



## Rubber Interlaboratory Testing Program

### Summary Report #192- 2nd Qtr 2017

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<a href="#">606</a>	<a href="#">Ultimate Elongation: Precured Rubber Samples</a>	<a href="#">695</a>	<a href="#">RPA Rheological Properties: Part B - G' at 1.0Hz</a>
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## **ABOUT THE PROGRAM**

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

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

## **ABOUT CTS**

Founded in 1971, CTS is a privately-owned company that specializes in interlaboratory tests for a wide variety of 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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**Office Hours: 8:00 a.m. - 4:30 p.m. ET**

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

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

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

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### Common Problems Highlighted in Footnotes

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

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



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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample B71-B72			Sample B73-B74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2BXB29		2,888.5	-69.4	-0.45	2,997.5	-11.0	-0.06
2LXJ6L		3,008.5	50.6	0.33	3,092.5	84.0	0.49
2X9EXP		2,883.0	-74.9	-0.49	2,858.5	-150.0	-0.88
3DJE8L		2,986.6	28.7	0.19	3,117.3	108.8	0.64
3J6A9P		2,806.5	-151.4	-0.99	2,871.0	-137.5	-0.80
3Q9EZ9		3,073.5	115.6	0.75	2,999.5	-9.0	-0.05
3YW8AK		2,907.3	-50.6	-0.33	2,979.8	-28.7	-0.17
4AE987		2,806.5	-151.4	-0.99	2,934.9	-73.6	-0.43
4JKTTM		2,831.0	-126.9	-0.83	2,972.0	-36.5	-0.21
62UCW4		2,957.5	-0.4	0.00	3,123.0	114.5	0.67
6LP2B7		2,879.0	-79.0	-0.51	2,947.0	-61.5	-0.36
6P8ZQL		2,942.0	-15.9	-0.10	3,188.0	179.5	1.05
77JBM4		2,908.8	-49.2	-0.32	2,919.6	-88.9	-0.52
7AQPDPH		2,923.0	-34.9	-0.23	2,983.5	-25.0	-0.15
7G8ZT6		2,970.4	12.5	0.08	2,746.3	-262.2	-1.53
7MUQDE		3,042.5	84.6	0.55	2,997.0	-11.5	-0.07
898ZRG		2,897.5	-60.4	-0.39	3,181.5	173.0	1.01
8M9L4E		2,681.8	-276.2	-1.80	2,693.2	-315.3	-1.84
9NH22D		3,148.3	190.4	1.24	3,323.0	314.5	1.84
9Q96UK		2,821.0	-136.9	-0.89	3,024.1	15.6	0.09
A7EQW7		2,903.0	-54.9	-0.36	2,917.0	-91.5	-0.53
A8PQRF		2,849.0	-108.9	-0.71	2,885.5	-123.0	-0.72
BB6PFU		3,139.4	181.5	1.18	3,207.5	199.0	1.16
CCEUQX		2,908.0	-49.9	-0.32	3,054.5	46.0	0.27
CDPR7Z		2,954.9	-3.0	-0.02	2,933.2	-75.2	-0.44
CTHJR2		2,845.0	-112.9	-0.73	2,725.0	-283.5	-1.66
D4WZWD	X	2,961.0	3.1	0.02	2,534.5	-474.0	-2.77
DDH7NP		3,075.7	117.8	0.77	2,994.0	-14.5	-0.08
DFBVCC		2,957.5	-0.4	0.00	3,032.5	24.0	0.14
DK4Z7F		2,891.5	-66.4	-0.43	2,928.5	-80.0	-0.47
E3G7NQ		3,065.4	107.4	0.70	3,211.4	202.9	1.19
EBCY6W		2,860.0	-97.9	-0.64	2,870.0	-138.5	-0.81
EEBJNM		2,900.5	-57.4	-0.37	2,885.5	-123.0	-0.72
EKTUTB	*	2,815.9	-142.0	-0.92	2,599.8	-408.7	-2.39
ERHZ36		3,071.5	113.6	0.74	3,036.5	28.0	0.16
F8NQCM		2,722.5	-235.4	-1.53	2,674.5	-334.0	-1.95
FFN4EC		2,828.3	-129.7	-0.84	2,973.3	-35.2	-0.21
FJNFCW		2,940.0	-17.9	-0.12	2,800.0	-208.5	-1.22



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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample B71-B72			Sample B73-B74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
FPDU24		2,785.0	-172.9	-1.13	2,994.5	-14.0	-0.08
FPTDK2		2,982.8	24.8	0.16	2,928.8	-79.7	-0.47
G7UHM4	*	3,041.0	83.1	0.54	2,705.0	-303.5	-1.77
GYB4U7		3,059.3	101.3	0.66	3,069.9	61.4	0.36
H3LUER		2,989.3	31.3	0.20	2,900.1	-108.4	-0.63
HG7AHQ		3,106.5	148.6	0.97	3,089.0	80.5	0.47
JCNAZQ		2,952.5	-5.4	-0.04	3,117.5	109.0	0.64
JLYNQY		2,852.5	-105.4	-0.69	2,778.0	-230.5	-1.35
JWX7KL		3,252.1	294.2	1.91	3,210.2	201.7	1.18
K7YBMM		2,919.4	-38.6	-0.25	3,105.2	96.8	0.57
KAJWZ4		3,090.0	132.1	0.86	3,055.0	46.5	0.27
KU9D6W		3,176.5	218.6	1.42	3,086.6	78.1	0.46
KZDE37		3,017.8	59.8	0.39	3,114.5	106.0	0.62
LMYPEZ		3,253.5	295.6	1.92	3,229.0	220.5	1.29
MA998E		2,989.5	31.6	0.21	2,757.0	-251.5	-1.47
MCHB2Q		3,045.6	87.7	0.57	2,919.3	-89.2	-0.52
NBJDJH		3,052.5	94.6	0.62	3,135.5	127.0	0.74
ND82MV		3,066.3	108.4	0.71	3,170.9	162.4	0.95
NQEPZY		3,232.2	274.2	1.78	3,298.8	290.3	1.70
NTL3JL		2,822.0	-135.9	-0.88	2,860.0	-148.5	-0.87
P4UE6E		3,127.0	169.1	1.10	3,119.8	111.3	0.65
P7JLPB		2,963.1	5.2	0.03	3,047.3	38.8	0.23
PCURAN		2,794.5	-163.4	-1.06	3,148.5	140.0	0.82
PFPJFZ		2,762.0	-195.9	-1.27	2,858.0	-150.5	-0.88
PPWWYP		3,147.7	189.8	1.24	3,161.7	153.2	0.90
PRKJ6X	*	3,375.8	417.8	2.72	3,351.0	342.5	2.00
PYLMJV		3,000.0	42.1	0.27	2,969.0	-39.5	-0.23
R7U8CH	*	2,995.1	37.1	0.24	2,644.1	-364.4	-2.13
RBAPFK		2,809.3	-148.7	-0.97	2,836.5	-172.0	-1.01
RCKGLG		2,879.0	-78.9	-0.51	2,958.8	-49.7	-0.29
RE89HJ		3,221.3	263.4	1.71	3,186.5	178.0	1.04
RERPXL		3,051.6	93.7	0.61	3,132.8	124.3	0.73
RMZJPT		2,905.2	-52.7	-0.34	3,083.3	74.8	0.44
RUHREP		2,991.5	33.6	0.22	2,827.0	-181.5	-1.06
RULGF2		3,023.0	65.1	0.42	3,053.5	45.0	0.26
T3PWV9		2,742.0	-215.9	-1.41	2,917.0	-91.5	-0.53
TGDU6J		2,890.0	-67.9	-0.44	2,730.0	-278.5	-1.63



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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample B71-B72			Sample B73-B74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
TMX2JH		2,995.5	37.6	0.24	3,300.5	292.0	1.71
TVDTTF		3,208.2	250.3	1.63	3,144.2	135.7	0.79
U2PD8C		3,129.0	171.1	1.11	3,232.0	223.5	1.31
U3BKYP		2,659.3	-298.6	-1.94	2,897.9	-110.6	-0.65
UBYKA8		2,855.0	-102.9	-0.67	2,970.8	-37.7	-0.22
UHHZJW		2,654.9	-303.0	-1.97	2,976.9	-31.6	-0.18
VBF3KR		2,982.5	24.6	0.16	3,072.5	64.0	0.37
VCTTTB		2,833.0	-124.9	-0.81	2,922.9	-85.6	-0.50
VPHKLR		3,003.5	45.6	0.30	3,084.5	76.0	0.44
VV3PC8		2,956.5	-1.4	-0.01	2,886.5	-122.0	-0.71
W4VHX7	X	2,513.5	-444.4	-2.89	2,947.5	-61.0	-0.36
W7Y99R	*	2,574.0	-383.9	-2.50	2,617.0	-391.5	-2.29
WBB2G6		2,950.5	-7.4	-0.05	3,096.5	88.0	0.51
WBR9MM		3,054.0	96.1	0.63	3,219.0	210.5	1.23
WCPPFB	*	2,497.0	-460.9	-3.00	2,761.8	-246.7	-1.44
WJLKDA		2,669.0	-288.9	-1.88	2,799.4	-209.1	-1.22
WLVKHG		3,043.6	85.7	0.56	3,093.7	85.2	0.50
WM4KVB		3,089.3	131.4	0.86	3,234.4	225.9	1.32
X7V37N		2,897.9	-60.0	-0.39	3,059.6	51.1	0.30
X9L8YV		3,190.9	232.9	1.52	3,241.6	233.1	1.36
XEAR6W		3,156.5	198.6	1.29	3,188.5	180.0	1.05
XKU24T		2,775.3	-182.6	-1.19	2,907.6	-100.9	-0.59
YGVVDT		3,001.5	43.6	0.28	3,064.0	55.5	0.32
YH7X2D		3,111.1	153.2	1.00	3,009.6	1.1	0.01
Z9XKHN		2,820.0	-137.9	-0.90	2,969.0	-39.5	-0.23
ZFGNPQ	*	3,041.5	83.6	0.54	3,430.0	421.5	2.46
ZGQT3F		3,025.5	67.6	0.44	3,141.5	133.0	0.78
ZT3928		2,922.5	-35.4	-0.23	3,162.6	154.1	0.90
ZV7ZV7		3,154.6	196.7	1.28	3,154.6	146.1	0.85

Grand Means		Summary Statistics	
	2,957.92 psi		3,008.49 psi
Std Dev Btwn Labs			
	153.66 psi		171.05 psi
Statistics based on 102 of 104 reporting participants			



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

**Report #192**  
**2nd Qtr 2017**

**Summary Statistics in SI Units**

Grand Means

20.394 MPa

20.74 MPa

Std Dev Btwn Labs

1.059 MPa

1.18 MPa

Statistics based on 102 of 104 reporting participants

Samples B71-B72: Polyisoprene compound, batch #1 & B73-B74: Polyisoprene compound, batch #2

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

D4WZWD (X) - Inconsistent in testing between sample groups. Data for sample group B73-B74 are low.

W4VHX7 (X) - Inconsistent in testing between sample groups. Data for sample group B71-B72 are low. Inconsistent within the determinations of sample group B73-B74.



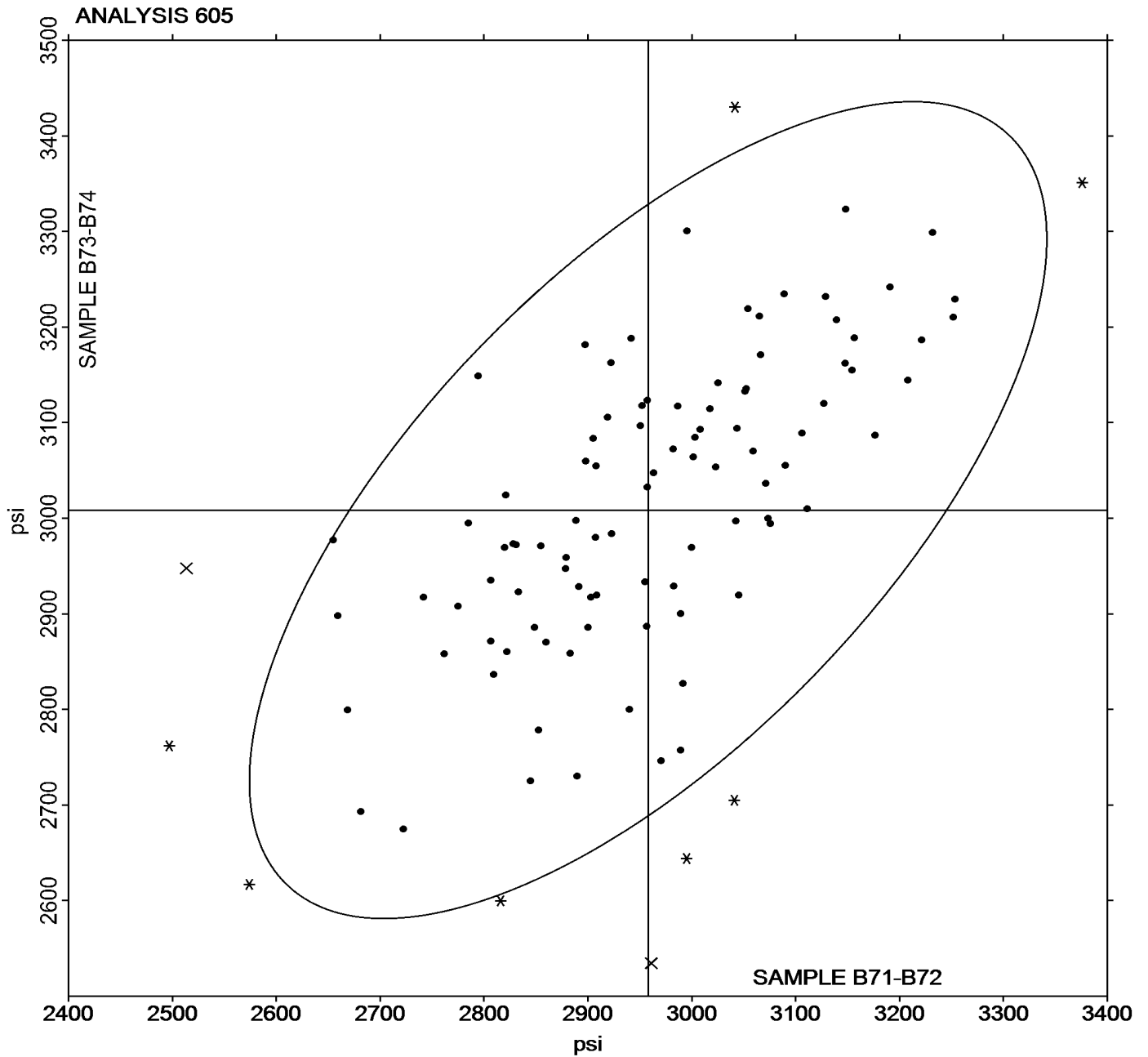


Rubber Interlaboratory Testing Program  
Analysis 605  
Tensile Strength (psi)

Report #192  
2nd Qtr 2017

Grand Mean Sample B71-B72 = 2,957.92 psi

Grand Mean Sample B73-B74 = 3,008.49 psi





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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample B71-B72			Sample B73-B74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2BXB29		576.0	-14.2	-0.63	590.5	-2.0	-0.10
2LXJ6L		605.0	14.8	0.65	615.0	22.5	1.09
2X9EXP	X	524.0	-66.2	-2.91	509.5	-83.0	-4.03
3DJE8L		606.0	15.8	0.69	593.0	0.5	0.02
3J6A9P		580.0	-10.2	-0.45	591.0	-1.5	-0.07
3Q9EZ9		600.0	9.8	0.43	600.0	7.5	0.36
3YW8AK		570.5	-19.7	-0.87	579.5	-13.0	-0.63
4AE987		571.5	-18.7	-0.82	573.5	-19.0	-0.92
4JKTTM		565.5	-24.7	-1.09	587.0	-5.5	-0.27
62UCW4		577.0	-13.2	-0.58	582.5	-10.0	-0.49
6LP2B7		590.0	-0.2	-0.01	585.0	-7.5	-0.37
6P8ZQL		615.5	25.3	1.11	603.5	11.0	0.53
77JBM4		598.5	8.3	0.36	630.0	37.5	1.82
7AQPDPH		595.5	5.3	0.23	594.0	1.5	0.07
7G8ZT6	X	601.0	10.8	0.47	646.0	53.5	2.59
7MUQDE		592.5	2.3	0.10	593.0	0.5	0.02
898ZRG		566.0	-24.2	-1.07	581.0	-11.5	-0.56
8M9L4E		562.3	-27.9	-1.23	591.3	-1.3	-0.06
9NH22D		602.4	12.2	0.54	624.5	31.9	1.55
9Q96UK		597.0	6.8	0.30	580.4	-12.1	-0.59
A7EQW7		618.5	28.3	1.24	638.5	46.0	2.23
A8PQRF		598.0	7.8	0.34	600.0	7.5	0.36
BB6PFU		574.0	-16.2	-0.71	571.5	-21.0	-1.02
CCEUQX	X	691.0	100.8	4.43	695.0	102.5	4.97
CDPR7Z		580.2	-10.0	-0.44	583.1	-9.4	-0.46
CTHJR2	*	535.0	-55.2	-2.43	538.0	-54.5	-2.64
D4WZWD	*	534.5	-55.7	-2.45	545.0	-47.5	-2.30
DDH7NP	X	1,803.4	1,213.2	53.38	1,791.2	1,198.7	58.12
DFBVCC		571.5	-18.7	-0.82	569.0	-23.5	-1.14
DK4Z7F		580.5	-9.7	-0.43	569.5	-23.0	-1.12
E3G7NQ		617.3	27.0	1.19	584.1	-8.5	-0.41
EBCY6W		550.0	-40.3	-1.77	579.2	-13.3	-0.65
EEBJNM		607.0	16.8	0.74	619.0	26.5	1.28
EKTUTB		603.0	12.8	0.56	579.5	-13.0	-0.63
ERHZ36		585.0	-5.2	-0.23	590.5	-2.0	-0.10
F8NQCM		604.0	13.8	0.61	609.0	16.5	0.80
FFN4EC	*	522.5	-67.7	-2.98	541.0	-51.5	-2.50



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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample B71-B72			Sample B73-B74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
FJNFCW		548.5	-41.7	-1.84	579.5	-13.0	-0.63
FPDU24		603.0	12.8	0.56	594.5	2.0	0.10
FPTDK2		600.2	10.0	0.44	602.2	9.6	0.47
G7UHM4		567.0	-23.2	-1.02	606.5	14.0	0.68
GYB4U7		594.7	4.5	0.20	582.4	-10.2	-0.49
H3LUER		605.5	15.3	0.67	594.5	2.0	0.10
HG7AHQ		581.0	-9.2	-0.41	586.0	-6.5	-0.32
JCNAZQ		566.0	-24.2	-1.07	566.5	-26.0	-1.26
JLYNQY		575.5	-14.7	-0.65	576.0	-16.5	-0.80
JWX7KL		584.0	-6.2	-0.27	593.0	0.5	0.02
K7YBMM		614.0	23.8	1.05	620.8	28.3	1.37
KAJWZ4		633.0	42.8	1.88	627.0	34.5	1.67
KU9D6W		621.5	31.3	1.38	600.8	8.3	0.40
KZDE37	*	622.6	32.4	1.42	579.4	-13.2	-0.64
LMYPEZ		594.5	4.3	0.19	592.5	0.0	0.00
MA998E		579.0	-11.2	-0.49	577.5	-15.0	-0.73
MCHB2Q		590.5	0.3	0.01	590.5	-2.0	-0.10
NBJDJH		573.0	-17.2	-0.76	579.0	-13.5	-0.66
ND82MV		584.8	-5.4	-0.24	589.6	-2.9	-0.14
NQEPZY	*	609.6	19.4	0.85	637.5	45.0	2.18
P7JLPB		590.9	0.7	0.03	593.4	0.9	0.04
PCURAN		598.5	8.3	0.36	593.5	1.0	0.05
PFPJFZ		581.0	-9.2	-0.41	581.5	-11.0	-0.53
PPWWYP		610.9	20.7	0.91	598.1	5.6	0.27
PRKJ6X		616.5	26.3	1.16	610.0	17.5	0.85
PYLMJV		590.0	-0.2	-0.01	585.0	-7.5	-0.37
R7U8CH		634.0	43.8	1.93	624.0	31.5	1.53
RBAPFK		570.0	-20.2	-0.89	595.0	2.5	0.12
RCKGLG	X	687.5	97.3	4.28	713.5	121.0	5.87
RE89HJ		602.5	12.3	0.54	613.0	20.5	0.99
RERPXL		624.5	34.3	1.51	601.5	9.0	0.44
RMZJPT		607.2	17.0	0.75	603.9	11.3	0.55
RUHREP		584.0	-6.2	-0.27	598.5	6.0	0.29
RULGF2		595.5	5.3	0.23	586.5	-6.0	-0.29
T3PWV9		594.5	4.3	0.19	584.5	-8.0	-0.39
TGDU6J		568.5	-21.7	-0.96	584.5	-8.0	-0.39
TMX2JH		584.0	-6.2	-0.27	608.0	15.5	0.75
TVDTTF		618.6	28.4	1.25	595.9	3.3	0.16



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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample B71-B72			Sample B73-B74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
U2PD8C		613.0	22.8	1.00	619.0	26.5	1.28
U3BKYP		633.5	43.3	1.90	639.5	47.0	2.28
UBYKA8		609.4	19.2	0.84	610.4	17.9	0.87
UHHZJW		600.0	9.8	0.43	590.0	-2.5	-0.12
VBF3KR		602.5	12.3	0.54	600.0	7.5	0.36
VCTTTB		614.0	23.8	1.05	594.0	1.5	0.07
VPHKLR		603.0	12.8	0.56	606.0	13.5	0.65
VV3PC8		621.5	31.3	1.38	606.5	14.0	0.68
W4VHX7		575.0	-15.2	-0.67	593.5	1.0	0.05
WBB2G6		571.0	-19.2	-0.85	581.5	-11.0	-0.53
WBR9MM		608.4	18.2	0.80	620.6	28.0	1.36
WCPPFB	X	496.0	-94.2	-4.15	498.3	-94.2	-4.57
WJLKDA	X	565.1	-25.1	-1.10	508.9	-83.6	-4.05
WLVKHG		566.0	-24.2	-1.07	560.0	-32.5	-1.58
WM4KVB	*	564.0	-26.2	-1.15	542.0	-50.5	-2.45
X7V37N		572.6	-17.6	-0.78	572.4	-20.2	-0.98
X9L8YV	X	678.0	87.8	3.86	685.0	92.5	4.48
XEAR6W		603.5	13.3	0.58	596.5	4.0	0.19
XKU24T		588.5	-1.7	-0.08	581.0	-11.5	-0.56
YGVVDT		628.5	38.3	1.68	628.5	36.0	1.74
YH7X2D		585.5	-4.7	-0.21	619.0	26.5	1.28
Z9XKHN		568.0	-22.2	-0.98	581.0	-11.5	-0.56
ZFGNPQ		563.0	-27.2	-1.20	565.0	-27.5	-1.33
ZGQT3F		577.5	-12.7	-0.56	583.0	-9.5	-0.46
ZT3928		552.4	-37.8	-1.66	560.4	-32.1	-1.56
ZV7ZV7		598.8	8.5	0.38	611.6	19.0	0.92

Grand Means		Summary Statistics	
	590.22 percent		592.53 percent
Std Dev Btwn Labs			
	22.73 percent		20.62 percent
Statistics based on 93 of 101 reporting participants			

Samples B71-B72: Polyisoprene compound, batch #1 & B73-B74: Polyisoprene compound, batch #2



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

2X9EXP (X) - Data for all samples are low. Possible Systematic Error.

7G8ZT6 (X) - Inconsistent in testing between samples.

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

DDH7NP (X) - Extreme Data.

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

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

WJLKDA (X) - Inconsistent in testing between sample groups. Data for sample group B73-B74 are low.

X9L8YV (X) - Data for all samples are high. Possible Systematic Error.

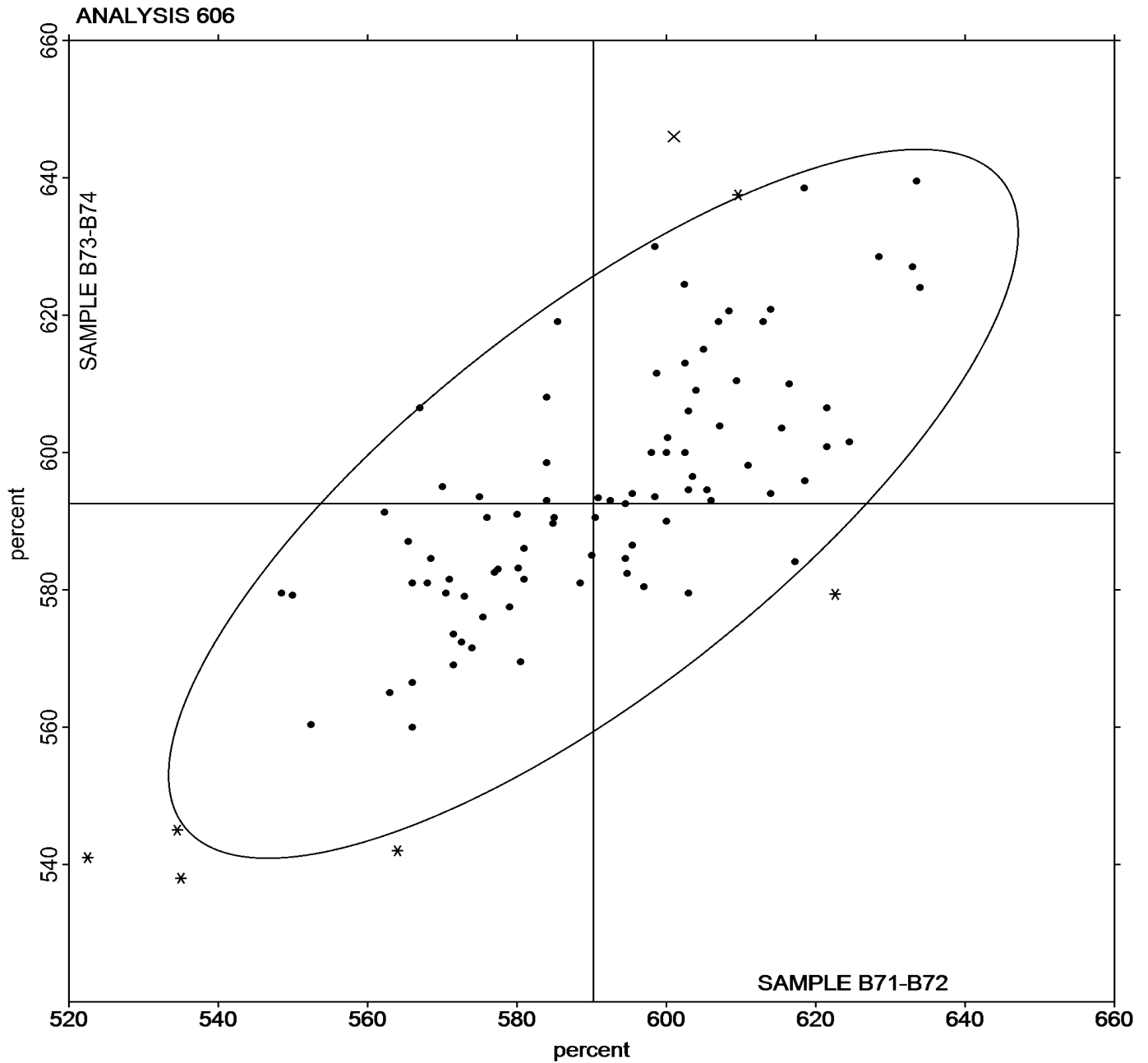


Rubber Interlaboratory Testing Program  
Analysis 606  
Ultimate Elongation (percent)

Report #192  
2nd Qtr 2017

Grand Mean Sample B71-B72 = 590.22 percent

Grand Mean Sample B73-B74 = 592.53 percent





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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample B71-B72			Sample B73-B74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2BXB29		995.0	61.6	0.82	938.5	-6.4	-0.08
2LXJ6L		924.5	-8.9	-0.12	886.0	-58.9	-0.71
2X9EXP		1,063.0	129.6	1.72	1,087.0	142.1	1.72
3DJE8L		916.5	-16.9	-0.22	1,004.0	59.1	0.71
3Q9EZ9		954.5	21.1	0.28	952.0	7.1	0.09
3YW8AK		962.3	29.0	0.38	979.0	34.1	0.41
4AE987		895.6	-37.7	-0.50	949.3	4.4	0.05
4JKTTM		994.0	60.6	0.80	984.5	39.6	0.48
62UCW4		1,017.0	83.6	1.11	1,052.5	107.6	1.30
6LP2B7		880.0	-53.4	-0.71	935.0	-9.9	-0.12
6P8ZQL		829.5	-103.9	-1.38	978.0	33.1	0.40
77JBM4		966.7	33.3	0.44	855.0	-89.9	-1.09
7AQPDPH		941.0	7.6	0.10	912.0	-32.9	-0.40
7G8ZT6	X	926.8	-6.6	-0.09	687.5	-257.4	-3.11
7MUQDE		1,014.0	80.6	1.07	956.0	11.1	0.13
898ZRG		995.0	61.6	0.82	1,016.5	71.6	0.87
8M9L4E		879.0	-54.4	-0.72	837.8	-107.1	-1.29
9NH22D		965.0	31.6	0.42	929.6	-15.3	-0.19
9Q96UK		864.4	-68.9	-0.91	973.9	29.0	0.35
A7EQW7		900.0	-33.4	-0.44	865.0	-79.9	-0.97
A8PQRF		884.0	-49.4	-0.65	894.0	-50.9	-0.62
BB6PFU		1,045.7	112.4	1.49	1,123.3	178.4	2.16
CCEUQX		761.5	-171.9	-2.28	828.0	-116.9	-1.41
CDPR7Z		942.9	9.5	0.13	965.8	20.9	0.25
CTHJR2		1,115.0	181.6	2.41	1,026.5	81.6	0.99
DDH7NP	X	254.1	-679.3	-9.00	257.1	-687.8	-8.32
DFBVCC		975.5	42.1	0.56	1,030.5	85.6	1.04
DK4Z7F		928.8	-4.6	-0.06	938.3	-6.6	-0.08
E3G7NQ		879.3	-54.0	-0.72	1,065.4	120.5	1.46
EBCY6W		974.0	40.6	0.54	884.5	-60.4	-0.73
EEBJNM		902.5	-30.9	-0.41	820.5	-124.4	-1.50
EKTUTB		824.5	-108.8	-1.44	808.6	-136.3	-1.65
ERHZ36	*	1,080.0	146.6	1.94	896.5	-48.4	-0.59
F8NQCM		841.5	-91.9	-1.22	816.5	-128.4	-1.55
FJNFCW		1,038.0	104.6	1.39	921.0	-23.9	-0.29
FPDU24		920.0	-13.4	-0.18	979.5	34.6	0.42
FPTDK2		964.3	30.9	0.41	871.1	-73.8	-0.89
G7UHM4	X	1,008.5	75.1	1.00	763.0	-181.9	-2.20



# Rubber Interlaboratory Testing Program

Report #192

## Analysis 607

2nd Qtr 2017

### Stress at 300% Elongation (psi)

WebCode	Data Flag	Sample B71-B72			Sample B73-B74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
GYB4U7		871.8	-61.6	-0.82	919.7	-25.2	-0.31
H3LUER		928.2	-5.1	-0.07	932.6	-12.3	-0.15
HG7AHQ		1,050.5	117.1	1.55	957.0	12.1	0.15
JCNAZQ		931.5	-1.9	-0.02	1,050.5	105.6	1.28
JLYNQY		917.5	-15.9	-0.21	936.0	-8.9	-0.11
K7YBMM		875.3	-58.1	-0.77	873.9	-71.0	-0.86
KAJWZ4		861.0	-72.4	-0.96	845.0	-99.9	-1.21
KU9D6W		914.9	-18.5	-0.25	934.9	-10.0	-0.12
KZDE37		839.2	-94.2	-1.25	1,004.8	59.9	0.72
LMYPEZ		1,017.0	83.6	1.11	986.5	41.6	0.50
MA998E		958.5	25.1	0.33	892.5	-52.4	-0.63
MCHB2Q		972.3	38.9	0.52	881.3	-63.6	-0.77
NBJDJH		1,016.0	82.6	1.09	1,023.0	78.1	0.94
ND82MV		976.6	43.2	0.57	994.4	49.5	0.60
NQEPZY		942.1	8.8	0.12	871.8	-73.1	-0.88
P7JLPB		952.9	19.5	0.26	987.7	42.8	0.52
PCURAN		870.0	-63.4	-0.84	1,005.0	60.1	0.73
PFPJFZ		846.5	-86.9	-1.15	896.5	-48.4	-0.59
PPWWYP		962.3	29.0	0.38	1,004.0	59.1	0.71
PRKJ6X		972.3	38.9	0.52	968.0	23.1	0.28
PYLMJV		942.5	9.1	0.12	992.0	47.1	0.57
R7U8CH	*	834.0	-99.4	-1.32	736.1	-208.8	-2.53
RBAPFK		889.0	-44.4	-0.59	853.5	-91.4	-1.11
RCKGLG	X	568.6	-364.8	-4.83	575.8	-369.1	-4.46
RE89HJ		923.9	-9.5	-0.13	955.8	10.9	0.13
RERPXL		848.5	-84.9	-1.12	978.3	33.4	0.40
RMZJPT		912.4	-21.0	-0.28	939.5	-5.4	-0.07
RUHREP		970.0	36.6	0.49	804.0	-140.9	-1.70
RULGF2		907.0	-26.4	-0.35	975.0	30.1	0.36
T3PWV9		827.5	-105.9	-1.40	949.5	4.6	0.06
TGDU6J		960.0	26.6	0.35	909.5	-35.4	-0.43
TMX2JH		1,011.5	78.1	1.03	976.0	31.1	0.38
TVDTTF		1,015.6	82.3	1.09	1,008.3	63.4	0.77
U2PD8C		887.5	-45.9	-0.61	904.0	-40.9	-0.49
U3BKYP	*	736.1	-197.3	-2.61	801.3	-143.6	-1.74
UBYKA8		899.0	-34.3	-0.45	916.9	-28.0	-0.34
VBF3KR		944.0	10.6	0.14	892.0	-52.9	-0.64





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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample B71-B72			Sample B73-B74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
VCTTTB		774.1	-159.2	-2.11	907.7	-37.2	-0.45
VPHKLR		927.0	-6.4	-0.08	953.5	8.6	0.10
VV3PC8		855.5	-77.9	-1.03	883.5	-61.4	-0.74
W4VHX7		860.5	-72.9	-0.97	851.0	-93.9	-1.14
WBB2G6		996.8	63.4	0.84	994.0	49.1	0.59
WBR9MM		934.1	0.7	0.01	954.7	9.8	0.12
WCPPFB	X	688.1	-245.2	-3.25	729.0	-215.9	-2.61
WJLKDA	X	876.6	-56.7	-0.75	1,138.4	193.5	2.34
WLVKHG		1,062.4	129.0	1.71	1,093.6	148.7	1.80
WM4KVB		981.2	47.8	0.63	1,117.5	172.6	2.09
X7V37N		922.8	-10.6	-0.14	1,035.3	90.4	1.09
X9L8YV	*	768.7	-164.7	-2.18	747.0	-197.9	-2.39
XEAR6W		926.5	-6.9	-0.09	975.5	30.6	0.37
XKU24T		875.3	-58.1	-0.77	1,003.7	58.8	0.71
YGVVDT		833.5	-99.9	-1.32	852.5	-92.4	-1.12
YH7X2D		1,000.8	67.4	0.89	894.9	-50.0	-0.60
Z9XKHN		957.5	24.1	0.32	974.0	29.1	0.35
ZFGNPQ	*	1,050.5	117.1	1.55	1,175.5	230.6	2.79
ZGQT3F		995.5	62.1	0.82	1,042.0	97.1	1.17
ZT3928		1,047.2	113.8	1.51	1,096.5	151.6	1.83
ZV7ZV7		1,013.8	80.5	1.07	970.3	25.4	0.31

Grand Means		Summary Statistics	
	933.37 psi		944.90 psi
Std Dev Btwn Labs	75.49 psi		82.70 psi
Statistics based on 90 of 96 reporting participants			

Grand Means		Summary Statistics in SI Units	
	6.4353 MPa		6.51 MPa
Std Dev Btwn Labs	0.5205 MPa		0.57 MPa
Statistics based on 90 of 96 reporting participants			

Samples B71-B72: Polyisoprene compound, batch #1 & B73-B74: Polyisoprene compound, batch #2



## Rubber Interlaboratory Testing Program

### Analysis 607

#### Stress at 300% Elongation (psi)

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Report #192

2nd Qtr 2017

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

7G8ZT6 (X) - Inconsistent in testing between sample groups. Data for sample group B73-B74 are low.

DDH7NP (X) - Extreme data.

G7UHM4 (X) - Inconsistent in testing between samples.

RCKGLG (X) - Data for all Samples are low. Possible systematic error.

WCPPFB (X) - Inconsistent in testing between sample groups. Data for sample group B71-B72 are low.

WJLKDA (X) - Inconsistent in testing between samples.

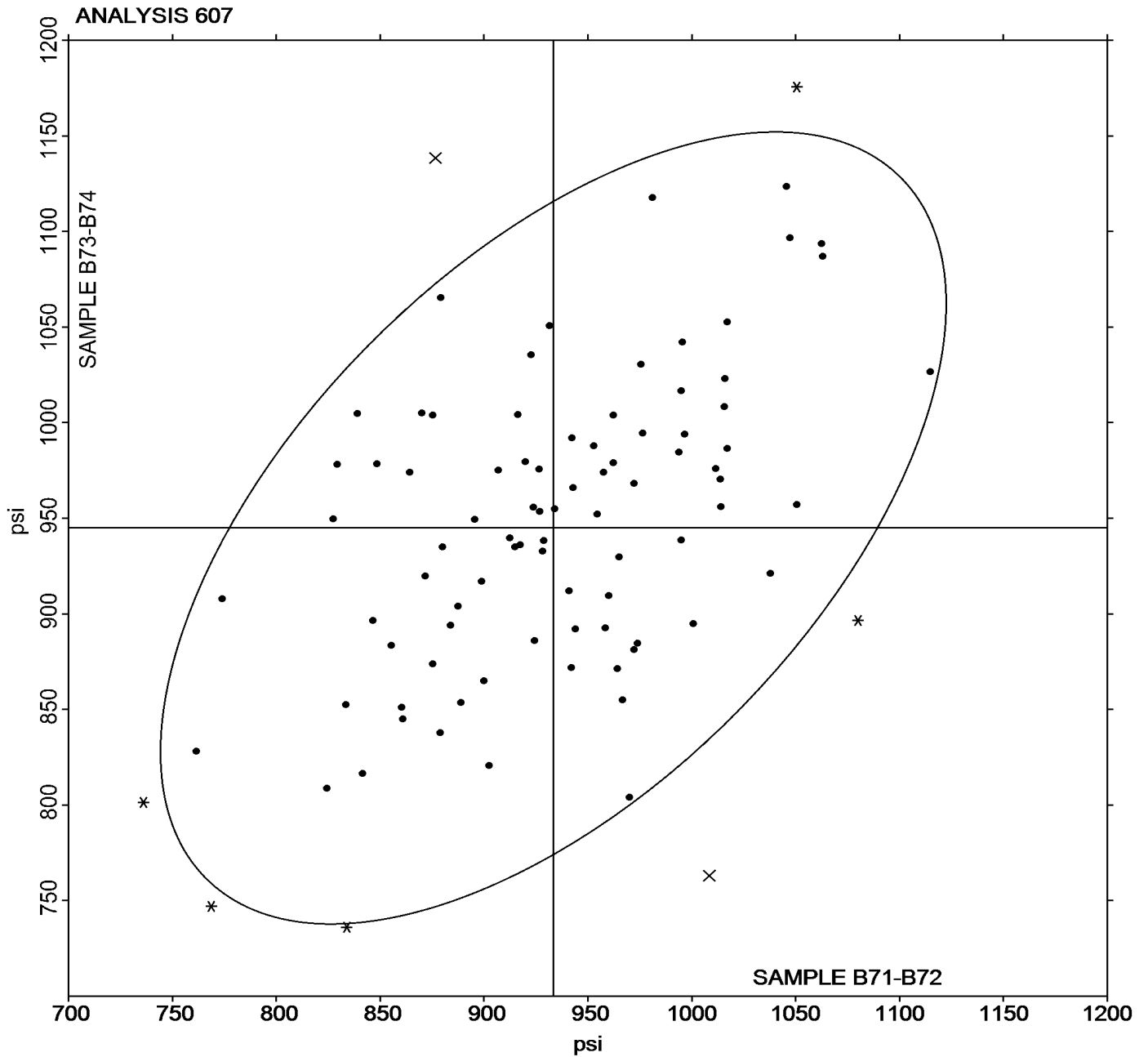


**Rubber Interlaboratory Testing Program**  
**Analysis 607**  
**Stress at 300% Elongation (psi)**

**Report #192**  
**2nd Qtr 2017**

Grand Mean Sample **B71-B72** = 933.37 psi

Grand Mean Sample **B73-B74** = 944.90 psi





# Rubber Interlaboratory Testing Program

Report #192

## Analysis 608

2nd Qtr 2017

### Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample B71-B72			Sample B73-B74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2BXB29		202.5	12.5	0.78	192.0	-2.1	-0.12
2LXJ6L		192.5	2.5	0.15	186.5	-7.6	-0.43
2X9EXP		194.0	4.0	0.25	202.0	7.9	0.44
3DJE8L		194.0	4.0	0.25	214.0	19.9	1.11
3J6A9P		165.5	-24.5	-1.53	174.0	-20.1	-1.12
3Q9EZ9		189.0	-1.0	-0.06	194.0	-0.1	-0.01
3YW8AK		205.2	15.2	0.95	209.6	15.4	0.86
4AE987		184.9	-5.1	-0.32	195.1	0.9	0.05
4JKTTM		199.0	9.0	0.56	208.0	13.9	0.77
62UCW4	*	228.0	38.0	2.36	234.0	39.9	2.23
6LP2B7		183.5	-6.5	-0.41	196.0	1.9	0.10
6P8ZQL		169.5	-20.5	-1.28	199.5	5.4	0.30
77JBM4	*	230.6	40.6	2.53	224.8	30.7	1.71
7AQPDPH		192.5	2.5	0.15	193.0	-1.1	-0.06
7G8ZT6	*	194.4	4.3	0.27	150.8	-43.3	-2.42
7MUQDE		196.0	6.0	0.37	188.0	-6.1	-0.34
898ZRG	X	471.5	281.5	17.51	501.0	306.9	17.14
8M9L4E		181.0	-9.0	-0.56	175.7	-18.4	-1.03
9NH22D		200.0	10.0	0.62	193.6	-0.6	-0.03
9Q96UK		166.8	-23.2	-1.44	187.1	-7.0	-0.39
A7EQW7		173.5	-16.5	-1.03	169.5	-24.6	-1.38
A8PQRF		190.5	0.5	0.03	192.0	-2.1	-0.12
BB6PFU		200.2	10.1	0.63	214.7	20.5	1.15
CCEUQX		182.0	-8.0	-0.50	200.0	5.9	0.33
CDPR7Z		190.5	0.5	0.03	190.7	-3.4	-0.19
CTHJR2	X	257.5	67.5	4.20	242.5	48.4	2.70
DDH7NP	X	109.1	-80.9	-5.03	113.7	-80.4	-4.49
DFBVCC		195.0	5.0	0.31	200.0	5.9	0.33
DK4Z7F		198.3	8.2	0.51	190.5	-3.6	-0.20
E3G7NQ		182.6	-7.4	-0.46	219.6	25.5	1.42
EBCY6W		198.5	8.5	0.53	184.5	-9.6	-0.54
EEBJNM		184.5	-5.5	-0.34	170.5	-23.6	-1.32
EKTUTB		180.6	-9.4	-0.59	175.5	-18.6	-1.04
ERHZ36	*	232.0	42.0	2.61	192.5	-1.6	-0.09
F8NQCM		176.0	-14.0	-0.87	176.5	-17.6	-0.98
FJNFCW		198.5	8.5	0.53	178.5	-15.6	-0.87
FPDU24		197.0	7.0	0.43	222.0	27.9	1.56
FPTDK2		196.5	6.5	0.40	182.7	-11.4	-0.64



# Rubber Interlaboratory Testing Program

Report #192

## Analysis 608

2nd Qtr 2017

### Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample B71-B72			Sample B73-B74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
G7UHM4	*	199.5	9.5	0.59	153.5	-40.6	-2.27
GYB4U7		187.0	-3.0	-0.19	197.4	3.2	0.18
H3LUER		200.2	10.1	0.63	208.9	14.7	0.82
HG7AHQ		214.5	24.5	1.52	194.5	0.4	0.02
JCNAZQ		185.0	-5.0	-0.31	205.0	10.9	0.61
JLYNQY		185.5	-4.5	-0.28	188.5	-5.6	-0.31
K7YBMM		178.7	-11.3	-0.70	179.0	-15.1	-0.84
KAJWZ4		182.0	-8.1	-0.50	178.3	-15.9	-0.89
KU9D6W		182.7	-7.3	-0.45	186.0	-8.1	-0.45
KZDE37		181.1	-8.9	-0.55	208.9	14.8	0.82
LMYPEZ		224.0	34.0	2.11	216.5	22.4	1.25
MA998E		196.5	6.5	0.40	184.0	-10.1	-0.57
MCHB2Q		195.3	5.3	0.33	175.9	-18.2	-1.02
NBJDJH		211.5	21.5	1.34	215.5	21.4	1.19
ND82MV		205.1	15.1	0.94	201.6	7.5	0.42
NQEPZY		191.4	1.4	0.09	186.1	-8.0	-0.45
P7JLPB		170.4	-19.6	-1.22	202.3	8.2	0.46
PCURAN		175.5	-14.5	-0.90	203.0	8.9	0.50
PFPJFZ		177.5	-12.5	-0.78	190.0	-4.1	-0.23
PPWWYP		203.2	13.1	0.82	219.3	25.1	1.40
PRKJ6X		192.8	2.7	0.17	192.0	-2.1	-0.12
PYLMJV		184.0	-6.0	-0.37	195.5	1.4	0.08
R7U8CH		176.2	-13.8	-0.86	153.7	-40.4	-2.26
RBAPFK		167.0	-23.0	-1.43	175.5	-18.6	-1.04
RCKGLG	*	150.8	-39.2	-2.44	151.3	-42.8	-2.39
RE89HJ		184.2	-5.8	-0.36	195.8	1.7	0.09
RERPXL		168.2	-21.8	-1.35	197.3	3.1	0.17
RMZJPT		195.0	4.9	0.31	206.3	12.2	0.68
RUHREP		193.5	3.5	0.22	164.5	-29.6	-1.66
RULGF2		178.0	-12.0	-0.75	191.0	-3.1	-0.18
T3PWV9		158.0	-32.0	-1.99	182.5	-11.6	-0.65
TGDU6J		198.5	8.5	0.53	192.0	-2.1	-0.12
TMX2JH		207.5	17.5	1.09	200.0	5.9	0.33
TVDTTF		209.2	19.1	1.19	204.5	10.3	0.58
U2PD8C		187.5	-2.5	-0.16	190.0	-4.1	-0.23
U3BKYP		154.5	-35.5	-2.21	170.4	-23.7	-1.32
UBYKA8		191.7	1.7	0.11	188.8	-5.3	-0.30



# Rubber Interlaboratory Testing Program

Report #192

## Analysis 608

2nd Qtr 2017

### Stress at 100% Elongation (psi)

WebCode	Data Flag	Sample B71-B72			Sample B73-B74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
VBF3KR		196.5	6.5	0.40	191.5	-2.6	-0.15
VCTTTB		158.2	-31.8	-1.98	183.0	-11.2	-0.62
VPHKLR		211.0	21.0	1.31	219.5	25.4	1.42
VV3PC8		183.5	-6.5	-0.41	190.5	-3.6	-0.20
W4VHX7		191.5	1.5	0.09	187.0	-7.1	-0.40
WBB2G6		197.3	7.2	0.45	198.5	4.4	0.24
WBR9MM		204.2	14.2	0.88	211.8	17.7	0.99
WCPPFB	*	147.0	-43.0	-2.68	155.4	-38.7	-2.16
WJLKDA	*	176.7	-13.3	-0.83	225.0	30.9	1.72
WLVKHG		195.8	5.8	0.36	206.0	11.8	0.66
WM4KVB		185.6	-4.4	-0.27	214.7	20.5	1.15
X7V37N		183.6	-6.4	-0.40	208.8	14.6	0.82
X9L8YV		174.0	-16.0	-0.99	174.0	-20.1	-1.12
XEAR6W		190.0	0.0	0.00	203.0	8.9	0.50
XKU24T		200.3	10.3	0.64	230.1	35.9	2.01
YGVVDT		176.0	-14.0	-0.87	185.0	-9.1	-0.51
YH7X2D	X	128.4	-61.7	-3.84	104.4	-89.7	-5.01
Z9XKHN		211.5	21.5	1.34	215.0	20.9	1.17
ZFGNPQ		199.0	9.0	0.56	227.5	33.4	1.86
ZGQT3F		202.5	12.5	0.78	212.5	18.4	1.03
ZT3928		197.3	7.2	0.45	200.2	6.0	0.34
ZV7ZV7		201.6	11.6	0.72	192.9	-1.2	-0.07

Grand Means		Summary Statistics	
	190.01 psi		194.13 psi
Stnd Dev Btwn Labs	16.07 psi		17.90 psi
Statistics based on 93 of 97 reporting participants			

Grand Means		Summary Statistics in SI Units	
	1.3101 MPa		1.34 MPa
Stnd Dev Btwn Labs	0.1108 MPa		0.12 MPa
Statistics based on 93 of 97 reporting participants			

Samples B71-B72: Polyisoprene compound, batch #1 & B73-B74: Polyisoprene compound, batch #2



## Rubber Interlaboratory Testing Program

### Analysis 608

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

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Report #192

2nd Qtr 2017

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

898ZRG (X) - Extreme Data.

CTHJR2 (X) - Data for all Samples are high.

DDH7NP (X) - Data for all Samples are low. Possible systematic error.

YH7X2D (X) - Data for all Samples are low. Possible systematic error.

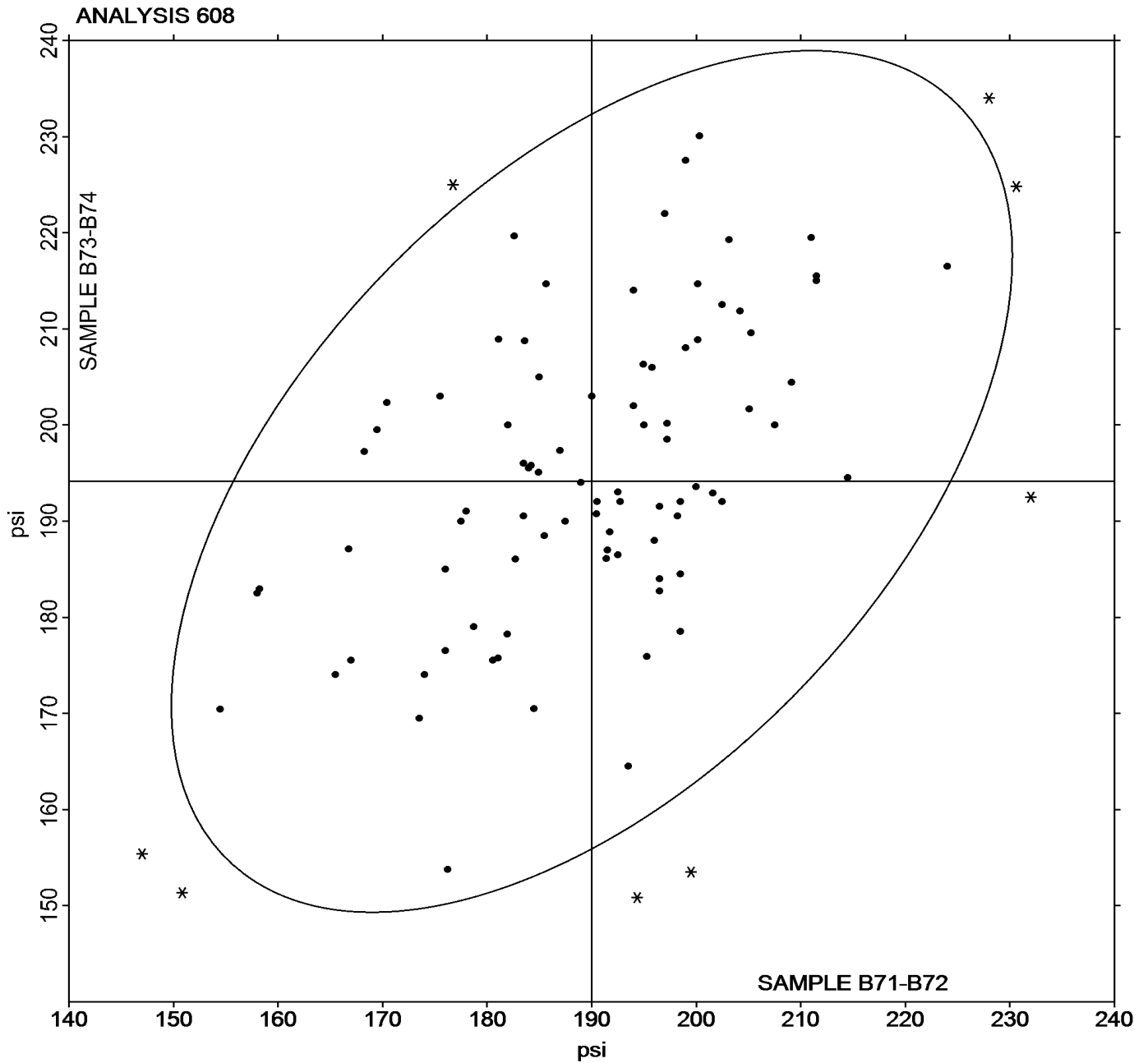


Rubber Interlaboratory Testing Program  
Analysis 608  
Stress at 100% Elongation (psi)

Report #192  
2nd Qtr 2017

Grand Mean Sample B71-B72 = 190.01 psi

Grand Mean Sample B73-B74 = 194.13 psi







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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample B71-B72			Sample B73-B74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2BXB29		49.00	1.34	0.73	48.50	0.18	0.09	BT
2LXJ6L		48.05	0.39	0.21	47.70	-0.62	-0.32	BT
2X9EXP		45.00	-2.66	-1.45	45.00	-3.32	-1.72	BT
3DJE8L		49.00	1.34	0.73	50.00	1.68	0.87	HH
3J6A9P		47.50	-0.16	-0.09	48.50	0.18	0.09	XX
3Q9EZ9		46.50	-1.16	-0.63	46.00	-2.32	-1.20	BT
3YW8AK		48.55	0.89	0.48	48.95	0.63	0.32	BT
4AE987		45.65	-2.01	-1.09	47.25	-1.07	-0.56	BT
4JKTTM		49.50	1.84	1.00	50.50	2.18	1.13	BT
62UCW4	X	41.70	-5.96	-3.24	45.45	-2.87	-1.49	XX
6LP2B7		49.20	1.54	0.83	50.50	2.18	1.13	BT
6P8ZQL		47.15	-0.51	-0.28	47.70	-0.62	-0.32	BT
77JBM4		52.10	4.44	2.41	51.80	3.48	1.80	HH
7AQPDH		48.00	0.34	0.18	49.00	0.68	0.35	HH
7G8ZT6	X	50.00	2.34	1.27	44.50	-3.82	-1.98	BT
7MUQDE		47.40	-0.26	-0.14	46.95	-1.37	-0.71	BT
898ZRG		47.00	-0.66	-0.36	49.00	0.68	0.35	HH
8M9L4E		49.00	1.34	0.73	49.00	0.68	0.35	HH
9NH22D		49.05	1.39	0.75	50.10	1.78	0.92	BT
9Q96UK		47.60	-0.06	-0.03	50.10	1.78	0.92	BT
A7EQW7		47.50	-0.16	-0.09	48.25	-0.07	-0.04	HH
A8PQRF		47.00	-0.66	-0.36	48.00	-0.32	-0.17	BT
B6ZJ8J		45.00	-2.66	-1.45	48.00	-0.32	-0.17	BT
BB6PFU		50.50	2.84	1.54	51.50	3.18	1.64	HH
C2YZJB		49.50	1.84	1.00	49.50	1.18	0.61	BT
CCEUQX		47.50	-0.16	-0.09	50.00	1.68	0.87	BT
CDPR7Z		49.00	1.34	0.73	50.00	1.68	0.87	BT
D4WZWD	X	48.00	0.34	0.18	44.00	-4.32	-2.24	BT
DDH7NP		45.00	-2.66	-1.45	44.50	-3.82	-1.98	BT
DFBVCC		48.60	0.94	0.51	48.65	0.33	0.17	BT
DK4Z7F		48.00	0.34	0.18	48.00	-0.32	-0.17	HH
E3G7NQ		47.15	-0.51	-0.28	48.75	0.43	0.22	BT
EBCY6W		49.00	1.34	0.73	47.40	-0.92	-0.48	BT
EEBJNM		47.75	0.09	0.05	47.70	-0.62	-0.32	BT
EKTUTB	*	52.00	4.34	2.36	50.50	2.18	1.13	HH
ERHZ36		46.00	-1.66	-0.90	46.00	-2.32	-1.20	BT
F8NQCM		48.50	0.84	0.45	48.50	0.18	0.09	BT



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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample B71-B72			Sample B73-B74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
FFN4EC		49.00	1.34	0.73	50.50	2.18	1.13	HH
FPDU24		48.00	0.34	0.18	50.00	1.68	0.87	HH
FPTDK2		46.55	-1.11	-0.60	48.60	0.28	0.14	BT
G7UHM4	X	47.00	-0.66	-0.36	43.00	-5.32	-2.76	BT
GFD2YM		49.90	2.24	1.21	48.45	0.13	0.06	BT
GYB4U7	X	58.50	10.84	5.89	59.50	11.18	5.79	XX
H3LUER		48.25	0.59	0.32	48.75	0.43	0.22	BT
H6BZYN		46.85	-0.81	-0.44	47.65	-0.67	-0.35	HH
HG7AHQ	X	47.90	0.24	0.13	42.45	-5.87	-3.04	BT
J7NUFN		45.00	-2.66	-1.45	45.50	-2.82	-1.46	BT
JCNAZQ		44.50	-3.16	-1.72	45.00	-3.32	-1.72	HH
JLYNQY		52.00	4.34	2.36	52.00	3.68	1.90	BT
JWX7KL		46.50	-1.16	-0.63	45.00	-3.32	-1.72	BT
K7YBMM		48.00	0.34	0.18	46.00	-2.32	-1.20	BT
KAJWZ4		46.25	-1.41	-0.77	46.75	-1.57	-0.82	BT
KU9D6W		47.85	0.19	0.10	48.20	-0.12	-0.06	BT
KZDE37		47.00	-0.66	-0.36	50.50	2.18	1.13	BT
LMYPEZ	X	56.00	8.34	4.53	56.50	8.18	4.23	BT
MA998E		47.00	-0.66	-0.36	47.00	-1.32	-0.69	BT
MCHB2Q		45.50	-2.16	-1.17	45.00	-3.32	-1.72	BT
NBJDJH		46.00	-1.66	-0.90	49.00	0.68	0.35	HH
ND82MV		51.65	3.99	2.17	50.80	2.48	1.28	BT
NQEPZY		47.85	0.19	0.10	47.90	-0.42	-0.22	BT
NTL3JL		44.50	-3.16	-1.72	47.50	-0.82	-0.43	HH
P4UE6E		46.00	-1.66	-0.90	45.00	-3.32	-1.72	BT
P7JLPB		47.35	-0.31	-0.17	47.85	-0.47	-0.25	BT
PCURAN	*	44.50	-3.16	-1.72	48.50	0.18	0.09	BT
PFPJFZ		48.00	0.34	0.18	48.00	-0.32	-0.17	BT
PPVCKZ	X	35.50	-12.16	-6.61	36.00	-12.32	-6.38	BT
PPWWYP		48.00	0.34	0.18	48.00	-0.32	-0.17	HH
PRKJ6X		48.75	1.09	0.59	49.95	1.63	0.84	HH
PYLMJV		44.50	-3.16	-1.72	45.50	-2.82	-1.46	BT
R7U8CH		48.00	0.34	0.18	49.00	0.68	0.35	BT
RCKGLG	X	91.45	43.79	23.78	92.90	44.58	23.09	BT
RE89HJ		49.50	1.84	1.00	50.50	2.18	1.13	HH
RERPXL		48.50	0.84	0.45	50.50	2.18	1.13	BT
RFFD3U	X	38.50	-9.16	-4.98	39.00	-9.32	-4.83	HH
RMZJPT		50.00	2.34	1.27	52.00	3.68	1.90	HH



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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample B71-B72			Sample B73-B74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
RUHREP		49.00	1.34	0.73	48.00	-0.32	-0.17	HH
RULGF2		45.30	-2.36	-1.28	47.85	-0.47	-0.25	BT
T3PWV9		47.50	-0.16	-0.09	51.00	2.68	1.39	HH
TGDU6J		48.00	0.34	0.18	47.25	-1.07	-0.56	HH
TMX2JH		48.00	0.34	0.18	49.00	0.68	0.35	BT
TVDTTF		51.00	3.34	1.81	52.50	4.18	2.16	HH
U2PD8C		48.00	0.34	0.18	48.00	-0.32	-0.17	HH
U3BKYP		45.00	-2.66	-1.45	46.00	-2.32	-1.20	BT
UBYKA8		46.55	-1.11	-0.60	46.15	-2.17	-1.13	XX
UHHZJW		48.50	0.84	0.45	51.00	2.68	1.39	HH
VBF3KR		48.35	0.69	0.37	49.15	0.83	0.43	XX
VCTTTB		45.50	-2.16	-1.17	46.50	-1.82	-0.95	BT
VPHKLR		49.00	1.34	0.73	49.50	1.18	0.61	HH
VV3PC8		48.50	0.84	0.45	48.50	0.18	0.09	BT
W4VHX7		45.00	-2.66	-1.45	44.00	-4.32	-2.24	XX
W7Y99R		47.00	-0.66	-0.36	47.00	-1.32	-0.69	BT
WBB2G6		46.00	-1.66	-0.90	47.00	-1.32	-0.69	BT
WBR9MM		47.65	-0.01	-0.01	48.80	0.48	0.25	BT
WCPPFB		49.90	2.24	1.21	49.80	1.48	0.76	XX
WJLKDA		45.50	-2.16	-1.17	48.25	-0.07	-0.04	HH
WLVKHG		48.55	0.89	0.48	50.30	1.98	1.02	BT
WM4KVB		46.35	-1.31	-0.71	47.35	-0.97	-0.50	BT
X7V37N	*	43.00	-4.66	-2.53	46.00	-2.32	-1.20	BT
X9L8YV		50.00	2.34	1.27	50.00	1.68	0.87	XX
XEAR6W		49.25	1.59	0.86	50.65	2.33	1.20	BT
XKU24T	*	43.50	-4.16	-2.26	42.75	-5.57	-2.89	BT
YGVVDT		47.00	-0.66	-0.36	47.00	-1.32	-0.69	BT
YH7X2D		49.00	1.34	0.73	47.00	-1.32	-0.69	HH
YLNVRP		46.50	-1.16	-0.63	48.00	-0.32	-0.17	BT
Z9XKHN		49.00	1.34	0.73	48.50	0.18	0.09	HH
ZFGNPQ		49.00	1.34	0.73	50.00	1.68	0.87	HH
ZGQT3F		48.30	0.64	0.35	50.35	2.03	1.05	BT
ZT3928		48.85	1.19	0.64	48.05	-0.27	-0.14	XX
ZV7ZV7		46.60	-1.06	-0.58	46.25	-2.07	-1.07	BT



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

**Report #192**  
**2nd Qtr 2017**

Grand Means		Summary Statistics	
	47.663 Type A		48.325 Type A
Stnd Dev Btwn Labs			
	1.841 Type A		1.931 Type A
Statistics based on 99 of 109 reporting participants			

Samples B71-B72: Polyisoprene compound, batch #1 & B73-B74: Polyisoprene compound, batch #2

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

- 62UCW4 (X) - Inconsistent in testing between sample groups. Data for sample group B71-B72 are low.
- 7G8ZT6 (X) - Inconsistent in testing between samples.
- D4WZWD (X) - Inconsistent in testing between samples.
- G7UHM4 (X) - Inconsistent in testing between sample groups. Data for sample group B73-B74 are low.
- GYB4U7 (X) - Data for all samples are high. Possible Systematic Error.
- HG7AHQ (X) - Inconsistent in testing between sample groups. Data for sample group B73-B74 are low.
- LMYPEZ (X) - Data for all samples are high. Possible Systematic Error.
- PPVCKZ (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of sample group B73-B74.
- RCKGLG (X) - Extreme Data.
- RFFD3U (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of sample group B73-B74.

**Key to Instrument Codes Reported by Participants**

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

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

Reading Time	Sample B71-B72			Sample B73-B74			Labs Incl / Rpt	
	<i>Polyisoprene compound, batch #1</i>			<i>Polyisoprene compound, batch #2</i>				
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Select from list below	47.45	1.27	-0.21	47.65	2.12	-0.67	2	3
Readings taken within 0 - 5 seconds	48.09	1.43	0.43	48.83	1.61	0.51	65	74
Readings taken at 5 seconds	46.51	1.69	-1.15	46.44	1.86	-1.89	8	10
Readings taken after 5+ seconds	46.73	1.66	-0.93	47.26	1.96	-1.07	8	9
Maximum hardness indicator used	47.42	2.38	-0.24	48.13	2.07	-0.19	12	13

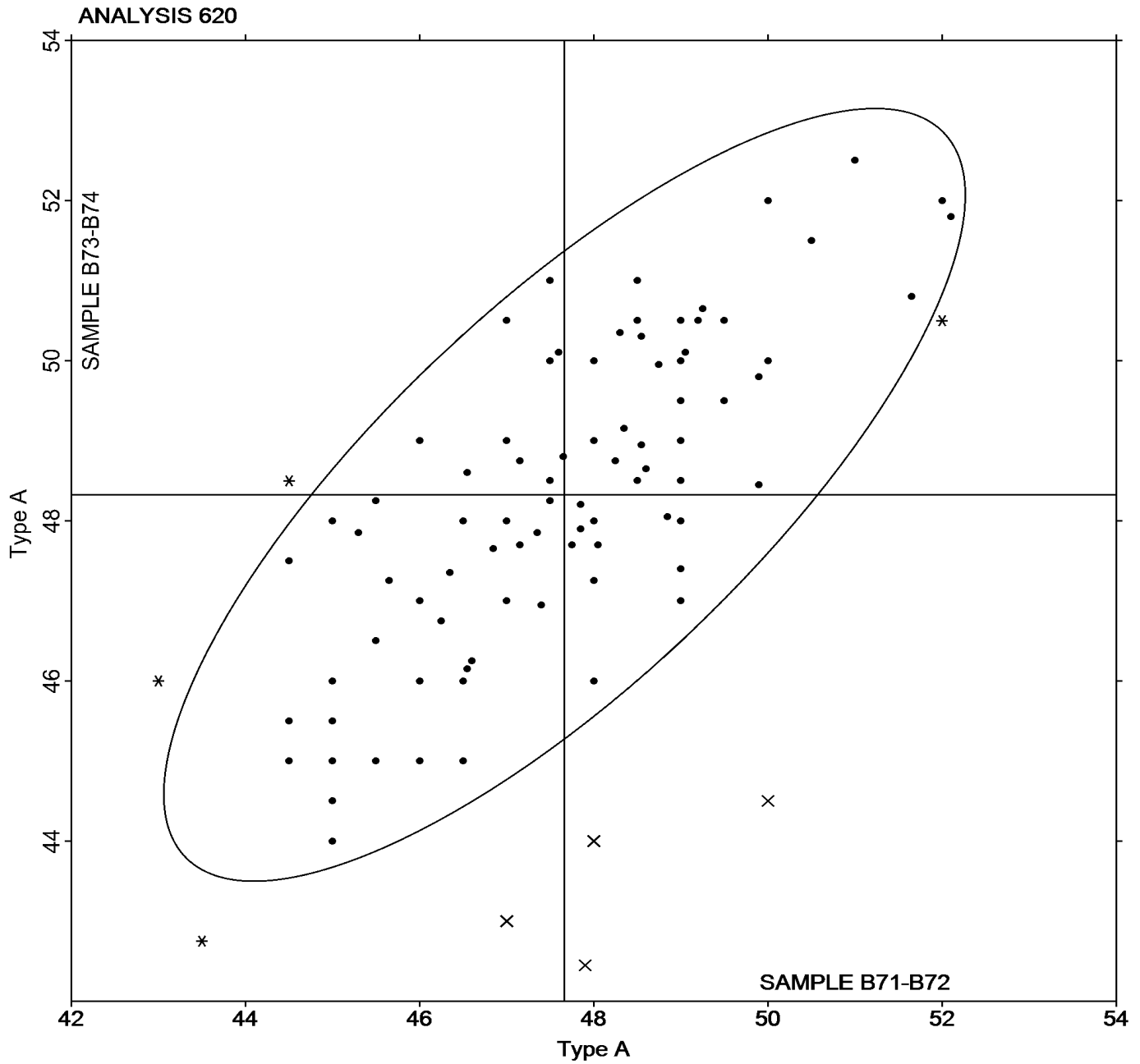


Rubber Interlaboratory Testing Program  
Analysis 620  
Hardness (Shore A/Type A)

Report #192  
2nd Qtr 2017

Grand Mean Sample B71-B72 = 47.663 Type A

Grand Mean Sample B73-B74 = 48.325 Type A





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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample B71-B72			Sample B73-B74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2BXB29		1.136	-0.003	-1.05	1.138	-0.001	-0.61
2LXJ6L		1.135	-0.003	-1.29	1.136	-0.002	-1.09
2X9EXP	*	1.132	-0.007	-2.63	1.133	-0.006	-2.87
3DJE8L		1.137	-0.001	-0.52	1.141	0.002	0.85
3J6A9P		1.141	0.002	0.92	1.143	0.004	1.64
3YW8AK		1.141	0.002	0.90	1.139	0.000	-0.05
4JKTTM		1.140	0.002	0.64	1.142	0.003	1.28
6LP2B7		1.139	0.000	0.11	1.140	0.001	0.49
77JBM4		1.143	0.004	1.71	1.142	0.003	1.42
7AQPDPH		1.142	0.003	1.31	1.141	0.002	0.96
8M9L4E		1.140	0.001	0.52	1.138	-0.001	-0.39
A8PQRF		1.139	0.000	0.13	1.138	-0.001	-0.61
B6ZJ8J		1.139	0.000	-0.07	1.137	-0.002	-0.86
CCEUQX		1.140	0.001	0.54	1.140	0.001	0.47
CDPR7Z		1.137	-0.002	-0.85	1.138	-0.001	-0.39
D4WZWD		1.139	0.000	0.13	1.140	0.001	0.29
DDH7NP		1.141	0.002	0.72	1.138	-0.001	-0.39
DFBVCC		1.139	0.000	-0.07	1.140	0.001	0.29
DK4Z7F		1.141	0.003	1.02	1.141	0.002	1.03
E3G7NQ		1.138	-0.001	-0.46	1.139	0.000	0.06
EBCY6W		1.139	0.000	-0.07	1.139	0.000	-0.16
EEBJNM		1.138	-0.001	-0.32	1.138	-0.001	-0.43
F8NQCM		1.140	0.001	0.35	1.138	-0.001	-0.41
FPDU24		1.136	-0.002	-0.93	1.135	-0.004	-1.60
FPTDK2		1.143	0.004	1.75	1.143	0.004	1.87
G7UHM4		1.139	0.000	-0.07	1.139	0.000	0.06
GYB4U7	X	1.120	-0.019	-7.55	1.127	-0.012	-5.57
H3LUER		1.140	0.001	0.52	1.140	0.001	0.51
HG7AHQ		1.139	0.000	0.07	1.139	0.000	-0.16
JCNAZQ		1.136	-0.002	-0.97	1.136	-0.003	-1.42
JWX7KL		1.141	0.002	0.90	1.140	0.002	0.72
K7YBMM		1.133	-0.005	-2.12	1.134	-0.005	-2.37
KU9D6W	X	1.151	0.013	4.98	1.141	0.002	0.99
KZDE37		1.137	-0.002	-0.64	1.138	-0.001	-0.39
LMYPEZ		1.138	-0.001	-0.34	1.138	-0.001	-0.43
MA998E		1.139	0.000	0.07	1.140	0.001	0.49
NBJDJH		1.138	-0.001	-0.20	1.139	0.000	-0.12
ND82MV		1.137	-0.001	-0.50	1.139	0.000	0.15



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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample B71-B72			Sample B73-B74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
NQEPZY		1.133	-0.005	-2.06	1.134	-0.005	-2.30
NTL3JL		1.140	0.002	0.68	1.141	0.002	0.85
P7JLPB		1.135	-0.004	-1.45	1.135	-0.004	-1.74
PPVCKZ	X	1.109	-0.029	-11.57	1.121	-0.018	-8.03
PRKJ6X		1.139	0.000	0.13	1.139	0.000	0.06
PYLMJV		1.141	0.002	0.78	1.139	0.000	0.06
R7U8CH		1.139	0.000	0.13	1.140	0.001	0.29
RCKGLG	X	1.126	-0.013	-4.99	1.127	-0.012	-5.37
RE89HJ		1.135	-0.004	-1.64	1.137	-0.002	-0.84
RERPXL		1.139	0.000	-0.07	1.140	0.001	0.51
RFFD3U		1.134	-0.005	-1.94	1.137	-0.002	-1.02
RMZJPT	X	1.135	-0.004	-1.60	1.140	0.001	0.36
RUHREP		1.143	0.004	1.51	1.140	0.001	0.51
T3PWV9		1.140	0.001	0.52	1.140	0.001	0.51
U2PD8C		1.138	0.000	-0.11	1.141	0.002	1.01
UBYKA8	X	1.138	-0.001	-0.46	1.132	-0.007	-3.32
UHHZJW	X	1.131	-0.008	-3.18	1.130	-0.008	-3.79
VBF3KR		1.138	-0.001	-0.26	1.140	0.001	0.29
VCTTTB	X	1.150	0.011	4.46	1.146	0.007	2.99
VPKLR		1.141	0.002	0.96	1.141	0.002	0.81
VV3PC8		1.138	0.000	-0.09	1.138	-0.001	-0.30
W4VHX7		1.139	0.000	0.13	1.141	0.002	0.74
WBB2G6		1.135	-0.004	-1.45	1.137	-0.002	-0.84
WCPPFB		1.139	0.001	0.23	1.140	0.001	0.33
WLVKHG		1.138	-0.001	-0.46	1.140	0.001	0.29
X7V37N		1.139	0.000	0.13	1.140	0.001	0.51
XEAR6W		1.140	0.002	0.66	1.138	-0.001	-0.39
XKU24T	X	1.125	-0.014	-5.58	1.137	-0.002	-0.72
YGVVDT	*	1.144	0.005	2.10	1.145	0.006	2.54
ZFGNPQ		1.140	0.001	0.52	1.138	-0.001	-0.39
ZGQT3F		1.140	0.001	0.41	1.140	0.001	0.49
ZT3928		1.144	0.005	2.06	1.141	0.002	1.12
ZV7ZV7		1.137	-0.002	-0.64	1.137	-0.002	-1.00



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

**Report #192**  
**2nd Qtr 2017**

		Summary Statistics	
Grand Means	1.1387 g/cm <sup>3</sup> (Mg/m <sup>3</sup> )	1.1389 g/cm <sup>3</sup> (Mg/m <sup>3</sup> )	
Stnd Dev Btwn Labs	0.0025 g/cm <sup>3</sup> (Mg/m <sup>3</sup> )	0.0022 g/cm <sup>3</sup> (Mg/m <sup>3</sup> )	
Statistics based on 62 of 71 reporting participants			

Samples B71-B72: Polyisoprene compound, batch #1 & B73-B74: Polyisoprene compound, batch #2

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

- GYB4U7 (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of sample group B71-B72.
- KU9D6W (X) - Inconsistent in testing between sample groups. Data for sample group B71-B72 are high.
- PPVCKZ (X) - Data for all Samples are high. Inconsistent in testing between sample groups B71-B72.
- RCKGLG (X) - Data for all samples are low. Possible Systematic Error.
- RMZJPT (X) - Inconsistent in testing between samples.
- UBYKA8 (X) - Inconsistent in testing between sample groups. Data for sample group B73-B74 are low.
- UHHZJW (X) - Data for all samples are low. Possible Systematic Error.
- VCTTTB (X) - Data for all samples are high. Possible Systematic Error. Inconsistent within the determinations of sample group B71-B72.
- XKU24T (X) - Inconsistent in testing between sample groups. Data for Sample B72 are low..



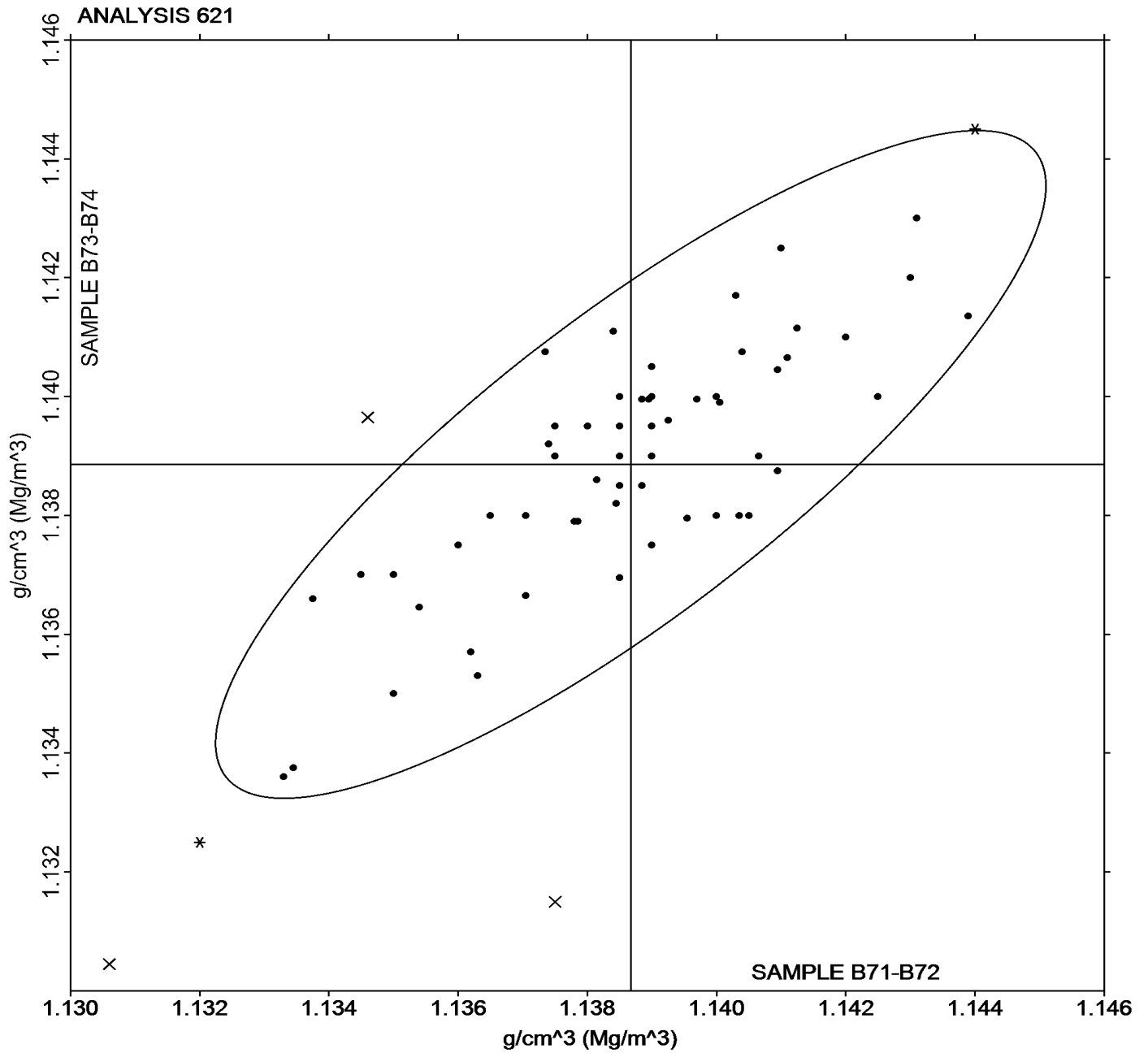


Rubber Interlaboratory Testing Program  
Analysis 621  
Density

Report #192  
2nd Qtr 2017

Grand Mean Sample **B71-B72** = 1.1387 g/cm<sup>3</sup>  
(Mg/m<sup>3</sup>)

Grand Mean Sample **B73-B74** = 1.1389 g/cm<sup>3</sup>  
(Mg/m<sup>3</sup>)





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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample HB71-HB72			Sample HB73-HB74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3C9FDC		84.50	-0.04	-0.02	74.00	-1.13	-0.42	HH
9Q96UK		84.10	-0.44	-0.20	73.60	-1.53	-0.56	BT
BATPJZ		83.20	-1.34	-0.60	74.40	-0.73	-0.27	BT
C2YZJB		85.00	0.46	0.21	75.00	-0.13	-0.05	XX
E28UCF		88.50	3.96	1.79	80.50	5.37	1.98	HH
GFD2YM		82.90	-1.64	-0.74	73.35	-1.78	-0.66	BT
KLRY7		85.25	0.71	0.32	73.00	-2.13	-0.79	BT
KYV8XN		85.00	0.46	0.21	75.00	-0.13	-0.05	XX
LL9FUY		79.50	-5.04	-2.27	70.50	-4.63	-1.71	BT
TD7P3V		85.50	0.96	0.43	77.75	2.62	0.96	HH
TLKHJK		87.00	2.46	1.11	78.50	3.37	1.24	HH
UJBUHL		84.00	-0.54	-0.24	76.00	0.87	0.32	BT

Summary Statistics	
Grand Means	84.538 Type D      75.133 Type D
Std Dev Btwn Labs	2.215 Type D      2.716 Type D
Statistics based on 12 of 12 reporting participants	

Samples HB71-HB72: Hardness Disc, batch #1 & HB73-HB74: Hardness Disc, batch #2

**Key to Instrument Codes Reported by Participants**

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

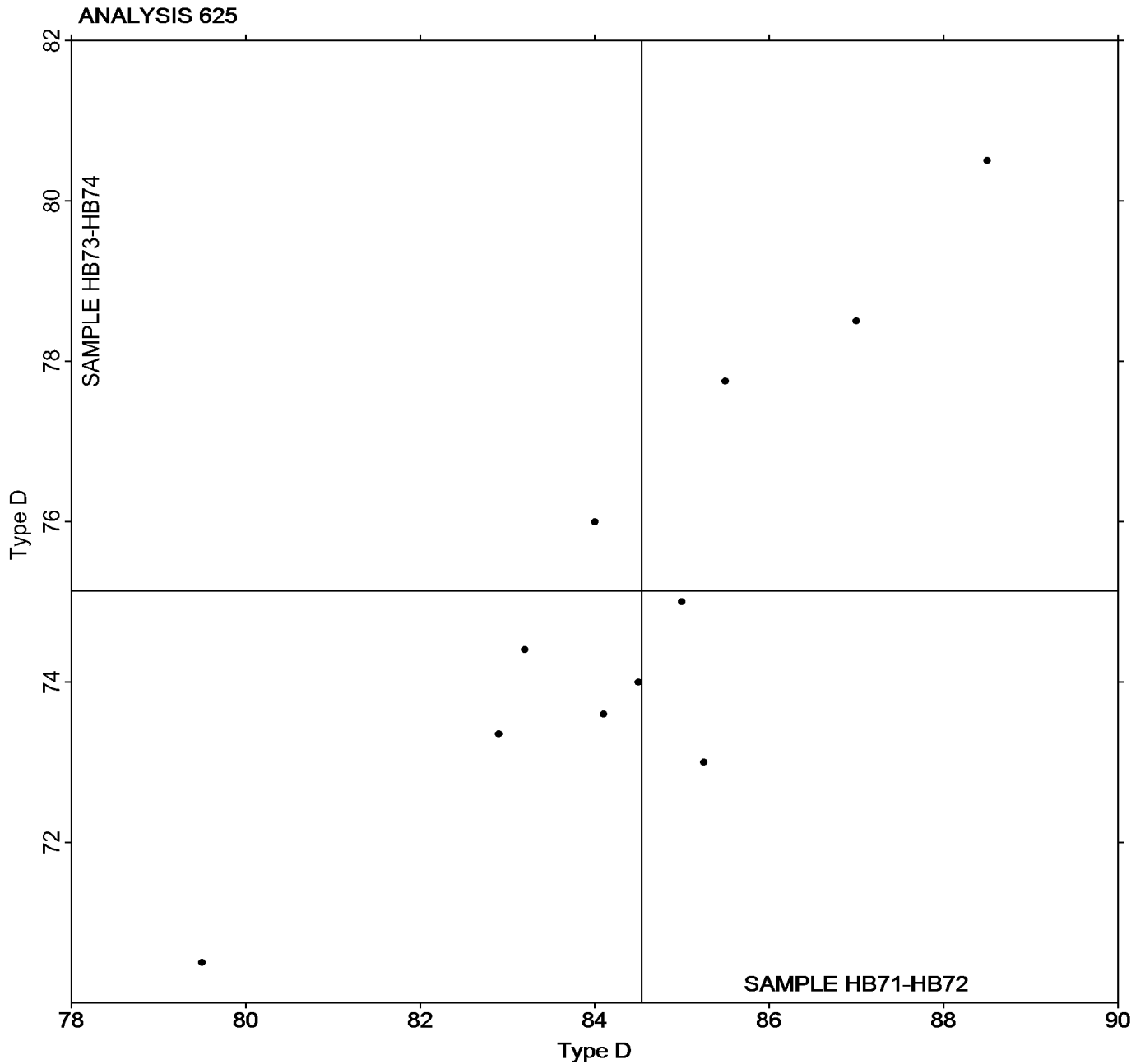


Rubber Interlaboratory Testing Program  
Analysis 625  
Hardness (Shore D/Type D)

Report #192  
2nd Qtr 2017

Grand Mean Sample **HB71-HB72** = 84.538 Type D

Grand Mean Sample **HB73-HB74** = 75.133 Type D



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 #192

## Analysis 630

2nd Qtr 2017

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

WebCode	Data Flag	Sample B71-B72			Sample K71-K72		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2BXB29		2,888.5	-93.1	-0.56	3,026.5	-94.2	-0.43
2LXJ6L		3,008.5	26.9	0.16	2,972.5	-148.2	-0.68
3DJE8L		2,986.6	5.0	0.03	3,170.9	50.2	0.23
4AE987		2,806.5	-175.1	-1.06	3,203.2	82.5	0.38
62UCW4		2,957.5	-24.1	-0.15	3,180.0	59.3	0.27
6P8ZQL		2,942.0	-39.6	-0.24	2,922.5	-198.2	-0.92
7AQPDP		2,923.0	-58.6	-0.35	2,709.5	-411.2	-1.90
898ZRG		2,897.5	-84.1	-0.51	3,204.5	83.8	0.39
8M9L4E		2,681.8	-299.8	-1.81	2,769.5	-351.2	-1.62
9Q96UK		2,821.0	-160.6	-0.97	3,089.3	-31.4	-0.14
A8PQRF		2,849.0	-132.6	-0.80	2,981.0	-139.7	-0.65
DDH7NP		3,075.7	94.2	0.57	3,356.7	236.0	1.09
EKTUTB		2,815.9	-165.6	-1.00	2,747.0	-373.7	-1.73
FPTDK2		2,982.8	1.2	0.01	3,427.9	307.2	1.42
G7UHM4		3,041.0	59.4	0.36	3,246.5	125.8	0.58
GYB4U7		3,059.3	77.7	0.47	3,243.7	123.0	0.57
HG7AHQ		3,106.5	124.9	0.75	3,231.0	110.3	0.51
K7YBMM		2,919.4	-62.2	-0.38	2,658.6	-462.1	-2.13
KU9D6W		3,176.5	194.9	1.18	3,525.3	404.6	1.87
LMYPEZ		3,253.5	271.9	1.64	3,237.5	116.8	0.54
ND82MV		3,066.3	84.8	0.51	3,336.8	216.1	1.00
PPVCKZ	M	No data reported for this sample			3,184.3	63.6	0.29
PRKJ6X		3,375.8	394.2	2.38	3,471.0	350.3	1.62
RE89HJ		3,221.3	239.7	1.45	3,065.4	-55.3	-0.26
RMZJPT		2,905.2	-76.4	-0.46	3,402.9	282.2	1.30
RUHREP		2,991.5	9.9	0.06	3,199.5	78.8	0.36
RULGF2		3,023.0	41.4	0.25	3,266.5	145.8	0.67
TMX2JH		2,995.5	13.9	0.08	3,136.0	15.3	0.07
TVDTTF		3,208.2	226.6	1.37	3,191.4	70.7	0.33
VBF3KR		2,982.5	0.9	0.01	2,994.0	-126.7	-0.59
VPHKLR		3,003.5	21.9	0.13	2,824.5	-296.2	-1.37
W4VHX7	*	2,513.5	-468.1	-2.83	2,887.5	-233.2	-1.08
WBB2G6		2,950.5	-31.1	-0.19	3,050.0	-70.7	-0.33
WLVKHG		3,043.6	62.1	0.37	3,179.3	58.6	0.27
X7V37N		2,897.9	-83.7	-0.51	3,192.5	71.8	0.33
X9L8YV		3,190.9	209.3	1.26	3,292.4	171.7	0.79
XKU24T		2,775.3	-206.3	-1.25	2,951.7	-169.0	-0.78



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

**Report #192**  
**2nd Qtr 2017**

		Summary Statistics	
Grand Means			
	2,981.58 psi		3,120.69 psi
Stnd Dev Btwn Labs			
	165.63 psi		216.54 psi
Statistics based on 36 of 37 reporting participants			

		Summary Statistics in SI Units	
Grand Means			
	20.557 MPa		21.52 MPa
Stnd Dev Btwn Labs			
	1.142 MPa		1.49 MPa
Statistics based on 36 of 37 reporting participants			

Samples B71-B72: Polyisoprene compound, batch #1 & K71-K72: Polyisoprene compound, batch #1

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

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

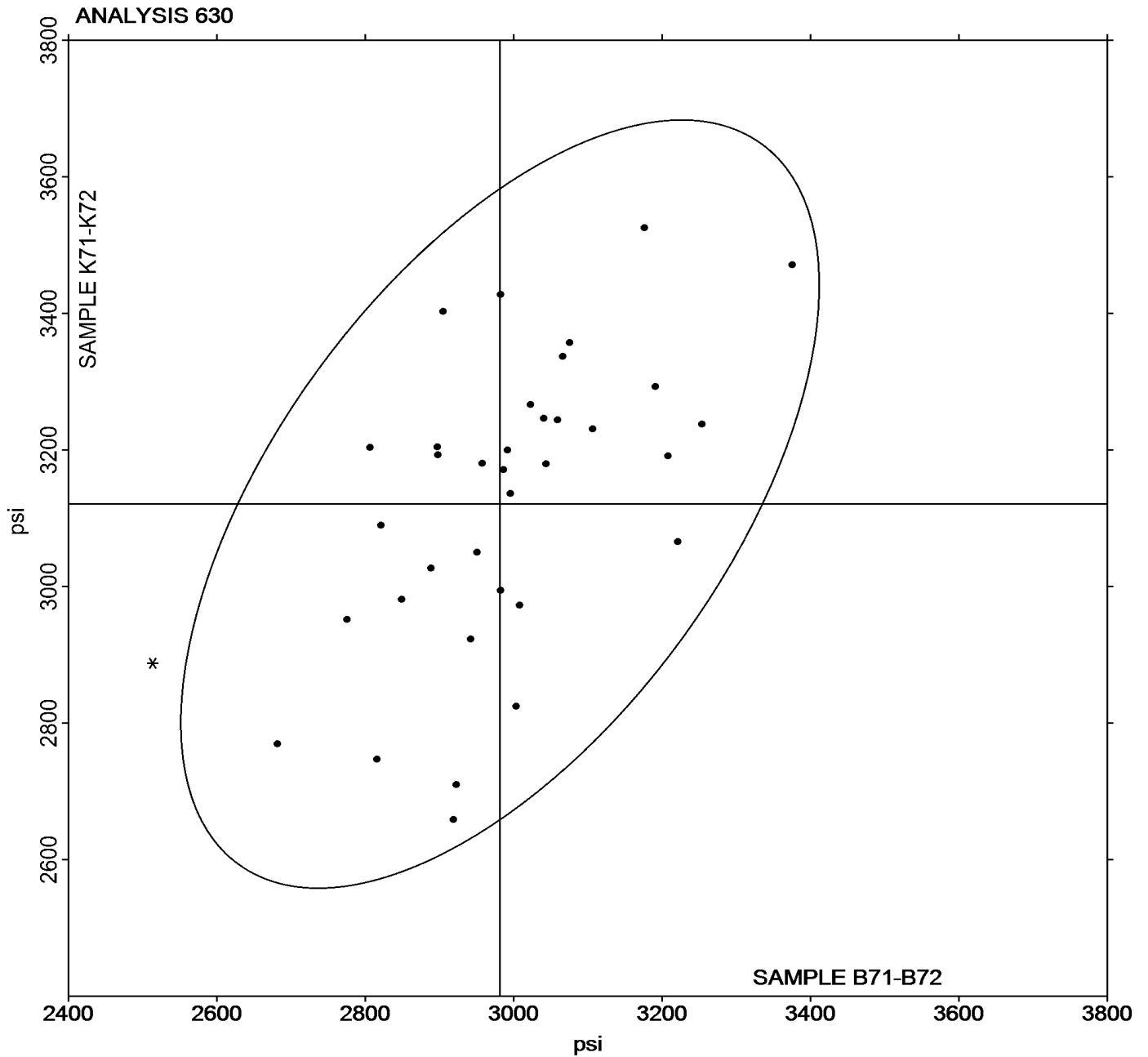


**Rubber Interlaboratory Testing Program**  
**Analysis 630**  
**Tensile Strength: Precured vs. Lab-Cured Samples (psi)**

**Report #192**  
**2nd Qtr 2017**

Grand Mean Sample **B71-B72** = 2,981.58 psi

Grand Mean Sample **K71-K72** = 3,120.69 psi





# Rubber Interlaboratory Testing Program

Report #192

## Analysis 631

2nd Qtr 2017

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

WebCode	Data Flag	Sample B71-B72			Sample K71-K72		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2BXB29		576.0	-15.7	-0.92	573.5	-10.8	-0.45
2LXJ6L		605.0	13.3	0.78	616.5	32.2	1.36
3DJE8L		606.0	14.3	0.84	574.0	-10.3	-0.43
4AE987		571.5	-20.2	-1.18	563.5	-20.8	-0.87
62UCW4		577.0	-14.7	-0.86	581.0	-3.3	-0.14
6P8ZQL	*	615.5	23.8	1.40	657.0	72.7	3.06
7AQP DH		595.5	3.8	0.22	592.0	7.7	0.33
898ZRG		566.0	-25.7	-1.51	560.0	-24.3	-1.02
8M9L4E		562.3	-29.4	-1.72	541.6	-42.6	-1.79
9Q96UK		597.0	5.3	0.31	572.5	-11.8	-0.50
A8PQRF		598.0	6.3	0.37	577.0	-7.3	-0.30
DDH7NP	X	1,803.4	1,211.7	71.00	1,863.6	1,279.3	53.77
EKTUTB		603.0	11.3	0.66	582.5	-1.8	-0.07
FPTDK2		600.2	8.5	0.50	591.8	7.5	0.32
G7UHM4		567.0	-24.7	-1.45	576.5	-7.8	-0.33
GYB4U7		594.7	3.0	0.18	597.9	13.6	0.57
HG7AHQ		581.0	-10.7	-0.63	563.5	-20.8	-0.87
K7YBMM		614.0	22.3	1.31	600.7	16.4	0.69
KU9D6W		621.5	29.8	1.75	614.3	30.0	1.26
LMYPEZ		594.5	2.8	0.16	559.0	-25.3	-1.06
ND82MV		584.8	-6.8	-0.40	583.6	-0.7	-0.03
PPVCKZ	M	No data reported for this sample			616.8	32.5	1.37
PRKJ6X		616.5	24.8	1.45	603.0	18.7	0.79
RE89HJ		602.5	10.8	0.63	623.0	38.7	1.63
RMZJPT		607.2	15.5	0.91	583.5	-0.8	-0.03
RUHREP		584.0	-7.7	-0.45	566.0	-18.3	-0.77
RULGF2		595.5	3.8	0.22	571.5	-12.8	-0.54
TMX2JH		584.0	-7.7	-0.45	584.5	0.2	0.01
TVDTTF		618.6	26.9	1.58	600.7	16.5	0.69
VBF3KR		602.5	10.8	0.63	610.0	25.7	1.08
VPHKLR		603.0	11.3	0.66	601.5	17.2	0.72
W4VHX7		575.0	-16.7	-0.98	599.5	15.2	0.64
WBB2G6		571.0	-20.7	-1.21	557.0	-27.3	-1.15
WLVKHG		566.0	-25.7	-1.51	567.5	-16.8	-0.70
X7V37N		572.6	-19.1	-1.12	545.1	-39.2	-1.65
X9L8YV	X	678.0	86.3	5.06	675.5	91.2	3.83
XKU24T		588.5	-3.2	-0.19	573.5	-10.8	-0.45



# Rubber Interlaboratory Testing Program

Report #192

## Analysis 631

2nd Qtr 2017

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

		Summary Statistics	
Grand Means	591.69 percent		584.25 percent
Stnd Dev Btwn Labs	17.07 percent		23.79 percent
Statistics based on 34 of 37 reporting participants			

Samples B71-B72: Polyisoprene compound, batch #1 & K71-K72: Polyisoprene compound, batch #1

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

DDH7NP (X) - Extreme Data.

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

X9L8YV (X) - Data for all samples are high.





# Rubber Interlaboratory Testing Program

## Analysis 631

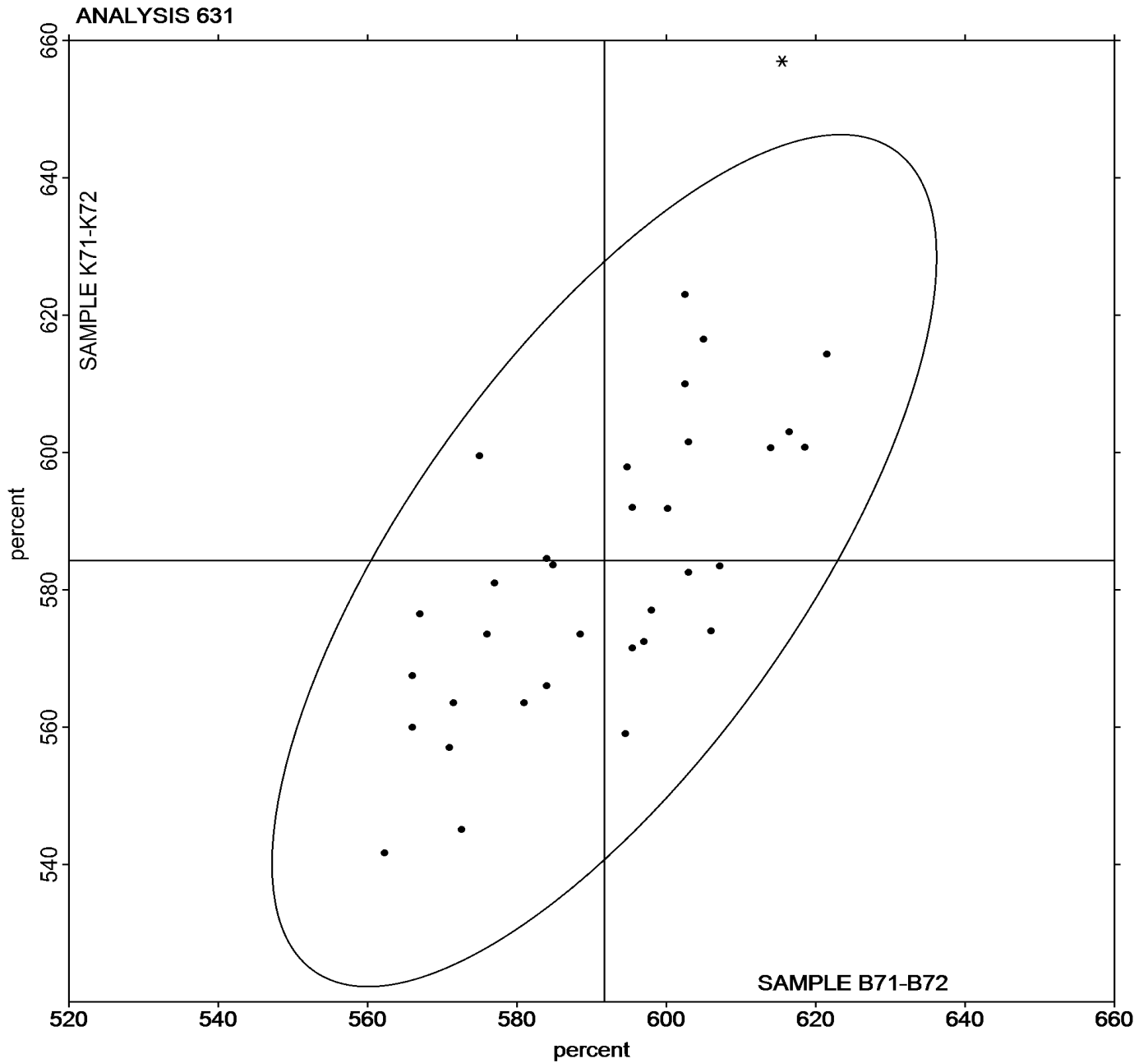
Report #192

2nd Qtr 2017

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

Grand Mean Sample **B71-B72** = 591.69 percent

Grand Mean Sample **K71-K72** = 584.25 percent





# Rubber Interlaboratory Testing Program

Report #192

## Analysis 632

2nd Qtr 2017

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

WebCode	Data Flag	Sample B71-B72			Sample K71-K72		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2BXB29		995.0	60.3	0.88	1,037.5	5.8	0.05
2LXJ6L		924.5	-10.2	-0.15	940.5	-91.2	-0.79
3DJE8L		916.5	-18.2	-0.27	1,114.0	82.3	0.72
4AE987		895.6	-39.1	-0.57	1,090.0	58.2	0.51
62UCW4		1,017.0	82.3	1.20	1,110.0	78.3	0.68
6P8ZQL		829.5	-105.2	-1.54	763.0	-268.7	-2.34
7AQPDP		941.0	6.3	0.09	902.0	-129.7	-1.13
898ZRG		995.0	60.3	0.88	1,145.5	113.8	0.99
8M9L4E		879.0	-55.7	-0.81	1,004.0	-27.7	-0.24
9Q96UK		864.4	-70.3	-1.03	1,124.1	92.3	0.80
A8PQRF		884.0	-50.7	-0.74	1,054.0	22.3	0.19
DDH7NP	X	254.1	-680.6	-9.94	306.0	-725.7	-6.31
EKTUTB		824.5	-110.2	-1.61	852.1	-179.6	-1.56
FPTDK2		964.3	29.5	0.43	1,230.6	198.9	1.73
G7UHM4		1,008.5	73.8	1.08	1,079.0	47.3	0.41
GYB4U7		871.8	-62.9	-0.92	1,063.4	31.6	0.28
HG7AHQ		1,050.5	115.8	1.69	1,144.0	112.3	0.98
K7YBMM		875.3	-59.4	-0.87	846.0	-185.7	-1.62
KU9D6W		914.9	-19.9	-0.29	1,085.6	53.9	0.47
LMYPEZ		1,017.0	82.3	1.20	1,105.0	73.3	0.64
ND82MV		976.6	41.8	0.61	1,146.7	114.9	1.00
PPVCKZ	M	No data reported for this sample			947.1	-84.6	-0.74
PRKJ6X		972.3	37.5	0.55	1,091.5	59.8	0.52
RE89HJ		923.9	-10.8	-0.16	877.5	-154.2	-1.34
RMZJPT		912.4	-22.3	-0.33	1,086.9	55.2	0.48
RUHREP		970.0	35.3	0.52	1,145.5	113.8	0.99
RULGF2		907.0	-27.7	-0.40	1,121.0	89.3	0.78
TMX2JH		1,011.5	76.8	1.12	1,049.5	17.8	0.15
TVDTTF		1,015.6	80.9	1.18	999.8	-31.9	-0.28
VBF3KR		944.0	9.3	0.14	929.5	-102.2	-0.89
VPHKLR		927.0	-7.7	-0.11	926.5	-105.2	-0.92
W4VHX7		860.5	-74.2	-1.08	903.0	-128.7	-1.12
WBB2G6		996.8	62.0	0.91	1,048.5	16.8	0.15
WLVKHG		1,062.4	127.7	1.86	1,102.3	70.6	0.61
X7V37N		922.8	-11.9	-0.17	1,185.9	154.2	1.34
X9L8YV		768.7	-166.0	-2.42	812.2	-219.5	-1.91
XKU24T		875.3	-59.4	-0.87	993.6	-38.1	-0.33



# Rubber Interlaboratory Testing Program

Report #192

## Analysis 632

2nd Qtr 2017

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

		Summary Statistics	
Grand Means	934.71 psi	1,031.72 psi	
Std Dev Btwn Labs	68.50 psi	114.97 psi	
Statistics based on 35 of 37 reporting participants			

		Summary Statistics in SI Units	
Grand Means	6.4446 MPa	7.11 MPa	
Std Dev Btwn Labs	0.4723 MPa	0.79 MPa	
Statistics based on 35 of 37 reporting participants			

Samples B71-B72: Polyisoprene compound, batch #1 & K71-K72: Polyisoprene compound, batch #1

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

DDH7NP (X) - Extreme Data.

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



# Rubber Interlaboratory Testing Program

Report #192

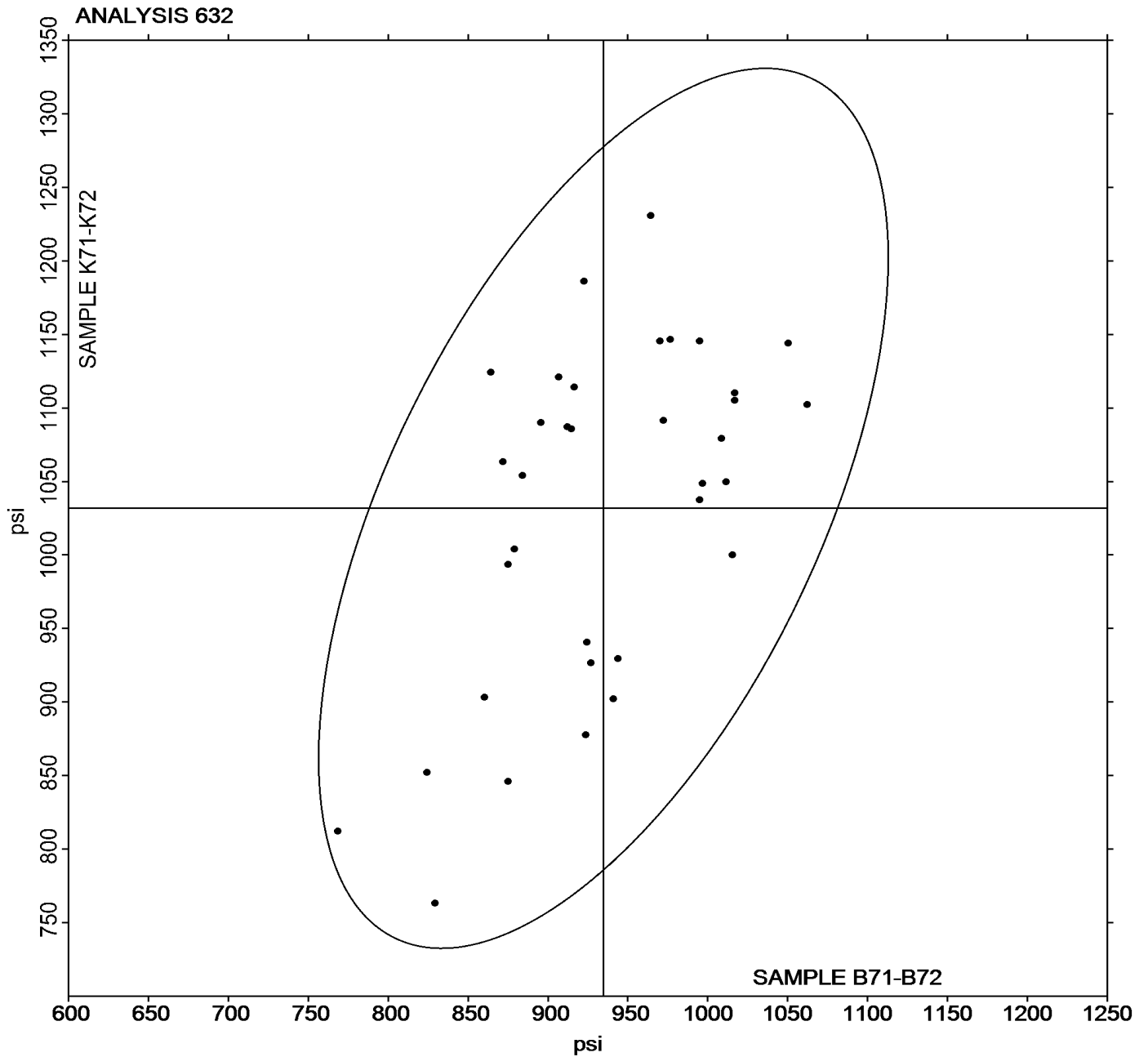
## Analysis 632

2nd Qtr 2017

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

Grand Mean Sample **B71-B72** = 934.71 psi

Grand Mean Sample **K71-K72** = 1,031.72 psi





# Rubber Interlaboratory Testing Program

Report #192

## Analysis 633

2nd Qtr 2017

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

WebCode	Data Flag	Sample B71-B72			Sample K71-K72		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2BXB29		202.5	8.9	0.64	216.0	-15.3	-0.66
2LXJ6L		192.5	-1.1	-0.08	213.0	-18.3	-0.79
3DJE8L		194.0	0.4	0.03	249.5	18.2	0.79
4AE987		184.9	-8.6	-0.61	235.7	4.4	0.19
62UCW4		228.0	34.4	2.45	273.5	42.2	1.83
6P8ZQL		169.5	-24.1	-1.71	178.5	-52.8	-2.29
7AQP DH		192.5	-1.1	-0.08	204.5	-26.8	-1.16
898ZRG	X	471.5	277.9	19.76	583.0	351.7	15.27
8M9L4E		181.0	-12.5	-0.89	227.4	-3.9	-0.17
9Q96UK		166.8	-26.8	-1.90	240.8	9.5	0.41
A8PQRF		190.5	-3.1	-0.22	245.0	13.7	0.60
DDH7NP	X	109.1	-84.4	-6.00	129.9	-101.4	-4.40
EKTUTB		180.6	-13.0	-0.92	203.1	-28.2	-1.23
FPTDK2		196.5	2.9	0.21	252.3	21.0	0.91
G7UHM4		199.5	5.9	0.42	236.0	4.7	0.20
GYB4U7		187.0	-6.6	-0.47	245.0	13.7	0.60
HG7AHQ		214.5	20.9	1.49	255.7	24.4	1.06
K7YBMM		178.7	-14.8	-1.06	187.8	-43.5	-1.89
KU9D6W		182.7	-10.8	-0.77	236.0	4.7	0.20
LMYPEZ		224.0	30.4	2.16	254.5	23.2	1.01
ND82MV		205.1	11.5	0.82	263.9	32.6	1.42
PPVCKZ	M	No data reported for this sample			209.9	-21.3	-0.93
PRKJ6X		192.8	-0.8	-0.06	243.5	12.2	0.53
RE89HJ		184.2	-9.4	-0.67	199.4	-31.9	-1.38
RMZJPT		195.0	1.4	0.10	254.6	23.3	1.01
RUHREP		193.5	-0.1	0.00	252.5	21.2	0.92
RULGF2		178.0	-15.6	-1.11	237.0	5.7	0.25
TMX2JH		207.5	13.9	0.99	233.5	2.2	0.10
TVDTTF		209.2	15.6	1.11	224.1	-7.2	-0.31
VBF3KR		196.5	2.9	0.21	224.0	-7.3	-0.32
VPHKLR		211.0	17.4	1.24	222.0	-9.3	-0.40
W4VHX7		191.5	-2.1	-0.15	209.0	-22.3	-0.97
WBB2G6		197.3	3.7	0.26	225.5	-5.8	-0.25
WLVKHG		195.8	2.2	0.16	234.2	2.9	0.13
X7V37N		183.6	-10.0	-0.71	254.9	23.6	1.02
X9L8YV		174.0	-19.5	-1.39	188.6	-42.7	-1.86
XKU24T		200.3	6.8	0.48	243.1	11.9	0.51



# Rubber Interlaboratory Testing Program

Report #192

## Analysis 633

2nd Qtr 2017

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

		Summary Statistics	
Grand Means	193.56 psi	231.29 psi	
Stnd Dev Btwn Labs	14.06 psi	23.03 psi	
Statistics based on 34 of 37 reporting participants			

		Summary Statistics in SI Units	
Grand Means	1.3345 MPa	1.59 MPa	
Stnd Dev Btwn Labs	0.0970 MPa	0.16 MPa	
Statistics based on 34 of 37 reporting participants			

Samples B71-B72: Polyisoprene compound, batch #1 & K71-K72: Polyisoprene compound, batch #1

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

898ZRG (X) - Extreme Data.

DDH7NP (X) - Data for all samples are low.

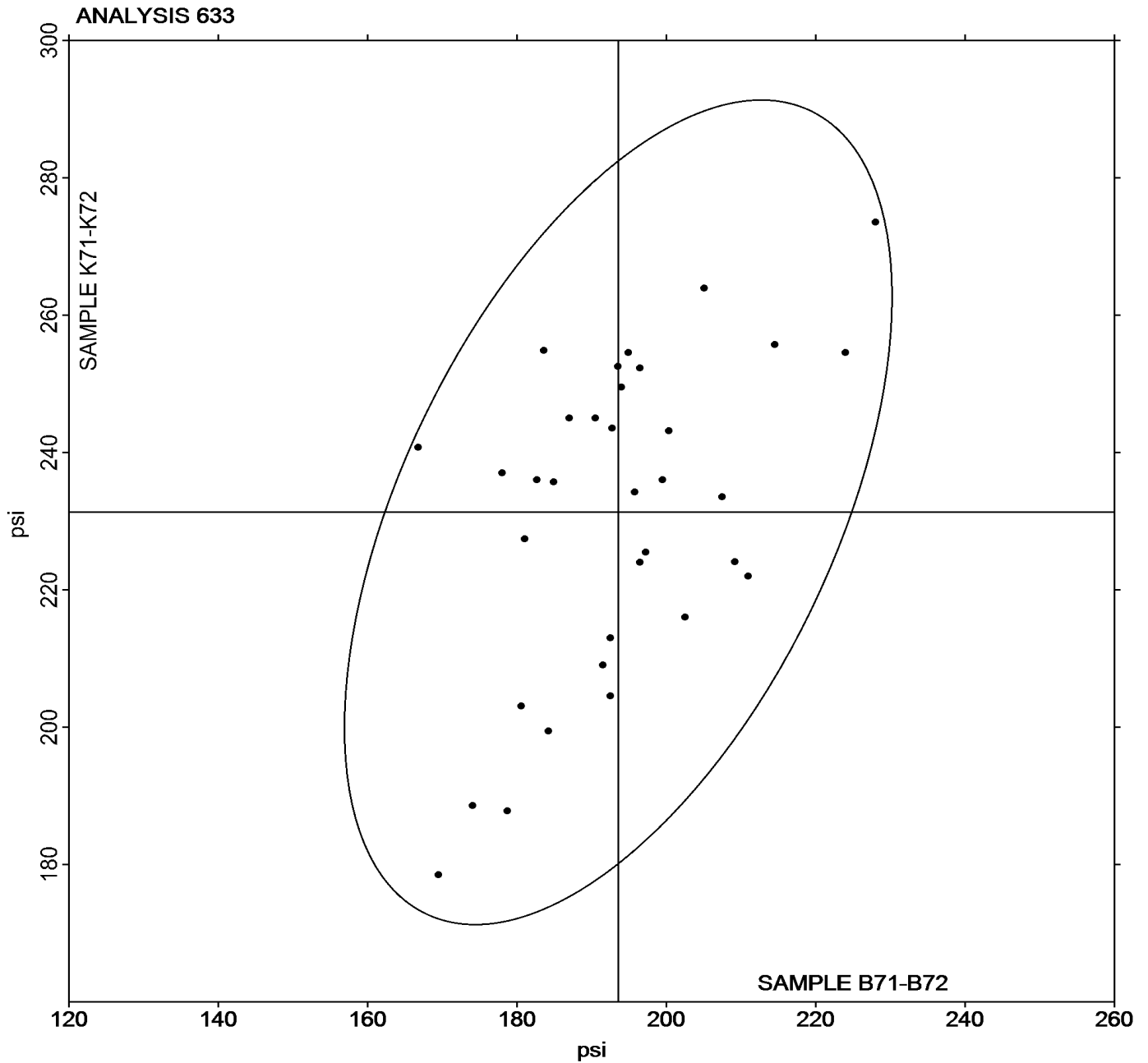
PPVCKZ (M) - Participant did not submit data for sample group .



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

Grand Mean Sample B71-B72 = 193.56 psi

Grand Mean Sample K71-K72 = 231.29 psi





# Rubber Interlaboratory Testing Program

Report #192

## Analysis 660

2nd Qtr 2017

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

WebCode	Data Flag	Sample T71-T72			Sample T73-T74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2BXB29		46.46	0.45	0.43	56.57	1.02	0.90	MR
2N8UXH		46.55	0.53	0.51	55.93	0.38	0.34	MR
3DJE8L	*	48.12	2.10	2.03	56.20	0.65	0.57	MR
4AE987		45.65	-0.37	-0.36	55.37	-0.18	-0.16	MV
4JKTTM		44.62	-1.40	-1.35	54.98	-0.57	-0.50	MR
4QGTY3		46.75	0.73	0.71	57.63	2.08	1.84	MR
6QX2UN		46.63	0.62	0.59	57.00	1.45	1.28	MR
8M9L4E		46.17	0.15	0.14	55.67	0.12	0.10	MV
9KKHYE		47.75	1.73	1.67	56.62	1.07	0.94	MR
9Q96UK		44.73	-1.28	-1.24	54.15	-1.40	-1.24	MR
A8PQRF		44.83	-1.18	-1.14	54.07	-1.48	-1.31	MR
BKTEJA		45.33	-0.68	-0.66	54.43	-1.12	-0.99	MR
BXDXVQ		45.45	-0.57	-0.55	55.12	-0.43	-0.38	MR
CDPR7Z		47.06	1.04	1.01	56.40	0.85	0.75	MR
DDH7NP		45.52	-0.50	-0.48	54.87	-0.68	-0.60	XX
EKTUTB	X	53.32	7.30	7.05	62.85	7.30	6.45	MV
FYCMAV		45.00	-1.02	-0.98	54.60	-0.95	-0.84	MP
GYB4U7		45.21	-0.81	-0.79	55.30	-0.25	-0.22	XX
HG7AHQ		44.47	-1.55	-1.50	54.17	-1.38	-1.22	MR
K7YBMM		46.68	0.67	0.64	56.53	0.98	0.87	TV
KU9D6W		44.35	-1.67	-1.61	53.63	-1.92	-1.69	MR
LMYPEZ		48.02	2.00	1.93	58.35	2.80	2.47	MR
MHQFCY		45.22	-0.80	-0.77	54.34	-1.21	-1.07	MR
ND82MV		45.50	-0.52	-0.50	55.30	-0.25	-0.22	MR
NQEPZY		45.60	-0.41	-0.40	55.52	-0.03	-0.03	MR
P7JLPB		45.92	-0.09	-0.09	56.01	0.46	0.40	MR
PRKJ6X		45.42	-0.60	-0.58	55.74	0.19	0.16	MV
RE89HJ		46.37	0.35	0.34	55.98	0.43	0.38	MR
RFFD3U		46.05	0.03	0.03	55.02	-0.53	-0.47	MR
RMZJPT	*	45.12	-0.90	-0.87	56.40	0.85	0.75	TA
RUHREP		46.72	0.70	0.68	55.18	-0.37	-0.32	MR
T7TKGP		45.45	-0.57	-0.55	54.68	-0.87	-0.77	MR
TGDU6J		47.52	1.50	1.45	56.67	1.12	0.99	MR
TMX2JH		47.08	1.07	1.03	55.38	-0.17	-0.15	MR
U7AXKT		47.17	1.15	1.11	56.13	0.58	0.52	MR
UHHZJW		44.63	-1.39	-1.34	53.39	-2.16	-1.91	XX
VBF3KR		45.55	-0.47	-0.45	54.45	-1.10	-0.97	XX





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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample T71-T72			Sample T73-T74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
W4VHX7		44.60	-1.41	-1.37	53.96	-1.59	-1.40	XX
WBR9MM		45.18	-0.84	-0.81	54.19	-1.36	-1.20	MR
WLVKHG		47.28	1.27	1.22	56.92	1.37	1.21	MR
X9L8YV		46.55	0.53	0.51	55.78	0.23	0.21	MR
XKU24T		46.84	0.82	0.79	56.28	0.73	0.64	MV
YGVVDT		46.12	0.10	0.10	56.36	0.81	0.72	MR
ZV7ZV7		47.53	1.52	1.46	57.38	1.83	1.62	TA

Grand Means		Summary Statistics	
	46.018 ML 1 + 4		55.550 ML 1 + 4
Std Dev Btwn Labs	1.035 ML 1 + 4		1.133 ML 1 + 4
Statistics based on 43 of 44 reporting participants			

Samples T71-T72: SBR & T73-T74: Butyl

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

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

**Key to Instrument Codes Reported by Participants**

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

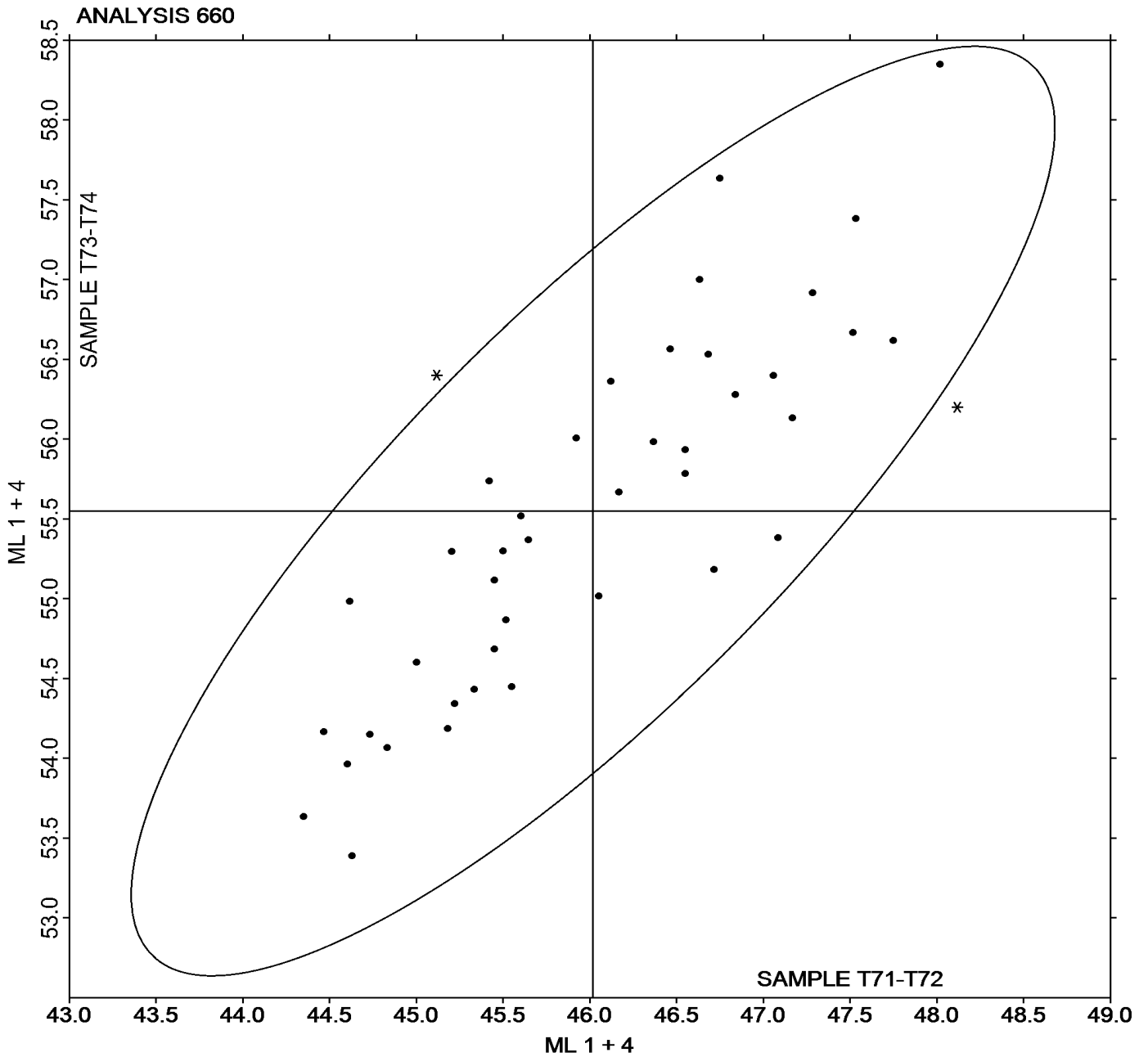


**Rubber Interlaboratory Testing Program**  
**Analysis 660**  
**Mooney Viscosity: 4-minute readings (ML 1 + 4)**

**Report #192**  
**2nd Qtr 2017**

Grand Mean Sample **T71-T72** = 46.018 ML 1 + 4

Grand Mean Sample **T73-T74** = 55.550 ML 1 + 4





# Rubber Interlaboratory Testing Program

Report #192

## Analysis 661

2nd Qtr 2017

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

WebCode	Data Flag	Sample T71-T72			Sample T73-T74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2BXB29		46.46	0.50	0.49	54.03	1.11	1.08	MR
2N8UXH		46.55	0.58	0.58	53.30	0.37	0.37	MR
3DJE8L	*	48.12	2.15	2.13	53.45	0.52	0.51	MR
4AE987		45.65	-0.32	-0.32	52.64	-0.28	-0.28	MV
4JKTTM		44.62	-1.35	-1.33	52.45	-0.48	-0.47	MR
6QX2UN		46.63	0.67	0.66	54.48	1.56	1.52	MR
8M9L4E		46.17	0.20	0.20	52.89	-0.04	-0.04	MV
9KKHYE		47.75	1.78	1.76	53.28	0.36	0.35	MR
9Q96UK		44.73	-1.23	-1.22	51.65	-1.28	-1.25	MR
A8PQRF		44.83	-1.13	-1.12	52.17	-0.76	-0.74	MR
BKTEJA		45.33	-0.63	-0.63	52.47	-0.46	-0.45	MR
BXDXVQ		45.45	-0.52	-0.51	52.63	-0.29	-0.29	MR
CDPR7Z		47.06	1.09	1.08	53.86	0.94	0.92	MR
DDH7NP		45.52	-0.45	-0.44	53.30	0.37	0.37	XX
EKTUTB	X	53.32	7.35	7.27	60.88	7.96	7.78	MV
FYCMAV		45.00	-0.97	-0.96	51.68	-1.24	-1.22	MP
GYB4U7		45.21	-0.76	-0.75	52.91	-0.02	-0.02	XX
HG7AHQ		44.47	-1.50	-1.48	51.28	-1.64	-1.61	MR
K7YBMM		46.68	0.72	0.71	53.97	1.04	1.02	MZ
KU9D6W		44.35	-1.62	-1.60	51.17	-1.76	-1.72	MR
LMYPEZ	*	48.02	2.05	2.03	55.93	3.01	2.94	MR
MHQFCY		45.22	-0.75	-0.74	52.65	-0.27	-0.27	MR
ND82MV		45.50	-0.47	-0.46	53.03	0.11	0.10	MR
NQEPZY		45.60	-0.36	-0.36	53.11	0.18	0.17	MR
P7JLPB		45.92	-0.04	-0.04	53.28	0.35	0.34	MR
PRKJ6X		45.42	-0.55	-0.54	53.26	0.33	0.33	MV
RE89HJ		46.37	0.40	0.40	53.12	0.19	0.19	MR
RFFD3U		46.05	0.08	0.08	52.30	-0.63	-0.61	MR
RMZJPT		45.12	-0.85	-0.84	53.56	0.63	0.62	TA
RUHREP		46.72	0.75	0.74	52.45	-0.48	-0.47	MP
T7TKGP		45.45	-0.52	-0.51	52.10	-0.83	-0.81	MR
TGDU6J	X	47.52	1.55	1.53	47.35	-5.58	-5.45	MR
TMX2JH		47.08	1.12	1.10	52.93	0.01	0.01	MR
VBF3KR		45.55	-0.42	-0.41	51.60	-1.33	-1.30	XX
W4VHX7		44.60	-1.36	-1.35	50.67	-2.26	-2.21	XX
WBR9MM		45.18	-0.79	-0.78	51.88	-1.05	-1.03	MR
WLVKHG		47.28	1.32	1.30	54.18	1.26	1.23	MR
X9L8YV		46.55	0.58	0.58	53.22	0.29	0.28	MR



# Rubber Interlaboratory Testing Program

Report #192

## Analysis 661

2nd Qtr 2017

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

WebCode	Data Flag	Sample T71-T72			Sample T73-T74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XKU24T		46.84	0.87	0.86	53.20	0.28	0.27	MV
YGVVDT		46.12	0.15	0.15	54.16	1.23	1.20	MR
ZV7ZV7		47.53	1.57	1.55	53.90	0.97	0.95	TA

Summary Statistics	
Grand Means	
	45.967 ML 1 + 8
	52.926 ML 1 + 8
Stnd Dev Btwn Labs	
	1.012 ML 1 + 8
	1.023 ML 1 + 8
	Statistics based on 39 of 41 reporting participants

Samples T71-T72: SBR & T73-T74: Butyl

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

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

TGDU6J (X) - Inconsistent in testing between sample groups. Data for sample group T73-T74 are low. Inconsistent within the determinations of sample group T73-T74.

#### Key to Instrument Codes Reported by Participants

MP	Monsanto Compact Mooney Viscometer	MR	Alpha Technologies Model MV2000/MV2000E
MV	Montech	MZ	Rebuilt Monsanto Mooney Viscometer
TA	TA Instruments (any model)	XX	Instrument make/model not specified by lab



# Rubber Interlaboratory Testing Program

Report #192

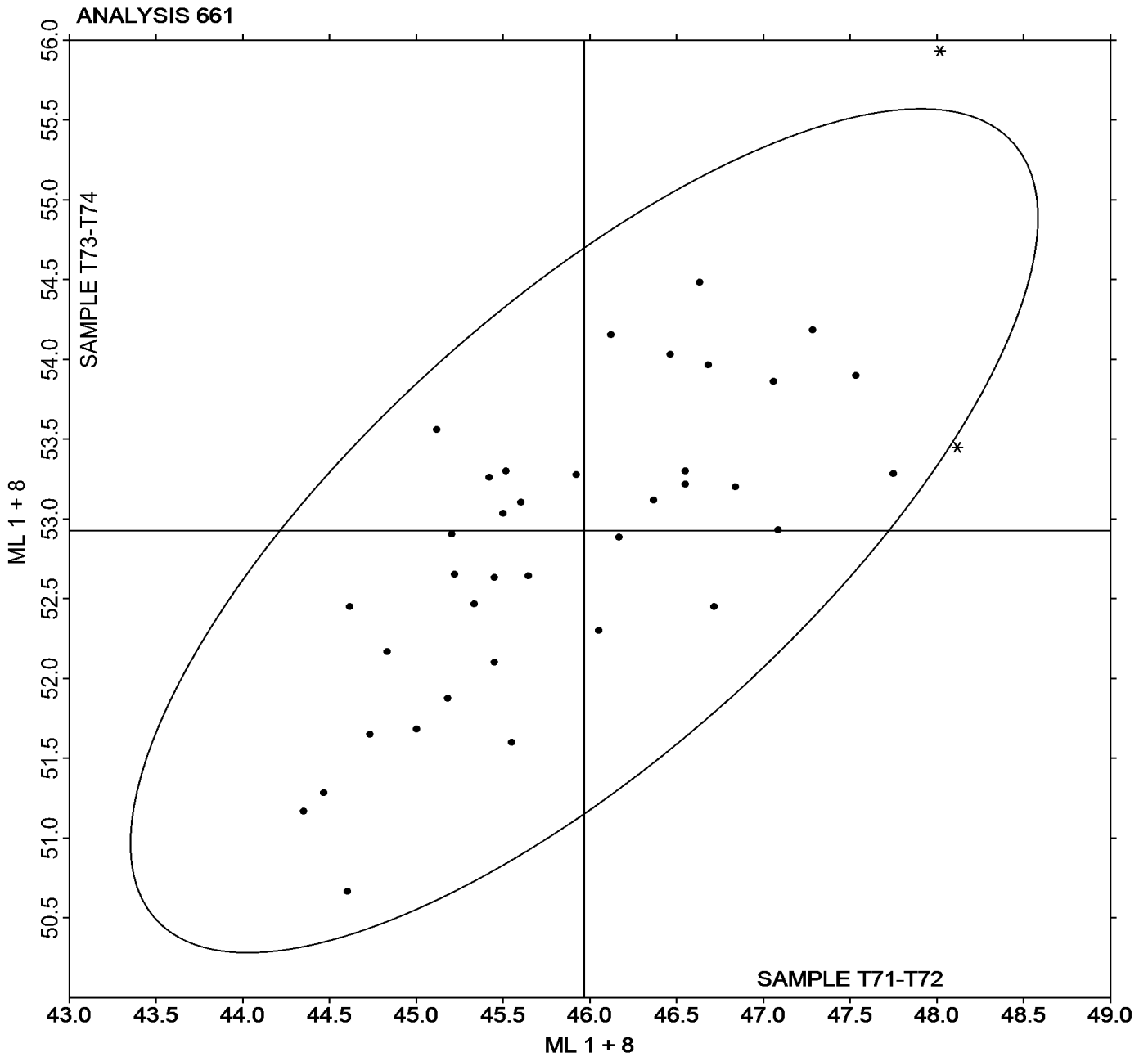
## Analysis 661

2nd Qtr 2017

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

Grand Mean Sample T71-T72 = 45.967 ML 1 + 8

Grand Mean Sample T73-T74 = 52.926 ML 1 + 8





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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample T71-T72			Sample T73-T74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2BXB29		11.06	1.03	0.53	7.557	-0.984	-0.62	MR
3DJE8L		11.19	1.17	0.60	8.570	0.029	0.02	MR
4AE987		5.11	-4.91	-2.53	5.120	-3.421	-2.16	MV
8M9L4E		9.08	-0.94	-0.48	9.110	0.569	0.36	MV
9KKHYE		11.63	1.61	0.83	8.107	-0.434	-0.27	MR
9Q96UK		10.83	0.81	0.42	8.660	0.119	0.08	MR
EKTUTB	M	No data reported for this sample			0.660	-7.881	-4.98	MV
HG7AHQ		9.59	-0.43	-0.22	7.823	-0.717	-0.45	MR
K7YBMM		11.10	1.08	0.55	11.140	2.599	1.64	TV
LMYPEZ		12.36	2.34	1.20	10.303	1.763	1.11	MR
ND82MV		9.67	-0.35	-0.18	8.240	-0.301	-0.19	MR
P7JLPB		10.53	0.51	0.26	8.633	0.093	0.06	MR
PRKJ6X		9.57	-0.45	-0.23	8.467	-0.074	-0.05	MV
RMZJPT		5.12	-4.90	-2.52	5.142	-3.399	-2.15	TA
T7TKGP		10.43	0.41	0.21	8.433	-0.107	-0.07	MR
TMX2JH		10.26	0.24	0.12	8.203	-0.337	-0.21	MR
U7AXKT		10.30	0.28	0.14	9.500	0.959	0.61	MR
VBF3KR		11.83	1.81	0.93	8.550	0.009	0.01	XX
WLVKHG		10.79	0.77	0.39	8.530	-0.011	-0.01	MR
X9L8YV		12.48	2.46	1.27	11.833	3.293	2.08	XX
XKU24T		8.67	-1.35	-0.70	7.500	-1.041	-0.66	MV
ZV7ZV7		8.83	-1.19	-0.61	9.933	1.393	0.88	TA

Summary Statistics	
Grand Means	
10.020 seconds	8.5407 seconds
Std Dev Btwn Labs	
1.944 seconds	1.5834 seconds
Statistics based on 21 of 22 reporting participants	

Samples T71-T72: SBR & T73-T74: Butyl

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

EKTUTB (M) - Participant did not submit data for sample group T71-T72. Extreme Data for sample group T73-T74.



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

**Report #192**  
**2nd Qtr 2017**

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**Key to Instrument Codes Reported by Participants**

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

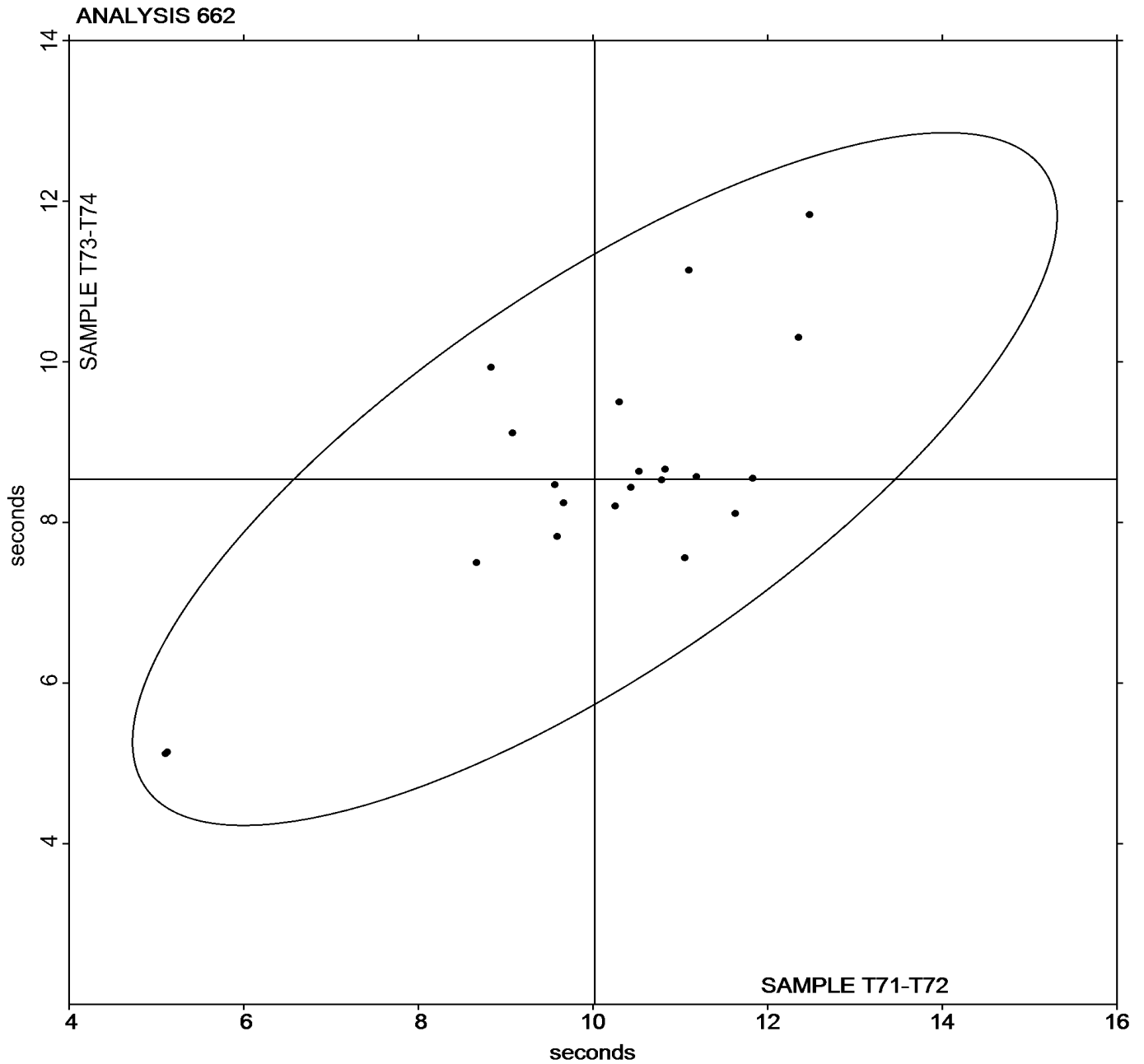


**Rubber Interlaboratory Testing Program**  
**Analysis 662**  
**Mooney Stress Relaxation: t80 (seconds)**

**Report #192**  
**2nd Qtr 2017**

Grand Mean Sample **T71-T72** = 10.020 seconds

Grand Mean Sample **T73-T74** = 8.5407 seconds







# Rubber Interlaboratory Testing Program

Report #192

## Analysis 663

2nd Qtr 2017

### Mooney Stress Relaxation: X30 (percent)

WebCode	Data Flag	Sample T71-T72			Sample T73-T74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2BXB29		87.07	-0.81	-0.46	91.74	0.56	0.46	MR
3DJE8L		86.60	-1.29	-0.73	90.80	-0.38	-0.32	MR
4AE987		90.84	2.95	1.67	93.15	1.97	1.63	MV
8M9L4E		92.08	4.20	2.38	93.08	1.90	1.57	MV
9KKHYE		86.42	-1.46	-0.83	91.34	0.15	0.13	MR
9Q96UK		87.00	-0.89	-0.50	91.35	0.17	0.14	MR
EKTUTB	X	74.05	-13.83	-7.83	78.77	-12.42	-10.26	MV
HG7AHQ		87.86	-0.02	-0.01	91.91	0.72	0.60	MR
K7YBMM		90.14	2.26	1.28	90.99	-0.19	-0.16	TV
LMYPEZ	X	73.14	-14.74	-8.35	84.33	-6.85	-5.66	MR
ND82MV		87.55	-0.34	-0.19	91.17	-0.02	-0.01	MR
P7JLPB		87.05	-0.83	-0.47	90.68	-0.51	-0.42	MR
PRKJ6X		87.58	-0.30	-0.17	90.77	-0.42	-0.35	MV
RMZJPT		89.92	2.04	1.15	92.03	0.84	0.70	TA
T7TKGP		86.97	-0.92	-0.52	90.82	-0.37	-0.30	MR
TMX2JH		87.04	-0.84	-0.48	90.94	-0.24	-0.20	MR
VBF3KR		86.07	-1.82	-1.03	90.70	-0.48	-0.40	XX
WLVKHG		86.73	-1.15	-0.65	90.81	-0.37	-0.31	MR
X9L8YV	*	85.33	-2.55	-1.44	87.32	-3.87	-3.20	XX
XKU24T		88.45	0.57	0.32	92.16	0.98	0.81	MV
ZV7ZV7		89.08	1.20	0.68	90.76	-0.43	-0.36	TA

Grand Means		Summary Statistics	
	87.883 percent		91.185 percent
Std Dev Btwn Labs	1.767 percent		1.210 percent
Statistics based on 19 of 21 reporting participants			

Samples T71-T72: SBR & T73-T74: Butyl

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

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

LMYPEZ (X) - Data for all samples are low. Inconsistent within the determinations of sample group T71-T72.



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

**Report #192**  
**2nd Qtr 2017**

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**Key to Instrument Codes Reported by Participants**

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

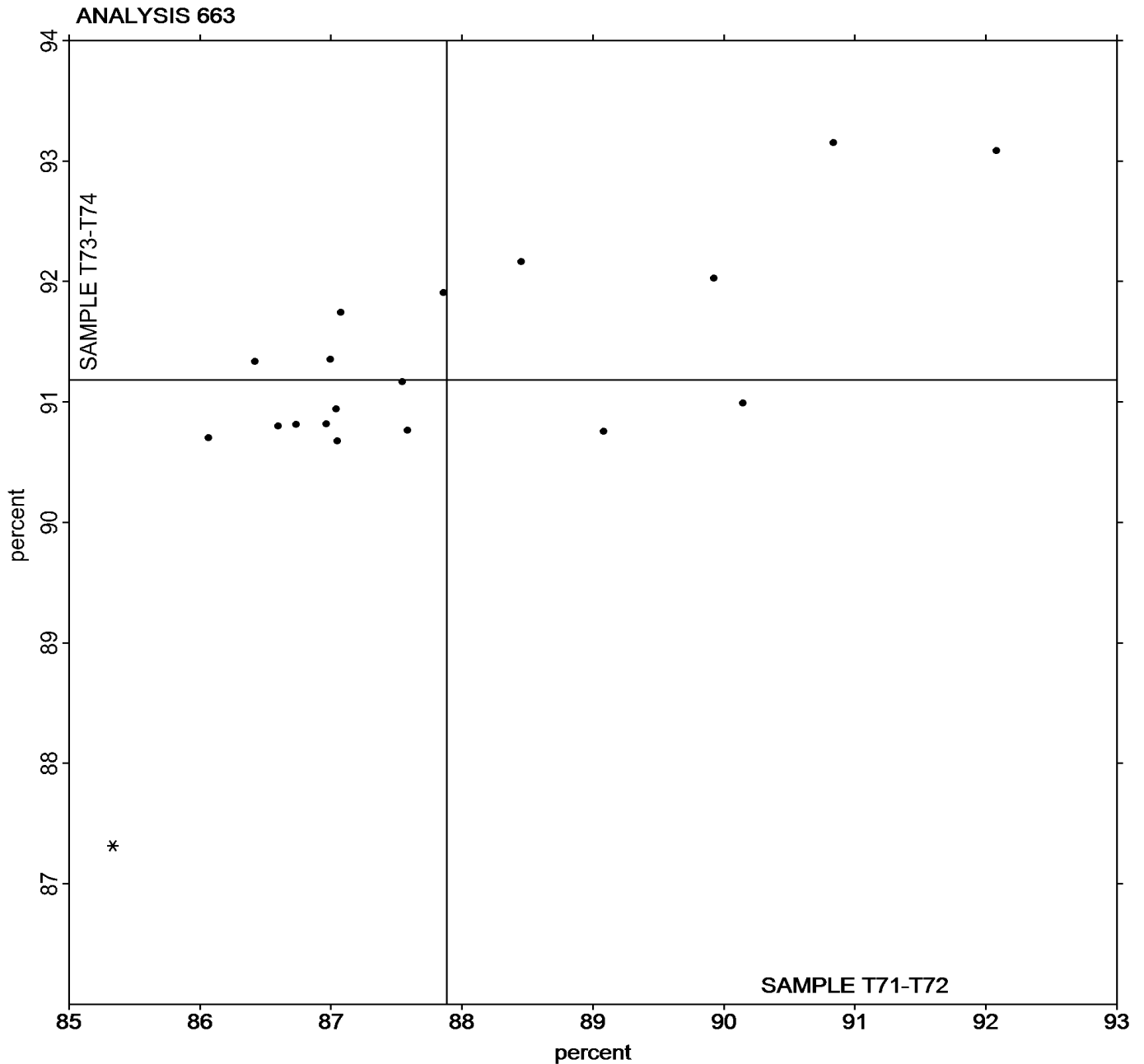


Rubber Interlaboratory Testing Program  
Analysis 663  
Mooney Stress Relaxation: X30 (percent)

Report #192  
2nd Qtr 2017

Grand Mean Sample T71-T72 = 87.883 percent

Grand Mean Sample T73-T74 = 91.185 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 #192

## Analysis 664

2nd Qtr 2017

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

WebCode	Data Flag	Sample T71-T72			Sample T73-T74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2BXB29		639.4	47.0	0.42	497.9	-26.4	-0.33	MR
3DJE8L		693.2	100.8	0.89	546.2	21.9	0.27	MR
4AE987		429.7	-162.7	-1.44	397.5	-126.8	-1.57	MV
8M9L4E		345.9	-246.5	-2.18	402.9	-121.4	-1.51	XX
9KKHYE		696.3	103.9	0.92	515.0	-9.3	-0.11	MR
9Q96UK		626.7	34.3	0.30	499.2	-25.1	-0.31	XX
EKTUTB	X	1,574.6	982.2	8.70	1,489.1	964.8	11.98	MV
HG7AHQ		580.2	-12.2	-0.11	465.2	-59.1	-0.73	MR
K7YBMM		445.6	-146.8	-1.30	536.1	11.8	0.15	TV
LMYPEZ		738.6	146.2	1.30	712.9	188.5	2.34	MR
ND82MV		609.2	16.8	0.15	521.5	-2.8	-0.03	MR
P7JLPB		638.9	46.5	0.41	554.7	30.4	0.38	MR
PRKJ6X		600.1	7.7	0.07	533.8	9.5	0.12	MV
RMZJPT		472.6	-119.8	-1.06	490.7	-33.6	-0.42	TA
T7TKGP		638.7	46.3	0.41	525.7	1.4	0.02	MR
TMX2JH		660.2	67.8	0.60	534.8	10.5	0.13	MR
VBF3KR		683.3	90.9	0.81	537.8	13.5	0.17	XX
WLVKHG		625.1	32.7	0.29	555.3	31.0	0.38	MR
X9L8YV		738.6	146.2	1.30	726.9	202.6	2.52	XX
XKU24T		574.6	-17.8	-0.16	473.5	-50.8	-0.63	MV
ZV7ZV7		411.3	-181.1	-1.60	458.6	-65.7	-0.82	TA

Grand Means		Summary Statistics	
	592.41 M-s		524.30 M-s
Std Dev Btwn Labs	112.86 M-s		80.55 M-s
Statistics based on 20 of 21 reporting participants			

Samples T71-T72: SBR & T73-T74: Butyl

#### Comments on Assigned Data Flags for Test #664

EKTUTB (X) - Extreme Data.

#### Key to Instrument Codes Reported by Participants

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

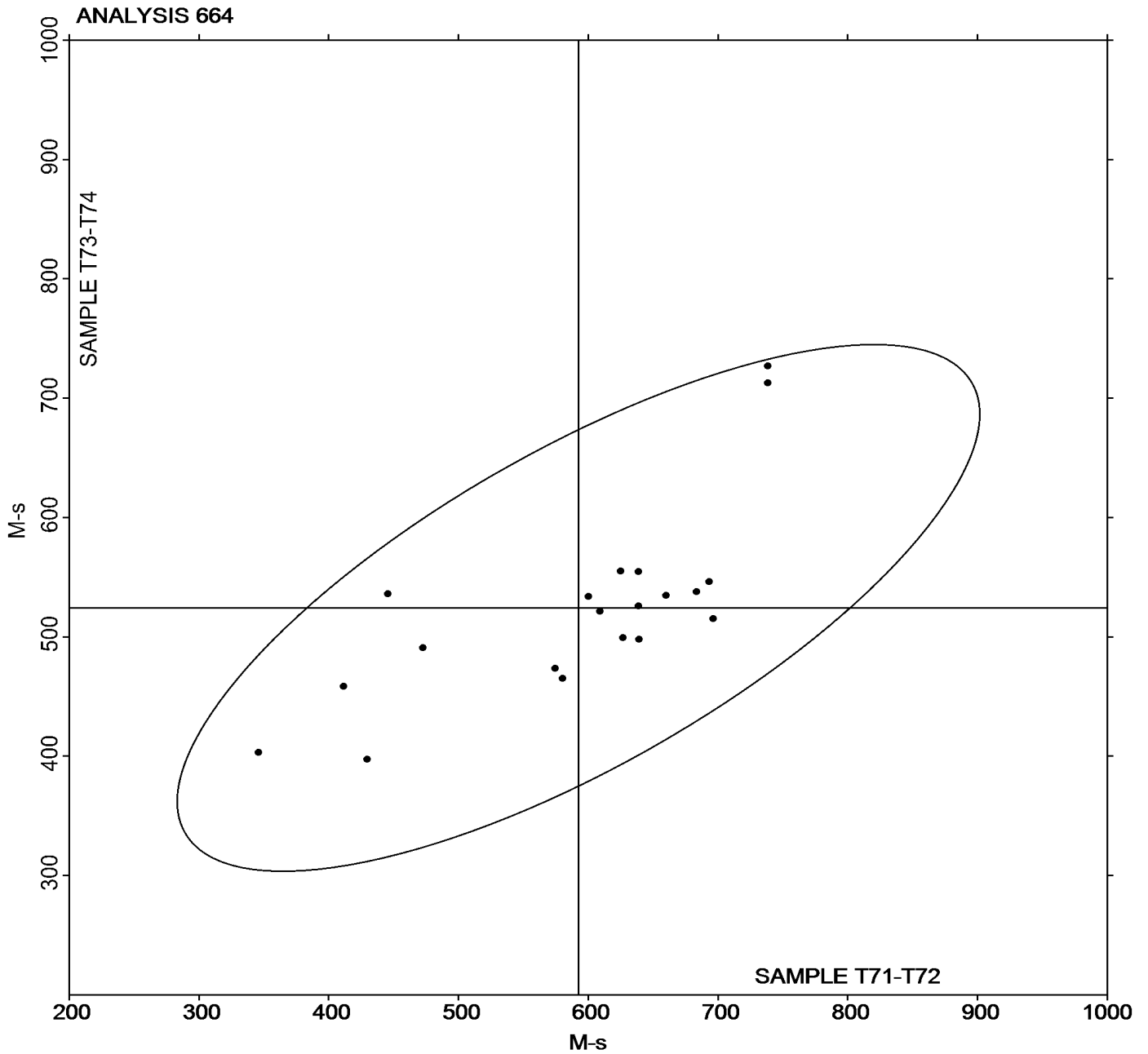


**Rubber Interlaboratory Testing Program**  
**Analysis 664**  
**Mooney Stress Relaxation: Area under curve (M-s)**

**Report #192**  
**2nd Qtr 2017**

Grand Mean Sample **T71-T72** = 592.41 M-s

Grand Mean Sample **T73-T74** = 524.30 M-s





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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample X71-X72			Sample X73-X74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2BXB29		0.9350	-0.0430	-0.73	2.462	-0.100	-0.57
A8PQRF		0.9150	-0.0630	-1.07	2.443	-0.118	-0.67
FYCMAV		1.0183	0.0403	0.68	2.702	0.140	0.79
K7YBMM		0.9433	-0.0347	-0.59	2.340	-0.222	-1.25
NQEPZY		0.9200	-0.0580	-0.98	2.370	-0.192	-1.09
RE89HJ		1.0400	0.0620	1.05	2.657	0.095	0.54
RUHREP		1.0067	0.0286	0.49	2.938	0.377	2.13
TVDTTF		0.9583	-0.0197	-0.33	2.535	-0.027	-0.15
WBR9MM		1.1067	0.1286	2.18	2.648	0.087	0.49
X9L8YV		0.9433	-0.0347	-0.59	2.650	0.088	0.50
YGVVDT		0.9717	-0.0064	-0.11	2.435	-0.127	-0.72

Summary Statistics	
Grand Means	
	0.97803 minutes                      2.5618 minutes
Std Dev Btwn Labs	
	0.05904 minutes                      0.1768 minutes
Statistics based on 11 of 11 reporting participants	

Samples X71-X72: EPDM compound #1 & X73-X74: EPDM compound #2

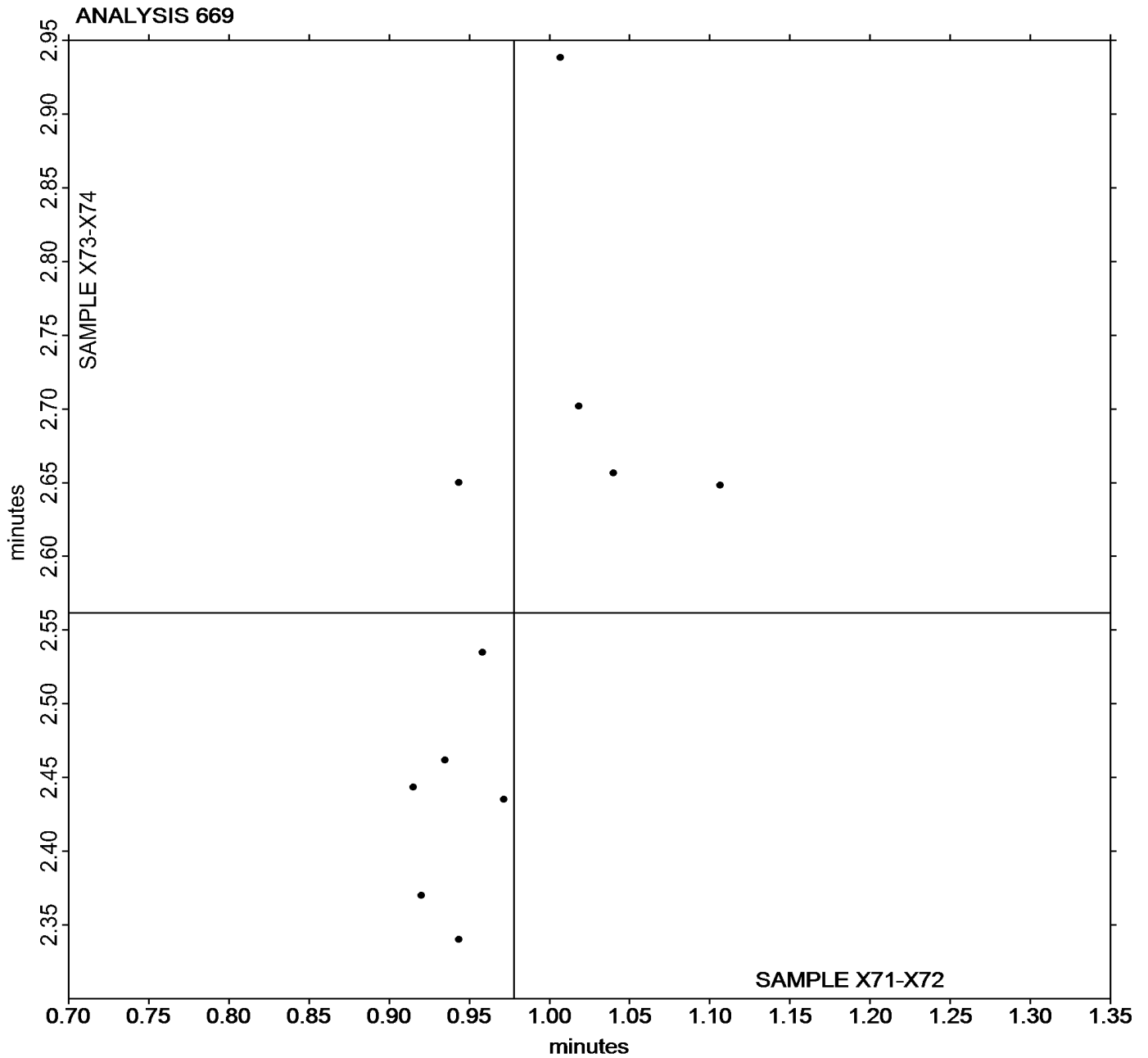


Rubber Interlaboratory Testing Program  
Analysis 669  
ODR Vulcanization-Cure Time 10% (minutes)

Report #192  
2nd Qtr 2017

Grand Mean Sample X71-X72 = 0.97803 minutes

Grand Mean Sample X73-X74 = 2.5618 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 #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample X71-X72			Sample X73-X74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2BXB29		0.6500	-0.0211	-0.45	1.848	-0.013	-0.08
A8PQRF		0.6267	-0.0444	-0.94	1.733	-0.128	-0.77
FYCMAV		0.6933	0.0223	0.47	2.183	0.322	1.92
K7YBMM		0.6833	0.0123	0.26	1.765	-0.097	-0.58
NQEPZY		0.6083	-0.0627	-1.33	1.648	-0.213	-1.28
RE89HJ		0.7033	0.0323	0.68	1.890	0.028	0.17
RUHREP		0.6750	0.0039	0.08	2.060	0.198	1.19
TVDTTF		0.6683	-0.0027	-0.06	1.793	-0.068	-0.41
WBR9MM		0.7833	0.1123	2.38	1.992	0.130	0.78
X9L8YV		0.6333	-0.0377	-0.80	1.905	0.043	0.26
YGVVDT		0.6567	-0.0144	-0.30	1.660	-0.202	-1.21

		Summary Statistics	
Grand Means		0.67106 minutes	1.8617 minutes
Std Dev Btwn Labs		0.04722 minutes	0.1671 minutes
Statistics based on 11 of 11 reporting participants			

Samples X71-X72: EPDM compound #1 & X73-X74: EPDM compound #2



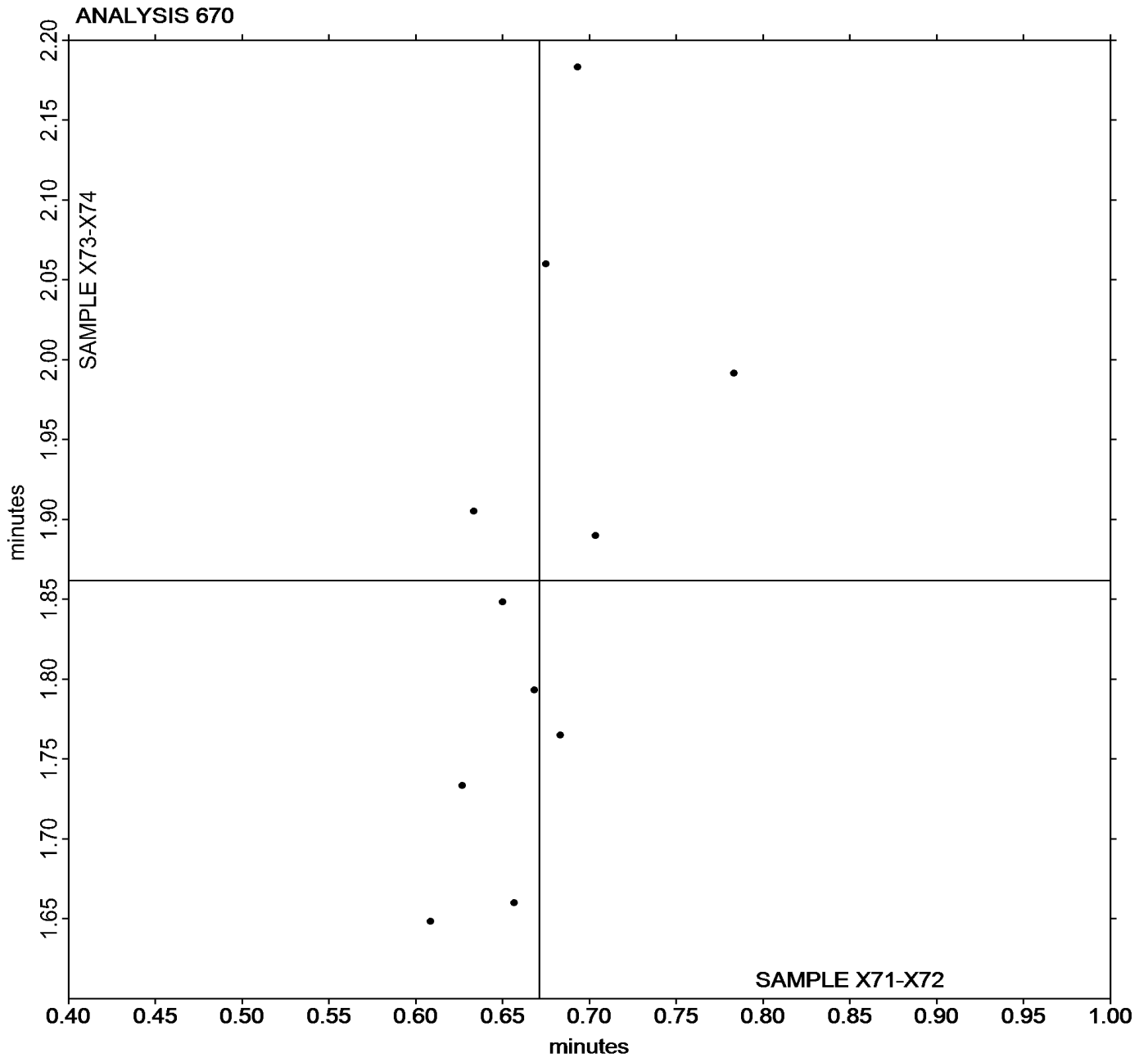


Rubber Interlaboratory Testing Program  
Analysis 670  
ODR Vulcanization-Scorch Time, Ts1 (minutes)

Report #192  
2nd Qtr 2017

Grand Mean Sample X71-X72 = 0.67106 minutes

Grand Mean Sample X73-X74 = 1.8617 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 #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample X71-X72			Sample X73-X74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2BXB29		2.407	-0.173	-1.07	4.337	-0.216	-0.63
A8PQRF		2.482	-0.098	-0.61	4.510	-0.043	-0.12
FYCMAV		2.638	0.059	0.37	4.470	-0.083	-0.24
K7YBMM		2.645	0.066	0.41	4.045	-0.508	-1.48
NQEPZY		2.467	-0.113	-0.70	4.303	-0.249	-0.73
RE89HJ		2.817	0.237	1.47	4.632	0.079	0.23
RUHREP		2.680	0.101	0.63	5.405	0.852	2.49
TVDTTF		2.398	-0.181	-1.13	4.698	0.146	0.43
WBR9MM		2.867	0.287	1.79	4.558	0.006	0.02
X9L8YV		2.483	-0.096	-0.60	4.700	0.147	0.43
YGVVDT		2.490	-0.089	-0.56	4.420	-0.133	-0.39

		Summary Statistics	
Grand Means		2.5794 minutes	4.5526 minutes
Stnd Dev Btwn Labs		0.1609 minutes	0.3418 minutes
Statistics based on 11 of 11 reporting participants			

Samples X71-X72: EPDM compound #1 & X73-X74: EPDM compound #2

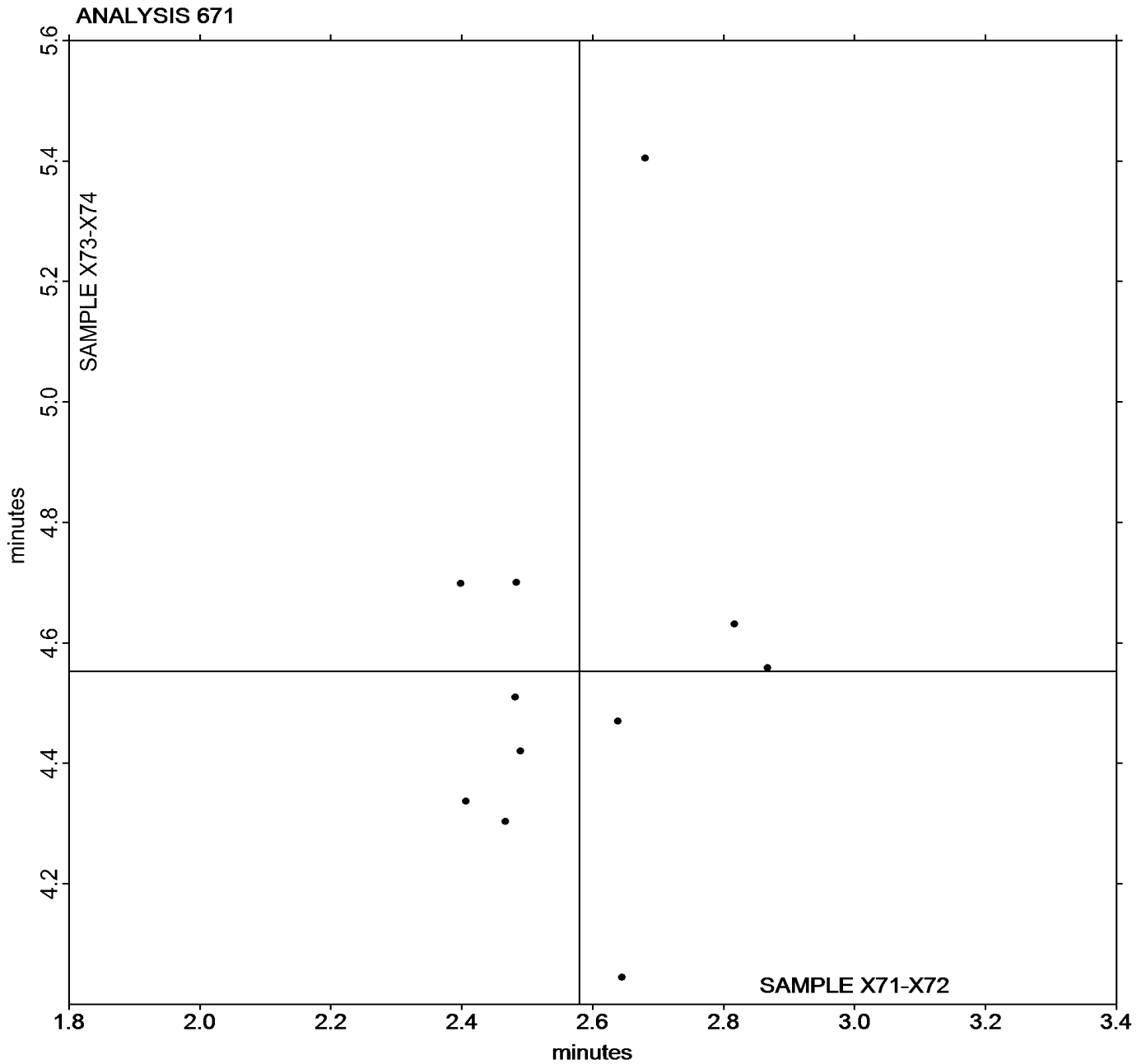


Rubber Interlaboratory Testing Program  
Analysis 671  
ODR Vulcanization-Cure Time 50% (minutes)

Report #192  
2nd Qtr 2017

Grand Mean Sample X71-X72 = 2.5794 minutes

Grand Mean Sample X73-X74 = 4.5526 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 #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample X71-X72			Sample X73-X74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2BXB29		10.56	-2.18	-1.50	8.63	-2.06	-0.98
A8PQRF		13.09	0.36	0.25	15.03	4.34	2.06
FYCMAV		11.56	-1.17	-0.81	8.66	-2.03	-0.96
K7YBMM		14.83	2.10	1.44	10.70	0.01	0.01
NQEPZY		12.50	-0.23	-0.16	12.80	2.11	1.00
RE89HJ		15.21	2.48	1.70	8.78	-1.91	-0.91
RUHREP		14.03	1.29	0.89	11.74	1.06	0.50
TVDTTF		11.75	-0.99	-0.68	9.87	-0.82	-0.39
WBR9MM		12.62	-0.12	-0.08	9.80	-0.89	-0.42
X9L8YV		12.47	-0.27	-0.19	12.60	1.91	0.91
YGVVDT		11.48	-1.25	-0.86	8.96	-1.73	-0.82

Summary Statistics	
Grand Means	12.736 minutes
Std Dev Btwn Labs	1.454 minutes
	10.687 minutes
	2.109 minutes
Statistics based on 11 of 11 reporting participants	

Samples X71-X72: EPDM compound #1 & X73-X74: EPDM compound #2

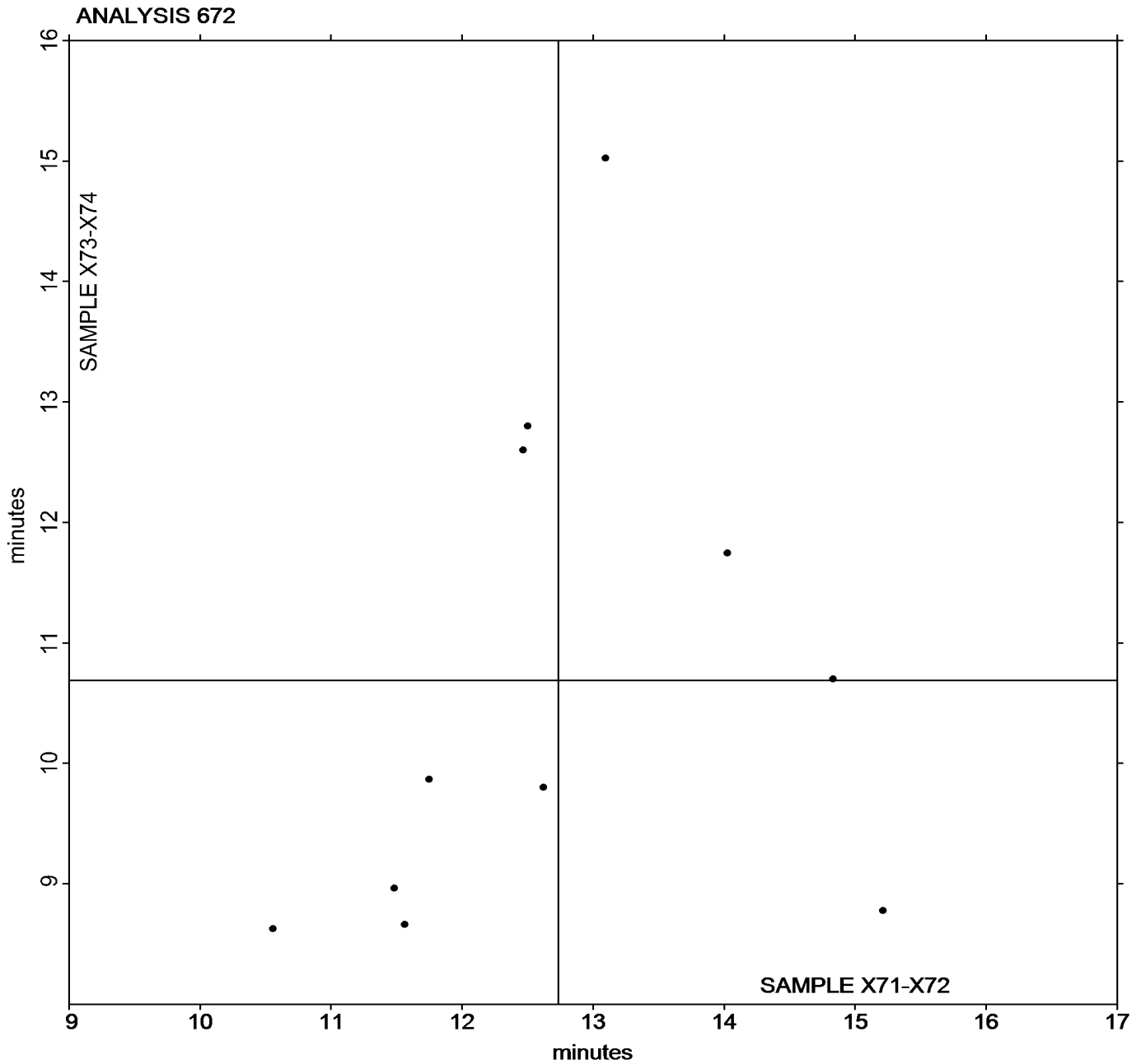


Rubber Interlaboratory Testing Program  
Analysis 672  
ODR Vulcanization-Cure Time 90% (minutes)

Report #192  
2nd Qtr 2017

Grand Mean Sample X71-X72 = 12.736 minutes

Grand Mean Sample X73-X74 = 10.687 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 #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample X71-X72			Sample X73-X74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2BXB29		12.91	0.78	0.73	7.598	0.560	0.65
A8PQRF		10.71	-1.42	-1.34	5.847	-1.192	-1.38
FYCMAV		12.44	0.31	0.29	8.213	1.175	1.36
K7YBMM		13.90	1.76	1.67	8.273	1.235	1.43
NQEPZY		10.67	-1.47	-1.39	6.353	-0.685	-0.80
RE89HJ		11.91	-0.23	-0.21	6.570	-0.469	-0.54
RUHREP		13.71	1.57	1.49	7.517	0.478	0.56
TVDTTF		11.74	-0.40	-0.38	6.472	-0.567	-0.66
WBR9MM		11.81	-0.32	-0.30	7.185	0.146	0.17
X9L8YV		12.17	0.03	0.03	7.500	0.461	0.54
YGVVDT		11.50	-0.63	-0.60	5.898	-1.140	-1.32

		Summary Statistics	
Grand Means		12.132 lbf.in	7.0388 lbf.in
Std Dev Btwn Labs		1.056 lbf.in	0.8609 lbf.in
Statistics based on 11 of 11 reporting participants			

		Summary Statistics in SI Units	
Grand Means		13.707 dN.m	7.9528 dN.m
Std Dev Btwn Labs		1.194 dN.m	0.9727 dN.m
Statistics based on 11 of 11 reporting participants			

Samples X71-X72: EPDM compound #1 & X73-X74: EPDM compound #2

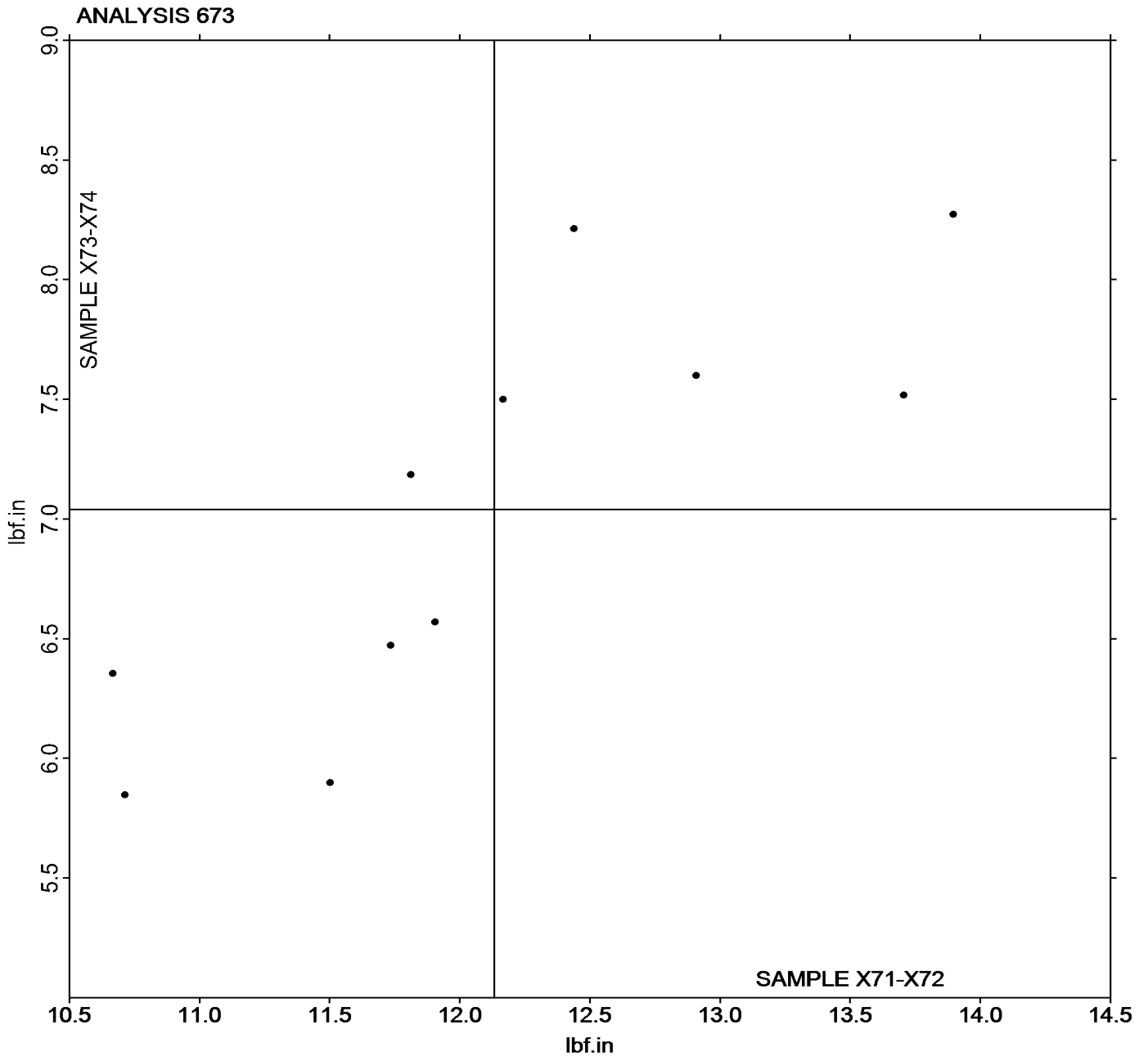


Rubber Interlaboratory Testing Program  
Analysis 673  
ODR Vulcanization: Minimum Torque (lbf.in)

Report #192  
2nd Qtr 2017

Grand Mean Sample X71-X72 = 12.132 lbf.in

Grand Mean Sample X73-X74 = 7.0388 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 #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample X71-X72			Sample X73-X74		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2BXB29		44.77	-2.82	-1.18	35.16	-2.51	-1.48
A8PQRF		47.01	-0.58	-0.24	37.09	-0.58	-0.34
FYCAV		48.73	1.14	0.48	37.19	-0.48	-0.28
K7YBMM		46.34	-1.25	-0.52	37.82	0.15	0.09
NQEPZY		49.49	1.90	0.80	38.66	0.99	0.58
RE89HJ		52.14	4.55	1.91	40.39	2.72	1.60
RUHREP		47.57	-0.02	-0.01	37.86	0.19	0.11
TVDTTF		44.21	-3.38	-1.41	36.60	-1.07	-0.63
WBR9MM		45.40	-2.19	-0.92	35.20	-2.47	-1.46
X9L8YV		47.93	0.34	0.14	38.33	0.66	0.39
YGVVDT		49.88	2.29	0.96	40.07	2.40	1.42

		Summary Statistics	
Grand Means		47.589 lbf.in	37.670 lbf.in
Std Dev Btwn Labs		2.388 lbf.in	1.697 lbf.in
Statistics based on 11 of 11 reporting participants			

		Summary Statistics in SI Units	
Grand Means		53.768 dN.m	42.561 dN.m
Std Dev Btwn Labs		2.698 dN.m	1.917 dN.m
Statistics based on 11 of 11 reporting participants			

Samples X71-X72: EPDM compound #1 & X73-X74: EPDM compound #2



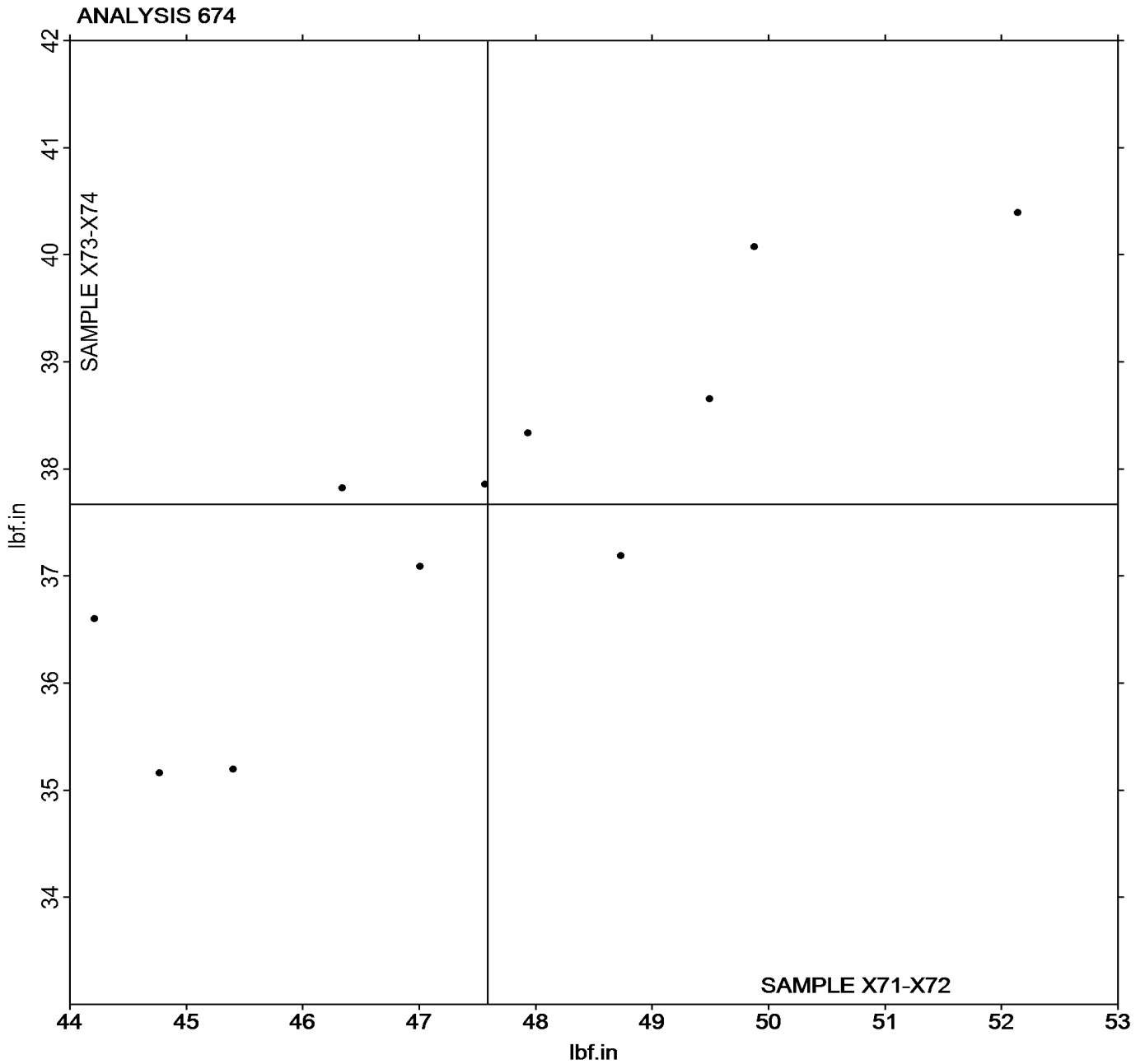


Rubber Interlaboratory Testing Program  
Analysis 674  
ODR Vulcanization: Maximum Torque (lbf.in)

Report #192  
2nd Qtr 2017

Grand Mean Sample X71-X72 = 47.589 lbf.in

Grand Mean Sample X73-X74 = 37.670 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 684**  
**MDR Vulcanization-Cure Time 10% (minutes)**

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample X75-X76			Sample X77-X78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2BXB29		1.395	-0.138	-1.72	1.832	-0.137	-1.66	TP
2G8CKR		1.488	-0.044	-0.55	1.958	-0.010	-0.12	MC
2LXJ6L		1.508	-0.024	-0.30	1.912	-0.057	-0.69	ME
3DJE8L		1.570	0.037	0.46	1.982	0.013	0.16	MM
3YW8AK		1.595	0.062	0.78	2.030	0.062	0.75	MC
4AE987		1.662	0.129	1.61	2.022	0.053	0.65	MR
4JKTTM		1.437	-0.096	-1.20	1.937	-0.032	-0.38	MC
4QGTY3		1.542	0.009	0.11	1.937	-0.032	-0.38	MP
4WRYJE		1.443	-0.089	-1.11	1.955	-0.013	-0.16	MC
62UCW4		1.423	-0.109	-1.36	1.830	-0.138	-1.68	MC
7AQPDP		1.543	0.011	0.13	1.962	-0.007	-0.08	TP
8M9L4E		1.605	0.072	0.90	2.102	0.133	1.62	XX
BKTEJA	*	1.473	-0.059	-0.74	1.805	-0.163	-1.98	MC
CDPR7Z		1.622	0.089	1.11	2.058	0.090	1.09	MC
DDH7NP		1.532	-0.001	-0.01	2.028	0.060	0.73	XX
EKTUTB		1.587	0.054	0.67	2.048	0.080	0.97	MC
FPTDK2		1.540	0.007	0.09	1.992	0.023	0.28	MC
G7UHM4		1.622	0.089	1.12	2.067	0.099	1.20	MC
HG7AHQ		1.570	0.037	0.46	2.018	0.050	0.61	MC
KU9D6W		1.410	-0.123	-1.53	1.872	-0.097	-1.17	MC
LMYPEZ		1.382	-0.151	-1.88	1.783	-0.185	-2.24	MC
ND82MV		1.580	0.047	0.59	2.020	0.052	0.63	MD
NQEPZY		1.537	0.004	0.05	1.905	-0.063	-0.77	MC
P7JLPB		1.545	0.012	0.15	1.965	-0.003	-0.04	MC
PRKJ6X		1.492	-0.041	-0.51	1.968	0.000	0.00	MM
RFFD3U		1.432	-0.101	-1.26	1.898	-0.070	-0.85	MC
RGXDBQ		1.420	-0.113	-1.41	1.837	-0.132	-1.60	ME
TMX2JH		1.510	-0.023	-0.28	1.948	-0.020	-0.24	MC
U2PD8C		1.570	0.037	0.46	2.002	0.033	0.41	MD
UBYKA8		1.503	-0.029	-0.37	1.993	0.025	0.31	XX
VBF3KR		1.470	-0.063	-0.78	1.938	-0.030	-0.36	XX
W4VHX7		1.618	0.086	1.07	1.975	0.007	0.08	MC
WBB2G6		1.563	0.031	0.38	2.005	0.037	0.45	MC
WBR9MM		1.550	0.017	0.21	2.048	0.080	0.97	MC
WLVKHG		1.622	0.089	1.11	2.037	0.068	0.83	MC
XKU24T	X	1.892	0.359	4.47	2.565	0.597	7.24	MC
YGVVDT		1.698	0.166	2.06	2.137	0.168	2.05	MC



# Rubber Interlaboratory Testing Program

Report #192

## Analysis 684

2nd Qtr 2017

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

WebCode	Data Flag	Sample X75-X76			Sample X77-X78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
ZV7ZV7		1.653	0.121	1.50	2.018	0.050	0.61	MD

Summary Statistics			
Grand Means	1.5328 minutes		1.9682 minutes
Stnd Dev Btwn Labs	0.0803 minutes		0.0824 minutes
Statistics based on 37 of 38 reporting participants			

Samples X75-X76: EPDM compound, batch #1 & X77-X78: EPDM compound, batch #2

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

XKU24T (X) - Data for all samples are high.

#### Key to Instrument Codes Reported by Participants

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

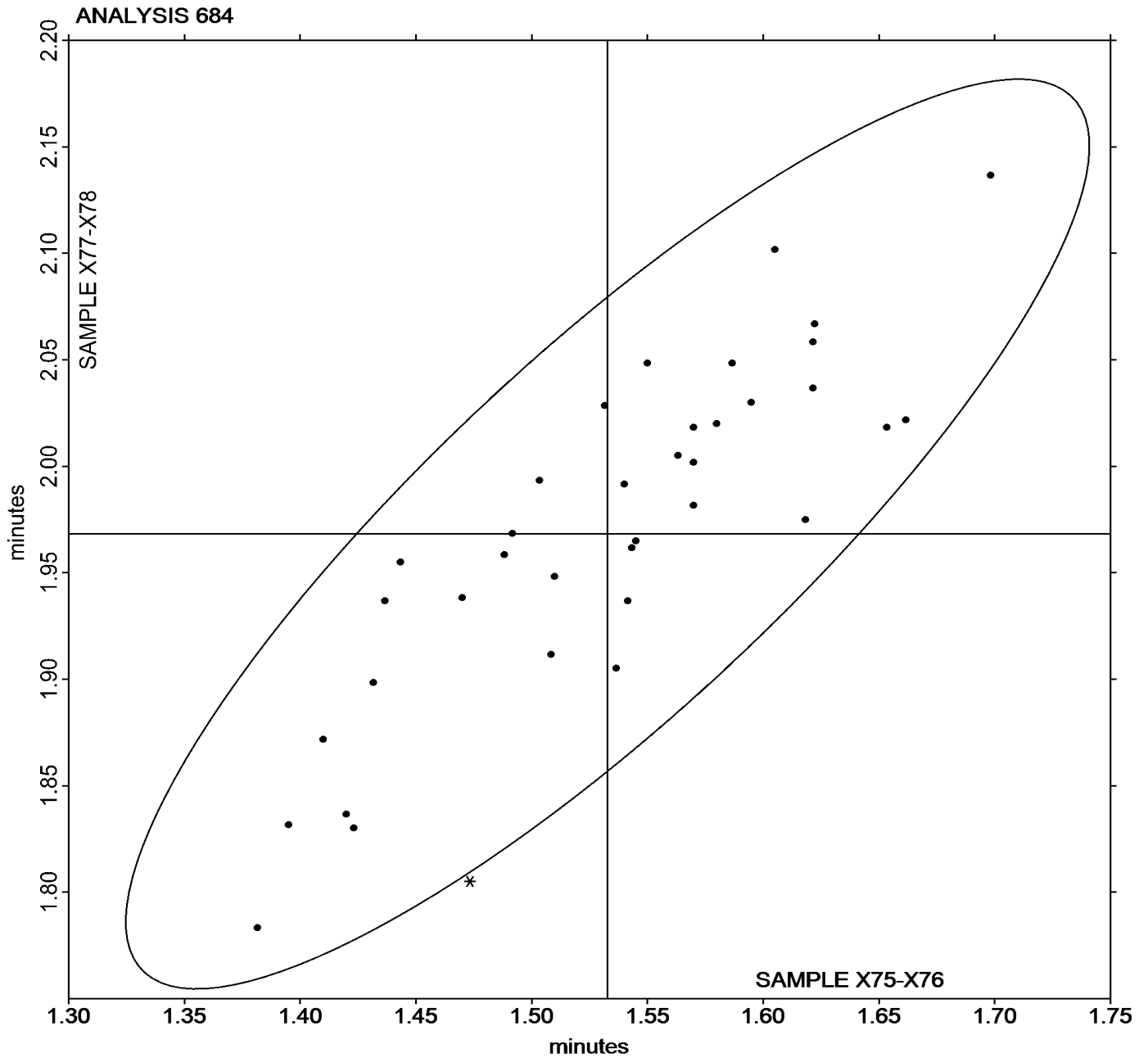


**Rubber Interlaboratory Testing Program**  
**Analysis 684**  
**MDR Vulcanization-Cure Time 10% (minutes)**

**Report #192**  
**2nd Qtr 2017**

Grand Mean Sample **X75-X76** = 1.5328 minutes

Grand Mean Sample **X77-X78** = 1.9682 minutes





# Rubber Interlaboratory Testing Program

Report #192

## Analysis 685

2nd Qtr 2017

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

WebCode	Data Flag	Sample X75-X76			Sample X77-X78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2BXB29		1.485	0.007	0.08	1.733	-0.039	-0.39	TP
2G8CKR		1.440	-0.038	-0.47	1.775	0.003	0.03	MC
2LXJ6L		1.460	-0.018	-0.22	1.698	-0.074	-0.74	ME
3DJE8L		1.493	0.015	0.19	1.797	0.025	0.25	MM
3YW8AK		1.475	-0.003	-0.04	1.735	-0.037	-0.37	MC
4AE987		1.292	-0.187	-2.30	1.538	-0.234	-2.35	MR
4JKTTM		1.442	-0.037	-0.45	1.808	0.036	0.37	MC
4QGTY3		1.405	-0.073	-0.90	1.632	-0.140	-1.41	MP
4WRYJE		1.410	-0.068	-0.84	1.758	-0.014	-0.14	MC
62UCW4		1.284	-0.194	-2.40	1.582	-0.190	-1.91	MC
7AQPDP		1.615	0.137	1.69	1.905	0.133	1.34	TP
8M9L4E		1.513	0.035	0.43	1.838	0.066	0.67	XX
9KKHYE		1.380	-0.098	-1.21	1.618	-0.154	-1.55	MC
9Q96UK		1.389	-0.090	-1.10	1.641	-0.131	-1.32	MC
BKTEJA	*	1.377	-0.102	-1.25	1.535	-0.237	-2.38	MC
CDPR7Z		1.615	0.137	1.69	1.872	0.100	1.00	MC
DDH7NP		1.505	0.027	0.33	1.893	0.121	1.22	XX
EKTUTB		1.535	0.057	0.70	1.927	0.155	1.56	MC
FPTDK2		1.517	0.038	0.47	1.797	0.025	0.25	MC
G7UHM4		1.578	0.100	1.23	1.872	0.100	1.01	MC
HG7AHQ		1.537	0.058	0.72	1.833	0.061	0.62	MC
KU9D6W		1.435	-0.043	-0.53	1.718	-0.054	-0.54	MC
LMYPEZ		1.393	-0.085	-1.05	1.688	-0.084	-0.84	MC
ND82MV		1.547	0.068	0.84	1.838	0.066	0.67	MD
NQEPZY		1.542	0.063	0.78	1.793	0.021	0.22	MC
P7JLPB		1.442	-0.037	-0.45	1.723	-0.049	-0.49	XX
PRKJ6X		1.463	-0.015	-0.18	1.745	-0.027	-0.27	MM
RFFD3U		1.407	-0.072	-0.88	1.782	0.010	0.10	MC
RGXDBQ		1.420	-0.058	-0.72	1.665	-0.107	-1.08	ME
TMX2JH		1.498	0.020	0.25	1.832	0.060	0.60	MC
U2PD8C		1.573	0.095	1.17	1.875	0.103	1.04	MD
U7AXKT		1.507	0.028	0.35	1.820	0.048	0.48	MC
UBYKA8		1.427	-0.052	-0.64	1.762	-0.010	-0.10	XX
VBF3KR		1.470	-0.008	-0.10	1.825	0.053	0.53	XX
W4VHX7		1.602	0.123	1.52	1.868	0.096	0.97	MC
WBB2G6		1.493	0.015	0.19	1.772	0.000	0.00	MC
WBR9MM		1.528	0.050	0.62	1.850	0.078	0.79	MC
WLVKHG		1.572	0.093	1.15	1.770	-0.002	-0.02	MC



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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample X75-X76			Sample X77-X78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XKU24T	X	0.300	-1.178	-14.52	0.318	-1.454	-14.63	MC
YGVVDT		1.630	0.152	1.87	1.933	0.161	1.62	MC
ZT3928		1.470	-0.008	-0.10	1.805	0.033	0.33	MC
ZV7ZV7		1.443	-0.035	-0.43	1.797	0.025	0.25	MD

Grand Means		Summary Statistics	
	1.4782 minutes		1.7719 minutes
Std Dev Btwn Labs	0.0811 minutes		0.0994 minutes
Statistics based on 41 of 42 reporting participants			

Samples X75-X76: EPDM compound, batch #1 & X77-X78: EPDM compound, batch #2

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

XKU24T (X) - Extreme Data.

**Key to Instrument Codes Reported by Participants**

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

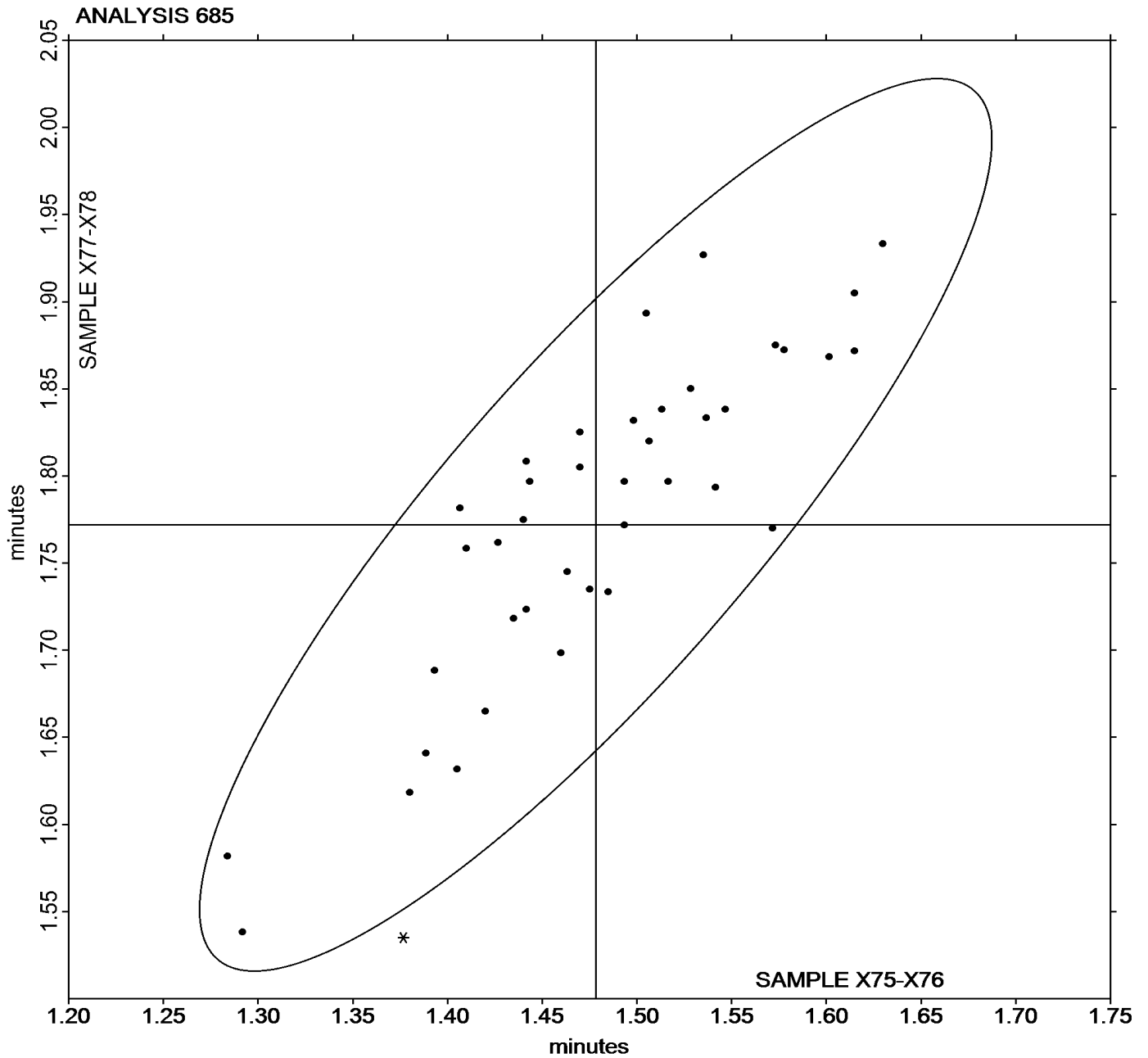


**Rubber Interlaboratory Testing Program**  
**Analysis 685**  
**MDR Vulcanization-Scorch Time, Ts1 (minutes)**

**Report #192**  
**2nd Qtr 2017**

Grand Mean Sample **X75-X76** = 1.4782 minutes

Grand Mean Sample **X77-X78** = 1.7719 minutes





# Rubber Interlaboratory Testing Program

Report #192

## Analysis 686

2nd Qtr 2017

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

WebCode	Data Flag	Sample X75-X76			Sample X77-X78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2BXB29		3.588	0.061	0.35	4.695	0.033	0.16	TP
2G8CKR		3.475	-0.052	-0.30	4.577	-0.085	-0.40	MC
2LXJ6L		3.493	-0.034	-0.19	4.542	-0.120	-0.57	ME
3DJE8L		3.578	0.051	0.29	4.583	-0.079	-0.37	MM
3YW8AK		3.620	0.093	0.53	4.835	0.173	0.82	MC
4AE987		3.748	0.221	1.27	4.940	0.278	1.31	MR
4JKTTM		3.235	-0.292	-1.67	4.358	-0.304	-1.43	MC
4QGTY3		3.482	-0.045	-0.26	4.580	-0.082	-0.39	MC
4WRYJE		3.447	-0.080	-0.46	4.475	-0.187	-0.88	MC
62UCW4		3.230	-0.297	-1.70	4.257	-0.405	-1.91	MC
7AQPDPH		3.622	0.095	0.54	4.677	0.015	0.07	TP
8M9L4E		3.653	0.126	0.72	4.910	0.248	1.17	XX
9KKHYE		3.568	0.041	0.24	4.793	0.131	0.62	MC
9Q96UK		3.538	0.011	0.06	4.794	0.132	0.62	MC
BKTEJA		3.685	0.158	0.90	4.617	-0.045	-0.21	MC
CDPR7Z		3.787	0.260	1.49	4.940	0.278	1.31	MC
DDH7NP		3.443	-0.084	-0.48	4.733	0.071	0.34	XX
EKTUTB		3.582	0.055	0.31	4.818	0.156	0.74	MC
FPTDK2		3.623	0.096	0.55	4.767	0.105	0.49	MC
G7UHM4		3.728	0.201	1.15	4.956	0.294	1.39	MC
HG7AHQ		3.693	0.166	0.95	4.783	0.121	0.57	MC
KU9D6W		3.223	-0.304	-1.74	4.348	-0.314	-1.48	MC
LMYPEZ		3.178	-0.349	-2.00	4.248	-0.414	-1.95	MC
ND82MV		3.485	-0.042	-0.24	4.798	0.136	0.64	MD
NQEPZY		3.575	0.048	0.27	4.505	-0.157	-0.74	MC
P7JLPB		3.613	0.086	0.49	4.688	0.026	0.12	XX
PRKJ6X		3.652	0.125	0.71	4.950	0.288	1.36	MM
RFFD3U		3.238	-0.289	-1.65	4.423	-0.239	-1.13	MC
RGXDBQ		3.202	-0.325	-1.86	4.270	-0.392	-1.85	ME
TMX2JH		3.450	-0.077	-0.44	4.613	-0.049	-0.23	MC
U2PD8C		3.602	0.075	0.43	4.865	0.203	0.96	MD
U7AXKT		3.505	-0.022	-0.13	4.575	-0.087	-0.41	MC
UBYKA8		3.403	-0.124	-0.71	4.700	0.038	0.18	XX
VBF3KR		3.325	-0.202	-1.16	4.475	-0.187	-0.88	XX
W4VHX7		3.688	0.161	0.92	4.667	0.005	0.02	MC
WBB2G6		3.660	0.133	0.76	4.800	0.138	0.65	MC
WBR9MM		3.627	0.100	0.57	4.970	0.308	1.45	MC





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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample X75-X76			Sample X77-X78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
WLVKHG		3.800	0.273	1.56	4.843	0.181	0.86	MC
XKU24T		3.488	-0.039	-0.22	4.657	-0.005	-0.02	MC
YGVVDT		3.855	0.328	1.88	4.983	0.321	1.52	MC
ZT3928		3.295	-0.232	-1.33	4.417	-0.245	-1.16	MC
ZV7ZV7		3.457	-0.070	-0.40	4.373	-0.289	-1.36	MD

Summary Statistics	
Grand Means	
	3.5272 minutes
	4.6619 minutes
Stnd Dev Btwn Labs	
	0.1746 minutes
	0.2118 minutes
	Statistics based on 42 of 42 reporting participants

Samples X75-X76: EPDM compound, batch #1 & X77-X78: EPDM compound, batch #2

**Key to Instrument Codes Reported by Participants**

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

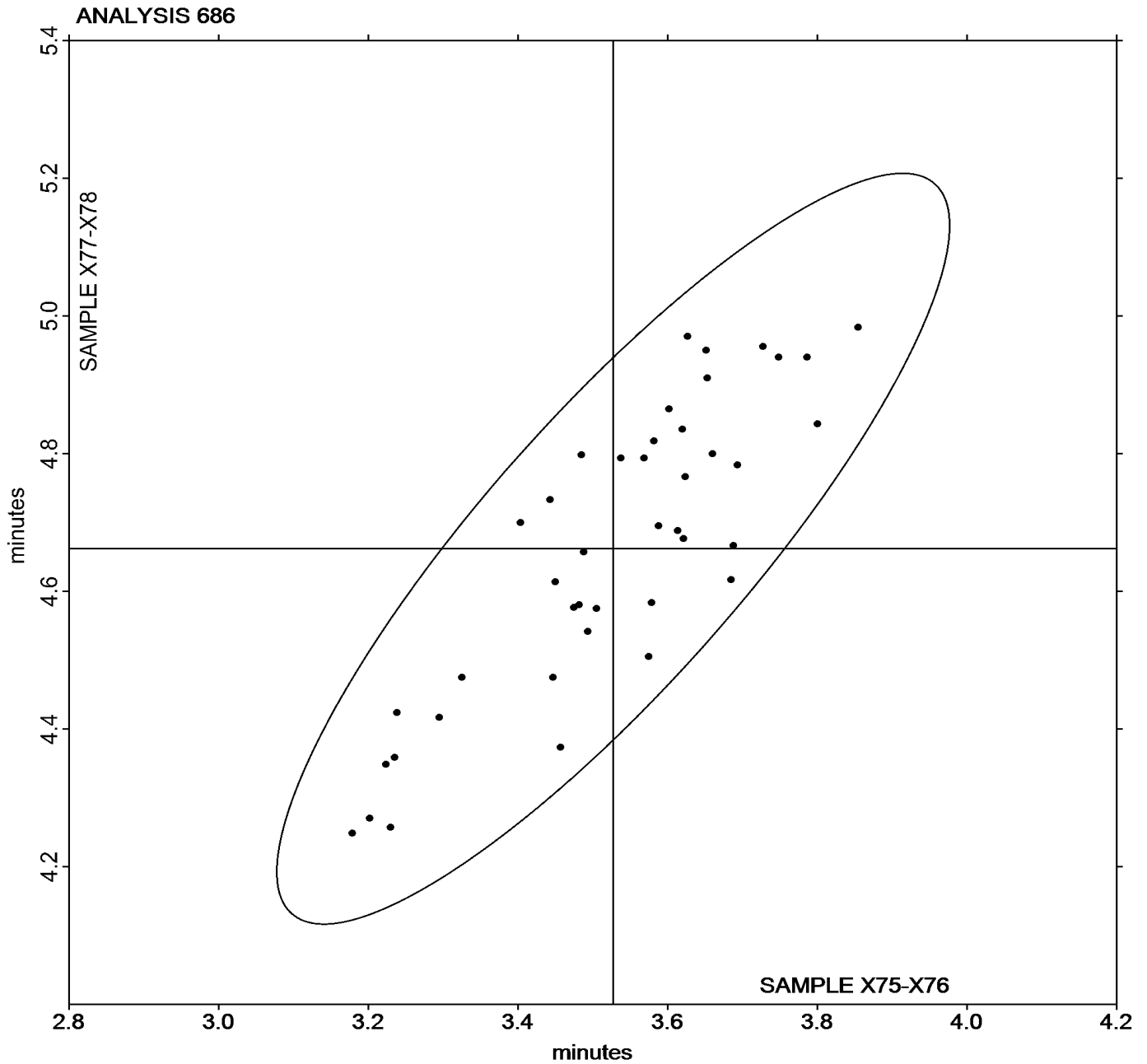


**Rubber Interlaboratory Testing Program**  
**Analysis 686**  
**MDR Vulcanization-Cure Time 50% (minutes)**

**Report #192**  
**2nd Qtr 2017**

Grand Mean Sample **X75-X76** = 3.5272 minutes

Grand Mean Sample **X77-X78** = 4.6619 minutes





# Rubber Interlaboratory Testing Program

Report #192

## Analysis 687

2nd Qtr 2017

### MDR Vulcanization-Cure Time 90% (minutes)

WebCode	Data Flag	Sample X75-X76			Sample X77-X78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2BXB29		6.415	-0.092	-0.26	8.267	-0.099	-0.22	TP
2G8CKR		6.213	-0.293	-0.82	7.987	-0.379	-0.84	MC
2LXJ6L		6.640	0.133	0.38	8.230	-0.136	-0.30	ME
3DJE8L		7.015	0.508	1.43	8.843	0.478	1.06	MM
3YW8AK		6.310	-0.197	-0.55	8.575	0.209	0.47	MC
4AE987		7.178	0.672	1.89	9.197	0.831	1.85	MR
4JKTTM		6.123	-0.383	-1.08	7.835	-0.531	-1.18	MC
4QGTY3		6.277	-0.230	-0.65	8.265	-0.101	-0.22	MP
4WRYJE		6.028	-0.478	-1.34	8.013	-0.352	-0.78	MC
62UCW4		6.234	-0.272	-0.77	8.001	-0.364	-0.81	MC
7AQPDPH		6.462	-0.045	-0.13	8.403	0.038	0.08	TP
8M9L4E		6.737	0.230	0.65	8.838	0.473	1.05	XX
9KKHYE		6.353	-0.153	-0.43	8.108	-0.257	-0.57	MP
9Q96UK		6.458	-0.048	-0.14	8.787	0.421	0.94	MC
BKTEJA		6.457	-0.050	-0.14	8.045	-0.321	-0.71	MC
CDPR7Z		6.972	0.465	1.31	8.598	0.233	0.52	MC
DDH7NP		6.915	0.408	1.15	8.588	0.223	0.50	XX
EKTUTB		6.977	0.470	1.32	8.758	0.393	0.87	MC
FPTDK2		6.440	-0.067	-0.19	8.232	-0.134	-0.30	MC
G7UHM4		6.686	0.180	0.51	8.750	0.384	0.86	MC
HG7AHQ		6.827	0.320	0.90	8.638	0.273	0.61	MC
KU9D6W		6.053	-0.453	-1.27	7.578	-0.787	-1.75	MC
LMYPEZ		5.847	-0.660	-1.86	7.322	-1.044	-2.32	MC
ND82MV		6.493	-0.013	-0.04	8.558	0.193	0.43	MD
NQEPZY		6.375	-0.132	-0.37	8.130	-0.236	-0.52	MC
P7JLPB		6.978	0.472	1.33	8.405	0.039	0.09	XX
PRKJ6X		7.035	0.528	1.49	8.810	0.444	0.99	MM
RFFD3U		6.448	-0.058	-0.16	8.455	0.089	0.20	MC
RGXDBQ		5.990	-0.517	-1.45	7.572	-0.794	-1.77	ME
TMX2JH		6.235	-0.272	-0.76	8.118	-0.247	-0.55	MC
U2PD8C		6.480	-0.027	-0.07	8.473	0.108	0.24	MD
U7AXKT		6.560	0.053	0.15	8.555	0.189	0.42	MC
UBYKA8		6.363	-0.143	-0.40	8.275	-0.091	-0.20	XX
VBF3KR	*	6.587	0.080	0.23	9.153	0.788	1.75	XX
W4VHX7		6.308	-0.198	-0.56	8.372	0.006	0.01	MC
WBB2G6		6.413	-0.093	-0.26	8.462	0.096	0.21	MC
WBR9MM		6.835	0.328	0.92	8.727	0.361	0.80	MC
WLVKHG		6.688	0.182	0.51	8.848	0.483	1.07	MC



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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample X75-X76			Sample X77-X78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XKU24T		5.657	-0.850	-2.39	7.307	-1.059	-2.36	MC
YGVVDT		6.972	0.465	1.31	9.048	0.683	1.52	MC
ZT3928		6.228	-0.278	-0.78	7.932	-0.434	-0.97	MC
ZV7ZV7	*	7.013	0.507	1.42	8.302	-0.064	-0.14	MD

Grand Means		Summary Statistics	
	6.5066 minutes		8.3658 minutes
Stnd Dev Btwn Labs	0.3557 minutes		0.4494 minutes
Statistics based on 42 of 42 reporting participants			

Samples X75-X76: EPDM compound, batch #1 & X77-X78: EPDM compound, batch #2

**Key to Instrument Codes Reported by Participants**

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





# Rubber Interlaboratory Testing Program

Report #192

## Analysis 688

2nd Qtr 2017

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

WebCode	Data Flag	Sample X75-X76			Sample X77-X78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2BXB29		1.572	-0.381	-1.39	1.508	-0.417	-1.16	TP
2G8CKR		2.228	0.275	1.01	2.258	0.333	0.93	MC
2LXJ6L		2.113	0.160	0.59	1.985	0.060	0.17	ME
3DJE8L		2.293	0.340	1.24	2.393	0.468	1.30	MM
3YW8AK		1.742	-0.211	-0.77	1.636	-0.289	-0.80	MC
4AE987		1.827	-0.126	-0.46	1.780	-0.145	-0.40	MR
4JKTTM		2.348	0.395	1.44	2.563	0.638	1.77	MC
4QGTY3		1.754	-0.199	-0.73	1.658	-0.267	-0.74	MP
4WRYJE		2.483	0.530	1.94	2.563	0.638	1.77	MC
62UCW4		2.098	0.145	0.53	2.306	0.381	1.06	MC
7AQPDPH		1.743	-0.210	-0.77	1.670	-0.255	-0.71	TP
8M9L4E		2.113	0.160	0.59	2.062	0.137	0.38	XX
9KKHYE		1.822	-0.131	-0.48	1.714	-0.211	-0.59	MP
9Q96UK		1.901	-0.051	-0.19	1.876	-0.049	-0.13	MC
BKTEJA		1.918	-0.035	-0.13	1.855	-0.070	-0.19	MC
CDPR7Z		1.737	-0.216	-0.79	1.578	-0.347	-0.96	MC
DDH7NP		2.295	0.342	1.25	2.327	0.402	1.12	XX
EKTUTB		2.218	0.265	0.97	2.327	0.402	1.12	MC
FPTDK2		1.858	-0.095	-0.35	1.710	-0.215	-0.60	MC
G7UHM4		1.847	-0.106	-0.39	1.652	-0.273	-0.76	MC
HG7AHQ		1.790	-0.163	-0.59	1.727	-0.198	-0.55	MC
KU9D6W		1.652	-0.301	-1.10	1.538	-0.387	-1.07	MC
LMYPEZ		1.952	-0.001	0.00	1.823	-0.102	-0.28	MC
ND82MV		1.679	-0.274	-1.00	1.553	-0.372	-1.03	MD
NQEPZY		1.756	-0.197	-0.72	1.757	-0.168	-0.47	MC
P7JLPB		1.901	-0.051	-0.19	1.863	-0.062	-0.17	XX
PRKJ6X		1.640	-0.313	-1.14	1.527	-0.398	-1.11	MM
RFFD3U		2.160	0.207	0.76	2.295	0.370	1.03	MC
RGXDBQ		1.638	-0.315	-1.15	1.493	-0.432	-1.20	ME
TMX2JH		2.093	0.140	0.51	2.028	0.103	0.29	MC
U2PD8C		1.647	-0.306	-1.12	1.580	-0.345	-0.96	MD
U7AXKT		2.130	0.177	0.65	2.268	0.343	0.95	MC
UBYKA8		2.070	0.117	0.43	2.046	0.121	0.34	XX
VBF3KR		2.285	0.332	1.21	2.458	0.533	1.48	XX
W4VHX7		1.593	-0.360	-1.31	1.607	-0.318	-0.88	MC
WBB2G6		1.783	-0.170	-0.62	1.688	-0.237	-0.66	MC
WBR9MM		1.780	-0.173	-0.63	1.658	-0.267	-0.74	MC
WLVKHG		1.608	-0.345	-1.26	1.481	-0.444	-1.23	MC



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

**Report #192**  
**2nd Qtr 2017**

WebCode	Data Flag	Sample X75-X76			Sample X77-X78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XKU24T	*	2.553	0.600	2.19	2.525	0.600	1.67	MC
YGVVDT		1.705	-0.248	-0.91	1.557	-0.368	-1.02	MC
ZT3928		2.237	0.284	1.04	2.323	0.398	1.11	MC
ZV7ZV7		2.458	0.505	1.84	2.627	0.702	1.95	MD

Summary Statistics			
Grand Means		1.9529 lbf.in	1.9249 lbf.in
Std Dev Btwn Labs		0.2738 lbf.in	0.3600 lbf.in
Statistics based on 42 of 42 reporting participants			

Summary Statistics in SI Units			
Grand Means		2.2065 dN.m	2.1748 dN.m
Std Dev Btwn Labs		0.3093 dN.m	0.4067 dN.m
Statistics based on 42 of 42 reporting participants			

Samples X75-X76: EPDM compound, batch #1 & X77-X78: EPDM compound, batch #2

**Key to Instrument Codes Reported by Participants**

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

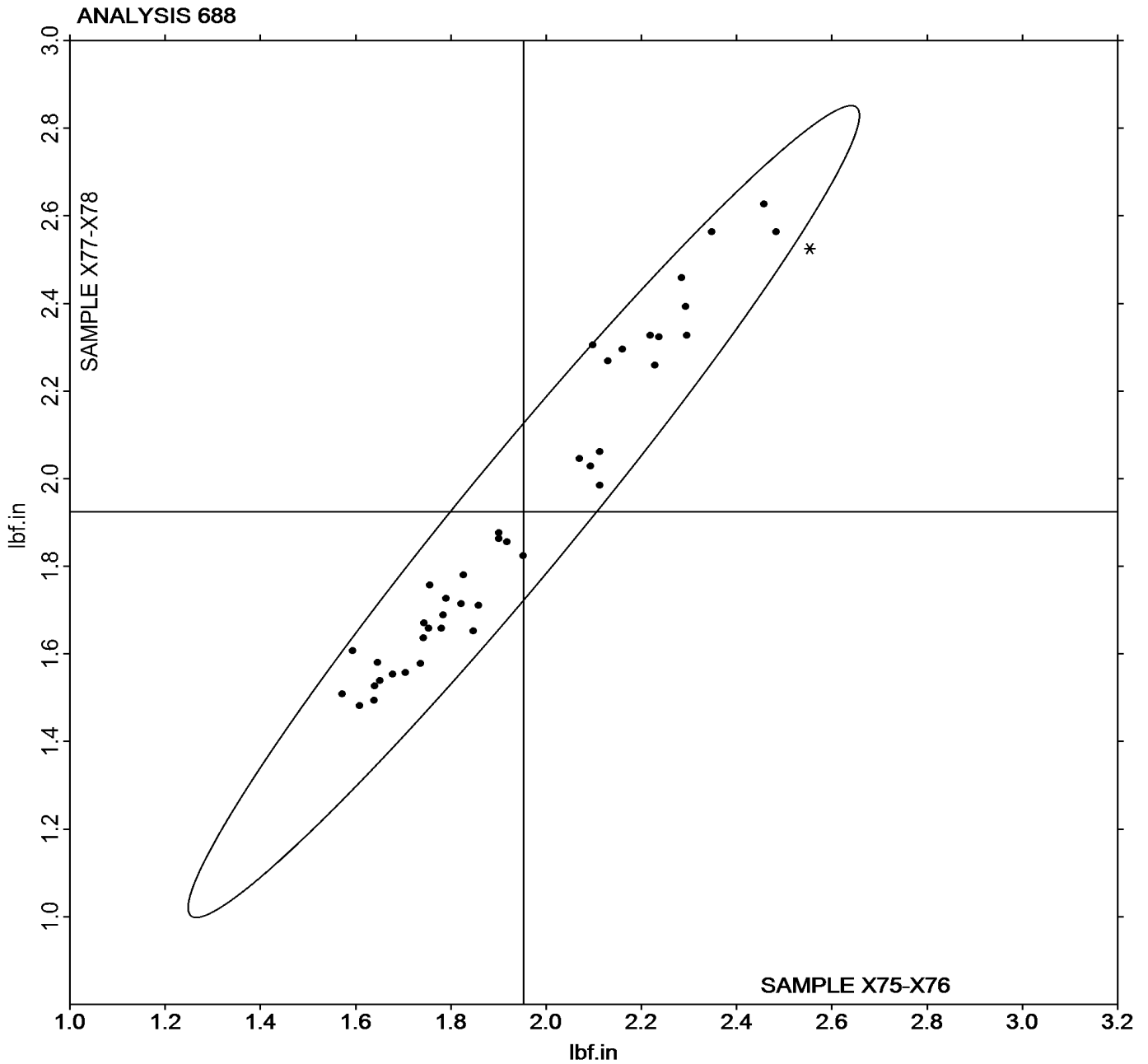


**Rubber Interlaboratory Testing Program**  
**Analysis 688**  
**MDR Vulcanization: Minimum Torque (lbf.in)**

**Report #192**  
**2nd Qtr 2017**

Grand Mean Sample **X75-X76** = 1.9529 lbf.in

Grand Mean Sample **X77-X78** = 1.9249 lbf.in







# Rubber Interlaboratory Testing Program

Report #192

## Analysis 689

2nd Qtr 2017

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

WebCode	Data Flag	Sample X75-X76			Sample X77-X78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2BXB29		10.77	-1.48	-2.48	12.22	-1.26	-2.08	TP
2G8CKR		12.89	0.64	1.07	14.14	0.66	1.08	MC
2LXJ6L		12.85	0.60	1.00	14.23	0.75	1.23	ME
3DJE8L		13.48	1.23	2.06	14.39	0.91	1.49	MM
3YW8AK		13.14	0.90	1.50	13.89	0.41	0.68	MC
4AE987	X	16.99	4.74	7.96	16.81	3.33	5.49	MR
4JKTTM		12.29	0.04	0.06	13.92	0.44	0.72	MC
4QGTY3		12.34	0.09	0.16	13.55	0.07	0.12	MC
4WRYJE		12.99	0.74	1.25	14.74	1.26	2.07	MC
62UCW4		12.83	0.58	0.97	13.77	0.28	0.47	MC
7AQPDPH		10.92	-1.33	-2.23	12.23	-1.25	-2.07	TP
8M9L4E		12.31	0.06	0.10	13.42	-0.06	-0.10	XX
9KKHYE		12.36	0.11	0.18	14.00	0.51	0.85	MP
9Q96UK		12.57	0.32	0.53	14.26	0.77	1.28	MC
BKTEJA		13.14	0.89	1.49	14.56	1.08	1.78	MC
CDPR7Z		11.82	-0.43	-0.73	13.31	-0.17	-0.29	MC
DDH7NP		12.70	0.45	0.76	13.73	0.25	0.41	XX
EKTUTB		12.96	0.71	1.19	13.52	0.04	0.07	MC
FPTDK2		12.20	-0.05	-0.09	13.63	0.15	0.24	MC
G7UHM4		12.45	0.20	0.33	13.52	0.04	0.06	MC
HG7AHQ		12.21	-0.04	-0.07	13.33	-0.16	-0.26	MC
KU9D6W		11.25	-1.00	-1.68	13.08	-0.40	-0.66	MC
LMYPEZ		11.77	-0.48	-0.81	12.88	-0.60	-0.99	MC
ND82MV		12.12	-0.13	-0.21	13.26	-0.22	-0.36	MD
NQEPZY		11.71	-0.54	-0.91	12.86	-0.62	-1.02	MC
P7JLPB		11.94	-0.31	-0.52	12.90	-0.58	-0.95	XX
PRKJ6X		12.04	-0.21	-0.36	13.59	0.11	0.18	MM
RFFD3U		12.49	0.24	0.40	13.48	0.00	0.00	MC
RGXDBQ		11.65	-0.60	-1.00	13.34	-0.15	-0.24	ME
TMX2JH		12.20	-0.05	-0.09	13.24	-0.24	-0.39	MC
U2PD8C		11.60	-0.65	-1.09	12.73	-0.75	-1.24	MD
U7AXKT		12.35	0.10	0.16	14.04	0.56	0.92	MC
UBYKA8		11.91	-0.34	-0.58	13.11	-0.37	-0.61	XX
VBF3KR		12.32	0.07	0.11	13.64	0.16	0.26	XX
W4VHX7		11.85	-0.40	-0.67	12.53	-0.95	-1.57	MC
WBB2G6		12.73	0.48	0.80	13.86	0.38	0.63	MC
WBR9MM		12.06	-0.19	-0.33	13.40	-0.09	-0.14	MC



# Rubber Interlaboratory Testing Program

Report #192

## Analysis 689

2nd Qtr 2017

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

WebCode	Data Flag	Sample X75-X76			Sample X77-X78			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
WLVKHG		11.51	-0.74	-1.24	12.25	-1.23	-2.03	MC
XKU24T		12.77	0.52	0.87	13.92	0.44	0.73	MC
YGVVDT		12.58	0.33	0.55	13.41	-0.07	-0.11	MC
ZT3928		11.98	-0.27	-0.45	13.39	-0.09	-0.15	MC
ZV7ZV7	X	14.52	2.27	3.81	13.96	0.47	0.78	MD

Summary Statistics	
Grand Means	12.250 lbf.in
Std Dev Btw Labs	0.596 lbf.in
	13.482 lbf.in
	0.607 lbf.in
Statistics based on 40 of 42 reporting participants	

Summary Statistics in SI Units	
Grand Means	13.840 dN.m
Std Dev Btw Labs	0.673 dN.m
	15.232 dN.m
	0.686 dN.m
Statistics based on 40 of 42 reporting participants	

Samples X75-X76: EPDM compound, batch #1 & X77-X78: EPDM compound, batch #2

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

4AE987 (X) - Data for all samples are high. Inconsistent within the determinations of sample group X75-X76.

ZV7ZV7 (X) - Inconsistent in testing between sample groups. Data for sample group X75-X76 are high.

#### Key to Instrument Codes Reported by Participants

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





# Rubber Interlaboratory Testing Program

Report #192

## Analysis 690

2nd Qtr 2017

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

WebCode	Data Flag	Sample F71-F72			Sample F73-F74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
62UCW4		498.3	30.7	1.48	509.7	41.7	1.47	XX
9KKHYE		449.0	-18.6	-0.90	442.4	-25.6	-0.90	RP
9Q96UK		463.6	-4.0	-0.19	455.1	-12.9	-0.45	RP
HG7AHQ		475.5	7.9	0.38	472.3	4.3	0.15	PP
P7JLPB		477.8	10.2	0.49	490.7	22.7	0.80	XX
WLVKHG		441.5	-26.1	-1.26	437.7	-30.3	-1.07	RP

Summary Statistics	
Grand Means	467.61 kPa
Std Dev Btwn Labs	20.75 kPa
	467.99 kPa
	28.35 kPa
Statistics based on 6 of 6 reporting participants	

Samples F71-F72: EPDM compound, batch #1 & F73-F74: EPDM compound, batch #2

### Key to Instrument Codes Reported by Participants

- PP PPA 2000
- RP RPA 2000
- XX Instrument model not specified by lab

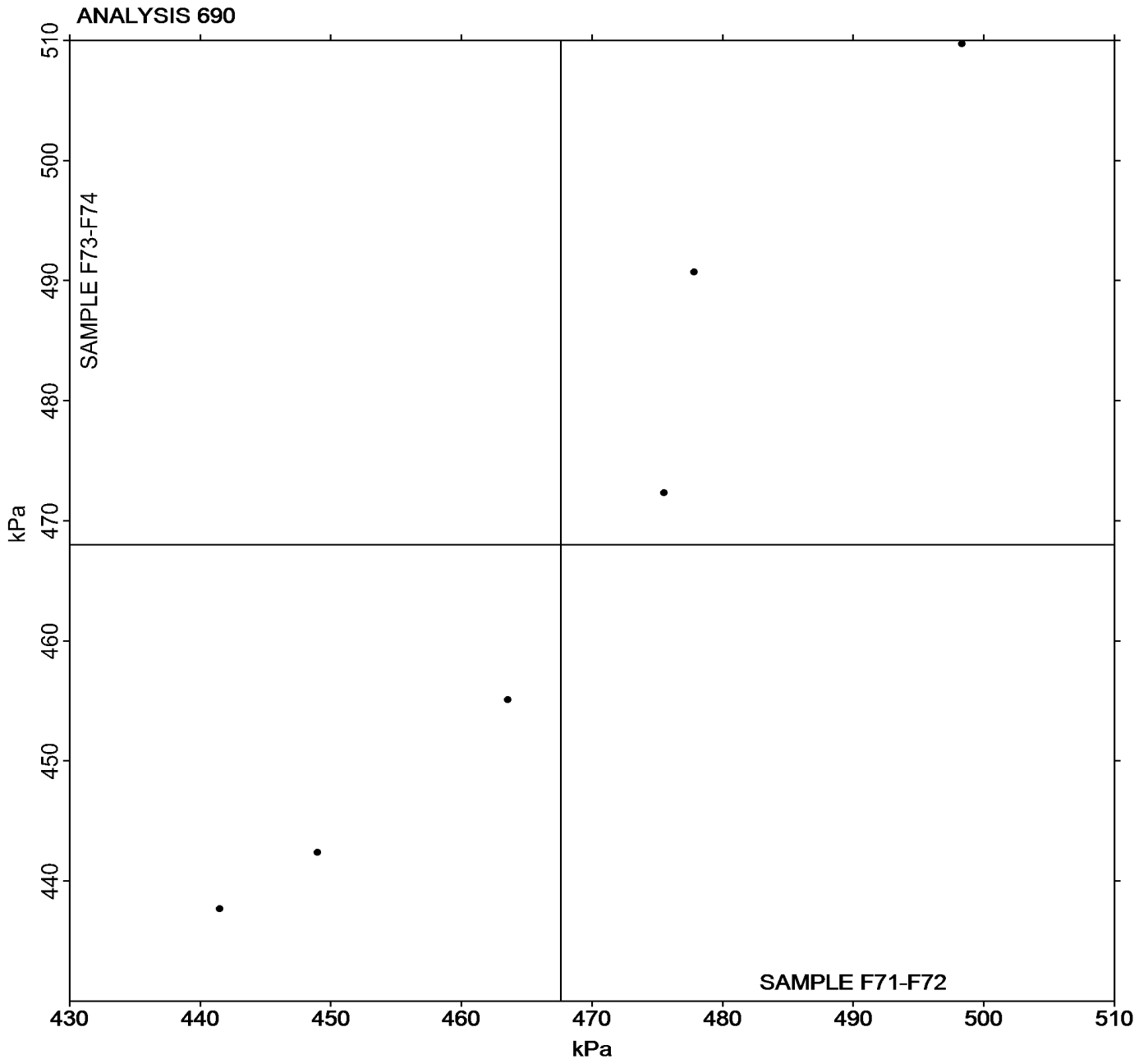


Rubber Interlaboratory Testing Program  
Analysis 690  
RPA Rheological Properties: Part A - G' at 20Hz (kPa)

Report #192  
2nd Qtr 2017

Grand Mean Sample F71-F72 = 467.61 kPa

Grand Mean Sample F73-F74 = 467.99 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 #192

## Analysis 691

2nd Qtr 2017

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

WebCode	Data Flag	Sample F71-F72			Sample F73-F74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
62UCW4		214.0	1.3	0.30	208.0	5.1	1.12	XX
9KKHYE		212.9	0.2	0.04	202.9	0.0	0.01	RP
9Q96UK		204.6	-8.2	-1.95	194.8	-8.0	-1.75	RP
HG7AHQ		216.7	3.9	0.93	203.7	0.8	0.18	PP
P7JLPB		214.1	1.3	0.32	206.3	3.4	0.75	XX
WLVKHG		214.3	1.5	0.37	201.5	-1.4	-0.30	XX

Summary Statistics	
Grand Means	
	212.78 kPa
	202.86 kPa
Std Dev Btwn Labs	
	4.19 kPa
	4.57 kPa
Statistics based on 6 of 6 reporting participants	

Samples F71-F72: EPDM compound, batch #1 & F73-F74: EPDM compound, batch #2

#### Key to Instrument Codes Reported by Participants

- PP PPA 2000
- RP RPA 2000
- XX Instrument model not specified by lab

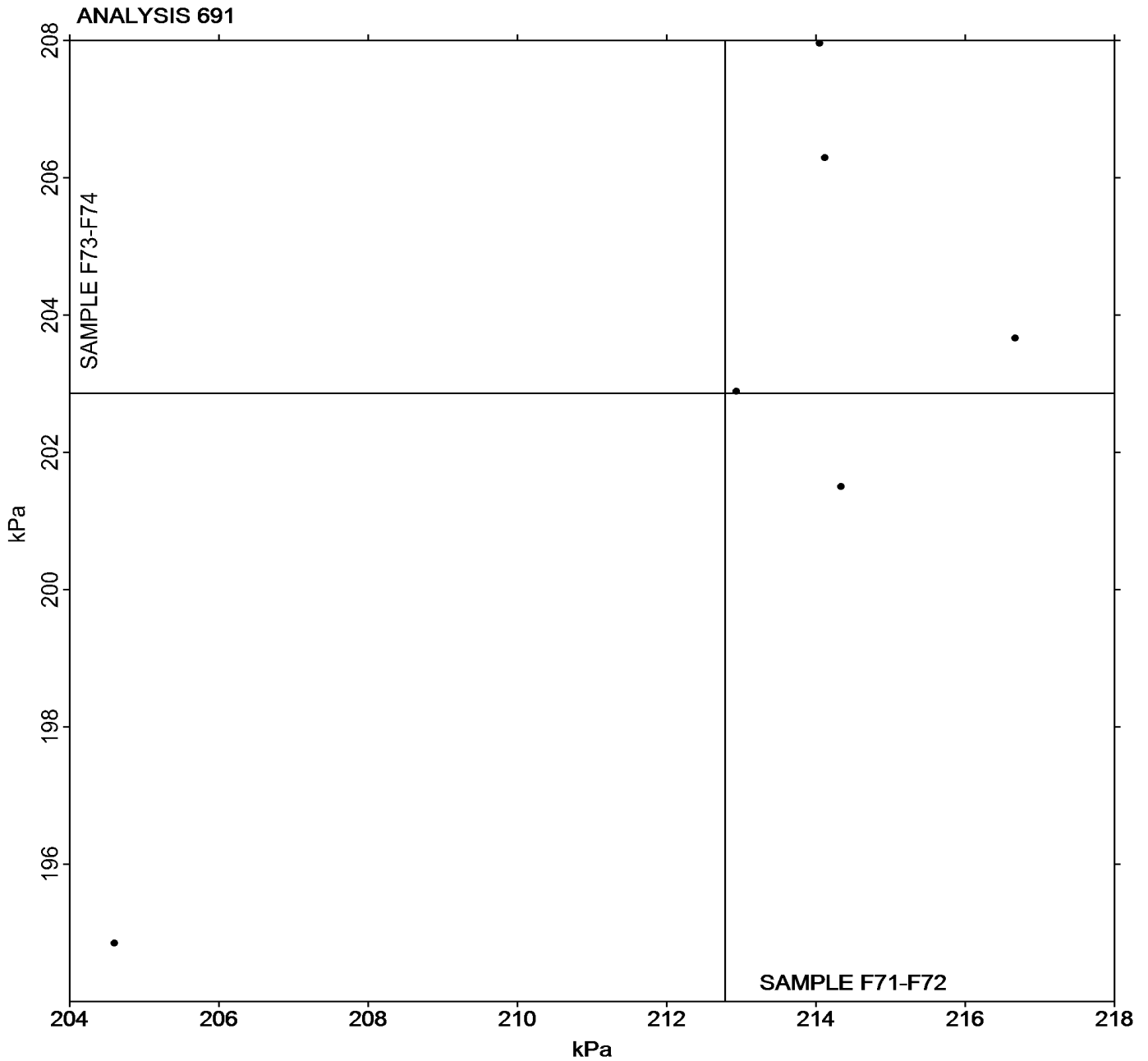


Rubber Interlaboratory Testing Program  
Analysis 691  
RPA Rheological Properties: Part A -  $G''$  at 20Hz (kPa)

Report #192  
2nd Qtr 2017

Grand Mean Sample **F71-F72** = 212.78 kPa

Grand Mean Sample **F73-F74** = 202.86 kPa



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



**Rubber Interlaboratory Testing Program**

**Report #192**

**Analysis 695**

**2nd Qtr 2017**

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

WebCode	Data Flag	Sample F71-F72			Sample F73-F74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
62UCW4		87.73	13.48	1.59	93.30	16.51	1.53	XX
9KKHYE		67.53	-6.72	-0.79	66.95	-9.85	-0.91	RP
9Q96UK		67.43	-6.82	-0.80	67.88	-8.92	-0.83	RP
HG7AHQ		75.21	0.96	0.11	77.88	1.08	0.10	PR
P7JLPB		80.32	6.07	0.72	85.48	8.69	0.81	XX
WLVKHG		67.30	-6.95	-0.82	69.30	-7.50	-0.70	XX

Summary Statistics	
Grand Means	74.255 kPa
Std Dev Btwn Labs	8.479 kPa
	76.798 kPa
	10.788 kPa
Statistics based on 6 of 6 reporting participants	

Samples F71-F72: EPDM compound, batch #1 & F73-F74: EPDM compound, batch #2

**Key to Instrument Codes Reported by Participants**

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



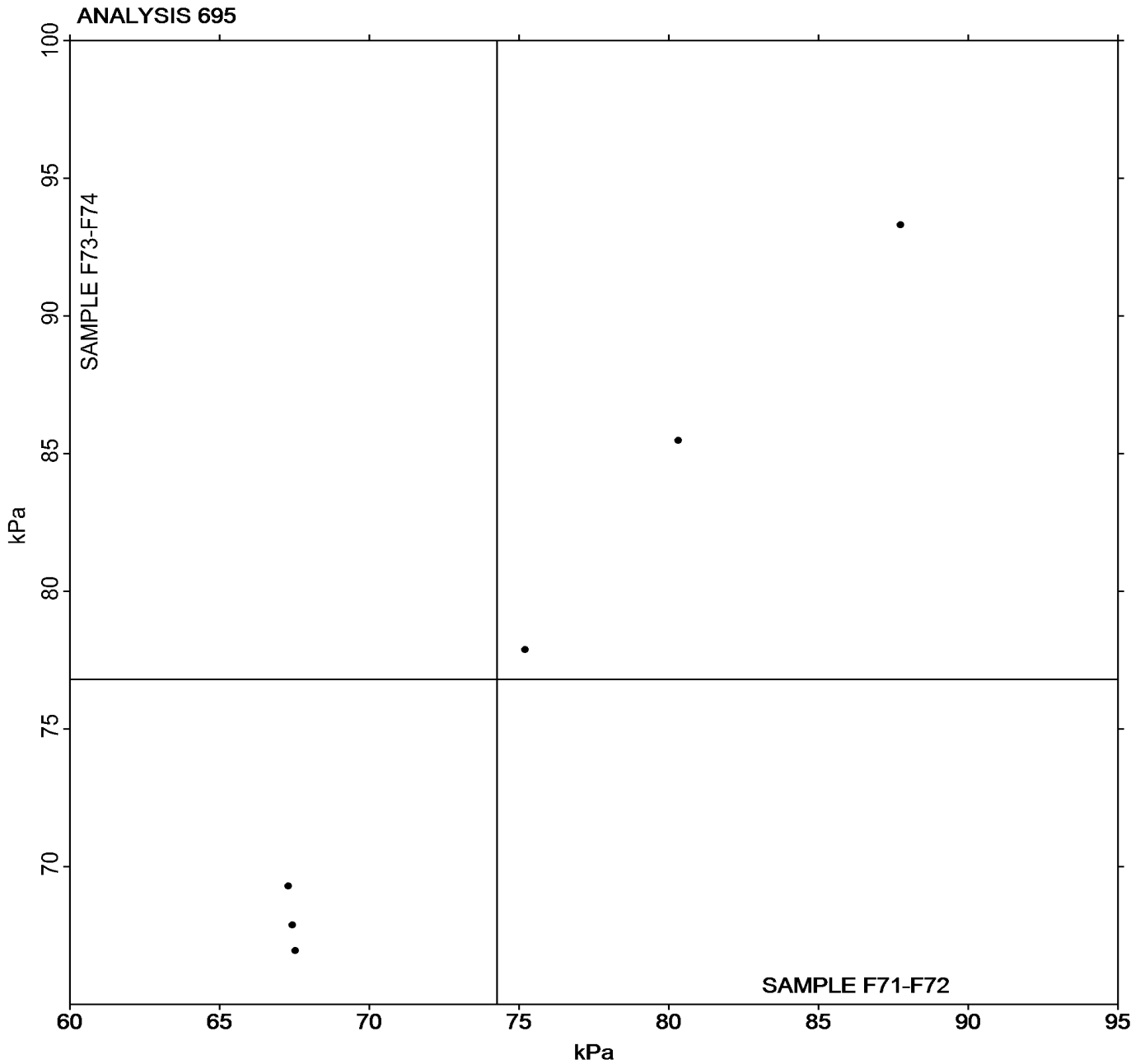


Rubber Interlaboratory Testing Program  
Analysis 695  
RPA Rheological Properties: Part B - G' at 1.0Hz (kPa)

Report #192  
2nd Qtr 2017

Grand Mean Sample F71-F72 = 74.255 kPa

Grand Mean Sample F73-F74 = 76.798 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 #192

## Analysis 696

2nd Qtr 2017

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

WebCode	Data Flag	Sample F71-F72			Sample F73-F74			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
62UCW4		69.36	4.62	1.55	69.40	4.68	1.52	XX
9KKHYE		62.33	-2.42	-0.81	62.23	-2.49	-0.81	RP
9Q96UK		62.51	-2.23	-0.75	62.48	-2.24	-0.73	RP
HG7AHQ		65.52	0.78	0.26	64.87	0.15	0.05	PP
P7JLPB		66.73	1.98	0.67	67.32	2.59	0.85	XX
WLVKHG		62.00	-2.74	-0.92	62.03	-2.69	-0.88	XX

Summary Statistics	
Grand Means	64.741 kPa
Std Dev Btwn Labs	2.974 kPa
	64.721 kPa
	3.068 kPa
Statistics based on 6 of 6 reporting participants	

Samples F71-F72: EPDM compound, batch #1 & F73-F74: EPDM compound, batch #2

### Key to Instrument Codes Reported by Participants

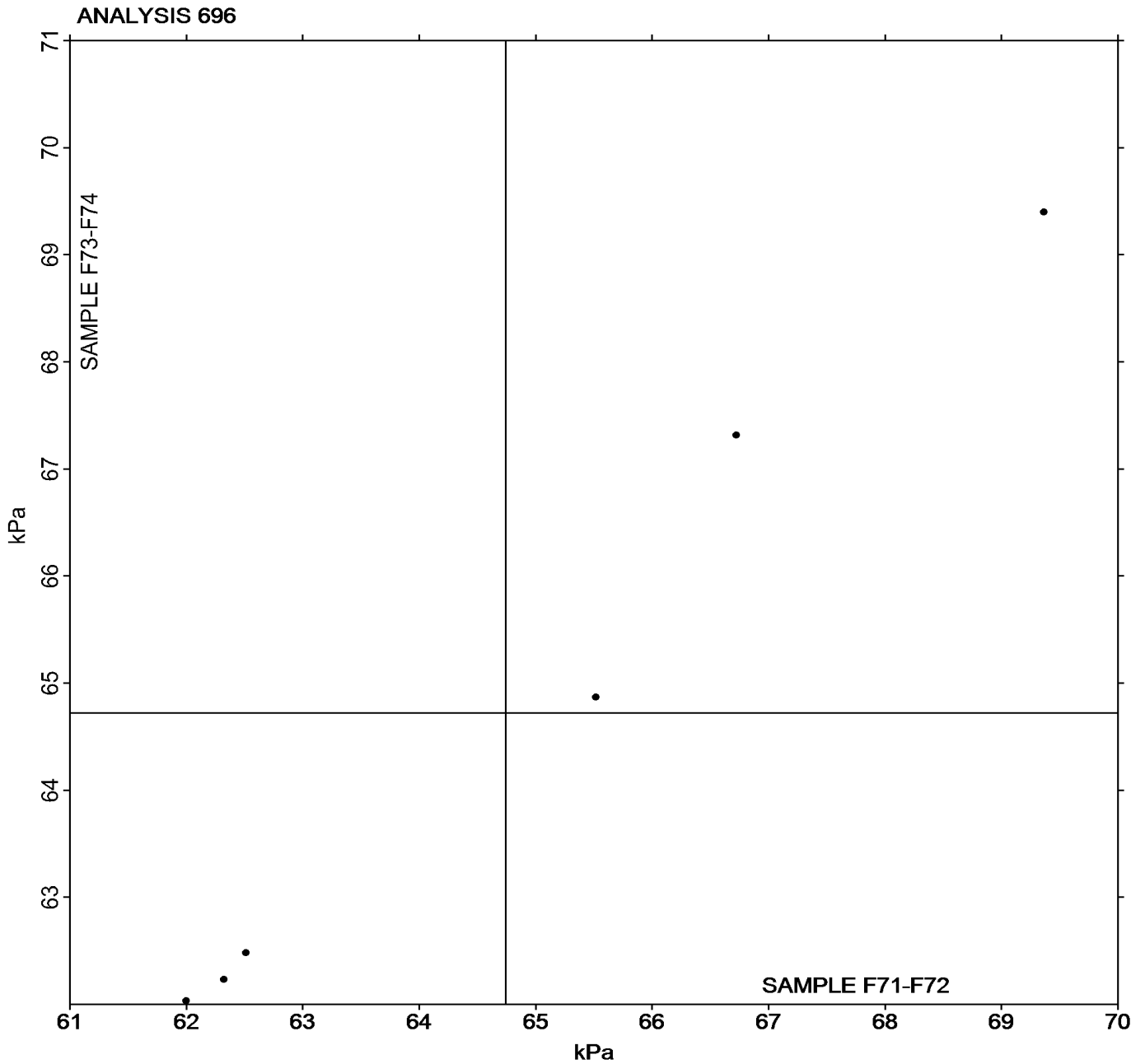
- PP PPA 2000
- XX Instrument model not specified by lab
- RP RPA 2000



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

Grand Mean Sample F71-F72 = 64.741 kPa

Grand Mean Sample F73-F74 = 64.721 kPa



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