



Rubber Interlaboratory Testing Program

Summary Report #197- 3rd Qtr 2018

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[Key for Web Summary Report](#)

| Analysis | Analysis Name | Analysis | Analysis Name |
|---------------------|---|---------------------|---|
| 605 | Tensile Strength: Precured Rubber Samples | 691 | RPA Rheological Properties: Part A - G'' at 20Hz |
| 606 | Ultimate Elongation: Precured Rubber Samples | 695 | RPA Rheological Properties: Part B - G' at 1.0Hz |
| 607 | Stress at 300% Elongation: Precured Samples | 696 | RPA Rheological Properties: Part B - G'' at 1.0Hz |
| 608 | Stress at 100% Elongation: Precured Samples | | |
| 620 | Hardness (Type A): Precured Rubber Samples | | |
| 621 | Density: Precured Rubber Samples @ 25C | | |
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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.

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

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

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

Common Problems Highlighted in Footnotes

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

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



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| 2EEYU3 | | 3,053.0 | -226.2 | -1.47 | 3,089.5 | -208.3 | -1.36 |
| 2J6FY2 | | 3,390.0 | 110.8 | 0.72 | 3,294.9 | -2.9 | -0.02 |
| 2LDKJG | | 2,965.3 | -313.9 | -2.04 | 2,925.4 | -372.4 | -2.44 |
| 2M8FZY | | 3,355.0 | 75.8 | 0.49 | 3,289.0 | -8.8 | -0.06 |
| 2PBBJ2 | | 3,385.3 | 106.1 | 0.69 | 3,458.6 | 160.7 | 1.05 |
| 2Q9EJ4 | | 3,550.5 | 271.3 | 1.77 | 3,476.0 | 178.2 | 1.17 |
| 2WV7LQ | | 3,582.5 | 303.2 | 1.97 | 3,553.5 | 255.6 | 1.67 |
| 2Y2U2F | | 3,269.2 | -10.1 | -0.07 | 3,249.6 | -48.3 | -0.32 |
| 3AEB8R | | 3,126.2 | -153.1 | -1.00 | 3,152.9 | -144.9 | -0.95 |
| 3AW6AM | | 3,196.7 | -82.6 | -0.54 | 3,235.8 | -62.0 | -0.41 |
| 3F4VB9 | | 3,380.0 | 100.8 | 0.66 | 3,340.3 | 42.5 | 0.28 |
| 3P829G | | 3,160.0 | -119.2 | -0.78 | 3,080.0 | -217.8 | -1.42 |
| 4DC8CD | | 3,231.5 | -47.7 | -0.31 | 3,357.5 | 59.7 | 0.39 |
| 4DRGHR | | 3,316.6 | 37.4 | 0.24 | 3,355.8 | 57.9 | 0.38 |
| 4GRHPG | | 3,116.2 | -163.0 | -1.06 | 3,186.3 | -111.6 | -0.73 |
| 4JUPMZ | | 3,392.7 | 113.4 | 0.74 | 3,453.5 | 155.7 | 1.02 |
| 4L4M33 | | 3,219.9 | -59.4 | -0.39 | 3,212.6 | -85.2 | -0.56 |
| 69RJBD | | 3,085.2 | -194.0 | -1.26 | 3,148.7 | -149.2 | -0.98 |
| 6T3CJ7 | | 3,352.7 | 73.4 | 0.48 | 3,314.9 | 17.1 | 0.11 |
| 6UTHVQ | | 3,279.8 | 0.5 | 0.00 | 3,200.1 | -97.7 | -0.64 |
| 6Y4TNK | | 3,328.5 | 49.3 | 0.32 | 3,265.0 | -32.8 | -0.21 |
| 6YP6PE | | 3,281.0 | 1.8 | 0.01 | 3,376.5 | 78.7 | 0.51 |
| 736Y26 | | 3,310.7 | 31.4 | 0.20 | 3,390.7 | 92.9 | 0.61 |
| 776882 | | 3,279.7 | 0.5 | 0.00 | 3,203.0 | -94.9 | -0.62 |
| 7LXTW2 | | 3,321.0 | 41.8 | 0.27 | 3,401.5 | 103.7 | 0.68 |
| 7PDKMU | | 3,444.0 | 164.8 | 1.07 | 3,512.5 | 214.7 | 1.40 |
| 7VZH8B | | 2,950.1 | -329.2 | -2.14 | 2,992.2 | -305.7 | -2.00 |
| 866RAU | | 3,431.5 | 152.3 | 0.99 | 3,470.0 | 172.2 | 1.13 |
| 8C747R | | 3,237.5 | -41.7 | -0.27 | 3,392.0 | 94.2 | 0.62 |
| 8RK3J6 | | 3,395.0 | 115.8 | 0.75 | 3,393.0 | 95.2 | 0.62 |
| 8WCA4Y | | 3,203.3 | -76.0 | -0.49 | 3,169.3 | -128.5 | -0.84 |
| 9CKK8C | | 3,177.0 | -102.2 | -0.67 | 3,157.0 | -140.8 | -0.92 |
| 9MMZTA | | 3,383.3 | 104.1 | 0.68 | 3,361.2 | 63.4 | 0.41 |
| 9TQRD2 | | 3,335.0 | 55.8 | 0.36 | 3,220.5 | -77.3 | -0.51 |
| AAUXP9 | | 3,429.5 | 150.3 | 0.98 | 3,415.0 | 117.2 | 0.77 |
| ADENDR | | 3,290.7 | 11.4 | 0.07 | 3,266.6 | -31.3 | -0.20 |
| AH3DRA | * | 3,723.9 | 444.6 | 2.89 | 3,768.8 | 471.0 | 3.08 |
| BD9XLZ | | 3,179.3 | -100.0 | -0.65 | 3,169.1 | -128.7 | -0.84 |



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| C688AN | | 3,441.0 | 161.8 | 1.05 | 3,444.5 | 146.7 | 0.96 |
| CV4VDU | | 2,990.5 | -288.7 | -1.88 | 3,050.5 | -247.3 | -1.62 |
| CXA97T | | 3,301.6 | 22.4 | 0.15 | 3,280.2 | -17.6 | -0.12 |
| D4TZLL | | 3,389.1 | 109.8 | 0.71 | 3,371.3 | 73.4 | 0.48 |
| DHRXTQ | | 3,057.0 | -222.2 | -1.45 | 3,141.0 | -156.8 | -1.03 |
| E8RNMNT | | 3,263.4 | -15.9 | -0.10 | 3,335.9 | 38.1 | 0.25 |
| EB7E3V | X | 2,715.5 | -563.7 | -3.67 | 2,624.5 | -673.3 | -4.40 |
| ECY3KQ | | 3,333.9 | 54.6 | 0.36 | 3,304.0 | 6.1 | 0.04 |
| EUZ3GX | | 3,138.0 | -141.2 | -0.92 | 3,152.5 | -145.3 | -0.95 |
| EWCP9K | | 3,142.0 | -137.2 | -0.89 | 3,161.0 | -136.8 | -0.90 |
| EYFH64 | | 3,215.0 | -64.2 | -0.42 | 3,299.5 | 1.7 | 0.01 |
| FBKXNE | | 3,281.5 | 2.3 | 0.01 | 3,379.4 | 81.6 | 0.53 |
| FCXK7T | | 3,420.5 | 141.3 | 0.92 | 3,461.5 | 163.7 | 1.07 |
| FCZG9C | | 3,141.0 | -138.2 | -0.90 | 3,194.0 | -103.8 | -0.68 |
| GJT6LT | | 3,540.6 | 261.3 | 1.70 | 3,571.8 | 274.0 | 1.79 |
| GP46YK | | 3,037.1 | -242.1 | -1.58 | 3,066.1 | -231.7 | -1.52 |
| GV7CF9 | | 3,270.0 | -9.2 | -0.06 | 3,357.9 | 60.1 | 0.39 |
| H37VFH | | 3,221.0 | -58.2 | -0.38 | 3,173.0 | -124.8 | -0.82 |
| H7JVCA | | 3,350.5 | 71.3 | 0.46 | 3,369.0 | 71.2 | 0.47 |
| HCBXM2 | * | 3,119.5 | -159.7 | -1.04 | 3,308.5 | 10.7 | 0.07 |
| HEEQGZ | | 3,195.2 | -84.0 | -0.55 | 3,285.9 | -12.0 | -0.08 |
| HNY6BP | | 3,070.5 | -208.8 | -1.36 | 3,148.8 | -149.0 | -0.97 |
| HWWRB3 | | 3,150.0 | -129.2 | -0.84 | 3,221.5 | -76.3 | -0.50 |
| J4BZ9X | | 3,309.5 | 30.3 | 0.20 | 3,191.0 | -106.8 | -0.70 |
| JWUKKU | | 3,498.0 | 218.8 | 1.42 | 3,515.0 | 217.2 | 1.42 |
| K3WV9E | | 3,336.0 | 56.8 | 0.37 | 3,442.0 | 144.2 | 0.94 |
| KE92K2 | | 3,359.8 | 80.5 | 0.52 | 3,418.0 | 120.2 | 0.79 |
| KTPBTN | * | 3,282.2 | 3.0 | 0.02 | 3,119.8 | -178.1 | -1.16 |
| LACV3G | | 3,319.0 | 39.8 | 0.26 | 3,436.5 | 138.7 | 0.91 |
| LH9PJN | | 3,057.3 | -222.0 | -1.45 | 3,169.8 | -128.1 | -0.84 |
| LMZW3W | | 3,102.0 | -177.2 | -1.15 | 3,120.0 | -177.8 | -1.16 |
| LT2C7B | | 3,133.0 | -146.2 | -0.95 | 3,190.9 | -107.0 | -0.70 |
| MCUDX8 | | 3,120.9 | -158.4 | -1.03 | 3,078.5 | -219.4 | -1.44 |
| MFRWXK | | 3,212.6 | -66.6 | -0.43 | 3,386.7 | 88.8 | 0.58 |
| MG7GQU | | 3,160.5 | -118.7 | -0.77 | 3,224.0 | -73.8 | -0.48 |
| MV8WUB | | 3,212.7 | -66.5 | -0.43 | 3,147.1 | -150.8 | -0.99 |
| N8YYUH | | 3,204.3 | -75.0 | -0.49 | 3,198.1 | -99.7 | -0.65 |



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| NUR8QP | X | 2,735.4 | -543.8 | -3.54 | 3,230.7 | -67.1 | -0.44 |
| NX8MEV | | 3,354.0 | 74.8 | 0.49 | 3,343.1 | 45.3 | 0.30 |
| P2MGR8 | X | 2,900.8 | -378.5 | -2.46 | 3,432.0 | 134.1 | 0.88 |
| P6LVDB | | 3,123.4 | -155.8 | -1.01 | 3,087.2 | -210.7 | -1.38 |
| P9JCNK | | 3,129.5 | -149.7 | -0.97 | 3,037.5 | -260.3 | -1.70 |
| PERT6L | | 3,240.0 | -39.2 | -0.26 | 3,332.0 | 34.2 | 0.22 |
| PHTU6H | | 3,231.0 | -48.3 | -0.31 | 3,262.6 | -35.2 | -0.23 |
| PZX2KK | | 3,188.5 | -90.7 | -0.59 | 3,232.5 | -65.3 | -0.43 |
| Q3FK3T | | 3,391.0 | 111.8 | 0.73 | 3,419.3 | 121.4 | 0.79 |
| Q7E4YZ | | 3,258.5 | -20.7 | -0.14 | 3,316.5 | 18.7 | 0.12 |
| QADFZR | | 3,293.0 | 13.8 | 0.09 | 3,403.5 | 105.7 | 0.69 |
| QM2NEK | | 3,488.0 | 208.8 | 1.36 | 3,380.5 | 82.7 | 0.54 |
| QUKPY4 | | 2,942.0 | -337.2 | -2.20 | 2,963.5 | -334.3 | -2.19 |
| QYENBD | | 3,458.7 | 179.5 | 1.17 | 3,474.8 | 176.9 | 1.16 |
| R22HPT | | 3,422.9 | 143.7 | 0.94 | 3,435.2 | 137.4 | 0.90 |
| RL3QQB | | 3,169.5 | -109.7 | -0.71 | 3,162.0 | -135.8 | -0.89 |
| T8MTJN | | 3,406.0 | 126.8 | 0.83 | 3,452.0 | 154.2 | 1.01 |
| T8ZKAK | | 3,488.5 | 209.3 | 1.36 | 3,571.0 | 273.2 | 1.79 |
| TBL6GA | | 3,213.5 | -65.7 | -0.43 | 3,261.5 | -36.3 | -0.24 |
| TCD824 | | 3,233.5 | -45.7 | -0.30 | 3,239.5 | -58.3 | -0.38 |
| TELFCA | | 3,450.0 | 170.8 | 1.11 | 3,507.5 | 209.7 | 1.37 |
| U82LRW | | 3,386.7 | 107.4 | 0.70 | 3,459.2 | 161.3 | 1.06 |
| UJBGMM | | 3,223.2 | -56.0 | -0.36 | 3,364.5 | 66.7 | 0.44 |
| UZEV72 | | 3,357.0 | 77.8 | 0.51 | 3,346.5 | 48.7 | 0.32 |
| V3FJWB | | 3,329.0 | 49.8 | 0.32 | 3,347.0 | 49.2 | 0.32 |
| VCMY7Q | | 3,169.1 | -110.1 | -0.72 | 3,136.5 | -161.4 | -1.06 |
| VLDGKY | * | 3,418.6 | 139.3 | 0.91 | 3,262.7 | -35.2 | -0.23 |
| VLWFKH | | 3,363.5 | 84.3 | 0.55 | 3,371.5 | 73.7 | 0.48 |
| VPA3C2 | | 3,521.5 | 242.3 | 1.58 | 3,536.8 | 239.0 | 1.56 |
| VRJD6Y | * | 2,907.5 | -371.7 | -2.42 | 3,009.2 | -288.7 | -1.89 |
| W4QF6M | | 3,589.9 | 310.7 | 2.02 | 3,544.9 | 247.0 | 1.62 |
| WGH3FN | | 2,993.6 | -285.6 | -1.86 | 3,049.1 | -248.7 | -1.63 |
| WHBZMV | | 3,372.2 | 92.9 | 0.60 | 3,410.6 | 112.7 | 0.74 |
| WTBNLJ | | 3,204.6 | -74.6 | -0.49 | 3,281.5 | -16.3 | -0.11 |
| XW7W6J | | 3,242.3 | -36.9 | -0.24 | 3,251.8 | -46.1 | -0.30 |
| YLZARD | | 3,275.0 | -4.2 | -0.03 | 3,210.5 | -87.3 | -0.57 |
| YT4GA2 | | 3,621.5 | 342.3 | 2.23 | 3,582.5 | 284.7 | 1.86 |
| Z34DM3 | | 3,489.1 | 209.9 | 1.37 | 3,494.9 | 197.0 | 1.29 |



Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | |
|---------|-----------|----------------|----------------------|------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| Z42EUF | | 3,365.0 | 85.8 | 0.56 | 3,395.0 | 97.2 | 0.64 |
| ZJRGBJ | | 3,401.6 | 122.4 | 0.80 | 3,405.2 | 107.4 | 0.70 |
| ZPCL2Y | | 3,282.5 | 3.3 | 0.02 | 3,296.5 | -1.3 | -0.01 |
| ZRJ4ZV | | 3,353.3 | 74.1 | 0.48 | 3,302.9 | 5.0 | 0.03 |

| Summary Statistics | | | |
|--------------------|--------------|--------------|---|
| Grand Means | 3,279.24 psi | 3,297.85 psi | |
| Stnd Dev Btwn Labs | 153.60 psi | 152.89 psi | Statistics based on 114 of 117 reporting participants |

| Summary Statistics in SI Units | | | |
|--------------------------------|------------|-----------|---|
| Grand Means | 22.609 MPa | 22.74 MPa | |
| Stnd Dev Btwn Labs | 1.059 MPa | 1.05 MPa | Statistics based on 114 of 117 reporting participants |

Samples C81-C82: Polyisoprene compound, batch #1 & C83-C84: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #605

EB7E3V (X) - Data for all samples are low. Possible Systematic Error.

NUR8QP (X) - Inconsistent in testing between samples. Data for sample group C81-C82 are low.

P2MGR8 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group C81-C82.

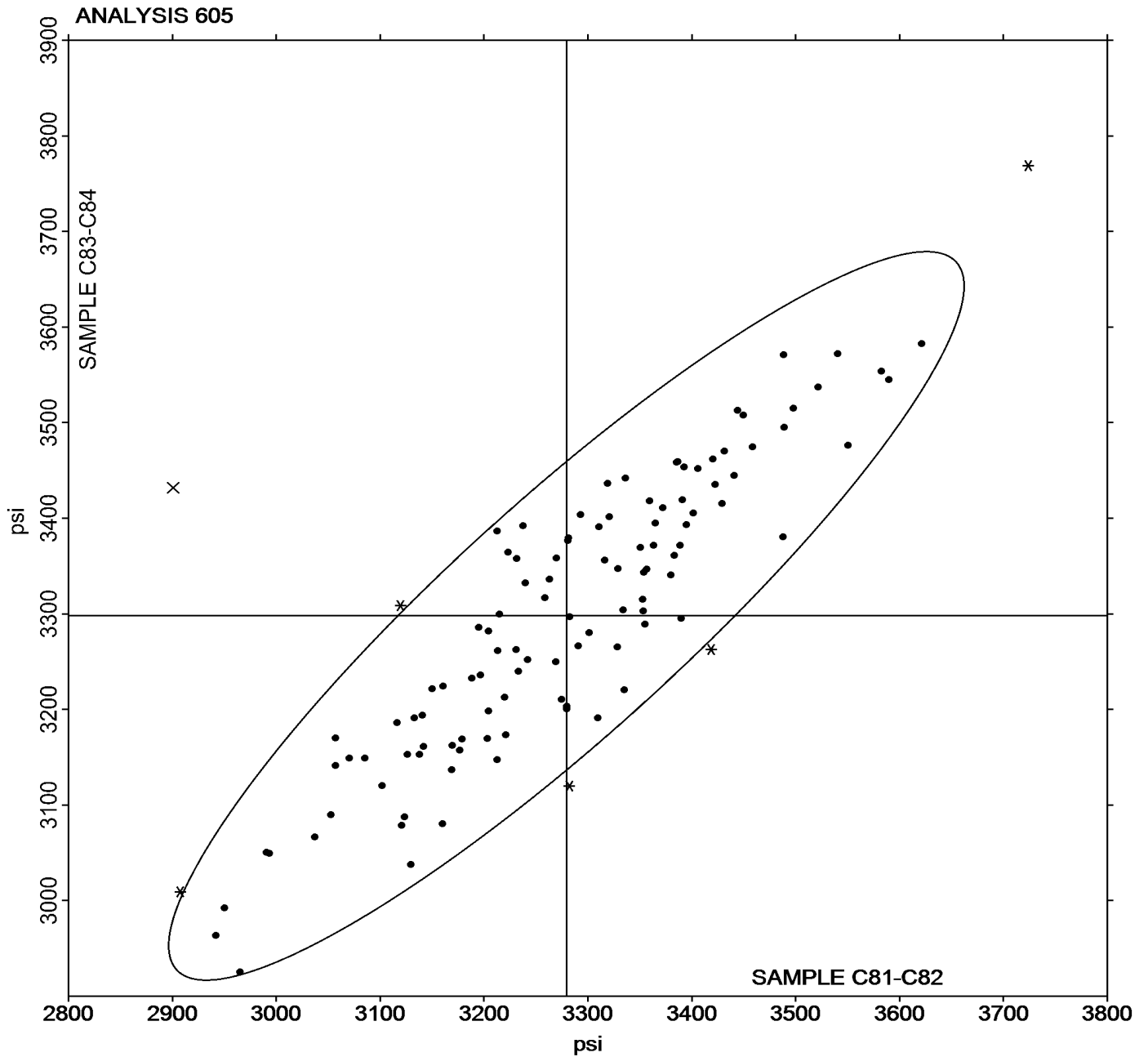


Rubber Interlaboratory Testing Program
Analysis 605
Tensile Strength (psi)

Report #197
3rd Qtr 2018

Grand Mean Sample C81-C82 = 3,279.24 psi

Grand Mean Sample C83-C84 = 3,297.85 psi





Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| 2EEYU3 | | 527.0 | -68.2 | -2.31 | 531.5 | -68.9 | -2.10 |
| 2J6FY2 | | 638.4 | 43.2 | 1.47 | 646.3 | 45.9 | 1.40 |
| 2LDKJG | | 586.0 | -9.2 | -0.31 | 611.0 | 10.6 | 0.32 |
| 2M8FZY | | 621.5 | 26.3 | 0.89 | 616.0 | 15.6 | 0.48 |
| 2PBBJ2 | X | 1,032.0 | 436.8 | 14.82 | 1,066.2 | 465.8 | 14.22 |
| 2Q9EJ4 | | 620.5 | 25.3 | 0.86 | 644.0 | 43.6 | 1.33 |
| 2WV7LQ | | 611.0 | 15.8 | 0.54 | 621.5 | 21.1 | 0.64 |
| 2Y2U2F | | 571.4 | -23.8 | -0.81 | 578.1 | -22.3 | -0.68 |
| 3AEB8R | | 538.8 | -56.4 | -1.91 | 552.1 | -48.3 | -1.48 |
| 3AW6AM | | 624.0 | 28.8 | 0.98 | 652.5 | 52.1 | 1.59 |
| 3F4VB9 | | 588.2 | -7.0 | -0.24 | 586.9 | -13.5 | -0.41 |
| 3P829G | | 647.0 | 51.8 | 1.76 | 659.0 | 58.6 | 1.79 |
| 4DC8CD | | 555.0 | -40.2 | -1.36 | 556.0 | -44.4 | -1.36 |
| 4DRGHR | | 611.0 | 15.8 | 0.54 | 610.0 | 9.6 | 0.29 |
| 4GRHPG | | 593.0 | -2.2 | -0.07 | 583.0 | -17.4 | -0.53 |
| 4JUPMZ | | 613.3 | 18.1 | 0.62 | 629.0 | 28.6 | 0.87 |
| 4L4M33 | | 547.0 | -48.2 | -1.63 | 541.5 | -58.9 | -1.80 |
| 69RJBD | | 631.0 | 35.8 | 1.22 | 615.0 | 14.6 | 0.45 |
| 6T3CJ7 | | 632.9 | 37.7 | 1.28 | 618.1 | 17.7 | 0.54 |
| 6UTHVQ | | 601.8 | 6.6 | 0.22 | 604.9 | 4.5 | 0.14 |
| 6Y4TNK | X | 463.5 | -131.7 | -4.47 | 471.5 | -128.9 | -3.93 |
| 6YP6PE | | 633.0 | 37.8 | 1.28 | 648.0 | 47.6 | 1.45 |
| 736Y26 | | 592.5 | -2.7 | -0.09 | 603.0 | 2.6 | 0.08 |
| 776882 | | 549.5 | -45.7 | -1.55 | 547.7 | -52.7 | -1.61 |
| 7LXTW2 | | 616.0 | 20.8 | 0.71 | 618.5 | 18.1 | 0.55 |
| 7PDKMU | | 608.5 | 13.3 | 0.45 | 621.0 | 20.6 | 0.63 |
| 7VZH8B | | 640.5 | 45.3 | 1.54 | 642.0 | 41.6 | 1.27 |
| 866RAU | | 579.5 | -15.7 | -0.53 | 591.5 | -8.9 | -0.27 |
| 8C747R | | 614.5 | 19.3 | 0.66 | 615.5 | 15.1 | 0.46 |
| 8RK3J6 | | 600.0 | 4.8 | 0.16 | 599.5 | -0.9 | -0.03 |
| 8WCA4Y | | 629.5 | 34.3 | 1.16 | 628.0 | 27.6 | 0.84 |
| 9CKK8C | | 592.5 | -2.7 | -0.09 | 583.5 | -16.9 | -0.52 |
| 9MMZTA | | 604.2 | 9.1 | 0.31 | 613.9 | 13.5 | 0.41 |
| 9TQRD2 | | 623.5 | 28.3 | 0.96 | 621.0 | 20.6 | 0.63 |
| AAUXP9 | | 620.0 | 24.8 | 0.84 | 615.0 | 14.6 | 0.45 |
| ADENDR | | 576.7 | -18.4 | -0.63 | 609.0 | 8.6 | 0.26 |
| AH3DRA | | 541.5 | -53.7 | -1.82 | 546.0 | -54.4 | -1.66 |
| BD9XLZ | | 609.0 | 13.8 | 0.47 | 630.5 | 30.1 | 0.92 |



Rubber Interlaboratory Testing Program

Report #197

Analysis 606

3rd Qtr 2018

Ultimate Elongation (percent)

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| C688AN | | 586.0 | -9.2 | -0.31 | 602.0 | 1.6 | 0.05 |
| CV4VDU | | 598.0 | 2.8 | 0.10 | 603.5 | 3.1 | 0.09 |
| CXA97T | | 580.6 | -14.6 | -0.49 | 589.7 | -10.7 | -0.33 |
| D4TZLL | | 591.5 | -3.7 | -0.13 | 588.9 | -11.5 | -0.35 |
| DHRXTQ | | 563.5 | -31.7 | -1.07 | 541.0 | -59.4 | -1.81 |
| E8RNMT | | 595.0 | -0.2 | -0.01 | 600.6 | 0.2 | 0.00 |
| ECY3KQ | | 615.8 | 20.6 | 0.70 | 627.1 | 26.7 | 0.82 |
| EUZ3GX | | 570.0 | -25.2 | -0.85 | 555.0 | -45.4 | -1.39 |
| EWCP9K | | 547.5 | -47.7 | -1.62 | 555.5 | -44.9 | -1.37 |
| EYFH64 | | 591.0 | -4.2 | -0.14 | 596.5 | -3.9 | -0.12 |
| FBKXNE | | 593.9 | -1.3 | -0.04 | 593.4 | -7.0 | -0.22 |
| FCXK7T | | 542.5 | -52.7 | -1.79 | 548.5 | -51.9 | -1.58 |
| FCZG9C | | 565.5 | -29.7 | -1.01 | 553.5 | -46.9 | -1.43 |
| GJT6LT | | 598.3 | 3.1 | 0.10 | 622.6 | 22.2 | 0.68 |
| GP46YK | | 574.5 | -20.7 | -0.70 | 598.5 | -1.9 | -0.06 |
| GV7CF9 | X | 529.4 | -65.8 | -2.23 | 614.3 | 13.9 | 0.42 |
| H37VFH | | 601.0 | 5.8 | 0.20 | 598.5 | -1.9 | -0.06 |
| H7JVCA | | 578.0 | -17.2 | -0.58 | 581.0 | -19.4 | -0.59 |
| HCXBM2 | | 583.5 | -11.7 | -0.40 | 595.0 | -5.4 | -0.16 |
| HEEQGZ | | 612.5 | 17.3 | 0.59 | 599.0 | -1.4 | -0.04 |
| HNY6BP | | 566.0 | -29.2 | -0.99 | 570.5 | -29.9 | -0.91 |
| HWWRB3 | | 644.5 | 49.3 | 1.67 | 656.0 | 55.6 | 1.70 |
| J4BZ9X | * | 553.0 | -42.2 | -1.43 | 529.5 | -70.9 | -2.16 |
| JWUKKU | | 614.5 | 19.3 | 0.66 | 636.0 | 35.6 | 1.09 |
| K3WV9E | | 622.0 | 26.8 | 0.91 | 641.0 | 40.6 | 1.24 |
| KE92K2 | | 643.0 | 47.8 | 1.62 | 632.5 | 32.1 | 0.98 |
| KTPBTN | | 581.5 | -13.7 | -0.46 | 587.5 | -12.9 | -0.39 |
| LACV3G | | 582.5 | -12.7 | -0.43 | 588.0 | -12.4 | -0.38 |
| LH9PJN | | 570.8 | -24.4 | -0.83 | 590.3 | -10.1 | -0.31 |
| LMZW3W | | 594.3 | -0.9 | -0.03 | 576.5 | -23.9 | -0.73 |
| LT2C7B | X | 659.8 | 64.6 | 2.19 | 769.5 | 169.1 | 5.16 |
| MFRWXK | * | 676.0 | 80.8 | 2.74 | 677.0 | 76.6 | 2.34 |
| MG7GQU | | 584.0 | -11.2 | -0.38 | 598.5 | -1.9 | -0.06 |
| MV8WUB | | 651.1 | 55.9 | 1.90 | 653.1 | 52.7 | 1.61 |
| N8YYUH | | 628.0 | 32.8 | 1.11 | 634.5 | 34.1 | 1.04 |
| NUR8QP | | 622.0 | 26.8 | 0.91 | 652.5 | 52.1 | 1.59 |
| NX8MEV | | 608.1 | 12.9 | 0.44 | 623.4 | 23.0 | 0.70 |



Rubber Interlaboratory Testing Program

Report #197

Analysis 606

3rd Qtr 2018

Ultimate Elongation (percent)

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| P2MGR8 | * | 540.0 | -55.2 | -1.87 | 523.0 | -77.4 | -2.36 |
| P6LVDB | | 588.5 | -6.7 | -0.23 | 610.3 | 9.9 | 0.30 |
| P9JCNK | | 583.5 | -11.7 | -0.40 | 590.0 | -10.4 | -0.32 |
| PERT6L | | 567.5 | -27.7 | -0.94 | 575.5 | -24.9 | -0.76 |
| PHTU6H | | 621.8 | 26.6 | 0.90 | 613.3 | 12.9 | 0.39 |
| PZX2KK | | 620.0 | 24.8 | 0.84 | 630.0 | 29.6 | 0.90 |
| Q3FK3T | | 571.5 | -23.7 | -0.80 | 571.0 | -29.4 | -0.90 |
| Q7E4YZ | | 588.5 | -6.7 | -0.23 | 606.5 | 6.1 | 0.19 |
| QADFZR | | 589.5 | -5.7 | -0.19 | 593.0 | -7.4 | -0.23 |
| QM2NEK | | 597.0 | 1.8 | 0.06 | 603.5 | 3.1 | 0.09 |
| QUKPY4 | | 566.0 | -29.2 | -0.99 | 562.5 | -37.9 | -1.16 |
| QYENBD | | 594.6 | -0.6 | -0.02 | 600.6 | 0.2 | 0.00 |
| R22HPT | | 572.0 | -23.2 | -0.79 | 553.5 | -46.9 | -1.43 |
| RL3QQB | | 543.0 | -52.2 | -1.77 | 557.5 | -42.9 | -1.31 |
| T8MTJN | | 595.5 | 0.3 | 0.01 | 603.5 | 3.1 | 0.09 |
| T8ZKAK | | 566.5 | -28.7 | -0.97 | 568.5 | -31.9 | -0.97 |
| TBL6GA | | 579.5 | -15.7 | -0.53 | 574.0 | -26.4 | -0.81 |
| TCD824 | * | 523.5 | -71.7 | -2.43 | 536.5 | -63.9 | -1.95 |
| TELFCA | X | 576.0 | -19.2 | -0.65 | 622.0 | 21.6 | 0.66 |
| U82LRW | | 623.7 | 28.5 | 0.97 | 624.7 | 24.3 | 0.74 |
| UJBGMM | | 625.7 | 30.5 | 1.03 | 635.0 | 34.6 | 1.06 |
| UZEV72 | X | 500.5 | -94.7 | -3.21 | 514.5 | -85.9 | -2.62 |
| V3FJWB | | 610.0 | 14.8 | 0.50 | 615.0 | 14.6 | 0.45 |
| VLDGKY | | 632.0 | 36.8 | 1.25 | 622.5 | 22.1 | 0.67 |
| VLWFKH | | 606.5 | 11.3 | 0.38 | 607.0 | 6.6 | 0.20 |
| VPA3C2 | * | 637.3 | 42.1 | 1.43 | 676.5 | 76.1 | 2.32 |
| VRJD6Y | | 604.0 | 8.8 | 0.30 | 607.3 | 6.9 | 0.21 |
| W4QF6M | | 607.1 | 11.9 | 0.40 | 614.9 | 14.5 | 0.44 |
| WGH3FN | | 575.0 | -20.2 | -0.68 | 590.0 | -10.4 | -0.32 |
| WHBZMV | | 606.5 | 11.3 | 0.38 | 614.0 | 13.6 | 0.42 |
| WTBNLJ | | 585.0 | -10.2 | -0.35 | 600.0 | -0.4 | -0.01 |
| XW7W6J | | 572.0 | -23.2 | -0.79 | 581.5 | -18.9 | -0.58 |
| YLZARD | | 587.0 | -8.2 | -0.28 | 591.0 | -9.4 | -0.29 |
| YT4GA2 | | 597.0 | 1.8 | 0.06 | 617.5 | 17.1 | 0.52 |
| Z34DM3 | | 576.7 | -18.5 | -0.63 | 580.7 | -19.7 | -0.60 |
| Z42EUF | | 557.0 | -38.2 | -1.30 | 564.5 | -35.9 | -1.10 |
| ZJRGBJ | | 598.5 | 3.3 | 0.11 | 589.5 | -10.9 | -0.33 |
| ZPCL2Y | | 628.5 | 33.3 | 1.13 | 648.0 | 47.6 | 1.45 |



Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | |
|---------|-----------|----------------|----------------------|------|----------------|----------------------|------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| ZRJ4ZV | | 621.8 | 26.6 | 0.90 | 604.4 | 4.0 | 0.12 |

| | | Summary Statistics | |
|---|----------------|--------------------|--|
| Grand Means | 595.18 percent | 600.39 percent | |
| Stnd Dev Btwn Labs | 29.47 percent | 32.76 percent | |
| Statistics based on 108 of 114 reporting participants | | | |

Samples C81-C82: Polyisoprene compound, batch #1 & C83-C84: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #606

- 2PBBJ2 (X) - Extreme Data.
- 6Y4TNK (X) - Data for all samples are low. Possible Systematic Error.
- GV7CF9 (X) - Inconsistent in testing between samples.
- LT2C7B (X) - Inconsistent in testing between samples. Data for sample group C83-C84 are high. Inconsistent within the determinations of sample group C83-C84.
- TELFCA (X) - Inconsistent in testing between samples.
- UZEV72 (X) - Inconsistent in testing between samples. Data for sample group C81-C82 are low.

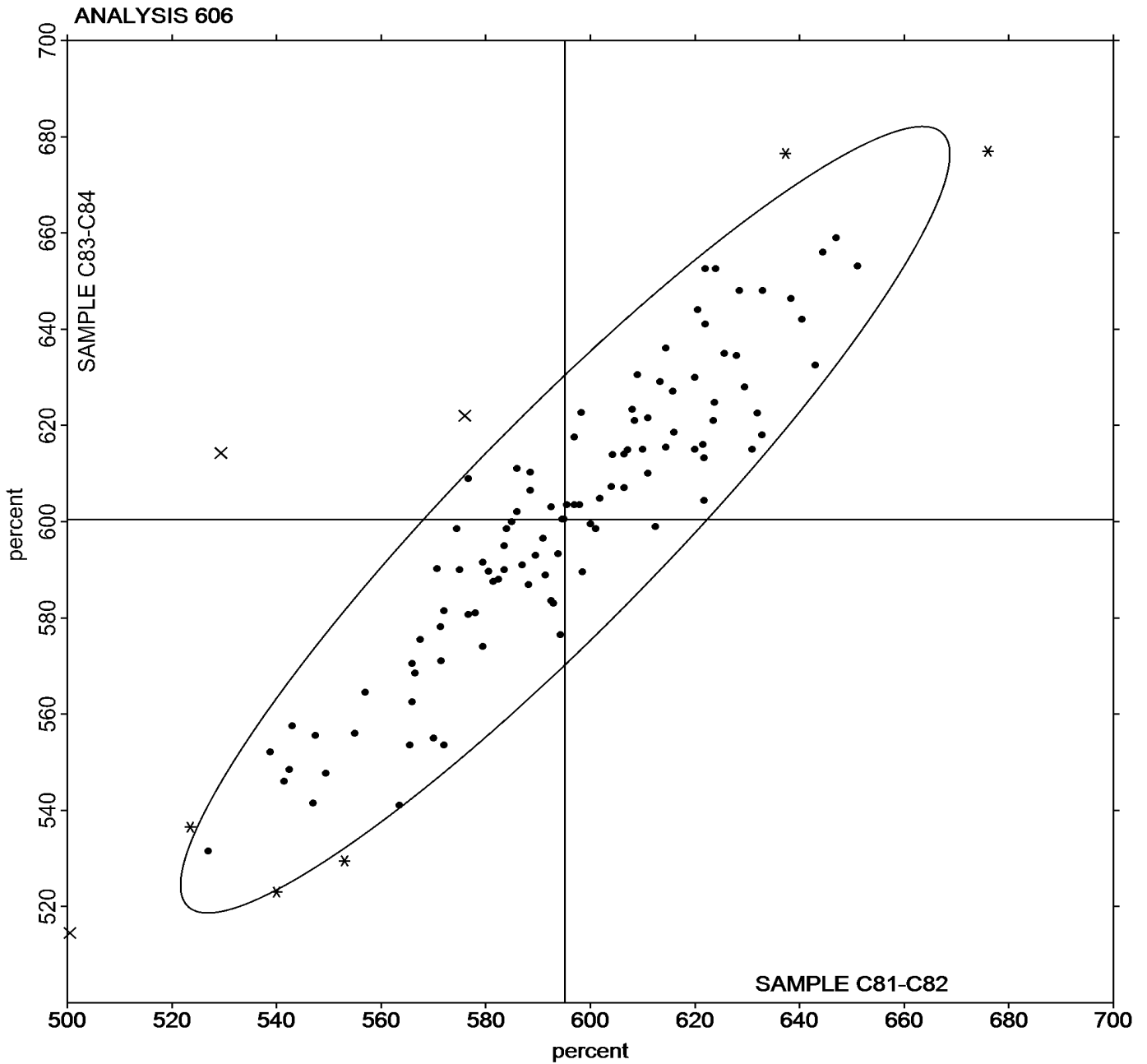


Rubber Interlaboratory Testing Program
Analysis 606
Ultimate Elongation (percent)

Report #197
3rd Qtr 2018

Grand Mean Sample C81-C82 = 595.18 percent

Grand Mean Sample C83-C84 = 600.39 percent





Rubber Interlaboratory Testing Program

Report #197

Analysis 607

3rd Qtr 2018

Stress at 300% Elongation (psi)

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| 2J6FY2 | | 987.6 | -97.4 | -1.10 | 962.4 | -110.8 | -1.17 |
| 2LDKJG | * | 1,009.5 | -75.5 | -0.85 | 888.4 | -184.8 | -1.95 |
| 2M8FZY | | 1,075.0 | -10.0 | -0.11 | 1,054.5 | -18.7 | -0.20 |
| 2PBBJ2 | | 1,117.4 | 32.4 | 0.37 | 1,160.5 | 87.3 | 0.92 |
| 2Q9EJ4 | | 1,101.5 | 16.5 | 0.19 | 1,027.5 | -45.7 | -0.48 |
| 2WV7LQ | | 1,050.8 | -34.2 | -0.39 | 1,010.9 | -62.2 | -0.66 |
| 2Y2U2F | | 1,143.4 | 58.5 | 0.66 | 1,106.9 | 33.8 | 0.36 |
| 3AEB8R | * | 1,264.0 | 179.0 | 2.03 | 1,157.0 | 83.8 | 0.89 |
| 3F4VB9 | | 1,154.0 | 69.1 | 0.78 | 1,171.6 | 98.4 | 1.04 |
| 3P829G | | 929.0 | -156.0 | -1.77 | 889.0 | -184.2 | -1.95 |
| 4DC8CD | | 1,247.5 | 162.5 | 1.84 | 1,267.0 | 193.8 | 2.05 |
| 4DRGHR | | 1,047.7 | -37.3 | -0.42 | 1,125.7 | 52.5 | 0.56 |
| 4GRHPG | | 1,021.7 | -63.3 | -0.72 | 1,024.7 | -48.5 | -0.51 |
| 4JUPMZ | | 1,098.6 | 13.6 | 0.15 | 1,091.0 | 17.9 | 0.19 |
| 4L4M33 | | 1,223.3 | 138.3 | 1.57 | 1,224.8 | 151.6 | 1.60 |
| 69RJBD | | 984.3 | -100.6 | -1.14 | 1,021.9 | -51.3 | -0.54 |
| 6T3CJ7 | | 1,045.8 | -39.2 | -0.44 | 1,051.1 | -22.1 | -0.23 |
| 6UTHVQ | | 1,077.6 | -7.3 | -0.08 | 1,008.0 | -65.1 | -0.69 |
| 6YP6PE | | 977.0 | -108.0 | -1.22 | 965.5 | -107.7 | -1.14 |
| 736Y26 | | 1,123.5 | 38.5 | 0.44 | 1,124.5 | 51.3 | 0.54 |
| 776882 | | 1,216.8 | 131.8 | 1.49 | 1,187.3 | 114.1 | 1.21 |
| 7PDKMU | | 1,142.0 | 57.0 | 0.65 | 1,117.0 | 43.8 | 0.46 |
| 7VZH8B | | 871.0 | -214.0 | -2.42 | 865.9 | -207.3 | -2.19 |
| 866RAU | | 1,216.5 | 131.5 | 1.49 | 1,167.0 | 93.8 | 0.99 |
| 8C747R | | 1,038.0 | -47.0 | -0.53 | 1,049.0 | -24.2 | -0.26 |
| 8RK3J6 | | 1,095.5 | 10.5 | 0.12 | 1,151.0 | 77.8 | 0.82 |
| 8WCA4Y | | 971.6 | -113.4 | -1.28 | 964.3 | -108.9 | -1.15 |
| 9CKK8C | | 1,039.0 | -46.0 | -0.52 | 1,058.5 | -14.7 | -0.16 |
| 9MMZTA | | 1,126.7 | 41.7 | 0.47 | 1,098.8 | 25.7 | 0.27 |
| 9TQRD2 | | 1,125.0 | 40.0 | 0.45 | 1,024.0 | -49.2 | -0.52 |
| AAUXP9 | | 1,035.5 | -49.5 | -0.56 | 1,068.5 | -4.7 | -0.05 |
| ADENDR | | 1,153.4 | 68.4 | 0.77 | 1,039.9 | -33.3 | -0.35 |
| AH3DRA | X | 1,480.8 | 395.9 | 4.48 | 1,464.2 | 391.0 | 4.14 |
| BD9XLZ | | 999.3 | -85.6 | -0.97 | 945.7 | -127.5 | -1.35 |
| C688AN | | 1,144.0 | 59.0 | 0.67 | 1,117.5 | 44.3 | 0.47 |
| CV4VDU | | 991.0 | -94.0 | -1.06 | 980.0 | -93.2 | -0.99 |
| CXA97T | | 1,126.5 | 41.5 | 0.47 | 1,065.8 | -7.3 | -0.08 |
| D4TZLL | | 1,140.0 | 55.0 | 0.62 | 1,127.7 | 54.6 | 0.58 |



Rubber Interlaboratory Testing Program

Report #197

Analysis 607

3rd Qtr 2018

Stress at 300% Elongation (psi)

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| DHRXTQ | | 1,196.5 | 111.5 | 1.26 | 1,205.8 | 132.6 | 1.40 |
| E8RNMT | | 1,116.8 | 31.8 | 0.36 | 1,120.4 | 47.3 | 0.50 |
| ECY3KQ | | 1,030.3 | -54.7 | -0.62 | 1,002.9 | -70.3 | -0.74 |
| EWCP9K | | 1,208.0 | 123.0 | 1.39 | 1,154.0 | 80.8 | 0.86 |
| EYFH64 | | 1,089.5 | 4.5 | 0.05 | 1,073.0 | -0.2 | 0.00 |
| FBKXNE | | 1,077.6 | -7.3 | -0.08 | 1,132.8 | 59.6 | 0.63 |
| FCXK7T | * | 1,333.0 | 248.0 | 2.81 | 1,326.0 | 252.8 | 2.67 |
| FCZG9C | | 1,058.5 | -26.5 | -0.30 | 1,151.0 | 77.8 | 0.82 |
| GJT6LT | | 1,108.6 | 23.6 | 0.27 | 1,085.7 | 12.5 | 0.13 |
| GP46YK | | 1,074.7 | -10.2 | -0.12 | 1,023.3 | -49.9 | -0.53 |
| GV7CF9 | X | 1,296.5 | 211.5 | 2.39 | 1,064.6 | -8.6 | -0.09 |
| H37VFH | | 1,046.5 | -38.5 | -0.44 | 1,032.5 | -40.7 | -0.43 |
| H7JVCA | | 1,175.5 | 90.5 | 1.02 | 1,174.5 | 101.3 | 1.07 |
| HCBXM2 | | 1,073.0 | -12.0 | -0.14 | 1,096.3 | 23.1 | 0.24 |
| HEEQGZ | | 962.3 | -122.6 | -1.39 | 1,023.3 | -49.9 | -0.53 |
| HNY6BP | | 1,112.4 | 27.5 | 0.31 | 1,110.3 | 37.1 | 0.39 |
| HWWRB3 | | 927.5 | -157.5 | -1.78 | 944.0 | -129.2 | -1.37 |
| J4BZ9X | | 1,206.5 | 121.5 | 1.38 | 1,285.5 | 212.3 | 2.25 |
| JWUKKU | | 1,177.0 | 92.0 | 1.04 | 1,153.0 | 79.8 | 0.84 |
| K3WV9E | | 1,031.5 | -53.5 | -0.61 | 1,015.0 | -58.2 | -0.62 |
| KE92K2 | | 973.5 | -111.4 | -1.26 | 970.7 | -102.4 | -1.08 |
| KTPBTN | | 1,022.5 | -62.4 | -0.71 | 951.5 | -121.7 | -1.29 |
| LACV3G | | 1,109.5 | 24.5 | 0.28 | 1,161.0 | 87.8 | 0.93 |
| LH9PJN | | 1,042.5 | -42.5 | -0.48 | 995.0 | -78.2 | -0.83 |
| LMZW3W | | 1,038.3 | -46.7 | -0.53 | 1,076.5 | 3.3 | 0.04 |
| LT2C7B | | 962.9 | -122.1 | -1.38 | 930.8 | -142.3 | -1.51 |
| MFRWXK | | 1,153.1 | 68.1 | 0.77 | 1,221.2 | 148.1 | 1.57 |
| MG7GQU | | 1,086.0 | 1.0 | 0.01 | 1,069.0 | -4.2 | -0.04 |
| MV8WUB | | 940.4 | -144.6 | -1.64 | 923.6 | -149.6 | -1.58 |
| N8YYUH | | 948.1 | -136.9 | -1.55 | 953.3 | -119.9 | -1.27 |
| NUR8QP | | 884.7 | -200.2 | -2.27 | 936.2 | -136.9 | -1.45 |
| P2MGR8 | X | 1,178.5 | 93.5 | 1.06 | 1,379.0 | 305.8 | 3.24 |
| P6LVDB | | 1,050.8 | -34.2 | -0.39 | 958.7 | -114.5 | -1.21 |
| P9JCNK | | 1,088.0 | 3.0 | 0.03 | 989.0 | -84.2 | -0.89 |
| PERT6L | | 1,110.0 | 25.0 | 0.28 | 1,182.5 | 109.3 | 1.16 |
| PHTU6H | | 1,000.3 | -84.7 | -0.96 | 1,032.3 | -40.9 | -0.43 |
| PZX2KK | | 957.0 | -128.0 | -1.45 | 928.5 | -144.7 | -1.53 |



Rubber Interlaboratory Testing Program

Report #197

Analysis 607

3rd Qtr 2018

Stress at 300% Elongation (psi)

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| Q3FK3T | | 1,175.5 | 90.6 | 1.03 | 1,133.5 | 60.3 | 0.64 |
| Q7E4YZ | | 1,102.0 | 17.0 | 0.19 | 1,105.0 | 31.8 | 0.34 |
| QADFZR | | 1,077.0 | -8.0 | -0.09 | 1,145.0 | 71.8 | 0.76 |
| QM2NEK | | 1,124.5 | 39.5 | 0.45 | 1,058.5 | -14.7 | -0.16 |
| QUKPY4 | | 1,017.5 | -67.5 | -0.76 | 1,073.0 | -0.2 | 0.00 |
| QYENBD | | 1,113.2 | 28.2 | 0.32 | 1,104.2 | 31.0 | 0.33 |
| R22HPT | * | 1,205.3 | 120.3 | 1.36 | 1,309.7 | 236.5 | 2.50 |
| RL3QQB | | 1,214.5 | 129.5 | 1.47 | 1,148.5 | 75.3 | 0.80 |
| T8MTJN | | 1,129.5 | 44.5 | 0.50 | 1,084.5 | 11.3 | 0.12 |
| T8ZKAK | | 1,184.0 | 99.0 | 1.12 | 1,210.5 | 137.3 | 1.45 |
| TCD824 | | 1,160.0 | 75.0 | 0.85 | 1,076.0 | 2.8 | 0.03 |
| TELFCA | | 1,194.5 | 109.5 | 1.24 | 1,098.0 | 24.8 | 0.26 |
| U82LRW | | 1,124.1 | 39.1 | 0.44 | 1,124.1 | 50.9 | 0.54 |
| UJBGMM | | 988.8 | -96.2 | -1.09 | 1,010.7 | -62.4 | -0.66 |
| UZEV72 | X | 1,518.5 | 433.5 | 4.91 | 1,464.5 | 391.3 | 4.14 |
| V3FJWB | | 1,051.5 | -33.5 | -0.38 | 1,023.0 | -50.2 | -0.53 |
| VLDGKY | | 1,013.8 | -71.1 | -0.81 | 974.7 | -98.5 | -1.04 |
| VLWFKH | | 1,047.0 | -38.0 | -0.43 | 1,090.0 | 16.8 | 0.18 |
| VPA3C2 | | 1,042.7 | -42.3 | -0.48 | 945.3 | -127.9 | -1.35 |
| VRJD6Y | | 996.8 | -88.2 | -1.00 | 992.9 | -80.3 | -0.85 |
| W4QF6M | | 1,119.6 | 34.7 | 0.39 | 1,078.4 | 5.2 | 0.05 |
| WGH3FN | | 943.5 | -141.5 | -1.60 | 947.5 | -125.7 | -1.33 |
| WHBZMV | | 1,071.8 | -13.1 | -0.15 | 1,085.6 | 12.5 | 0.13 |
| XW7W6J | | 1,150.9 | 65.9 | 0.75 | 1,120.4 | 47.3 | 0.50 |
| YLZARD | | 1,092.0 | 7.0 | 0.08 | 1,058.5 | -14.7 | -0.16 |
| YT4GA2 | | 1,174.5 | 89.5 | 1.01 | 1,050.0 | -23.2 | -0.25 |
| Z34DM3 | | 1,214.6 | 129.7 | 1.47 | 1,209.0 | 135.8 | 1.44 |
| Z42EUF | | 1,198.4 | 113.4 | 1.28 | 1,167.4 | 94.2 | 1.00 |
| ZJRGBJ | | 1,118.0 | 33.1 | 0.37 | 1,156.0 | 82.9 | 0.88 |
| ZRJ4ZV | | 1,051.2 | -33.7 | -0.38 | 1,060.0 | -13.2 | -0.14 |

Summary Statistics

Grand Means

1,084.96 psi

1,073.16 psi

Std Dev Btwn Labs

88.35 psi

94.53 psi

Statistics based on 101 of 105 reporting participants



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

Report #197
3rd Qtr 2018

| | | Summary Statistics in SI Units | |
|---|------------|--------------------------------|-----|
| Grand Means | 7.4805 MPa | 7.40 | MPa |
| Stnd Dev Btwn Labs | 0.6092 MPa | 0.65 | MPa |
| Statistics based on 101 of 105 reporting participants | | | |

Samples C81-C82: Polyisoprene compound, batch #1 & C83-C84: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #607

- AH3DRA (X) - Data for all samples are high. Possible Systematic Error.
- GV7CF9 (X) - Inconsistent in testing between samples.
- P2MGR8 (X) - Inconsistent in testing between samples. Data for sample group C83-C84 are high. Inconsistent within the determinations of both sample groups.
- UZEV72 (X) - Data for all samples are high. Possible Systematic Error. Inconsistent within the determinations of sample group C81-C82.

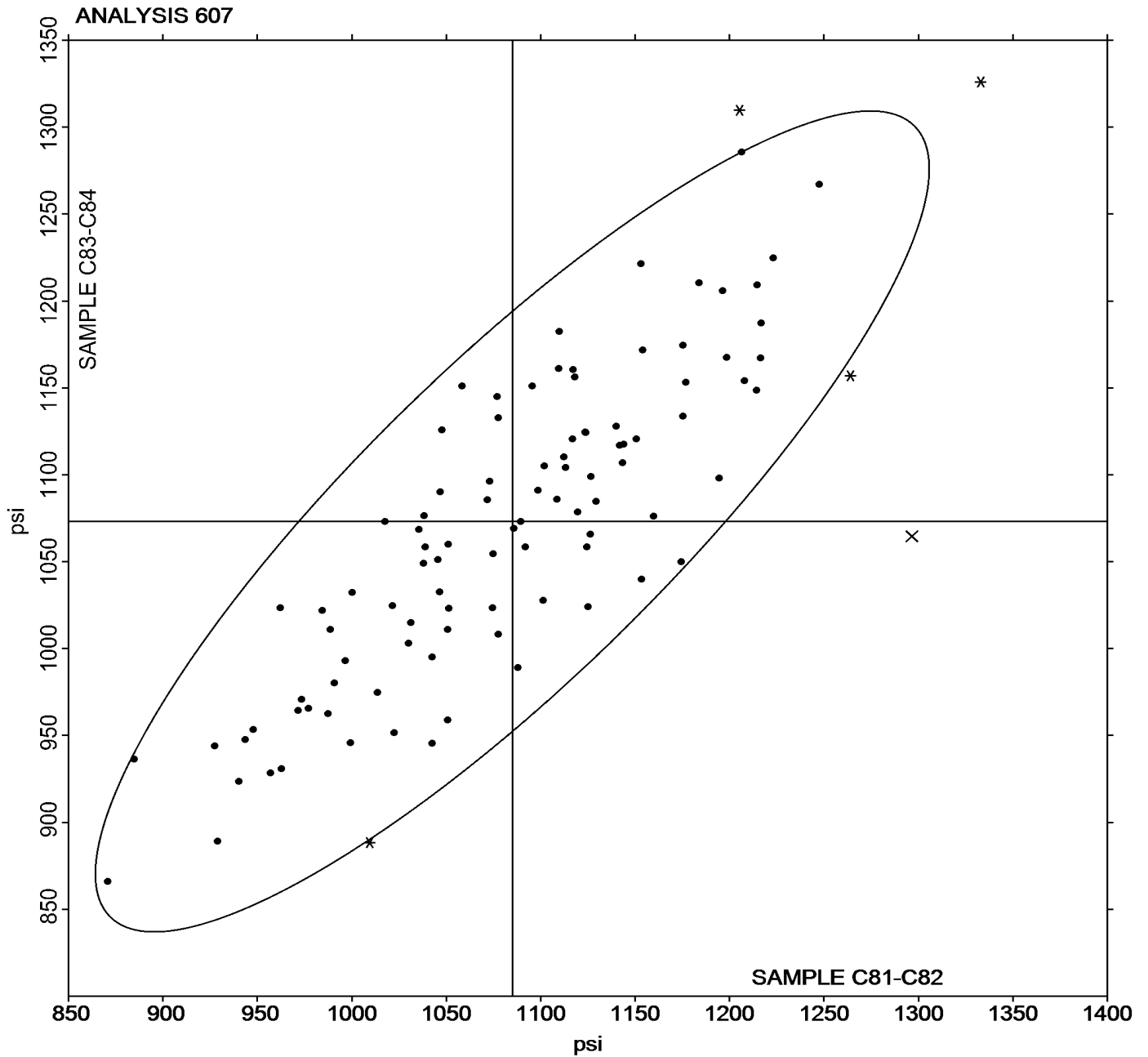


Rubber Interlaboratory Testing Program
Analysis 607
Stress at 300% Elongation (psi)

Report #197
3rd Qtr 2018

Grand Mean Sample **C81-C82** = 1,084.96 psi

Grand Mean Sample **C83-C84** = 1,073.16 psi





Rubber Interlaboratory Testing Program

Report #197

Analysis 608

3rd Qtr 2018

Stress at 100% Elongation (psi)

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| 2J6FY2 | | 222.7 | -4.2 | -0.28 | 224.2 | -2.3 | -0.17 |
| 2LDKJG | X | 218.3 | -8.6 | -0.56 | 192.2 | -34.3 | -2.48 |
| 2M8FZY | | 227.5 | 0.6 | 0.04 | 223.5 | -3.0 | -0.22 |
| 2PBBJ2 | | 214.9 | -12.0 | -0.79 | 230.2 | 3.7 | 0.27 |
| 2Q9EJ4 | | 232.5 | 5.6 | 0.37 | 224.5 | -2.0 | -0.14 |
| 2WV7LQ | | 211.8 | -15.1 | -0.99 | 211.8 | -14.7 | -1.07 |
| 2Y2U2F | | 242.8 | 15.9 | 1.04 | 242.1 | 15.6 | 1.13 |
| 3AEB8R | | 245.0 | 18.2 | 1.19 | 241.1 | 14.6 | 1.06 |
| 3F4VB9 | | 236.5 | 9.7 | 0.64 | 239.6 | 13.1 | 0.95 |
| 3P829G | | 199.5 | -27.4 | -1.79 | 199.5 | -27.0 | -1.95 |
| 4DC8CD | | 251.0 | 24.1 | 1.58 | 248.5 | 22.0 | 1.59 |
| 4DRGHR | | 210.7 | -16.2 | -1.06 | 232.0 | 5.5 | 0.40 |
| 4GRHPG | | 217.4 | -9.5 | -0.62 | 214.5 | -12.0 | -0.87 |
| 4JUPMZ | | 227.3 | 0.4 | 0.03 | 230.7 | 4.2 | 0.31 |
| 4L4M33 | | 235.7 | 8.8 | 0.58 | 233.5 | 7.0 | 0.51 |
| 69RJBD | | 229.5 | 2.6 | 0.17 | 241.7 | 15.2 | 1.10 |
| 6T3CJ7 | | 229.1 | 2.2 | 0.14 | 235.1 | 8.6 | 0.62 |
| 6UTHVQ | | 223.4 | -3.5 | -0.23 | 213.9 | -12.5 | -0.91 |
| 6Y4TNK | X | 347.5 | 120.6 | 7.91 | 321.5 | 95.0 | 6.88 |
| 6YP6PE | | 213.0 | -13.9 | -0.91 | 213.5 | -13.0 | -0.94 |
| 736Y26 | | 229.5 | 2.6 | 0.17 | 234.5 | 8.0 | 0.58 |
| 776882 | | 248.5 | 21.7 | 1.42 | 240.0 | 13.5 | 0.98 |
| 7LXTW2 | | 207.0 | -19.9 | -1.30 | 213.5 | -13.0 | -0.94 |
| 7PDKMU | | 256.0 | 29.1 | 1.91 | 250.0 | 23.5 | 1.70 |
| 7VZH8B | | 200.2 | -26.7 | -1.75 | 203.1 | -23.4 | -1.70 |
| 866RAU | | 234.0 | 7.1 | 0.47 | 236.5 | 10.0 | 0.73 |
| 8C747R | | 226.0 | -0.9 | -0.06 | 222.5 | -4.0 | -0.29 |
| 8RK3J6 | | 228.0 | 1.1 | 0.08 | 241.0 | 14.5 | 1.05 |
| 8WCA4Y | | 207.7 | -19.2 | -1.26 | 222.0 | -4.5 | -0.33 |
| 9CKK8C | | 220.0 | -6.9 | -0.45 | 222.0 | -4.5 | -0.32 |
| 9MMZTA | | 234.1 | 7.2 | 0.47 | 231.3 | 4.8 | 0.35 |
| 9TQRD2 | * | 261.5 | 34.6 | 2.27 | 239.0 | 12.5 | 0.91 |
| AAUXP9 | | 210.5 | -16.4 | -1.07 | 222.0 | -4.5 | -0.32 |
| ADENDR | * | 263.0 | 36.1 | 2.37 | 243.7 | 17.2 | 1.24 |
| AH3DRA | X | 280.7 | 53.8 | 3.53 | 268.3 | 41.8 | 3.03 |
| BD9XLZ | | 207.4 | -19.4 | -1.28 | 200.9 | -25.6 | -1.85 |
| C688AN | | 228.5 | 1.6 | 0.11 | 226.5 | 0.0 | 0.00 |
| CV4VDU | | 209.5 | -17.4 | -1.14 | 207.5 | -19.0 | -1.37 |



Rubber Interlaboratory Testing Program

Report #197

Analysis 608

3rd Qtr 2018

Stress at 100% Elongation (psi)

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| CXA97T | | 240.6 | 13.7 | 0.90 | 235.0 | 8.5 | 0.62 |
| D4TZLL | | 230.3 | 3.4 | 0.23 | 226.8 | 0.3 | 0.02 |
| DHRXTQ | X | 181.0 | -45.9 | -3.01 | 173.0 | -53.5 | -3.87 |
| E8RNMT | | 226.3 | -0.6 | -0.04 | 229.9 | 3.4 | 0.25 |
| ECY3KQ | | 220.1 | -6.7 | -0.44 | 215.2 | -11.3 | -0.82 |
| EWCP9K | | 230.0 | 3.1 | 0.21 | 212.0 | -14.5 | -1.05 |
| EYFH64 | | 237.0 | 10.1 | 0.67 | 229.5 | 3.0 | 0.22 |
| FBKXNE | | 210.3 | -16.5 | -1.09 | 225.5 | -0.9 | -0.07 |
| FCXK7T | | 249.5 | 22.6 | 1.49 | 253.5 | 27.0 | 1.96 |
| FCZG9C | | 219.0 | -7.9 | -0.52 | 235.5 | 9.0 | 0.65 |
| GJT6LT | | 228.6 | 1.8 | 0.12 | 225.1 | -1.4 | -0.10 |
| GP46YK | | 224.1 | -2.8 | -0.18 | 219.0 | -7.5 | -0.54 |
| GV7CF9 | * | 248.2 | 21.3 | 1.40 | 222.6 | -3.8 | -0.28 |
| H37VFH | | 227.5 | 0.6 | 0.04 | 228.5 | 2.0 | 0.15 |
| H7JVCA | | 245.5 | 18.6 | 1.22 | 245.5 | 19.0 | 1.38 |
| HCBXM2 | | 216.5 | -10.4 | -0.68 | 223.3 | -3.2 | -0.23 |
| HEEQGZ | * | 189.3 | -37.6 | -2.46 | 203.8 | -22.7 | -1.64 |
| HNY6BP | | 241.5 | 14.6 | 0.96 | 238.6 | 12.1 | 0.88 |
| HWWRB3 | | 214.5 | -12.4 | -0.81 | 223.0 | -3.5 | -0.25 |
| J4BZ9X | * | 246.0 | 19.1 | 1.26 | 260.0 | 33.5 | 2.43 |
| JWUKKU | | 222.0 | -4.9 | -0.32 | 222.5 | -4.0 | -0.29 |
| K3WV9E | | 221.0 | -5.9 | -0.38 | 219.0 | -7.5 | -0.54 |
| KE92K2 | | 212.3 | -14.6 | -0.96 | 213.0 | -13.5 | -0.98 |
| KTPBTN | * | 200.9 | -26.0 | -1.70 | 189.3 | -37.2 | -2.69 |
| LACV3G | | 247.0 | 20.1 | 1.32 | 255.5 | 29.0 | 2.10 |
| LH9PJN | | 221.3 | -5.6 | -0.37 | 216.5 | -10.0 | -0.72 |
| LMZW3W | | 215.8 | -11.1 | -0.73 | 222.5 | -4.0 | -0.29 |
| LT2C7B | | 228.1 | 1.3 | 0.08 | 235.9 | 9.4 | 0.68 |
| MFRWXK | X | 285.7 | 58.9 | 3.86 | 293.7 | 67.2 | 4.87 |
| MG7GQU | | 231.0 | 4.1 | 0.27 | 227.5 | 1.0 | 0.07 |
| MV8WUB | | 207.7 | -19.2 | -1.26 | 206.2 | -20.3 | -1.47 |
| N8YYUH | | 204.7 | -22.2 | -1.45 | 206.9 | -19.6 | -1.42 |
| NUR8QP | * | 185.6 | -41.2 | -2.70 | 200.2 | -26.3 | -1.91 |
| P2MGR8 | | 247.0 | 20.1 | 1.32 | 246.5 | 20.0 | 1.45 |
| P6LVDB | | 227.0 | 0.1 | 0.01 | 213.9 | -12.5 | -0.91 |
| P9JCNK | | 247.5 | 20.6 | 1.35 | 236.5 | 10.0 | 0.73 |
| PERT6L | | 225.5 | -1.4 | -0.09 | 246.0 | 19.5 | 1.41 |



Rubber Interlaboratory Testing Program

Report #197

Analysis 608

3rd Qtr 2018

Stress at 100% Elongation (psi)

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| PHTU6H | | 215.9 | -11.0 | -0.72 | 222.4 | -4.1 | -0.29 |
| PZX2KK | | 206.5 | -20.4 | -1.33 | 204.0 | -22.5 | -1.63 |
| Q3FK3T | | 232.1 | 5.2 | 0.34 | 227.0 | 0.5 | 0.04 |
| Q7E4YZ | | 240.0 | 13.1 | 0.86 | 243.0 | 16.5 | 1.20 |
| QADFZR | | 222.5 | -4.4 | -0.29 | 236.5 | 10.0 | 0.73 |
| QM2NEK | | 232.0 | 5.1 | 0.34 | 221.5 | -5.0 | -0.36 |
| QUKPY4 | | 218.5 | -8.4 | -0.55 | 228.0 | 1.5 | 0.11 |
| QYENBD | | 222.5 | -4.4 | -0.29 | 224.4 | -2.1 | -0.15 |
| R22HPT | X | 245.8 | 19.0 | 1.25 | 271.9 | 45.5 | 3.29 |
| RL3QQB | | 245.5 | 18.6 | 1.22 | 245.0 | 18.5 | 1.34 |
| T8MTJN | | 227.5 | 0.6 | 0.04 | 220.0 | -6.5 | -0.47 |
| T8ZKAK | | 235.5 | 8.6 | 0.57 | 239.5 | 13.0 | 0.94 |
| TCD824 | | 224.0 | -2.9 | -0.19 | 211.0 | -15.5 | -1.12 |
| TELFCA | | 240.0 | 13.1 | 0.86 | 226.5 | 0.0 | 0.00 |
| U82LRW | | 239.3 | 12.5 | 0.82 | 239.3 | 12.8 | 0.93 |
| UJBGMM | | 208.7 | -18.2 | -1.19 | 219.3 | -7.2 | -0.52 |
| UZEV72 | X | 350.0 | 123.1 | 8.08 | 357.0 | 130.5 | 9.45 |
| V3FJWB | | 221.0 | -5.9 | -0.38 | 217.5 | -9.0 | -0.65 |
| VLDGKY | | 216.8 | -10.0 | -0.66 | 210.3 | -16.2 | -1.17 |
| VLWFKH | | 226.0 | -0.9 | -0.06 | 238.5 | 12.0 | 0.87 |
| VPA3C2 | | 235.4 | 8.5 | 0.56 | 223.3 | -3.1 | -0.23 |
| VRJD6Y | | 239.5 | 12.6 | 0.83 | 237.0 | 10.5 | 0.76 |
| W4QF6M | | 229.4 | 2.5 | 0.17 | 216.9 | -9.6 | -0.70 |
| WGH3FN | | 203.0 | -23.9 | -1.56 | 203.5 | -23.0 | -1.66 |
| WHBZMV | | 226.3 | -0.6 | -0.04 | 221.9 | -4.6 | -0.33 |
| XW7W6J | | 242.2 | 15.4 | 1.01 | 234.2 | 7.8 | 0.56 |
| YLZARD | | 230.0 | 3.1 | 0.21 | 219.0 | -7.5 | -0.54 |
| YT4GA2 | * | 247.5 | 20.6 | 1.35 | 223.0 | -3.5 | -0.25 |
| Z34DM3 | | 249.6 | 22.7 | 1.49 | 245.9 | 19.5 | 1.41 |
| Z42EUF | | 231.3 | 4.4 | 0.29 | 226.0 | -0.5 | -0.03 |
| ZJRGBJ | | 233.6 | 6.7 | 0.44 | 236.3 | 9.8 | 0.71 |
| ZRJ4ZV | | 213.2 | -13.7 | -0.90 | 221.3 | -5.2 | -0.38 |



Rubber Interlaboratory Testing Program

Report #197

Analysis 608

3rd Qtr 2018

Stress at 100% Elongation (psi)

| | | Summary Statistics | |
|---|------------|--------------------|--|
| Grand Means | 226.85 psi | 226.48 psi | |
| Stnd Dev Btwn Labs | 15.25 psi | 13.81 psi | |
| Statistics based on 100 of 107 reporting participants | | | |

| | | Summary Statistics in SI Units | |
|---|------------|--------------------------------|--|
| Grand Means | 1.5641 MPa | 1.56 MPa | |
| Stnd Dev Btwn Labs | 0.1051 MPa | 0.10 MPa | |
| Statistics based on 100 of 107 reporting participants | | | |

Samples C81-C82: Polyisoprene compound, batch #1 & C83-C84: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #608

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

6Y4TNK (X) - Data for all samples are high. Possible Systematic Error.

AH3DRA (X) - Data for all samples are high. Possible Systematic Error.

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

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

R22HPT (X) - Inconsistent in testing between samples. Data for sample group C83-C84 are high.

UZEV72 (X) - Data for all samples are high. Possible Systematic Error. Inconsistent within the determinations of sample group C81-C82.

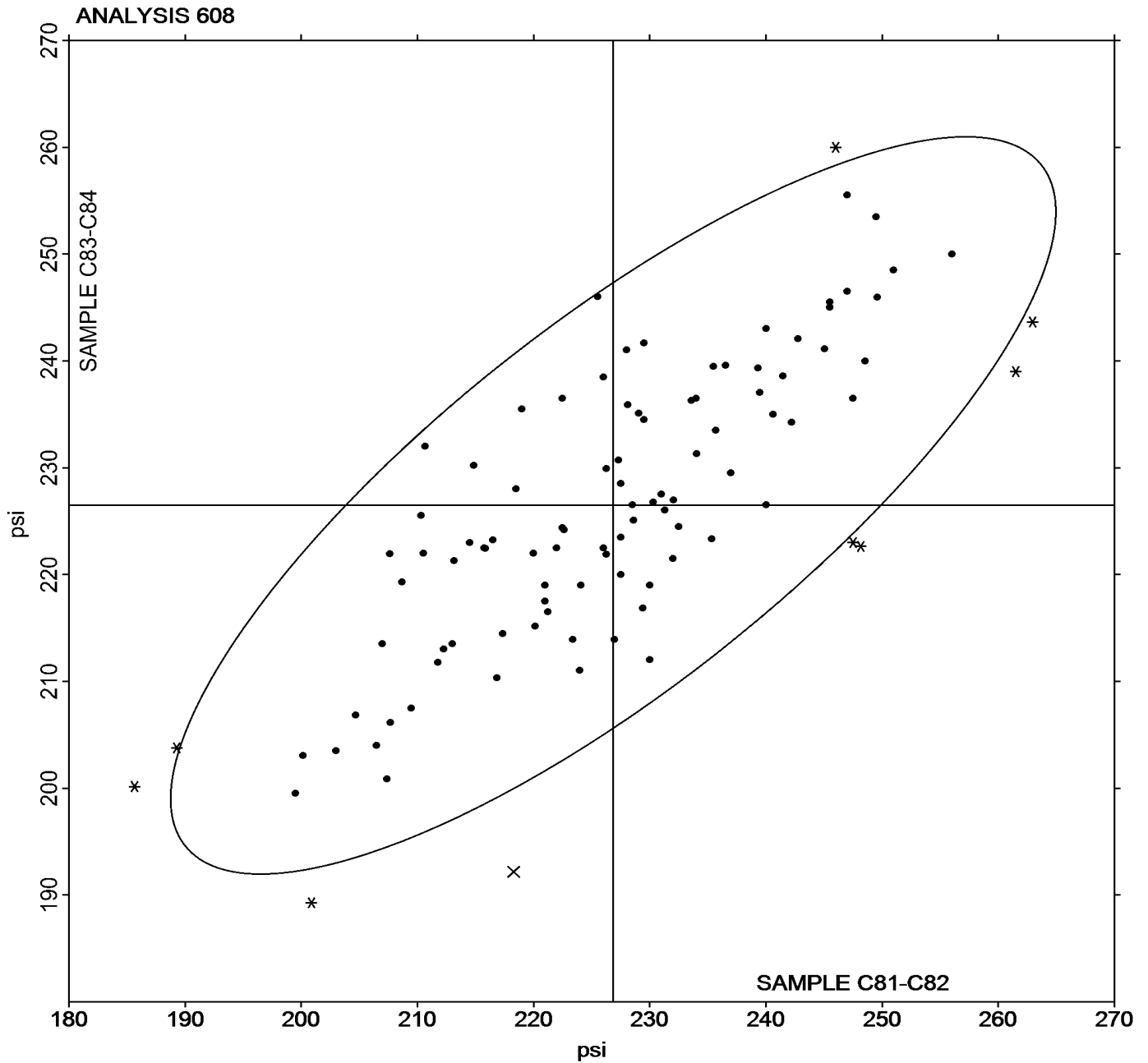


Rubber Interlaboratory Testing Program
Analysis 608
Stress at 100% Elongation (psi)

Report #197
3rd Qtr 2018

Grand Mean Sample C81-C82 = 226.85 psi

Grand Mean Sample C83-C84 = 226.48 psi





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

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| 2EEYU3 | | 49.00 | -0.91 | -0.59 | 49.50 | -0.20 | -0.13 | HH |
| 2J6FY2 | | 51.45 | 1.54 | 1.00 | 51.45 | 1.75 | 1.13 | BT |
| 2LDKJG | | 50.00 | 0.09 | 0.06 | 49.00 | -0.70 | -0.45 | BT |
| 2M8FZY | | 49.00 | -0.91 | -0.59 | 49.00 | -0.70 | -0.45 | BT |
| 2PBBJ2 | | 49.85 | -0.06 | -0.04 | 50.75 | 1.05 | 0.68 | BT |
| 2Q9EJ4 | | 50.00 | 0.09 | 0.06 | 50.00 | 0.30 | 0.19 | HH |
| 2WV7LQ | | 48.85 | -1.06 | -0.69 | 48.65 | -1.05 | -0.68 | BT |
| 2Y2U2F | | 52.50 | 2.59 | 1.69 | 53.00 | 3.30 | 2.13 | HH |
| 3AEB8R | | 47.90 | -2.01 | -1.31 | 47.95 | -1.75 | -1.13 | BT |
| 3AW6AM | | 50.25 | 0.34 | 0.22 | 48.50 | -1.20 | -0.77 | BT |
| 3F4VB9 | | 49.00 | -0.91 | -0.59 | 50.00 | 0.30 | 0.19 | HH |
| 3HTXHG | | 50.00 | 0.09 | 0.06 | 48.50 | -1.20 | -0.77 | HH |
| 3P829G | | 47.00 | -2.91 | -1.89 | 46.50 | -3.20 | -2.07 | BT |
| 4DC8CD | | 51.05 | 1.14 | 0.74 | 51.05 | 1.35 | 0.87 | BT |
| 4DRGHR | | 48.50 | -1.41 | -0.92 | 49.15 | -0.55 | -0.35 | BT |
| 4GRHPG | | 52.70 | 2.79 | 1.82 | 51.90 | 2.20 | 1.42 | BT |
| 4JUPMZ | | 50.35 | 0.44 | 0.29 | 50.75 | 1.05 | 0.68 | BT |
| 4L4M33 | | 49.70 | -0.21 | -0.14 | 49.85 | 0.15 | 0.10 | BT |
| 69RJBD | | 46.75 | -3.16 | -2.06 | 47.25 | -2.45 | -1.58 | BT |
| 6T3CJ7 | | 49.85 | -0.06 | -0.04 | 49.25 | -0.45 | -0.29 | BT |
| 6UTHVQ | | 49.30 | -0.61 | -0.40 | 49.30 | -0.40 | -0.26 | BT |
| 6Y4TNK | | 49.90 | -0.01 | -0.01 | 49.15 | -0.55 | -0.35 | BT |
| 6YP6PE | X | 60.00 | 10.09 | 6.57 | 58.50 | 8.80 | 5.68 | HH |
| 736Y26 | | 51.50 | 1.59 | 1.04 | 50.50 | 0.80 | 0.52 | HH |
| 776882 | | 49.00 | -0.91 | -0.59 | 48.00 | -1.70 | -1.10 | BT |
| 7LXTW2 | | 49.50 | -0.41 | -0.27 | 49.50 | -0.20 | -0.13 | BT |
| 7PDKMU | | 50.00 | 0.09 | 0.06 | 50.00 | 0.30 | 0.19 | BT |
| 7VZH8B | | 49.50 | -0.41 | -0.27 | 49.50 | -0.20 | -0.13 | HH |
| 866RAU | | 51.50 | 1.59 | 1.04 | 51.05 | 1.35 | 0.87 | BT |
| 8C747R | | 48.00 | -1.91 | -1.24 | 48.00 | -1.70 | -1.10 | BT |
| 8RK3J6 | X | 49.75 | -0.16 | -0.10 | 51.75 | 2.05 | 1.32 | BT |
| 8XMFWT | * | 51.00 | 1.09 | 0.71 | 49.00 | -0.70 | -0.45 | XX |
| 9CKK8C | | 51.00 | 1.09 | 0.71 | 50.50 | 0.80 | 0.52 | HH |
| 9MMZTA | | 51.00 | 1.09 | 0.71 | 51.50 | 1.80 | 1.16 | HH |
| 9TQRD2 | | 50.25 | 0.34 | 0.22 | 49.00 | -0.70 | -0.45 | HH |
| AAUXP9 | | 52.50 | 2.59 | 1.69 | 53.00 | 3.30 | 2.13 | HH |
| ADENDR | | 52.50 | 2.59 | 1.69 | 51.50 | 1.80 | 1.16 | BT |



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

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| AH3DRA | | 51.50 | 1.59 | 1.04 | 51.00 | 1.30 | 0.84 | HH |
| BD9XLZ | | 49.15 | -0.76 | -0.49 | 48.50 | -1.20 | -0.77 | BT |
| C688AN | | 50.50 | 0.59 | 0.38 | 50.00 | 0.30 | 0.19 | HH |
| CV4VDU | * | 47.00 | -2.91 | -1.89 | 45.75 | -3.95 | -2.55 | BT |
| CXA97T | | 52.00 | 2.09 | 1.36 | 51.50 | 1.80 | 1.16 | HH |
| D4TZLL | | 47.00 | -2.91 | -1.89 | 47.50 | -2.20 | -1.42 | BT |
| DHRXTQ | | 51.00 | 1.09 | 0.71 | 50.00 | 0.30 | 0.19 | BT |
| E8RNMT | | 51.30 | 1.39 | 0.91 | 51.05 | 1.35 | 0.87 | BT |
| EB7E3V | | 47.50 | -2.41 | -1.57 | 48.50 | -1.20 | -0.77 | BT |
| ECY3KQ | | 48.15 | -1.76 | -1.15 | 47.95 | -1.75 | -1.13 | BT |
| EUZ3GX | | 50.50 | 0.59 | 0.38 | 50.50 | 0.80 | 0.52 | BT |
| EWCP9K | | 47.50 | -2.41 | -1.57 | 46.50 | -3.20 | -2.07 | BT |
| EYFH64 | | 49.95 | 0.04 | 0.03 | 49.95 | 0.25 | 0.16 | XX |
| FBKXNE | | 48.25 | -1.66 | -1.08 | 49.05 | -0.65 | -0.42 | BT |
| FCXK7T | | 50.10 | 0.19 | 0.12 | 50.65 | 0.95 | 0.61 | BT |
| FCZG9C | | 48.95 | -0.96 | -0.62 | 48.50 | -1.20 | -0.77 | BT |
| GEKQX3 | | 49.45 | -0.46 | -0.30 | 49.75 | 0.05 | 0.03 | BT |
| GJT6LT | | 50.20 | 0.29 | 0.19 | 49.90 | 0.20 | 0.13 | BT |
| GP46YK | * | 46.00 | -3.91 | -2.55 | 45.00 | -4.70 | -3.03 | HH |
| GV7CF9 | | 49.65 | -0.26 | -0.17 | 50.30 | 0.60 | 0.39 | BT |
| H37VFH | | 51.50 | 1.59 | 1.04 | 51.00 | 1.30 | 0.84 | BT |
| H7JVCA | | 50.00 | 0.09 | 0.06 | 50.65 | 0.95 | 0.61 | BT |
| HCBXM2 | | 51.50 | 1.59 | 1.04 | 51.00 | 1.30 | 0.84 | HH |
| HEEQGZ | | 51.00 | 1.09 | 0.71 | 51.50 | 1.80 | 1.16 | BT |
| HNY6BP | | 49.80 | -0.11 | -0.07 | 50.20 | 0.50 | 0.32 | BT |
| HWWRB3 | | 50.50 | 0.59 | 0.38 | 50.00 | 0.30 | 0.19 | BT |
| J4BZ9X | | 49.63 | -0.28 | -0.19 | 49.75 | 0.05 | 0.03 | HH |
| JWUKKU | | 51.25 | 1.34 | 0.87 | 51.00 | 1.30 | 0.84 | HH |
| K3WV9E | | 48.50 | -1.41 | -0.92 | 48.00 | -1.70 | -1.10 | BT |
| KE92K2 | | 50.20 | 0.29 | 0.19 | 50.30 | 0.60 | 0.39 | BT |
| KWTPVW | | 47.75 | -2.16 | -1.41 | 47.80 | -1.90 | -1.23 | BT |
| LACV3G | | 48.75 | -1.16 | -0.76 | 48.75 | -0.95 | -0.61 | BT |
| LFYLP | | 49.50 | -0.41 | -0.27 | 49.00 | -0.70 | -0.45 | BT |
| LH9PJN | | 50.00 | 0.09 | 0.06 | 50.00 | 0.30 | 0.19 | HH |
| LMZW3W | | 50.70 | 0.79 | 0.51 | 50.70 | 1.00 | 0.65 | BT |
| LT2C7B | * | 54.03 | 4.12 | 2.68 | 53.77 | 4.07 | 2.63 | XX |
| MCUDX8 | | 50.00 | 0.09 | 0.06 | 50.00 | 0.30 | 0.19 | HH |
| MFRWXK | | 49.65 | -0.26 | -0.17 | 49.65 | -0.05 | -0.03 | BT |



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

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | | Instr Code |
|---------|-----------|----------------|----------------------|--------|----------------|----------------------|--------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| MG7GQU | | 50.25 | 0.34 | 0.22 | 49.50 | -0.20 | -0.13 | HH |
| MV8WUB | * | 54.43 | 4.52 | 2.94 | 53.58 | 3.88 | 2.51 | XX |
| N8YYUH | | 50.80 | 0.89 | 0.58 | 49.60 | -0.10 | -0.06 | BT |
| NUR8QP | | 49.65 | -0.26 | -0.17 | 49.45 | -0.25 | -0.16 | BT |
| NX8MEV | | 51.00 | 1.09 | 0.71 | 50.50 | 0.80 | 0.52 | BT |
| P2MGR8 | | 51.00 | 1.09 | 0.71 | 50.00 | 0.30 | 0.19 | BT |
| P6LVDB | X | 45.50 | -4.41 | -2.87 | 44.50 | -5.20 | -3.36 | XX |
| P9JCNK | | 50.00 | 0.09 | 0.06 | 48.50 | -1.20 | -0.77 | HH |
| PERT6L | | 50.50 | 0.59 | 0.38 | 51.00 | 1.30 | 0.84 | HH |
| PHTU6H | | 50.00 | 0.09 | 0.06 | 50.00 | 0.30 | 0.19 | BT |
| PZX2KK | | 50.00 | 0.09 | 0.06 | 50.00 | 0.30 | 0.19 | HH |
| Q3FK3T | | 48.90 | -1.01 | -0.66 | 47.40 | -2.30 | -1.48 | BT |
| Q7E4YZ | | 49.80 | -0.11 | -0.07 | 48.50 | -1.20 | -0.77 | XX |
| QADFZR | | 48.00 | -1.91 | -1.24 | 48.40 | -1.30 | -0.84 | BT |
| QBTLFG | | 49.00 | -0.91 | -0.59 | 49.50 | -0.20 | -0.13 | BT |
| QM2NEK | | 50.00 | 0.09 | 0.06 | 49.00 | -0.70 | -0.45 | BT |
| QUKPY4 | | 50.75 | 0.84 | 0.55 | 50.75 | 1.05 | 0.68 | HH |
| QYENBD | | 47.50 | -2.41 | -1.57 | 47.00 | -2.70 | -1.74 | BT |
| R22HPT | X | 49.50 | -0.41 | -0.27 | 51.50 | 1.80 | 1.16 | HH |
| RL3QQB | | 47.50 | -2.41 | -1.57 | 47.50 | -2.20 | -1.42 | BT |
| T8MTJN | | 49.50 | -0.41 | -0.27 | 49.50 | -0.20 | -0.13 | BT |
| T8ZKAK | | 47.50 | -2.41 | -1.57 | 48.00 | -1.70 | -1.10 | BT |
| TBL6GA | | 50.50 | 0.59 | 0.38 | 49.50 | -0.20 | -0.13 | BT |
| TCD824 | | 49.50 | -0.41 | -0.27 | 50.00 | 0.30 | 0.19 | BT |
| TELFCA | | 50.20 | 0.29 | 0.19 | 50.15 | 0.45 | 0.29 | BT |
| TMD3WE | | 51.00 | 1.09 | 0.71 | 52.00 | 2.30 | 1.49 | XX |
| U82LRW | | 49.50 | -0.41 | -0.27 | 49.50 | -0.20 | -0.13 | XX |
| UJBGMM | X | 3.50 | -46.41 | -30.22 | 4.00 | -45.70 | -29.51 | BT |
| ULZLN7 | | 50.00 | 0.09 | 0.06 | 50.00 | 0.30 | 0.19 | BT |
| UZEV72 | X | 44.75 | -5.16 | -3.36 | 46.50 | -3.20 | -2.07 | HH |
| V3FJWB | | 50.00 | 0.09 | 0.06 | 50.00 | 0.30 | 0.19 | BT |
| VCMY7Q | | 47.00 | -2.91 | -1.89 | 47.00 | -2.70 | -1.74 | BT |
| VLDGKY | | 50.00 | 0.09 | 0.06 | 50.00 | 0.30 | 0.19 | BT |
| VLWFKH | | 51.00 | 1.09 | 0.71 | 51.00 | 1.30 | 0.84 | BT |
| VPA3C2 | | 50.10 | 0.19 | 0.12 | 50.55 | 0.85 | 0.55 | BT |
| VRJD6Y | | 49.50 | -0.41 | -0.27 | 50.25 | 0.55 | 0.36 | HH |
| W4QF6M | | 51.00 | 1.09 | 0.71 | 50.75 | 1.05 | 0.68 | HH |



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

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| WGH3FN | | 50.70 | 0.79 | 0.51 | 50.60 | 0.90 | 0.58 | BT |
| WHBZMV | | 48.50 | -1.41 | -0.92 | 48.50 | -1.20 | -0.77 | BT |
| WTBNLJ | | 52.00 | 2.09 | 1.36 | 51.00 | 1.30 | 0.84 | HH |
| XP233B | | 48.40 | -1.51 | -0.98 | 49.35 | -0.35 | -0.23 | BT |
| XW7W6J | * | 53.15 | 3.24 | 2.11 | 51.80 | 2.10 | 1.36 | BT |
| YLZARD | | 50.00 | 0.09 | 0.06 | 49.50 | -0.20 | -0.13 | BT |
| YN8UFD | | 47.00 | -2.91 | -1.89 | 46.00 | -3.70 | -2.39 | BT |
| Z34DM3 | | 52.15 | 2.24 | 1.46 | 51.90 | 2.20 | 1.42 | BT |
| Z42EUF | | 50.50 | 0.59 | 0.38 | 49.50 | -0.20 | -0.13 | BT |
| ZJRGBJ | | 53.00 | 3.09 | 2.01 | 53.00 | 3.30 | 2.13 | HH |
| ZPCL2Y | | 49.50 | -0.41 | -0.27 | 49.05 | -0.65 | -0.42 | BT |
| ZRJ4ZV | | 49.00 | -0.91 | -0.59 | 49.50 | -0.20 | -0.13 | BT |

| Summary Statistics | |
|---|---------------|
| Grand Means | 49.910 Type A |
| Stnd Dev Btwn Labs | 1.535 Type A |
| | 49.699 Type A |
| | 1.549 Type A |
| Statistics based on 118 of 124 reporting participants | |

Samples C81-C82: Polyisoprene compound, batch #1 & C83-C84: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #620

- 6YP6PE (X) - Data for all samples are high. Possible Systematic Error.
- 8RK3J6 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group C81-C82.
- P6LVDB (X) - Data for all samples are low. Possible Systematic Error.
- R22HPT (X) - Inconsistent in testing between samples.
- UJBGMM (X) - Extreme Data.
- UZEV72 (X) - Inconsistent in testing between samples. Data for sample group C81-C82 are low. Inconsistent within the determinations of sample group C83-C84.

Key to Instrument Codes Reported by Participants

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



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

Report #197
3rd Qtr 2018

Results by Reading Time (as reported by laboratory)

| Reading Time | Sample C81-C82 <i>Polyisoprene compound, batch #1</i> | | | Sample C83-C84 <i>Polyisoprene compound, batch #2</i> | | | Labs Incl / Rpt | |
|-------------------------------------|--|--------------|--------------|--|--------------|--------------|-----------------|----|
| | Group Mean | Btwn Lab STD | Diff from GM | Group Mean | Btwn Lab STD | Diff from GM | | |
| Select from list below | 49.95 | 0.00 | 0.04 | 49.95 | 0.00 | 0.25 | 1 | 2 |
| Readings taken within 0 - 5 seconds | 50.14 | 1.13 | 0.23 | 49.93 | 1.18 | 0.23 | 81 | 87 |
| Readings taken at 5 seconds | 48.61 | 1.56 | -1.30 | 48.80 | 1.72 | -0.90 | 17 | 18 |
| Readings taken after 5+ seconds | 49.53 | 1.67 | -0.38 | 49.08 | 1.16 | -0.62 | 6 | 8 |
| Maximum hardness indicator used | 49.81 | 1.51 | -0.10 | 49.59 | 1.82 | -0.11 | 7 | 9 |



Rubber Interlaboratory Testing Program

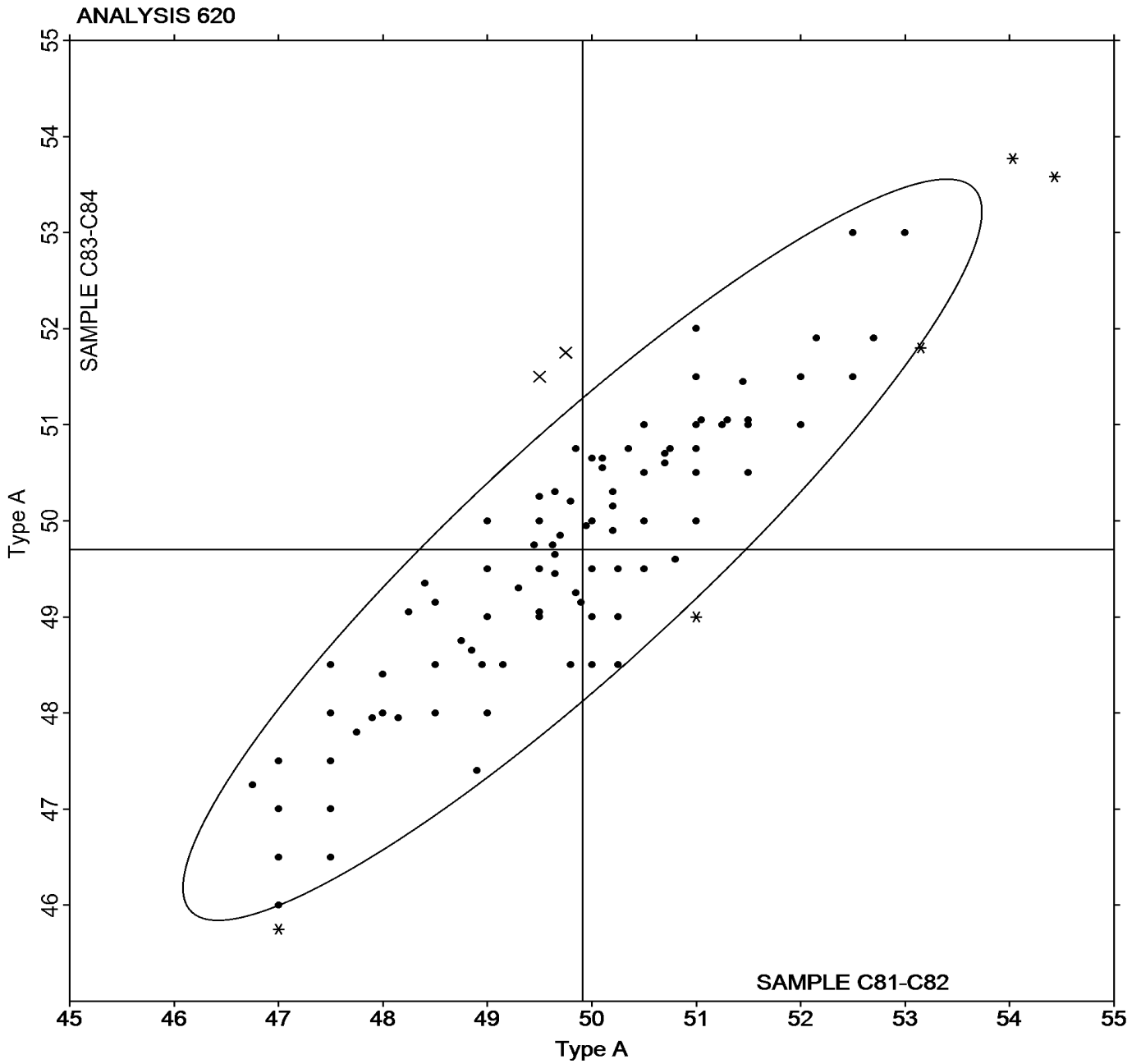
Analysis 620

Hardness (Shore A/Type A)

Report #197
3rd Qtr 2018

Grand Mean Sample C81-C82 = 49.910 Type A

Grand Mean Sample C83-C84 = 49.699 Type A





Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| 2J6FY2 | | 1.136 | -0.001 | -0.16 | 1.136 | 0.000 | 0.05 |
| 2M8FZY | | 1.137 | 0.001 | 0.19 | 1.137 | 0.001 | 0.27 |
| 2PBBJ2 | | 1.136 | 0.000 | 0.06 | 1.137 | 0.000 | 0.06 |
| 2Q9EJ4 | X | 1.135 | -0.001 | -0.31 | 1.125 | -0.011 | -3.27 |
| 2WV7LQ | X | 1.139 | 0.002 | 0.65 | 1.132 | -0.004 | -1.24 |
| 2Y2U2F | X | 1.109 | -0.028 | -7.60 | 1.105 | -0.032 | -9.21 |
| 3AEB8R | | 1.137 | 0.001 | 0.17 | 1.137 | 0.001 | 0.33 |
| 3AW6AM | | 1.136 | 0.000 | 0.04 | 1.139 | 0.003 | 0.91 |
| 3F4VB9 | | 1.133 | -0.004 | -1.00 | 1.130 | -0.006 | -1.82 |
| 3HTXHG | | 1.133 | -0.003 | -0.86 | 1.135 | -0.002 | -0.52 |
| 4DRGHR | | 1.136 | -0.001 | -0.17 | 1.136 | 0.000 | -0.08 |
| 4GRHPG | | 1.139 | 0.003 | 0.79 | 1.141 | 0.004 | 1.22 |
| 4JUPMZ | | 1.134 | -0.002 | -0.49 | 1.134 | -0.002 | -0.57 |
| 69RJBD | | 1.138 | 0.002 | 0.57 | 1.138 | 0.002 | 0.59 |
| 6T3CJ7 | | 1.139 | 0.003 | 0.89 | 1.141 | 0.004 | 1.30 |
| 6UTHVQ | | 1.138 | 0.002 | 0.64 | 1.138 | 0.002 | 0.62 |
| 6Y4TNK | | 1.134 | -0.002 | -0.58 | 1.133 | -0.003 | -0.95 |
| 6YP6PE | X | 1.144 | 0.008 | 2.17 | 1.137 | 0.000 | 0.06 |
| 736Y26 | | 1.136 | 0.000 | -0.06 | 1.134 | -0.002 | -0.59 |
| 776882 | | 1.143 | 0.006 | 1.77 | 1.143 | 0.006 | 1.82 |
| 7LXTW2 | | 1.141 | 0.004 | 1.21 | 1.141 | 0.005 | 1.37 |
| 7PDKMU | | 1.135 | -0.001 | -0.27 | 1.137 | 0.001 | 0.22 |
| 866RAU | | 1.136 | 0.000 | -0.03 | 1.138 | 0.002 | 0.51 |
| 8C747R | | 1.135 | -0.001 | -0.41 | 1.137 | 0.001 | 0.20 |
| 9CKK8C | | 1.133 | -0.003 | -0.86 | 1.134 | -0.002 | -0.66 |
| 9TQRD2 | | 1.139 | 0.003 | 0.74 | 1.139 | 0.003 | 0.83 |
| AAUXP9 | | 1.137 | 0.000 | 0.10 | 1.136 | 0.000 | -0.08 |
| ADENDR | | 1.141 | 0.005 | 1.32 | 1.141 | 0.005 | 1.40 |
| C688AN | * | 1.133 | -0.003 | -0.90 | 1.130 | -0.007 | -1.91 |
| CV4VDU | | 1.134 | -0.002 | -0.58 | 1.132 | -0.004 | -1.24 |
| CXA97T | | 1.135 | -0.001 | -0.24 | 1.138 | 0.002 | 0.57 |
| D4TZLL | | 1.137 | 0.001 | 0.24 | 1.138 | 0.001 | 0.35 |
| DHRXTQ | | 1.128 | -0.008 | -2.19 | 1.130 | -0.006 | -1.83 |
| ECY3KQ | | 1.128 | -0.008 | -2.24 | 1.130 | -0.007 | -1.96 |
| EUZ3GX | | 1.139 | 0.003 | 0.79 | 1.139 | 0.003 | 0.79 |
| EWCP9K | | 1.142 | 0.005 | 1.48 | 1.139 | 0.002 | 0.64 |
| EYFH64 | | 1.135 | -0.001 | -0.31 | 1.139 | 0.002 | 0.64 |
| FBKXNE | | 1.136 | 0.000 | -0.02 | 1.136 | 0.000 | -0.01 |



Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| GJT6LT | X | 1.135 | -0.001 | -0.20 | 1.141 | 0.005 | 1.44 |
| GV7CF9 | * | 1.129 | -0.007 | -1.89 | 1.134 | -0.002 | -0.60 |
| H37VFH | | 1.139 | 0.003 | 0.86 | 1.135 | -0.001 | -0.33 |
| H7JVCA | | 1.137 | 0.001 | 0.32 | 1.138 | 0.002 | 0.47 |
| HCBXM2 | | 1.140 | 0.003 | 0.93 | 1.139 | 0.003 | 0.86 |
| HEEQGZ | | 1.136 | -0.001 | -0.17 | 1.138 | 0.002 | 0.50 |
| HNY6BP | | 1.135 | -0.001 | -0.39 | 1.138 | 0.001 | 0.37 |
| HWWRB3 | | 1.142 | 0.005 | 1.48 | 1.140 | 0.003 | 0.93 |
| J4BZ9X | | 1.139 | 0.003 | 0.79 | 1.140 | 0.003 | 0.93 |
| K3WV9E | | 1.137 | 0.001 | 0.26 | 1.138 | 0.001 | 0.41 |
| KE92K2 | X | 1.162 | 0.026 | 7.19 | 1.161 | 0.024 | 7.07 |
| KWTPVW | | 1.134 | -0.002 | -0.58 | 1.134 | -0.002 | -0.66 |
| LH9PJN | | 1.141 | 0.005 | 1.34 | 1.141 | 0.005 | 1.37 |
| LT2C7B | X | 1.128 | -0.008 | -2.28 | 1.123 | -0.013 | -3.81 |
| MFRWXK | | 1.128 | -0.009 | -2.37 | 1.128 | -0.008 | -2.40 |
| MV8WUB | * | 1.127 | -0.009 | -2.55 | 1.127 | -0.010 | -2.76 |
| N8YYUH | | 1.132 | -0.004 | -1.05 | 1.130 | -0.006 | -1.86 |
| NUR8QP | X | 1.130 | -0.006 | -1.69 | 1.137 | 0.000 | 0.06 |
| NX8MEV | | 1.140 | 0.003 | 0.93 | 1.139 | 0.003 | 0.79 |
| P2MGR8 | | 1.136 | -0.001 | -0.17 | 1.134 | -0.002 | -0.66 |
| P9JCNK | | 1.136 | 0.000 | -0.03 | 1.135 | -0.002 | -0.52 |
| PERT6L | | 1.137 | 0.001 | 0.24 | 1.140 | 0.003 | 0.93 |
| PHTU6H | | 1.140 | 0.003 | 0.93 | 1.139 | 0.003 | 0.79 |
| PZX2KK | | 1.138 | 0.002 | 0.52 | 1.139 | 0.003 | 0.79 |
| Q3FK3T | X | 1.151 | 0.015 | 4.22 | 1.138 | 0.002 | 0.47 |
| QM2NEK | * | 1.143 | 0.006 | 1.76 | 1.139 | 0.002 | 0.64 |
| QUKPY4 | | 1.132 | -0.005 | -1.26 | 1.133 | -0.003 | -0.89 |
| QYENBD | | 1.138 | 0.001 | 0.38 | 1.137 | 0.001 | 0.21 |
| T8ZKAK | | 1.140 | 0.004 | 1.07 | 1.141 | 0.004 | 1.22 |
| TBL6GA | | 1.136 | 0.000 | -0.03 | 1.136 | 0.000 | -0.08 |
| TCD824 | | 1.132 | -0.005 | -1.27 | 1.132 | -0.005 | -1.39 |
| TELFCA | | 1.142 | 0.005 | 1.48 | 1.142 | 0.005 | 1.51 |
| U82LRW | | 1.136 | 0.000 | -0.12 | 1.136 | -0.001 | -0.20 |
| UJBGMM | | 1.135 | -0.002 | -0.45 | 1.134 | -0.003 | -0.81 |
| ULZLN7 | | 1.135 | -0.001 | -0.19 | 1.135 | -0.001 | -0.40 |
| V3FJWB | | 1.133 | -0.003 | -0.86 | 1.136 | -0.001 | -0.23 |
| VLDGKY | | 1.138 | 0.001 | 0.41 | 1.138 | 0.001 | 0.35 |



Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample C81-C82 | | | Sample C83-C84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| VLWFKH | | 1.140 | 0.003 | 0.93 | 1.140 | 0.004 | 1.08 |
| VPA3C2 | | 1.143 | 0.006 | 1.76 | 1.140 | 0.003 | 0.93 |
| W4QF6M | | 1.130 | -0.007 | -1.82 | 1.131 | -0.006 | -1.68 |
| | | | | | | | |
| WGH3FN | | 1.137 | 0.001 | 0.27 | 1.137 | 0.000 | 0.09 |
| WHBZMV | | 1.137 | 0.001 | 0.17 | 1.137 | 0.001 | 0.21 |
| WTBNLJ | X | 1.118 | -0.018 | -5.03 | 1.116 | -0.020 | -5.79 |
| XW7W6J | | 1.135 | -0.001 | -0.31 | 1.136 | 0.000 | -0.08 |
| YLZARD | | 1.137 | 0.000 | 0.10 | 1.137 | 0.001 | 0.21 |
| | | | | | | | |
| YN8UFD | * | 1.143 | 0.006 | 1.76 | 1.138 | 0.002 | 0.50 |
| YT4GA2 | | 1.134 | -0.002 | -0.61 | 1.134 | -0.002 | -0.57 |
| Z34DM3 | | 1.132 | -0.004 | -1.02 | 1.134 | -0.002 | -0.72 |
| Z42EUF | | 1.131 | -0.006 | -1.55 | 1.129 | -0.007 | -2.11 |
| ZPCL2Y | | 1.135 | -0.001 | -0.23 | 1.136 | 0.000 | -0.05 |
| | | | | | | | |
| ZRJ4ZV | | 1.138 | 0.002 | 0.63 | 1.138 | 0.001 | 0.37 |

| Summary Statistics | | | |
|---|--------|--|--|
| Grand Means | 1.1361 | g/cm ³ (Mg/m ³) | 1.1363 |
| | | | g/cm ³ (Mg/m ³) |
| Stnd Dev Btwn Labs | 0.0036 | g/cm ³ (Mg/m ³) | 0.0034 |
| | | | g/cm ³ (Mg/m ³) |
| Statistics based on 79 of 89 reporting participants | | | |

Samples C81-C82: Polyisoprene compound, batch #1 & C83-C84: Polyisoprene compound, batch #2

Comments on Assigned Data Flags for Test #621

- 2Q9EJ4 (X) - Inconsistent in testing between samples. Data for sample group C83-C84 are low. Inconsistent within the determinations of both sample groups.
- 2WV7LQ (X) - Inconsistent in testing between samples.
- 2Y2U2F (X) - Data for all samples are low. Possible Systematic Error.
- 6YP6PE (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group C81-C82.
- GJT6LT (X) - Inconsistent in testing between samples.
- KE92K2 (X) - Data for all samples are high. Possible Systematic Error.
- LT2C7B (X) - Inconsistent in testing between samples. Data for sample group C83-C84 are low.
- NUR8QP (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group C81-C82.
- Q3FK3T (X) - Inconsistent in testing between samples. Data for sample group C81-C82 are high. Inconsistent within the determinations of sample group C81-C82.
- WTBNLJ (X) - Data for all samples are low. Possible Systematic Error.

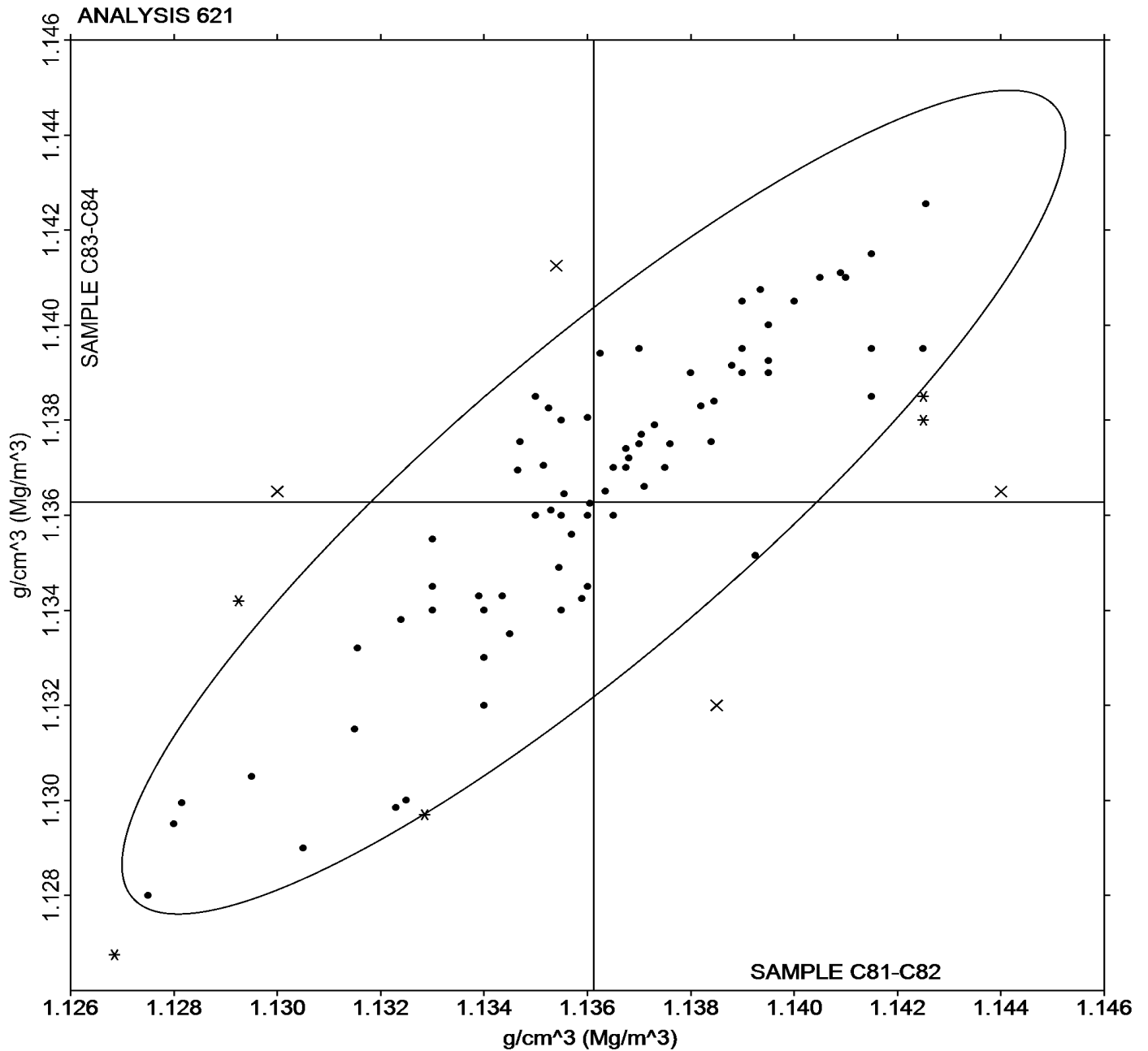


Rubber Interlaboratory Testing Program
Analysis 621
Density

Report #197
3rd Qtr 2018

Grand Mean Sample C81-C82 = 1.1361 g/cm³
(Mg/m³)

Grand Mean Sample C83-C84 = 1.1363 g/cm³
(Mg/m³)





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

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample HC81-HC82 | | | Sample HC83-HC84 | | | Instr Code |
|---------|-----------|------------------|----------------------|-------|------------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| 38RRA2 | | 68.50 | 1.10 | 0.59 | 57.00 | 3.38 | 1.27 | BT |
| 6VAP29 | | 67.00 | -0.40 | -0.22 | 55.00 | 1.38 | 0.52 | BT |
| 9XH9DX | | 68.60 | 1.20 | 0.64 | 53.70 | 0.08 | 0.03 | HH |
| C96NMH | | 69.00 | 1.60 | 0.85 | 57.00 | 3.38 | 1.27 | BT |
| CC8KEX | | 67.60 | 0.20 | 0.11 | 54.05 | 0.43 | 0.16 | BT |
| E8RNMT | | 66.65 | -0.75 | -0.40 | 51.65 | -1.97 | -0.74 | BT |
| GN9JAZ | | 65.75 | -1.65 | -0.88 | 49.40 | -4.22 | -1.59 | BT |
| H2M7UG | | 67.50 | 0.10 | 0.05 | 54.00 | 0.38 | 0.14 | XX |
| J9QBL2 | | 66.25 | -1.15 | -0.62 | 52.25 | -1.37 | -0.52 | BT |
| KWTPVW | | 63.55 | -3.85 | -2.06 | 48.45 | -5.17 | -1.94 | BT |
| LMZW3W | | 68.90 | 1.50 | 0.80 | 57.35 | 3.73 | 1.40 | BT |
| NUR8QP | | 67.00 | -0.40 | -0.22 | 52.00 | -1.62 | -0.61 | BT |
| PD42C4 | * | 72.00 | 4.60 | 2.45 | 57.00 | 3.38 | 1.27 | XX |
| PZX2KK | | 68.00 | 0.60 | 0.32 | 54.00 | 0.38 | 0.14 | HH |
| TZZAUE | | 66.50 | -0.90 | -0.48 | 53.00 | -0.62 | -0.23 | BT |
| XP233B | | 65.65 | -1.75 | -0.94 | 52.10 | -1.52 | -0.57 | BT |
| YN8UFD | X | 54.00 | -13.40 | -7.15 | 54.50 | 0.88 | 0.33 | BT |

| Grand Means | | Summary Statistics | |
|---|---------------|--------------------|---------------|
| | 67.403 Type D | | 53.622 Type D |
| Std Dev Btwn Labs | 1.874 Type D | | 2.661 Type D |
| Statistics based on 16 of 17 reporting participants | | | |

Samples HC81-HC82: Hardness Disc, batch #1 & HC83-HC84: Hardness Disc, batch #2

Comments on Assigned Data Flags for Test #625

YN8UFD (X) - Extreme data. Lab may have transposed data between samples.

Key to Instrument Codes Reported by Participants

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

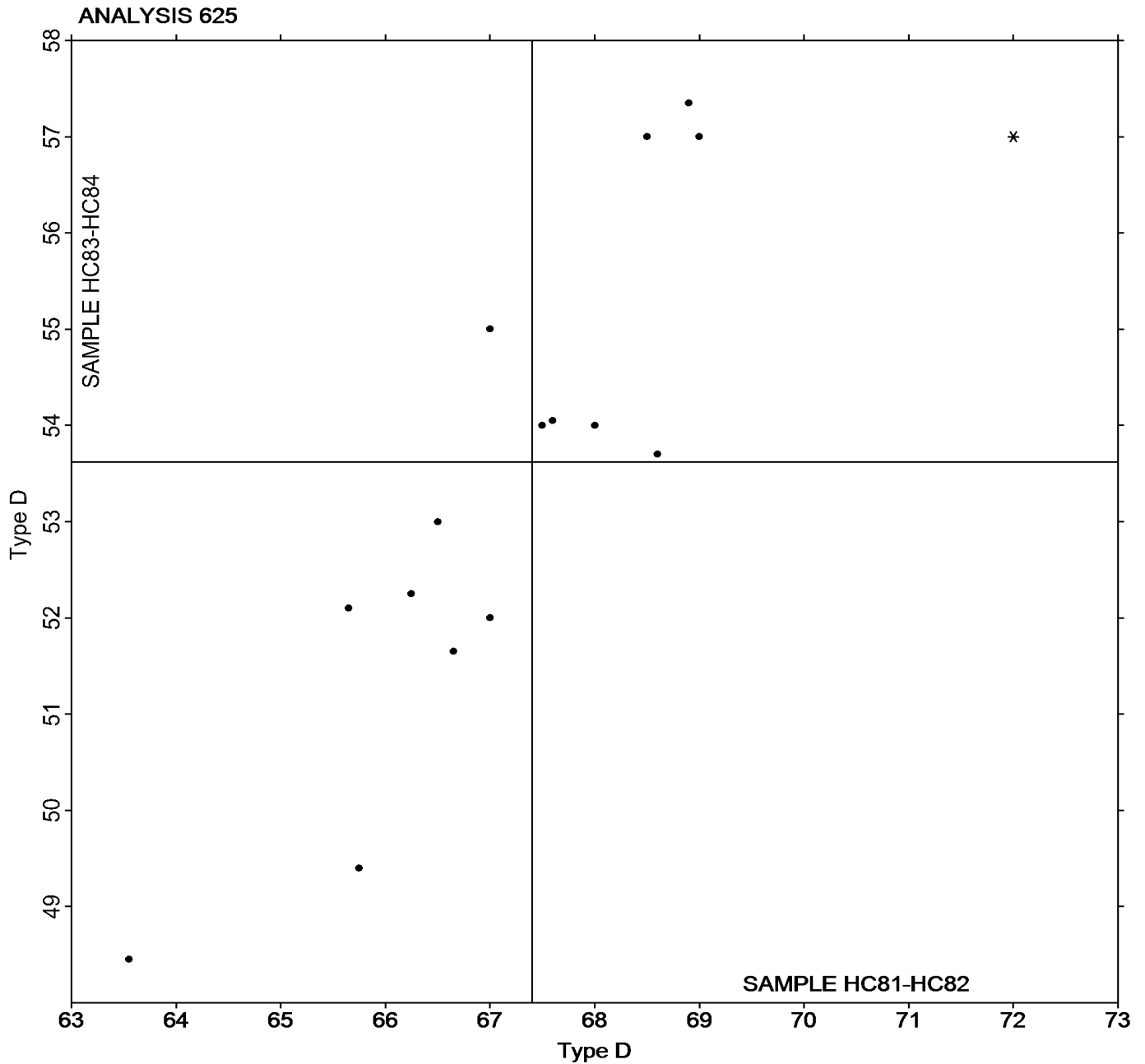


Rubber Interlaboratory Testing Program
Analysis 625
Hardness (Shore D/Type D)

Report #197
3rd Qtr 2018

Grand Mean Sample **HC81-HC82** = 67.403 Type D

Grand Mean Sample **HC83-HC84** = 53.622 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 #197

Analysis 630

3rd Qtr 2018

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

| WebCode | Data Flag | Sample C81-C82 | | | Sample L81-L82 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| 2J6FY2 | | 3,390.0 | 64.0 | 0.47 | 2,905.5 | 112.9 | 0.45 |
| 2WV7LQ | | 3,582.5 | 256.5 | 1.88 | 2,915.3 | 122.7 | 0.49 |
| 2Y2U2F | | 3,269.2 | -56.9 | -0.42 | 2,605.6 | -186.9 | -0.75 |
| 3F4VB9 | | 3,380.0 | 54.0 | 0.40 | 2,740.4 | -52.1 | -0.21 |
| 4JUPMZ | | 3,392.7 | 66.7 | 0.49 | 2,318.4 | -474.1 | -1.91 |
| 69RJBD | | 3,085.2 | -240.8 | -1.76 | 2,597.6 | -194.9 | -0.78 |
| 6T3CJ7 | | 3,352.7 | 26.6 | 0.19 | 2,825.7 | 33.1 | 0.13 |
| 6YP6PE | | 3,281.0 | -45.0 | -0.33 | 3,112.0 | 319.5 | 1.29 |
| 736Y26 | | 3,310.7 | -15.3 | -0.11 | 2,850.1 | 57.5 | 0.23 |
| 7VZH8B | * | 2,950.1 | -375.9 | -2.75 | 2,443.9 | -348.6 | -1.40 |
| 9MMZTA | | 3,383.3 | 57.3 | 0.42 | 2,679.7 | -112.9 | -0.45 |
| 9TQRD2 | | 3,335.0 | 9.0 | 0.07 | 2,487.5 | -305.0 | -1.23 |
| AAUXP9 | | 3,429.5 | 103.5 | 0.76 | 2,569.3 | -223.2 | -0.90 |
| CXA97T | | 3,301.6 | -24.4 | -0.18 | 3,025.0 | 232.4 | 0.94 |
| D4TZLL | | 3,389.1 | 63.0 | 0.46 | 2,993.3 | 200.7 | 0.81 |
| E8RNMT | | 3,263.4 | -62.6 | -0.46 | 2,719.5 | -73.1 | -0.29 |
| EWCP9K | | 3,142.0 | -184.0 | -1.35 | 2,578.5 | -214.0 | -0.86 |
| EYFH64 | | 3,215.0 | -111.0 | -0.81 | 2,680.5 | -112.0 | -0.45 |
| FCXK7T | | 3,420.5 | 94.5 | 0.69 | 3,108.0 | 315.5 | 1.27 |
| FCZG9C | | 3,141.0 | -185.0 | -1.35 | 2,775.5 | -17.0 | -0.07 |
| GJT6LT | | 3,540.6 | 214.6 | 1.57 | 2,917.1 | 124.6 | 0.50 |
| GV7CF9 | | 3,270.0 | -56.0 | -0.41 | 2,764.1 | -28.5 | -0.11 |
| H7JVCA | | 3,350.5 | 24.5 | 0.18 | 3,192.0 | 399.5 | 1.61 |
| HWWRB3 | | 3,150.0 | -176.0 | -1.29 | 2,843.0 | 50.5 | 0.20 |
| N8YYUH | | 3,204.3 | -121.8 | -0.89 | 2,874.8 | 82.2 | 0.33 |
| P9JCNK | X | 3,129.5 | -196.5 | -1.44 | 1,753.5 | -1,039.0 | -4.18 |
| PERT6L | | 3,240.0 | -86.0 | -0.63 | 2,923.0 | 130.5 | 0.53 |
| Q3FK3T | | 3,391.0 | 65.0 | 0.48 | 2,921.8 | 129.3 | 0.52 |
| Q7E4YZ | | 3,258.5 | -67.5 | -0.49 | 3,155.5 | 363.0 | 1.46 |
| QM2NEK | | 3,488.0 | 162.0 | 1.19 | 2,762.5 | -30.0 | -0.12 |
| QYENBD | | 3,458.7 | 132.7 | 0.97 | 2,771.5 | -21.1 | -0.08 |
| TCD824 | | 3,233.5 | -92.5 | -0.68 | 2,832.5 | 40.0 | 0.16 |
| U82LRW | | 3,386.7 | 60.7 | 0.44 | 3,129.9 | 337.4 | 1.36 |
| W4QF6M | | 3,589.9 | 263.9 | 1.93 | 3,142.5 | 349.9 | 1.41 |
| XW7W6J | | 3,242.3 | -83.7 | -0.61 | 2,903.7 | 111.1 | 0.45 |
| Z34DM3 | | 3,489.1 | 163.1 | 1.19 | 2,597.0 | -195.6 | -0.79 |
| ZJRGBJ | | 3,401.6 | 75.6 | 0.55 | 2,635.1 | -157.4 | -0.63 |



Rubber Interlaboratory Testing Program

Report #197

Analysis 630

3rd Qtr 2018

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

| WebCode | Data Flag | Sample C81-C82 | | | Sample L81-L82 | | |
|---------|-----------|----------------|----------------------|------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| ZRJ4ZV | * | 3,353.3 | 27.3 | 0.20 | 2,026.9 | -765.7 | -3.08 |

| Summary Statistics | | | |
|---|--------------|--|--------------|
| Grand Means | | | |
| | 3,326.01 psi | | 2,792.54 psi |
| Std Dev Btwn Labs | | | |
| | 136.64 psi | | 248.40 psi |
| Statistics based on 37 of 38 reporting participants | | | |

| Summary Statistics in SI Units | | | |
|---|------------|--|-----------|
| Grand Means | | | |
| | 22.932 MPa | | 19.25 MPa |
| Std Dev Btwn Labs | | | |
| | 0.942 MPa | | 1.71 MPa |
| Statistics based on 37 of 38 reporting participants | | | |

Samples C81-C82: Polyisoprene compound, batch #1 & L81-L82: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #630

P9JCNK (X) - Data for sample group L81-L82 are low.

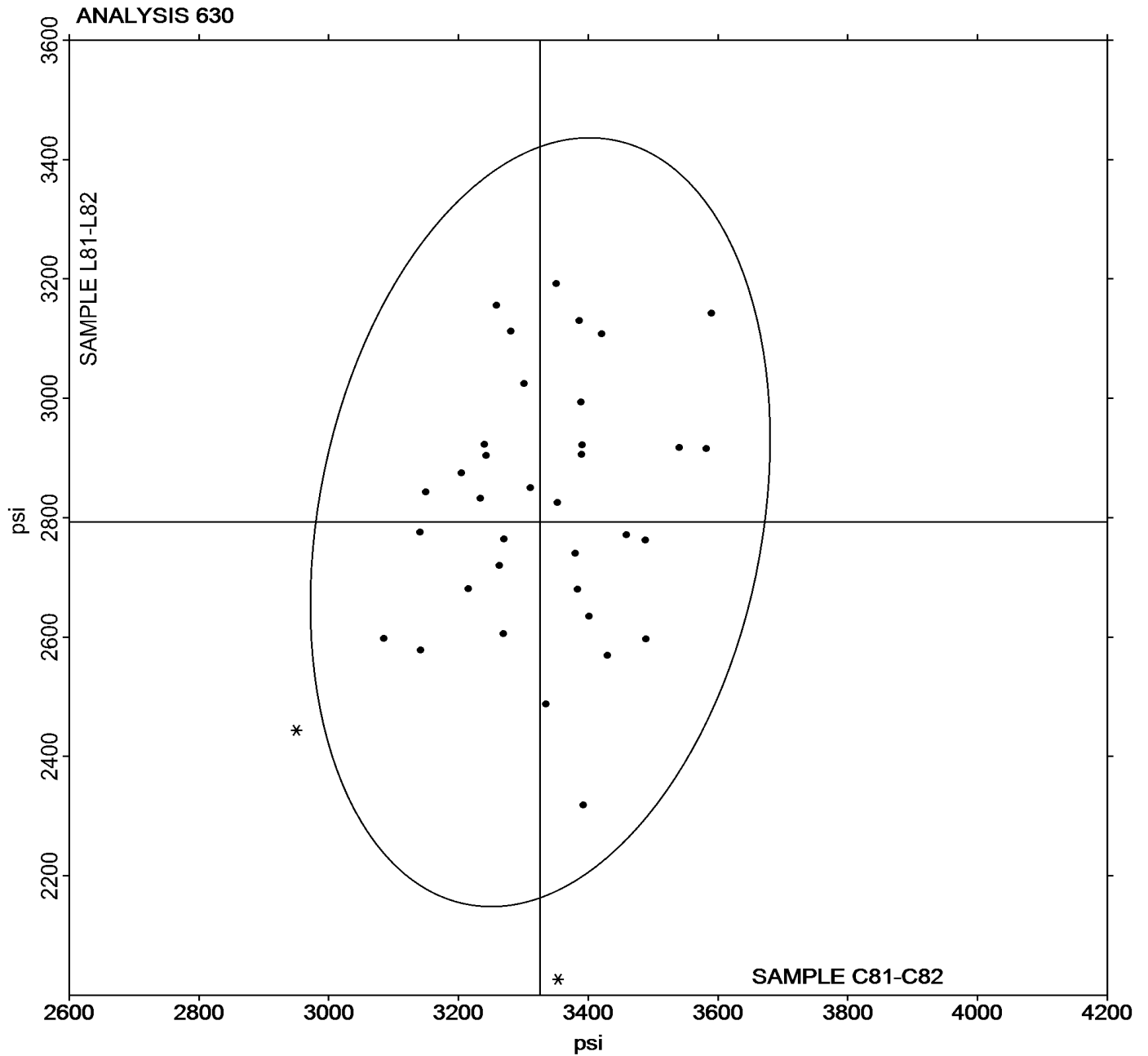


Rubber Interlaboratory Testing Program
Analysis 630
Tensile Strength: Precured vs. Lab-Cured Samples (psi)

Report #197
3rd Qtr 2018

Grand Mean Sample **C81-C82** = 3,326.01 psi

Grand Mean Sample **L81-L82** = 2,792.54 psi





Rubber Interlaboratory Testing Program

Report #197

Analysis 631

3rd Qtr 2018

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

| WebCode | Data Flag | Sample C81-C82 | | | Sample L81-L82 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| 2J6FY2 | | 638.4 | 43.2 | 1.42 | 588.9 | 54.7 | 1.55 |
| 2WV7LQ | | 611.0 | 15.8 | 0.52 | 540.5 | 6.4 | 0.18 |
| 2Y2U2F | | 571.4 | -23.8 | -0.78 | 502.1 | -32.0 | -0.91 |
| 3F4VB9 | | 588.2 | -7.0 | -0.23 | 522.1 | -12.0 | -0.34 |
| 4JUPMZ | | 613.3 | 18.1 | 0.59 | 503.3 | -30.9 | -0.88 |
| 69RJBD | | 631.0 | 35.8 | 1.18 | 572.5 | 38.4 | 1.09 |
| 6T3CJ7 | | 632.9 | 37.7 | 1.24 | 540.0 | 5.8 | 0.16 |
| 6YP6PE | | 633.0 | 37.8 | 1.24 | 603.0 | 68.9 | 1.95 |
| 736Y26 | | 592.5 | -2.7 | -0.09 | 533.5 | -0.6 | -0.02 |
| 7VZH8B | | 640.5 | 45.3 | 1.49 | 574.0 | 39.9 | 1.13 |
| 9MMZTA | | 604.2 | 9.0 | 0.30 | 524.5 | -9.6 | -0.27 |
| 9TQRD2 | | 623.5 | 28.3 | 0.93 | 525.5 | -8.6 | -0.24 |
| AAUXP9 | | 620.0 | 24.8 | 0.81 | 505.0 | -29.1 | -0.83 |
| CXA97T | | 580.6 | -14.6 | -0.48 | 556.7 | 22.6 | 0.64 |
| D4TZLL | | 591.5 | -3.7 | -0.12 | 541.2 | 7.0 | 0.20 |
| E8RNMT | | 595.0 | -0.2 | -0.01 | 534.2 | 0.1 | 0.00 |
| EWCP9K | | 547.5 | -47.7 | -1.57 | 526.5 | -7.6 | -0.22 |
| EYFH64 | | 591.0 | -4.2 | -0.14 | 523.0 | -11.1 | -0.32 |
| FCXK7T | | 542.5 | -52.7 | -1.73 | 499.0 | -35.1 | -1.00 |
| FCZG9C | | 565.5 | -29.7 | -0.98 | 536.5 | 2.4 | 0.07 |
| GJT6LT | | 598.3 | 3.1 | 0.10 | 534.5 | 0.4 | 0.01 |
| GV7CF9 | * | 529.4 | -65.8 | -2.16 | 581.4 | 47.2 | 1.34 |
| H7JVCA | | 578.0 | -17.2 | -0.56 | 553.5 | 19.4 | 0.55 |
| HWWRB3 | * | 644.5 | 49.3 | 1.62 | 477.5 | -56.6 | -1.61 |
| N8YYUH | | 628.0 | 32.8 | 1.08 | 582.0 | 47.9 | 1.36 |
| P9JCNK | | 583.5 | -11.7 | -0.38 | 446.5 | -87.6 | -2.49 |
| PERT6L | | 567.5 | -27.7 | -0.91 | 518.5 | -15.6 | -0.44 |
| Q3FK3T | | 571.5 | -23.7 | -0.78 | 506.5 | -27.6 | -0.78 |
| Q7E4YZ | | 588.5 | -6.7 | -0.22 | 550.5 | 16.4 | 0.46 |
| QM2NEK | | 597.0 | 1.8 | 0.06 | 527.0 | -7.1 | -0.20 |
| QYENBD | | 594.6 | -0.6 | -0.02 | 521.3 | -12.9 | -0.37 |
| TCD824 | | 523.5 | -71.7 | -2.36 | 529.0 | -5.1 | -0.15 |
| U82LRW | | 623.7 | 28.5 | 0.94 | 576.0 | 41.9 | 1.19 |
| W4QF6M | | 607.1 | 11.9 | 0.39 | 595.6 | 61.4 | 1.74 |
| XW7W6J | | 572.0 | -23.2 | -0.76 | 545.5 | 11.4 | 0.32 |
| Z34DM3 | | 576.7 | -18.5 | -0.61 | 455.2 | -78.9 | -2.24 |
| ZJRGBJ | | 598.5 | 3.3 | 0.11 | 506.0 | -28.1 | -0.80 |
| ZRJ4ZV | | 621.8 | 26.6 | 0.87 | 539.0 | 4.8 | 0.14 |



Rubber Interlaboratory Testing Program

Report #197

Analysis 631

3rd Qtr 2018

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

| | | Summary Statistics | |
|---|----------------|--------------------|----------------|
| Grand Means | 595.20 percent | | 534.14 percent |
| Stnd Dev Btwn Labs | 30.44 percent | | 35.26 percent |
| Statistics based on 38 of 38 reporting participants | | | |

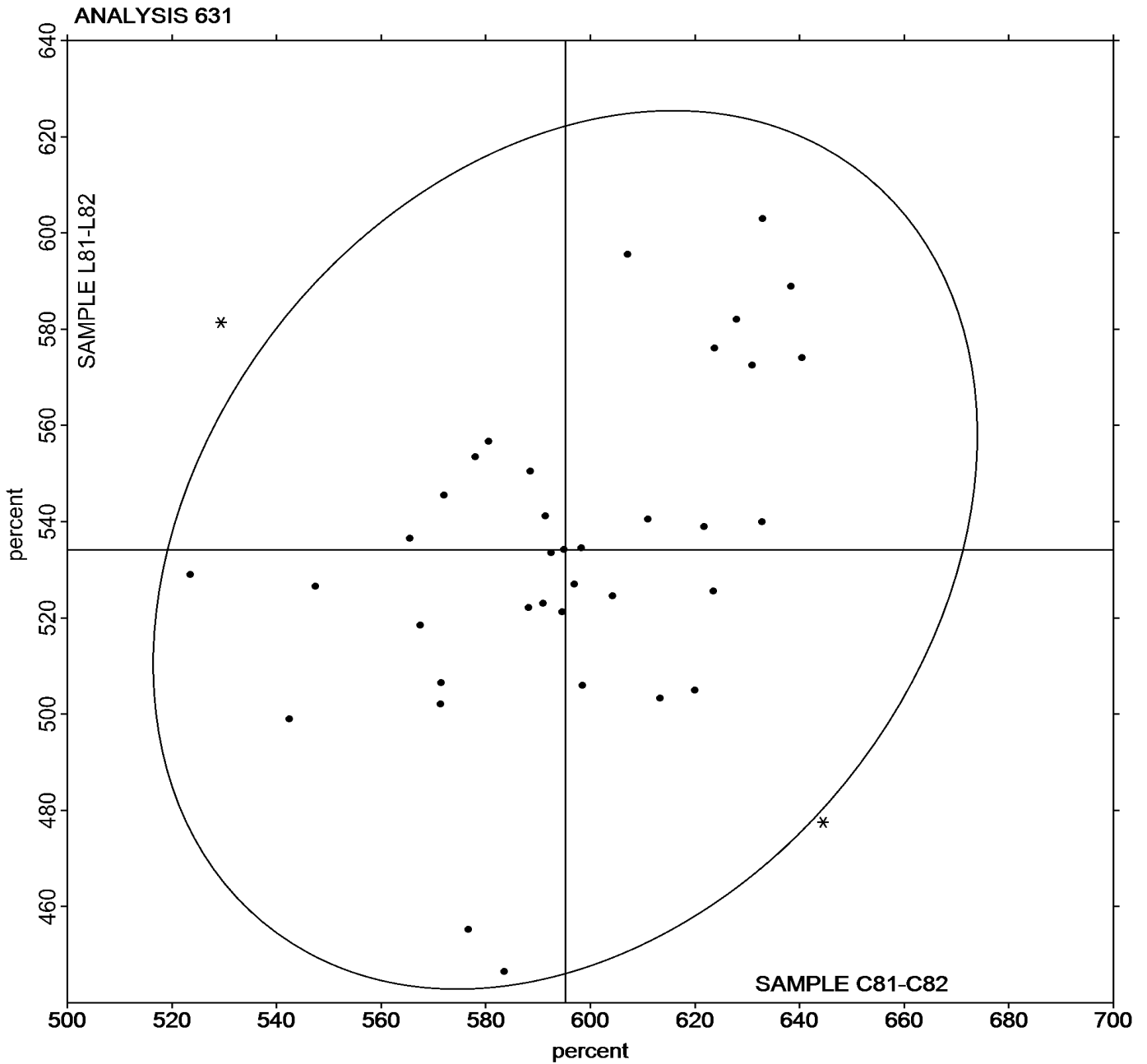
Samples C81-C82: Polyisoprene compound, batch #1 & L81-L82: Polyisoprene compound, batch #1



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

Grand Mean Sample C81-C82 = 595.20 percent

Grand Mean Sample L81-L82 = 534.14 percent





Rubber Interlaboratory Testing Program

Report #197

Analysis 632

3rd Qtr 2018

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

| WebCode | Data Flag | Sample C81-C82 | | | Sample L81-L82 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| 2J6FY2 | | 987.6 | -111.1 | -1.32 | 997.9 | -83.9 | -0.70 |
| 2WV7LQ | | 1,050.8 | -47.9 | -0.57 | 1,137.1 | 55.3 | 0.46 |
| 2Y2U2F | | 1,143.4 | 44.8 | 0.53 | 1,110.1 | 28.3 | 0.24 |
| 3F4VB9 | | 1,154.0 | 55.3 | 0.66 | 1,110.8 | 29.0 | 0.24 |
| 4JUPMZ | | 1,098.6 | -0.1 | 0.00 | 1,010.4 | -71.4 | -0.60 |
| 69RJBD | | 984.3 | -114.3 | -1.36 | 914.8 | -167.0 | -1.40 |
| 6T3CJ7 | | 1,045.8 | -52.9 | -0.63 | 1,136.6 | 54.8 | 0.46 |
| 6YP6PE | | 977.0 | -121.7 | -1.45 | 950.5 | -131.3 | -1.10 |
| 736Y26 | | 1,123.5 | 24.8 | 0.29 | 1,176.0 | 94.2 | 0.79 |
| 7VZH8B | * | 871.0 | -227.7 | -2.70 | 803.5 | -278.3 | -2.34 |
| 8WCA4Y | | 971.6 | -127.1 | -1.51 | 986.1 | -95.8 | -0.80 |
| 9MMZTA | | 1,126.7 | 28.0 | 0.33 | 1,058.1 | -23.7 | -0.20 |
| 9TQRD2 | | 1,125.0 | 26.3 | 0.31 | 986.0 | -95.8 | -0.80 |
| AAUXP9 | | 1,035.5 | -63.2 | -0.75 | 1,126.2 | 44.4 | 0.37 |
| CXA97T | | 1,126.5 | 27.8 | 0.33 | 1,090.1 | 8.3 | 0.07 |
| D4TZLL | | 1,140.0 | 41.3 | 0.49 | 1,147.7 | 65.8 | 0.55 |
| E8RNMT | | 1,116.8 | 18.1 | 0.22 | 1,067.5 | -14.3 | -0.12 |
| EWCP9K | * | 1,208.0 | 109.3 | 1.30 | 976.0 | -105.8 | -0.89 |
| EYFH64 | | 1,089.5 | -9.2 | -0.11 | 1,130.5 | 48.7 | 0.41 |
| FCXK7T | * | 1,333.0 | 234.3 | 2.78 | 1,365.0 | 283.2 | 2.38 |
| FCZG9C | | 1,058.5 | -40.2 | -0.48 | 1,094.0 | 12.2 | 0.10 |
| GJT6LT | | 1,108.6 | 9.9 | 0.12 | 1,109.0 | 27.1 | 0.23 |
| GV7CF9 | X | 1,296.5 | 197.8 | 2.35 | 903.3 | -178.5 | -1.50 |
| H7JVCA | | 1,175.5 | 76.8 | 0.91 | 1,190.5 | 108.7 | 0.91 |
| HWWRB3 | X | 927.5 | -171.2 | -2.03 | 1,362.5 | 280.7 | 2.36 |
| N8YYUH | | 948.1 | -150.6 | -1.79 | 1,017.8 | -64.0 | -0.54 |
| P9JCNK | | 1,088.0 | -10.7 | -0.13 | 904.0 | -177.8 | -1.49 |
| PERT6L | | 1,110.0 | 11.3 | 0.13 | 1,180.0 | 98.2 | 0.82 |
| Q3FK3T | | 1,175.5 | 76.9 | 0.91 | 1,225.6 | 143.8 | 1.21 |
| Q7E4YZ | | 1,102.0 | 3.3 | 0.04 | 1,275.5 | 193.7 | 1.63 |
| QM2NEK | | 1,124.5 | 25.8 | 0.31 | 1,125.0 | 43.2 | 0.36 |
| QYENBD | | 1,113.2 | 14.5 | 0.17 | 1,106.9 | 25.0 | 0.21 |
| TCD824 | | 1,160.0 | 61.3 | 0.73 | 1,018.5 | -63.3 | -0.53 |
| U82LRW | | 1,124.1 | 25.4 | 0.30 | 1,179.9 | 98.1 | 0.82 |
| W4QF6M | | 1,119.6 | 21.0 | 0.25 | 976.5 | -105.3 | -0.88 |
| XW7W6J | | 1,150.9 | 52.2 | 0.62 | 1,096.5 | 14.7 | 0.12 |
| Z34DM3 | | 1,214.6 | 116.0 | 1.38 | 1,264.3 | 182.4 | 1.53 |



Rubber Interlaboratory Testing Program

Report #197

Analysis 632

3rd Qtr 2018

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

| WebCode | Data Flag | Sample C81-C82 | | | Sample L81-L82 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| ZJRGBJ | | 1,118.0 | 19.4 | 0.23 | 1,143.6 | 61.8 | 0.52 |
| ZRJ4ZV | | 1,051.2 | -47.4 | -0.56 | 839.1 | -242.8 | -2.04 |

| | | Summary Statistics | |
|-------------------|--|---|--------------|
| Grand Means | | 1,098.67 psi | 1,081.82 psi |
| Std Dev Btwn Labs | | 84.20 psi | 119.05 psi |
| | | Statistics based on 37 of 39 reporting participants | |

| | | Summary Statistics in SI Units | |
|-------------------|--|---|----------|
| Grand Means | | 7.5750 MPa | 7.46 MPa |
| Std Dev Btwn Labs | | 0.5805 MPa | 0.82 MPa |
| | | Statistics based on 37 of 39 reporting participants | |

Samples C81-C82: Polyisoprene compound, batch #1 & L81-L82: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #632

GV7CF9 (X) - Inconsistent in testing between samples.

HWWRB3 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group L81-L82.



Rubber Interlaboratory Testing Program

Report #197

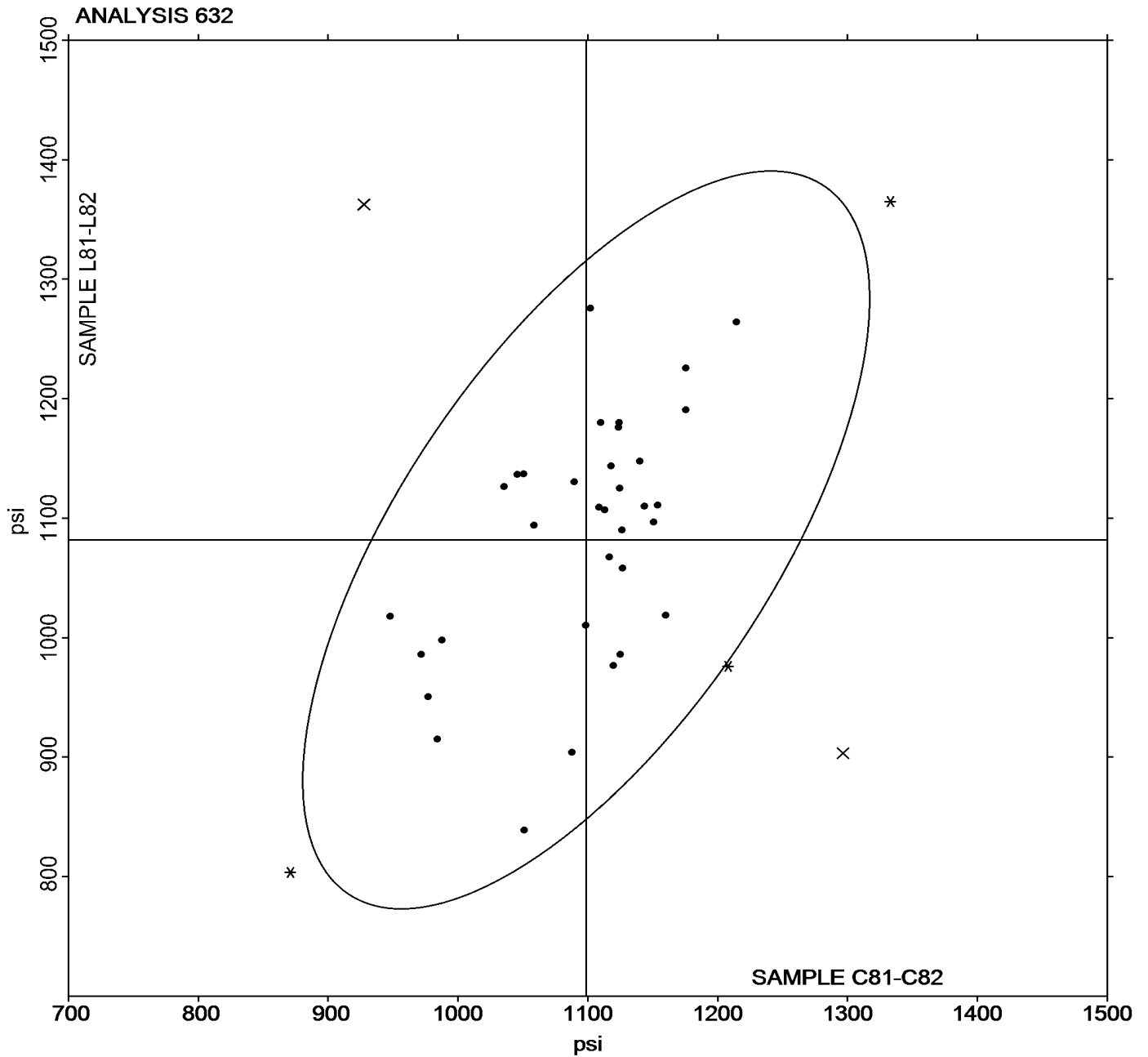
Analysis 632

3rd Qtr 2018

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

Grand Mean Sample C81-C82 = 1,098.67 psi

Grand Mean Sample L81-L82 = 1,081.82 psi





Rubber Interlaboratory Testing Program

Report #197

Analysis 633

3rd Qtr 2018

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

| WebCode | Data Flag | Sample C81-C82 | | | Sample L81-L82 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| 2J6FY2 | | 222.7 | -7.5 | -0.55 | 232.5 | -3.0 | -0.14 |
| 2WV7LQ | | 211.8 | -18.4 | -1.34 | 243.7 | 8.2 | 0.40 |
| 2Y2U2F | | 242.8 | 12.6 | 0.91 | 244.3 | 8.8 | 0.43 |
| 3F4VB9 | | 236.5 | 6.4 | 0.46 | 233.2 | -2.3 | -0.11 |
| 4JUPMZ | | 227.3 | -2.9 | -0.21 | 219.4 | -16.0 | -0.79 |
| 69RJBD | | 229.5 | -0.7 | -0.05 | 221.0 | -14.5 | -0.71 |
| 6T3CJ7 | | 229.1 | -1.1 | -0.08 | 250.6 | 15.1 | 0.74 |
| 6YP6PE | | 213.0 | -17.2 | -1.25 | 218.0 | -17.5 | -0.86 |
| 736Y26 | | 229.5 | -0.7 | -0.05 | 262.0 | 26.5 | 1.30 |
| 7VZH8B | | 200.2 | -30.0 | -2.18 | 197.3 | -38.2 | -1.87 |
| 8WCA4Y | | 207.7 | -22.5 | -1.64 | 222.8 | -12.7 | -0.62 |
| 9MMZTA | | 234.1 | 3.9 | 0.28 | 234.3 | -1.2 | -0.06 |
| 9TQRD2 | | 261.5 | 31.3 | 2.28 | 235.0 | -0.5 | -0.02 |
| AAUXP9 | | 210.5 | -19.7 | -1.43 | 235.7 | 0.2 | 0.01 |
| CXA97T | | 240.6 | 10.4 | 0.76 | 250.1 | 14.6 | 0.72 |
| D4TZLL | | 230.3 | 0.1 | 0.01 | 246.8 | 11.3 | 0.55 |
| E8RNMT | | 226.3 | -3.9 | -0.28 | 227.7 | -7.8 | -0.38 |
| EWCP9K | | 230.0 | -0.2 | -0.01 | 218.0 | -17.5 | -0.86 |
| EYFH64 | | 237.0 | 6.8 | 0.50 | 259.5 | 24.0 | 1.18 |
| FCXK7T | | 249.5 | 19.3 | 1.41 | 258.0 | 22.5 | 1.10 |
| FCZG9C | | 219.0 | -11.2 | -0.81 | 247.5 | 12.0 | 0.59 |
| GJT6LT | | 228.6 | -1.6 | -0.11 | 214.4 | -21.0 | -1.03 |
| GV7CF9 | | 248.2 | 18.0 | 1.31 | 209.8 | -25.7 | -1.26 |
| H7JVCA | | 245.5 | 15.3 | 1.11 | 251.0 | 15.5 | 0.76 |
| HWWRB3 | X | 214.5 | -15.7 | -1.14 | 302.0 | 66.5 | 3.26 |
| N8YYUH | | 204.7 | -25.5 | -1.85 | 230.2 | -5.3 | -0.26 |
| P9JCNK | | 247.5 | 17.3 | 1.26 | 203.0 | -32.5 | -1.59 |
| PERT6L | | 225.5 | -4.7 | -0.34 | 252.0 | 16.5 | 0.81 |
| Q3FK3T | | 232.1 | 1.9 | 0.14 | 255.3 | 19.8 | 0.97 |
| Q7E4YZ | | 240.0 | 9.8 | 0.71 | 288.0 | 52.5 | 2.57 |
| QM2NEK | | 232.0 | 1.8 | 0.13 | 243.5 | 8.0 | 0.39 |
| QYENBD | | 222.5 | -7.7 | -0.56 | 226.4 | -9.1 | -0.45 |
| TCD824 | | 224.0 | -6.2 | -0.45 | 212.5 | -23.0 | -1.13 |
| U82LRW | | 239.3 | 9.1 | 0.67 | 260.3 | 24.9 | 1.22 |
| W4QF6M | | 229.4 | -0.8 | -0.06 | 218.8 | -16.7 | -0.82 |
| XW7W6J | | 242.2 | 12.0 | 0.88 | 242.9 | 7.5 | 0.37 |
| Z34DM3 | | 249.6 | 19.4 | 1.41 | 239.3 | 3.8 | 0.19 |



Rubber Interlaboratory Testing Program

Report #197

Analysis 633

3rd Qtr 2018

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

| WebCode | Data Flag | Sample C81-C82 | | | Sample L81-L82 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| ZJRGBJ | | 233.6 | 3.4 | 0.25 | 254.3 | 18.9 | 0.92 |
| ZRJ4ZV | | 213.2 | -17.0 | -1.24 | 189.1 | -46.3 | -2.27 |

| | | Summary Statistics | |
|---|--|--------------------|------------|
| Grand Means | | 230.17 psi | 235.47 psi |
| Stnd Dev Btwn Labs | | 13.75 psi | 20.41 psi |
| Statistics based on 38 of 39 reporting participants | | | |

| | | Summary Statistics in SI Units | |
|---|--|--------------------------------|----------|
| Grand Means | | 1.5869 MPa | 1.62 MPa |
| Stnd Dev Btwn Labs | | 0.0948 MPa | 0.14 MPa |
| Statistics based on 38 of 39 reporting participants | | | |

Samples C81-C82: Polyisoprene compound, batch #1 & L81-L82: Polyisoprene compound, batch #1

Comments on Assigned Data Flags for Test #633

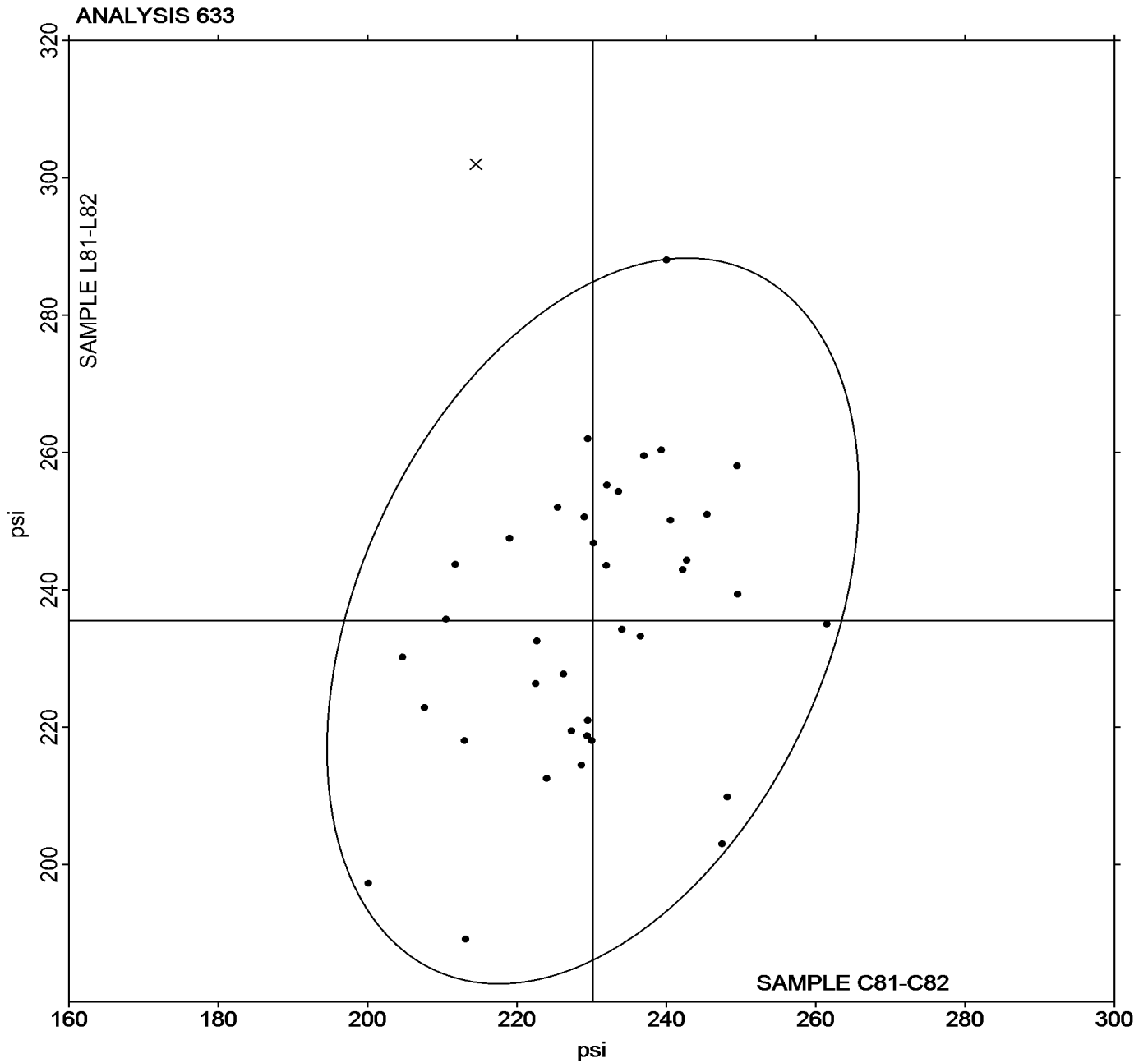
HWWRB3 (X) - Data for sample group L81-L82 are high. Inconsistent within the determinations of sample group L81-L82.



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

Grand Mean Sample C81-C82 = 230.17 psi

Grand Mean Sample L81-L82 = 235.47 psi





Rubber Interlaboratory Testing Program

Report #197

Analysis 660

3rd Qtr 2018

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

| WebCode | Data Flag | Sample U81-U82 | | | Sample U83-U84 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------------------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| 2226VV | | 52.80 | -0.07 | -0.07 | 57.30 | -0.15 | -0.10 | MR |
| 2J6FY2 | | 53.17 | 0.29 | 0.27 | 58.15 | 0.70 | 0.47 | MR |
| 2Y2U2F | M | 53.90 | 1.02 | 0.93 | No data reported for this sample | | | MR |
| 3HTXHG | | 53.65 | 0.78 | 0.71 | 56.42 | -1.04 | -0.71 | MR |
| 69RJBD | M | 54.66 | 1.78 | 1.62 | No data reported for this sample | | | MV |
| 6YP6PE | | 53.75 | 0.87 | 0.80 | 58.99 | 1.54 | 1.05 | MV |
| 736Y26 | | 52.77 | -0.11 | -0.10 | 56.88 | -0.57 | -0.39 | MR |
| 7PDKMU | | 54.10 | 1.23 | 1.12 | 57.60 | 0.15 | 0.10 | MR |
| 7VZH8B | | 53.41 | 0.54 | 0.49 | 58.48 | 1.02 | 0.70 | MV |
| 8RK3J6 | | 52.13 | -0.74 | -0.67 | 56.35 | -1.10 | -0.75 | MR |
| 8WCA4Y | | 52.75 | -0.12 | -0.11 | 57.88 | 0.43 | 0.29 | MR |
| 96YW4T | | 51.86 | -1.01 | -0.92 | 57.21 | -0.24 | -0.16 | MV |
| 9CKK8C | | 53.51 | 0.64 | 0.58 | 57.86 | 0.40 | 0.28 | MR |
| 9M6WEH | | 53.53 | 0.66 | 0.60 | 57.88 | 0.43 | 0.29 | MR |
| CBG4EX | | 52.73 | -0.14 | -0.13 | 56.37 | -1.09 | -0.74 | MR |
| CXA97T | | 54.78 | 1.91 | 1.74 | 60.60 | 3.15 | 2.14 | TA |
| D4TZLL | | 53.53 | 0.66 | 0.60 | 57.45 | 0.00 | 0.00 | MR |
| E8RNMT | | 52.98 | 0.11 | 0.10 | 57.35 | -0.10 | -0.07 | MR |
| EWCP9K | | 52.02 | -0.85 | -0.78 | 57.45 | 0.00 | 0.00 | ML |
| EYFH64 | | 52.43 | -0.44 | -0.40 | 56.25 | -1.20 | -0.82 | XX |
| FBKXNE | | 54.30 | 1.43 | 1.30 | 59.78 | 2.33 | 1.58 | TA |
| FCZG9C | | 53.08 | 0.21 | 0.19 | 57.38 | -0.07 | -0.05 | MR |
| GJT6LT | | 53.72 | 0.84 | 0.77 | 58.19 | 0.74 | 0.50 | MR |
| GV7CF9 | | 52.10 | -0.77 | -0.70 | 56.47 | -0.99 | -0.67 | MV |
| H7JVCA | | 52.73 | -0.14 | -0.13 | 57.38 | -0.07 | -0.05 | MR |
| HWWRB3 | | 53.10 | 0.22 | 0.20 | 57.65 | 0.20 | 0.13 | MR |
| KE92K2 | | 52.47 | -0.41 | -0.37 | 58.20 | 0.75 | 0.51 | MR |
| LVPN7F | | 51.40 | -1.47 | -1.34 | 55.48 | -1.97 | -1.34 | MR |
| PERT6L | | 51.15 | -1.72 | -1.57 | 54.60 | -2.85 | -1.94 | MR |
| PHTU6H | | 52.86 | -0.01 | -0.01 | 58.63 | 1.18 | 0.80 | MR |
| Q3FK3T | | 51.64 | -1.23 | -1.12 | 56.50 | -0.96 | -0.65 | MV |
| RTJA2W | | 55.33 | 2.46 | 2.24 | 60.88 | 3.43 | 2.34 | XX |
| TFF4TJ | | 52.72 | -0.16 | -0.14 | 56.87 | -0.59 | -0.40 | MR |
| UDGMMZ | | 53.17 | 0.29 | 0.27 | 58.80 | 1.35 | 0.92 | MR |
| W4QF6M | X | 47.40 | -5.47 | -4.98 | 51.97 | -5.48 | -3.73 | MV |
| WTBNLJ | * | 49.55 | -3.32 | -3.02 | 54.02 | -3.43 | -2.34 | XX |
| XCV3DD | | 53.02 | 0.14 | 0.13 | 57.97 | 0.51 | 0.35 | MR |
| XW7W6J | * | 51.60 | -1.27 | -1.16 | 58.03 | 0.58 | 0.40 | MR |



Rubber Interlaboratory Testing Program

Report #197

Analysis 660

3rd Qtr 2018

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

| WebCode | Data Flag | Sample U81-U82 | | | Sample U83-U84 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| YTLA4J | | 51.33 | -1.54 | -1.40 | 54.00 | -3.45 | -2.35 | MV |
| ZJRGBJ | | 54.28 | 1.41 | 1.28 | 58.48 | 1.03 | 0.70 | MR |
| ZRJ4ZV | | 54.10 | 1.22 | 1.11 | 58.16 | 0.71 | 0.48 | TV |
| ZU8DCG | | 52.45 | -0.42 | -0.38 | 56.72 | -0.74 | -0.50 | MR |

| Grand Means | | Summary Statistics | |
|---|-----------------|--------------------|-----------------|
| | 52.872 ML 1 + 4 | | 57.453 ML 1 + 4 |
| Stnd Dev Btwn Labs | 1.099 ML 1 + 4 | | 1.468 ML 1 + 4 |
| Statistics based on 39 of 42 reporting participants | | | |

Samples U81-U82: NBR & U83-U84: Butyl

Comments on Assigned Data Flags for Test #660

2Y2U2F (M) - Participant did not submit data for sample group .

69RJBD (M) - Participant did not submit data for sample group .

W4QF6M (X) - Data for all samples are low.

Key to Instrument Codes Reported by Participants

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

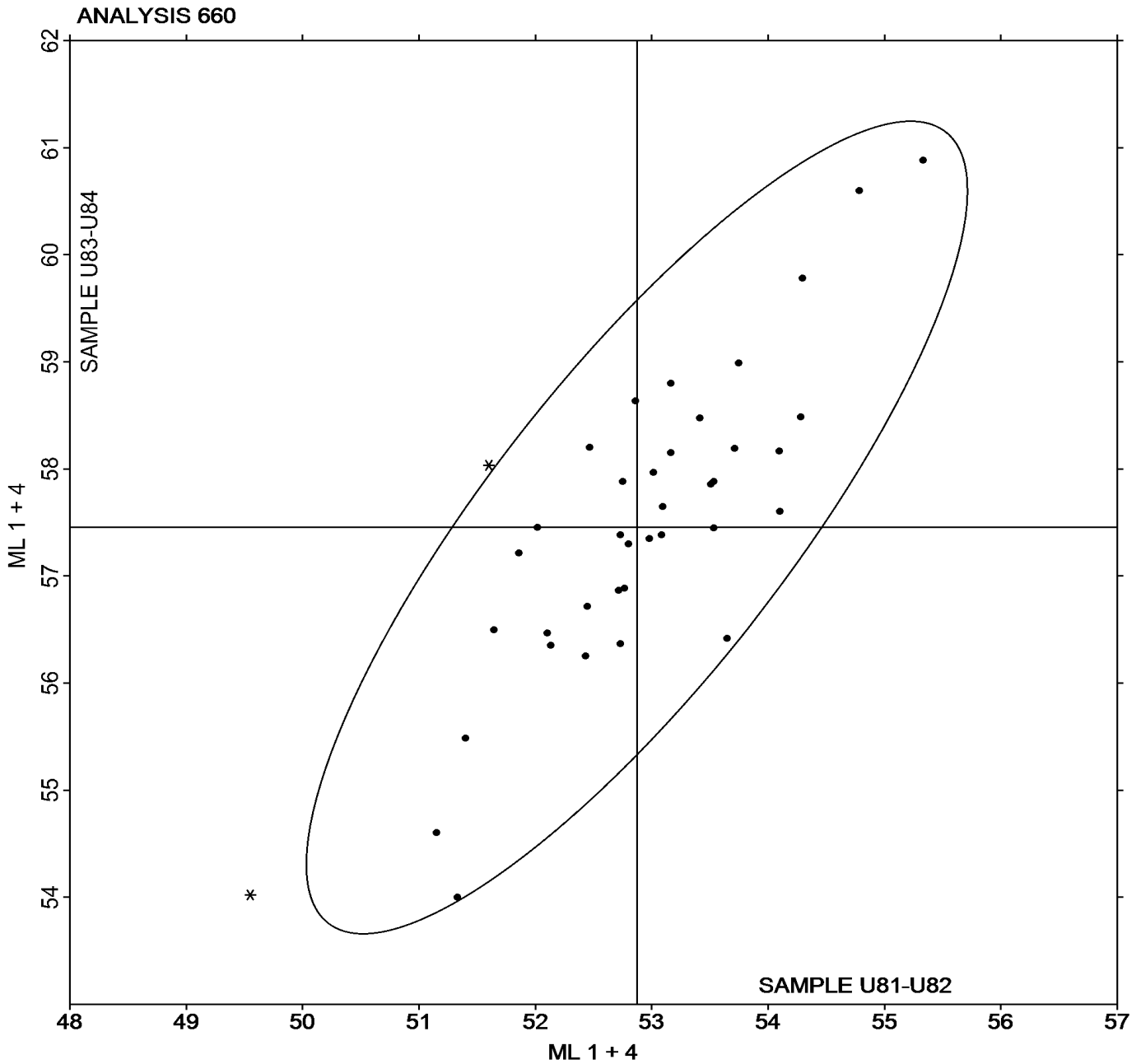


Rubber Interlaboratory Testing Program
Analysis 660
Mooney Viscosity: 4-minute readings (ML 1 + 4)

Report #197
3rd Qtr 2018

Grand Mean Sample **U81-U82** = 52.872 ML 1 + 4

Grand Mean Sample **U83-U84** = 57.453 ML 1 + 4





Rubber Interlaboratory Testing Program

Report #197

Analysis 661

3rd Qtr 2018

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

| WebCode | Data Flag | Sample U81-U82 | | | Sample U83-U84 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| 2226VV | | 52.80 | -0.19 | -0.19 | 54.63 | -0.43 | -0.29 | MR |
| 2J6FY2 | | 53.17 | 0.17 | 0.17 | 55.92 | 0.86 | 0.58 | MR |
| 2Y2U2F | | 53.90 | 0.90 | 0.90 | 55.21 | 0.15 | 0.10 | MR |
| 3HTXHG | | 53.65 | 0.66 | 0.65 | 54.12 | -0.94 | -0.64 | MR |
| 69RJBD | | 54.66 | 1.66 | 1.65 | 58.17 | 3.11 | 2.10 | MV |
| 6YP6PE | | 53.75 | 0.75 | 0.75 | 56.65 | 1.59 | 1.07 | MV |
| 736Y26 | | 52.77 | -0.23 | -0.23 | 54.37 | -0.69 | -0.47 | MR |
| 7PDKMU | | 54.10 | 1.11 | 1.10 | 54.67 | -0.39 | -0.27 | MR |
| 7VZH8B | | 53.41 | 0.42 | 0.42 | 56.27 | 1.21 | 0.81 | MV |
| 8RK3J6 | | 52.13 | -0.86 | -0.86 | 53.87 | -1.19 | -0.80 | MR |
| 8WCA4Y | | 52.75 | -0.24 | -0.24 | 55.40 | 0.34 | 0.23 | MR |
| 96YW4T | | 51.86 | -1.13 | -1.13 | 55.29 | 0.23 | 0.15 | MV |
| 9CKK8C | | 53.51 | 0.51 | 0.51 | 55.13 | 0.07 | 0.05 | MR |
| 9M6WEH | | 53.53 | 0.54 | 0.54 | 55.13 | 0.07 | 0.05 | MR |
| CXA97T | | 54.78 | 1.79 | 1.78 | 57.84 | 2.78 | 1.88 | TA |
| D4TZLL | | 53.53 | 0.54 | 0.54 | 55.12 | 0.06 | 0.04 | MR |
| E8RNMT | | 52.98 | -0.01 | -0.01 | 54.90 | -0.16 | -0.11 | MR |
| EWCP9K | | 52.02 | -0.97 | -0.97 | 53.51 | -1.55 | -1.04 | ML |
| EYFH64 | | 52.43 | -0.56 | -0.56 | 53.52 | -1.54 | -1.04 | XX |
| FCZG9C | | 53.08 | 0.09 | 0.09 | 54.88 | -0.18 | -0.12 | MR |
| GJT6LT | | 53.72 | 0.72 | 0.72 | 55.84 | 0.78 | 0.53 | MR |
| GV7CF9 | | 52.10 | -0.89 | -0.89 | 56.57 | 1.51 | 1.02 | MV |
| H7JVCA | | 52.73 | -0.26 | -0.26 | 54.13 | -0.93 | -0.63 | MR |
| HWWRB3 | | 53.10 | 0.10 | 0.10 | 56.86 | 1.80 | 1.21 | MR |
| KE92K2 | | 52.47 | -0.53 | -0.53 | 55.55 | 0.49 | 0.33 | MR |
| LVPN7F | | 51.40 | -1.59 | -1.59 | 54.42 | -0.64 | -0.43 | MR |
| PERT6L | | 51.15 | -1.84 | -1.84 | 51.46 | -3.60 | -2.43 | MP |
| PHTU6H | | 52.86 | -0.13 | -0.13 | 56.14 | 1.08 | 0.73 | MR |
| Q3FK3T | | 51.64 | -1.35 | -1.34 | 54.04 | -1.02 | -0.69 | MV |
| RTJA2W | | 55.33 | 2.34 | 2.33 | 57.77 | 2.71 | 1.83 | XX |
| TFF4TJ | | 52.72 | -0.28 | -0.28 | 54.22 | -0.84 | -0.57 | MR |
| W4QF6M | X | 47.40 | -5.59 | -5.56 | 50.06 | -5.00 | -3.38 | MV |
| XCV3DD | | 53.02 | 0.02 | 0.02 | 55.25 | 0.19 | 0.13 | MR |
| XW7W6J | | 51.60 | -1.39 | -1.39 | 55.05 | -0.01 | -0.01 | MR |
| YTLA4J | * | 51.33 | -1.66 | -1.65 | 51.00 | -4.06 | -2.74 | MV |
| ZJRGBJ | | 54.28 | 1.29 | 1.28 | 55.53 | 0.47 | 0.32 | MR |
| ZRJ4ZV | | 54.10 | 1.10 | 1.10 | 54.82 | -0.24 | -0.16 | TV |



Rubber Interlaboratory Testing Program

Report #197

Analysis 661

3rd Qtr 2018

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

| WebCode | Data Flag | Sample U81-U82 | | | Sample U83-U84 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| ZU8DCG | | 52.45 | -0.54 | -0.54 | 54.00 | -1.06 | -0.72 | MR |

| | | Summary Statistics | |
|---|--|--------------------|-----------------|
| Grand Means | | 52.995 ML 1 + 8 | 55.060 ML 1 + 8 |
| Std Dev Btwn Labs | | 1.005 ML 1 + 8 | 1.482 ML 1 + 8 |
| Statistics based on 37 of 38 reporting participants | | | |

Samples U81-U82: NBR & U83-U84: Butyl

Comments on Assigned Data Flags for Test #661

W4QF6M (X) - Data for all samples are low.

Key to Instrument Codes Reported by Participants

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



Rubber Interlaboratory Testing Program

Report #197

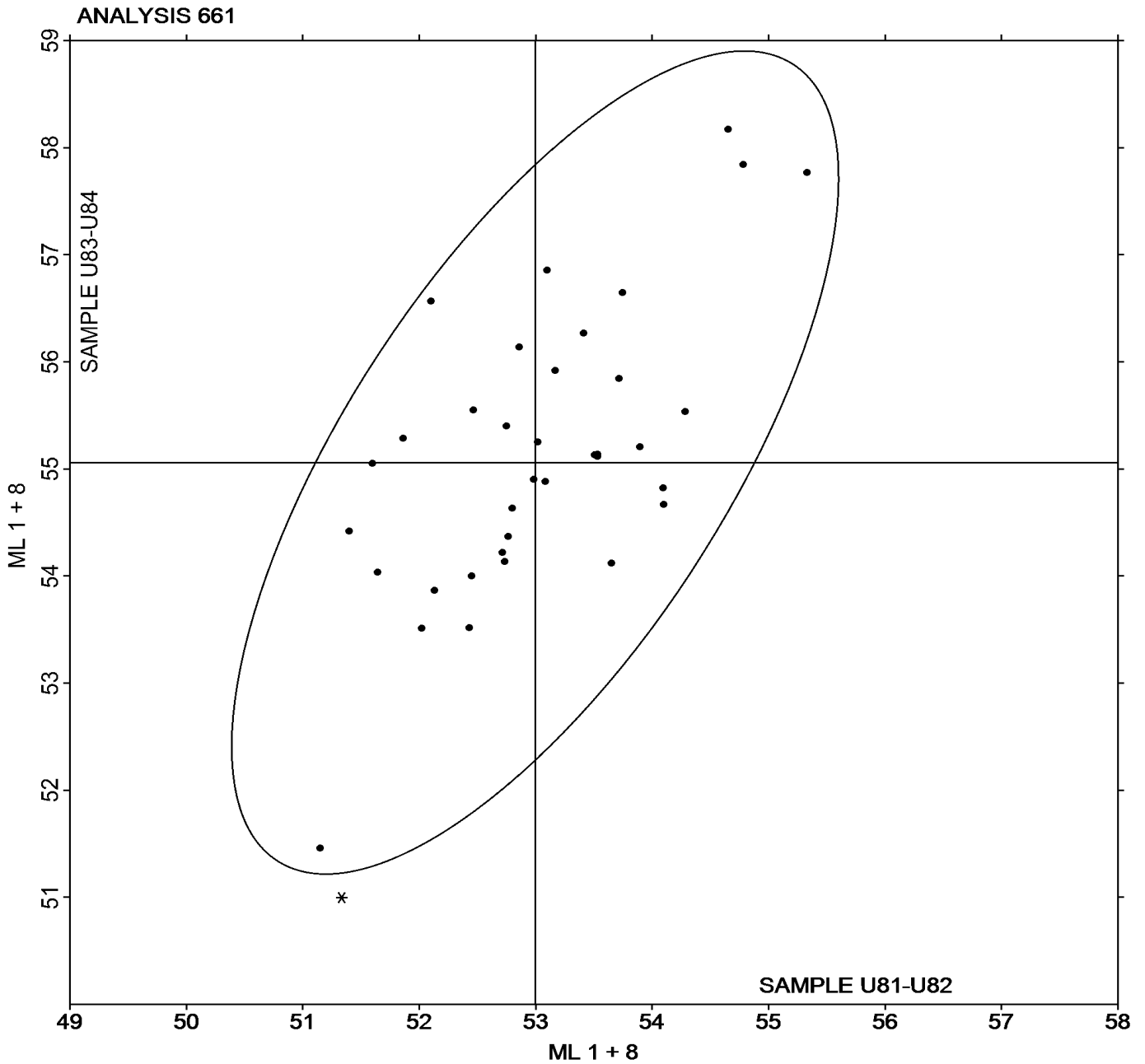
Analysis 661

3rd Qtr 2018

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

Grand Mean Sample **U81-U82** = 52.995 ML 1 + 8

Grand Mean Sample **U83-U84** = 55.060 ML 1 + 8





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

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample U81-U82 | | | Sample U83-U84 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|--------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| 2J6FY2 | | 20.37 | 4.11 | 0.64 | 9.330 | 0.336 | 0.20 | MR |
| 2Y2U2F | | 18.63 | 2.37 | 0.37 | 8.677 | -0.318 | -0.19 | MR |
| 3HTXHG | | 19.11 | 2.85 | 0.44 | 8.367 | -0.628 | -0.37 | MR |
| 69RJBD | | 20.67 | 4.41 | 0.69 | 8.833 | -0.161 | -0.10 | MV |
| 6YP6PE | | 18.43 | 2.17 | 0.34 | 8.967 | -0.028 | -0.02 | MV |
| 736Y26 | | 25.06 | 8.80 | 1.37 | 10.180 | 1.186 | 0.71 | MR |
| 7VZH8B | | 13.30 | -2.96 | -0.46 | 7.200 | -1.794 | -1.07 | MV |
| 9M6WEH | | 12.88 | -3.38 | -0.53 | 8.900 | -0.094 | -0.06 | MR |
| CBG4EX | | 19.90 | 3.64 | 0.57 | 10.200 | 1.206 | 0.72 | MR |
| CXA97T | | 5.29 | -10.97 | -1.71 | 5.168 | -3.826 | -2.28 | TA |
| E8RNMT | | 20.27 | 4.01 | 0.63 | 9.290 | 0.296 | 0.18 | MR |
| EYFH64 | | 22.00 | 5.74 | 0.90 | 9.133 | 0.139 | 0.08 | XX |
| FBKXNE | | 19.43 | 3.17 | 0.50 | 11.700 | 2.706 | 1.61 | TA |
| FCZG9C | | 19.30 | 3.04 | 0.47 | 8.770 | -0.224 | -0.13 | MR |
| GV7CF9 | | 5.33 | -10.93 | -1.71 | 8.700 | -0.294 | -0.18 | MV |
| H7JVCA | | 20.24 | 3.98 | 0.62 | 8.653 | -0.341 | -0.20 | MR |
| HWWRB3 | * | 5.03 | -11.23 | -1.75 | 12.665 | 3.671 | 2.19 | MR |
| Q3FK3T | | 5.24 | -11.02 | -1.72 | 5.140 | -3.854 | -2.30 | MV |
| TFF4TJ | | 19.97 | 3.71 | 0.58 | 8.900 | -0.094 | -0.06 | MR |
| W4QF6M | X | 543.77 | 527.51 | 82.34 | 544.400 | 535.406 | 318.86 | MV |
| XW7W6J | | 24.52 | 8.26 | 1.29 | 8.868 | -0.126 | -0.08 | MR |
| YTLA4J | | 9.07 | -7.19 | -1.12 | 9.073 | 0.079 | 0.05 | MZ |
| ZRJ4ZV | | 11.19 | -5.07 | -0.79 | 11.145 | 2.151 | 1.28 | TV |
| ZU8DCG | | 18.76 | 2.50 | 0.39 | 9.010 | 0.016 | 0.01 | MR |

| Summary Statistics | | | |
|---|----------------|----------------|--|
| Grand Means | 16.260 seconds | 8.9943 seconds | |
| Std Dev Btwn Labs | 6.406 seconds | 1.6791 seconds | |
| Statistics based on 23 of 24 reporting participants | | | |

Samples U81-U82: NBR & U83-U84: Butyl

Comments on Assigned Data Flags for Test #662

W4QF6M (X) - Extreme Data.



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

Report #197
3rd Qtr 2018

Key to Instrument Codes Reported by Participants

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

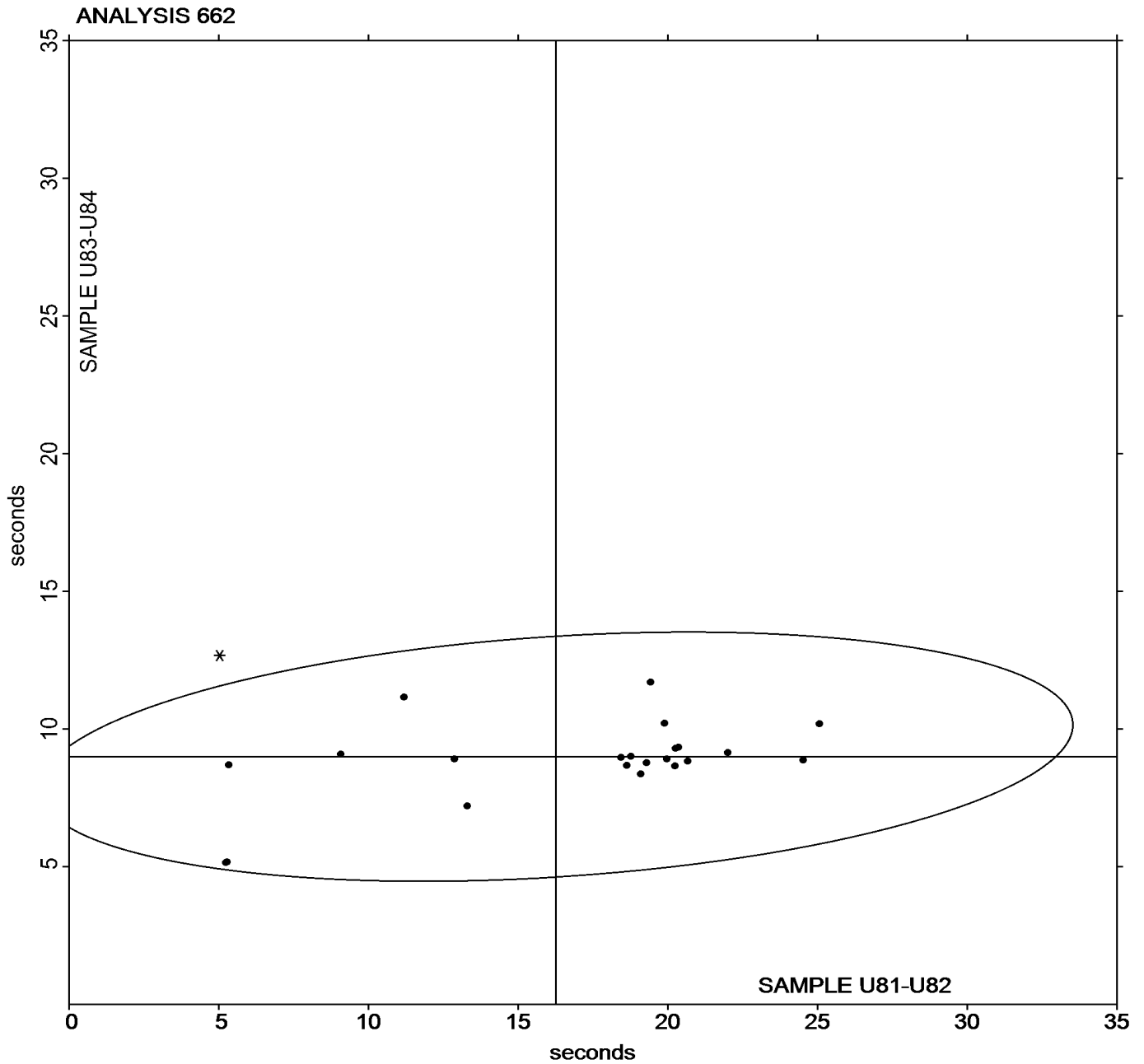


Rubber Interlaboratory Testing Program
Analysis 662
Mooney Stress Relaxation: t80 (seconds)

Report #197
3rd Qtr 2018

Grand Mean Sample **U81-U82** = 16.260 seconds

Grand Mean Sample **U83-U84** = 8.9943 seconds





Rubber Interlaboratory Testing Program

Report #197

Analysis 663

3rd Qtr 2018

Mooney Stress Relaxation: X30 (percent)

| WebCode | Data Flag | Sample U81-U82 | | | Sample U83-U84 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| 2J6FY2 | | 82.64 | -1.41 | -0.28 | 89.93 | -1.12 | -0.35 | MR |
| 2Y2U2F | * | 71.38 | -12.67 | -2.49 | 84.91 | -6.13 | -1.91 | MR |
| 3HTXHG | | 83.10 | -0.95 | -0.19 | 91.17 | 0.12 | 0.04 | MR |
| 69RJBD | | 82.51 | -1.53 | -0.30 | 90.86 | -0.19 | -0.06 | MV |
| 6YP6PE | | 83.33 | -0.72 | -0.14 | 90.30 | -0.74 | -0.23 | MV |
| 736Y26 | | 81.18 | -2.87 | -0.57 | 88.69 | -2.35 | -0.73 | MR |
| 7VZH8B | | 86.00 | 1.95 | 0.38 | 93.67 | 2.62 | 0.82 | MV |
| 9M6WEH | | 85.60 | 1.55 | 0.31 | 90.63 | -0.41 | -0.13 | MR |
| CXA97T | | 84.03 | -0.02 | 0.00 | 90.28 | -0.76 | -0.24 | TA |
| E8RNMT | | 82.67 | -1.38 | -0.27 | 90.53 | -0.51 | -0.16 | MR |
| EYFH64 | | 82.08 | -1.96 | -0.39 | 90.20 | -0.84 | -0.26 | XX |
| FBKXNE | | 83.03 | -1.01 | -0.20 | 88.77 | -2.27 | -0.71 | TA |
| FCZG9C | | 82.98 | -1.07 | -0.21 | 90.62 | -0.42 | -0.13 | MR |
| GV7CF9 | | 82.70 | -1.35 | -0.27 | 90.15 | -0.90 | -0.28 | MV |
| H7JVCA | | 82.75 | -1.30 | -0.26 | 90.85 | -0.19 | -0.06 | MR |
| HWWRB3 | | 83.38 | -0.67 | -0.13 | 88.55 | -2.50 | -0.78 | MR |
| Q3FK3T | | 85.34 | 1.29 | 0.25 | 91.92 | 0.87 | 0.27 | MV |
| TFF4TJ | | 82.77 | -1.28 | -0.25 | 90.57 | -0.48 | -0.15 | MR |
| W4QF6M | * | 98.84 | 14.80 | 2.91 | 100.00 | 8.96 | 2.79 | MV |
| XW7W6J | | 81.49 | -2.56 | -0.50 | 90.32 | -0.72 | -0.23 | MR |
| YTLA4J | * | 95.93 | 11.89 | 2.34 | 99.87 | 8.82 | 2.75 | MZ |
| ZRJ4ZV | | 86.21 | 2.16 | 0.43 | 90.65 | -0.40 | -0.12 | TV |
| ZU8DCG | | 83.18 | -0.86 | -0.17 | 90.59 | -0.45 | -0.14 | MR |

| Grand Means | | Summary Statistics | |
|---|----------------|--------------------|----------------|
| | 84.048 percent | | 91.043 percent |
| Std Dev Btwn Labs | 5.082 percent | | 3.205 percent |
| Statistics based on 23 of 23 reporting participants | | | |

Samples U81-U82: NBR & U83-U84: Butyl

Key to Instrument Codes Reported by Participants

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

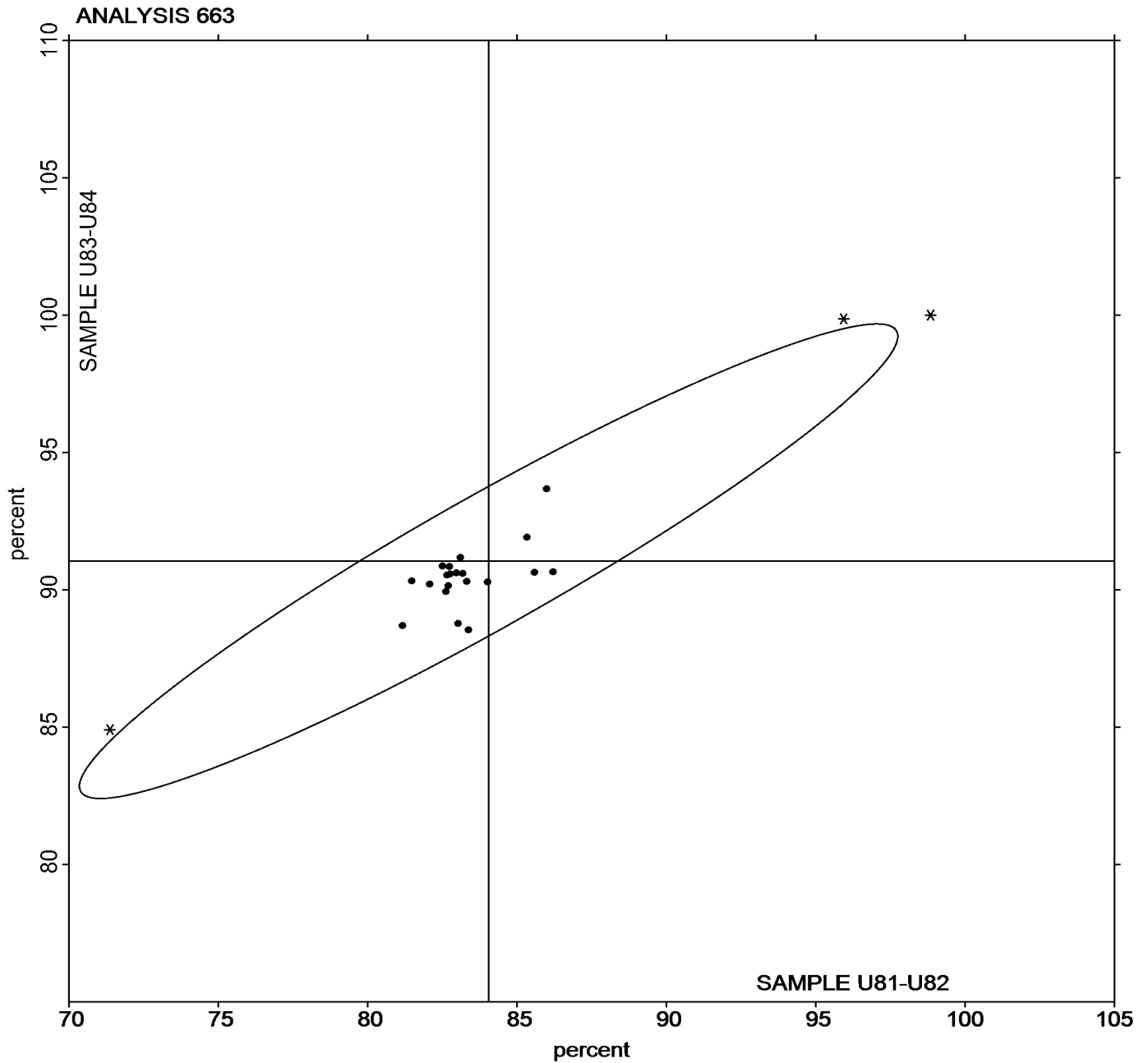


Rubber Interlaboratory Testing Program
Analysis 663
Mooney Stress Relaxation: X30 (percent)

Report #197
3rd Qtr 2018

Grand Mean Sample **U81-U82** = 84.048 percent

Grand Mean Sample **U83-U84** = 91.043 percent





Rubber Interlaboratory Testing Program

Report #197

Analysis 664

3rd Qtr 2018

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

| WebCode | Data Flag | Sample U81-U82 | | | Sample U83-U84 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| 2J6FY2 | | 995.8 | 155.1 | 0.59 | 625.5 | 90.9 | 0.61 | MR |
| 2Y2U2F | | 980.7 | 140.0 | 0.53 | 629.1 | 94.5 | 0.63 | MR |
| 69RJBD | | 1,032.5 | 191.8 | 0.73 | 562.0 | 27.5 | 0.18 | MV |
| 6YP6PE | | 953.6 | 112.9 | 0.43 | 591.5 | 57.0 | 0.38 | MV |
| 736Y26 | | 1,078.5 | 237.8 | 0.90 | 682.3 | 147.7 | 0.99 | MR |
| 7VZH8B | | 777.9 | -62.9 | -0.24 | 375.1 | -159.5 | -1.07 | MV |
| 9M6WEH | * | 560.0 | -280.7 | -1.07 | 658.0 | 123.4 | 0.83 | MR |
| CXA97T | | 926.0 | 85.3 | 0.32 | 625.7 | 91.1 | 0.61 | TA |
| E8RNMT | | 987.7 | 146.9 | 0.56 | 582.7 | 48.1 | 0.32 | XX |
| EYFH64 | | 1,014.5 | 173.8 | 0.66 | 586.8 | 52.3 | 0.35 | XX |
| FBKXNE | | 700.5 | -140.2 | -0.53 | 561.9 | 27.4 | 0.18 | TA |
| FCZG9C | | 972.2 | 131.4 | 0.50 | 572.7 | 38.1 | 0.26 | MR |
| GV7CF9 | | 970.7 | 130.0 | 0.49 | 590.0 | 55.4 | 0.37 | MV |
| H7JVCA | | 976.3 | 135.6 | 0.52 | 554.5 | 19.9 | 0.13 | MR |
| HWWRB3 | | 944.6 | 103.9 | 0.40 | 566.6 | 32.0 | 0.21 | MR |
| Q3FK3T | | 798.3 | -42.5 | -0.16 | 484.7 | -49.9 | -0.33 | MV |
| TFF4TJ | | 976.8 | 136.1 | 0.52 | 562.7 | 28.1 | 0.19 | MR |
| W4QF6M | * | 100.9 | -739.8 | -2.81 | 105.1 | -429.5 | -2.88 | MV |
| XW7W6J | | 958.6 | 117.9 | 0.45 | 595.1 | 60.5 | 0.41 | MR |
| YTLA4J | * | 164.0 | -676.7 | -2.57 | 121.6 | -413.0 | -2.77 | MZ |
| ZRJ4ZV | | 676.1 | -164.6 | -0.63 | 561.6 | 27.0 | 0.18 | TV |
| ZU8DCG | | 949.8 | 109.1 | 0.41 | 565.5 | 30.9 | 0.21 | MR |

| Grand Means | | Summary Statistics | |
|---|------------|--------------------|------------|
| | 840.73 M-s | | 534.57 M-s |
| Std Dev Btwn Labs | 263.05 M-s | | 149.18 M-s |
| Statistics based on 22 of 22 reporting participants | | | |

Samples U81-U82: NBR & U83-U84: Butyl

Key to Instrument Codes Reported by Participants

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

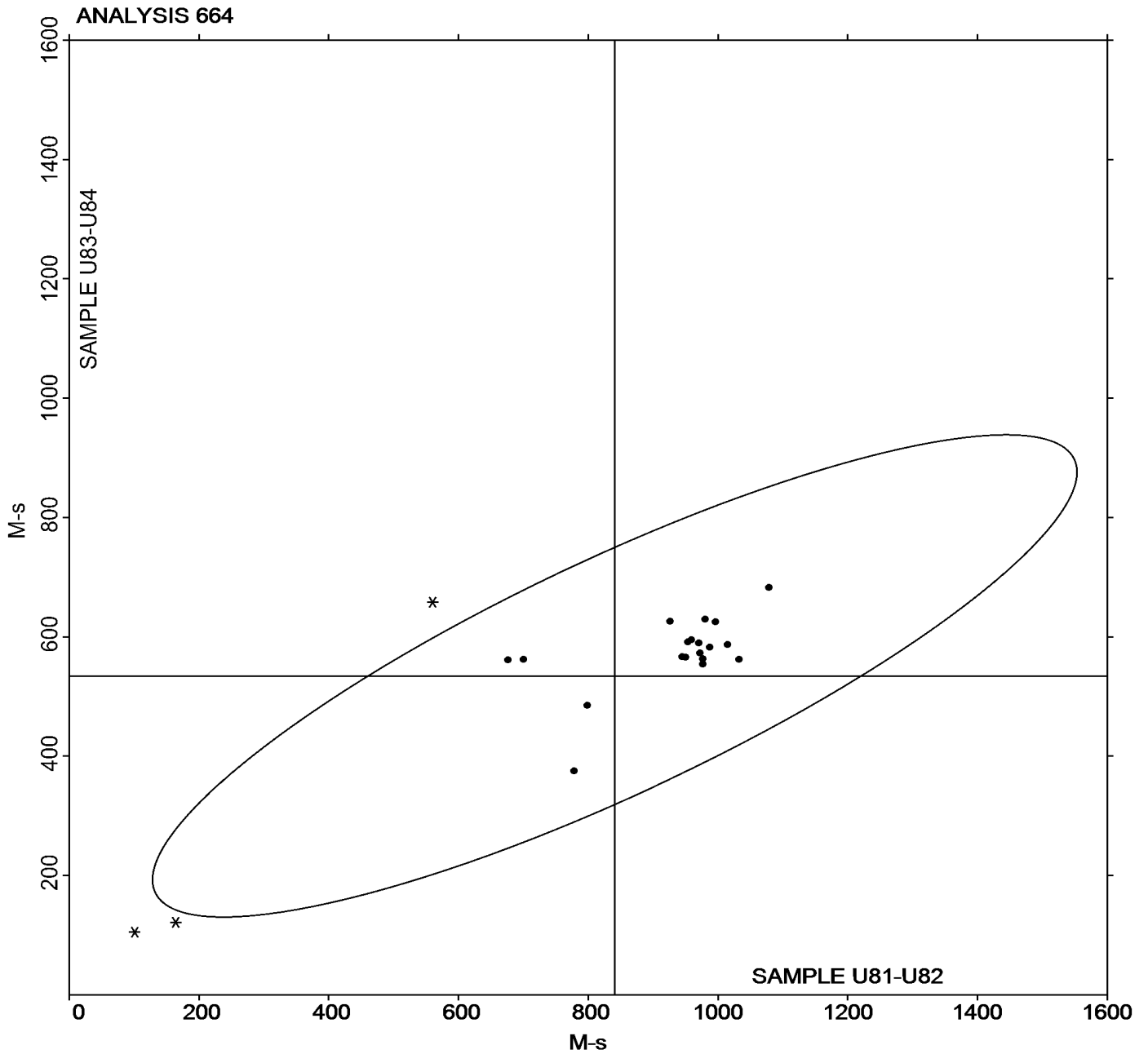


Rubber Interlaboratory Testing Program
Analysis 664
Mooney Stress Relaxation: Area under curve (M-s)

Report #197
3rd Qtr 2018

Grand Mean Sample **U81-U82** = 840.73 M-s

Grand Mean Sample **U83-U84** = 534.57 M-s





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

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample Y81-Y82 | | | Sample Y83-Y84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| 8RK3J6 | | 1.777 | 0.121 | 0.97 | 2.947 | 0.217 | 0.59 |
| 9MMZTA | | 1.528 | -0.127 | -1.01 | 2.777 | 0.047 | 0.13 |
| GV7CF9 | | 1.677 | 0.021 | 0.17 | 3.037 | 0.307 | 0.83 |
| HWWRB3 | | 1.575 | -0.080 | -0.64 | 2.762 | 0.032 | 0.09 |
| PERT6L | | 1.880 | 0.225 | 1.79 | 1.847 | -0.883 | -2.39 |
| PHTU6H | | 1.512 | -0.144 | -1.14 | 2.785 | 0.056 | 0.15 |
| ZJRGBJ | | 1.670 | 0.015 | 0.12 | 2.853 | 0.124 | 0.34 |
| ZRJ4ZV | | 1.623 | -0.032 | -0.25 | 2.828 | 0.099 | 0.27 |

| | | Summary Statistics | |
|---|----------------|--------------------|--|
| Grand Means | 1.6552 minutes | 2.7294 minutes | |
| Std Dev Btwn Labs | 0.1254 minutes | 0.3688 minutes | |
| Statistics based on 8 of 8 reporting participants | | | |

Samples Y81-Y82: EPDM compound #1 & Y83-Y84: EPDM compound #2

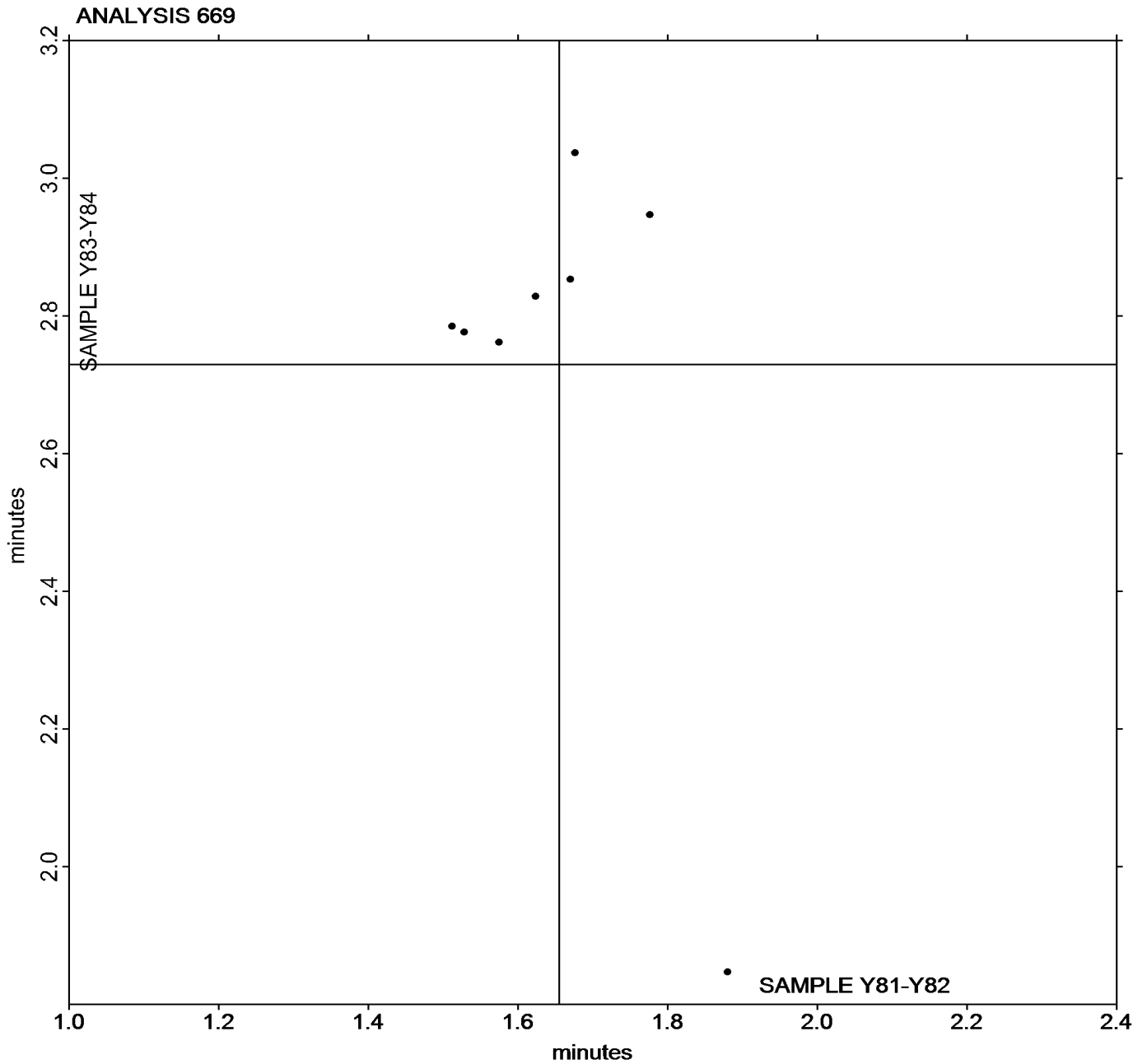


Rubber Interlaboratory Testing Program
Analysis 669
ODR Vulcanization-Cure Time 10% (minutes)

Report #197
3rd Qtr 2018

Grand Mean Sample Y81-Y82 = 1.6552 minutes

Grand Mean Sample Y83-Y84 = 2.7294 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 #197
3rd Qtr 2018

| WebCode | Data Flag | Sample Y81-Y82 | | | Sample Y83-Y84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| 8RK3J6 | | 1.332 | 0.155 | 2.00 | 2.302 | 0.342 | 0.99 |
| 9MMZTA | | 1.117 | -0.060 | -0.78 | 2.027 | 0.067 | 0.19 |
| GV7CF9 | | 1.202 | 0.025 | 0.32 | 2.110 | 0.150 | 0.44 |
| HWWRB3 | | 1.132 | -0.045 | -0.58 | 2.068 | 0.109 | 0.31 |
| PERT6L | | 1.155 | -0.022 | -0.28 | 1.150 | -0.810 | -2.35 |
| PHTU6H | | 1.077 | -0.100 | -1.29 | 1.942 | -0.018 | -0.05 |
| ZJRGBJ | | 1.198 | 0.022 | 0.28 | 1.980 | 0.020 | 0.06 |
| ZRJ4ZV | | 1.202 | 0.025 | 0.32 | 2.100 | 0.140 | 0.41 |

| Grand Means | | Summary Statistics | |
|---|----------------|--------------------|----------------|
| | 1.1767 minutes | | 1.9598 minutes |
| Stnd Dev Btwn Labs | 0.0773 minutes | | 0.3447 minutes |
| Statistics based on 8 of 8 reporting participants | | | |

Samples Y81-Y82: EPDM compound #1 & Y83-Y84: EPDM compound #2

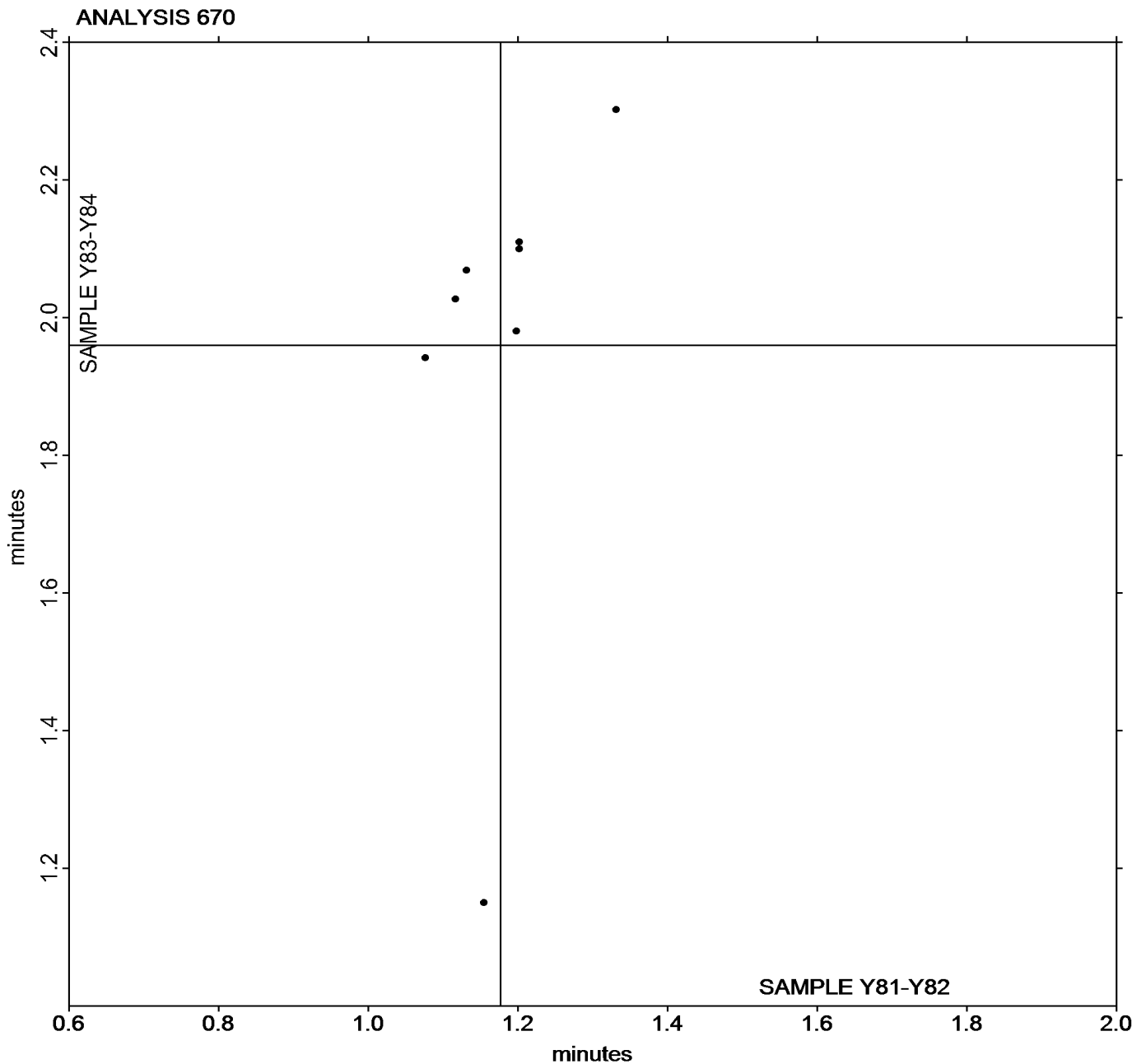


Rubber Interlaboratory Testing Program
Analysis 670
ODR Vulcanization-Scorch Time, Ts1 (minutes)

Report #197
3rd Qtr 2018

Grand Mean Sample **Y81-Y82** = 1.1767 minutes

Grand Mean Sample **Y83-Y84** = 1.9598 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 #197
3rd Qtr 2018

| WebCode | Data Flag | Sample Y81-Y82 | | | Sample Y83-Y84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| 8RK3J6 | | 3.330 | 0.153 | 0.74 | 5.222 | -0.098 | -0.31 |
| 9MMZTA | | 2.895 | -0.282 | -1.36 | 5.175 | -0.145 | -0.45 |
| GV7CF9 | | 3.273 | 0.096 | 0.46 | 5.770 | 0.450 | 1.41 |
| HWWRB3 | | 3.067 | -0.110 | -0.53 | 4.885 | -0.435 | -1.36 |
| PERT6L | | 3.512 | 0.335 | 1.62 | 5.738 | 0.419 | 1.31 |
| PHTU6H | | 2.942 | -0.235 | -1.14 | 5.020 | -0.300 | -0.94 |
| ZJRGBJ | | 3.260 | 0.083 | 0.40 | 5.467 | 0.147 | 0.46 |
| ZRJ4ZV | | 3.138 | -0.039 | -0.19 | 5.280 | -0.040 | -0.12 |

| Grand Means | | Summary Statistics | |
|---|----------------|--------------------|----------------|
| | 3.1771 minutes | | 5.3196 minutes |
| Std Dev Btwn Labs | 0.2071 minutes | | 0.3186 minutes |
| Statistics based on 8 of 8 reporting participants | | | |

Samples Y81-Y82: EPDM compound #1 & Y83-Y84: EPDM compound #2

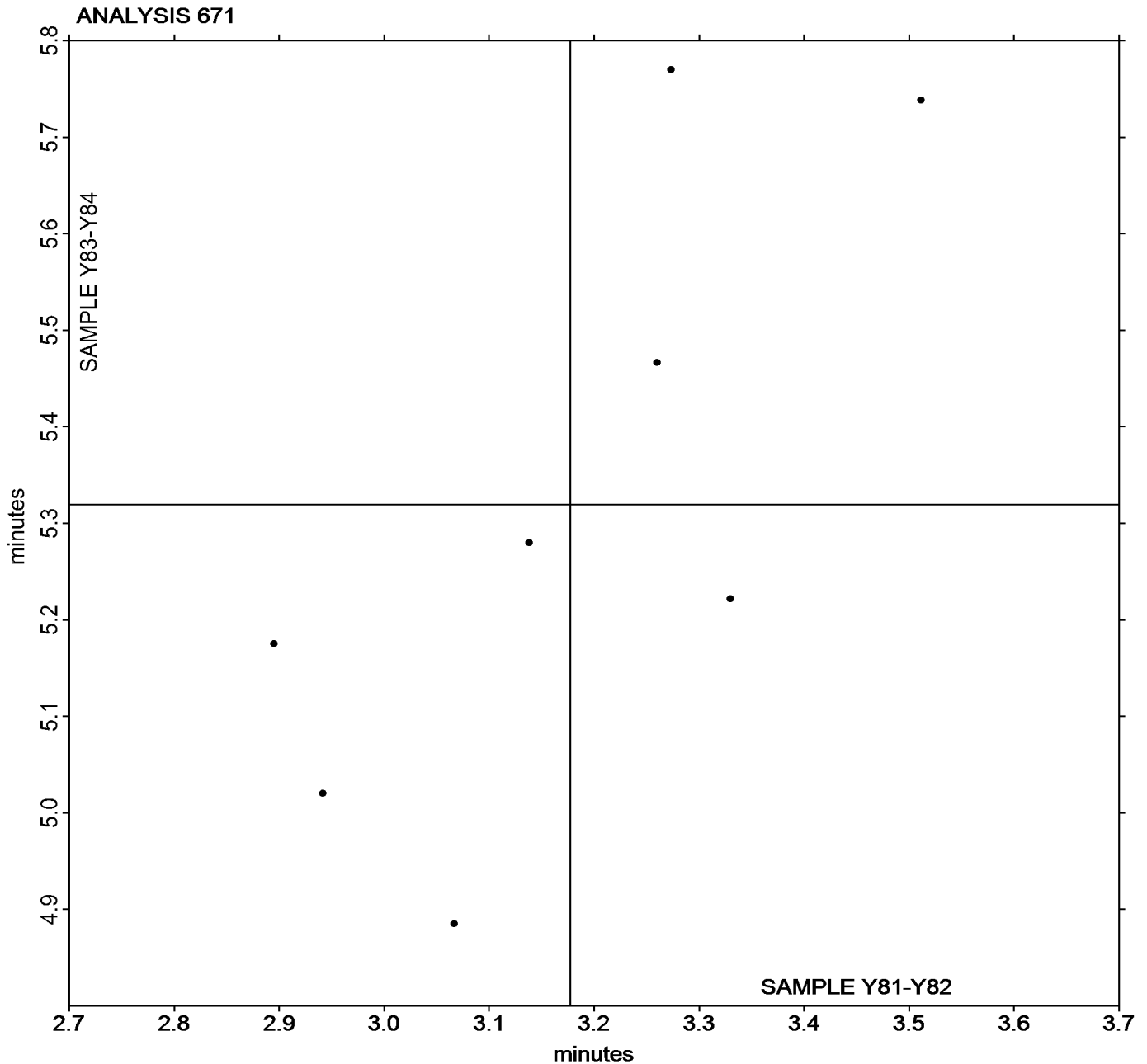


Rubber Interlaboratory Testing Program
Analysis 671
ODR Vulcanization-Cure Time 50% (minutes)

Report #197
3rd Qtr 2018

Grand Mean Sample Y81-Y82 = 3.1771 minutes

Grand Mean Sample Y83-Y84 = 5.3196 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 #197
3rd Qtr 2018

| WebCode | Data Flag | Sample Y81-Y82 | | | Sample Y83-Y84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| 8RK3J6 | | 13.82 | -0.22 | -0.16 | 10.72 | 0.14 | 0.17 |
| 9MMZTA | | 11.78 | -2.26 | -1.59 | 9.97 | -0.61 | -0.70 |
| GV7CF9 | | 14.19 | 0.14 | 0.10 | 11.38 | 0.81 | 0.93 |
| HWWRB3 | | 12.97 | -1.07 | -0.75 | 9.14 | -1.44 | -1.66 |
| PERT6L | | 15.27 | 1.23 | 0.86 | 11.58 | 1.01 | 1.16 |
| PHTU6H | | 13.15 | -0.89 | -0.62 | 9.94 | -0.63 | -0.73 |
| ZJRGBJ | | 16.24 | 2.20 | 1.54 | 11.42 | 0.84 | 0.97 |
| ZRJ4ZV | | 14.92 | 0.87 | 0.61 | 10.45 | -0.13 | -0.15 |

| | | Summary Statistics | |
|---|----------------|--------------------|--|
| Grand Means | 14.040 minutes | 10.576 minutes | |
| Std Dev Btwn Labs | 1.428 minutes | 0.865 minutes | |
| Statistics based on 8 of 8 reporting participants | | | |

Samples Y81-Y82: EPDM compound #1 & Y83-Y84: EPDM compound #2

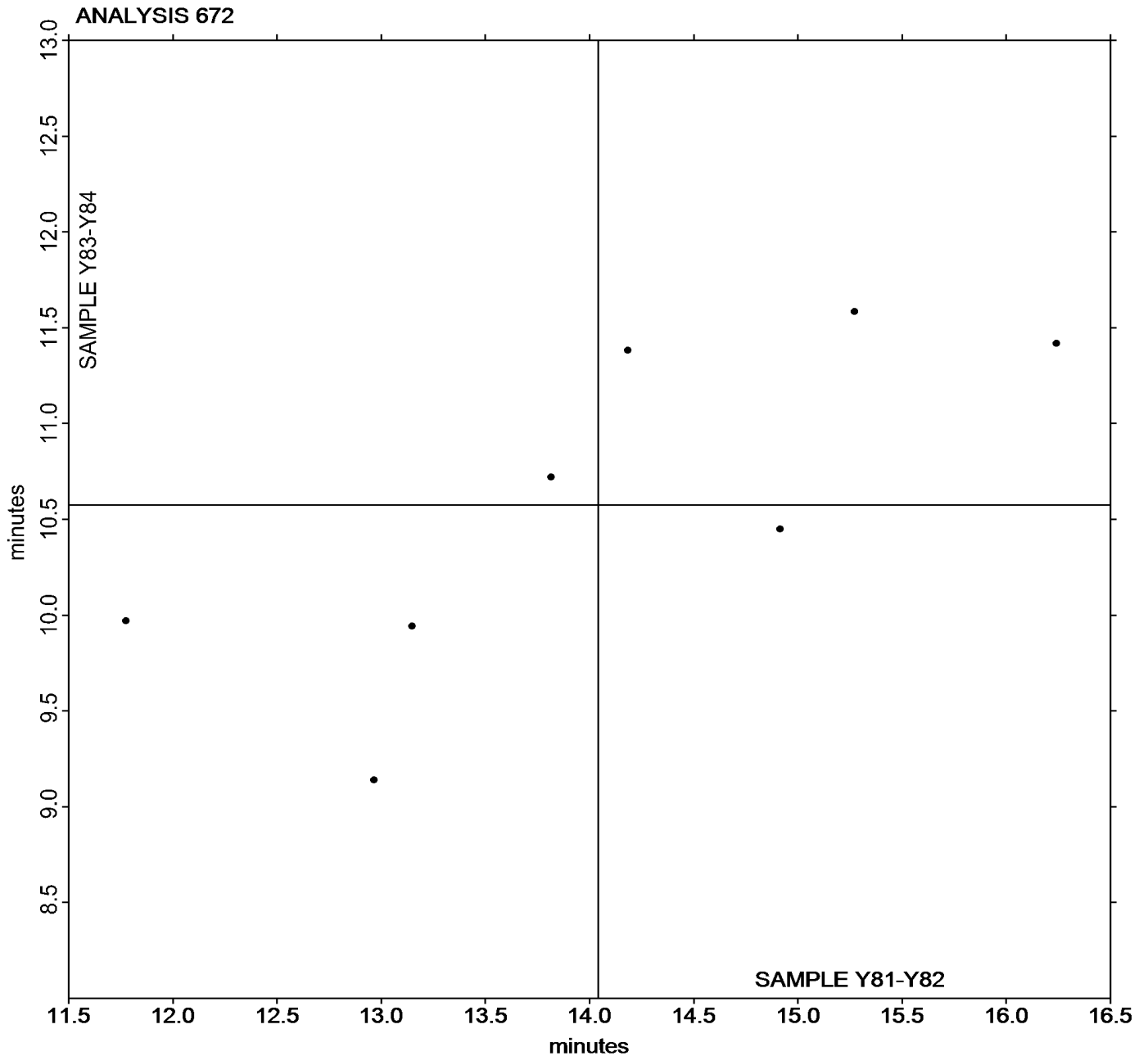


Rubber Interlaboratory Testing Program
Analysis 672
ODR Vulcanization-Cure Time 90% (minutes)

Report #197
3rd Qtr 2018

Grand Mean Sample **Y81-Y82** = 14.040 minutes

Grand Mean Sample **Y83-Y84** = 10.576 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 #197
3rd Qtr 2018

| WebCode | Data Flag | Sample Y81-Y82 | | | Sample Y83-Y84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| 8RK3J6 | | 9.768 | 1.219 | 1.53 | 10.623 | 2.653 | 2.21 |
| 9MMZTA | | 7.795 | -0.755 | -0.95 | 7.177 | -0.793 | -0.66 |
| GV7CF9 | | 8.595 | 0.045 | 0.06 | 7.615 | -0.355 | -0.30 |
| HWWRB3 | | 9.085 | 0.535 | 0.67 | 8.523 | 0.553 | 0.46 |
| PERT6L | | 8.907 | 0.357 | 0.45 | 7.322 | -0.648 | -0.54 |
| PHTU6H | | 8.145 | -0.405 | -0.51 | 7.290 | -0.680 | -0.57 |
| ZJRGBJ | | 7.240 | -1.310 | -1.64 | 6.963 | -1.007 | -0.84 |
| ZRJ4ZV | | 8.862 | 0.312 | 0.39 | 8.247 | 0.277 | 0.23 |

| | | Summary Statistics | |
|---|--|--------------------|---------------|
| Grand Means | | 8.5496 lbf.in | 7.9700 lbf.in |
| Std Dev Btwn Labs | | 0.7971 lbf.in | 1.1997 lbf.in |
| Statistics based on 8 of 8 reporting participants | | | |

| | | Summary Statistics in SI Units | |
|---|--|--------------------------------|-------------|
| Grand Means | | 9.6597 dN.m | 9.0049 dN.m |
| Std Dev Btwn Labs | | 0.9006 dN.m | 1.3554 dN.m |
| Statistics based on 8 of 8 reporting participants | | | |

Samples Y81-Y82: EPDM compound #1 & Y83-Y84: EPDM compound #2

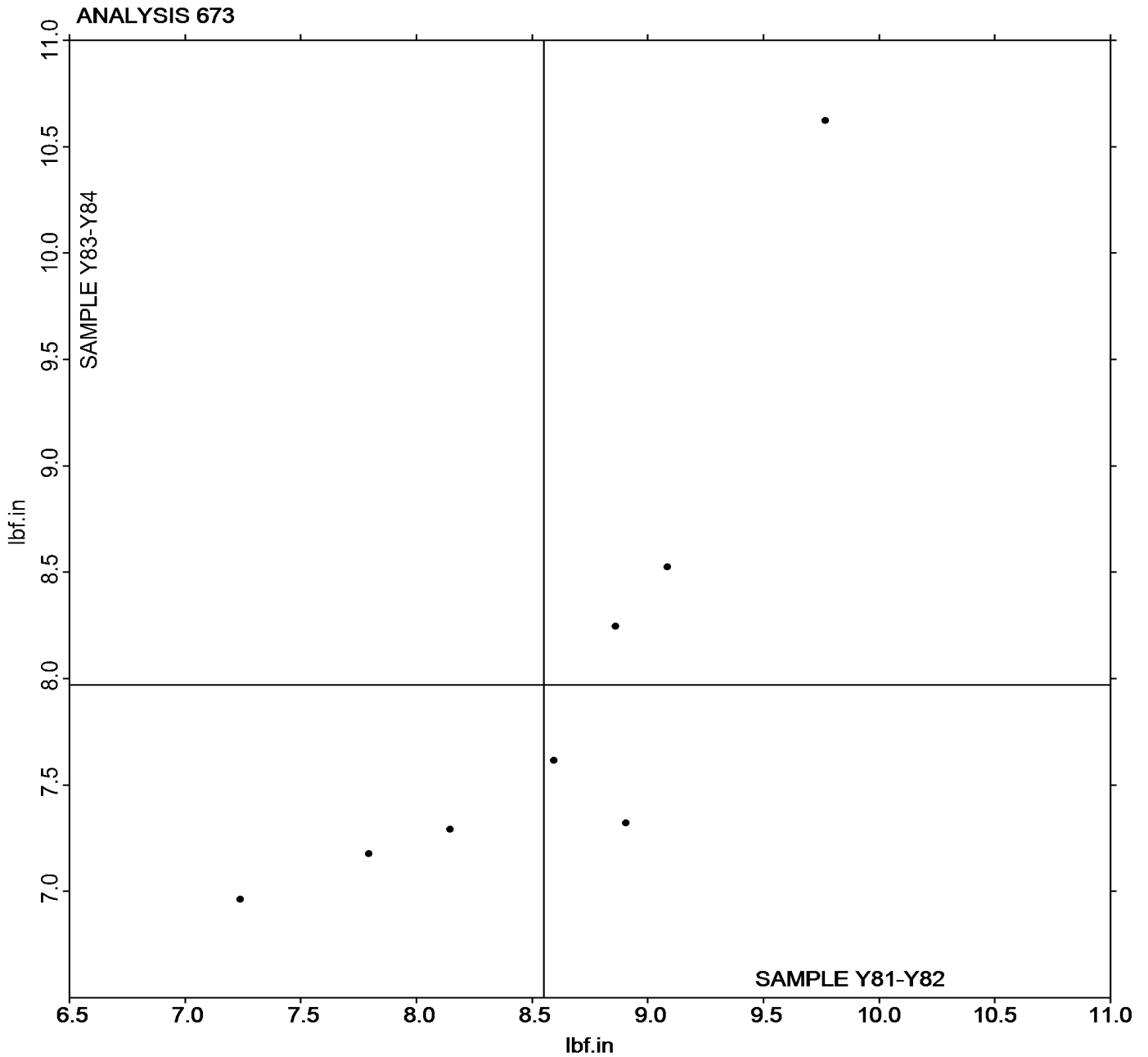


Rubber Interlaboratory Testing Program
Analysis 673
ODR Vulcanization: Minimum Torque (lbf.in)

Report #197
3rd Qtr 2018

Grand Mean Sample **Y81-Y82** = 8.5496 lbf.in

Grand Mean Sample **Y83-Y84** = 7.9700 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 #197
3rd Qtr 2018

| WebCode | Data Flag | Sample Y81-Y82 | | | Sample Y83-Y84 | | |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV |
| 8RK3J6 | | 43.82 | -1.25 | -0.52 | 35.41 | -0.76 | -0.37 |
| 9MMZTA | | 41.06 | -4.01 | -1.66 | 34.64 | -1.54 | -0.74 |
| GV7CF9 | | 45.69 | 0.62 | 0.26 | 37.37 | 1.19 | 0.57 |
| HWWRB3 | | 46.36 | 1.29 | 0.53 | 35.98 | -0.20 | -0.09 |
| PERT6L | | 45.79 | 0.72 | 0.30 | 37.82 | 1.65 | 0.79 |
| PHTU6H | | 49.45 | 4.38 | 1.81 | 39.70 | 3.53 | 1.69 |
| ZJRGBJ | | 44.17 | -0.89 | -0.37 | 32.92 | -3.25 | -1.56 |
| ZRJ4ZV | | 44.20 | -0.87 | -0.36 | 35.55 | -0.62 | -0.30 |

| | | Summary Statistics | |
|---|--|--------------------|---------------|
| Grand Means | | 45.066 lbf.in | 36.173 lbf.in |
| Std Dev Btwn Labs | | 2.420 lbf.in | 2.088 lbf.in |
| Statistics based on 8 of 8 reporting participants | | | |

| | | Summary Statistics in SI Units | |
|---|--|--------------------------------|-------------|
| Grand Means | | 50.918 dN.m | 40.870 dN.m |
| Std Dev Btwn Labs | | 2.734 dN.m | 2.359 dN.m |
| Statistics based on 8 of 8 reporting participants | | | |

Samples Y81-Y82: EPDM compound #1 & Y83-Y84: EPDM compound #2

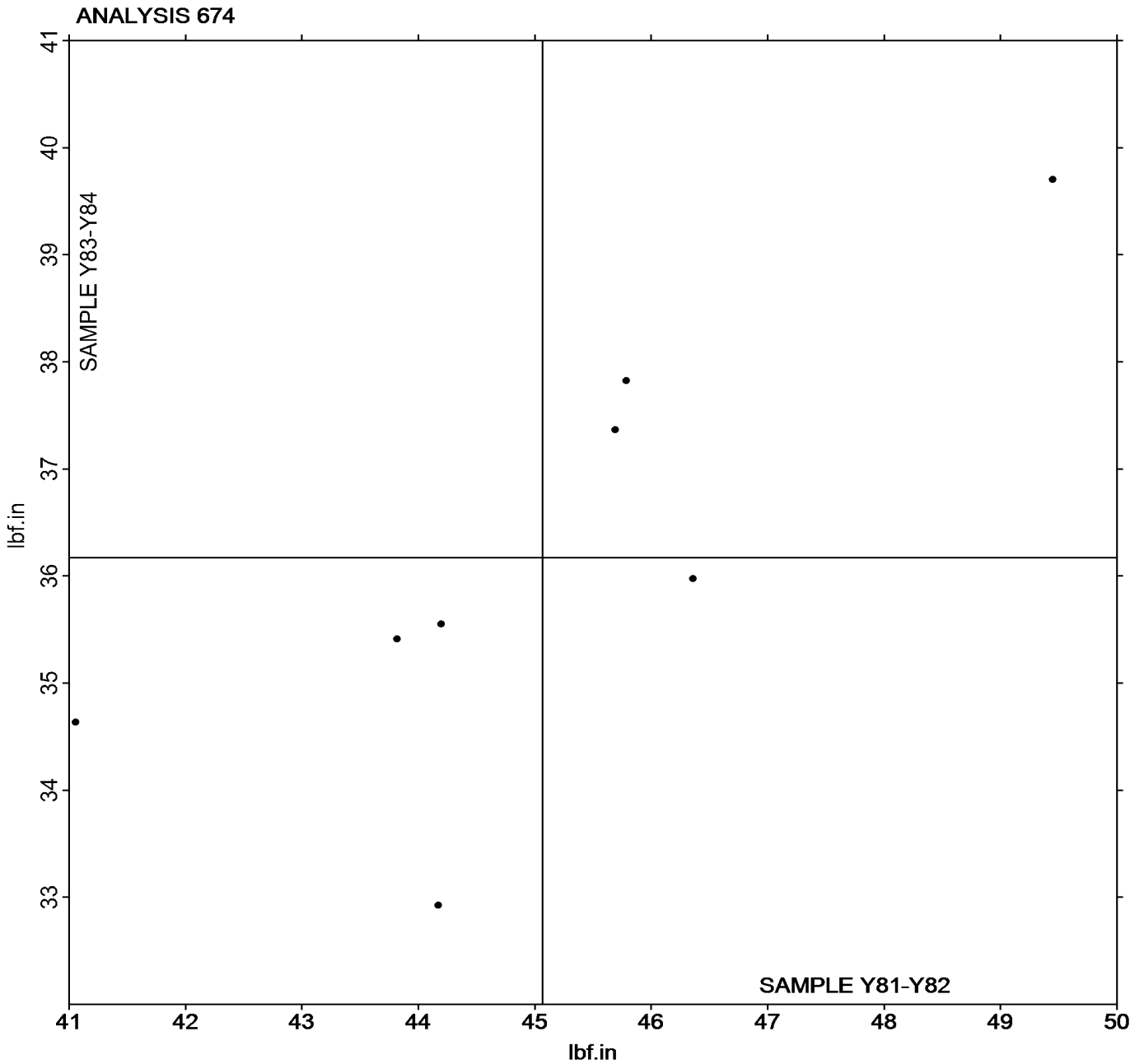


Rubber Interlaboratory Testing Program
Analysis 674
ODR Vulcanization: Maximum Torque (lbf.in)

Report #197
3rd Qtr 2018

Grand Mean Sample **Y81-Y82** = 45.066 lbf.in

Grand Mean Sample **Y83-Y84** = 36.173 lbf.in



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



Rubber Interlaboratory Testing Program

Report #197

Analysis 684

3rd Qtr 2018

MDR Vulcanization-Cure Time 10% (minutes)

| WebCode | Data Flag | Sample Y85-Y86 | | | Sample Y87-Y88 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| 2J6FY2 | | 1.928 | -0.086 | -0.66 | 2.158 | -0.032 | -0.26 | MD |
| 2PBBJ2 | | 2.053 | 0.039 | 0.30 | 2.165 | -0.026 | -0.21 | MC |
| 2WV7LQ | | 2.222 | 0.208 | 1.60 | 2.322 | 0.132 | 1.08 | MC |
| 2Y2U2F | | 1.747 | -0.268 | -2.06 | 2.022 | -0.169 | -1.38 | MC |
| 3HTXHG | | 2.022 | 0.007 | 0.06 | 2.185 | -0.006 | -0.05 | MC |
| 4JUPMZ | | 1.955 | -0.059 | -0.46 | 2.117 | -0.074 | -0.60 | ME |
| 69RJBD | | 1.720 | -0.294 | -2.27 | 1.972 | -0.219 | -1.79 | MC |
| 6T3CJ7 | | 1.952 | -0.063 | -0.48 | 2.195 | 0.004 | 0.04 | MC |
| 6YP6PE | | 2.138 | 0.124 | 0.95 | 2.257 | 0.066 | 0.54 | MM |
| 736Y26 | | 2.185 | 0.171 | 1.31 | 2.385 | 0.194 | 1.59 | MM |
| 7PDKMU | | 1.910 | -0.104 | -0.80 | 2.028 | -0.162 | -1.33 | MC |
| 7VZH8B | | 2.018 | 0.004 | 0.03 | 2.262 | 0.071 | 0.58 | MC |
| 8RK3J6 | | 1.985 | -0.029 | -0.23 | 2.333 | 0.143 | 1.17 | MC |
| 96YW4T | | 1.795 | -0.219 | -1.69 | 1.950 | -0.241 | -1.97 | MC |
| 9CKK8C | | 2.150 | 0.136 | 1.04 | 2.182 | -0.009 | -0.07 | MC |
| AAUXP9 | | 2.128 | 0.114 | 0.88 | 2.332 | 0.141 | 1.15 | ME |
| C8EJBX | | 1.915 | -0.099 | -0.77 | 2.088 | -0.102 | -0.84 | ME |
| D4TZLL | | 2.070 | 0.056 | 0.43 | 2.193 | 0.003 | 0.02 | MC |
| EWCP9K | | 2.123 | 0.109 | 0.84 | 2.287 | 0.096 | 0.79 | MC |
| EYFH64 | | 2.108 | 0.094 | 0.72 | 2.260 | 0.069 | 0.57 | XX |
| FBKXNE | | 2.018 | 0.004 | 0.03 | 2.082 | -0.109 | -0.89 | MD |
| FCZG9C | | 1.955 | -0.059 | -0.46 | 2.110 | -0.081 | -0.66 | MC |
| GJT6LT | | 1.938 | -0.076 | -0.59 | 2.158 | -0.032 | -0.26 | MC |
| GV7CF9 | | 2.157 | 0.142 | 1.10 | 2.437 | 0.246 | 2.01 | XX |
| H7JVCA | | 2.032 | 0.017 | 0.13 | 2.103 | -0.087 | -0.71 | MC |
| HNY6BP | * | 2.385 | 0.371 | 2.85 | 2.433 | 0.243 | 1.98 | MC |
| HWWRB3 | | 2.095 | 0.081 | 0.62 | 2.313 | 0.123 | 1.00 | MM |
| KE92K2 | | 2.129 | 0.114 | 0.88 | 2.303 | 0.112 | 0.92 | MC |
| N8YYUH | | 2.098 | 0.084 | 0.65 | 2.328 | 0.138 | 1.13 | MC |
| P9JCNK | | 2.077 | 0.062 | 0.48 | 2.165 | -0.026 | -0.21 | TP |
| PHTU6H | | 2.130 | 0.116 | 0.89 | 2.227 | 0.036 | 0.29 | MC |
| Q3FK3T | | 1.912 | -0.103 | -0.79 | 2.015 | -0.176 | -1.44 | MR |
| Q7E4YZ | | 1.807 | -0.208 | -1.60 | 2.030 | -0.161 | -1.31 | MC |
| QCLM4K | | 1.898 | -0.116 | -0.89 | 2.093 | -0.097 | -0.80 | MC |
| QM2NEK | | 1.892 | -0.123 | -0.95 | 2.264 | 0.073 | 0.60 | MC |
| TCD824 | | 1.928 | -0.086 | -0.66 | 2.180 | -0.011 | -0.09 | MC |
| UDGMMZ | | 1.955 | -0.059 | -0.46 | 1.998 | -0.192 | -1.57 | MP |



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

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample Y85-Y86 | | | Sample Y87-Y88 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| W4QF6M | | 2.007 | -0.008 | -0.06 | 2.148 | -0.042 | -0.35 | MM |
| XW7W6J | | 1.998 | -0.016 | -0.12 | 2.277 | 0.086 | 0.70 | MC |
| YLZARD | | 2.103 | 0.089 | 0.68 | 2.163 | -0.027 | -0.22 | MC |
| YTLA4J | | 2.053 | 0.039 | 0.30 | 2.320 | 0.129 | 1.06 | MX |
| Z34DM3 | | 1.992 | -0.023 | -0.18 | 2.178 | -0.012 | -0.10 | MC |
| ZU8DCG | | 1.938 | -0.076 | -0.59 | 2.178 | -0.012 | -0.10 | MD |

| Summary Statistics | |
|---|--|
| Grand Means | |
| | 2.0145 minutes 2.1906 minutes |
| Std Dev Btwn Labs | |
| | 0.1298 minutes 0.1223 minutes |
| Statistics based on 43 of 43 reporting participants | |

Samples Y85-Y86: EPDM compound, batch #1 & Y87-Y88: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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

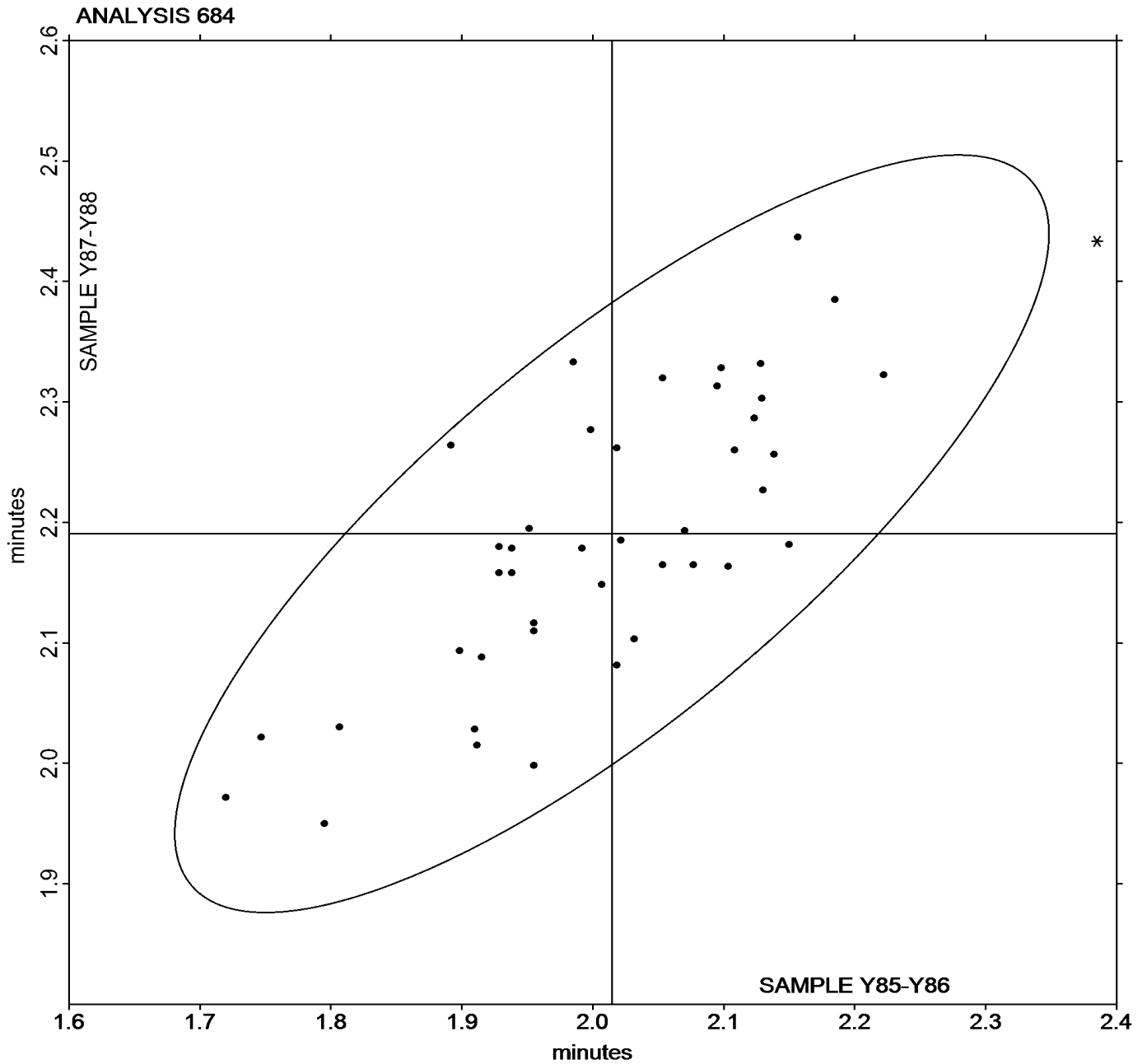


Rubber Interlaboratory Testing Program
Analysis 684
MDR Vulcanization-Cure Time 10% (minutes)

Report #197
3rd Qtr 2018

Grand Mean Sample Y85-Y86 = 2.0145 minutes

Grand Mean Sample Y87-Y88 = 2.1906 minutes





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

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample Y85-Y86 | | | Sample Y87-Y88 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| 2J6FY2 | | 1.795 | -0.079 | -0.57 | 2.047 | -0.008 | -0.06 | MD |
| 2PBBJ2 | | 1.900 | 0.026 | 0.19 | 2.030 | -0.024 | -0.20 | MC |
| 2WV7LQ | | 2.097 | 0.224 | 1.62 | 2.203 | 0.149 | 1.22 | MC |
| 2Y2U2F | | 1.600 | -0.274 | -1.98 | 1.905 | -0.149 | -1.22 | MC |
| 3HTXHG | | 1.955 | 0.081 | 0.59 | 2.083 | 0.029 | 0.24 | MC |
| 4JUPMZ | | 1.818 | -0.055 | -0.40 | 2.023 | -0.031 | -0.25 | ME |
| 69RJBD | X | 0.975 | -0.899 | -6.50 | 1.318 | -0.736 | -6.03 | MC |
| 6T3CJ7 | | 1.787 | -0.087 | -0.63 | 2.065 | 0.011 | 0.09 | MC |
| 6YP6PE | | 1.922 | 0.048 | 0.35 | 2.050 | -0.004 | -0.04 | MM |
| 736Y26 | | 2.020 | 0.146 | 1.06 | 2.227 | 0.172 | 1.41 | MM |
| 776882 | | 1.902 | 0.028 | 0.20 | 1.913 | -0.141 | -1.15 | MC |
| 7PDKMU | | 1.763 | -0.110 | -0.80 | 1.948 | -0.106 | -0.87 | MC |
| 7VZH8B | | 1.887 | 0.013 | 0.10 | 2.135 | 0.081 | 0.66 | MC |
| 8RK3J6 | | 1.835 | -0.039 | -0.28 | 2.222 | 0.167 | 1.37 | MC |
| 96YW4T | | 1.607 | -0.267 | -1.93 | 1.767 | -0.288 | -2.36 | MC |
| 9CKK8C | | 2.040 | 0.166 | 1.20 | 2.063 | 0.009 | 0.07 | MC |
| AAUXP9 | | 1.992 | 0.118 | 0.85 | 2.187 | 0.132 | 1.08 | ME |
| C8EJBX | | 1.752 | -0.122 | -0.88 | 1.992 | -0.063 | -0.51 | ME |
| CBG4EX | | 2.032 | 0.158 | 1.14 | 2.103 | 0.049 | 0.40 | MC |
| D4TZLL | | 1.960 | 0.086 | 0.63 | 2.093 | 0.039 | 0.32 | MC |
| E8RNMT | | 1.786 | -0.088 | -0.63 | 1.913 | -0.142 | -1.16 | MC |
| EWCP9K | | 2.097 | 0.223 | 1.61 | 2.253 | 0.199 | 1.63 | MC |
| EYFH64 | | 1.920 | 0.046 | 0.34 | 2.102 | 0.047 | 0.39 | XX |
| FBKXNE | | 1.850 | -0.024 | -0.17 | 1.930 | -0.124 | -1.02 | MD |
| FCZG9C | | 1.903 | 0.030 | 0.22 | 2.060 | 0.006 | 0.05 | MC |
| GJT6LT | | 1.808 | -0.065 | -0.47 | 2.063 | 0.009 | 0.07 | MC |
| GV7CF9 | | 1.900 | 0.026 | 0.19 | 2.163 | 0.109 | 0.89 | XX |
| H7JVCA | | 2.018 | 0.145 | 1.05 | 2.073 | 0.019 | 0.16 | MC |
| HNY6BP | | 1.980 | 0.106 | 0.77 | 2.095 | 0.041 | 0.33 | MC |
| HWWRB3 | | 2.147 | 0.273 | 1.98 | 2.345 | 0.291 | 2.38 | MM |
| KE92K2 | | 1.963 | 0.090 | 0.65 | 2.143 | 0.089 | 0.73 | MC |
| N8YYUH | | 1.905 | 0.031 | 0.23 | 2.135 | 0.081 | 0.66 | MC |
| P9JCNK | | 1.990 | 0.116 | 0.84 | 2.113 | 0.059 | 0.48 | TP |
| PHTU6H | | 1.973 | 0.100 | 0.72 | 2.097 | 0.042 | 0.35 | MC |
| Q3FK3T | * | 1.868 | -0.005 | -0.04 | 1.818 | -0.236 | -1.93 | MR |
| Q7E4YZ | * | 1.478 | -0.396 | -2.86 | 1.789 | -0.266 | -2.18 | MC |
| QCLM4K | | 1.825 | -0.049 | -0.35 | 2.035 | -0.019 | -0.16 | MC |
| QM2NEK | | 1.747 | -0.126 | -0.91 | 2.136 | 0.082 | 0.67 | MC |



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

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample Y85-Y86 | | | Sample Y87-Y88 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| TCD824 | | 1.735 | -0.139 | -1.00 | 2.028 | -0.026 | -0.21 | MC |
| UDGMMZ | | 1.793 | -0.080 | -0.58 | 1.815 | -0.239 | -1.96 | MP |
| W4QF6M | | 1.938 | 0.065 | 0.47 | 2.088 | 0.034 | 0.28 | MM |
| XW7W6J | | 1.698 | -0.175 | -1.27 | 2.013 | -0.041 | -0.34 | MC |
| YLZARD | | 2.002 | 0.128 | 0.93 | 2.043 | -0.011 | -0.09 | MC |
| YTLA4J | | 1.835 | -0.039 | -0.28 | 2.143 | 0.089 | 0.73 | MX |
| Z34DM3 | | 1.745 | -0.129 | -0.93 | 1.973 | -0.081 | -0.66 | MC |
| ZU8DCG | | 1.740 | -0.134 | -0.97 | 2.018 | -0.036 | -0.29 | MD |

| Grand Means | | Summary Statistics | |
|---|----------------|--------------------|----------------|
| | 1.8735 minutes | | 2.0543 minutes |
| Std Dev Btwn Labs | 0.1383 minutes | | 0.1221 minutes |
| Statistics based on 45 of 46 reporting participants | | | |

Samples Y85-Y86: EPDM compound, batch #1 & Y87-Y88: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #685

69RJBD (X) - Data for all samples are low.

Key to Instrument Codes Reported by Participants

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



Rubber Interlaboratory Testing Program

Analysis 685

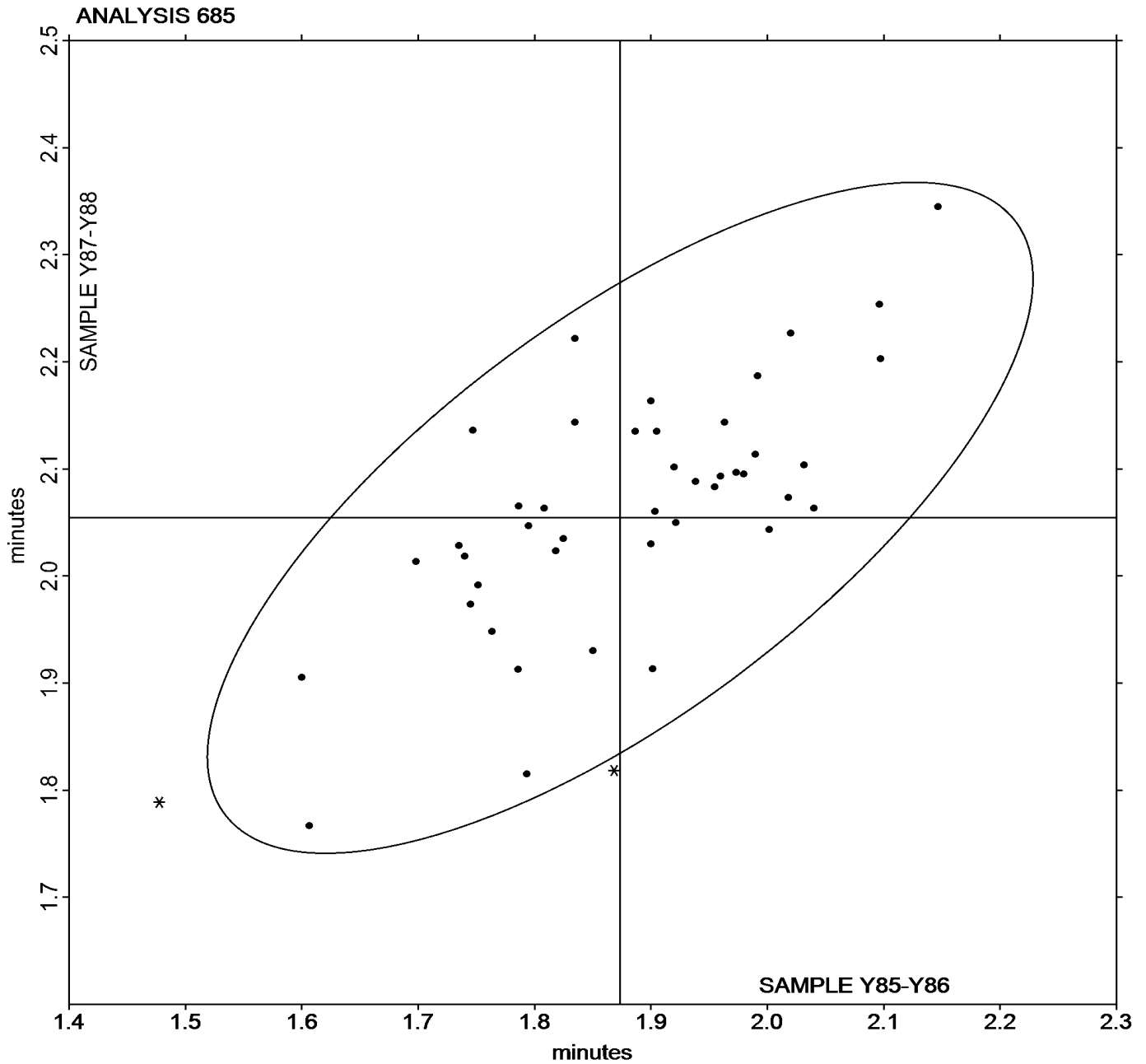
MDR Vulcanization-Scorch Time, Ts1 (minutes)

Report #197

3rd Qtr 2018

Grand Mean Sample Y85-Y86 = 1.8735 minutes

Grand Mean Sample Y87-Y88 = 2.0543 minutes





Rubber Interlaboratory Testing Program

Report #197

Analysis 686

3rd Qtr 2018

MDR Vulcanization-Cure Time 50% (minutes)

| WebCode | Data Flag | Sample Y85-Y86 | | | Sample Y87-Y88 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| 2J6FY2 | | 4.545 | 0.160 | 0.61 | 4.307 | 0.021 | 0.09 | MD |
| 2PBBJ2 | | 4.318 | -0.067 | -0.25 | 4.215 | -0.071 | -0.31 | MC |
| 2WV7LQ | | 4.456 | 0.070 | 0.27 | 4.333 | 0.048 | 0.21 | MC |
| 2Y2U2F | | 4.025 | -0.360 | -1.37 | 3.775 | -0.511 | -2.23 | MC |
| 3HTXHG | | 4.252 | -0.134 | -0.51 | 4.283 | -0.002 | -0.01 | MC |
| 4JUPMZ | | 4.522 | 0.136 | 0.52 | 4.135 | -0.151 | -0.66 | ME |
| 69RJBD | | 4.022 | -0.364 | -1.38 | 3.822 | -0.464 | -2.03 | MC |
| 6T3CJ7 | | 4.675 | 0.290 | 1.10 | 4.382 | 0.096 | 0.42 | MC |
| 6YP6PE | | 4.645 | 0.260 | 0.99 | 4.540 | 0.254 | 1.11 | MM |
| 736Y26 | | 4.542 | 0.156 | 0.60 | 4.578 | 0.293 | 1.28 | MM |
| 776882 | * | 3.693 | -0.692 | -2.63 | 3.805 | -0.481 | -2.10 | MC |
| 7PDKMU | | 4.348 | -0.037 | -0.14 | 3.962 | -0.324 | -1.42 | MC |
| 7VZH8B | | 4.422 | 0.036 | 0.14 | 4.492 | 0.206 | 0.90 | MC |
| 8RK3J6 | | 4.630 | 0.245 | 0.93 | 4.535 | 0.249 | 1.09 | MC |
| 96YW4T | | 4.243 | -0.142 | -0.54 | 4.168 | -0.117 | -0.51 | MC |
| 9CKK8C | | 4.303 | -0.082 | -0.31 | 4.488 | 0.203 | 0.89 | MC |
| AAUXP9 | | 4.595 | 0.210 | 0.80 | 4.537 | 0.251 | 1.10 | ME |
| C8EJBX | | 4.428 | 0.043 | 0.16 | 4.253 | -0.032 | -0.14 | ME |
| CBG4EX | | 4.165 | -0.220 | -0.84 | 4.302 | 0.016 | 0.07 | MC |
| D4TZLL | | 4.388 | 0.003 | 0.01 | 4.260 | -0.026 | -0.11 | MC |
| E8RNMT | | 4.133 | -0.253 | -0.96 | 4.381 | 0.096 | 0.42 | MC |
| EWCP9K | | 4.683 | 0.298 | 1.14 | 4.392 | 0.106 | 0.46 | MC |
| EYFH64 | | 4.247 | -0.139 | -0.53 | 4.227 | -0.059 | -0.26 | XX |
| FBKXNE | | 4.247 | -0.139 | -0.53 | 4.145 | -0.141 | -0.61 | MD |
| FCZG9C | | 4.197 | -0.189 | -0.72 | 4.118 | -0.167 | -0.73 | MC |
| GJT6LT | | 4.532 | 0.146 | 0.56 | 4.307 | 0.021 | 0.09 | MC |
| GV7CF9 | | 4.635 | 0.250 | 0.95 | 4.782 | 0.496 | 2.17 | XX |
| H7JVCA | | 3.988 | -0.397 | -1.51 | 4.060 | -0.226 | -0.99 | MC |
| HNY6BP | | 4.105 | -0.280 | -1.07 | 4.365 | 0.079 | 0.35 | MC |
| HWWRB3 | | 4.428 | 0.043 | 0.16 | 4.502 | 0.216 | 0.95 | MM |
| KE92K2 | | 4.614 | 0.229 | 0.87 | 4.596 | 0.311 | 1.36 | MC |
| N8YYUH | | 4.480 | 0.095 | 0.36 | 4.512 | 0.226 | 0.99 | MC |
| P9JCNK | | 4.688 | 0.303 | 1.15 | 4.192 | -0.094 | -0.41 | TP |
| PHTU6H | | 4.557 | 0.171 | 0.65 | 4.412 | 0.126 | 0.55 | MC |
| Q3FK3T | | 4.215 | -0.170 | -0.65 | 4.305 | 0.019 | 0.09 | MR |
| Q7E4YZ | | 4.373 | -0.012 | -0.05 | 4.060 | -0.226 | -0.99 | MC |
| QCLM4K | | 3.943 | -0.442 | -1.68 | 3.963 | -0.322 | -1.41 | MC |



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

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample Y85-Y86 | | | Sample Y87-Y88 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| QM2NEK | | 4.633 | 0.248 | 0.95 | 4.478 | 0.192 | 0.84 | MC |
| TCD824 | | 4.687 | 0.301 | 1.15 | 4.362 | 0.076 | 0.33 | MC |
| UDGMMZ | | 3.825 | -0.560 | -2.13 | 3.885 | -0.401 | -1.75 | MC |
| W4QF6M | | 4.497 | 0.111 | 0.42 | 4.082 | -0.204 | -0.89 | MM |
| XW7W6J | | 4.792 | 0.406 | 1.55 | 4.590 | 0.304 | 1.33 | MC |
| YLZARD | | 4.075 | -0.310 | -1.18 | 4.217 | -0.069 | -0.30 | MC |
| YTLA4J | | 4.795 | 0.410 | 1.56 | 4.467 | 0.181 | 0.79 | MX |
| Z34DM3 | | 4.590 | 0.205 | 0.78 | 4.273 | -0.012 | -0.05 | MC |
| ZU8DCG | | 4.545 | 0.160 | 0.61 | 4.292 | 0.006 | 0.03 | MD |

| Grand Means | | Summary Statistics | |
|---|----------------|--------------------|----------------|
| | 4.3852 minutes | | 4.2855 minutes |
| Stnd Dev Btwn Labs | 0.2626 minutes | | 0.2286 minutes |
| Statistics based on 46 of 46 reporting participants | | | |

Samples Y85-Y86: EPDM compound, batch #1 & Y87-Y88: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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

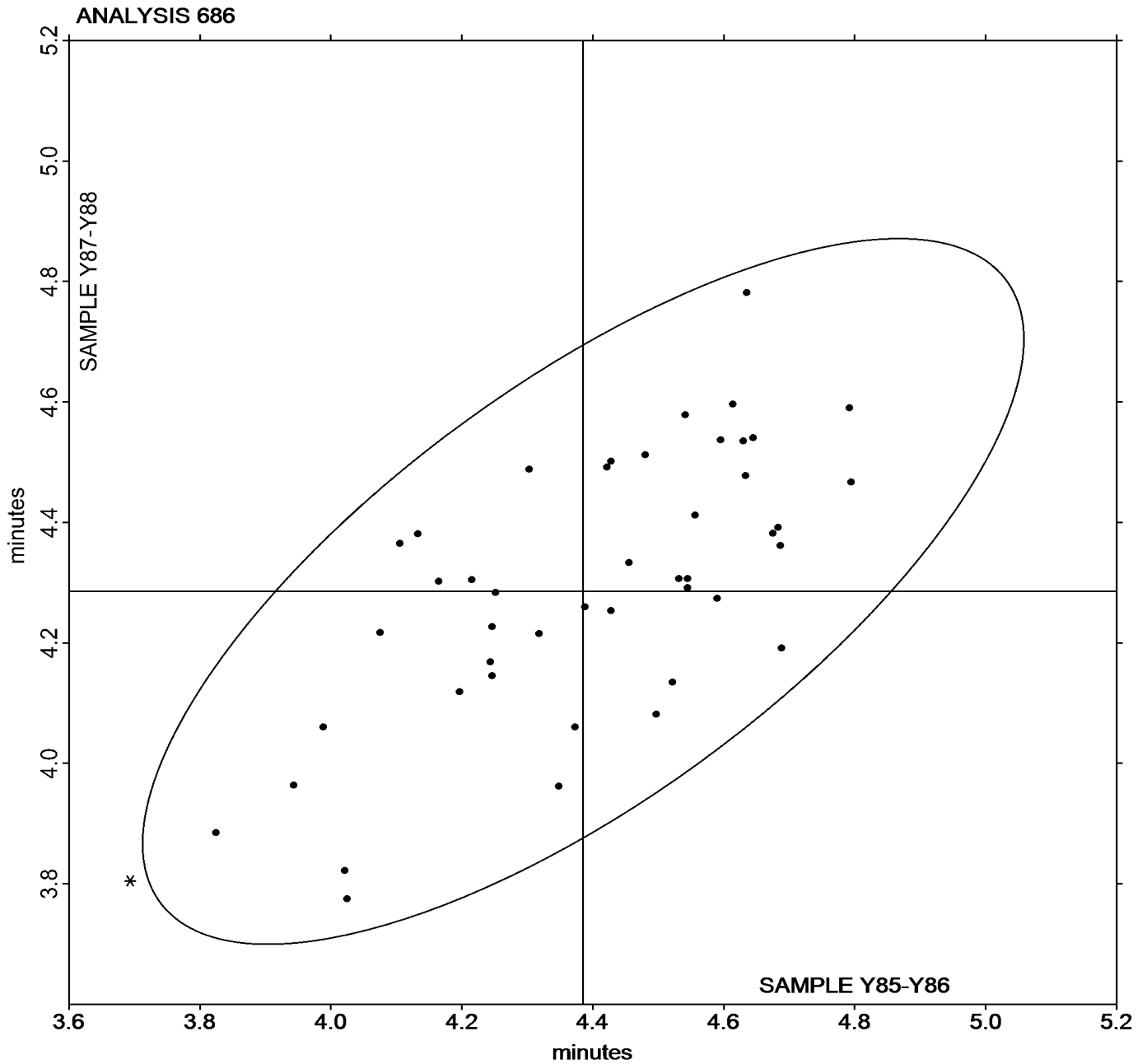


Rubber Interlaboratory Testing Program
Analysis 686
MDR Vulcanization-Cure Time 50% (minutes)

Report #197
3rd Qtr 2018

Grand Mean Sample **Y85-Y86** = 4.3852 minutes

Grand Mean Sample **Y87-Y88** = 4.2855 minutes





Rubber Interlaboratory Testing Program

Report #197

Analysis 687

3rd Qtr 2018

MDR Vulcanization-Cure Time 90% (minutes)

| WebCode | Data Flag | Sample Y85-Y86 | | | Sample Y87-Y88 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| 2J6FY2 | | 8.318 | 0.504 | 0.83 | 7.247 | -0.080 | -0.16 | MD |
| 2PBBJ2 | | 7.423 | -0.391 | -0.64 | 7.037 | -0.290 | -0.60 | MC |
| 2WV7LQ | | 7.683 | -0.130 | -0.21 | 7.322 | -0.004 | -0.01 | MC |
| 2Y2U2F | * | 7.047 | -0.767 | -1.26 | 6.035 | -1.292 | -2.66 | MC |
| 3HTXHG | | 7.752 | -0.062 | -0.10 | 7.648 | 0.322 | 0.66 | MC |
| 4JUPMZ | | 8.422 | 0.608 | 1.00 | 7.117 | -0.210 | -0.43 | ME |
| 69RJBD | | 6.808 | -1.006 | -1.65 | 6.293 | -1.033 | -2.12 | MC |
| 6T3CJ7 | | 8.183 | 0.369 | 0.61 | 7.275 | -0.052 | -0.11 | MC |
| 6YP6PE | | 8.518 | 0.704 | 1.16 | 8.110 | 0.783 | 1.61 | MM |
| 736Y26 | | 8.415 | 0.601 | 0.99 | 8.262 | 0.935 | 1.92 | MM |
| 776882 | * | 6.208 | -1.606 | -2.63 | 6.235 | -1.092 | -2.24 | MC |
| 7PDKMU | | 8.037 | 0.223 | 0.37 | 6.760 | -0.567 | -1.16 | MC |
| 7VZH8B | | 7.823 | 0.009 | 0.02 | 7.662 | 0.335 | 0.69 | MC |
| 8RK3J6 | | 8.592 | 0.778 | 1.28 | 7.603 | 0.277 | 0.57 | MC |
| 96YW4T | | 7.217 | -0.597 | -0.98 | 6.985 | -0.342 | -0.70 | MC |
| 9CKK8C | | 7.143 | -0.671 | -1.10 | 7.270 | -0.057 | -0.12 | MC |
| AAUXP9 | | 8.262 | 0.448 | 0.73 | 8.257 | 0.930 | 1.91 | ME |
| C8EJBX | | 8.190 | 0.376 | 0.62 | 7.067 | -0.260 | -0.53 | ME |
| CBG4EX | | 7.133 | -0.681 | -1.12 | 7.268 | -0.058 | -0.12 | MC |
| D4TZLL | | 7.722 | -0.092 | -0.15 | 7.197 | -0.130 | -0.27 | MC |
| E8RNMT | | 7.254 | -0.560 | -0.92 | 7.667 | 0.340 | 0.70 | MC |
| EWCP9K | | 8.048 | 0.234 | 0.38 | 7.487 | 0.160 | 0.33 | MC |
| EYFH64 | | 8.048 | 0.234 | 0.38 | 7.792 | 0.465 | 0.96 | XX |
| FBKXNE | | 7.868 | 0.054 | 0.09 | 7.283 | -0.043 | -0.09 | MD |
| FCZG9C | | 7.257 | -0.557 | -0.91 | 6.963 | -0.363 | -0.75 | MC |
| GJT6LT | | 8.298 | 0.484 | 0.79 | 7.092 | -0.235 | -0.48 | MC |
| GV7CF9 | | 8.285 | 0.471 | 0.77 | 8.222 | 0.895 | 1.84 | XX |
| H7JVCA | | 6.763 | -1.051 | -1.72 | 6.925 | -0.402 | -0.83 | MC |
| HNY6BP | | 7.225 | -0.589 | -0.97 | 7.540 | 0.213 | 0.44 | MC |
| HWWRB3 | | 8.005 | 0.191 | 0.31 | 7.953 | 0.627 | 1.29 | MM |
| KE92K2 | | 8.274 | 0.460 | 0.75 | 7.743 | 0.416 | 0.86 | MC |
| N8YYUH | | 7.812 | -0.002 | 0.00 | 7.622 | 0.295 | 0.61 | MC |
| P9JCNK | | 8.528 | 0.714 | 1.17 | 7.037 | -0.290 | -0.60 | TP |
| PHTU6H | | 8.060 | 0.246 | 0.40 | 7.457 | 0.130 | 0.27 | MC |
| Q3FK3T | | 7.273 | -0.541 | -0.89 | 7.232 | -0.095 | -0.20 | MR |
| Q7E4YZ | | 7.932 | 0.118 | 0.19 | 6.921 | -0.405 | -0.83 | MC |
| QCLM4K | | 7.388 | -0.426 | -0.70 | 7.147 | -0.180 | -0.37 | MC |



Rubber Interlaboratory Testing Program

Report #197

Analysis 687

3rd Qtr 2018

MDR Vulcanization-Cure Time 90% (minutes)

| WebCode | Data Flag | Sample Y85-Y86 | | | Sample Y87-Y88 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| QM2NEK | | 8.308 | 0.495 | 0.81 | 7.608 | 0.282 | 0.58 | MC |
| TCD824 | | 8.295 | 0.481 | 0.79 | 7.312 | -0.015 | -0.03 | MC |
| UDGMMZ | | 6.470 | -1.344 | -2.20 | 6.610 | -0.717 | -1.47 | MP |
| W4QF6M | | 8.327 | 0.513 | 0.84 | 7.355 | 0.028 | 0.06 | MM |
| XW7W6J | | 8.617 | 0.803 | 1.32 | 7.618 | 0.292 | 0.60 | MC |
| YLZARD | | 7.172 | -0.642 | -1.05 | 7.375 | 0.048 | 0.10 | MC |
| YTLA4J | | 8.575 | 0.761 | 1.25 | 7.768 | 0.442 | 0.91 | MX |
| Z34DM3 | | 8.300 | 0.486 | 0.80 | 7.408 | 0.082 | 0.17 | MC |
| ZU8DCG | | 8.158 | 0.344 | 0.56 | 7.238 | -0.088 | -0.18 | MD |

| Grand Means | | Summary Statistics | |
|---|----------------|--------------------|----------------|
| | 7.8139 minutes | | 7.3266 minutes |
| Std Dev Btwn Labs | 0.6097 minutes | | 0.4864 minutes |
| Statistics based on 46 of 46 reporting participants | | | |

Samples Y85-Y86: EPDM compound, batch #1 & Y87-Y88: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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

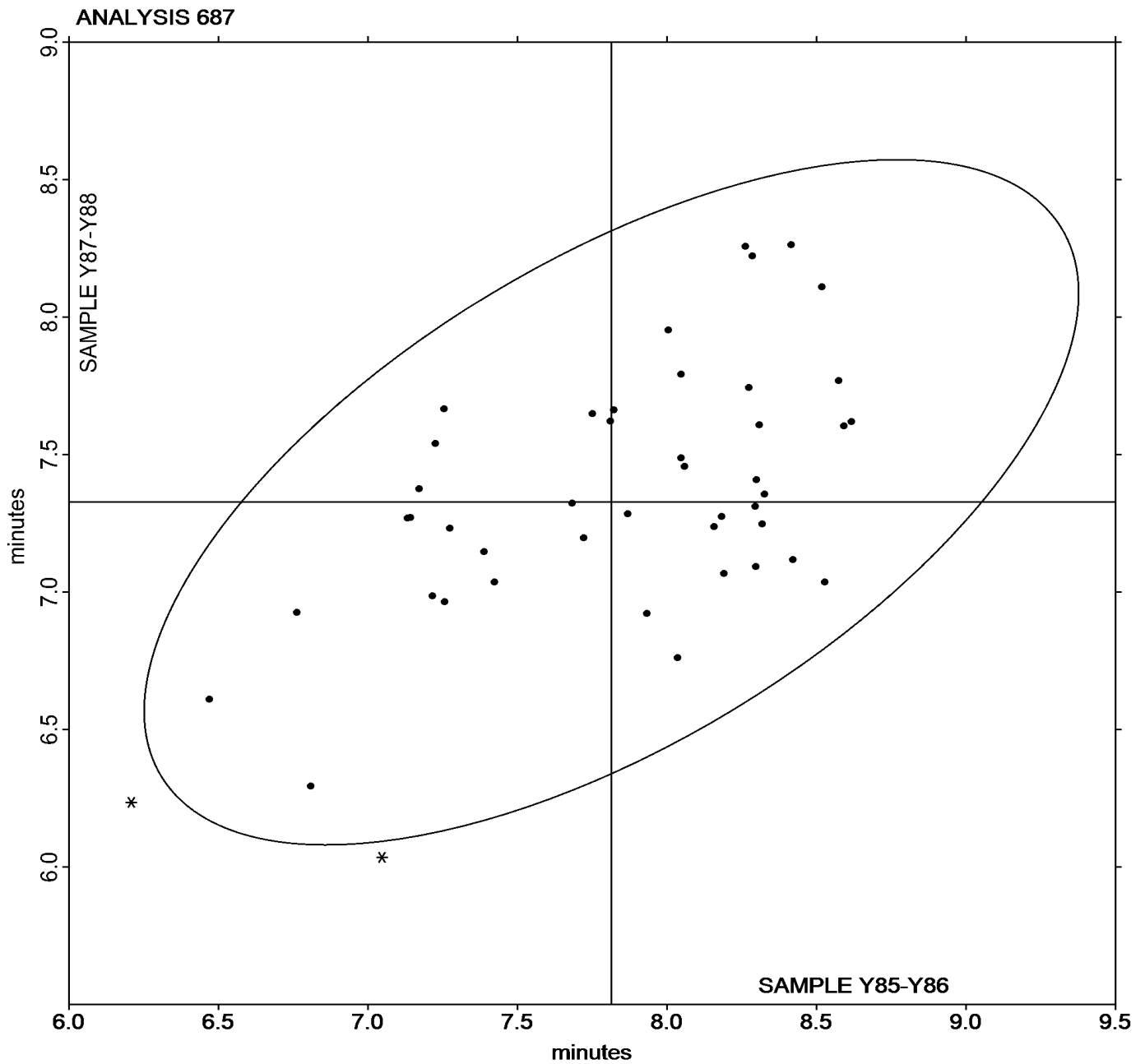


Rubber Interlaboratory Testing Program
Analysis 687
MDR Vulcanization-Cure Time 90% (minutes)

Report #197
3rd Qtr 2018

Grand Mean Sample **Y85-Y86** = 7.8139 minutes

Grand Mean Sample **Y87-Y88** = 7.3266 minutes





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

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample Y85-Y86 | | | Sample Y87-Y88 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| 2J6FY2 | | 1.740 | -0.503 | -1.57 | 1.754 | -0.571 | -1.64 | MD |
| 2PBBJ2 | | 2.427 | 0.184 | 0.57 | 2.508 | 0.182 | 0.52 | MC |
| 2WV7LQ | | 2.993 | 0.750 | 2.34 | 2.985 | 0.660 | 1.90 | MC |
| 2Y2U2F | | 2.372 | 0.129 | 0.40 | 2.712 | 0.386 | 1.11 | MC |
| 3HTXHG | | 2.202 | -0.041 | -0.13 | 2.052 | -0.274 | -0.79 | MC |
| 4JUPMZ | | 2.320 | 0.077 | 0.24 | 2.597 | 0.271 | 0.78 | ME |
| 69RJBD | | 2.185 | -0.058 | -0.18 | 2.395 | 0.070 | 0.20 | MC |
| 6T3CJ7 | | 1.982 | -0.261 | -0.82 | 2.163 | -0.162 | -0.47 | MC |
| 6YP6PE | | 2.250 | 0.007 | 0.02 | 2.193 | -0.132 | -0.38 | MM |
| 736Y26 | | 2.570 | 0.327 | 1.02 | 2.653 | 0.328 | 0.94 | MM |
| 776882 | | 2.783 | 0.540 | 1.69 | 3.028 | 0.703 | 2.02 | MC |
| 7PDKMU | | 2.775 | 0.532 | 1.66 | 2.937 | 0.611 | 1.76 | MC |
| 7VZH8B | | 1.995 | -0.248 | -0.77 | 2.015 | -0.310 | -0.89 | MC |
| 8RK3J6 | | 2.162 | -0.081 | -0.25 | 2.333 | 0.008 | 0.02 | MC |
| 96YW4T | | 2.213 | -0.030 | -0.09 | 2.250 | -0.075 | -0.22 | MC |
| 9CKK8C | | 2.252 | 0.009 | 0.03 | 2.215 | -0.110 | -0.32 | MC |
| AAUXP9 | | 1.887 | -0.356 | -1.11 | 1.878 | -0.447 | -1.28 | ME |
| C8EJBX | | 2.045 | -0.198 | -0.62 | 2.195 | -0.130 | -0.37 | ME |
| CBG4EX | | 2.390 | 0.147 | 0.46 | 2.322 | -0.004 | -0.01 | MC |
| D4TZLL | | 2.330 | 0.087 | 0.27 | 2.388 | 0.063 | 0.18 | MC |
| E8RNMT | | 2.260 | 0.017 | 0.05 | 2.247 | -0.079 | -0.23 | MC |
| EWCP9K | | 2.092 | -0.151 | -0.47 | 2.331 | 0.005 | 0.02 | MC |
| EYFH64 | | 2.560 | 0.317 | 0.99 | 2.492 | 0.166 | 0.48 | XX |
| FCZG9C | | 2.672 | 0.429 | 1.34 | 2.827 | 0.501 | 1.44 | MC |
| GJT6LT | | 2.067 | -0.176 | -0.55 | 2.243 | -0.082 | -0.24 | MC |
| GV7CF9 | | 1.835 | -0.408 | -1.27 | 1.810 | -0.515 | -1.48 | XX |
| H7JVCA | | 2.578 | 0.335 | 1.05 | 2.595 | 0.270 | 0.77 | MC |
| HNY6BP | | 2.111 | -0.132 | -0.41 | 2.006 | -0.319 | -0.92 | MC |
| HWWRB3 | | 1.738 | -0.505 | -1.58 | 1.762 | -0.564 | -1.62 | MM |
| KE92K2 | | 2.145 | -0.098 | -0.31 | 2.093 | -0.232 | -0.67 | MC |
| N8YYUH | | 1.975 | -0.268 | -0.84 | 1.945 | -0.380 | -1.09 | MC |
| P9JCNK | | 2.202 | -0.041 | -0.13 | 2.597 | 0.271 | 0.78 | TP |
| PHTU6H | | 1.990 | -0.253 | -0.79 | 2.015 | -0.310 | -0.89 | MC |
| Q3FK3T | X | 2.448 | 0.205 | 0.64 | 2.030 | -0.295 | -0.85 | MR |
| Q7E4YZ | | 2.070 | -0.173 | -0.54 | 2.322 | -0.004 | -0.01 | MC |
| QCLM4K | | 2.982 | 0.739 | 2.31 | 3.140 | 0.815 | 2.34 | MC |
| QM2NEK | | 1.955 | -0.288 | -0.90 | 2.138 | -0.187 | -0.54 | MC |
| TCD824 | | 1.932 | -0.311 | -0.97 | 2.028 | -0.297 | -0.85 | MC |



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

Report #197
3rd Qtr 2018

| WebCode | Data Flag | Sample Y85-Y86 | | | Sample Y87-Y88 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| UDGMMZ | | 2.601 | 0.358 | 1.12 | 2.444 | 0.119 | 0.34 | MP |
| W4QF6M | | 2.023 | -0.220 | -0.69 | 2.128 | -0.197 | -0.57 | MM |
| XW7W6J | | 1.665 | -0.578 | -1.80 | 1.730 | -0.595 | -1.71 | MC |
| YLZARD | | 2.662 | 0.419 | 1.31 | 2.528 | 0.203 | 0.58 | MC |
| YTLA4J | | 2.083 | -0.160 | -0.50 | 2.270 | -0.055 | -0.16 | MX |
| Z34DM3 | | 2.365 | 0.122 | 0.38 | 2.629 | 0.303 | 0.87 | MC |
| ZU8DCG | | 2.257 | 0.014 | 0.04 | 2.423 | 0.098 | 0.28 | MD |

| Grand Means | | Summary Statistics | |
|---|---------------|--------------------|---------------|
| | 2.2429 lbf.in | | 2.3254 lbf.in |
| Std Dev Btwn Labs | 0.3202 lbf.in | | 0.3481 lbf.in |
| Statistics based on 44 of 45 reporting participants | | | |

| Grand Means | | Summary Statistics in SI Units | |
|---|-------------|--------------------------------|-------------|
| | 2.5342 dN.m | | 2.6273 dN.m |
| Std Dev Btwn Labs | 0.3618 dN.m | | 0.3933 dN.m |
| Statistics based on 44 of 45 reporting participants | | | |

Samples Y85-Y86: EPDM compound, batch #1 & Y87-Y88: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #688

Q3FK3T (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample group Y85-Y86.

Key to Instrument Codes Reported by Participants

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

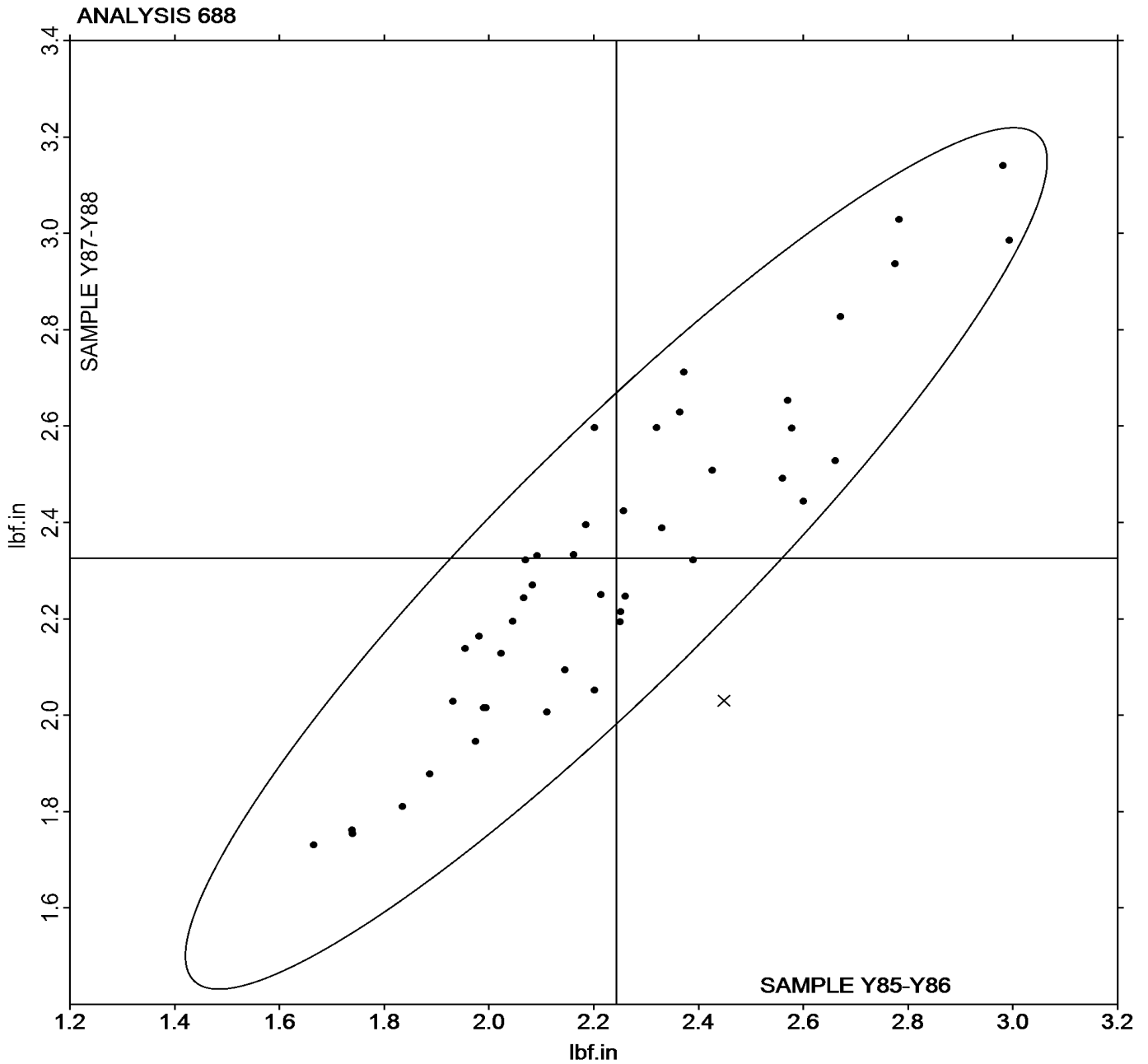


Rubber Interlaboratory Testing Program
Analysis 688
MDR Vulcanization: Minimum Torque (lbf.in)

Report #197
3rd Qtr 2018

Grand Mean Sample **Y85-Y86** = 2.2429 lbf.in

Grand Mean Sample **Y87-Y88** = 2.3254 lbf.in





Rubber Interlaboratory Testing Program

Report #197

Analysis 689

3rd Qtr 2018

MDR Vulcanization: Maximum Torque (lbf.in)

| WebCode | Data Flag | Sample Y85-Y86 | | | Sample Y87-Y88 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| 2J6FY2 | | 13.08 | -0.60 | -0.92 | 13.10 | -0.70 | -1.05 | MD |
| 2PBBJ2 | | 13.04 | -0.64 | -0.99 | 13.15 | -0.65 | -0.97 | MC |
| 2WV7LQ | | 14.58 | 0.90 | 1.39 | 14.69 | 0.90 | 1.36 | MC |
| 2Y2U2F | | 14.20 | 0.52 | 0.80 | 14.78 | 0.98 | 1.48 | MC |
| 3HTXHG | | 12.99 | -0.69 | -1.06 | 13.28 | -0.51 | -0.77 | MC |
| 4JUPMZ | | 13.75 | 0.07 | 0.11 | 13.91 | 0.12 | 0.18 | ME |
| 69RJBD | | 14.20 | 0.52 | 0.80 | 14.76 | 0.96 | 1.45 | MC |
| 6T3CJ7 | | 13.58 | -0.10 | -0.16 | 13.84 | 0.05 | 0.07 | MC |
| 6YP6PE | | 14.72 | 1.04 | 1.60 | 14.84 | 1.05 | 1.58 | MM |
| 736Y26 | | 14.69 | 1.01 | 1.56 | 14.96 | 1.17 | 1.76 | MM |
| 776882 | | 13.35 | -0.34 | -0.52 | 12.97 | -0.83 | -1.24 | MC |
| 7PDKMU | | 14.41 | 0.73 | 1.12 | 14.26 | 0.47 | 0.71 | MC |
| 7VZH8B | | 13.49 | -0.19 | -0.29 | 13.58 | -0.21 | -0.32 | MC |
| 8RK3J6 | | 13.62 | -0.06 | -0.10 | 13.65 | -0.14 | -0.21 | MC |
| 96YW4T | | 14.37 | 0.69 | 1.07 | 14.56 | 0.77 | 1.16 | MC |
| 9CKK8C | | 13.81 | 0.12 | 0.19 | 13.59 | -0.21 | -0.31 | MC |
| AAUXP9 | | 13.33 | -0.36 | -0.55 | 13.58 | -0.22 | -0.33 | ME |
| C8EJBX | | 13.80 | 0.12 | 0.19 | 13.70 | -0.09 | -0.14 | ME |
| CBG4EX | | 13.79 | 0.10 | 0.16 | 13.63 | -0.16 | -0.24 | MC |
| D4TZLL | | 13.60 | -0.08 | -0.12 | 13.72 | -0.08 | -0.11 | MC |
| E8RNMT | | 14.74 | 1.06 | 1.64 | 14.91 | 1.12 | 1.68 | MC |
| EWCP9K | X | 11.17 | -2.52 | -3.88 | 11.60 | -2.20 | -3.31 | MC |
| EYFH64 | * | 15.00 | 1.32 | 2.03 | 14.64 | 0.84 | 1.27 | XX |
| FCZG9C | | 13.37 | -0.31 | -0.47 | 13.60 | -0.20 | -0.30 | MC |
| GJT6LT | | 13.39 | -0.29 | -0.45 | 13.35 | -0.44 | -0.67 | MC |
| GV7CF9 | | 13.29 | -0.39 | -0.61 | 13.58 | -0.22 | -0.33 | XX |
| H7JVCA | | 12.73 | -0.95 | -1.47 | 12.80 | -0.99 | -1.50 | MC |
| HNY6BP | | 13.25 | -0.43 | -0.67 | 13.21 | -0.58 | -0.88 | MC |
| HWWRB3 | | 12.52 | -1.16 | -1.79 | 12.74 | -1.06 | -1.59 | MM |
| KE92K2 | | 14.02 | 0.33 | 0.52 | 14.01 | 0.22 | 0.33 | MC |
| N8YYUH | | 14.08 | 0.40 | 0.62 | 14.30 | 0.50 | 0.76 | MC |
| P9JCNK | | 13.07 | -0.61 | -0.94 | 13.28 | -0.52 | -0.78 | TP |
| PHTU6H | | 13.75 | 0.06 | 0.10 | 13.70 | -0.09 | -0.14 | MC |
| Q3FK3T | | 13.76 | 0.07 | 0.11 | 14.31 | 0.51 | 0.77 | MR |
| Q7E4YZ | | 14.32 | 0.64 | 0.99 | 14.32 | 0.53 | 0.80 | MC |
| QCLM4K | | 13.88 | 0.20 | 0.30 | 14.04 | 0.25 | 0.37 | MC |
| QM2NEK | | 13.82 | 0.14 | 0.21 | 13.72 | -0.08 | -0.12 | MC |
| TCD824 | | 13.81 | 0.12 | 0.19 | 13.89 | 0.10 | 0.15 | MC |



Rubber Interlaboratory Testing Program

Report #197

Analysis 689

3rd Qtr 2018

MDR Vulcanization: Maximum Torque (lbf.in)

| WebCode | Data Flag | Sample Y85-Y86 | | | Sample Y87-Y88 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| UDGMMZ | | 13.75 | 0.06 | 0.10 | 13.81 | 0.02 | 0.03 | MC |
| W4QF6M | * | 11.60 | -2.08 | -3.21 | 11.76 | -2.04 | -3.07 | MM |
| XW7W6J | | 13.50 | -0.18 | -0.27 | 13.48 | -0.31 | -0.47 | MC |
| YLZARD | | 14.09 | 0.40 | 0.62 | 14.08 | 0.29 | 0.44 | MC |
| YTLA4J | | 13.06 | -0.62 | -0.96 | 13.30 | -0.49 | -0.74 | MX |
| Z34DM3 | | 13.70 | 0.02 | 0.04 | 14.25 | 0.46 | 0.69 | MC |
| ZU8DCG | | 13.10 | -0.58 | -0.89 | 13.29 | -0.51 | -0.77 | MD |

| Summary Statistics | |
|---|---------------|
| Grand Means | 13.681 lbf.in |
| Std Dev Btwn Labs | 0.648 lbf.in |
| | 13.794 lbf.in |
| | 0.664 lbf.in |
| Statistics based on 44 of 45 reporting participants | |

| Summary Statistics in SI Units | |
|---|-------------|
| Grand Means | 15.457 dN.m |
| Std Dev Btwn Labs | 0.732 dN.m |
| | 15.585 dN.m |
| | 0.750 dN.m |
| Statistics based on 44 of 45 reporting participants | |

Samples Y85-Y86: EPDM compound, batch #1 & Y87-Y88: EPDM compound, batch #2

Comments on Assigned Data Flags for Test #689

EWCP9K (X) - Data for all samples are low. Possible Systematic Error. Inconsistent within the determinations of sample group Y87-Y88.

Key to Instrument Codes Reported by Participants

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

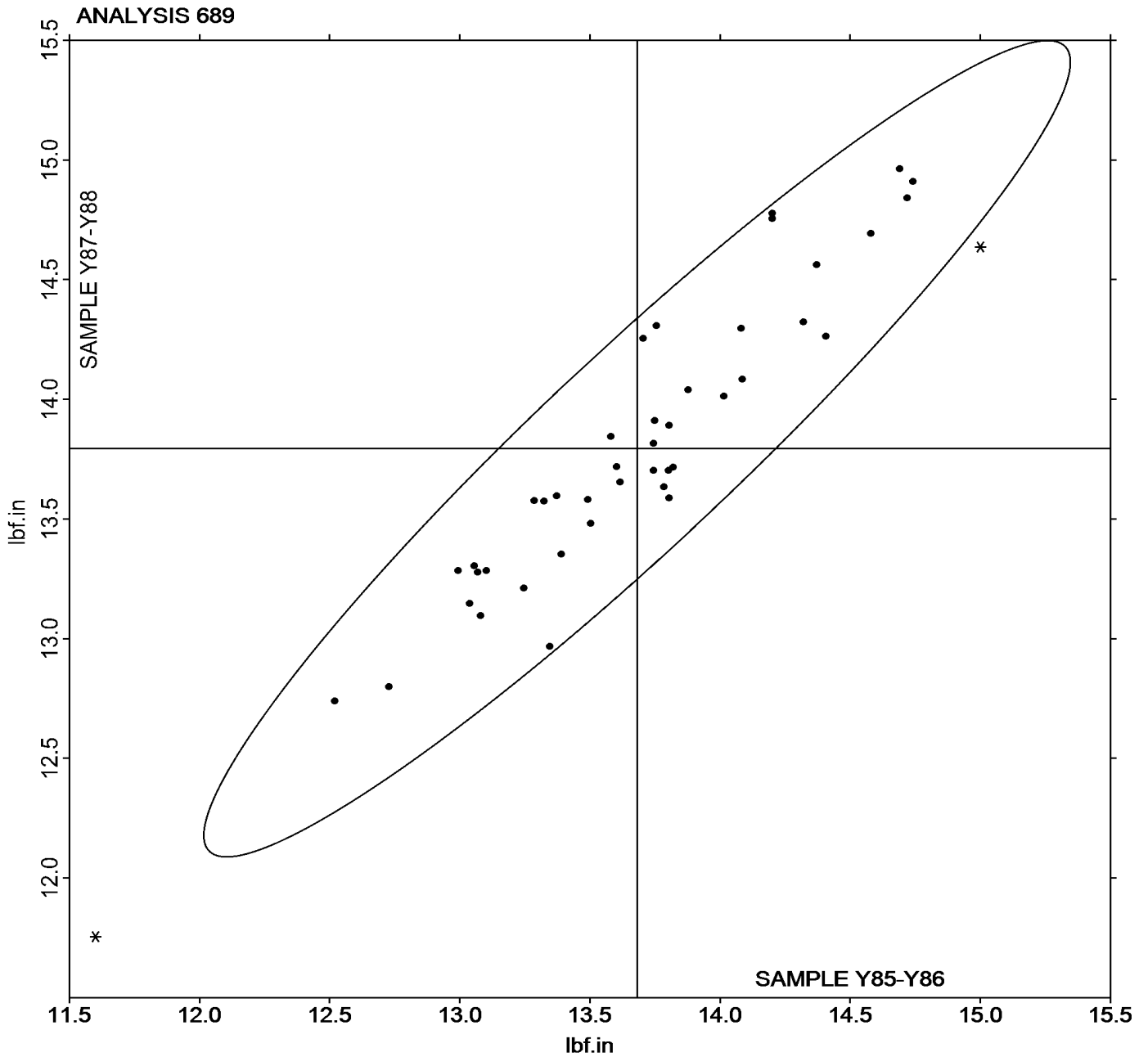


Rubber Interlaboratory Testing Program
Analysis 689
MDR Vulcanization: Maximum Torque (lbf.in)

Report #197
3rd Qtr 2018

Grand Mean Sample **Y85-Y86** = 13.681 lbf.in

Grand Mean Sample **Y87-Y88** = 13.794 lbf.in





Rubber Interlaboratory Testing Program

Report #197

Analysis 690

3rd Qtr 2018

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

| WebCode | Data Flag | Sample G81-G82 | | | Sample G83-G84 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| 736Y26 | | 592.3 | 72.1 | 1.36 | 582.3 | 62.5 | 1.13 | XX |
| E8RNMT | | 483.7 | -36.5 | -0.69 | 481.8 | -38.0 | -0.68 | RP |
| GV7CF9 | | 493.8 | -26.4 | -0.50 | 479.7 | -40.1 | -0.72 | RP |
| H7JVCA | | 526.3 | 6.1 | 0.11 | 536.8 | 17.0 | 0.31 | PP |
| P9JCNK | | 491.1 | -29.2 | -0.55 | 490.8 | -29.0 | -0.52 | XX |
| Q7E4YZ | | 452.3 | -68.0 | -1.29 | 462.1 | -57.7 | -1.04 | XX |
| W4QF6M | | 602.7 | 82.4 | 1.56 | 619.7 | 99.8 | 1.80 | XX |
| YTLA4J | | 519.8 | -0.4 | -0.01 | 505.4 | -14.5 | -0.26 | XX |

| Grand Means | | Summary Statistics | |
|---|------------|--------------------|------------|
| | 520.26 kPa | | 519.83 kPa |
| Std Dev Btwn Labs | 52.82 kPa | | 55.55 kPa |
| Statistics based on 8 of 8 reporting participants | | | |

Samples G81-G82: EPDM compound, batch #1 & G83-G84: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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

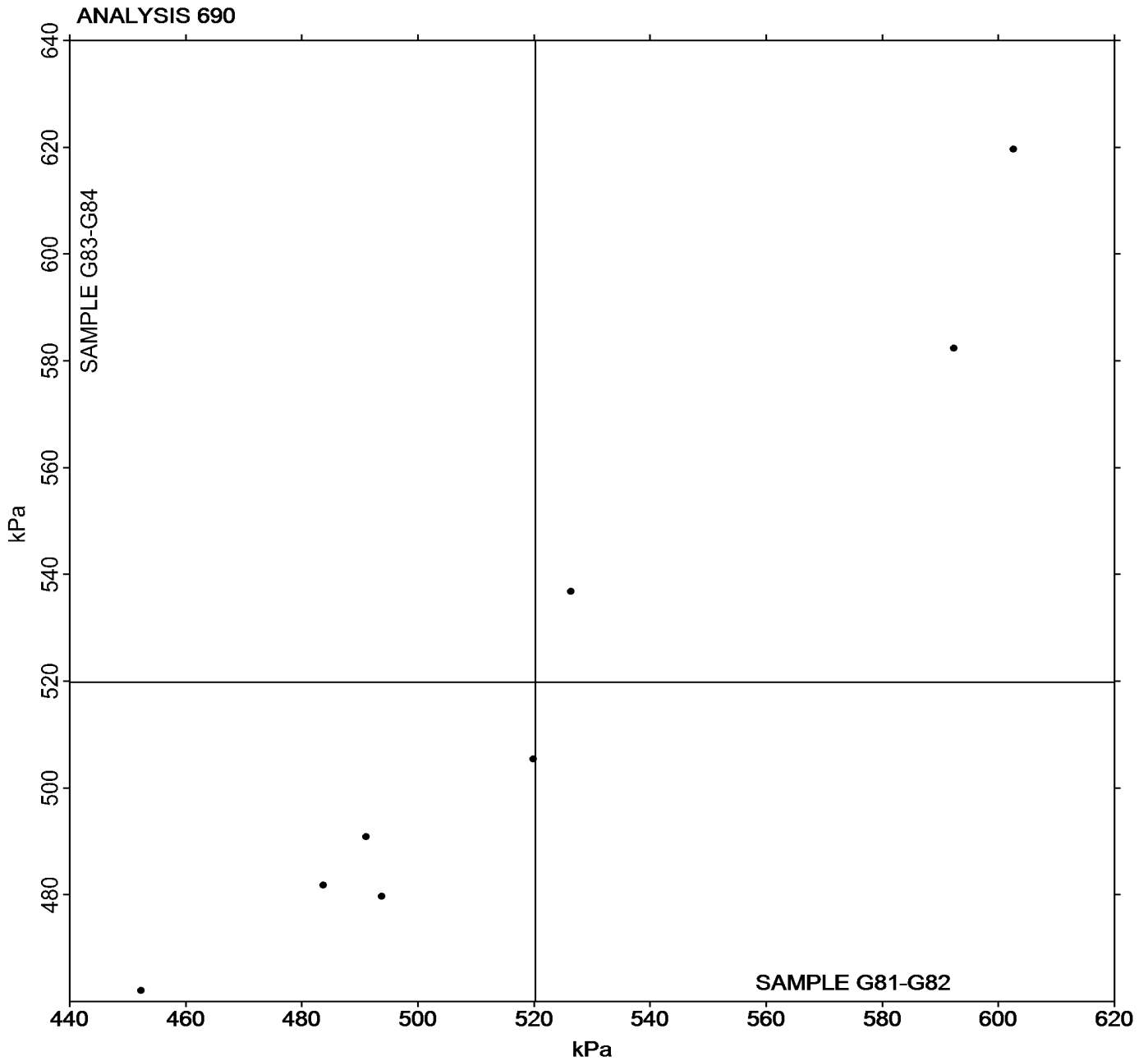


Rubber Interlaboratory Testing Program
Analysis 690
RPA Rheological Properties: Part A - G' at 20Hz (kPa)

Report #197
3rd Qtr 2018

Grand Mean Sample **G81-G82** = 520.26 kPa

Grand Mean Sample **G83-G84** = 519.83 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 #197

Analysis 691

3rd Qtr 2018

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

| WebCode | Data Flag | Sample G81-G82 | | | Sample G83-G84 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| 736Y26 | | 178.2 | -17.6 | -1.32 | 178.2 | -19.1 | -1.21 | XX |
| E8RNMT | | 201.7 | 5.9 | 0.45 | 203.0 | 5.7 | 0.36 | RP |
| GV7CF9 | | 199.2 | 3.4 | 0.25 | 196.4 | -0.9 | -0.06 | RP |
| H7JVCA | | 211.8 | 16.1 | 1.20 | 215.0 | 17.7 | 1.12 | PP |
| P9JCNK | | 194.3 | -1.5 | -0.11 | 195.1 | -2.2 | -0.14 | XX |
| Q7E4YZ | | 186.5 | -9.2 | -0.69 | 192.1 | -5.2 | -0.33 | XX |
| W4QF6M | | 213.7 | 17.9 | 1.34 | 221.5 | 24.2 | 1.54 | XX |
| YTLA4J | | 180.8 | -15.0 | -1.12 | 177.0 | -20.3 | -1.29 | XX |

| Grand Means | | Summary Statistics | |
|---|------------|--------------------|------------|
| | 195.78 kPa | | 197.27 kPa |
| Std Dev Btwn Labs | 13.33 kPa | | 15.77 kPa |
| Statistics based on 8 of 8 reporting participants | | | |

Samples G81-G82: EPDM compound, batch #1 & G83-G84: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

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

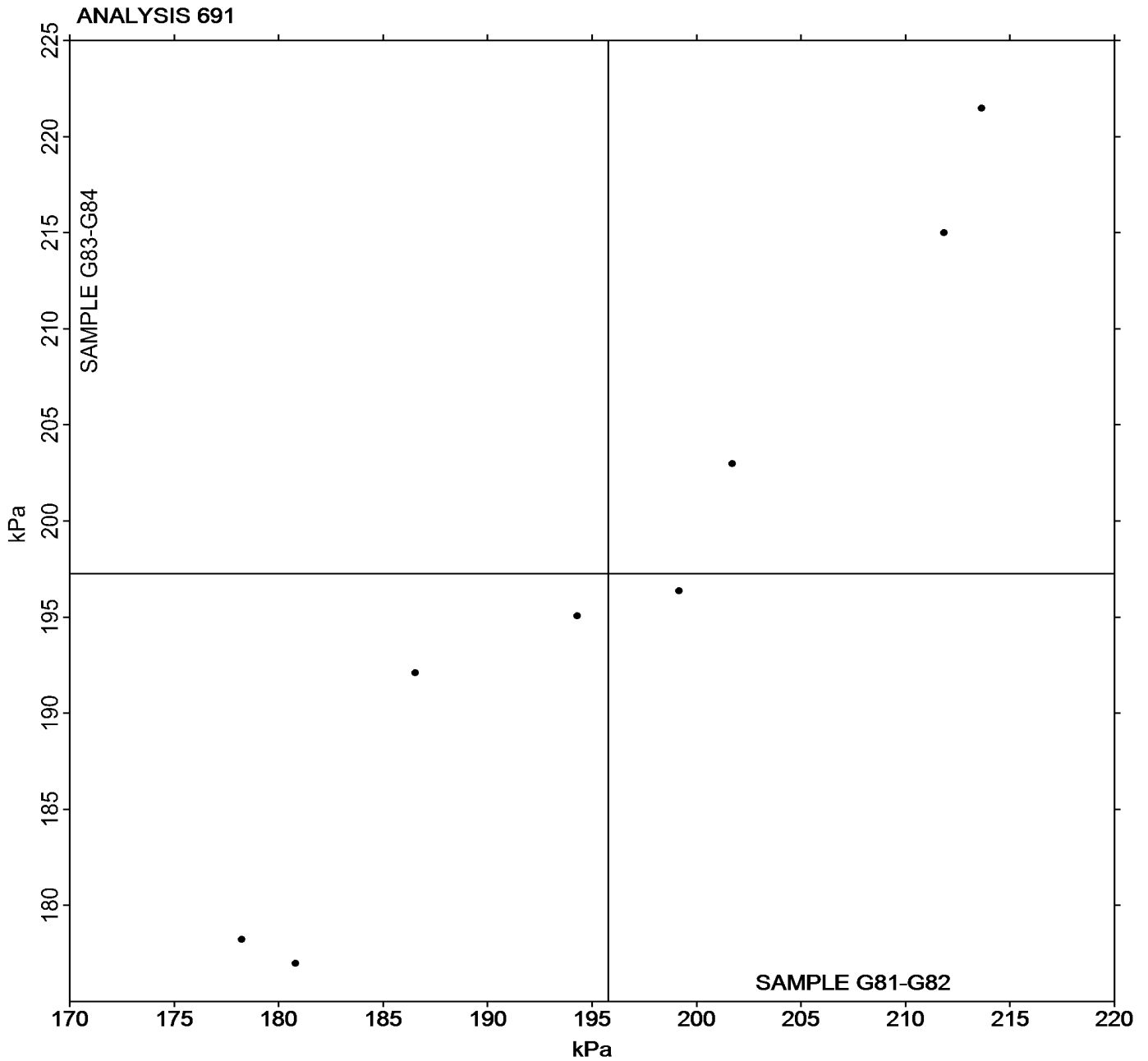


Rubber Interlaboratory Testing Program
Analysis 691
RPA Rheological Properties: Part A - G'' at 20Hz (kPa)

Report #197
3rd Qtr 2018

Grand Mean Sample **G81-G82** = 195.78 kPa

Grand Mean Sample **G83-G84** = 197.27 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 #197

Analysis 695

3rd Qtr 2018

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

| WebCode | Data Flag | Sample G81-G82 | | | Sample G83-G84 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| 736Y26 | | 107.58 | 10.55 | 0.60 | 102.36 | 8.08 | 0.46 | XX |
| E8RNMT | | 74.02 | -23.01 | -1.31 | 72.49 | -21.80 | -1.24 | RP |
| GV7CF9 | | 87.55 | -9.49 | -0.54 | 83.23 | -11.06 | -0.63 | RP |
| H7JVCA | | 95.90 | -1.13 | -0.06 | 94.97 | 0.68 | 0.04 | PR |
| Q7E4YZ | | 82.74 | -14.30 | -0.82 | 80.99 | -13.30 | -0.76 | XX |
| W4QF6M | | 125.95 | 28.92 | 1.65 | 125.35 | 31.06 | 1.77 | XX |
| YTLA4J | | 105.48 | 8.45 | 0.48 | 100.63 | 6.34 | 0.36 | XX |

| Summary Statistics | |
|---|------------|
| Grand Means | |
| | 97.031 kPa |
| | 94.288 kPa |
| Std Dev Btwn Labs | |
| | 17.531 kPa |
| | 17.535 kPa |
| Statistics based on 7 of 7 reporting participants | |

Samples G81-G82: EPDM compound, batch #1 & G83-G84: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

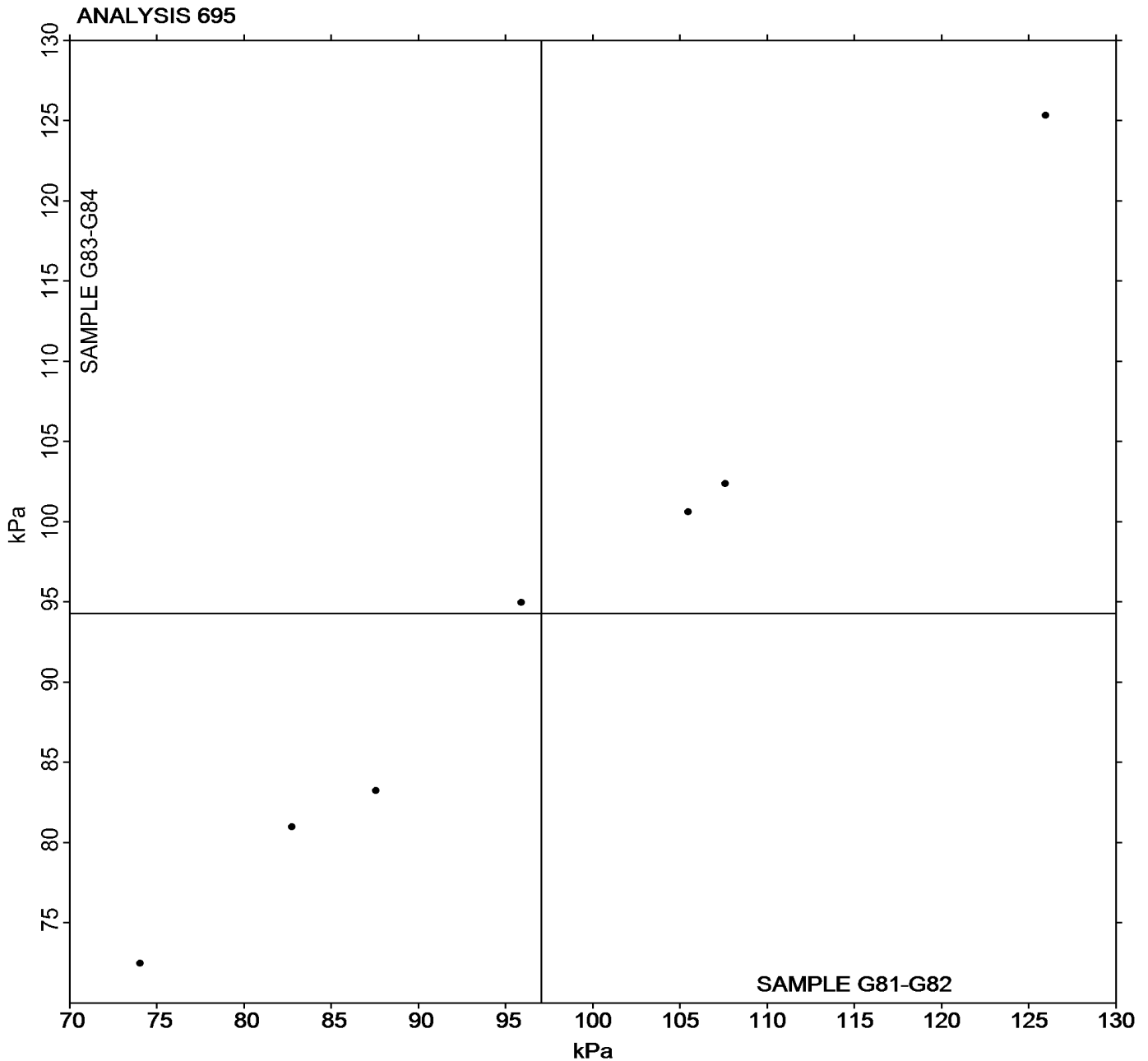
- PR PRPA 2000
- RP RPA 2000
- XX Instrument model not specified by lab



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

Grand Mean Sample G81-G82 = 97.031 kPa

Grand Mean Sample G83-G84 = 94.288 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 #197

Analysis 696

3rd Qtr 2018

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

| WebCode | Data Flag | Sample G81-G82 | | | Sample G83-G84 | | | Instr Code |
|---------|-----------|----------------|----------------------|-------|----------------|----------------------|-------|------------|
| | | Lab Mean | Diff from Grand Mean | CPV | Lab Mean | Diff from Grand Mean | CPV | |
| 736Y26 | | 75.57 | 6.89 | 1.42 | 75.31 | 6.49 | 1.35 | XX |
| E8RNMT | | 67.06 | -1.63 | -0.34 | 66.86 | -1.97 | -0.41 | RP |
| GV7CF9 | | 65.59 | -3.10 | -0.64 | 64.74 | -4.08 | -0.85 | RP |
| H7JVCA | | 71.80 | 3.11 | 0.64 | 72.44 | 3.61 | 0.75 | PP |
| Q7E4YZ | | 61.92 | -6.77 | -1.40 | 63.32 | -5.51 | -1.15 | XX |
| W4QF6M | | 72.97 | 4.28 | 0.88 | 73.52 | 4.69 | 0.98 | XX |
| YTLA4J | | 65.91 | -2.78 | -0.57 | 65.60 | -3.23 | -0.67 | XX |

| Summary Statistics | | | |
|---|------------|------------|--|
| Grand Means | 68.688 kPa | 68.826 kPa | |
| Std Dev Btwn Labs | 4.851 kPa | 4.804 kPa | |
| Statistics based on 7 of 7 reporting participants | | | |

Samples G81-G82: EPDM compound, batch #1 & G83-G84: EPDM compound, batch #2

Key to Instrument Codes Reported by Participants

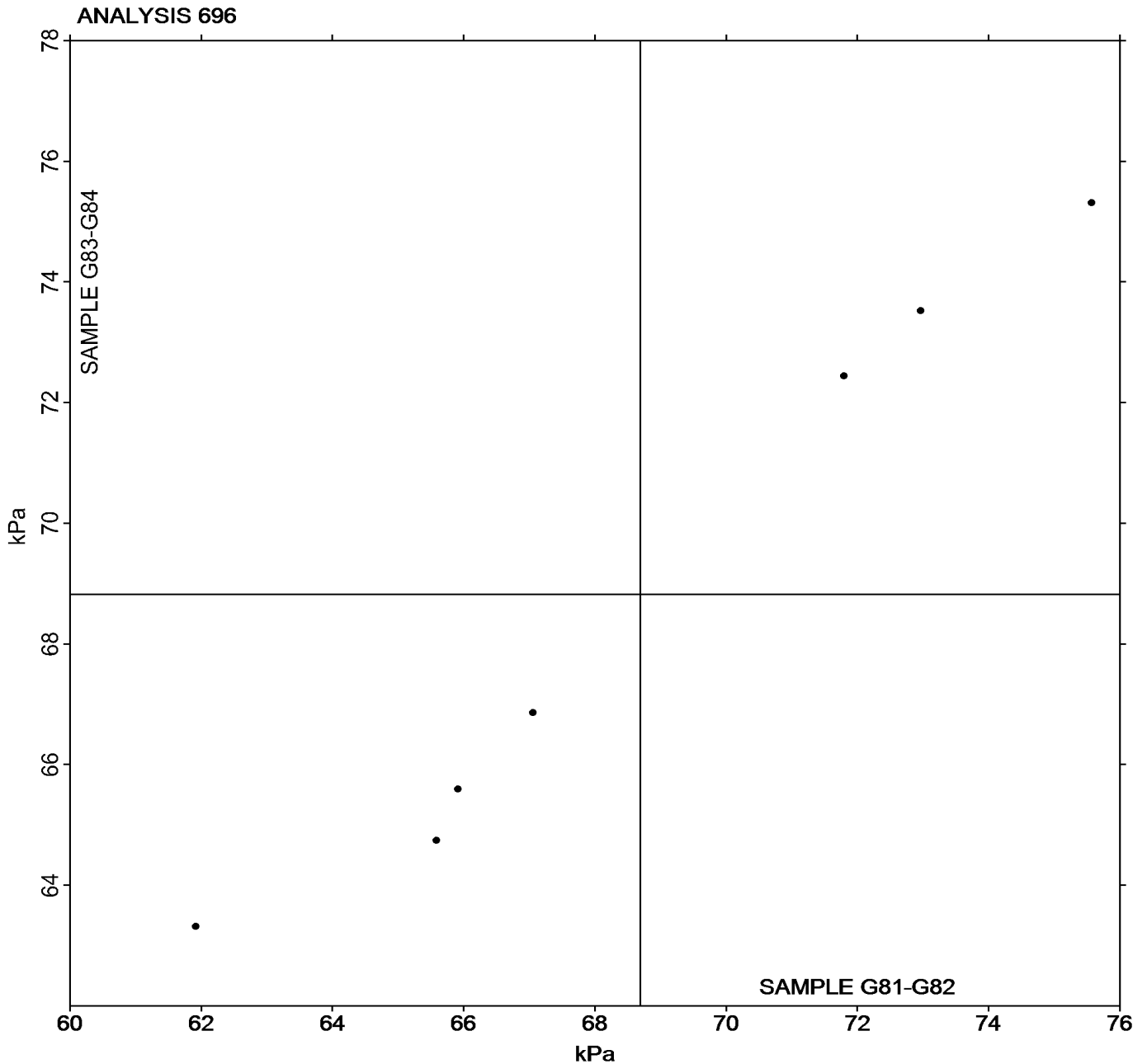
- PP PPA 2000
- RP RPA 2000
- XX Instrument model not specified by lab



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

Grand Mean Sample G81-G82 = 68.688 kPa

Grand Mean Sample G83-G84 = 68.826 kPa



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

-End of Report-