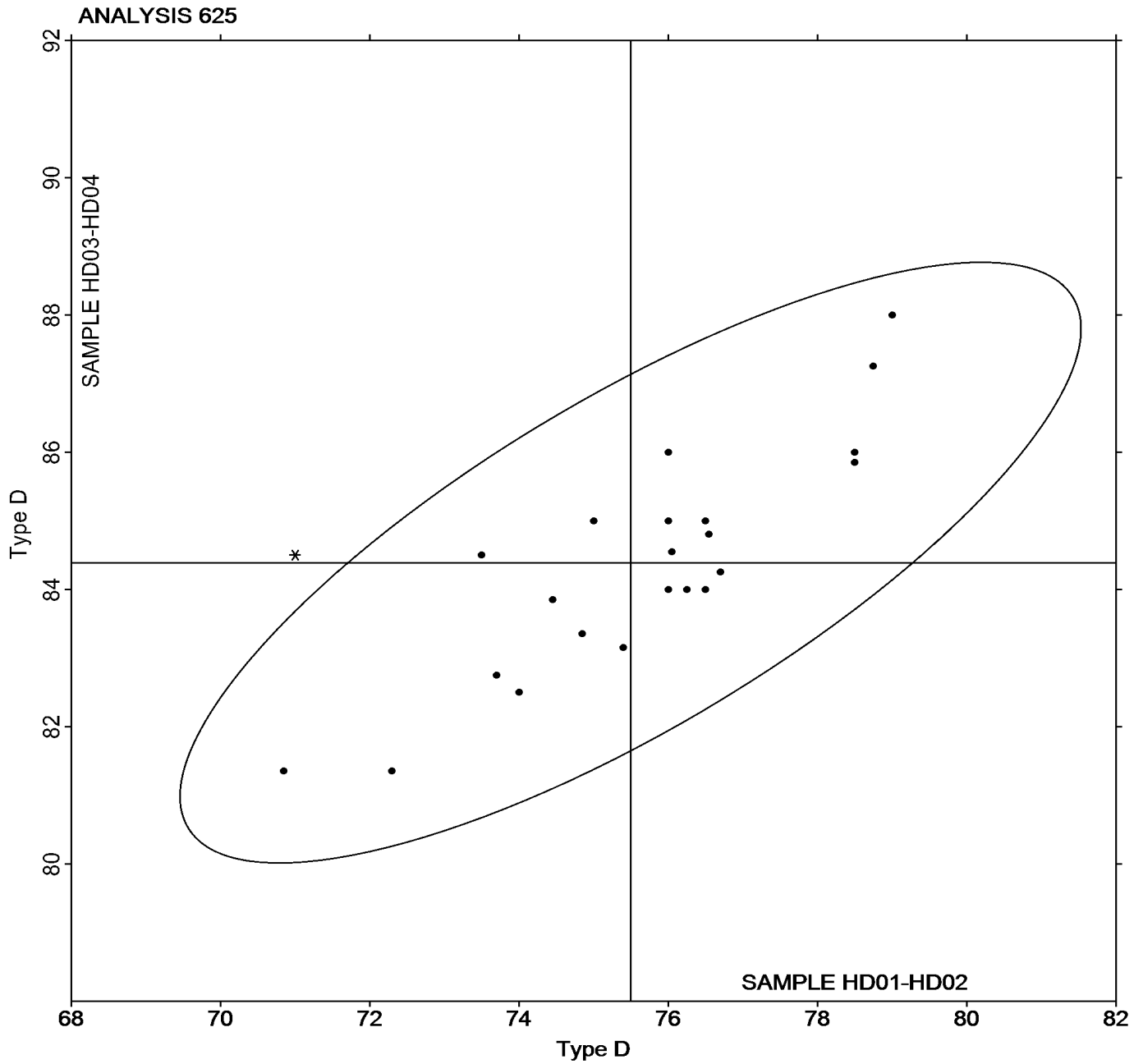


Rubber Interlaboratory Testing Program
Analysis 625
Hardness (Shore D/Type D)

Report #206
4th Qtr 2020

Grand Mean Sample **HD01-HD02** = 75.493 Type D

Grand Mean Sample **HD03-HD04** = 84.391 Type D





Rubber Interlaboratory Testing Program

Report #206

Analysis 630

4th Qtr 2020

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

WebCode	Data Flag	Sample D01-D02			Sample M01-M02		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
29TQ8F		3,524.0	68.7	0.46	3,006.0	-175.2	-0.71
394P4A		3,629.8	174.5	1.18	3,455.8	274.6	1.11
6E98F8		3,282.2	-173.0	-1.17	2,803.6	-377.6	-1.53
8G2BW4		3,200.0	-255.3	-1.72	2,910.0	-271.2	-1.10
8LYPKU		3,495.5	40.2	0.27	3,410.5	229.3	0.93
AP8RJU		3,350.4	-104.9	-0.71	3,314.1	133.0	0.54
CGMB4P		3,702.4	247.1	1.66	3,658.5	477.3	1.94
CYTFR3		3,332.3	-123.0	-0.83	3,334.5	153.3	0.62
DU98G8		3,681.2	225.9	1.52	3,290.5	109.3	0.44
DY347Y		3,464.0	8.7	0.06	3,255.0	73.8	0.30
EHUAC4		3,226.9	-228.4	-1.54	3,137.7	-43.5	-0.18
FB6CZL		3,429.5	-25.8	-0.17	3,029.0	-152.2	-0.62
FP9HD7	*	3,639.1	183.8	1.24	2,694.0	-487.1	-1.98
FX2QXW		3,539.0	83.7	0.56	3,403.5	222.3	0.90
G9XFR3		3,472.5	17.2	0.12	3,332.9	151.7	0.62
GENQ22		3,412.8	-42.5	-0.29	2,781.3	-399.9	-1.62
HJCPVM		3,412.0	-43.2	-0.29	3,221.3	40.2	0.16
HP4Z6K		3,330.0	-125.3	-0.84	3,050.0	-131.2	-0.53
J4WRNZ		3,090.4	-364.8	-2.46	3,143.2	-38.0	-0.15
NY6DQT		3,499.9	44.6	0.30	3,067.4	-113.8	-0.46
PUTPQW		3,618.7	163.5	1.10	3,314.1	133.0	0.54
QA4Q2D		3,399.0	-56.3	-0.38	3,212.5	31.3	0.13
QC42VR		3,319.3	-136.0	-0.92	3,210.5	29.3	0.12
QKZU4L	M	No data reported for this sample			3,326.5	145.3	0.59
RJNG2B		3,459.6	4.3	0.03	3,126.0	-55.2	-0.22
TBLRVQ		3,483.5	28.2	0.19	3,396.7	215.5	0.88
UUW4ZL	*	3,586.8	131.5	0.89	2,517.9	-663.3	-2.69
W27736		3,690.0	234.7	1.58	3,593.0	411.8	1.67
WJ48CP		3,541.5	86.2	0.58	3,310.5	129.3	0.53
WU6U4L		3,339.0	-116.3	-0.78	3,255.5	74.3	0.30
XRW2PE		3,454.1	-1.2	-0.01	3,224.9	43.8	0.18
XX4RRK		3,534.2	78.9	0.53	3,337.8	156.6	0.64
YHLZ4D		3,304.1	-151.2	-1.02	3,155.4	-25.7	-0.10
Z38B4H		3,580.3	125.0	0.84	3,025.0	-156.2	-0.63



Rubber Interlaboratory Testing Program

Report #206

Analysis 630

4th Qtr 2020

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

		Summary Statistics	
Grand Means			
	3,455.27 psi		3,181.16 psi
Stnd Dev Btwn Labs			
	148.52 psi		246.31 psi
Statistics based on 33 of 34 reporting participants			

		Summary Statistics in SI Units	
Grand Means			
	23.823 MPa		21.93 MPa
Stnd Dev Btwn Labs			
	1.024 MPa		1.70 MPa
Statistics based on 33 of 34 reporting participants			

Samples D01-D02: Polyisoprene compound, batch #1 & M01-M02: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #630

QKZU4L (M) - Participant did not submit data for sample group .



Rubber Interlaboratory Testing Program

Report #206

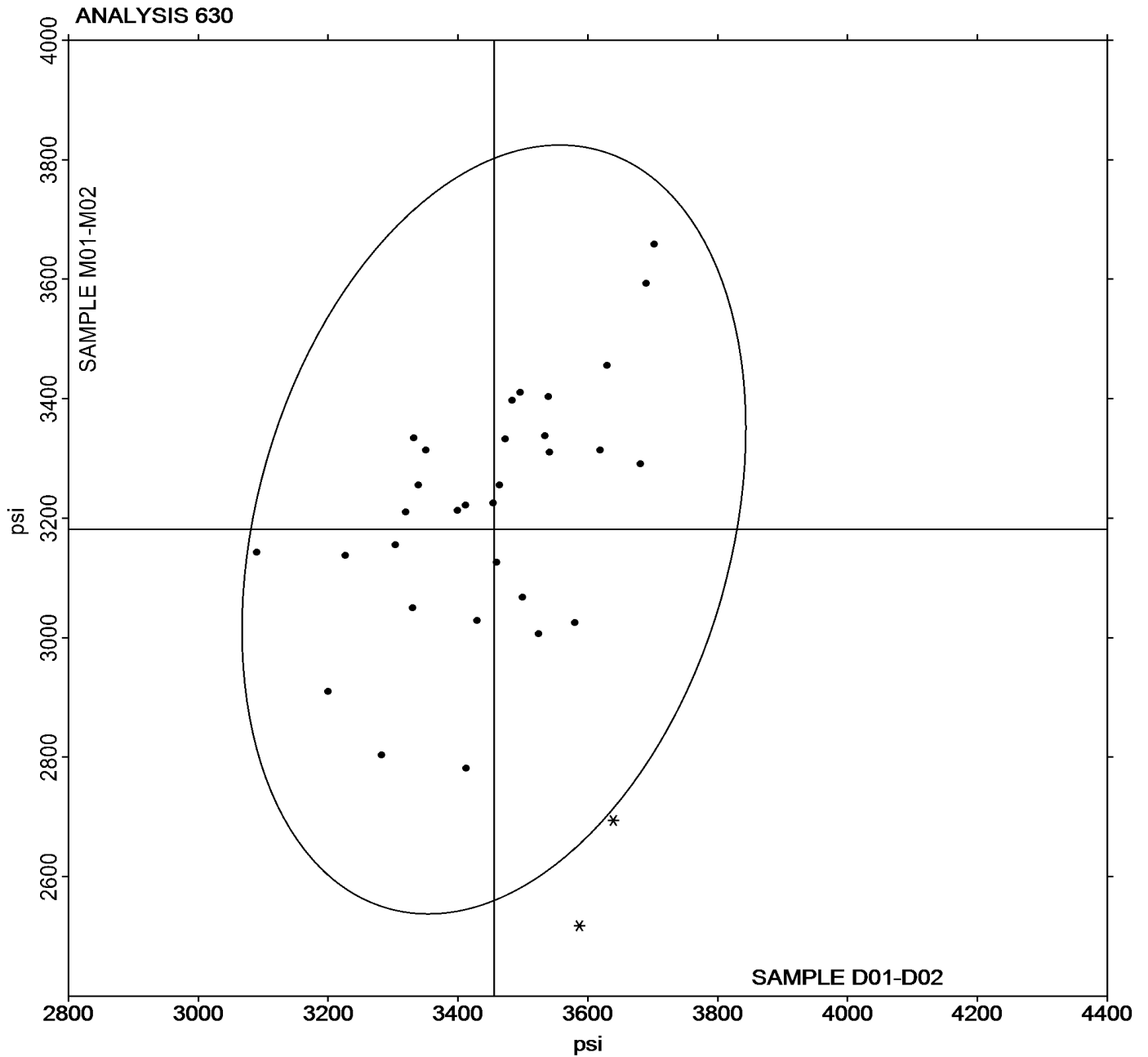
Analysis 630

4th Qtr 2020

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

Grand Mean Sample **D01-D02** = 3,455.27 psi

Grand Mean Sample **M01-M02** = 3,181.16 psi





Rubber Interlaboratory Testing Program

Report #206

Analysis 631

4th Qtr 2020

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

WebCode	Data Flag	Sample D01-D02			Sample M01-M02		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
29TQ8F		634.5	17.2	0.57	591.5	-4.2	-0.12
394P4A		633.8	16.5	0.55	628.0	32.4	0.91
6E98F8		613.0	-4.3	-0.15	621.5	25.8	0.73
8G2BW4	*	674.5	57.2	1.91	705.0	109.3	3.08
8LYPKU	X	624.0	6.7	0.22	1,968.5	1,372.8	38.64
AP8RJU		598.9	-18.4	-0.62	585.4	-10.3	-0.29
CGMB4P		634.2	16.8	0.56	622.7	27.0	0.76
CYTFR3		656.3	38.9	1.30	638.5	42.8	1.21
DU98G8		609.0	-8.3	-0.28	567.5	-28.2	-0.79
DY347Y		591.0	-26.3	-0.88	558.5	-37.2	-1.05
EHUAC4		599.5	-17.8	-0.60	572.5	-23.2	-0.65
FB6CZL		589.0	-28.3	-0.95	558.5	-37.2	-1.05
FP9HD7	*	650.2	32.8	1.10	576.7	-18.9	-0.53
FX2QXW		642.0	24.7	0.82	603.0	7.3	0.21
G9XFR3		620.6	3.2	0.11	596.1	0.4	0.01
GENQ22		664.5	47.2	1.58	646.0	50.3	1.42
HJCPVM		588.0	-29.3	-0.98	558.5	-37.2	-1.05
HP4Z6K		599.5	-17.8	-0.60	606.0	10.3	0.29
J4WRNZ		546.6	-70.7	-2.37	522.7	-73.0	-2.05
NY6DQT		621.1	3.7	0.13	598.7	3.0	0.08
PUTPQW		612.5	-4.8	-0.16	601.0	5.3	0.15
QA4Q2D		611.5	-5.8	-0.20	582.0	-13.7	-0.38
QC42VR		600.0	-17.3	-0.58	574.5	-21.2	-0.60
QKZU4L	M	No data reported for this sample			579.4	-16.3	-0.46
RJNG2B		570.1	-47.3	-1.58	567.4	-28.3	-0.80
TBLRVQ		635.0	17.7	0.59	612.5	16.8	0.47
UUW4ZL		672.2	54.8	1.83	609.6	13.9	0.39
W27736		631.5	14.2	0.47	635.0	39.3	1.11
WJ48CP		623.5	6.2	0.21	584.5	-11.2	-0.31
WU6U4L		605.5	-11.8	-0.40	614.5	18.8	0.53
XRW2PE		589.6	-27.8	-0.93	547.7	-47.9	-1.35
XX4RRK		571.2	-46.2	-1.54	550.2	-45.4	-1.28
YHLZ4D		634.0	16.7	0.56	613.5	17.8	0.50
Z38B4H		632.5	15.2	0.51	611.8	16.1	0.45



Rubber Interlaboratory Testing Program

Report #206

Analysis 631

4th Qtr 2020

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

		Summary Statistics	
Grand Means	617.35 percent	595.67 percent	
Stnd Dev Btwn Labs	29.89 percent	35.53 percent	
Statistics based on 32 of 34 reporting participants			

Samples D01-D02: Polyisoprene compound, batch #1 & M01-M02: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #631

8LYPKU (X) - Extreme Data for sample group M01-M02.

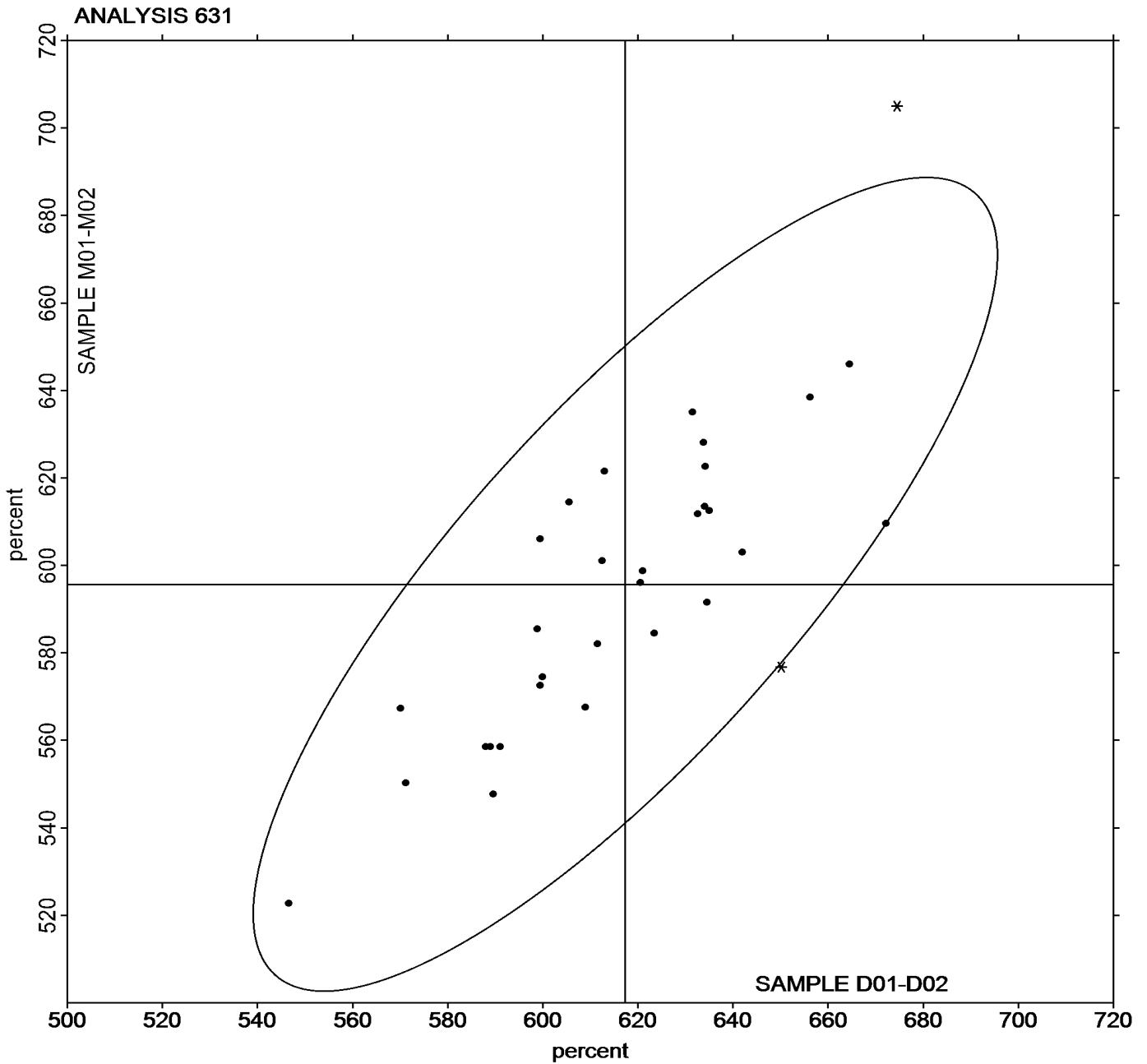
QKZU4L (M) - Participant did not submit data for sample group .



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

Grand Mean Sample **D01-D02** = 617.35 percent

Grand Mean Sample **M01-M02** = 595.67 percent





Rubber Interlaboratory Testing Program

Report #206

Analysis 632

4th Qtr 2020

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

WebCode	Data Flag	Sample D01-D02			Sample M01-M02		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
29TQ8F		1,007.5	-73.6	-0.93	992.5	-51.3	-0.35
394P4A		1,073.3	-7.8	-0.10	1,053.3	9.5	0.06
6E98F8		1,048.6	-32.5	-0.41	826.0	-217.8	-1.47
8G2BW4		918.8	-162.3	-2.06	677.3	-366.5	-2.48
8LYPKU		1,070.0	-11.1	-0.14	962.5	-81.3	-0.55
AP8RJU		1,099.4	18.3	0.23	1,176.3	132.5	0.90
CGMB4P		1,140.2	59.1	0.75	1,147.9	104.1	0.70
CYTFR3		974.5	-106.6	-1.35	947.0	-96.8	-0.65
DU98G8		1,170.5	89.4	1.13	1,195.4	151.6	1.03
DY347Y		1,196.5	115.4	1.46	1,183.5	139.7	0.95
EHUAC4		1,003.1	-78.1	-0.99	1,063.5	19.7	0.13
FB6CZL		1,121.0	39.9	0.51	1,055.0	11.2	0.08
FP9HD7		1,040.9	-40.2	-0.51	874.7	-169.1	-1.14
FX2QXW		1,017.0	-64.1	-0.81	1,133.0	89.2	0.60
G9XFR3		1,063.4	-17.7	-0.22	1,072.6	28.8	0.19
GENQ22		959.9	-121.2	-1.54	751.5	-292.3	-1.98
HJCPVM		1,174.8	93.7	1.19	1,245.2	201.4	1.36
HP4Z6K		1,122.5	41.4	0.52	992.5	-51.3	-0.35
J4WRNZ		1,237.0	155.9	1.98	1,360.3	316.5	2.14
NY6DQT		1,080.3	-0.8	-0.01	974.5	-69.3	-0.47
PUTPQW		1,116.8	35.7	0.45	1,071.1	27.3	0.18
QA4Q2D		1,156.5	75.4	0.96	1,116.0	72.2	0.49
QC42VR		1,020.0	-61.1	-0.77	1,125.8	82.0	0.55
QKZU4L	M	No data reported for this sample			1,063.1	19.3	0.13
RJNG2B		1,199.4	118.3	1.50	1,142.8	99.0	0.67
TBLRVQ		1,003.0	-78.1	-0.99	1,079.0	35.2	0.24
UUW4ZL		973.2	-107.9	-1.37	776.0	-267.8	-1.81
W27736		1,107.5	26.4	0.33	1,031.5	-12.3	-0.08
WJ48CP		1,060.0	-21.1	-0.27	1,116.0	72.2	0.49
WU6U4L		1,112.0	30.9	0.39	978.0	-65.8	-0.45
XRW2PE		1,101.6	20.5	0.26	1,138.4	94.6	0.64
XX4RRK		1,216.7	135.6	1.72	1,204.1	160.3	1.08
YHLZ4D		1,028.8	-52.4	-0.66	1,065.0	21.2	0.14
Z38B4H		1,062.6	-18.5	-0.24	917.4	-126.4	-0.86



Rubber Interlaboratory Testing Program

Report #206

Analysis 632

4th Qtr 2020

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

		Summary Statistics	
Grand Means	1,081.13 psi		1,043.80 psi
Stnd Dev Btwn Labs	78.89 psi		147.81 psi
Statistics based on 33 of 34 reporting participants			

		Summary Statistics in SI Units	
Grand Means	7.4541 MPa		7.20 MPa
Stnd Dev Btwn Labs	0.5439 MPa		1.02 MPa
Statistics based on 33 of 34 reporting participants			

Samples D01-D02: Polyisoprene compound, batch #1 & M01-M02: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #632

QKZU4L (M) - Participant did not submit data for sample group .



Rubber Interlaboratory Testing Program

Report #206

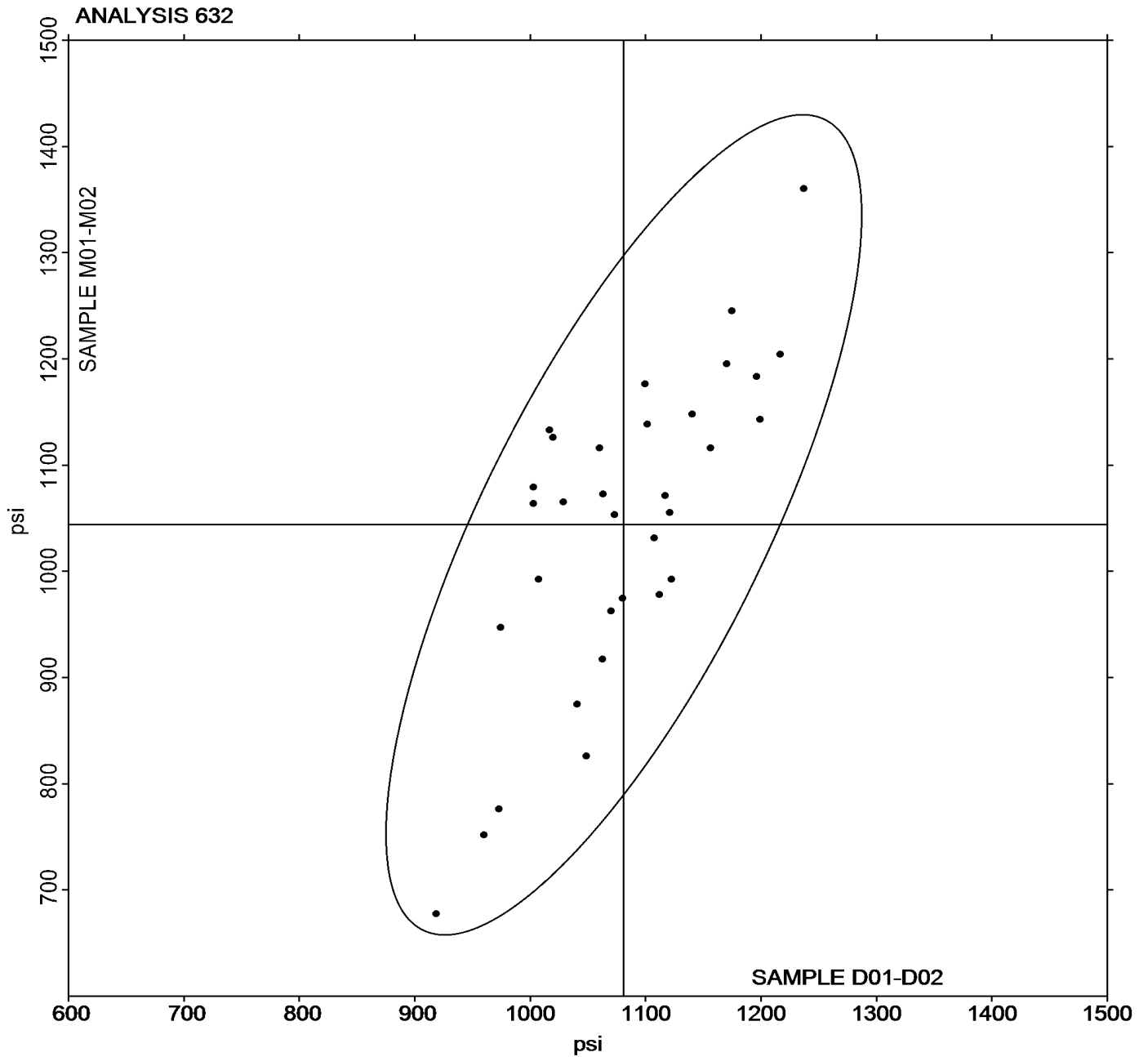
Analysis 632

4th Qtr 2020

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

Grand Mean Sample **D01-D02** = 1,081.13 psi

Grand Mean Sample **M01-M02** = 1,043.80 psi





Rubber Interlaboratory Testing Program

Report #206

Analysis 633

4th Qtr 2020

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

WebCode	Data Flag	Sample D01-D02			Sample M01-M02		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
29TQ8F		219.5	-8.8	-0.67	233.5	8.0	0.31
394P4A		226.2	-2.2	-0.17	233.2	7.6	0.30
6E98F8		231.3	3.0	0.23	187.8	-37.7	-1.48
8G2BW4		237.8	9.5	0.72	177.2	-48.3	-1.90
8LYPKU		224.5	-3.8	-0.29	220.5	-5.0	-0.20
AP8RJU		224.1	-4.2	-0.32	240.0	14.5	0.57
CGMB4P		235.5	7.1	0.54	233.6	8.0	0.32
CYTFR3		216.5	-11.8	-0.90	208.0	-17.5	-0.69
DU98G8		230.2	1.8	0.14	239.4	13.9	0.55
DY347Y		230.0	1.7	0.13	233.5	8.0	0.31
EHUAC4		207.2	-21.1	-1.60	220.5	-5.0	-0.20
FB6CZL		232.0	3.7	0.28	215.5	-10.0	-0.39
FP9HD7		218.7	-9.6	-0.73	191.8	-33.8	-1.33
FX2QXW		218.5	-9.8	-0.75	248.5	23.0	0.90
G9XFR3		212.0	-16.4	-1.24	229.9	4.3	0.17
GENQ22		222.3	-6.1	-0.46	179.9	-45.7	-1.80
HJCPVM		237.1	8.8	0.67	261.1	35.5	1.40
HP4Z6K		232.0	3.7	0.28	220.5	-5.0	-0.20
J4WRNZ	*	259.5	31.1	2.36	278.2	52.6	2.07
NY6DQT		247.3	19.0	1.44	222.7	-2.8	-0.11
PUTPQW		230.6	2.3	0.17	240.0	14.5	0.57
QA4Q2D		237.5	9.2	0.70	230.0	4.5	0.18
QC42VR		207.2	-21.1	-1.60	233.5	8.0	0.31
QKZU4L	M	No data reported for this sample			227.0	1.4	0.06
RJNG2B		238.7	10.4	0.79	233.1	7.6	0.30
TBLRVQ		214.0	-14.3	-1.09	230.5	5.0	0.20
UUW4ZL	*	200.2	-28.2	-2.14	165.3	-60.2	-2.37
W27736		225.5	-2.8	-0.22	225.5	0.0	0.00
WJ48CP		224.0	-4.3	-0.33	242.5	17.0	0.67
WU6U4L		243.5	15.2	1.15	207.5	-18.0	-0.71
XRW2PE		245.1	16.8	1.28	251.7	26.2	1.03
XX4RRK		251.2	22.8	1.73	255.7	30.2	1.19
YHLZ4D		233.3	5.0	0.38	255.9	30.3	1.19
Z38B4H		222.2	-6.2	-0.47	196.3	-29.2	-1.15



Rubber Interlaboratory Testing Program

Report #206

Analysis 633

4th Qtr 2020

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

		Summary Statistics	
Grand Means	228.33 psi	225.54 psi	
Stnd Dev Btwn Labs	13.17 psi	25.42 psi	
Statistics based on 33 of 34 reporting participants			

		Summary Statistics in SI Units	
Grand Means	1.5743 MPa	1.56 MPa	
Stnd Dev Btwn Labs	0.0908 MPa	0.18 MPa	
Statistics based on 33 of 34 reporting participants			

Samples D01-D02: Polyisoprene compound, batch #1 & M01-M02: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #633

QKZU4L (M) - Participant did not submit data for sample group .



Rubber Interlaboratory Testing Program

Report #206

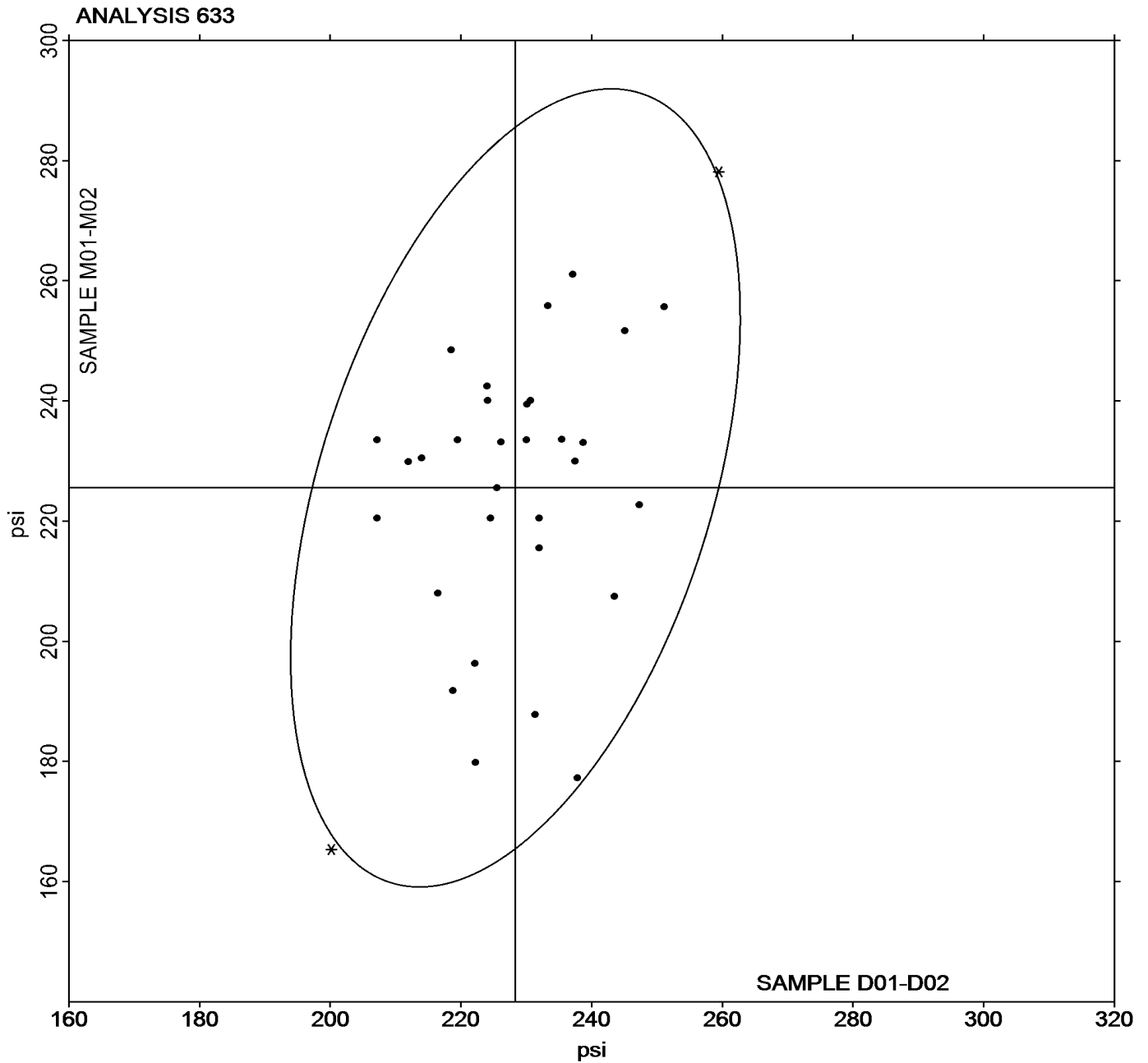
Analysis 633

4th Qtr 2020

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

Grand Mean Sample **D01-D02** = 228.33 psi

Grand Mean Sample **M01-M02** = 225.54 psi





Rubber Interlaboratory Testing Program
Analysis 635
Compression Set Method B

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample Q01			Sample Q02		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
29TQ8F		26.40	-8.46	-1.00	27.37	-6.99	-0.92
39MV3Y	*	24.67	-10.20	-1.21	32.00	-2.36	-0.31
6YVWPY		25.67	-9.20	-1.09	23.33	-11.03	-1.45
8Q9Q4C		33.07	-1.80	-0.21	34.80	0.44	0.06
BFWPXU		31.53	-3.33	-0.39	35.63	1.27	0.17
BLLA2A		30.33	-4.53	-0.54	30.67	-3.69	-0.49
BRQ7MV		44.67	9.80	1.16	38.33	3.97	0.52
D8UMK8		39.83	4.97	0.59	41.27	6.91	0.91
DAKKX6		33.95	-0.92	-0.11	34.38	0.02	0.00
DY347Y		29.48	-5.38	-0.64	28.37	-5.99	-0.79
E7FFXP		36.30	1.44	0.17	35.70	1.34	0.18
EHUAC4		40.26	5.40	0.64	37.89	3.53	0.46
EZULK6		22.13	-12.73	-1.51	25.73	-8.63	-1.13
FTP3XZ		37.67	2.80	0.33	35.67	1.31	0.17
FYDPR6		36.96	2.10	0.25	35.46	1.10	0.14
GENQ22		38.67	3.80	0.45	42.33	7.97	1.05
GGUBRL		33.33	-1.53	-0.18	29.33	-5.03	-0.66
GZMRGP		35.40	0.54	0.06	34.50	0.14	0.02
J4WRNZ		47.80	12.94	1.53	43.37	9.01	1.18
JT7NU		33.33	-1.53	-0.18	29.67	-4.69	-0.62
L9KDAK		38.11	3.24	0.38	33.39	-0.97	-0.13
LKVQPZ		51.25	16.39	1.94	51.85	17.49	2.30
NGN8GH		36.33	1.47	0.17	34.67	0.31	0.04
NMBW2R		31.91	-2.95	-0.35	32.53	-1.83	-0.24
RVDFRD		51.97	17.10	2.03	48.43	14.07	1.85
TBLRVQ		35.16	0.29	0.03	33.03	-1.33	-0.17
UWKFZQ		33.33	-1.53	-0.18	33.33	-1.03	-0.13
VHH7VH		45.57	10.70	1.27	43.80	9.44	1.24
WU6U4L	*	10.67	-24.20	-2.87	10.67	-23.69	-3.11
XKDVQL		31.00	-3.86	-0.46	34.33	-0.03	0.00
YAAZA3		34.00	-0.86	-0.10	33.33	-1.03	-0.13

Summary Statistics	
Grand Means	34.863 % Compression
	34.360 % Compression
Std Dev Btwn Labs	8.443 % Compression
	7.610 % Compression
	Statistics based on 31 of 31 reporting participants



Rubber Interlaboratory Testing Program
Analysis 635
Compression Set Method B

Report #206
4th Qtr 2020

Samples Q01: EPDM compound, batch #1 & Q02: EPDM compound, batch #2

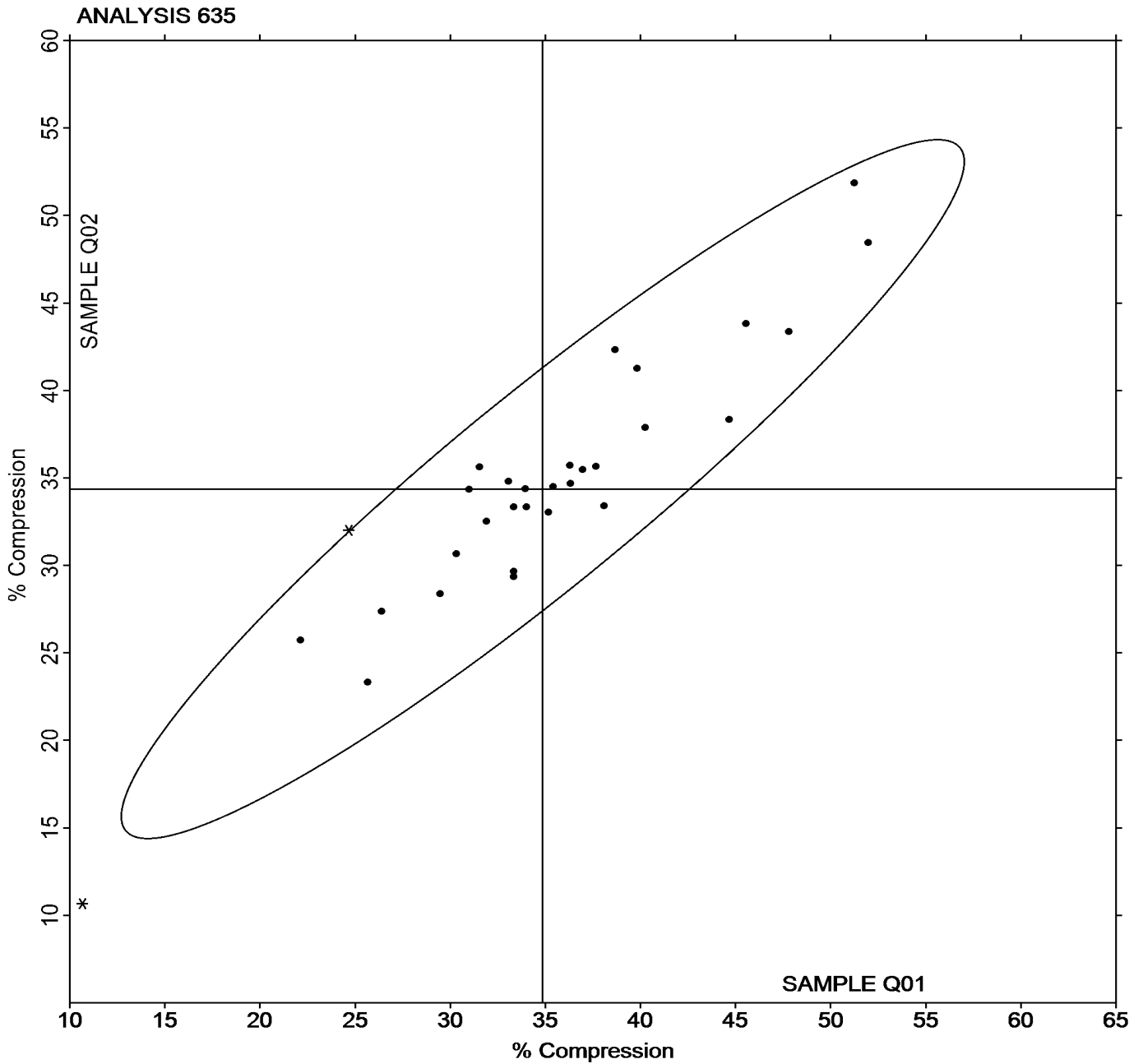


Rubber Interlaboratory Testing Program
Analysis 635
Compression Set Method B

Report #206
4th Qtr 2020

Grand Mean Sample Q01 = 34.863 % Compression

Grand Mean Sample Q02 = 34.360 % Compression





Rubber Interlaboratory Testing Program

Report #206

Analysis 660

4th Qtr 2020

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

WebCode	Data Flag	Sample V01-V02			Sample V03-V04			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2CR23E		45.32	0.02	0.02	56.90	-0.60	-0.55	MR
2ZJY4C		47.28	1.98	2.09	58.57	1.07	0.98	MR
394P4A		44.08	-1.22	-1.29	56.81	-0.69	-0.63	MV
69HX69		44.77	-0.53	-0.56	56.92	-0.58	-0.54	MR
6E98F8		45.07	-0.23	-0.25	57.59	0.09	0.08	MV
7QT8JE		44.60	-0.69	-0.73	57.51	0.01	0.01	MR
7TK7XD		45.52	0.22	0.23	57.89	0.39	0.36	MV
8G2BW4		45.99	0.69	0.73	59.01	1.51	1.39	MZ
8LYPKU		44.44	-0.85	-0.90	57.34	-0.16	-0.15	MV
ADCLNB		44.55	-0.75	-0.79	57.56	0.06	0.06	MR
AP8RJU		44.22	-1.08	-1.14	55.80	-1.70	-1.57	MR
CGMB4P		44.91	-0.39	-0.41	56.33	-1.17	-1.08	MV
CYTFR3		46.17	0.87	0.92	57.33	-0.17	-0.15	MV
DBTXF8		47.18	1.89	1.99	58.78	1.28	1.18	TA
DU98G8		44.88	-0.41	-0.44	57.02	-0.48	-0.45	MR
DY347Y		45.35	0.05	0.05	56.66	-0.84	-0.78	MV
FP9HD7	*	47.78	2.49	2.62	59.60	2.10	1.93	TV
FX2QXW		44.87	-0.43	-0.45	55.95	-1.55	-1.43	XX
G9XFR3		45.75	0.45	0.48	57.00	-0.50	-0.46	MR
GGUBRL		44.45	-0.85	-0.89	57.47	-0.03	-0.03	MR
HJCPVM		44.98	-0.31	-0.33	57.08	-0.42	-0.38	MR
HP4Z6K		44.45	-0.85	-0.89	56.20	-1.30	-1.20	MR
KCLYLW	X	43.96	-1.34	-1.41	60.24	2.74	2.52	TV
LCLEAG		44.74	-0.56	-0.59	55.06	-2.44	-2.25	MR
PRZU4N	*	47.01	1.71	1.80	60.52	3.01	2.78	TA
QC42VR		46.05	0.75	0.79	58.98	1.48	1.37	MR
QZAHGL		44.02	-1.28	-1.35	56.50	-1.00	-0.92	MR
RMHBYC		44.68	-0.61	-0.65	57.45	-0.05	-0.05	MR
RVDFRD		45.80	0.50	0.53	57.91	0.41	0.38	MR
TBLRVQ		45.72	0.42	0.45	58.27	0.77	0.71	ML
UK7HVM		45.59	0.30	0.31	58.15	0.65	0.60	MP
W27736		46.04	0.74	0.78	56.99	-0.51	-0.47	MR
WJ48CP		45.92	0.62	0.65	57.72	0.22	0.20	MR
XJ6JB7		45.48	0.19	0.20	57.98	0.48	0.45	MR
XRW2PE		44.35	-0.95	-1.00	57.51	0.01	0.01	MR
XUKDNJ		44.30	-1.00	-1.05	57.32	-0.18	-0.17	MR
XX4RRK	X	49.96	4.66	4.91	53.62	-3.88	-3.57	TA
YAAZA3		44.86	-0.44	-0.46	56.26	-1.24	-1.15	MR



Rubber Interlaboratory Testing Program

Report #206

Analysis 660

4th Qtr 2020

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

WebCode	Data Flag	Sample V01-V02			Sample V03-V04			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
YHLZ4D	*	44.13	-1.17	-1.24	58.77	1.27	1.17	XX
YTPAA3		44.90	-0.40	-0.42	57.32	-0.18	-0.17	MR
ZKMK4H		46.43	1.14	1.20	58.48	0.98	0.91	MR

Grand Means		Summary Statistics	
	45.297 ML 1 + 4		57.500 ML 1 + 4
Stnd Dev Btwn Labs	0.948 ML 1 + 4		1.085 ML 1 + 4
Statistics based on 39 of 41 reporting participants			

Samples V01-V02: NBR & V03-V04: Butyl

Comments on Assigned Data Flags for Test #660

KCLYLW (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group V03-V04.

XX4RRK (X) - Data for sample group V01-V02 are high and data for sample group V03-V04 are low. Inconsistent within the determinations of both sample groups.

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
MZ	Rebuilt Monsanto Mooney Viscometer	TA	TA Instruments (any model)
TV	Tech Pro Visc Tech (any model)	XX	Instrument make/model not specified by lab

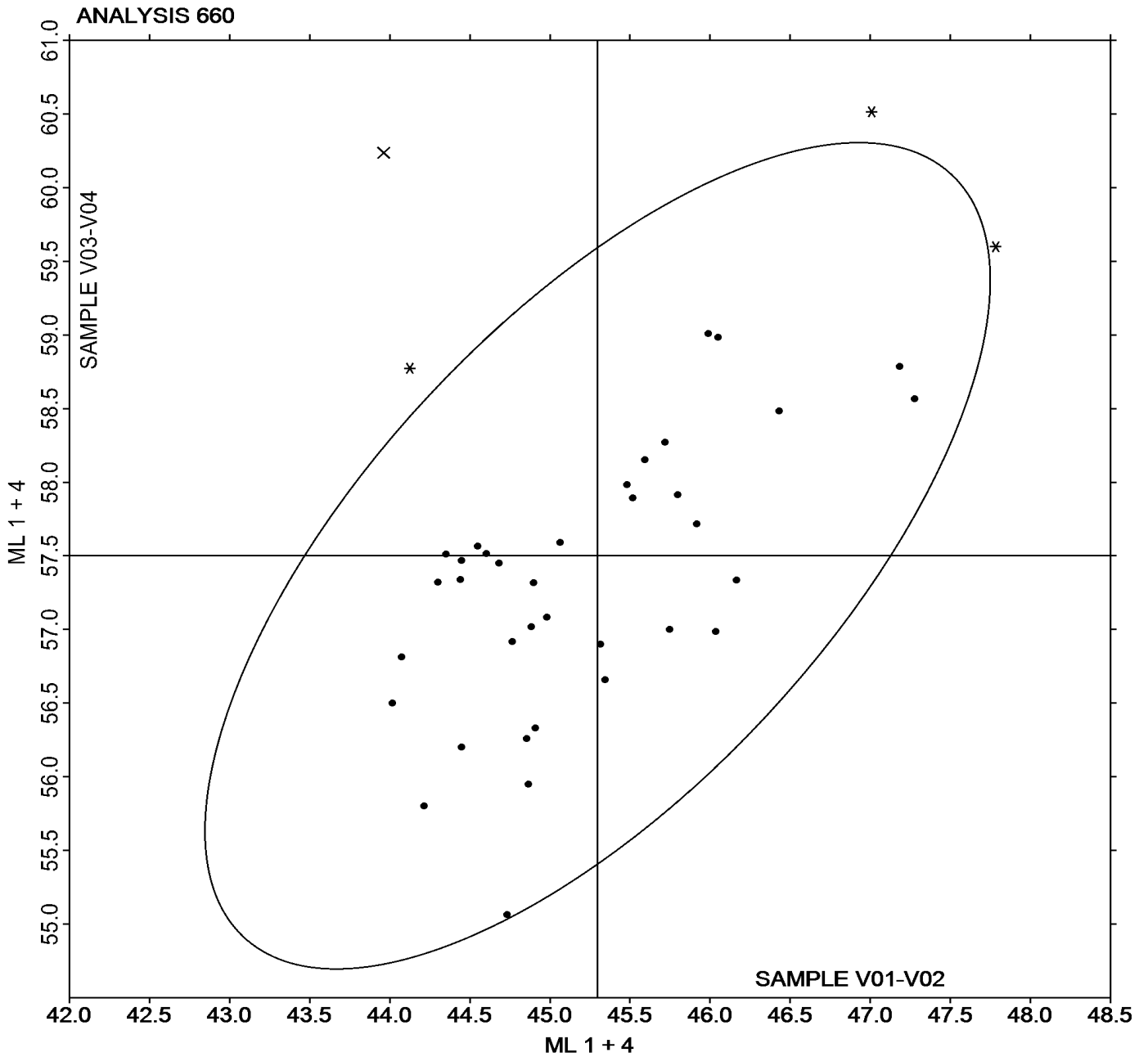


Rubber Interlaboratory Testing Program
Analysis 660
Mooney Viscosity: 4-minute readings (ML 1 + 4)

Report #206
4th Qtr 2020

Grand Mean Sample **V01-V02** = 45.297 ML 1 + 4

Grand Mean Sample **V03-V04** = 57.500 ML 1 + 4





Rubber Interlaboratory Testing Program

Report #206

Analysis 661

4th Qtr 2020

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

WebCode	Data Flag	Sample V01-V02			Sample V03-V04			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2ZJY4C		47.28	2.01	2.17	56.88	1.82	1.65	MR
394P4A		44.08	-1.19	-1.28	54.89	-0.18	-0.16	MV
69HX69		44.77	-0.50	-0.54	54.23	-0.83	-0.76	MR
6E98F8		45.07	-0.20	-0.21	55.23	0.17	0.15	MV
7QT8JE		44.60	-0.66	-0.71	54.80	-0.27	-0.24	MR
7TK7XD		45.52	0.25	0.27	55.84	0.77	0.70	MV
8G2BW4		45.99	0.72	0.78	56.16	1.09	0.99	MZ
8LYPKU		44.44	-0.82	-0.88	54.68	-0.39	-0.35	MV
AP8RJU		44.22	-1.05	-1.13	53.47	-1.60	-1.45	MR
CGMB4P		44.91	-0.36	-0.38	54.21	-0.86	-0.78	MV
CYTFR3		46.17	0.90	0.97	54.94	-0.13	-0.11	MV
DU98G8		44.88	-0.38	-0.41	53.65	-1.42	-1.29	MR
DY347Y		45.35	0.08	0.09	54.12	-0.95	-0.86	MV
FP9HD7	*	47.78	2.52	2.71	57.40	2.33	2.12	TV
FX2QXW		44.87	-0.40	-0.43	53.18	-1.88	-1.71	XX
G9XFR3		45.75	0.49	0.52	55.93	0.87	0.79	MR
GGUBRL		44.45	-0.81	-0.88	54.85	-0.22	-0.20	MR
HJCPVM		44.98	-0.28	-0.30	54.55	-0.52	-0.47	MR
HP4Z6K		44.45	-0.81	-0.88	53.27	-1.80	-1.63	MR
KCLYLW		43.96	-1.30	-1.40	55.54	0.47	0.43	TV
LCLEAG		44.74	-0.53	-0.57	52.72	-2.34	-2.13	MR
PRZU4N		47.01	1.74	1.88	57.39	2.32	2.11	TA
QC42VR		46.05	0.79	0.85	56.17	1.10	1.00	MR
RMHBYC		44.68	-0.58	-0.63	54.65	-0.42	-0.38	MR
RVDFRD		45.80	0.53	0.58	55.61	0.55	0.50	MR
TBLRVQ		45.72	0.46	0.49	55.71	0.64	0.58	ML
UK7HVM		45.59	0.33	0.36	55.03	-0.04	-0.03	MP
W27736		46.04	0.77	0.83	54.50	-0.56	-0.51	MR
WJ48CP		45.92	0.65	0.70	55.38	0.32	0.29	MR
XJ6JB7		45.48	0.22	0.24	55.00	-0.07	-0.06	MR
XRW2PE		44.35	-0.91	-0.98	55.12	0.06	0.05	MR
XUKDNJ		44.30	-0.96	-1.04	54.58	-0.49	-0.44	MR
XX4RRK	X	49.96	4.69	5.06	55.88	0.81	0.74	TA
YAAZA3		44.86	-0.41	-0.44	56.65	1.59	1.44	MR
YHLZ4D		44.13	-1.14	-1.23	55.45	0.38	0.34	XX
YTPAA3		44.90	-0.36	-0.39	54.98	-0.08	-0.08	MR
ZKMK4H		46.43	1.17	1.26	55.62	0.55	0.50	MR



Rubber Interlaboratory Testing Program

Report #206

Analysis 661

4th Qtr 2020

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

		Summary Statistics	
Grand Means	45.264 ML 1 + 8	55.066 ML 1 + 8	
Stnd Dev Btwn Labs	0.928 ML 1 + 8	1.100 ML 1 + 8	
Statistics based on 36 of 37 reporting participants			

Samples V01-V02: NBR & V03-V04: Butyl

Comments on Assigned Data Flags for Test #661

XX4RRK (X) - Data for sample group V01-V02 are high. Inconsistent within the determinations of sample group V01-V02.

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
MZ	Rebuilt Monsanto Mooney Viscometer	TA	TA Instruments (any model)
TV	Tech Pro Visc Tech (any model)	XX	Instrument make/model not specified by lab



Rubber Interlaboratory Testing Program

Report #206

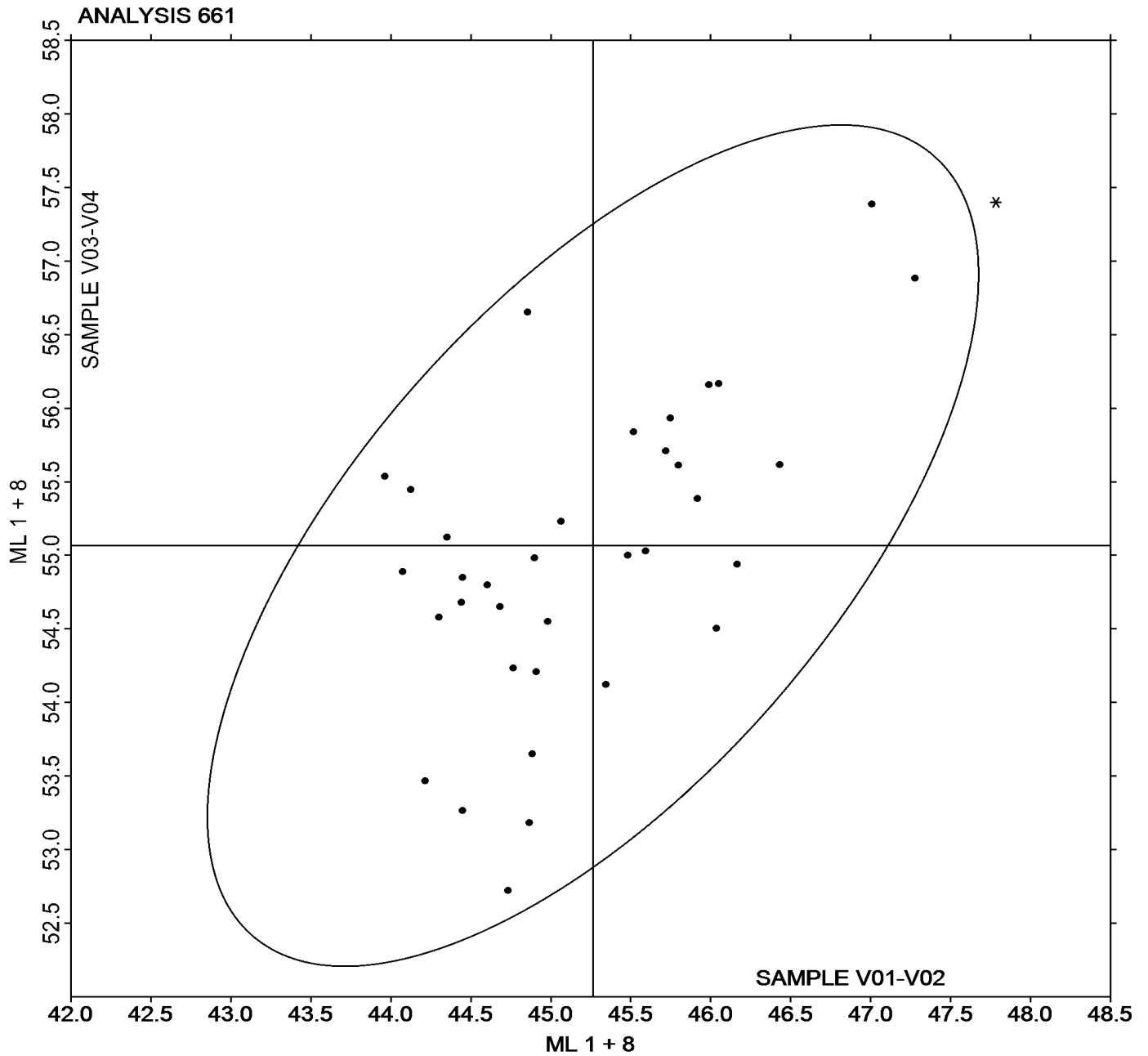
Analysis 661

4th Qtr 2020

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

Grand Mean Sample V01-V02 = 45.264 ML 1 + 8

Grand Mean Sample V03-V04 = 55.066 ML 1 + 8





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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample V01-V02			Sample V03-V04			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2CR23E		4.800	-0.269	-0.20	7.800	0.332	0.30	MR
394P4A		3.333	-1.736	-1.29	6.600	-0.868	-0.79	MV
69HX69	*	9.393	4.324	3.22	9.847	2.379	2.16	MR
6E98F8		3.700	-1.369	-1.02	6.500	-0.968	-0.88	MV
8G2BW4		3.433	-1.636	-1.22	6.833	-0.635	-0.58	MZ
8LYPKU		3.600	-1.469	-1.09	6.200	-1.268	-1.15	MV
AP8RJU		5.430	0.361	0.27	7.390	-0.078	-0.07	MR
CGMB4P	X	303.900	298.831	222.74	306.600	299.132	271.45	MV
CYTFR3		4.933	-0.136	-0.10	7.200	-0.268	-0.24	MV
DBTXF8	*	5.367	0.298	0.22	9.800	2.332	2.12	TA
DU98G8		5.307	0.238	0.18	7.133	-0.335	-0.30	MR
DY347Y		5.000	-0.069	-0.05	6.633	-0.835	-0.76	MV
FP9HD7	X	664.000	658.931	491.16	667.300	659.832	598.78	TV
FX2QXW		5.367	0.298	0.22	7.133	-0.335	-0.30	XX
HJCPVM		5.083	0.014	0.01	6.997	-0.471	-0.43	MR
RMHBYC		5.667	0.598	0.45	9.000	1.532	1.39	MR
TBLRVQ		5.321	0.252	0.19	7.416	-0.052	-0.05	ML
WJ48CP		5.093	0.024	0.02	7.323	-0.145	-0.13	MR
XRW2PE		4.413	-0.656	-0.49	6.287	-1.181	-1.07	MR
XX4RRK	X	305.700	300.631	224.09	306.800	299.332	271.64	TA
YHLZ4D		6.000	0.931	0.69	8.333	0.865	0.79	XX

Grand Means		Summary Statistics	
	5.0689 seconds		7.4681 seconds
Std Dev Btwn Labs	1.3416 seconds		1.1020 seconds
Statistics based on 18 of 21 reporting participants			

Samples V01-V02: NBR & V03-V04: Butyl

Comments on Assigned Data Flags for Test #662

- CGMB4P (X) - Extreme Data.
- FP9HD7 (X) - Extreme Data.
- XX4RRK (X) - Extreme Data.



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

Report #206
4th Qtr 2020

Key to Instrument Codes Reported by Participants

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

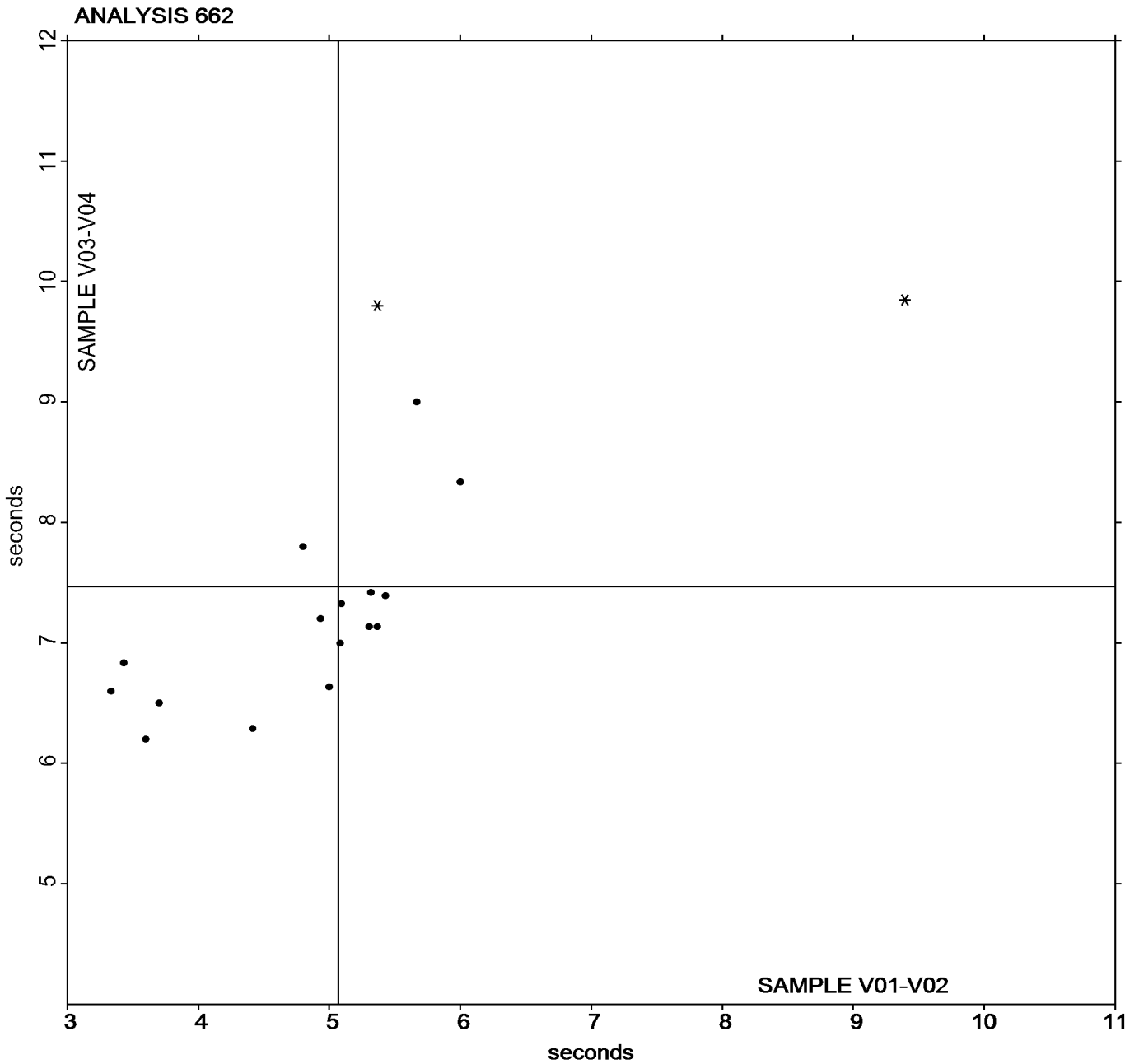


Rubber Interlaboratory Testing Program
Analysis 662
Mooney Stress Relaxation: t80 (seconds)

Report #206
4th Qtr 2020

Grand Mean Sample V01-V02 = 5.0689 seconds

Grand Mean Sample V03-V04 = 7.4681 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 #206

Analysis 663

4th Qtr 2020

Mooney Stress Relaxation: X30 (percent)

WebCode	Data Flag	Sample V01-V02			Sample V03-V04			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
394P4A		95.09	3.55	1.74	94.47	1.86	1.21	MV
69HX69		85.96	-5.58	-2.73	88.58	-4.02	-2.61	MR
6E98F8		94.33	2.80	1.37	95.00	2.40	1.56	MV
8G2BW4		93.25	1.72	0.84	92.98	0.38	0.25	MZ
8LYPKU		93.71	2.18	1.07	94.49	1.88	1.22	MV
AP8RJU		90.80	-0.73	-0.36	92.68	0.08	0.05	MR
CGMB4P		93.72	2.18	1.07	94.19	1.58	1.03	MV
CYTFR3		91.19	-0.35	-0.17	92.43	-0.18	-0.11	MV
DBTXF8		90.99	-0.54	-0.27	90.37	-2.24	-1.45	TA
DU98G8		91.16	-0.38	-0.18	93.14	0.53	0.35	MR
DY347Y		90.70	-0.83	-0.41	93.02	0.42	0.27	MV
FP9HD7		92.25	0.71	0.35	92.19	-0.41	-0.27	TV
FX2QXW		91.05	-0.48	-0.24	92.95	0.35	0.23	XX
HJCPVM		90.93	-0.60	-0.29	92.86	0.25	0.16	MR
RMHBYC		90.55	-0.98	-0.48	91.10	-1.50	-0.97	MR
TBLRVQ		90.90	-0.64	-0.31	92.22	-0.39	-0.25	ML
WJ48CP		90.90	-0.64	-0.31	92.21	-0.39	-0.25	MR
XRW2PE	X	84.98	-6.55	-3.21	92.76	0.15	0.10	MR
XX4RRK	X	6.95	-84.59	-41.49	6.82	-85.79	-55.64	TA
YHLZ4D		90.12	-1.41	-0.69	91.98	-0.62	-0.40	XX

Grand Means		Summary Statistics	
	91.532 percent		92.602 percent
Std Dev Btwn Labs	2.039 percent		1.542 percent
Statistics based on 18 of 20 reporting participants			

Samples V01-V02: NBR & V03-V04: Butyl

Comments on Assigned Data Flags for Test #663

XRW2PE (X) - Data for sample group V01-V02 are low. Inconsistent within the determinations of both sample groups.

XX4RRK (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	MZ	Rebuilt Monsanto Mooney Viscometer
TA	TA Instruments (any model)	TV	Tech Pro Visc Tech (any model)
XX	Instrument make/model not specified by lab		

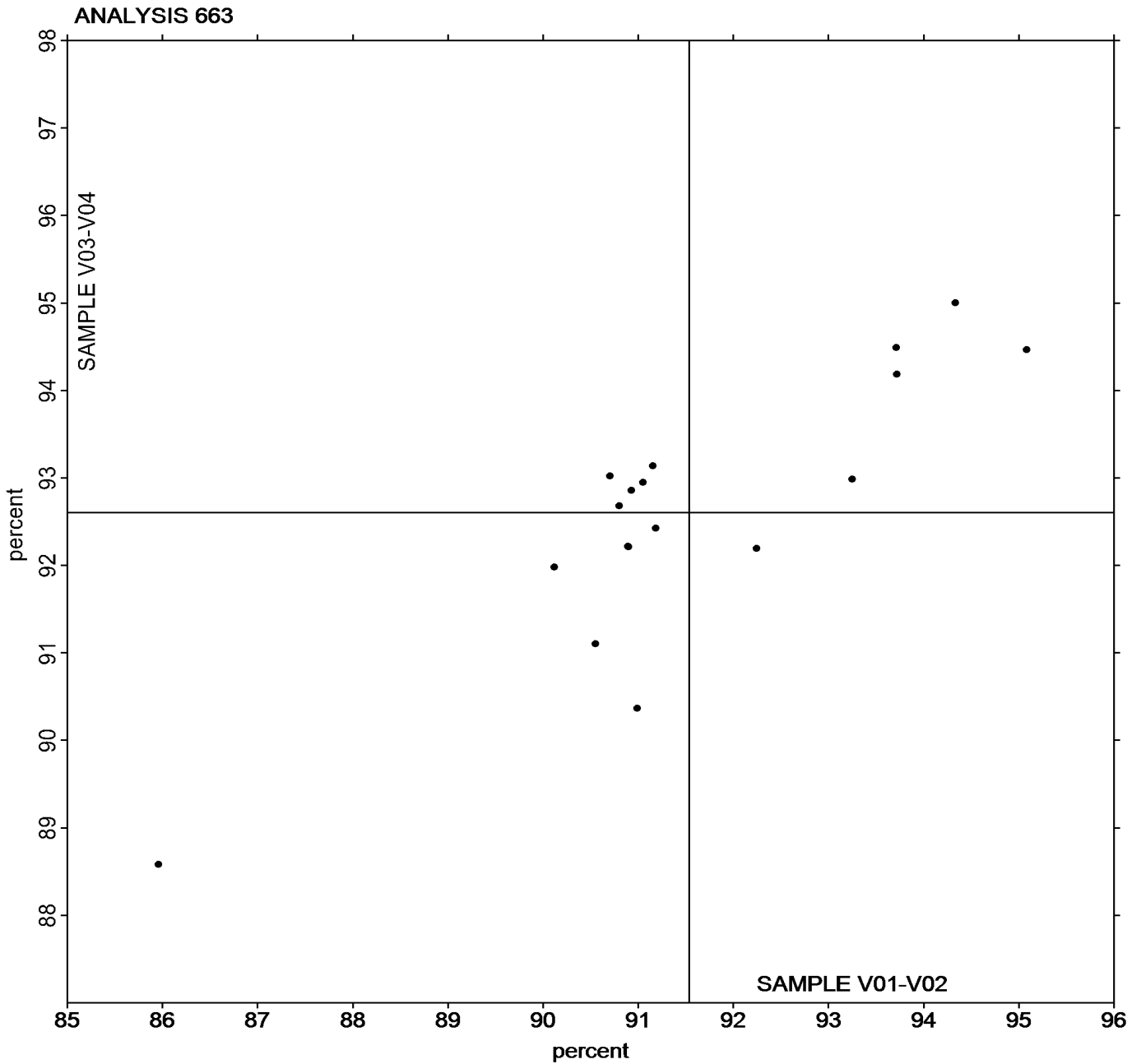


Rubber Interlaboratory Testing Program
Analysis 663
Mooney Stress Relaxation: X30 (percent)

Report #206
4th Qtr 2020

Grand Mean Sample V01-V02 = 91.532 percent

Grand Mean Sample V03-V04 = 92.602 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 #206

Analysis 664

4th Qtr 2020

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

WebCode	Data Flag	Sample V01-V02			Sample V03-V04			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
394P4A		216.3	-164.2	-2.01	334.1	-105.4	-1.43	MV
6E98F8		251.8	-128.7	-1.58	301.1	-138.4	-1.88	MV
7QT8JE		319.8	-60.7	-0.75	470.8	31.3	0.42	MR
8G2BW4		310.6	-69.9	-0.86	438.9	-0.6	-0.01	MZ
8LYPKU		289.4	-91.1	-1.12	328.1	-111.4	-1.51	MV
AP8RJU		441.5	61.0	0.75	452.8	13.3	0.18	XX
CGMB4P		288.5	-92.0	-1.13	351.7	-87.8	-1.19	MV
CYTFR3		432.7	52.2	0.64	457.6	18.1	0.25	MV
DBTXF8		339.0	-41.5	-0.51	488.7	49.2	0.67	TA
DU98G8		427.0	46.5	0.57	425.5	-14.0	-0.19	MR
DY347Y		459.1	78.6	0.96	425.7	-13.8	-0.19	MV
FP9HD7		381.8	1.3	0.02	507.8	68.3	0.93	TV
FX2QXW		429.4	48.9	0.60	430.6	-8.9	-0.12	XX
HJCPVM		441.3	60.8	0.75	448.7	9.2	0.13	MR
RMHBYC		457.7	77.2	0.95	564.2	124.7	1.69	MR
TBLRVQ		487.9	107.4	1.32	545.9	106.4	1.44	ML
WJ48CP		455.2	74.7	0.92	488.8	49.3	0.67	MR
XRW2PE		333.0	-47.5	-0.58	394.4	-45.1	-0.61	MR
XX4RRK		371.2	-9.3	-0.11	393.9	-45.6	-0.62	TA
YHLZ4D		476.9	96.4	1.18	540.4	100.9	1.37	XX

Grand Means		Summary Statistics	
	380.50 M-s		439.49 M-s
Std Dev Btwn Labs			
	81.48 M-s		73.66 M-s
Statistics based on 20 of 20 reporting participants			

Samples V01-V02: NBR & V03-V04: Butyl

Key to Instrument Codes Reported by Participants

ML	Alpha Technologies/Monsanto model not specified	MR	Alpha Technologies Model MV2000/MV2000E
MV	MonTech	MZ	Rebuilt Mooney Viscometer
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 #206

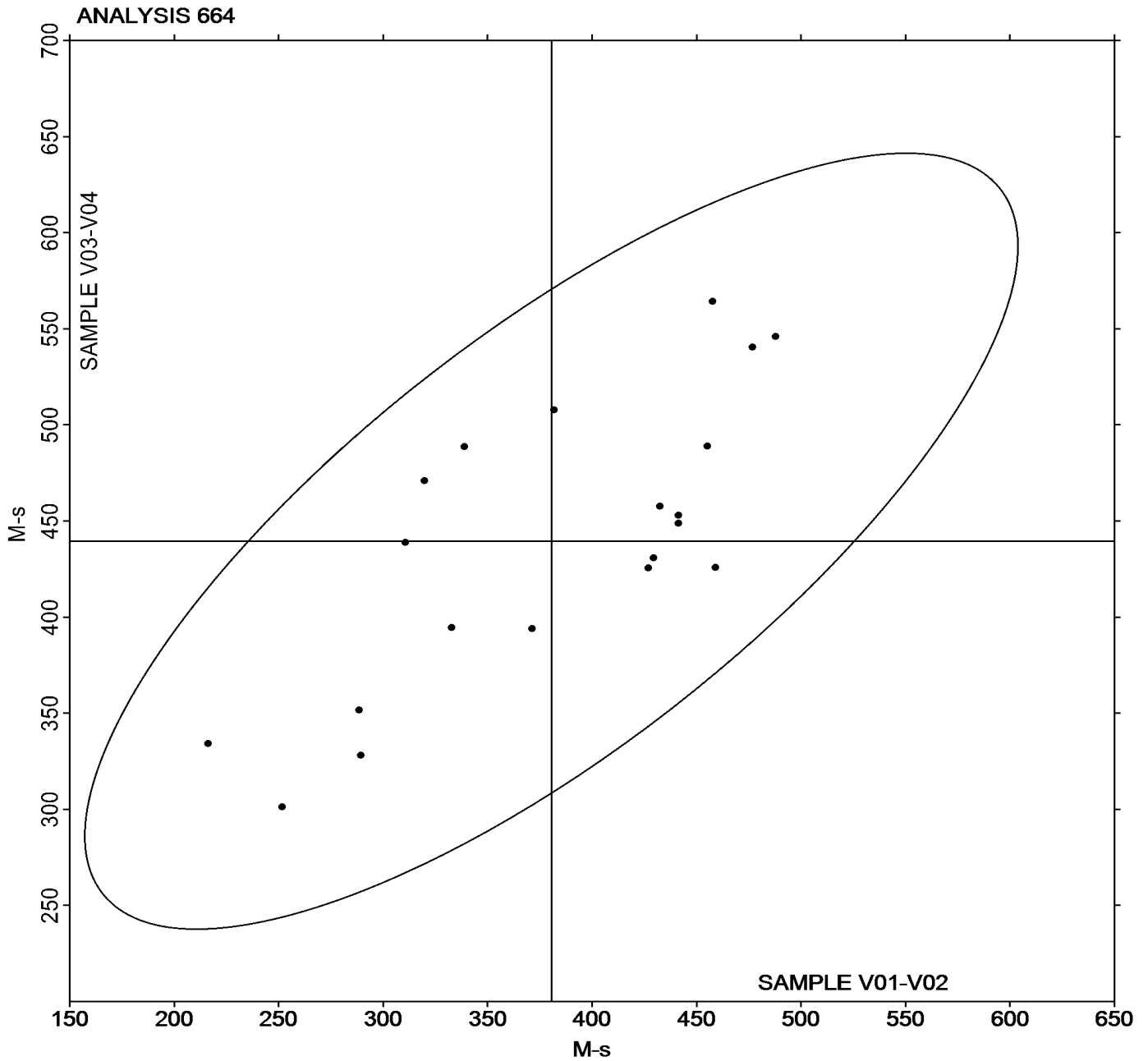
Analysis 664

4th Qtr 2020

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

Grand Mean Sample V01-V02 = 380.50 M-s

Grand Mean Sample V03-V04 = 439.49 M-s





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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample Z01-Z02			Sample Z03-Z04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
394P4A		1.888	0.014	0.09	3.407	-0.147	-0.47
8LYPKU		1.697	-0.178	-1.17	3.172	-0.382	-1.23
LCLEAG		2.102	0.227	1.50	3.952	0.398	1.28
RJNG2B		1.902	0.027	0.18	3.778	0.224	0.72
XUKDNJ		1.783	-0.091	-0.60	3.462	-0.092	-0.30

Summary Statistics	
Grand Means	1.8743 minutes 3.5540 minutes
Std Dev Btwn Labs	0.1520 minutes 0.3102 minutes
Statistics based on 5 of 5 reporting participants	

Samples Z01-Z02: EPDM compound, batch #1 & Z03-Z04: EPDM compound, batch #2

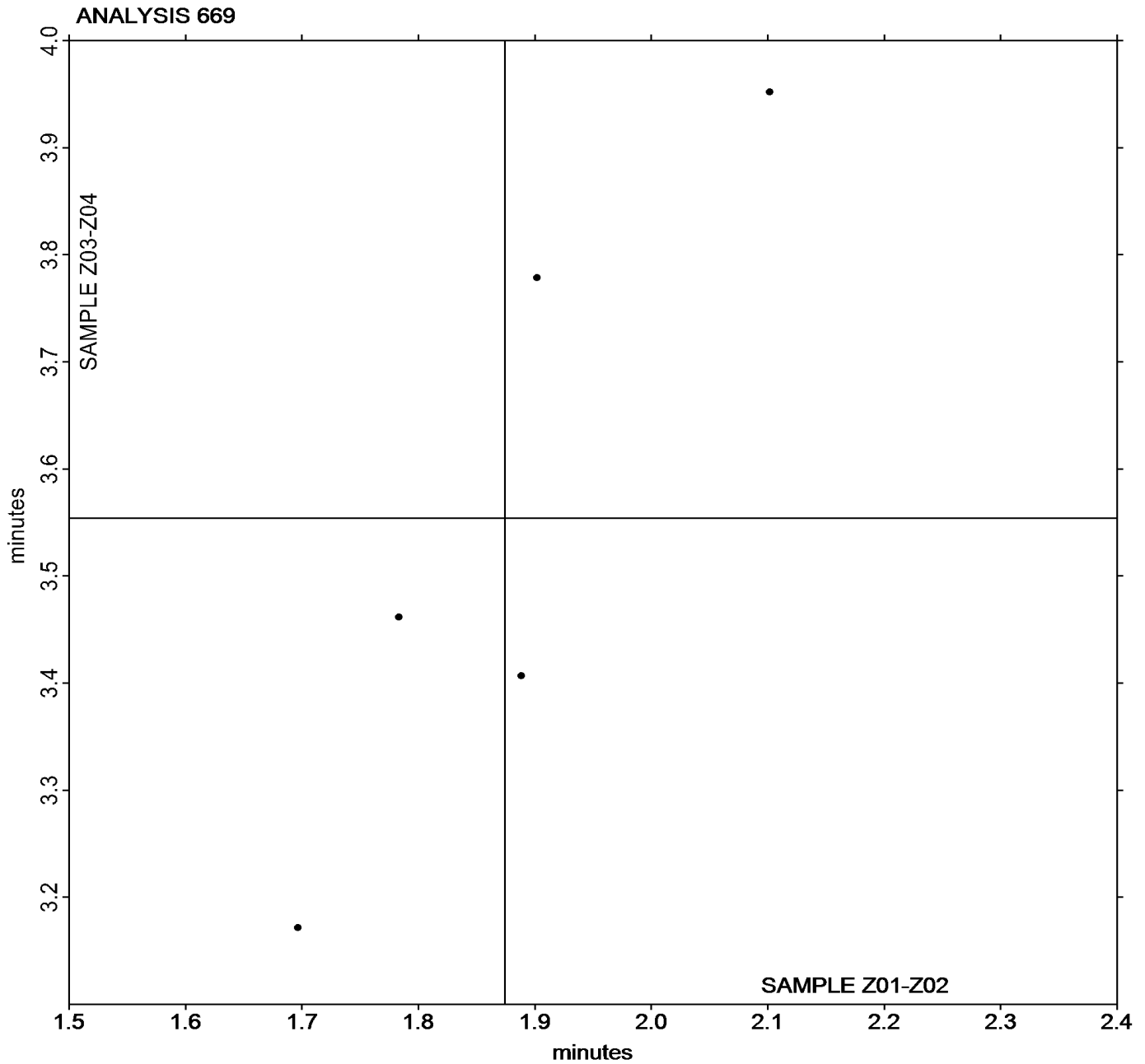


Rubber Interlaboratory Testing Program
Analysis 669
ODR Vulcanization-Cure Time 10% (minutes)

Report #206
4th Qtr 2020

Grand Mean Sample Z01-Z02 = 1.8743 minutes

Grand Mean Sample Z03-Z04 = 3.5540 minutes



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



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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample Z01-Z02			Sample Z03-Z04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
394P4A		1.467	0.080	0.50	2.562	-0.066	-0.24
8LYPKU		1.222	-0.165	-1.04	2.305	-0.323	-1.17
LCLEAG		1.588	0.202	1.27	3.002	0.374	1.35
RJNG2B		1.428	0.042	0.26	2.805	0.177	0.64
XUKDNJ		1.228	-0.158	-1.00	2.465	-0.163	-0.59

Summary Statistics	
Grand Means	
	1.3867 minutes 2.6277 minutes
Std Dev Btwn Labs	
	0.1590 minutes 0.2767 minutes
	Statistics based on 5 of 5 reporting participants

Samples Z01-Z02: EPDM compound, batch #1 & Z03-Z04: EPDM compound, batch #2

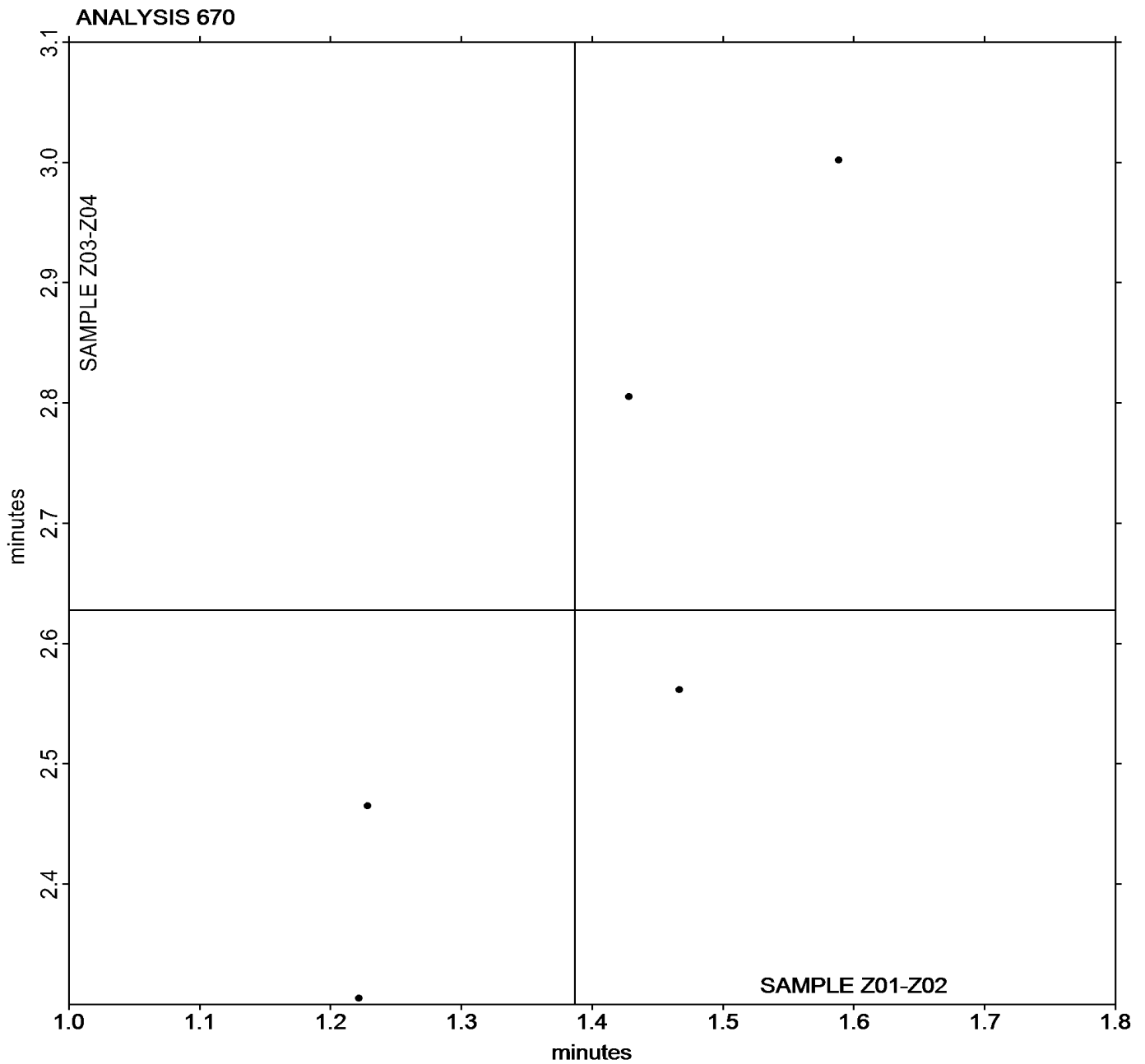


Rubber Interlaboratory Testing Program
Analysis 670
ODR Vulcanization-Scorch Time, Ts1 (minutes)

Report #206
4th Qtr 2020

Grand Mean Sample **Z01-Z02** = 1.3867 minutes

Grand Mean Sample **Z03-Z04** = 2.6277 minutes



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



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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample Z01-Z02			Sample Z03-Z04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
394P4A		3.535	-0.091	-0.33	6.327	-0.327	-0.61
8LYPKU		3.265	-0.361	-1.31	5.988	-0.666	-1.25
LCLEAG		4.028	0.402	1.46	7.072	0.418	0.78
RJNG2B		3.673	0.047	0.17	7.295	0.641	1.20
XUKDNJ		3.630	0.004	0.01	6.588	-0.066	-0.12

Summary Statistics	
Grand Means	
	3.6263 minutes 6.6540 minutes
Std Dev Btwn Labs	
	0.2751 minutes 0.5338 minutes
	Statistics based on 5 of 5 reporting participants

Samples Z01-Z02: EPDM compound, batch #1 & Z03-Z04: EPDM compound, batch #2

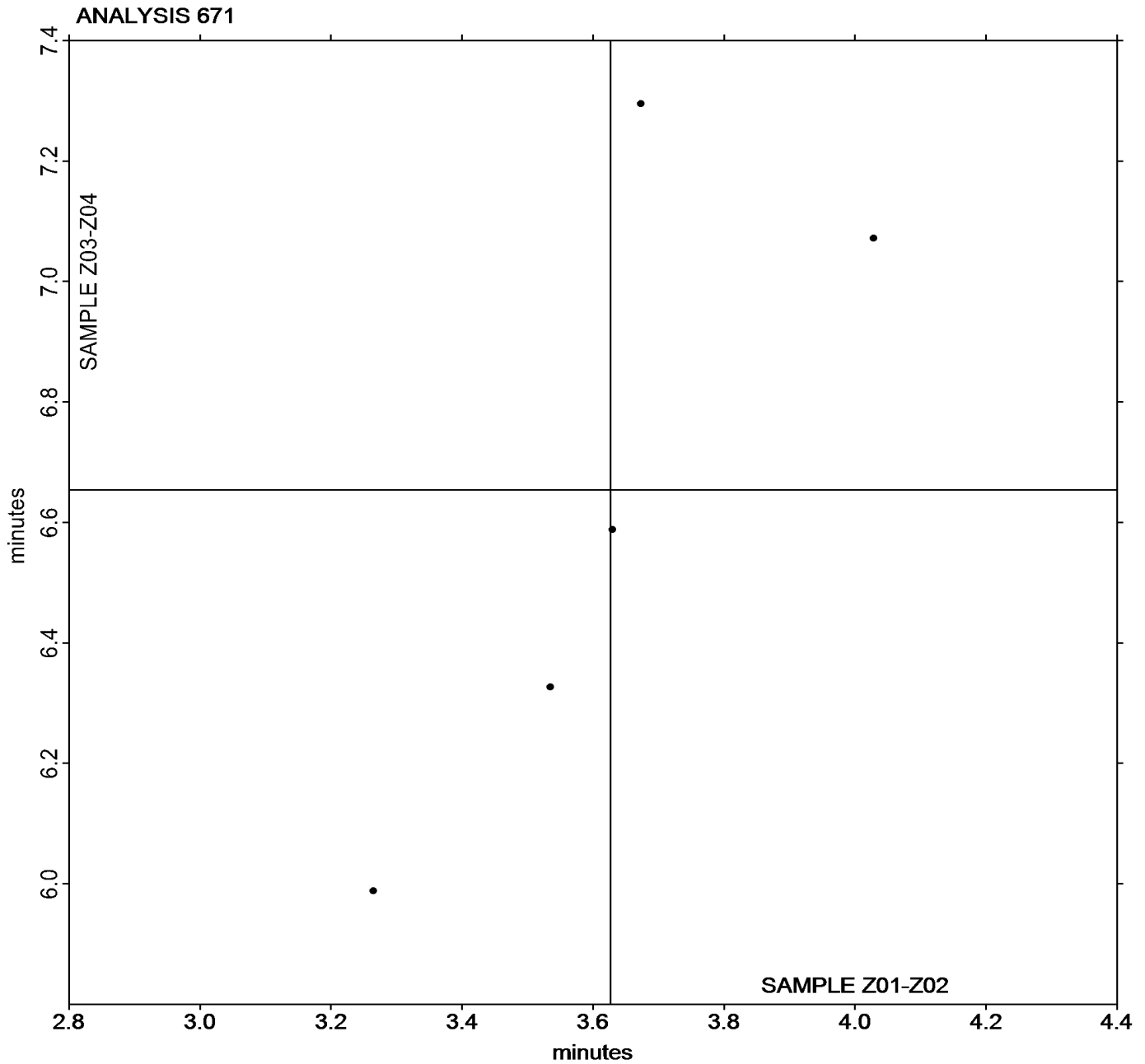


Rubber Interlaboratory Testing Program
Analysis 671
ODR Vulcanization-Cure Time 50% (minutes)

Report #206
4th Qtr 2020

Grand Mean Sample **Z01-Z02** = 3.6263 minutes

Grand Mean Sample **Z03-Z04** = 6.6540 minutes



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



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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample Z01-Z02			Sample Z03-Z04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
394P4A		12.09	-0.43	-0.56	11.79	-1.26	-0.83
8LYPKU		12.35	-0.18	-0.23	11.82	-1.23	-0.81
LCLEAG		13.59	1.06	1.38	13.27	0.22	0.14
RJNG2B		11.61	-0.91	-1.18	15.52	2.47	1.62
XUKDNJ		12.98	0.46	0.59	12.85	-0.20	-0.13

Grand Means		Summary Statistics	
	12.523 minutes		13.050 minutes
Stnd Dev Btwn Labs	0.773 minutes		1.522 minutes
Statistics based on 5 of 5 reporting participants			

Samples Z01-Z02: EPDM compound, batch #1 & Z03-Z04: EPDM compound, batch #2

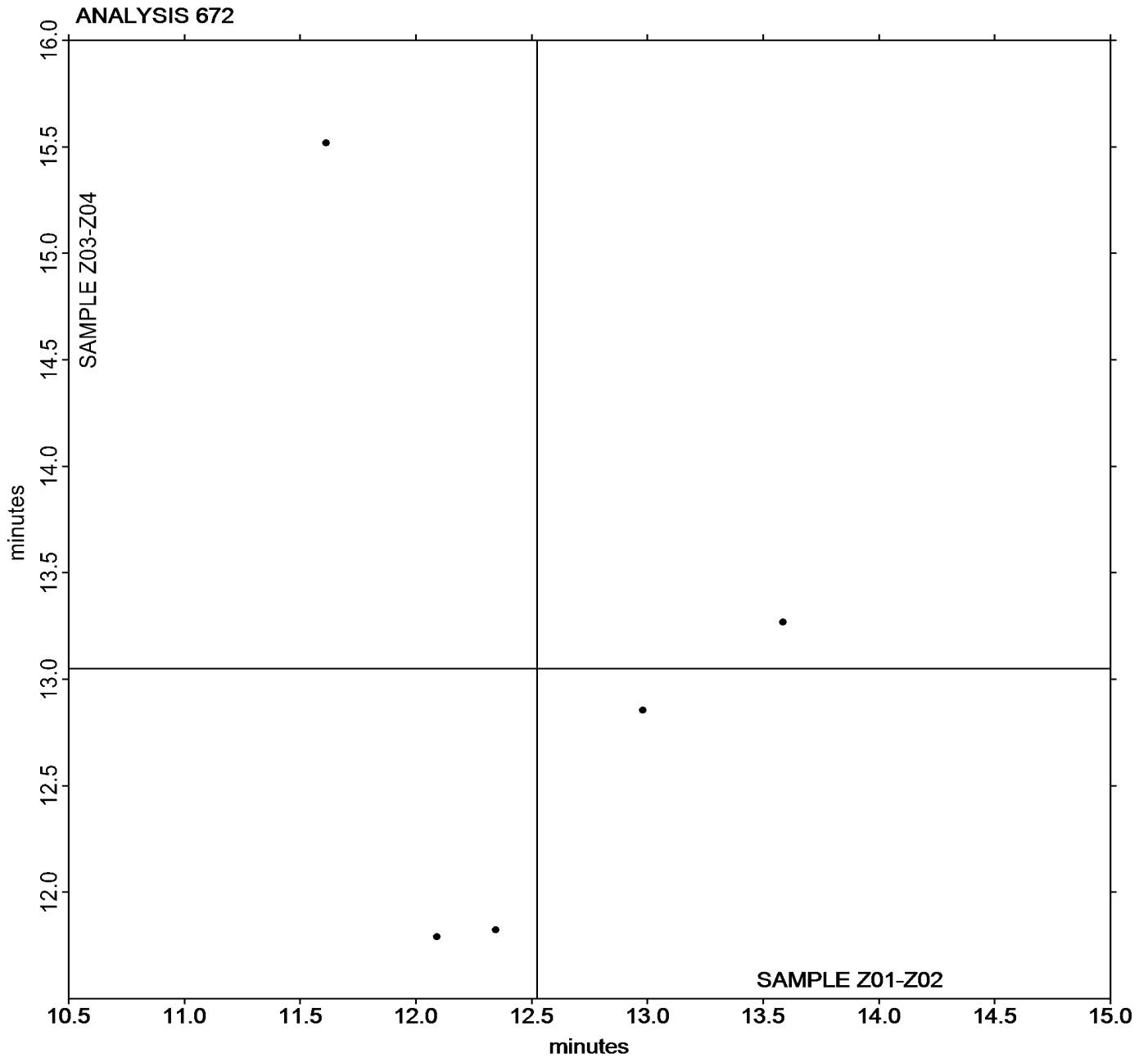


Rubber Interlaboratory Testing Program
Analysis 672
ODR Vulcanization-Cure Time 90% (minutes)

Report #206
4th Qtr 2020

Grand Mean Sample **Z01-Z02** = 12.523 minutes

Grand Mean Sample **Z03-Z04** = 13.050 minutes



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



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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample Z01-Z02			Sample Z03-Z04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
394P4A		5.113	-1.987	-1.29	6.95	-3.21	-1.43
8LYPKU		8.028	0.928	0.60	10.78	0.63	0.28
LCLEAG		7.393	0.293	0.19	9.55	-0.61	-0.27
RJNG2B		8.962	1.861	1.20	13.17	3.01	1.34
XUKDNJ		6.005	-1.095	-0.71	10.33	0.17	0.08

		Summary Statistics	
Grand Means		7.1003 lbf.in	10.155 lbf.in
Std Dev Btwn Labs		1.5459 lbf.in	2.245 lbf.in
Statistics based on 5 of 5 reporting participants			

		Summary Statistics in SI Units	
Grand Means		8.0223 dN.m	11.473 dN.m
Std Dev Btwn Labs		1.7467 dN.m	2.536 dN.m
Statistics based on 5 of 5 reporting participants			

Samples Z01-Z02: EPDM compound, batch #1 & Z03-Z04: EPDM compound, batch #2

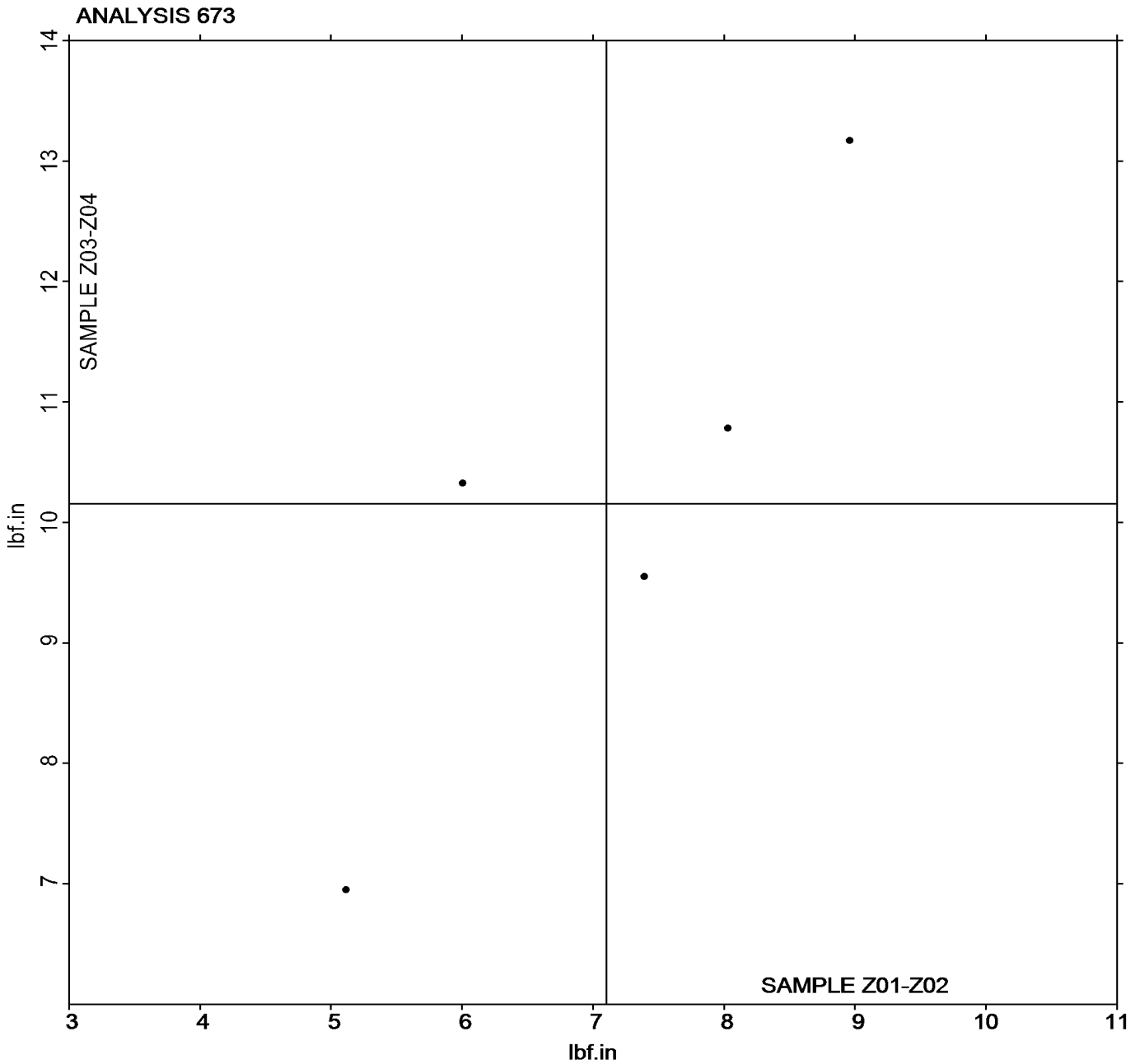


Rubber Interlaboratory Testing Program
Analysis 673
ODR Vulcanization: Minimum Torque (lbf.in)

Report #206
4th Qtr 2020

Grand Mean Sample Z01-Z02 = 7.1003 lbf.in

Grand Mean Sample Z03-Z04 = 10.155 lbf.in



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



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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample Z01-Z02			Sample Z03-Z04		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
394P4A		39.09	-4.47	-1.11	33.56	-4.97	-1.32
8LYPKU		46.22	2.66	0.66	39.51	0.99	0.26
LCLEAG		40.28	-3.28	-0.81	36.09	-2.44	-0.65
RJNG2B		43.43	-0.13	-0.03	43.17	4.64	1.24
XUKDNJ		48.77	5.21	1.29	40.31	1.78	0.47

		Summary Statistics	
Grand Means		43.560 lbf.in	38.527 lbf.in
Std Dev Btwn Labs		4.029 lbf.in	3.752 lbf.in
Statistics based on 5 of 5 reporting participants			

		Summary Statistics in SI Units	
Grand Means		49.216 dN.m	43.530 dN.m
Std Dev Btwn Labs		4.552 dN.m	4.239 dN.m
Statistics based on 5 of 5 reporting participants			

Samples Z01-Z02: EPDM compound, batch #1 & Z03-Z04: EPDM compound, batch #2

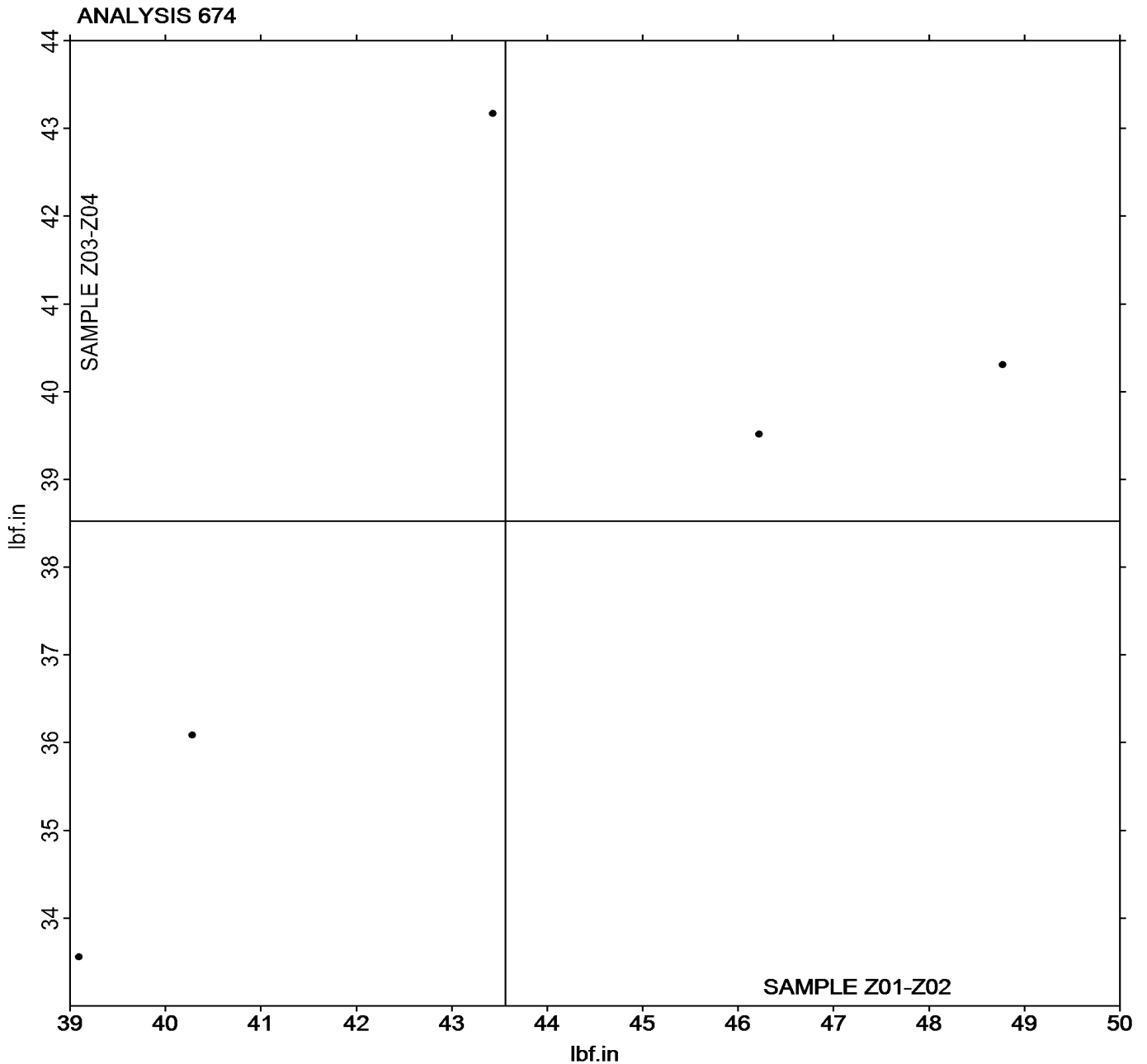


Rubber Interlaboratory Testing Program
Analysis 674
ODR Vulcanization: Maximum Torque (lbf.in)

Report #206
4th Qtr 2020

Grand Mean Sample **Z01-Z02** = 43.560 lbf.in

Grand Mean Sample **Z03-Z04** = 38.527 lbf.in



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



Rubber Interlaboratory Testing Program

Report #206

Analysis 684

4th Qtr 2020

MDR Vulcanization-Cure Time 10% (minutes)

WebCode	Data Flag	Sample Z05-Z06			Sample Z07-Z08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2U8B4F		2.520	-0.081	-0.55	2.275	-0.081	-0.62	MC
394P4A		2.300	-0.301	-2.05	2.115	-0.241	-1.85	MM
69HX69		2.718	0.117	0.80	2.358	0.002	0.02	MC
6E98F8		2.577	-0.025	-0.17	2.508	0.152	1.17	MC
7TK7XD		2.493	-0.108	-0.74	2.263	-0.093	-0.71	MC
7UU8LW		2.558	-0.043	-0.29	2.235	-0.121	-0.93	MM
8G2BW4		2.508	-0.093	-0.63	2.338	-0.018	-0.14	MX
8LYPKU		2.882	0.280	1.91	2.532	0.176	1.35	XX
ADCLNB		2.830	0.229	1.56	2.468	0.112	0.86	MP
CGMB4P		2.877	0.275	1.87	2.600	0.244	1.87	MR
CYTFR3		2.503	-0.098	-0.67	2.312	-0.044	-0.34	MM
DU98G8		2.537	-0.065	-0.44	2.208	-0.148	-1.13	MC
DY347Y		2.763	0.162	1.10	2.563	0.207	1.59	MX
EHUAC4		2.590	-0.011	-0.08	2.258	-0.098	-0.75	MC
FB6CZL		2.823	0.222	1.51	2.553	0.197	1.51	ME
FX2QXW		2.465	-0.136	-0.93	2.282	-0.074	-0.57	XX
G9XFR3		2.433	-0.168	-1.14	2.295	-0.061	-0.47	MC
GGUBRL		2.542	-0.060	-0.41	2.243	-0.113	-0.86	MC
HJCPVM		2.728	0.127	0.86	2.457	0.101	0.77	MC
J4WRNZ	*	2.297	-0.305	-2.08	2.338	-0.018	-0.14	MC
J74AMW		2.598	-0.003	-0.02	2.415	0.059	0.45	MR
JUBMG2		2.610	0.009	0.06	2.312	-0.044	-0.34	MP
KCLYLW		2.470	-0.131	-0.89	2.280	-0.076	-0.58	TP
LCLEAG		2.578	-0.023	-0.16	2.327	-0.029	-0.23	MC
PUTPQW	*	2.870	0.268	1.83	2.742	0.386	2.96	MC
QA4Q2D		2.610	0.009	0.06	2.273	-0.083	-0.63	MD
RMXUJ9		2.618	0.017	0.12	2.260	-0.096	-0.74	ME
RVDFRD		2.820	0.219	1.49	2.457	0.101	0.77	MC
TBLRVQ		2.548	-0.054	-0.37	2.412	0.055	0.43	MM
W27736		2.687	0.085	0.58	2.340	-0.016	-0.12	MC
WJ48CP		2.617	0.015	0.10	2.242	-0.114	-0.88	MC
WU6U4L	X	0.044	-2.557	-17.41	0.041	-2.315	-17.75	MC
XRW2PE		2.478	-0.123	-0.84	2.233	-0.123	-0.94	MC
XUKDNJ		2.598	-0.003	-0.02	2.385	0.029	0.22	MC
XZPAA6		2.502	-0.100	-0.68	2.325	-0.031	-0.24	MC
YHLZ4D		2.608	0.007	0.05	2.327	-0.029	-0.23	ME
YTPAA3		2.485	-0.116	-0.79	2.207	-0.149	-1.15	MC
Z38B4H		2.610	0.009	0.06	2.437	0.081	0.62	MC



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

Report #206
4th Qtr 2020

		Summary Statistics	
Grand Means	2.6014 minutes		2.3561 minutes
Stnd Dev Btwn Labs	0.1469 minutes		0.1304 minutes
Statistics based on 37 of 38 reporting participants			

Samples Z05-Z06: EPDM compound, batch #1 & Z07-Z08: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #684

WU6U4L (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

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

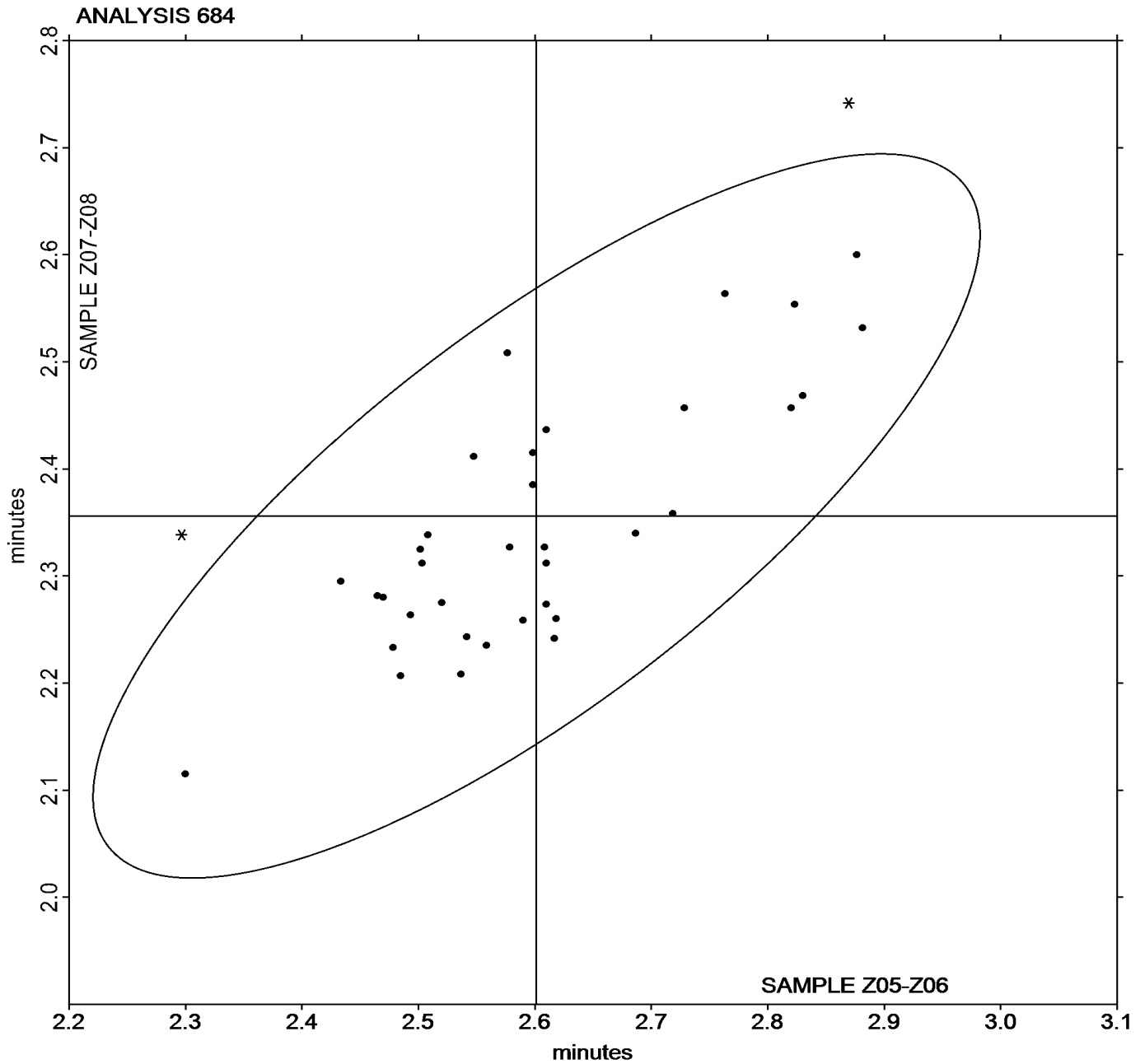


Rubber Interlaboratory Testing Program
Analysis 684
MDR Vulcanization-Cure Time 10% (minutes)

Report #206
4th Qtr 2020

Grand Mean Sample Z05-Z06 = 2.6014 minutes

Grand Mean Sample Z07-Z08 = 2.3561 minutes





Rubber Interlaboratory Testing Program

Report #206

Analysis 685

4th Qtr 2020

MDR Vulcanization-Scorch Time, Ts1 (minutes)

WebCode	Data Flag	Sample Z05-Z06			Sample Z07-Z08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2CR23E		2.617	0.070	0.41	2.483	0.157	1.02	MC
2U8B4F		2.420	-0.127	-0.75	2.270	-0.056	-0.36	MC
394P4A		2.413	-0.134	-0.79	2.245	-0.081	-0.53	MM
69HX69		2.715	0.168	0.99	2.356	0.030	0.19	MC
6E98F8		2.530	-0.017	-0.10	2.423	0.097	0.63	MC
7TK7XD		2.297	-0.250	-1.47	2.093	-0.233	-1.51	MC
7UU8LW		2.655	0.108	0.63	2.315	-0.011	-0.07	MM
8G2BW4		2.657	0.110	0.64	2.527	0.201	1.30	MX
8LYPKU		2.877	0.330	1.94	2.653	0.327	2.13	XX
ADCLNB		2.355	-0.192	-1.13	2.125	-0.201	-1.30	MP
AP8RJU		2.328	-0.220	-1.29	2.118	-0.208	-1.35	MC
CGMB4P		2.387	-0.160	-0.94	2.208	-0.118	-0.76	MR
CYTFR3		2.395	-0.152	-0.89	2.228	-0.098	-0.63	MM
DU98G8		2.548	0.001	0.01	2.240	-0.086	-0.56	MC
DY347Y		2.713	0.166	0.98	2.547	0.221	1.43	MX
EHUAC4		2.623	0.076	0.45	2.290	-0.036	-0.23	MC
FB6CZL		2.798	0.251	1.48	2.528	0.202	1.31	ME
FP9HD7		2.903	0.356	2.09	2.622	0.296	1.92	MM
FX2QXW		2.467	-0.080	-0.47	2.267	-0.059	-0.39	XX
G9XFR3		2.472	-0.075	-0.44	2.355	0.029	0.19	MC
GGUBRL		2.555	0.008	0.05	2.302	-0.024	-0.16	MC
HJCPVM		2.562	0.015	0.09	2.288	-0.038	-0.24	MC
HP4Z6K	*	2.108	-0.439	-2.58	1.937	-0.389	-2.53	MR
J4WRNZ	*	2.140	-0.407	-2.39	2.168	-0.158	-1.02	MC
J74AMW		2.702	0.155	0.91	2.500	0.174	1.13	MR
JUBMG2		2.525	-0.022	-0.13	2.277	-0.049	-0.32	MC
KCLYLW		2.577	0.030	0.17	2.438	0.112	0.73	TP
LCLEAG		2.580	0.033	0.19	2.350	0.024	0.16	MC
P4XUFR		2.457	-0.090	-0.53	2.250	-0.076	-0.49	MC
PUTPQW	*	2.778	0.231	1.35	2.708	0.382	2.48	MC
QA4Q2D		2.612	0.065	0.38	2.285	-0.041	-0.27	MD
RMXUJ9		2.623	0.076	0.45	2.278	-0.048	-0.31	ME
RVDFRD		2.747	0.200	1.17	2.397	0.071	0.46	MC
TBLRVQ		2.518	-0.029	-0.17	2.312	-0.014	-0.09	MM
W27736		2.707	0.160	0.94	2.370	0.044	0.29	MC
WJ48CP		2.627	0.080	0.47	2.203	-0.123	-0.80	MC
WU6U4L	X	0.045	-2.503	-14.70	0.042	-2.284	-14.83	MC



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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample Z05-Z06			Sample Z07-Z08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XRW2PE		2.475	-0.072	-0.42	2.248	-0.078	-0.50	MC
XUKDNJ		2.573	0.026	0.15	2.372	0.046	0.30	MC
XZPAA6		2.447	-0.100	-0.59	2.308	-0.018	-0.11	MC
YHLZ4D		2.558	0.011	0.07	2.262	-0.064	-0.42	ME
YTPAA3		2.460	-0.087	-0.51	2.208	-0.118	-0.76	MC
Z38B4H		2.480	-0.067	-0.39	2.335	0.009	0.06	MC

Summary Statistics	
Grand Means	
	2.5471 minutes
	2.3260 minutes
Std Dev Btwn Labs	
	0.1703 minutes
	0.1540 minutes
	Statistics based on 42 of 43 reporting participants

Samples Z05-Z06: EPDM compound, batch #1 & Z07-Z08: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #685

WU6U4L (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

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

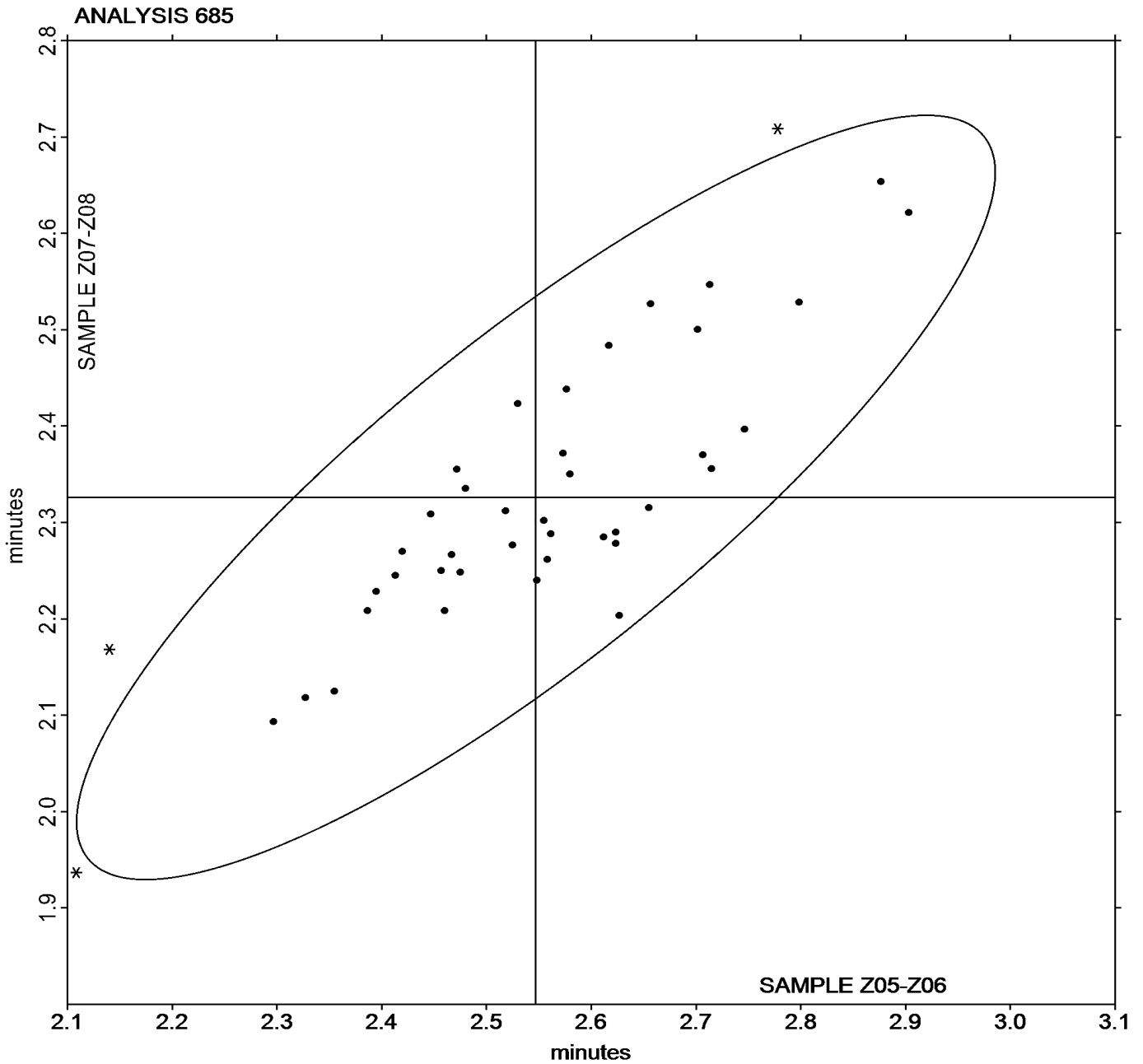


Rubber Interlaboratory Testing Program
Analysis 685
MDR Vulcanization-Scorch Time, Ts1 (minutes)

Report #206
4th Qtr 2020

Grand Mean Sample Z05-Z06 = 2.5471 minutes

Grand Mean Sample Z07-Z08 = 2.3260 minutes





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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample Z05-Z06			Sample Z07-Z08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2CR23E		5.688	-0.080	-0.35	5.125	-0.001	-0.01	MC
2U8B4F		5.810	0.042	0.18	5.160	0.034	0.17	MC
394P4A	X	4.905	-0.863	-3.78	4.433	-0.693	-3.49	MM
69HX69		5.975	0.207	0.91	5.123	-0.003	-0.02	MC
6E98F8	*	5.865	0.097	0.42	5.562	0.435	2.19	MC
7TK7XD		5.932	0.164	0.72	5.213	0.087	0.44	MC
7UU8LW		5.847	0.079	0.34	5.055	-0.071	-0.36	MM
8G2BW4		5.517	-0.251	-1.10	5.075	-0.051	-0.26	MX
8LYPKU		6.162	0.394	1.72	5.468	0.342	1.72	XX
ADCLNB		5.922	0.154	0.67	5.140	0.014	0.07	MC
AP8RJU		5.882	0.113	0.50	5.248	0.122	0.61	MC
CGMB4P		6.038	0.270	1.18	5.440	0.314	1.58	MR
CYTFR3		5.665	-0.103	-0.45	5.228	0.102	0.51	MM
DU98G8		5.722	-0.046	-0.20	4.998	-0.128	-0.65	MC
DY347Y		5.820	0.052	0.23	5.250	0.124	0.62	MX
EHUAC4		5.778	0.010	0.05	4.938	-0.188	-0.95	MC
FB6CZL		6.238	0.470	2.06	5.525	0.399	2.01	ME
FP9HD7		6.182	0.414	1.81	5.350	0.224	1.13	MM
FX2QXW		5.360	-0.408	-1.79	4.967	-0.160	-0.80	XX
G9XFR3		5.313	-0.455	-1.99	4.953	-0.173	-0.87	MC
GGUBRL		5.718	-0.050	-0.22	4.987	-0.140	-0.70	MC
HJCPVM		6.017	0.249	1.09	5.342	0.215	1.08	MC
HP4Z6K		5.542	-0.226	-0.99	4.935	-0.191	-0.96	MR
J4WRNZ	X	5.223	-0.545	-2.38	5.182	0.055	0.28	MC
J74AMW		5.913	0.145	0.64	5.383	0.257	1.29	MR
JUBMG2		5.673	-0.095	-0.41	4.948	-0.178	-0.90	MC
KCLYLW		5.508	-0.260	-1.14	4.978	-0.148	-0.75	TP
LCLEAG		5.785	0.017	0.07	5.142	0.015	0.08	MC
P4XUFR		5.398	-0.370	-1.62	4.813	-0.313	-1.58	MC
PUTPQW	X	6.347	0.579	2.53	5.947	0.821	4.13	MC
QA4Q2D		5.700	-0.068	-0.30	4.887	-0.240	-1.21	MD
RMXUJ9		5.723	-0.045	-0.20	4.868	-0.258	-1.30	ME
RVDFRD		6.187	0.419	1.83	5.273	0.147	0.74	MC
TBLRVQ		5.679	-0.089	-0.39	5.288	0.161	0.81	MM
W27736		5.880	0.112	0.49	5.048	-0.078	-0.39	MC
WJ48CP		5.747	-0.021	-0.09	4.912	-0.215	-1.08	MC
WU6U4L		5.756	-0.012	-0.05	5.183	0.057	0.29	MC
XRW2PE		5.307	-0.461	-2.02	4.688	-0.438	-2.21	MC



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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample Z05-Z06			Sample Z07-Z08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XUKDNJ		5.682	-0.086	-0.38	5.122	-0.005	-0.02	MC
XZPAA6		5.532	-0.236	-1.03	5.092	-0.035	-0.18	MC
YHLZ4D		5.775	0.007	0.03	5.152	0.025	0.13	ME
YTPAA3		5.697	-0.071	-0.31	5.007	-0.120	-0.60	MC
Z38B4H		5.788	0.020	0.09	5.190	0.064	0.32	MC

Grand Means		Summary Statistics	
	5.7680 minutes		5.1264 minutes
Std Dev Btwn Labs	0.2285 minutes		0.1986 minutes
Statistics based on 40 of 43 reporting participants			

Samples Z05-Z06: EPDM compound, batch #1 & Z07-Z08: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #686

394P4A (X) - Data for all samples are low. Possible Systematic Error.

J4WRNZ (X) - Inconsistent in testing between samples.

PUTPQW (X) - Data for sample group Z07-Z08 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	MX	Rebuilt MonTech Alpha
TP	Tech Pro MDR model MDPT	XX	Instrument model not specified by lab

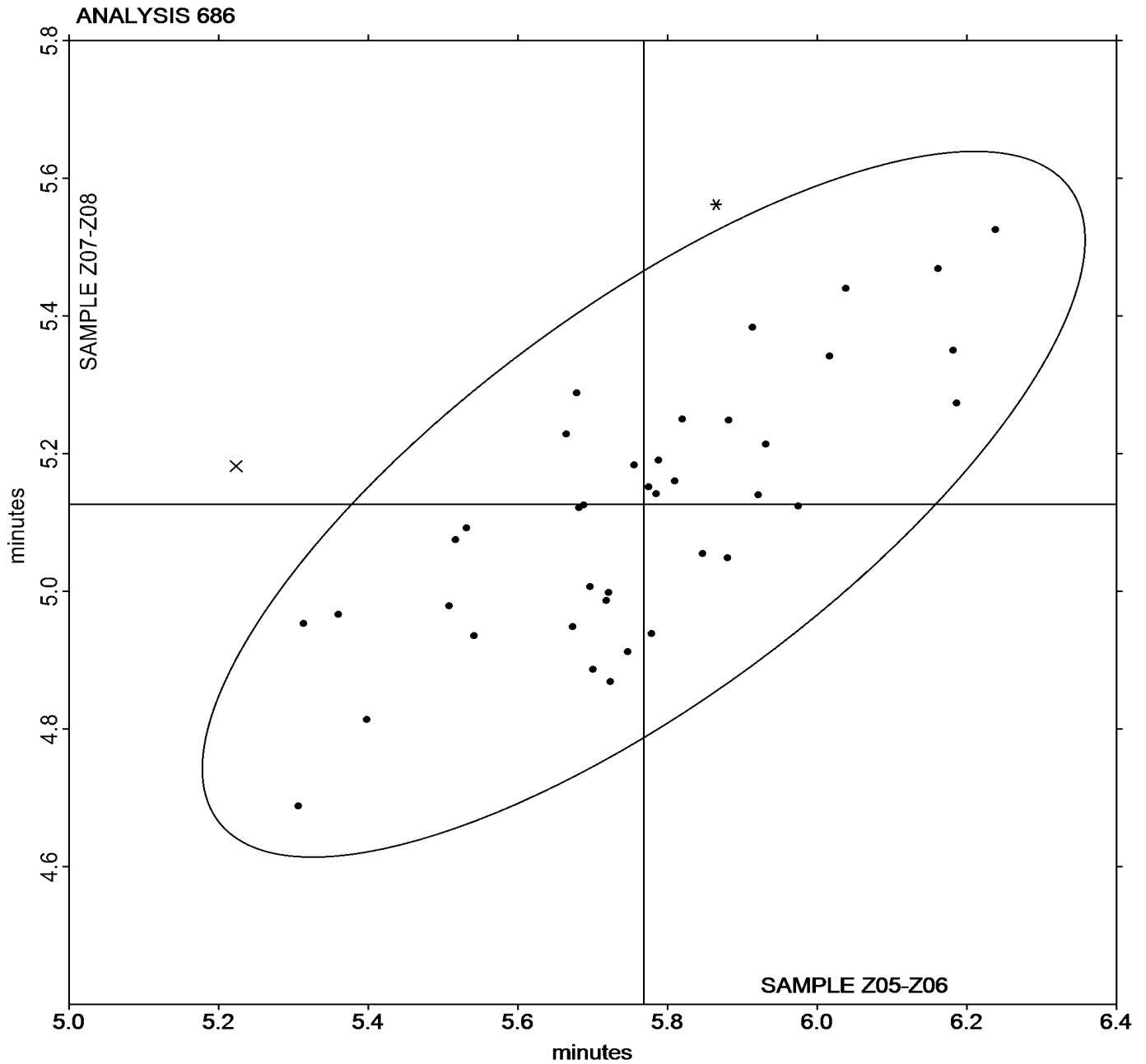


Rubber Interlaboratory Testing Program
Analysis 686
MDR Vulcanization-Cure Time 50% (minutes)

Report #206
4th Qtr 2020

Grand Mean Sample **Z05-Z06** = 5.7680 minutes

Grand Mean Sample **Z07-Z08** = 5.1264 minutes





Rubber Interlaboratory Testing Program

Report #206

Analysis 687

4th Qtr 2020

MDR Vulcanization-Cure Time 90% (minutes)

WebCode	Data Flag	Sample Z05-Z06			Sample Z07-Z08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2CR23E		9.510	0.004	0.01	8.900	-0.006	-0.01	MC
2U8B4F		9.180	-0.326	-0.78	8.650	-0.256	-0.65	MC
394P4A	X	7.892	-1.614	-3.87	7.553	-1.352	-3.45	MM
69HX69		9.800	0.294	0.71	9.143	0.238	0.61	MC
6E98F8		9.640	0.134	0.32	9.312	0.406	1.04	MC
7TK7XD		9.952	0.446	1.07	8.937	0.031	0.08	MC
7UU8LW		9.825	0.319	0.77	9.155	0.249	0.64	MM
8G2BW4		9.293	-0.213	-0.51	8.802	-0.104	-0.26	MX
8LYPKU		10.375	0.869	2.08	9.532	0.626	1.60	XX
ADCLNB		9.893	0.387	0.93	8.913	0.008	0.02	MP
AP8RJU		9.643	0.137	0.33	9.087	0.181	0.46	MC
CGMB4P		10.315	0.809	1.94	9.583	0.678	1.73	MR
CYTFR3		9.577	0.071	0.17	9.293	0.388	0.99	MM
DU98G8		9.635	0.129	0.31	9.047	0.141	0.36	MC
DY347Y		9.918	0.412	0.99	9.422	0.516	1.32	MX
EHUAC4		9.123	-0.383	-0.92	8.333	-0.572	-1.46	MC
FB6CZL		9.890	0.384	0.92	9.162	0.256	0.65	ME
FP9HD7		9.930	0.424	1.02	8.947	0.041	0.10	MM
FX2QXW		9.085	-0.421	-1.01	9.052	0.146	0.37	XX
G9XFR3		8.733	-0.773	-1.85	8.505	-0.401	-1.02	MC
GGUBRL		9.370	-0.136	-0.33	8.667	-0.239	-0.61	MC
HJCPVM		9.480	-0.026	-0.06	9.008	0.103	0.26	MC
HP4Z6K		9.303	-0.203	-0.49	8.498	-0.407	-1.04	MR
J4WRNZ	*	8.598	-0.908	-2.18	8.764	-0.142	-0.36	MC
J74AMW		9.587	0.081	0.19	9.132	0.226	0.58	MR
JUBMG2		9.248	-0.258	-0.62	8.512	-0.394	-1.00	MC
KCLYLW		8.798	-0.708	-1.70	8.327	-0.579	-1.48	TP
LCLEAG		9.640	0.134	0.32	8.892	-0.014	-0.04	MC
P4XUFR		9.293	-0.213	-0.51	8.772	-0.134	-0.34	MC
PUTPQW		10.222	0.716	1.72	9.831	0.925	2.36	MC
QA4Q2D		9.355	-0.151	-0.36	8.410	-0.496	-1.26	MD
RMXUJ9		9.282	-0.224	-0.54	8.265	-0.641	-1.63	ME
RVDFRD		10.035	0.529	1.27	9.138	0.233	0.59	MC
TBLRVQ	*	9.364	-0.142	-0.34	9.459	0.554	1.41	MM
W27736		9.705	0.199	0.48	8.570	-0.336	-0.86	MC
WJ48CP		9.585	0.079	0.19	8.838	-0.067	-0.17	MC
WU6U4L		9.331	-0.175	-0.42	8.742	-0.164	-0.42	MC
XRW2PE		8.733	-0.773	-1.85	8.115	-0.791	-2.02	MC



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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample Z05-Z06			Sample Z07-Z08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XUKDNJ		9.935	0.429	1.03	9.473	0.568	1.45	MC
XZPAA6		9.260	-0.246	-0.59	8.833	-0.072	-0.18	MC
YHLZ4D		9.440	-0.066	-0.16	8.928	0.023	0.06	ME
YTPAA3		9.262	-0.244	-0.59	8.560	-0.346	-0.88	MC
Z38B4H		9.110	-0.396	-0.95	8.525	-0.381	-0.97	MC

Summary Statistics	
Grand Means	
	9.5061 minutes
	8.9055 minutes
Std Dev Btwn Labs	
	0.4168 minutes
	0.3922 minutes
	Statistics based on 42 of 43 reporting participants

Samples Z05-Z06: EPDM compound, batch #1 & Z07-Z08: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #687

394P4A (X) - Data for all samples are low. Possible Systematic Error.

Key to Instrument Codes Reported by Participants

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

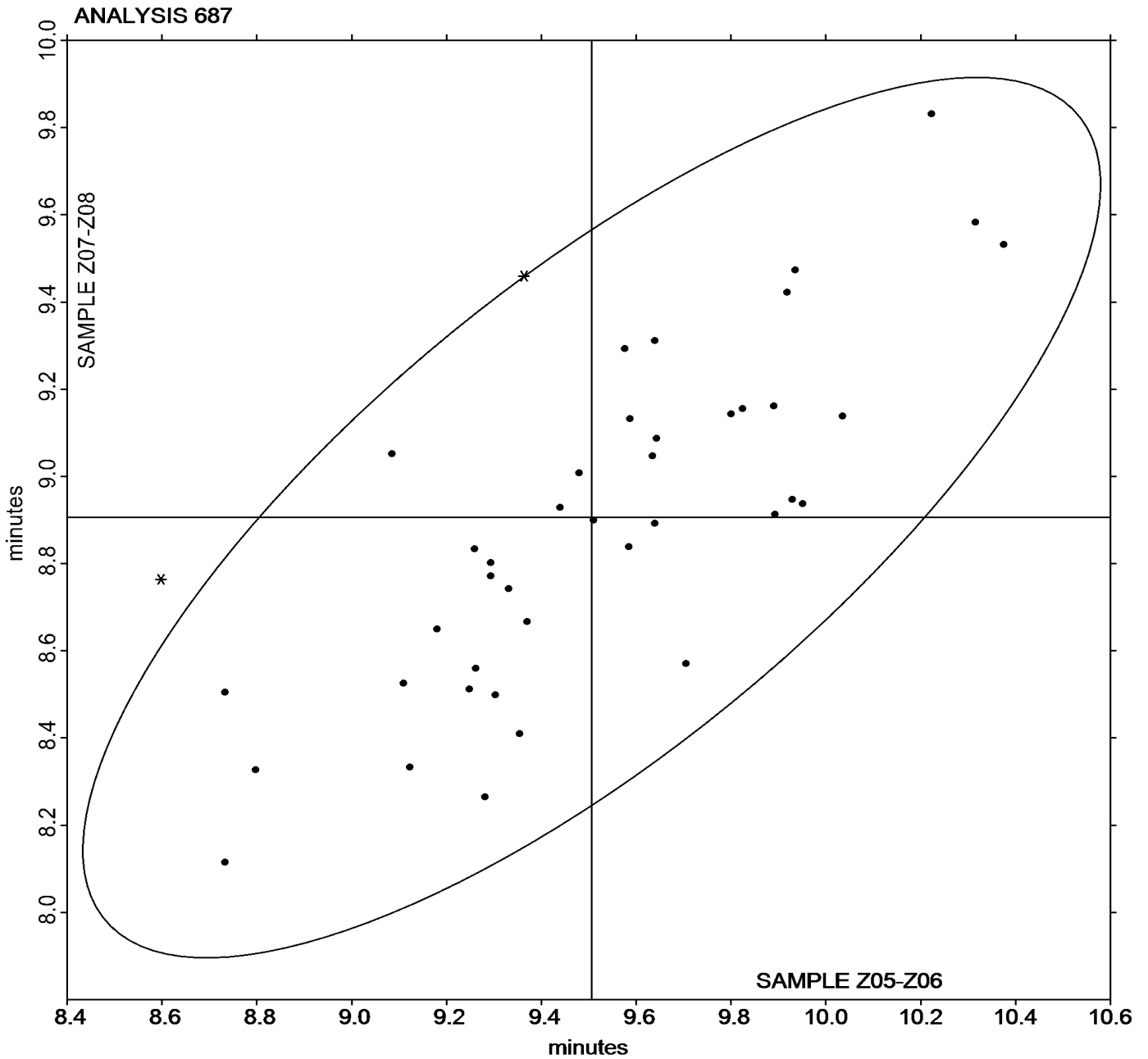


Rubber Interlaboratory Testing Program
Analysis 687
MDR Vulcanization-Cure Time 90% (minutes)

Report #206
4th Qtr 2020

Grand Mean Sample Z05-Z06 = 9.5061 minutes

Grand Mean Sample Z07-Z08 = 8.9055 minutes





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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample Z05-Z06			Sample Z07-Z08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2CR23E		2.070	-0.297	-1.07	2.418	-0.271	-0.98	MC
2U8B4F		2.142	-0.225	-0.81	2.517	-0.173	-0.63	MC
394P4A		2.280	-0.087	-0.31	2.687	-0.003	-0.01	MM
69HX69		2.170	-0.197	-0.71	2.472	-0.218	-0.79	MC
6E98F8		2.172	-0.195	-0.70	2.432	-0.258	-0.93	MC
7TK7XD		2.690	0.323	1.17	3.203	0.514	1.86	MC
7UU8LW		2.395	0.028	0.10	2.588	-0.101	-0.37	MM
8G2BW4		2.045	-0.322	-1.16	2.412	-0.278	-1.01	MX
8LYPKU	*	2.073	-0.293	-1.06	2.180	-0.509	-1.85	MM
ADCLNB		2.303	-0.064	-0.23	2.671	-0.018	-0.07	MP
AP8RJU		2.120	-0.247	-0.89	2.486	-0.204	-0.74	MC
CGMB4P		2.233	-0.133	-0.48	2.525	-0.164	-0.60	MR
CYTFR3		2.892	0.525	1.90	3.203	0.514	1.86	MM
DU98G8		2.567	0.200	0.72	2.808	0.119	0.43	MC
DY347Y		1.891	-0.475	-1.72	2.312	-0.378	-1.37	MX
EHUAC4		2.343	-0.023	-0.08	2.657	-0.033	-0.12	MC
FB6CZL		2.055	-0.312	-1.13	2.323	-0.366	-1.33	ME
FP9HD7		2.383	0.017	0.06	2.840	0.151	0.55	MM
FX2QXW		2.900	0.533	1.93	3.208	0.519	1.88	XX
G9XFR3		2.487	0.120	0.43	2.828	0.139	0.50	MC
GGUBRL		2.210	-0.157	-0.57	2.532	-0.158	-0.57	MC
HJCPVM		2.106	-0.260	-0.94	2.475	-0.214	-0.78	MC
HP4Z6K		2.217	-0.150	-0.54	2.603	-0.086	-0.31	MR
J4WRNZ		2.188	-0.179	-0.65	2.642	-0.048	-0.17	MC
J74AMW		2.073	-0.293	-1.06	2.405	-0.284	-1.03	MR
JUBMG2		2.615	0.248	0.90	3.127	0.437	1.58	MC
KCLYLW		2.320	-0.047	-0.17	2.630	-0.059	-0.22	TP
LCLEAG		2.390	0.023	0.08	2.697	0.007	0.03	MC
P4XUFR		2.155	-0.212	-0.77	2.453	-0.236	-0.86	MC
PUTPQW		2.268	-0.098	-0.36	2.425	-0.264	-0.96	MC
QA4Q2D		2.733	0.367	1.33	2.913	0.224	0.81	MD
RMXUJ9		2.760	0.393	1.42	2.952	0.262	0.95	ME
RVDFRD		2.192	-0.175	-0.63	2.457	-0.233	-0.84	MC
TBLRVQ		2.158	-0.208	-0.75	2.549	-0.140	-0.51	MM
W27736		2.838	0.472	1.71	2.993	0.304	1.10	MC
WJ48CP	*	3.003	0.637	2.30	3.158	0.469	1.70	MC
WU6U4L		2.643	0.277	1.00	3.090	0.401	1.45	MC



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

Report #206
4th Qtr 2020

WebCode	Data Flag	Sample Z05-Z06			Sample Z07-Z08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XRW2PE		2.252	-0.115	-0.42	2.527	-0.163	-0.59	MC
XUKDNJ		2.803	0.437	1.58	3.138	0.449	1.63	MC
XZPAA6		2.268	-0.098	-0.36	2.648	-0.041	-0.15	MC
YHLZ4D		2.558	0.192	0.69	2.820	0.131	0.47	ME
YTPAA3		2.400	0.033	0.12	2.768	0.079	0.29	MC
Z38B4H		2.400	0.033	0.12	2.874	0.184	0.67	MC

Summary Statistics	
Grand Means	2.3666 lbf.in
Std Dev Btwn Labs	0.2765 lbf.in
	2.6895 lbf.in
	0.2760 lbf.in
Statistics based on 43 of 43 reporting participants	

Summary Statistics in SI Units	
Grand Means	2.6739 dN.m
Std Dev Btwn Labs	0.3124 dN.m
	3.0387 dN.m
	0.3118 dN.m
Statistics based on 43 of 43 reporting participants	

Samples Z05-Z06: EPDM compound, batch #1 & Z07-Z08: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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

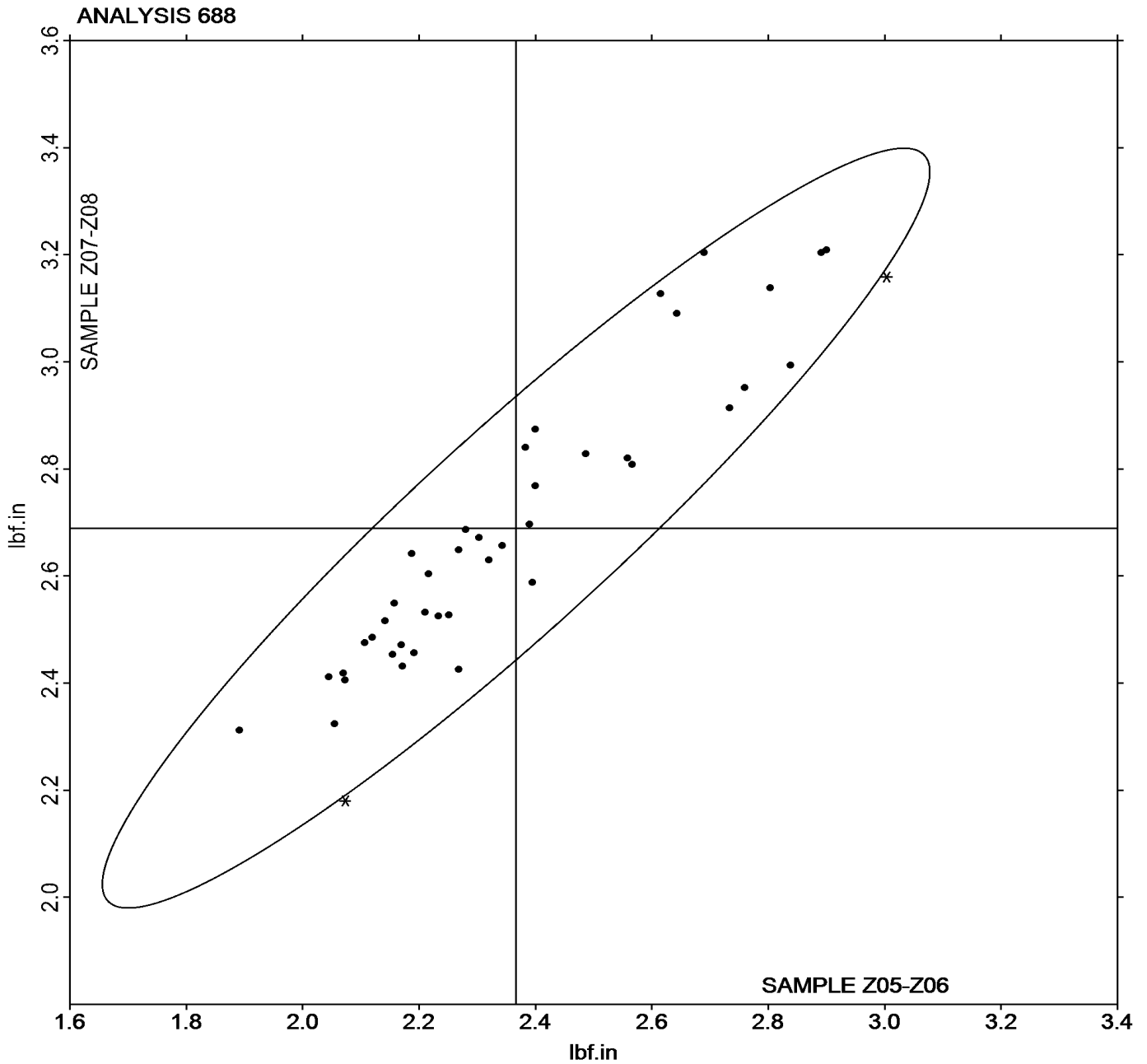


Rubber Interlaboratory Testing Program
Analysis 688
MDR Vulcanization: Minimum Torque (lbf.in)

Report #206
4th Qtr 2020

Grand Mean Sample Z05-Z06 = 2.3666 lbf.in

Grand Mean Sample Z07-Z08 = 2.6895 lbf.in





Rubber Interlaboratory Testing Program

Report #206

Analysis 689

4th Qtr 2020

MDR Vulcanization: Maximum Torque (lbf.in)

WebCode	Data Flag	Sample Z05-Z06			Sample Z07-Z08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2CR23E		11.69	-0.75	-0.98	11.34	-1.27	-1.48	MC
2U8B4F		12.37	-0.07	-0.09	11.94	-0.67	-0.78	MC
394P4A		11.40	-1.04	-1.37	11.44	-1.17	-1.36	MM
69HX69		12.22	-0.22	-0.28	12.50	-0.11	-0.13	MC
6E98F8		12.52	0.08	0.11	13.19	0.58	0.67	MC
7TK7XD	*	14.34	1.90	2.50	14.82	2.21	2.57	MC
7UU8LW		11.68	-0.76	-0.99	11.95	-0.66	-0.77	MM
8G2BW4		10.79	-1.65	-2.17	10.89	-1.72	-2.00	MX
8LYPKU	*	12.10	-0.34	-0.45	11.21	-1.41	-1.63	MM
ADCLNB	*	14.02	1.58	2.07	13.71	1.10	1.28	MC
AP8RJU		13.18	0.74	0.97	13.48	0.87	1.01	MC
CGMB4P	X	15.30	2.86	3.76	15.13	2.52	2.93	MR
CYTFR3		13.84	1.40	1.84	14.06	1.44	1.68	MM
DU98G8		12.50	0.06	0.08	12.51	-0.10	-0.12	MC
DY347Y		11.10	-1.34	-1.76	11.29	-1.32	-1.53	MX
EHUAC4		12.06	-0.38	-0.50	12.36	-0.25	-0.29	MC
FB6CZL		12.23	-0.21	-0.28	12.51	-0.11	-0.12	ME
FP9HD7		11.87	-0.57	-0.75	12.11	-0.51	-0.59	MM
FX2QXW		13.36	0.92	1.21	13.38	0.77	0.90	XX
G9XFR3		12.20	-0.24	-0.31	12.31	-0.31	-0.36	MC
GGUBRL		12.11	-0.33	-0.43	12.00	-0.61	-0.71	MC
HJCPVM		12.13	-0.31	-0.40	12.75	0.13	0.16	MC
HP4Z6K		12.60	0.16	0.21	13.49	0.88	1.02	MR
J4WRNZ		12.29	-0.15	-0.20	12.91	0.29	0.34	MC
J74AMW		11.36	-1.08	-1.42	11.78	-0.83	-0.96	MR
JUBMG2		13.40	0.96	1.26	13.54	0.93	1.08	MC
KCLYLW		11.45	-0.99	-1.30	11.31	-1.30	-1.51	TP
LCLEAG		12.40	-0.04	-0.05	12.49	-0.12	-0.14	MC
P4XUFR		11.21	-1.23	-1.62	11.26	-1.35	-1.57	MC
PUTPQW		12.97	0.53	0.70	12.69	0.08	0.09	MC
QA4Q2D		12.72	0.28	0.37	12.83	0.22	0.26	MD
RMXUJ9		12.67	0.23	0.30	12.80	0.19	0.22	ME
RVDFRD		12.82	0.38	0.50	13.08	0.47	0.55	MC
TBLRVQ		12.39	-0.05	-0.06	13.41	0.79	0.92	MM
W27736		12.69	0.25	0.32	12.71	0.10	0.12	MC
WJ48CP		12.95	0.51	0.67	13.58	0.96	1.12	MC
WU6U4L		12.67	0.23	0.30	12.73	0.11	0.13	MC
XRW2PE		12.30	-0.14	-0.19	12.36	-0.25	-0.29	MC



**Rubber Interlaboratory Testing Program
Analysis 689**

**Report #206
4th Qtr 2020**

MDR Vulcanization: Maximum Torque (lbf.in)

WebCode	Data Flag	Sample Z05-Z06			Sample Z07-Z08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XUKDNJ		13.05	0.61	0.80	13.26	0.65	0.76	MC
XZPAA6		12.73	0.29	0.38	12.80	0.19	0.22	MC
YHLZ4D		13.16	0.72	0.95	13.46	0.85	0.99	ME
YTPAA3		12.58	0.14	0.19	12.79	0.18	0.21	MC
Z38B4H		12.36	-0.08	-0.11	12.66	0.05	0.06	MC

Grand Means		Summary Statistics	
	12.439 lbf.in		12.612 lbf.in
Std Dev Btwn Labs	0.761 lbf.in		0.860 lbf.in
Statistics based on 42 of 43 reporting participants			

Grand Means		Summary Statistics in SI Units	
	14.054 dN.m		14.249 dN.m
Std Dev Btwn Labs	0.860 dN.m		0.972 dN.m
Statistics based on 42 of 43 reporting participants			

Samples Z05-Z06: EPDM compound, batch #1 & Z07-Z08: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #689

CGMB4P (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	MX Rebuilt MonTech Alpha
TP Tech Pro MDR model MDPT	XX Instrument model not specified by lab

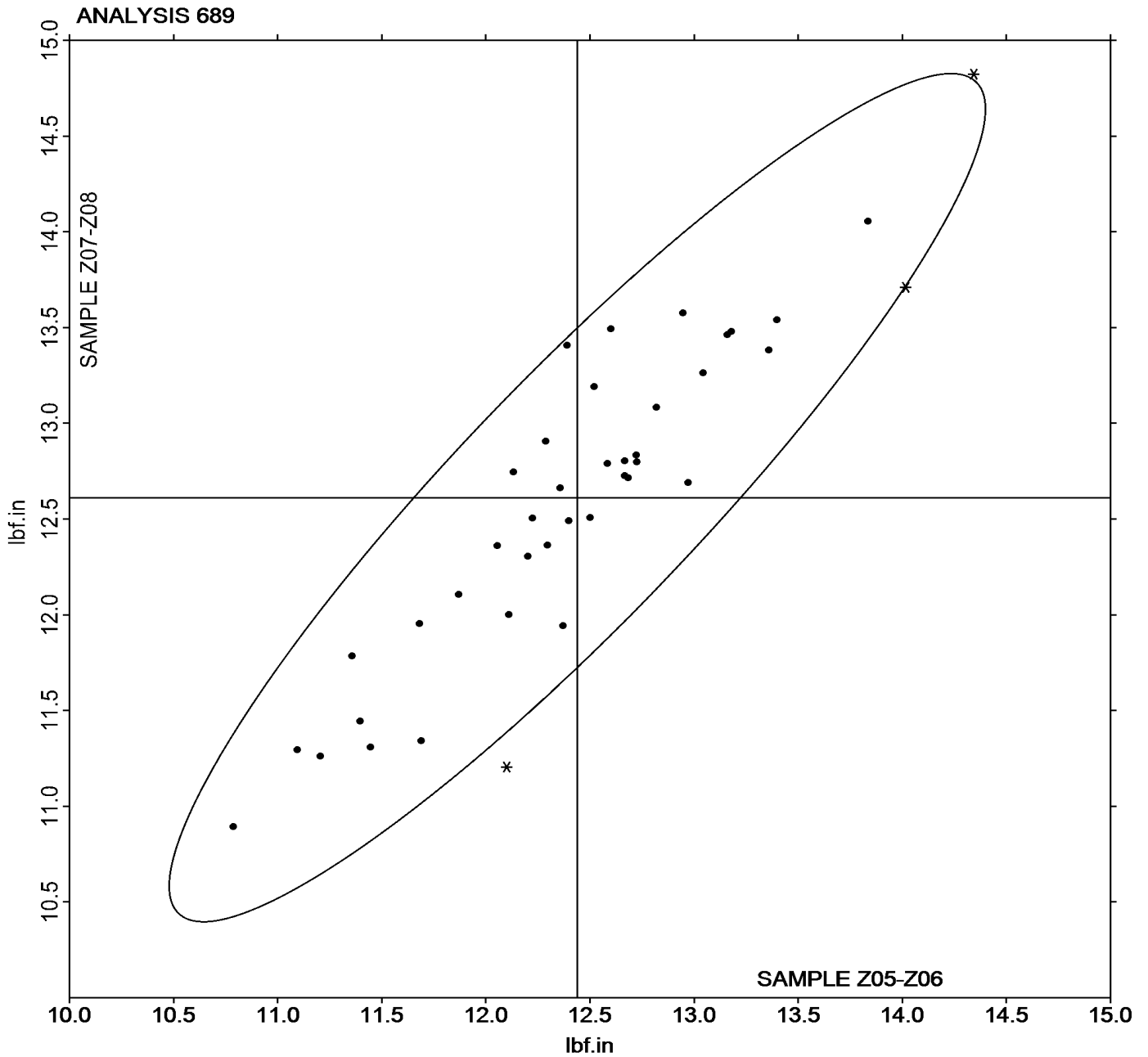


Rubber Interlaboratory Testing Program
Analysis 689
MDR Vulcanization: Maximum Torque (lbf.in)

Report #206
4th Qtr 2020

Grand Mean Sample **Z05-Z06** = 12.439 lbf.in

Grand Mean Sample **Z07-Z08** = 12.612 lbf.in





Rubber Interlaboratory Testing Program

Report #206

Analysis 690

4th Qtr 2020

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

WebCode	Data Flag	Sample H01-H02			Sample H03-H04			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
394P4A		572.0	76.9	1.47	614.2	85.3	1.78	RP
7QT8JE		496.6	1.6	0.03	545.9	17.0	0.35	XX
8Q9Q4C		592.1	97.1	1.85	595.6	66.8	1.39	RP
AP8RJU		482.6	-12.5	-0.24	512.3	-16.5	-0.34	RP
DY347Y		434.8	-60.3	-1.15	471.7	-57.1	-1.19	RP
EHUAC4		458.7	-36.4	-0.69	485.8	-43.1	-0.90	PR
J4WRNZ		476.4	-18.7	-0.36	518.5	-10.4	-0.22	RP
QC42VR		475.4	-19.6	-0.37	506.3	-22.5	-0.47	RP
TBLRVQ		466.9	-28.2	-0.54	509.5	-19.4	-0.40	XX

Summary Statistics	
Grand Means	495.04 kPa
Std Dev Btwn Labs	52.42 kPa
	528.87 kPa
	47.97 kPa
Statistics based on 9 of 9 reporting participants	

Samples H01-H02: EPDM compound, batch #1 & H03-H04: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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

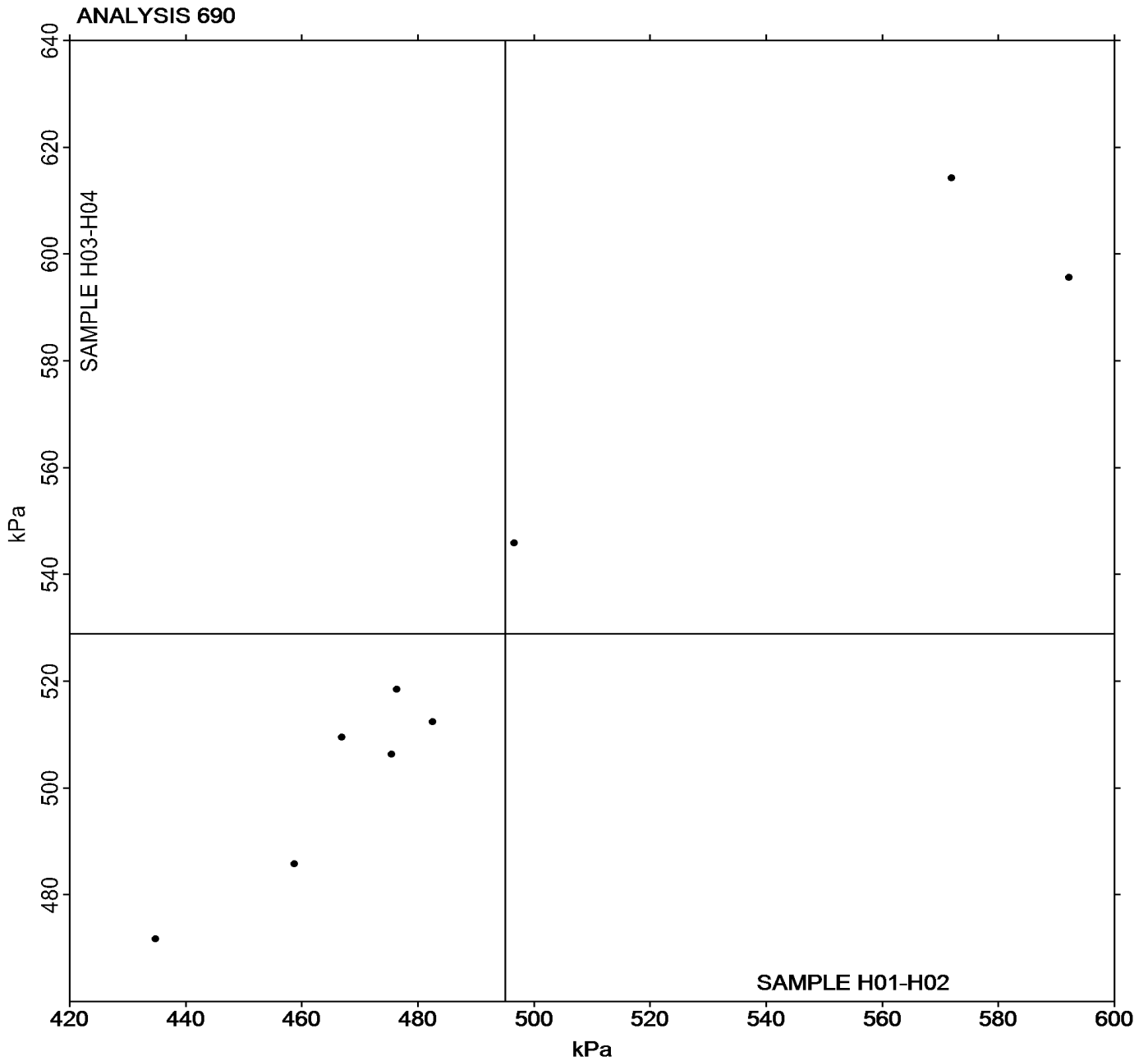


Rubber Interlaboratory Testing Program
Analysis 690
RPA Rheological Properties: Part A - G' at 20Hz (kPa)

Report #206
4th Qtr 2020

Grand Mean Sample H01-H02 = 495.04 kPa

Grand Mean Sample H03-H04 = 528.87 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 #206

Analysis 691

4th Qtr 2020

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

WebCode	Data Flag	Sample H01-H02			Sample H03-H04			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
394P4A		201.1	-2.8	-0.14	204.2	0.5	0.03	RP
7QT8JE		220.2	16.3	0.84	225.7	22.0	1.18	XX
8Q9Q4C		237.7	33.8	1.74	229.5	25.9	1.38	RP
AP8RJU		203.5	-0.4	-0.02	202.3	-1.4	-0.07	RP
DY347Y		167.0	-36.9	-1.90	164.7	-39.0	-2.08	RP
EHUAC4		203.9	0.1	0.00	202.6	-1.1	-0.06	PR
J4WRNZ		197.5	-6.4	-0.33	200.0	-3.6	-0.19	RP
QC42VR		212.2	8.3	0.43	209.2	5.5	0.29	RP
TBLRVQ		191.9	-12.0	-0.62	194.8	-8.8	-0.47	XX

Grand Means		Summary Statistics	
	203.90 kPa		203.66 kPa
Std Dev Btwn Labs	19.48 kPa		18.71 kPa
Statistics based on 9 of 9 reporting participants			

Samples H01-H02: EPDM compound, batch #1 & H03-H04: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

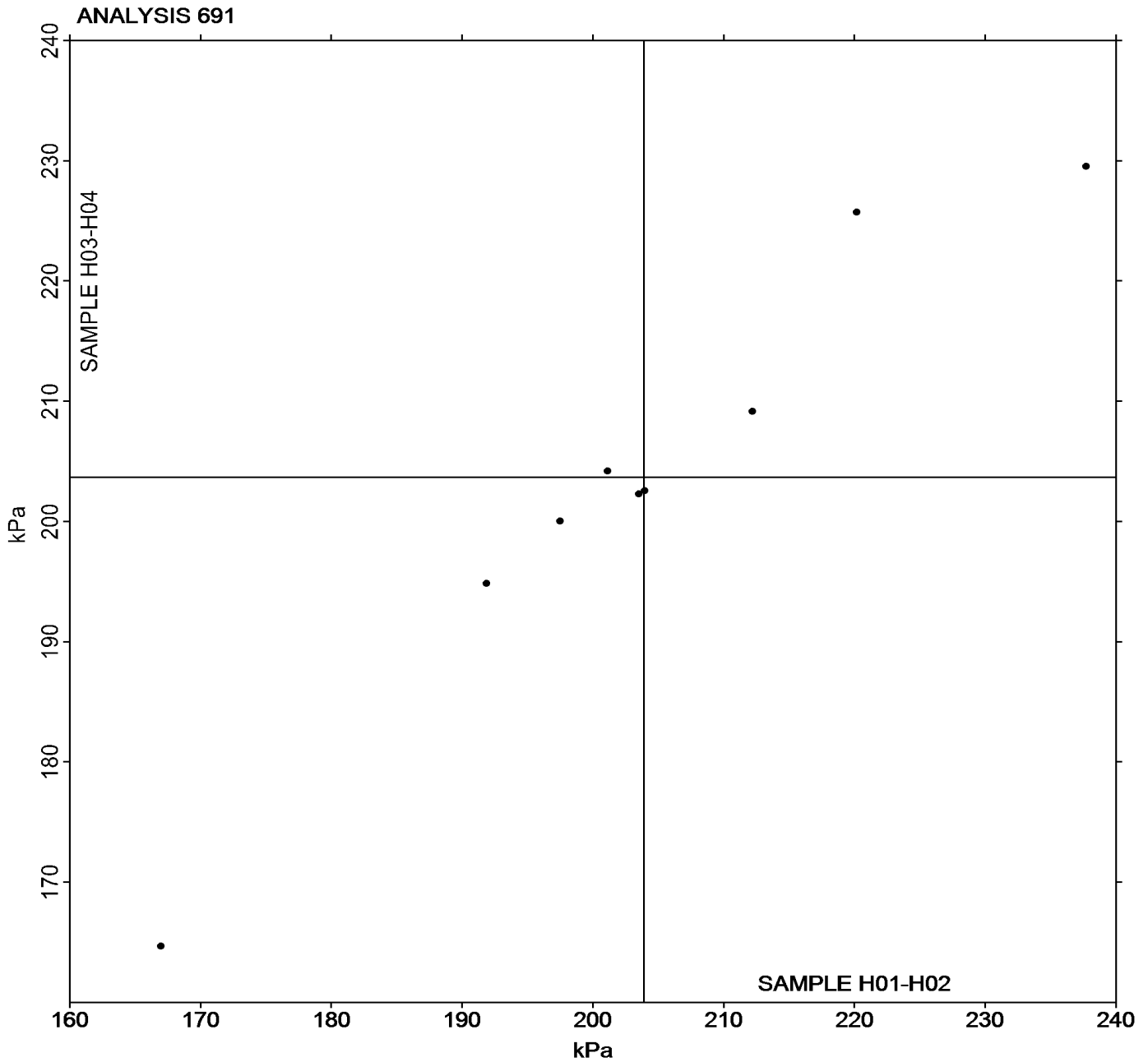
- PR PRPA 2000
- RP RPA 2000
- XX Instrument model not specified by lab



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

Grand Mean Sample H01-H02 = 203.90 kPa

Grand Mean Sample H03-H04 = 203.66 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 #206

Analysis 695

4th Qtr 2020

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

WebCode	Data Flag	Sample H01-H02			Sample H03-H04			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
394P4A		104.41	26.35	2.29	123.46	31.94	2.38	RP
7QT8JE		76.79	-1.27	-0.11	91.78	0.26	0.02	XX
8Q9Q4C		87.75	9.69	0.84	94.09	2.58	0.19	RP
AP8RJU		70.04	-8.02	-0.70	79.87	-11.64	-0.87	RP
DY347Y		74.10	-3.96	-0.34	93.79	2.27	0.17	RP
EHUAC4		69.32	-8.74	-0.76	79.98	-11.54	-0.86	PR
J4WRNZ		74.10	-3.96	-0.34	88.91	-2.60	-0.19	RP
QC42VR		68.29	-9.77	-0.85	80.05	-11.47	-0.85	RP
TBLRVQ		77.74	-0.32	-0.03	91.71	0.20	0.01	XX

Grand Means		Summary Statistics	
	78.059 kPa		91.515 kPa
Std Dev Btwn Labs	11.496 kPa		13.413 kPa
Statistics based on 9 of 9 reporting participants			

Samples H01-H02: EPDM compound, batch #1 & H03-H04: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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

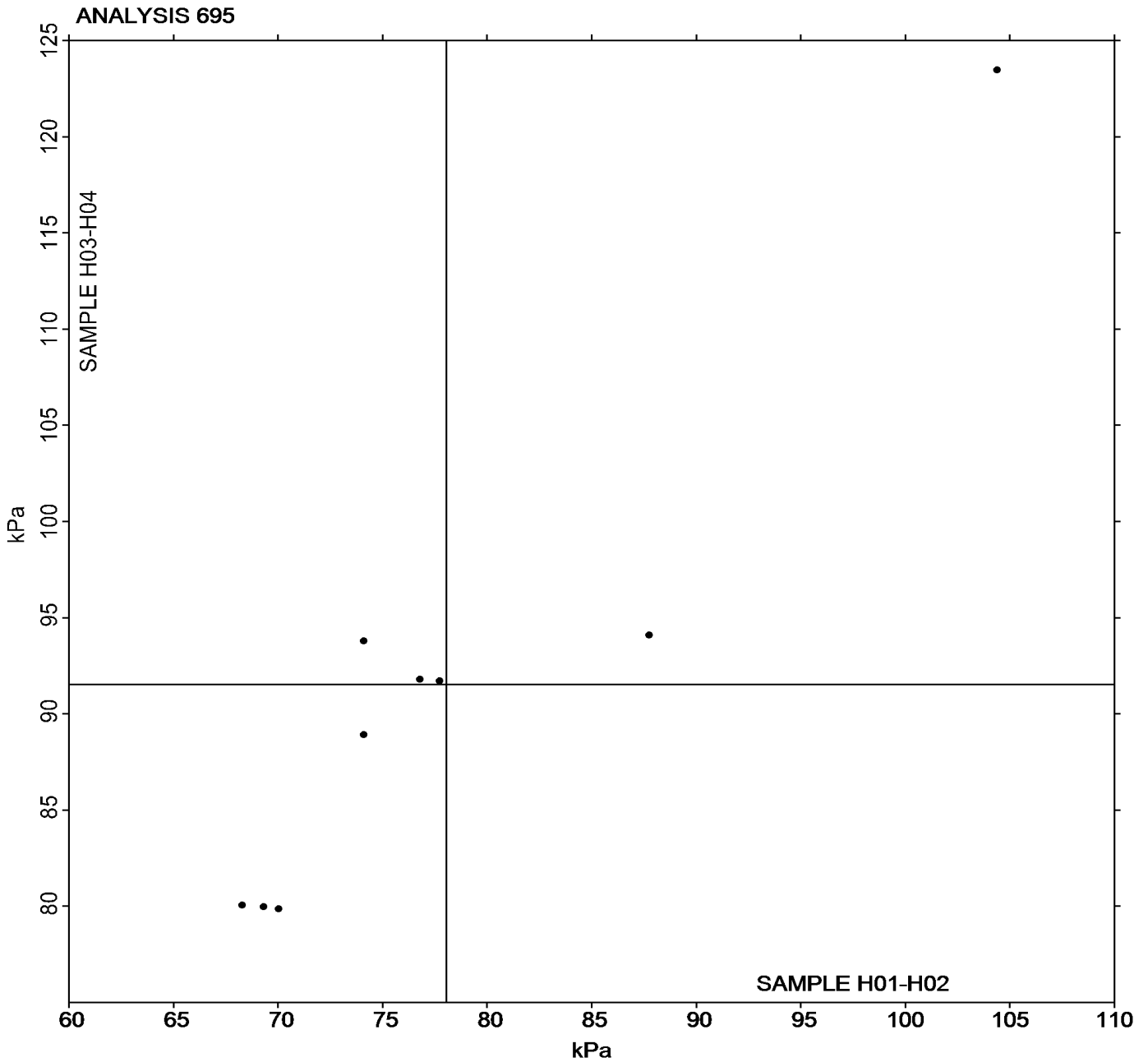


Rubber Interlaboratory Testing Program
Analysis 695
RPA Rheological Properties: Part B - G' at 1.0Hz (kPa)

Report #206
4th Qtr 2020

Grand Mean Sample **H01-H02** = 78.059 kPa

Grand Mean Sample **H03-H04** = 91.515 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 #206

Analysis 696

4th Qtr 2020

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

WebCode	Data Flag	Sample H01-H02			Sample H03-H04			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
394P4A		72.39	4.95	0.70	77.50	7.16	1.05	XX
7QT8JE		70.56	3.12	0.44	74.39	4.05	0.60	XX
8Q9Q4C		82.12	14.67	2.07	82.64	12.30	1.81	RP
AP8RJU		66.55	-0.90	-0.13	68.94	-1.40	-0.21	RP
DY347Y		56.63	-10.81	-1.52	59.81	-10.53	-1.55	RP
EHUAC4		63.05	-4.39	-0.62	65.84	-4.49	-0.66	PR
J4WRNZ		66.55	-0.89	-0.12	68.82	-1.52	-0.22	RP
QC42VR		64.44	-3.01	-0.42	67.30	-3.03	-0.45	XX
TBLRVQ		64.70	-2.75	-0.39	67.80	-2.54	-0.37	XX

Grand Means		Summary Statistics	
	67.441 kPa		70.336 kPa
Stnd Dev Btwn Labs	7.106 kPa		6.801 kPa
Statistics based on 9 of 9 reporting participants			

Samples H01-H02: EPDM compound, batch #1 & H03-H04: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

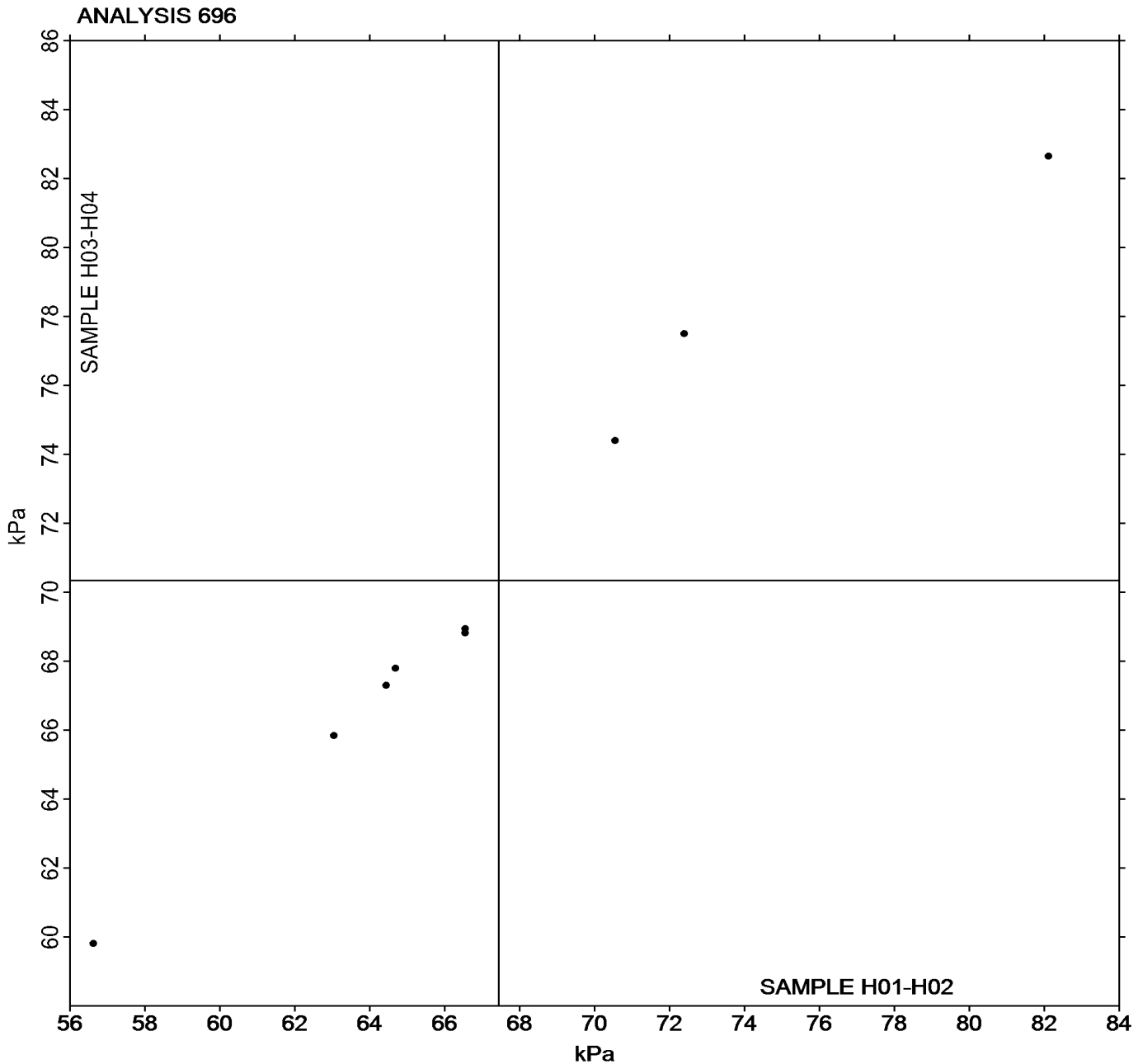
- PR PRPA 2000
- RP RPA 2000
- XX Instrument model not specified by lab



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

Grand Mean Sample H01-H02 = 67.441 kPa

Grand Mean Sample H03-H04 = 70.336 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-