

Plastics Interlaboratory Testing Program

Web Summary Report #110, 2nd Qtr 2019

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About CTS and the Plastics Interlaboratory Program

Founded in 1971, Collaborative Testing Services, Inc. (CTS) is a privately-owned company that specializes in interlaboratory tests for a wide variety of industries, including rubber, plastics, fasteners and metals, containerboard, paper, color and wine, 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.

Collaborative Testing Services initiated the Collaborative Reference Program for PLASTICS in 1992 at the request of industry, ASTM committee D-20 members, and accrediting bodies. Additional test methods are always under review and are incorporated into the program when possible.

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 plastics testing proficiency.

For each test there is a summary of the statistics for the analysis 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. Refer to the KEY FOR SUMMARY REPORT for an explanation of terms and guidelines for interpreting the results.

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Key for Web Summary Report (Page 1 of 2)

WebCode	Assigned laboratory identification number (temporary) used to ensure lab confidentiality while permitting a lab to locate its data in the Plastics Web Summary 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	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	A code indicating the manufacturer of the instrument used to perform the test (see separate INSTRUMENT CODE LIST for each test section) if instruments are tracked.
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.

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 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.

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.



Plastics Interlaboratory Testing Program

Results Summary for Report #110, 2nd Qtr 2019

Analysis 704 - Tensile Stress at Yield

Material: ABS/PC	Sample F59	7,492.43	psi	1.85% COV
	Sample F60	7,492.84	psi	1.80% COV

Analysis 705 - Tensile Stress at Break

Material: ABS/PC	Sample F59	6,421.42	psi	2.17% COV
	Sample F60	6,437.67	psi	2.10% COV

Analysis 706 - Percent Elongation at Yield

Material: ABS/PC	Sample F59	4.5239	Percent	2.96% COV
	Sample F60	4.5311	Percent	3.21% COV

Analysis 708 - Modulus of Elasticity

Material: ABS/PC	Sample F59	330.03	ksi	4.40% COV
	Sample F60	328.81	ksi	4.97% COV

Analysis 710 - Deflection Temp. Under Flexural Load (1.82 MPa)

Material: ABS	Sample E59	78.841	Degrees C	1.22% COV
	Sample E60	78.985	Degrees C	1.41% COV

Analysis 711 - Deflection Temp. Under Flexural Load (0.455 MPa)

Material: PP	Sample G59	109.87	Degrees C	11.1% COV
	Sample G60	111.03	Degrees C	11.4% COV

Analysis 712 - Temperature of Deflection (1.80 MPa)

Material: HIPS	Sample N59	77.514	Degrees C	0.962% COV
	Sample N60	77.549	Degrees C	0.967% COV

Analysis 715 - Vicat Temperature (Rate A)

Material: ABS	Sample H59	100.17	Degrees C	0.713% COV
	Sample H60	100.13	Degrees C	0.728% COV

Analysis 716 - Vicat Temperature (Rate B)

Material: ABS	Sample R59	109.89	Degrees C	1.05% COV
	Sample R60	109.75	Degrees C	0.923% COV

Analysis 718 - Specific Gravity

Material: ABS/PC	Sample T59	1.1370	sp gr 23/23 C	0.199% COV
	Sample T60	1.1369	sp gr 23/23 C	0.217% COV

Analysis 720 - Flexural Modulus

Material: ABS/PC	Sample J59	336.57	ksi	5.50% COV
	Sample J60	336.71	ksi	5.63% COV

Analysis 721 - Flexural Stress at 5% Strain

Material: ABS/PC	Sample J59	11,792.77	psi	4.59% COV
	Sample J60	11,771.12	psi	4.67% COV

Analysis 722 - Flexural Stress at Yield

Material: ABS/PC	Sample J59	11,847.64	psi	4.18% COV
	Sample J60	11,854.11	psi	4.42% COV

Analysis 730 - Tensile Stress at Yield, ISO Method

Material: ABS/PC	Sample C59	51.154	MPa	1.95% COV
	Sample C60	51.039	MPa	1.95% COV

Analysis 731 - Tensile Stress at Break, ISO Method

Material: ABS/PC	Sample C59	43.559	MPa	2.92% COV
	Sample C60	43.474	MPa	3.02% COV



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Analysis 732 - Strain at Yield, ISO Method

Material: ABS/PC	Sample C59	4.5416	Percent	3.34% COV
	Sample C60	4.5398	Percent	3.37% COV

Analysis 734 - Modulus of Elasticity, ISO Method

Material: ABS/PC	Sample C59	2,316.16	MPa	4.16% COV
	Sample C60	2,324.84	MPa	4.11% COV

Analysis 736 - Flexural Modulus

Material: HIPS	Sample K59	2,256.69	MPa	5.04% COV
	Sample K60	2,255.86	MPa	5.25% COV

Analysis 737 - Flexural Stress at 3.5% Strain

Material: HIPS	Sample K59	39.112	MPa	3.49% COV
	Sample K60	39.136	MPa	3.56% COV

Analysis 738 - Flexural Stress at Yield

Material: HIPS	Sample K59	39.395	MPa	2.64% COV
	Sample K60	39.440	MPa	2.75% COV

Analysis 750 - Flow Rate (190C or 230C/2.16 kg)

Material: PP	Sample X59	13.811	grams/10 mins	5.39% COV
	Sample X60	13.749	grams/10 mins	4.56% COV

Analysis 755 - Moisture Content

Material: ABS/PC	Sample Y59	0.10806	Percent	19.7% COV
	Sample Y60	0.11486	Percent	18.0% COV

Analysis 757 - Ash Content

Material: PBT	Sample L59	30.508	Percent	1.09% COV
	Sample L60	30.505	Percent	0.942% COV

Analysis 760 - DSC Crystallization Temperature

Material: PBT	Sample W59	174.14	Degrees Celsius	1.31% COV
	Sample W60	174.22	Degrees Celsius	1.51% COV

Analysis 761 - DSC Melt Temperature

Material: PBT	Sample W59	224.42	Degrees Celsius	0.767% COV
	Sample W60	224.26	Degrees Celsius	0.719% COV

Analysis 762 - DSC Enthalpy of Crystallization

Material: PBT	Sample W59	47.223	Joules Per Gram	13.0% COV
	Sample W60	47.598	Joules Per Gram	12.4% COV

Analysis 763 - DSC Enthalpy of Fusion

Material: PBT	Sample W59	43.034	Joules Per Gram	20.9% COV
	Sample W60	42.641	Joules Per Gram	18.6% COV

Analysis 764 - DSC Glass Transition Temperature

Material: ABS	Sample V59	111.55	Degrees Celsius	11.9% COV
	Sample V60	111.22	Degrees Celsius	11.9% COV

Analysis 770 - Tensile Stress at Yield, Films

Material: LDPE-3MIL	Sample B59	2,401.55	psi	19.8% COV
	Sample B60	2,441.68	psi	20.1% COV

Analysis 771 - Tensile Stress at Break, Films

Material: LDPE-3MIL	Sample B59	3,703.31	psi	7.51% COV
	Sample B60	3,760.89	psi	7.11% COV



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Analysis 772 - Elongation at Yield, Films

Material: LDPE-3MIL	Sample B59	97.778	Percent	10.0% COV
	Sample B60	99.574	Percent	8.46% COV

Analysis 773 - Elongation at Break, Films

Material: LDPE-3MIL	Sample B59	488.99	Percent	23.7% COV
	Sample B60	497.56	Percent	22.5% COV

Analysis 774 - Thickness of Film Specimens

Material: LDPE-3MIL	Sample B59	2.9379	mils	2.16% COV
	Sample B60	2.9173	mils	2.39% COV

Analysis 775 - Secant Modulus at 1% Strain

Material: LDPE-3MIL	Sample B59	41,203.92	psi	6.83% COV
	Sample B60	40,670.42	psi	7.09% COV

Analysis 776 - Secant Modulus at 2% Strain

Material: LDPE-3MIL	Sample B59	36,202.69	psi	4.39% COV
	Sample B60	36,976.88	psi	11.7% COV

Analysis 780 - Static Friction

Material: LDPE-4MIL	Sample P59	0.14640	COF	31.0% COV
	Sample P60	0.13715	COF	26.6% COV

Analysis 781 - Kinetic Friction

Material: LDPE-4MIL	Sample P59	0.09854	COF	31.3% COV
	Sample P60	0.09506	COF	29.9% COV

Analysis 782 - Tear Resistance of Film

Material: LDPE-3MIL	Sample Q59	300.19	grams-force	24.7% COV
	Sample Q60	321.57	grams-force	24.1% COV

Analysis 785 - Percent Haze

Material: LDPE-4MIL	Sample D59	22.846	Percent	7.11% COV
	Sample D60	22.950	Percent	6.53% COV

Analysis 786 - Total Transmittance

Material: LDPE-4MIL	Sample D59	92.497	Percent	1.59% COV
	Sample D60	92.551	Percent	1.53% COV

Analysis 790 - Notched Izod Impact

Material: ABS/PC	Sample S59	9.6368	ft.lbf/in	6.03% COV
	Sample S60	9.6290	ft.lbf/in	6.17% COV

Analysis 791 - Notched Izod Impact

Material: ABS	Sample Z59	19.872	kJ/m ²	5.31% COV
	Sample Z60	19.856	kJ/m ²	6.00% COV

Analysis 792 - Notched Charpy Impact

Material: ABS	Sample M59	18.925	kJ/m ²	4.64% COV
	Sample M60	19.064	kJ/m ²	4.09% COV



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Tensile Stress at Yield - psi

WebCode	Data Flag	Sample F59			Sample F60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2CP8G6		7,379.2	-113.2	-0.82	7,379.0	-113.8	-0.85
39HJ6L		7,368.8	-123.6	-0.89	7,309.8	-183.0	-1.36
3E4HCL		7,453.6	-38.8	-0.28	7,481.6	-11.2	-0.08
3JUTMK	X	6,554.4	-938.0	-6.78	6,655.2	-837.6	-6.23
3X2KPH		7,516.2	23.8	0.17	7,563.0	70.2	0.52
4KKB4C		7,489.0	-3.4	-0.02	7,458.2	-34.6	-0.26
6PKLE4		7,364.0	-128.4	-0.93	7,436.0	-56.8	-0.42
6YKJR6		7,573.9	81.5	0.59	7,533.3	40.5	0.30
83UF8Q		7,601.2	108.8	0.79	7,545.6	52.8	0.39
8PCHB3		7,606.8	114.4	0.83	7,562.7	69.8	0.52
93EBFK		7,564.3	71.9	0.52	7,523.6	30.8	0.23
9AUUWY		7,382.9	-109.5	-0.79	7,405.7	-87.2	-0.65
9DP6C6		7,536.9	44.5	0.32	7,593.3	100.5	0.75
9JKF3W		7,338.4	-154.0	-1.11	7,389.0	-103.8	-0.77
AQUHAG		7,640.0	147.6	1.07	7,643.8	151.0	1.12
AR3VRJ		7,472.0	-20.4	-0.15	7,484.0	-8.8	-0.07
AVKU6D		7,488.0	-4.4	-0.03	7,480.0	-12.8	-0.10
BBWTP6		7,357.3	-135.1	-0.98	7,317.1	-175.7	-1.31
BC8PYF		7,289.6	-202.8	-1.47	7,304.2	-188.6	-1.40
BVZDPB		7,430.0	-62.4	-0.45	7,482.2	-10.6	-0.08
CBXRWK		7,490.4	-2.0	-0.01	7,494.0	1.2	0.01
CX3UFD		7,485.5	-7.0	-0.05	7,501.2	8.3	0.06
EAAEVC	*	7,138.8	-353.6	-2.56	7,185.2	-307.6	-2.29
EJKMT6		7,526.6	34.2	0.25	7,506.6	13.8	0.10
F38GUR		7,798.4	306.0	2.21	7,772.4	279.6	2.08
H8C4CK	*	7,829.2	336.8	2.43	7,837.4	344.6	2.56
HBD2AT		7,489.5	-2.9	-0.02	7,411.2	-81.6	-0.61
HTEZ79		7,465.2	-27.2	-0.20	7,484.6	-8.2	-0.06
J3WZ8N		7,593.5	101.1	0.73	7,602.1	109.3	0.81
J6MBYG		7,398.4	-94.0	-0.68	7,430.4	-62.4	-0.46
JJMZ3U		7,571.0	78.6	0.57	7,571.0	78.2	0.58
K8T77Q		7,519.2	26.8	0.19	7,518.6	25.8	0.19
KAYDPJ		7,745.7	253.2	1.83	7,732.0	239.2	1.78
KDWYCF		7,504.7	12.2	0.09	7,503.7	10.8	0.08
KH4K4J		7,629.6	137.2	0.99	7,643.0	150.2	1.12



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Tensile Stress at Yield - psi

WebCode	Data Flag	Sample F59			Sample F60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
L3L76R		7,561.0	68.6	0.50	7,484.4	-8.4	-0.06
LCEEWB	X	3,667.2	-3,825.2	-27.65	3,659.8	-3,833.0	-28.49
LKTA26		7,442.2	-50.2	-0.36	7,472.0	-20.8	-0.15
PYXLRL		7,480.0	-12.4	-0.09	7,494.0	1.2	0.01
Q6JRJT		7,316.9	-175.5	-1.27	7,293.4	-199.4	-1.48
QDDWDU		7,550.8	58.4	0.42	7,540.6	47.8	0.35
QH4KJY		7,591.2	98.8	0.71	7,577.6	84.8	0.63
QW9PXR	X	6,645.0	-847.4	-6.13	6,662.1	-830.8	-6.18
RFEK6N		7,481.0	-11.4	-0.08	7,496.4	3.6	0.03
T2ALUW		7,539.8	47.4	0.34	7,528.8	36.0	0.27
THYXZC		7,319.8	-172.6	-1.25	7,309.8	-183.0	-1.36
TNKZZ2	*	7,729.8	237.4	1.72	7,638.2	145.4	1.08
TY46FE		7,538.3	45.8	0.33	7,593.7	100.8	0.75
UZFEPQ		7,328.4	-164.0	-1.19	7,361.8	-131.0	-0.97
V46CHL	*	7,802.0	309.6	2.24	7,844.0	351.2	2.61
V86EQV		7,499.2	6.7	0.05	7,490.6	-2.2	-0.02
VX8KR6	X	7,463.6	-28.8	-0.21	7,280.6	-212.2	-1.58
VZQGBP		7,508.0	15.6	0.11	7,540.0	47.2	0.35
WDYJCD		7,600.0	107.6	0.78	7,622.0	129.2	0.96
WZ8W4W		7,339.6	-152.8	-1.10	7,340.6	-152.2	-1.13
XWLRKR		7,476.4	-16.0	-0.12	7,455.2	-37.6	-0.28
YV6UXU		7,356.0	-136.4	-0.99	7,386.6	-106.2	-0.79
Z9UYUX	X	7,506.5	14.1	0.10	7,272.4	-220.4	-1.64
ZAHPJ9		7,510.7	18.3	0.13	7,516.6	23.7	0.18
ZRGWPU		7,391.2	-101.2	-0.73	7,370.9	-122.0	-0.91
ZUPZJ7		7,569.8	77.4	0.56	7,598.0	105.2	0.78
ZX88YT		7,414.4	-78.0	-0.56	7,347.2	-145.6	-1.08
ZYLH6C		7,176.5	-315.9	-2.28	7,196.8	-296.0	-2.20



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Analysis 704

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Tensile Stress at Yield - psi

Summary Statistics	Sample F59	Sample F60
Grand Means	7,492.43 psi	7,492.84 psi
Stnd Dev Btwn Labs	138.34 psi	134.54 psi
Statistics based on 58 of 63 reporting participants		

Sample F59: ABS/PC & Sample F60: ABS/PC

Comments on Assigned Data Flags for Test #704

- VX8KR6 (X) - Inconsistent in testing between samples.
- QW9PXR (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample F60.
- Z9UYUX (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample F59.
- LCEEWB (X) - Extreme data.
- 3JUTMK (X) - Data for both samples are low. Possible Systematic Error.



Plastics Interlaboratory Testing Program

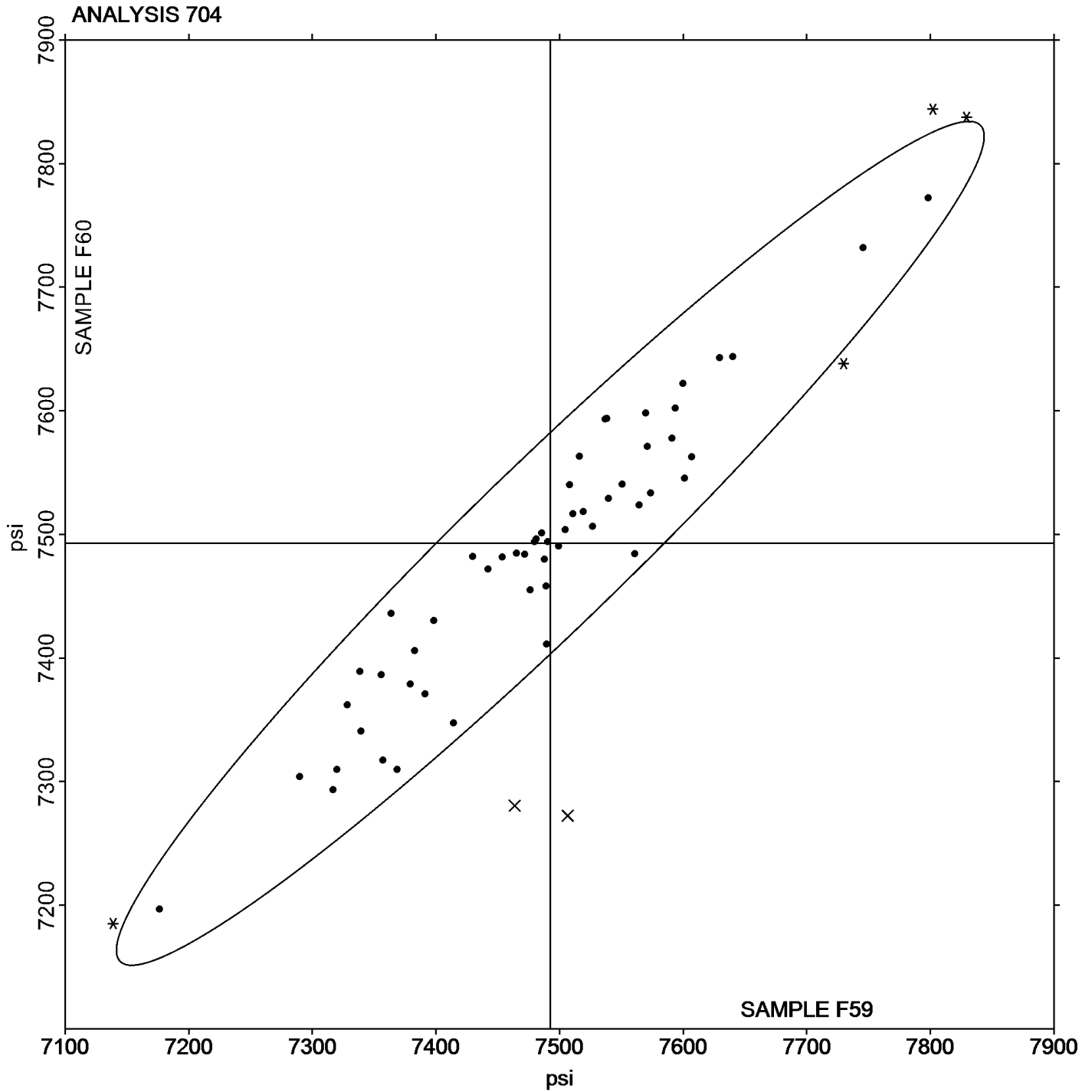
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Tensile Stress at Yield - psi

Grand Mean Sample F59: 7,492.43 psi Grand Mean Sample F60: 7,492.84 psi





Plastics Interlaboratory Testing Program

Report #110

Analysis 705

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Tensile Stress at Break - psi

WebCode	Data Flag	Sample F59			Sample F60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2CP8G6		6,392.0	-29.4	-0.21	6,380.8	-56.9	-0.42
39HJ6L		6,349.2	-72.2	-0.52	6,270.6	-167.1	-1.23
3E4HCL		6,416.2	-5.2	-0.04	6,392.8	-44.9	-0.33
3JUTMK		6,497.2	75.8	0.54	6,442.0	4.3	0.03
3X2KPH		6,440.0	18.6	0.13	6,484.6	46.9	0.35
4KKB4C		6,481.2	59.8	0.43	6,433.8	-3.9	-0.03
6YKJR6	*	6,460.0	38.6	0.28	6,291.8	-145.9	-1.08
83UF8Q		6,495.2	73.8	0.53	6,479.8	42.1	0.31
93EBFK		6,519.2	97.8	0.70	6,526.0	88.3	0.65
9AUUWY		6,234.1	-187.3	-1.34	6,337.2	-100.4	-0.74
9DP6C6		6,567.2	145.8	1.04	6,643.3	205.7	1.52
AQUHAG		6,554.2	132.8	0.95	6,579.4	141.7	1.05
AR3VRJ		6,418.0	-3.4	-0.02	6,402.0	-35.7	-0.26
AVKU6D		6,532.0	110.6	0.79	6,642.0	204.3	1.51
BBWTP6		6,103.2	-318.2	-2.28	6,202.3	-235.4	-1.74
BC8PYF		6,250.6	-170.8	-1.22	6,296.8	-140.9	-1.04
BVZDPB		6,255.8	-165.6	-1.19	6,366.8	-70.9	-0.52
CBXRWK		6,424.4	3.0	0.02	6,439.4	1.7	0.01
CX3UFD		6,418.5	-2.9	-0.02	6,485.3	47.6	0.35
EAAEVC		6,106.1	-315.3	-2.26	6,170.0	-267.7	-1.98
H8C4CK	*	6,631.2	209.8	1.50	6,754.0	316.3	2.34
HBD2AT	X	6,460.0	38.6	0.28	6,106.4	-331.2	-2.45
HTEZ79		6,485.0	63.6	0.46	6,469.8	32.1	0.24
J3WZ8N		6,546.8	125.4	0.90	6,555.9	118.2	0.87
J6MBYG		6,464.8	43.4	0.31	6,382.8	-54.9	-0.41
JJMZ3U		6,468.7	47.3	0.34	6,381.7	-56.0	-0.41
K8T77Q		6,411.2	-10.2	-0.07	6,451.0	13.3	0.10
KAYDPJ		6,609.7	188.3	1.35	6,538.1	100.4	0.74
KDWYCF		6,548.7	127.3	0.91	6,456.8	19.1	0.14
L3L76R		6,509.2	87.8	0.63	6,482.6	44.9	0.33
LCEEWB	X	3,164.2	-3,257.2	-23.32	3,170.6	-3,267.1	-24.13
LKTA26		6,368.0	-53.4	-0.38	6,314.2	-123.5	-0.91
PYLXRL		6,414.0	-7.4	-0.05	6,474.0	36.3	0.27
Q6JRJT		6,147.0	-274.4	-1.96	6,217.5	-220.1	-1.63
QDDWDU		6,439.0	17.6	0.13	6,409.0	-28.7	-0.21



Plastics Interlaboratory Testing Program

Report #110

Analysis 705

2nd Qtr 2019

Tensile Stress at Break - psi

WebCode	Data Flag	Sample F59			Sample F60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
QH4KJY		6,485.4	64.0	0.46	6,551.8	114.1	0.84
QW9PXR	X	7,751.5	1,330.1	9.52	7,760.1	1,322.4	9.77
T2ALUW		6,520.0	98.6	0.71	6,500.0	62.3	0.46
THYXZC		6,286.4	-135.0	-0.97	6,327.6	-110.1	-0.81
TNKZZ2		6,596.6	175.2	1.25	6,697.6	259.9	1.92
TY46FE		6,462.4	40.9	0.29	6,497.2	59.5	0.44
UZFEPQ		6,250.5	-170.9	-1.22	6,345.6	-92.0	-0.68
V46CHL		6,646.0	224.6	1.61	6,682.2	244.5	1.81
V86EQV		6,443.8	22.4	0.16	6,537.0	99.3	0.73
WDYJCD		6,523.4	102.0	0.73	6,509.2	71.5	0.53
WZ8W4W		6,306.8	-114.6	-0.82	6,331.2	-106.5	-0.79
YV6UXU		6,312.8	-108.6	-0.78	6,407.2	-30.5	-0.23
Z4ELVV		6,414.4	-7.0	-0.05	6,544.3	106.6	0.79
Z9UYUX	X	6,417.6	-3.8	-0.03	6,172.6	-265.1	-1.96
ZRGWPU		6,460.0	38.6	0.28	6,373.0	-64.7	-0.48
ZUPZJ7		6,508.2	86.8	0.62	6,524.2	86.5	0.64
ZX88YT		6,458.4	37.0	0.26	6,375.2	-62.5	-0.46
ZYLH6C	*	6,016.2	-405.2	-2.90	6,088.7	-348.9	-2.58

Summary Statistics

	Sample F59	Sample F60
Grand Means	6,421.42 psi	6,437.67 psi
Stnd Dev Btwn Labs	139.65 psi	135.40 psi

Statistics based on 49 of 53 reporting participants

Sample F59: ABS/PC & Sample F60: ABS/PC

Comments on Assigned Data Flags for Test #705

- HBD2AT (X) - Inconsistent in testing between samples.
- QW9PXR (X) - Data for both samples are high. Possible Systematic Error.
- Z9UYUX (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample F59.
- LCEEWB (X) - Extreme data.



Plastics Interlaboratory Testing Program

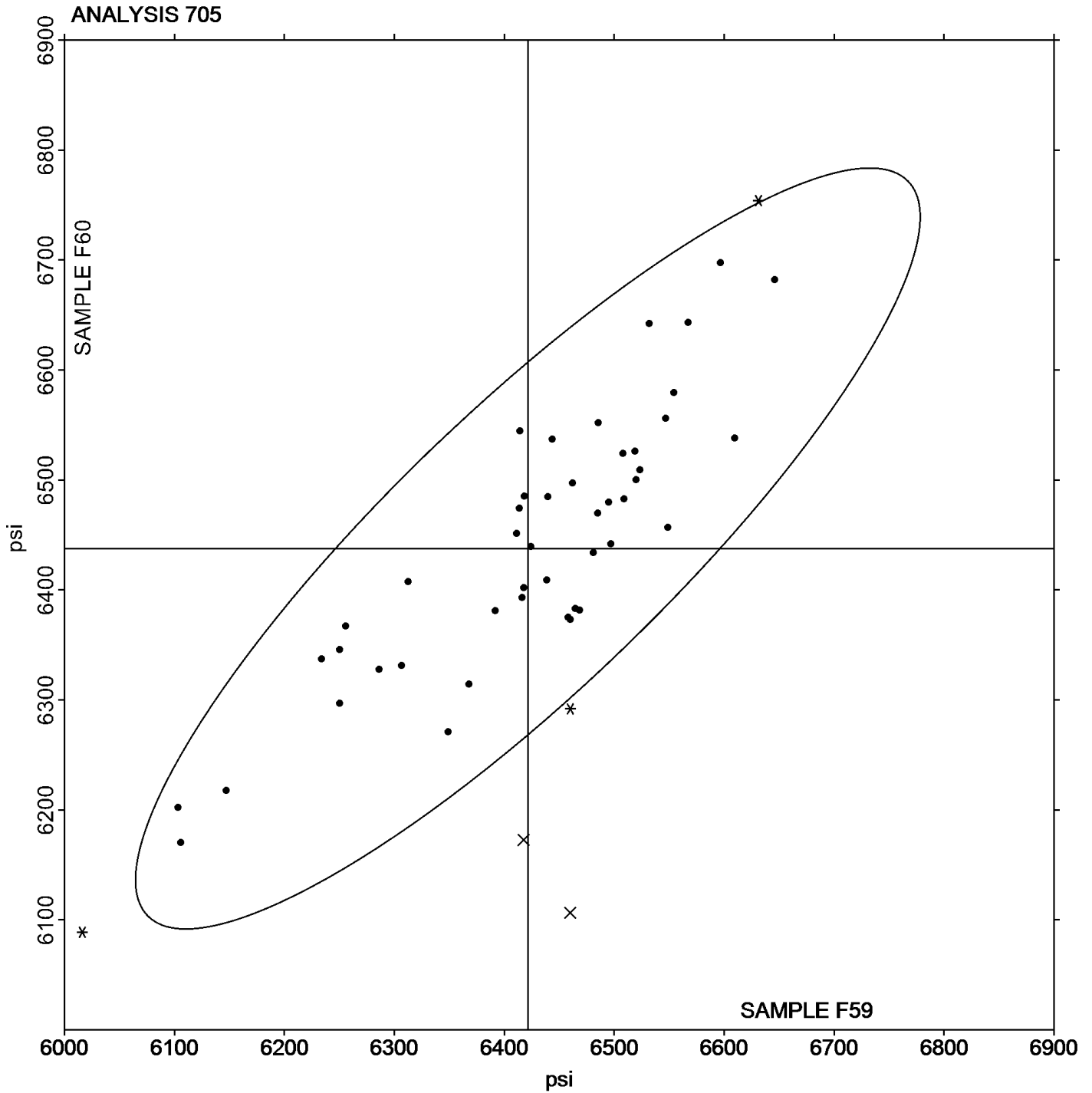
Analysis 705

Tensile Stress at Break - psi

Report #110

2nd Qtr 2019

Grand Mean Sample F59: 6,421.42 psi Grand Mean Sample F60: 6,437.67 psi





Plastics Interlaboratory Testing Program

Report #110

Analysis 706

2nd Qtr 2019

Percent Elongation at Yield - Percent

WebCode	Data Flag	Sample F59			Sample F60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2CP8G6	X	3.924	-0.600	-4.48	3.754	-0.777	-5.34
39HJ6L	X	5.096	0.572	4.28	5.182	0.651	4.47
3E4HCL		4.544	0.020	0.15	4.342	-0.189	-1.30
3JUTMK	X	2.034	-2.490	-18.61	2.024	-2.507	-17.23
3X2KPH	X	0.230	-4.293	-32.08	0.234	-4.297	-29.53
4KKB4C		4.504	-0.020	-0.15	4.412	-0.119	-0.82
6YKJR6		4.570	0.046	0.34	4.498	-0.033	-0.23
83UF8Q		4.578	0.054	0.40	4.458	-0.073	-0.50
8PCHB3		4.738	0.214	1.60	4.702	0.171	1.17
93EBFK		4.660	0.136	1.02	4.688	0.157	1.08
9DP6C6		4.560	0.036	0.27	4.680	0.149	1.02
9JKF3W		4.370	-0.154	-1.15	4.614	0.083	0.57
AQUHAG		4.500	-0.024	-0.18	4.600	0.069	0.47
AR3VRJ		4.394	-0.130	-0.97	4.546	0.015	0.10
BBWTP6		4.471	-0.053	-0.40	4.528	-0.004	-0.02
BC8PYF		4.676	0.152	1.14	4.528	-0.003	-0.02
BVZDPB		4.422	-0.102	-0.76	4.592	0.061	0.42
CBXRWK		4.476	-0.048	-0.36	4.448	-0.083	-0.57
CX3UFD	X	9.664	5.140	38.41	9.860	5.329	36.62
EAAEVC		4.380	-0.144	-1.08	4.220	-0.311	-2.14
H8C4CK		4.619	0.095	0.71	4.564	0.033	0.23
HBD2AT		4.420	-0.104	-0.78	4.560	0.029	0.20
HTEZ79		4.542	0.018	0.14	4.514	-0.017	-0.12
J3WZ8N	X	12.094	7.570	56.57	12.018	7.487	51.44
J6MBYG		4.528	0.004	0.03	4.594	0.063	0.43
JJMZ3U		4.516	-0.008	-0.06	4.482	-0.049	-0.34
K8T77Q		4.572	0.048	0.36	4.604	0.073	0.50
KAYDPJ	*	4.940	0.416	3.11	4.940	0.409	2.81
KDWYCF		4.620	0.096	0.72	4.566	0.035	0.24
KH4K4J		4.582	0.058	0.43	4.624	0.093	0.64
L3L76R		4.472	-0.052	-0.39	4.486	-0.045	-0.31
LCEEWB		4.454	-0.070	-0.52	4.446	-0.085	-0.59
LKTA26		4.600	0.076	0.57	4.580	0.049	0.34
PYLXRL		4.500	-0.024	-0.18	4.560	0.029	0.20
Q6JRJT		4.328	-0.196	-1.46	4.290	-0.241	-1.66



Plastics Interlaboratory Testing Program

Report #110

Analysis 706

2nd Qtr 2019

Percent Elongation at Yield - Percent

WebCode	Data Flag	Sample F59			Sample F60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
QDDWDU		4.452	-0.072	-0.54	4.442	-0.089	-0.61
QH4KJY		4.436	-0.088	-0.66	4.566	0.035	0.24
T2ALUW		4.560	0.036	0.27	4.580	0.049	0.34
TNKZZ2	X	5.912	1.388	10.37	16.216	11.685	80.29
TY46FE		4.684	0.160	1.20	4.608	0.077	0.53
UZFEPQ		4.426	-0.098	-0.73	4.534	0.002	0.02
V46CHL		4.658	0.134	1.00	4.652	0.121	0.83
V86EQV		4.600	0.076	0.57	4.800	0.269	1.85
VX8KR6		4.576	0.052	0.39	4.508	-0.023	-0.16
WDYJCD		4.592	0.068	0.51	4.658	0.127	0.87
WZ8W4W		4.412	-0.112	-0.84	4.314	-0.217	-1.49
YV6UXU		4.674	0.150	1.12	4.658	0.127	0.87
Z9UYUX		4.276	-0.248	-1.85	4.332	-0.199	-1.37
ZRGWPU		4.550	0.026	0.20	4.510	-0.021	-0.15
ZUPZJ7		4.622	0.098	0.73	4.596	0.065	0.45
ZX88YT		4.380	-0.144	-1.08	4.338	-0.193	-1.33
ZYLH6C	*	4.140	-0.384	-2.87	4.140	-0.391	-2.69

Summary Statistics		
	Sample F59	Sample F60
Grand Means	4.5239 Percent	4.5311 Percent
Std Dev Btwn Labs	0.1338 Percent	0.1455 Percent
Statistics based on 45 of 52 reporting participants		

Sample F59: ABS/PC & Sample F60: ABS/PC

Comments on Assigned Data Flags for Test #706

- 2CP8G6 (X) - Data for both samples are low. Possible Systematic Error.
- J3WZ8N (X) - Extreme data.
- 3X2KPH (X) - Extreme data.
- CX3UFD (X) - Extreme data.
- 39HJ6L (X) - Data for both samples are high. Possible Systematic Error.
- TNKZZ2 (X) - Extreme data.
- 3JUTMK (X) - Data for both samples are low. Possible Systematic Error.



Plastics Interlaboratory Testing Program

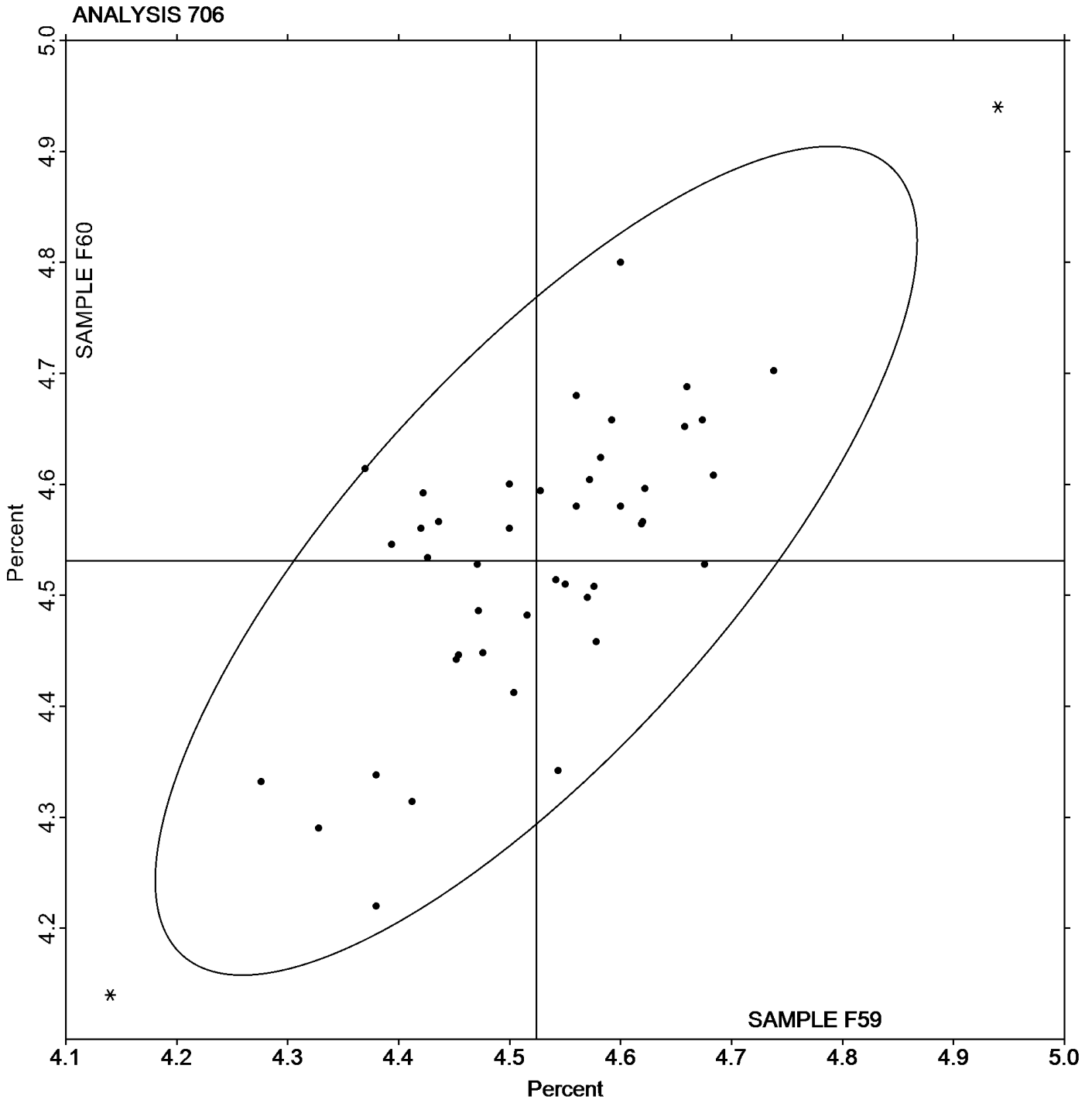
Report #110

Analysis 706

2nd Qtr 2019

Percent Elongation at Yield - Percent

Grand Mean Sample F59: 4.5239 Percent Grand Mean Sample F60: 4.5311 Percent





Plastics Interlaboratory Testing Program

Report #110

Analysis 708

2nd Qtr 2019

Modulus of Elasticity - ksi

WebCode	Data Flag	Sample F59			Sample F60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2CP8G6		307.88	-22.15	-1.53	308.60	-20.21	-1.24
39HJ6L	X	305.80	-24.23	-1.67	258.80	-70.01	-4.29
3E4HCL		336.26	6.23	0.43	347.92	19.11	1.17
3JUTMK		318.02	-12.01	-0.83	320.32	-8.49	-0.52
3X2KPH		328.78	-1.25	-0.09	330.26	1.45	0.09
4KKB4C		342.84	12.81	0.88	338.43	9.62	0.59
6YKJR6		318.22	-11.82	-0.81	317.64	-11.17	-0.68
83UF8Q		327.96	-2.07	-0.14	320.74	-8.07	-0.49
93EBFK		335.20	5.17	0.36	331.20	2.39	0.15
9JKF3W		328.60	-1.43	-0.10	325.60	-3.21	-0.20
AQUHAG		358.52	28.49	1.96	349.34	20.53	1.26
AR3VRJ		325.20	-4.83	-0.33	336.20	7.39	0.45
BBWTP6	*	335.34	5.31	0.37	319.09	-9.71	-0.59
BC8PYF		299.57	-30.47	-2.10	297.83	-30.97	-1.90
BVZDPB		303.80	-26.23	-1.81	293.60	-35.21	-2.16
CBXRWK		339.60	9.57	0.66	351.14	22.33	1.37
EAAEVC		325.21	-4.82	-0.33	326.71	-2.09	-0.13
EJKMT6		344.00	13.97	0.96	344.20	15.39	0.94
H8C4CK	X	268.22	-61.81	-4.26	262.67	-66.14	-4.05
HBD2AT		344.18	14.15	0.97	342.61	13.81	0.85
HTEZ79		342.54	12.51	0.86	346.08	17.27	1.06
J6MBYG		315.06	-14.97	-1.03	308.82	-19.99	-1.22
JJMZ3U		345.34	15.31	1.05	343.60	14.79	0.91
K8T77Q		334.56	4.53	0.31	331.58	2.77	0.17
KAYDPJ		324.13	-5.90	-0.41	323.76	-5.05	-0.31
KDWYCF		323.97	-6.06	-0.42	321.32	-7.48	-0.46
L3L76R		356.36	26.33	1.81	355.54	26.73	1.64
LCEEWB	X	168.32	-161.71	-11.14	167.08	-161.73	-9.90
LKTA26		324.80	-5.23	-0.36	329.80	0.99	0.06
PYLXRL		327.60	-2.43	-0.17	326.40	-2.41	-0.15
Q6JRJT		343.99	13.95	0.96	342.27	13.46	0.82
QDDWDU		343.62	13.59	0.94	341.12	12.32	0.75
QH4KJY		308.60	-21.43	-1.48	301.32	-27.49	-1.68
T2ALUW		340.00	9.97	0.69	339.80	10.99	0.67
TNKZZ2	X	139.21	-190.83	-13.15	50.64	-278.17	-17.03



Plastics Interlaboratory Testing Program

Report #110

Analysis 708

2nd Qtr 2019

Modulus of Elasticity - ksi

WebCode	Data Flag	Sample F59			Sample F60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
TY46FE		317.02	-13.01	-0.90	306.60	-22.21	-1.36
UZFEPQ	X	280.62	-49.41	-3.40	332.49	3.69	0.23
V46CHL		309.20	-20.83	-1.44	306.60	-22.21	-1.36
V86EQV	X	419.44	89.40	6.16	408.27	79.46	4.87
VCKXZQ		345.95	15.92	1.10	346.43	17.62	1.08
VX8KR6		339.46	9.43	0.65	332.01	3.21	0.20
WDYJCD		344.92	14.89	1.03	342.78	13.97	0.86
WZ8W4W		333.58	3.55	0.24	343.90	15.09	0.92
XWLRKR		341.59	11.56	0.80	338.88	10.07	0.62
YV6UXU		307.62	-22.41	-1.54	308.78	-20.03	-1.23
Z9UYUX		304.06	-25.97	-1.79	292.64	-36.17	-2.21
ZRGWPU		320.83	-9.20	-0.63	329.24	0.43	0.03
ZUPZJ7		333.12	3.09	0.21	334.96	6.15	0.38
ZX88YT		336.05	6.02	0.41	334.15	5.35	0.33
ZYLH6C		338.23	8.20	0.56	337.65	8.84	0.54

Summary Statistics

	Sample F59	Sample F60
Grand Means	330.031 ksi	328.806 ksi
Stnd Dev Btwn Labs	14.516 ksi	16.331 ksi

Statistics based on 44 of 50 reporting participants

Sample F59: ABS/PC & Sample F60: ABS/PC

Comments on Assigned Data Flags for Test #708

- UZFEPQ (X) - Data for sample F59 are low. Inconsistent within the determinations of both samples.
- V86EQV (X) - Data for both samples are high. Possible Systematic Error.
- 39HJ6L (X) - Data for sample F60 are low. Inconsistent within the determinations of sample F60.
- LCEEWB (X) - Extreme data.
- TNKZZ2 (X) - Extreme data.
- H8C4CK (X) - Data for both samples are low. Possible Systematic Error.



Plastics Interlaboratory Testing Program

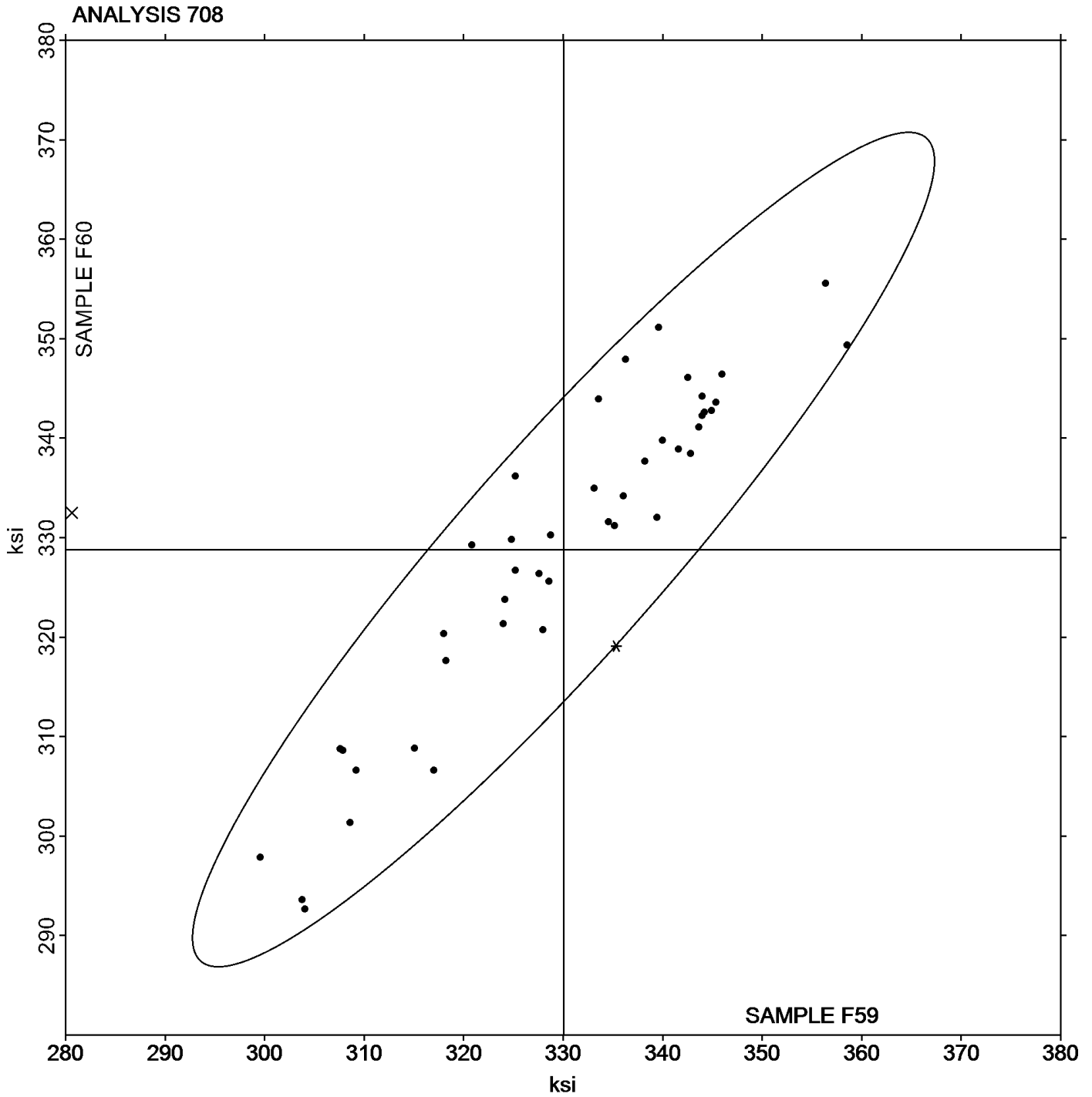
Analysis 708

Modulus of Elasticity - ksi

Report #110

2nd Qtr 2019

Grand Mean Sample F59: 330.03 ksi Grand Mean Sample F60: 328.81 ksi





Plastics Interlaboratory Testing Program

Report #110

Analysis 710

2nd Qtr 2019

Deflection Temp. Under Flexural Load (1.82 MPa) - Degrees C

WebCode	Data Flag	Sample E59			Sample E60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
39HJ6L		80.00	1.16	1.21	80.83	1.85	1.66	XX
6YKJR6		79.48	0.63	0.66	79.73	0.74	0.66	AT
78EUEL		79.05	0.21	0.22	79.00	0.01	0.01	TO
83UF8Q		77.55	-1.29	-1.35	78.23	-0.76	-0.68	CF
8PCHB3		78.45	-0.39	-0.41	78.30	-0.69	-0.61	CE
93EBFK		78.33	-0.52	-0.54	78.23	-0.76	-0.68	XX
9DP6C6		79.03	0.19	0.20	80.27	1.28	1.15	CE
9JKF3W		78.05	-0.79	-0.82	78.73	-0.26	-0.23	TO
9KUN8B	X	83.18	4.33	4.52	81.18	2.19	1.96	TO
AQUHAG		78.15	-0.69	-0.72	78.50	-0.49	-0.44	TO
AVKU6D		78.28	-0.57	-0.59	77.55	-1.44	-1.29	TO
EAAEVC		80.98	2.13	2.22	81.18	2.19	1.96	CF
GN97MY		78.55	-0.29	-0.30	78.58	-0.41	-0.37	CE
HTEZ79		79.45	0.61	0.63	79.43	0.44	0.39	IN
JJMZ3U		78.43	-0.42	-0.43	78.20	-0.79	-0.70	RO
KAYDPJ		79.83	0.98	1.03	80.00	1.01	0.91	ZW
KDWYCF		79.45	0.61	0.63	79.13	0.14	0.13	TO
L3L76R		76.93	-1.92	-2.00	76.73	-2.26	-2.03	TO
XH24K3		78.88	0.03	0.04	79.50	0.51	0.46	CS
ZAHPJ9		78.01	-0.83	-0.86	77.88	-1.11	-0.99	TO
ZUPZJ7		79.98	1.13	1.18	79.75	0.76	0.69	DN

Summary Statistics		Sample E59	Sample E60
Grand Means		78.841 Degrees C	78.985 Degrees C
Std Dev Btwn Labs		0.960 Degrees C	1.114 Degrees C
Statistics based on 20 of 21 reporting participants			

Sample E59: ABS & Sample E60: ABS

Comments on Assigned Data Flags for Test #710

9KUN8B (X) - Data for sample E59 are high.



Plastics Interlaboratory Testing Program

Report #110

Analysis 710

2nd Qtr 2019

Deflection Temp. Under Flexural Load (1.82 MPa) - Degrees C

Key to Instrument Codes Reported by Participants

AT	Atlas	CE	Ceast
CF	Coesfeld	CS	CSI
DN	DYNISCO	IN	Instron
RO	Rosand	TO	Tinius Olsen
XX	Instrument manufacturer not specified by lab	ZW	Zwick



Plastics Interlaboratory Testing Program

Report #110

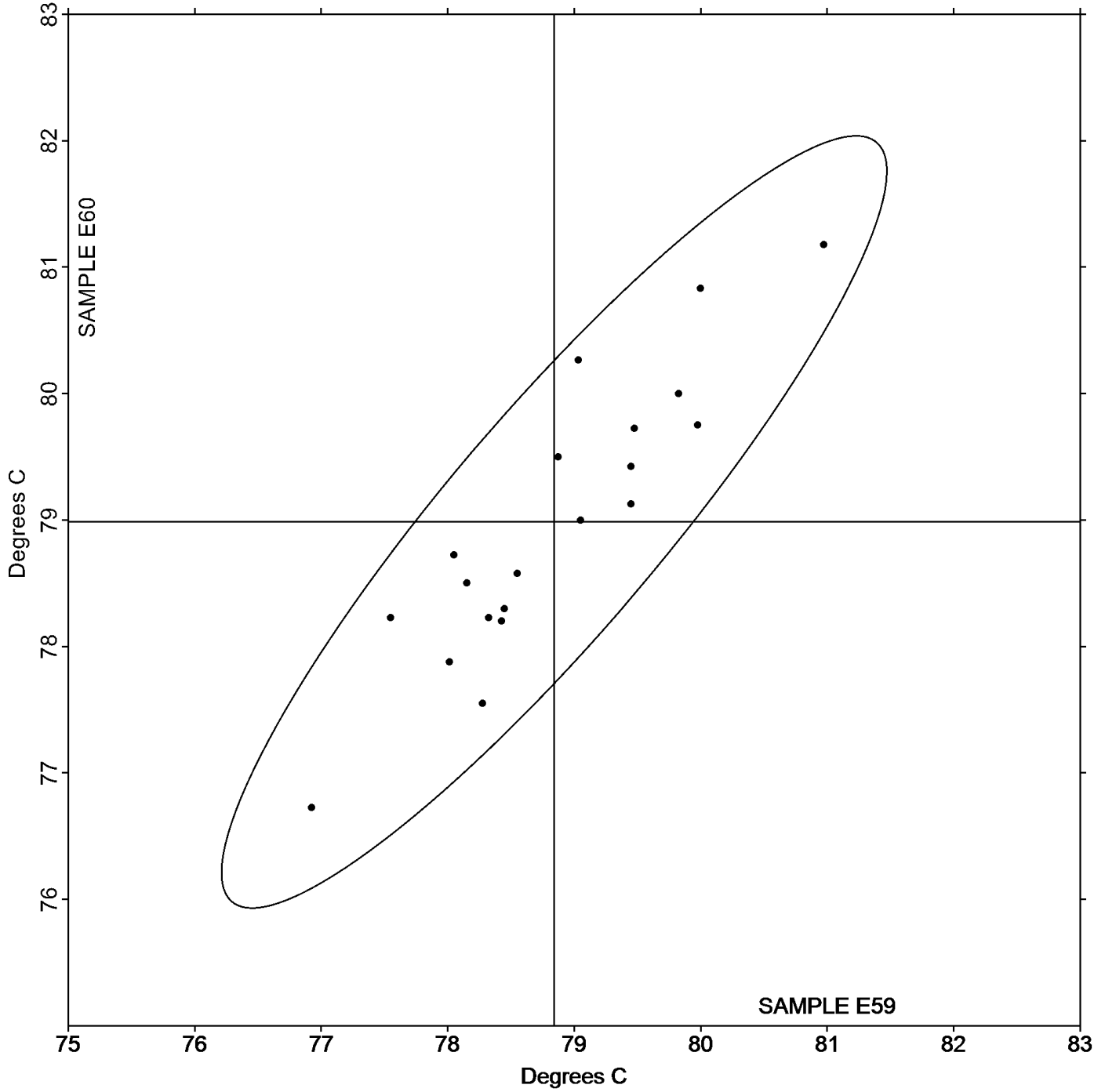
Analysis 710

2nd Qtr 2019

Deflection Temp. Under Flexural Load (1.82 MPa) - Degrees C

Grand Mean Sample E59: 78.841 Degrees C Grand Mean Sample E60: 78.985 Degrees C

ANALYSIS 710





Plastics Interlaboratory Testing Program

Report #110

Analysis 711

2nd Qtr 2019

Deflection Temp. Under Flexural Load (0.455 MPa) - Degrees C

WebCode	Data Flag	Sample G59			Sample G60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
6YKJR6		112.9	3.0	0.25	110.1	-1.0	-0.08	AT
78EUEL		119.0	9.1	0.75	118.0	7.0	0.55	TO
8PCHB3		113.8	4.0	0.33	113.4	2.3	0.18	CE
9DP6C6		111.6	1.7	0.14	116.8	5.7	0.45	CE
9JKF3W		110.0	0.1	0.01	118.4	7.3	0.58	TO
AD7HDM		110.7	0.8	0.07	112.0	1.0	0.08	CE
AQUHAG		114.9	5.1	0.42	115.9	4.9	0.39	TO
AVKU6D		116.3	6.4	0.53	122.0	10.9	0.86	XX
BUWFWV		108.4	-1.5	-0.12	108.0	-3.0	-0.24	CE
GN97MY		112.5	2.6	0.21	113.9	2.8	0.23	CE
KDWYCF		116.2	6.4	0.52	115.0	4.0	0.31	TO
L3L76R		110.0	0.1	0.01	110.5	-0.5	-0.04	TO
QW9PXR		113.0	3.1	0.26	111.5	0.5	0.04	XX
RDCLUW	*	68.9	-41.0	-3.37	69.1	-41.9	-3.32	CE

Summary Statistics		
	Sample G59	Sample G60
Grand Means	109.87 Degrees C	111.03 Degrees C
Stnd Dev Btwn Labs	12.14 Degrees C	12.64 Degrees C
Statistics based on 14 of 14 reporting participants		

Sample G59: PP & Sample G60: PP

Key to Instrument Codes Reported by Participants

- AT Atlas
- TO Tinius Olsen
- CE Ceast
- XX Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

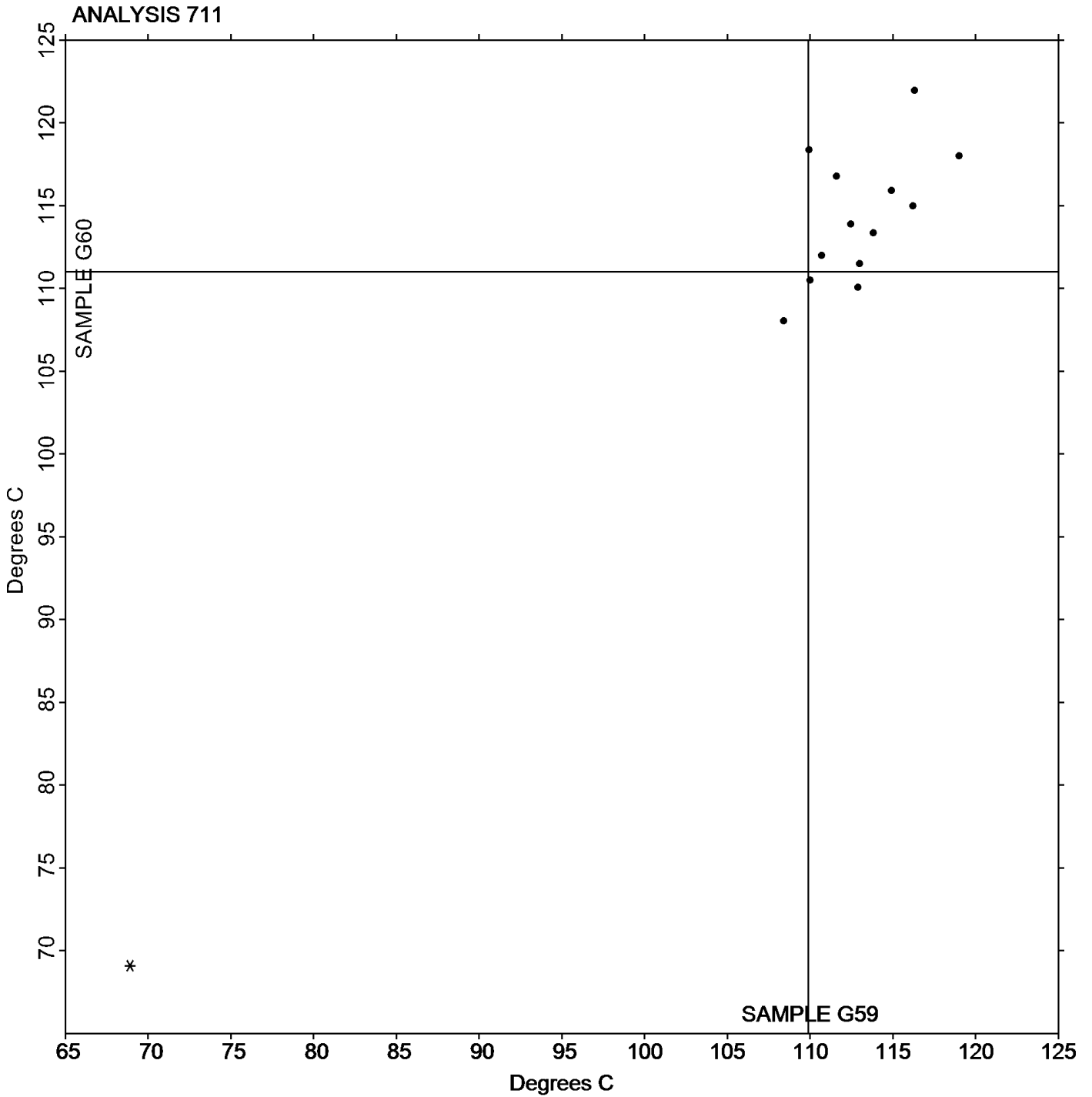
Report #110

Analysis 711

2nd Qtr 2019

Deflection Temp. Under Flexural Load (0.455 MPa) - Degrees C

Grand Mean Sample G59: 109.87 Degrees C Grand Mean Sample G60: 111.03 Degrees C



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



Plastics Interlaboratory Testing Program

Report #110

Analysis 712

2nd Qtr 2019

Temp. of Deflection Under Flexural Load (1.80 MPa) - Degrees C

WebCode	Data Flag	Sample N59			Sample N60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
36BARV		77.88	0.36	0.48	77.85	0.30	0.40	CE
39HJ6L		77.08	-0.43	-0.58	77.08	-0.47	-0.62	XX
3RVTEY		78.28	0.76	1.02	78.23	0.68	0.90	CE
3X2KPH		77.93	0.41	0.55	77.88	0.33	0.43	IN
6PKLE4	X	77.63	0.11	0.15	78.70	1.15	1.53	XX
6YB6TC		77.88	0.36	0.48	77.95	0.40	0.53	TO
6YKJR6	*	77.80	0.29	0.38	78.53	0.98	1.30	AT
6ZKA7Z		76.95	-0.56	-0.76	76.98	-0.57	-0.77	TO
728C87		78.23	0.71	0.95	78.38	0.83	1.10	DN
7WBT22		76.35	-1.16	-1.56	76.48	-1.07	-1.43	XX
8PCHB3		77.23	-0.29	-0.39	77.40	-0.15	-0.20	IN
93EBFK		77.00	-0.51	-0.69	77.15	-0.40	-0.53	IN
9DP6C6		77.20	-0.31	-0.42	77.23	-0.32	-0.42	CE
AVKU6D	X	81.68	4.16	5.58	81.13	3.58	4.77	TO
AXDP39		78.80	1.29	1.72	78.65	1.10	1.47	IN
BDNQC4		78.75	1.24	1.66	78.75	1.20	1.60	CE
CTWYW4		77.53	0.02	0.03	77.73	0.18	0.25	IN
EDXUG7		78.68	1.16	1.56	78.75	1.20	1.60	DN
FZMJQU		77.25	-0.26	-0.35	77.35	-0.20	-0.27	RO
GCEPXX		78.13	0.61	0.82	77.88	0.33	0.43	CE
GN97MY		76.60	-0.91	-1.23	77.00	-0.55	-0.73	CE
J3WZ8N		76.98	-0.54	-0.72	77.13	-0.42	-0.57	CE
KAYDPJ		77.83	0.31	0.42	77.65	0.10	0.13	ZW
KDWYCF		76.78	-0.74	-0.99	76.65	-0.90	-1.20	TO
L3L76R		76.93	-0.59	-0.79	76.73	-0.82	-1.10	TO
QAAMLY	X	74.13	-3.39	-4.55	74.15	-3.40	-4.53	CE
QEN2QH		77.78	0.26	0.35	77.30	-0.25	-0.33	TY
QHP843		76.30	-1.21	-1.63	76.45	-1.10	-1.47	TO
R3A2UP		77.98	0.46	0.62	78.25	0.70	0.93	AT
RDCLUW		77.53	0.02	0.03	77.67	0.12	0.16	CF
RWFJ26		76.63	-0.89	-1.19	76.58	-0.97	-1.30	TO
T2ALUW		78.10	0.59	0.79	78.45	0.90	1.20	XX
VX8KR6		77.93	0.41	0.55	77.95	0.40	0.53	CE
VZQGBP		75.73	-1.79	-2.40	75.68	-1.87	-2.50	XX
WC4VXN		78.18	0.66	0.89	77.88	0.33	0.43	DN



Plastics Interlaboratory Testing Program

Report #110

Analysis 712

2nd Qtr 2019

Temp. of Deflection Under Flexural Load (1.80 MPa) - Degrees C

WebCode	Data Flag	Sample N59			Sample N60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
ZYLH6C		77.83	0.31	0.42	77.55	0.00	0.00	CE

Summary Statistics

	Sample N59	Sample N60
Grand Means	77.514 Degrees C	77.549 Degrees C
Stnd Dev Btwn Labs	0.745 Degrees C	0.750 Degrees C

Statistics based on 33 of 36 reporting participants

Sample N59: HIPS & Sample N60: HIPS

Comments on Assigned Data Flags for Test #712

6PKLE4 (X) - Inconsistent in testing between samples.

AVKU6D (X) - Data for both samples are high. Possible Systematic Error.

QAAMLY (X) - Data for both samples are low. Possible Systematic Error.

Key to Instrument Codes Reported by Participants

AT	Atlas	CE	Ceast
CF	Coefeld	DN	DYNISCO
IN	Instron	RO	Rosand
TO	Tinius Olsen	TY	Toyoseiki
XX	Instrument manufacturer not specified by lab	ZW	Zwick



Plastics Interlaboratory Testing Program

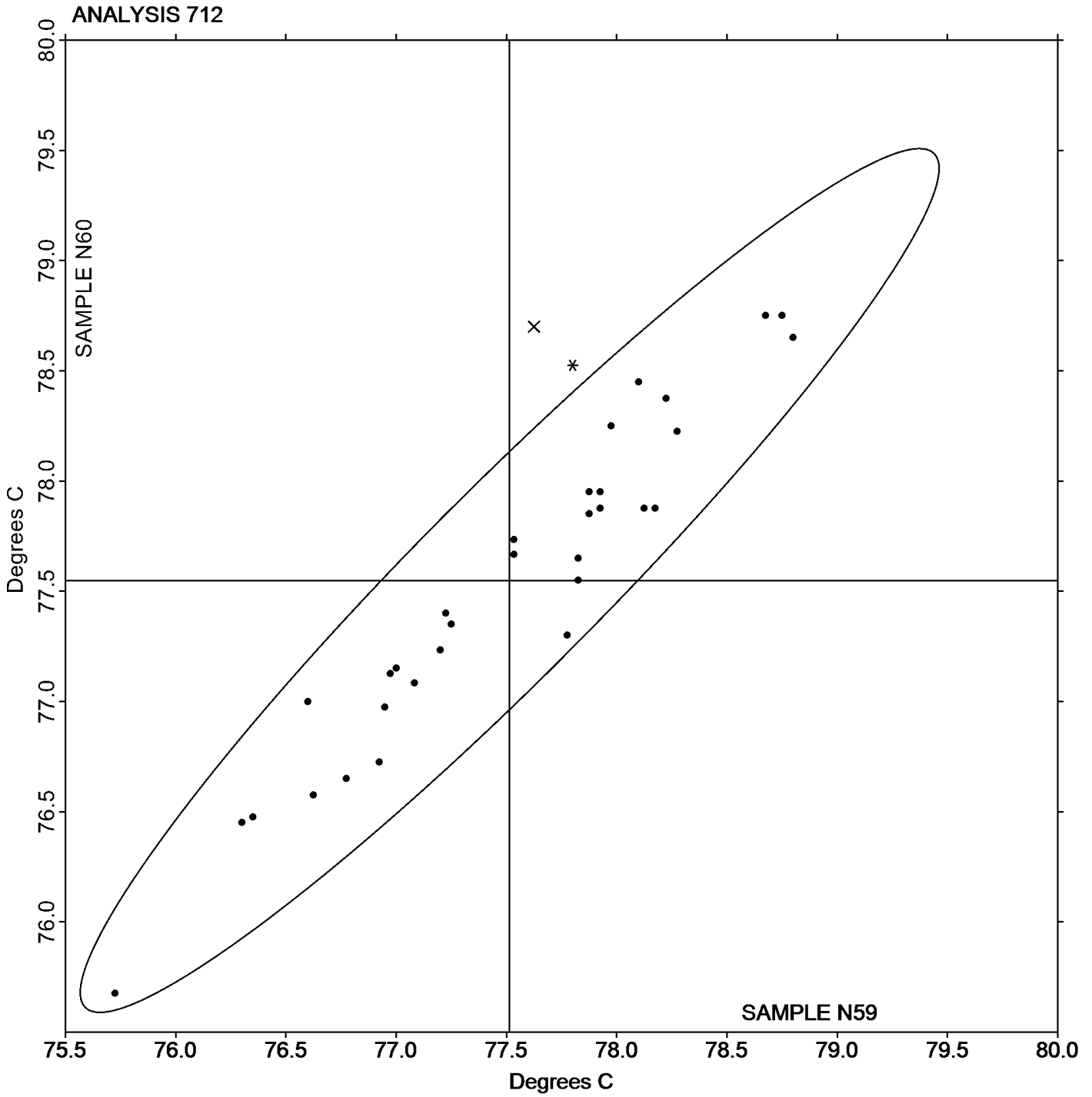
Report #110

Analysis 712

2nd Qtr 2019

Temp. of Deflection Under Flexural Load (1.80 MPa) - Degrees C

Grand Mean Sample N59: 77.514 Degrees C Grand Mean Sample N60: 77.549 Degrees C





Plastics Interlaboratory Testing Program

Report #110

Analysis 715

2nd Qtr 2019

Vicat Softening Temperature (Rate A)

WebCode	Data Flag	Sample H59			Sample H60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
39HJ6L		100.74	0.57	0.79	100.56	0.42	0.58	XX
3KCP7W	X	96.90	-3.27	-4.59	99.87	-0.27	-0.37	CE
6YKJR6		99.78	-0.39	-0.55	99.67	-0.47	-0.64	AT
6ZKA7Z		99.10	-1.07	-1.50	99.13	-1.00	-1.37	TO
AXDP39		99.88	-0.29	-0.41	100.10	-0.03	-0.05	IN
BDNQC4		101.65	1.48	2.07	101.55	1.42	1.94	CF
BUWFWV		99.47	-0.71	-0.99	99.45	-0.68	-0.94	CE
CBXRWK		99.95	-0.22	-0.31	99.92	-0.22	-0.30	CE
CKKZ3T		99.83	-0.34	-0.48	99.78	-0.35	-0.48	CE
DQ3TRX		99.58	-0.59	-0.83	99.63	-0.50	-0.69	TO
EAAEVC		101.08	0.91	1.27	101.08	0.95	1.30	CF
FZMJQU		100.52	0.34	0.48	100.17	0.03	0.04	RO
GN97MY		100.15	-0.02	-0.03	99.80	-0.33	-0.46	CE
HBD2AT		100.52	0.34	0.48	100.42	0.28	0.39	CE
JJMZ3U		99.68	-0.49	-0.69	99.47	-0.67	-0.92	RO
KAYDPJ		101.55	1.38	1.93	101.75	1.62	2.22	CF
KDWYCF		100.02	-0.16	-0.22	99.78	-0.35	-0.48	TO
KJ69RP		99.15	-1.02	-1.43	99.27	-0.87	-1.19	AT
MQWFEM		99.37	-0.81	-1.13	99.37	-0.77	-1.05	CE
QKNJQ3		100.53	0.36	0.50	100.62	0.48	0.66	TO
RDCLUW		100.07	-0.11	-0.15	100.10	-0.03	-0.05	CF
ZAHPJ9		100.17	-0.01	-0.01	100.22	0.08	0.11	TO
ZUPZJ7		101.03	0.86	1.20	101.13	1.00	1.37	RR
ZYLH6C	X	99.38	-0.79	-1.11	100.58	0.45	0.62	CE

Summary Statistics		
	Sample H59	Sample H60
Grand Means	100.174 Degrees C	100.134 Degrees C
Std Dev Btwn Labs	0.714 Degrees C	0.729 Degrees C
Statistics based on 22 of 24 reporting participants		

Sample H59: ABS & Sample H60: ABS

Comments on Assigned Data Flags for Test #715

ZYLH6C (X) - Inconsistent in testing between samples.

3KCP7W (X) - Data for sample H59 are low. Inconsistent within the determinations of sample H59.



Plastics Interlaboratory Testing Program

Report #110

Analysis 715

2nd Qtr 2019

Vicat Softening Temperature (Rate A)

Key to Instrument Codes Reported by Participants

AT	Atlas	CE	Ceast
CF	Coesfeld	IN	Instron
RO	Rosand	RR	Ray-Ran
TO	Tinius Olsen	XX	Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

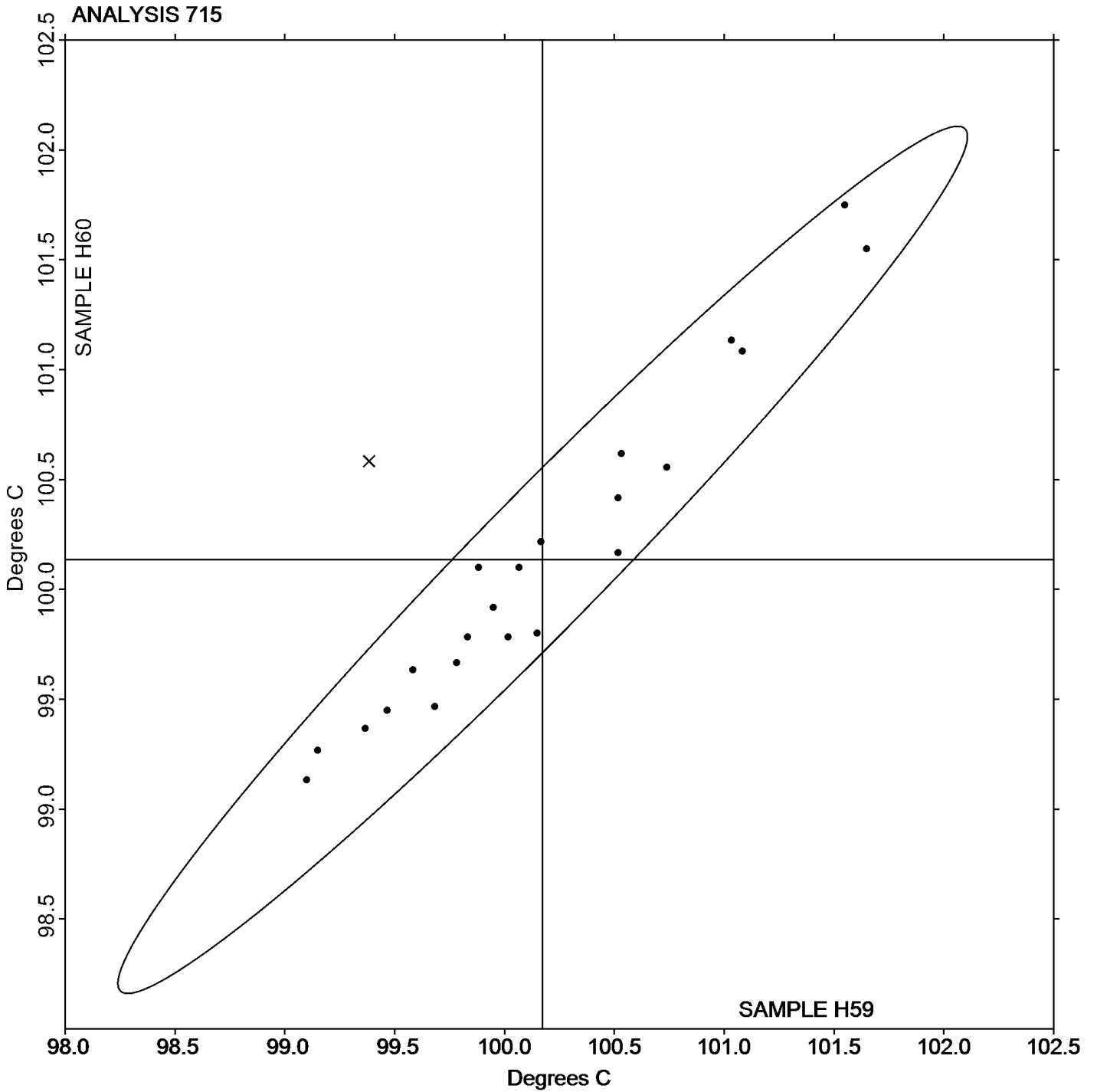
Analysis 715

Vicat Softening Temperature (Rate A)

Report #110

2nd Qtr 2019

Grand Mean Sample H59: 100.17 Degrees C Grand Mean Sample H60: 100.13 Degrees C





Plastics Interlaboratory Testing Program

Report #110

Analysis 716

2nd Qtr 2019

Vicat Softening Temperature (Rate B)

WebCode	Data Flag	Sample R59			Sample R60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
39HJ6L		111.39	1.50	1.30	110.74	0.99	0.98	XX
3KCP7W		108.97	-0.92	-0.80	109.03	-0.72	-0.71	CE
6YKJR6		109.27	-0.62	-0.54	109.40	-0.35	-0.35	AT
6ZKA7Z		108.13	-1.76	-1.52	108.02	-1.73	-1.71	TO
BDNQC4		110.30	0.41	0.35	110.93	1.18	1.17	CF
BUWFWV		108.63	-1.26	-1.09	108.65	-1.10	-1.09	CE
CBXRWK	*	110.78	0.89	0.77	108.67	-1.08	-1.07	CE
CKKZ3T		108.87	-1.02	-0.89	108.78	-0.97	-0.95	CE
EAAEVC		111.00	1.11	0.96	110.90	1.15	1.14	CF
FZMJQU		109.90	0.01	0.01	109.98	0.23	0.23	XX
HBD2AT		110.47	0.58	0.50	109.98	0.23	0.23	CE
JJMZ3U		109.30	-0.59	-0.51	109.13	-0.62	-0.61	RO
KAYDPJ		110.82	0.93	0.80	110.83	1.08	1.07	CF
KDWYCF		109.57	-0.32	-0.28	109.37	-0.38	-0.38	TO
QKNJQ3		110.03	0.14	0.12	110.03	0.28	0.28	TO
RDCLUW		111.33	1.44	1.25	110.80	1.05	1.04	CF
XH24K3		110.25	0.36	0.31	109.75	0.00	0.00	CS
ZAHPJ9		109.42	-0.47	-0.41	109.47	-0.28	-0.28	TO
ZUPZJ7		111.92	2.03	1.75	111.88	2.13	2.11	RR
ZYLH6C		107.48	-2.41	-2.08	108.65	-1.10	-1.09	CE

Summary Statistics		Sample R59	Sample R60
Grand Means		109.891 Degrees C	109.750 Degrees C
Stnd Dev Btwn Labs		1.156 Degrees C	1.013 Degrees C
Statistics based on 20 of 20 reporting participants			

Sample R59: ABS & Sample R60: ABS

Key to Instrument Codes Reported by Participants

AT	Atlas	CE	Ceast
CF	Coesfeld	CS	CSI
RO	Rosand	RR	Ray-Ran
TO	Tinius Olsen	XX	Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

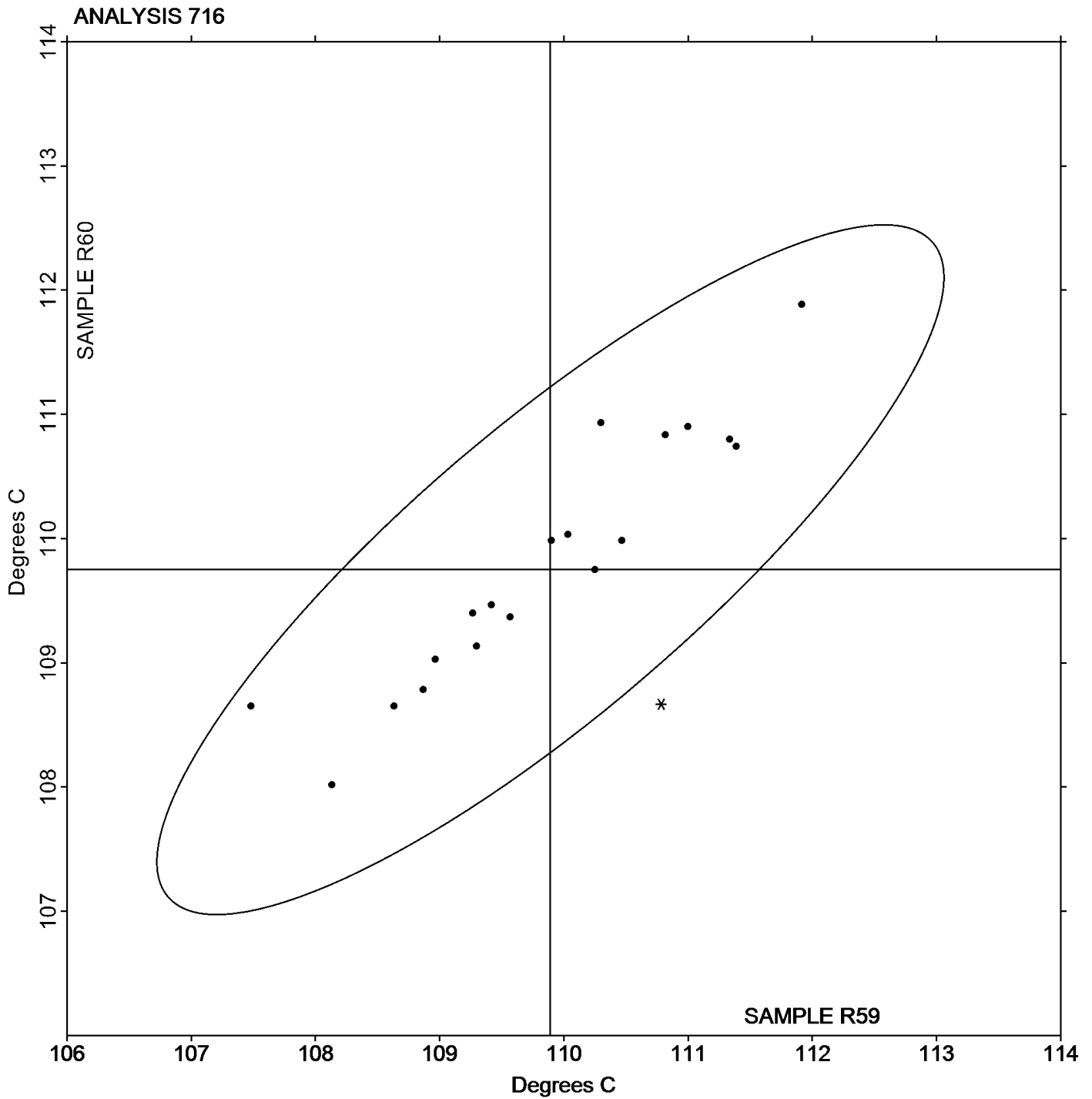
Report #110

Analysis 716

2nd Qtr 2019

Vicat Softening Temperature (Rate B)

Grand Mean Sample R59: 109.89 Degrees C Grand Mean Sample R60: 109.75 Degrees C





Plastics Interlaboratory Testing Program

Report #110

Analysis 718

2nd Qtr 2019

Specific Gravity - sp gr 23/23 C

WebCode	Data Flag	Sample T59			Sample T60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2VXGAN		1.13800	0.00097	0.43	1.13833	0.00142	0.58
2ZC3B9		1.13733	0.00030	0.13	1.13767	0.00076	0.31
39HJ6L	X	1.13833	0.00130	0.57	1.12867	-0.00824	-3.35
3E4HCL		1.13853	0.00150	0.66	1.13867	0.00176	0.71
3HLBW2		1.13740	0.00037	0.16	1.13897	0.00206	0.84
3QZ9QZ		1.13177	-0.00527	-2.32	1.13123	-0.00568	-2.30
3RVTEY		1.14023	0.00320	1.41	1.14060	0.00369	1.50
6PKLE4		1.13300	-0.00403	-1.78	1.13200	-0.00491	-1.99
6YKJR6		1.13907	0.00203	0.90	1.13843	0.00152	0.62
6ZKA7Z		1.13777	0.00073	0.32	1.13927	0.00236	0.96
7CC6XZ		1.13700	-0.00003	-0.02	1.13667	-0.00024	-0.10
8PCHB3		1.13940	0.00237	1.04	1.13873	0.00182	0.74
93EBFK		1.13857	0.00153	0.68	1.13803	0.00112	0.46
9AUUWY		1.13800	0.00097	0.43	1.13800	0.00109	0.44
9DP6C6		1.13777	0.00073	0.32	1.13717	0.00026	0.10
9JKF3W		1.13697	-0.00007	-0.03	1.13600	-0.00091	-0.37
AMJC6W		1.13233	-0.00470	-2.07	1.13267	-0.00424	-1.72
APKEQR	X	1.13070	-0.00633	-2.79	1.13220	-0.00471	-1.91
AVKU6D	X	1.13667	-0.00037	-0.16	1.13333	-0.00358	-1.45
B9WJUV		1.13613	-0.00090	-0.40	1.13573	-0.00118	-0.48
BC8PYF		1.13600	-0.00103	-0.46	1.13600	-0.00091	-0.37
BUWFWV		1.13610	-0.00093	-0.41	1.13663	-0.00028	-0.11
BUWPGZ		1.13570	-0.00133	-0.59	1.13617	-0.00074	-0.30
CBXRWK		1.13937	0.00233	1.03	1.13980	0.00289	1.17
CJ7G2H		1.13500	-0.00203	-0.90	1.13433	-0.00258	-1.05
CJQYGB		1.14037	0.00333	1.47	1.13970	0.00279	1.13
CTWYW4		1.14010	0.00307	1.35	1.13983	0.00292	1.19
EAAEVC		1.13550	-0.00153	-0.68	1.13557	-0.00134	-0.54
EDXUG7		1.13703	0.00000	0.00	1.13703	0.00012	0.05
EEKHQK		1.13880	0.00177	0.78	1.13913	0.00222	0.90
EJKMT6		1.14033	0.00330	1.45	1.13900	0.00209	0.85
EWC9ZL		1.13977	0.00273	1.21	1.13957	0.00266	1.08
EWPYTC		1.13653	-0.00050	-0.22	1.13773	0.00082	0.33
F3CW9D	X	1.13400	-0.00303	-1.34	1.12967	-0.00724	-2.94
FBP4Q3		1.13347	-0.00357	-1.57	1.13360	-0.00331	-1.34



Plastics Interlaboratory Testing Program

Report #110

Analysis 718

2nd Qtr 2019

Specific Gravity - sp gr 23/23 C

WebCode	Data Flag	Sample T59			Sample T60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
FK8M3L	*	1.13140	-0.00563	-2.48	1.13000	-0.00691	-2.80
FL48PK		1.13620	-0.00083	-0.37	1.13787	0.00096	0.39
GJBHWR		1.13764	0.00061	0.27	1.13754	0.00063	0.26
GN97MY		1.13953	0.00250	1.10	1.13890	0.00199	0.81
GWWYJ4	X	1.12733	-0.00970	-4.28	1.13100	-0.00591	-2.40
HBD2AT		1.13983	0.00280	1.23	1.14037	0.00346	1.40
HJ7K2L		1.13503	-0.00200	-0.88	1.13473	-0.00218	-0.88
HR7QAV		1.13790	0.00087	0.38	1.13717	0.00026	0.10
HTEZ79	*	1.13133	-0.00570	-2.51	1.13133	-0.00558	-2.26
J83UQY		1.13547	-0.00157	-0.69	1.13543	-0.00148	-0.60
KAYDPJ		1.13850	0.00147	0.65	1.13850	0.00159	0.65
KDWYCF		1.13553	-0.00150	-0.66	1.13390	-0.00301	-1.22
KH4K4J		1.13747	0.00043	0.19	1.13593	-0.00098	-0.40
L3L76R		1.13643	-0.00060	-0.26	1.13804	0.00113	0.46
LD4TET		1.13747	0.00043	0.19	1.13723	0.00032	0.13
LJH8F7		1.13687	-0.00017	-0.07	1.13673	-0.00018	-0.07
LPNYQP		1.13970	0.00267	1.18	1.13977	0.00286	1.16
LUWFRD		1.13133	-0.00570	-2.51	1.13100	-0.00591	-2.40
MAPDJZ		1.13500	-0.00203	-0.90	1.13367	-0.00324	-1.32
Q6JRJT		1.13650	-0.00053	-0.24	1.13683	-0.00008	-0.03
R3A2UP	X	1.13767	0.00063	0.28	1.14033	0.00342	1.39
R79QLW		1.13777	0.00073	0.32	1.13803	0.00112	0.46
RDCLUW		1.13700	-0.00003	-0.02	1.13600	-0.00091	-0.37
RGPFHF		1.13723	0.00020	0.09	1.13737	0.00046	0.19
RJVZ7F		1.13867	0.00163	0.72	1.13767	0.00076	0.31
T2ALUW		1.13947	0.00243	1.07	1.13950	0.00259	1.05
T6Q6ME		1.13690	-0.00013	-0.06	1.13733	0.00042	0.17
T7MHA7		1.13800	0.00097	0.43	1.13933	0.00242	0.98
TBXJJG		1.13880	0.00177	0.78	1.13827	0.00136	0.55
TNKZZ2		1.13370	-0.00333	-1.47	1.13310	-0.00381	-1.55
VBQ4B9		1.13470	-0.00233	-1.03	1.13540	-0.00151	-0.61
VCKXZQ		1.13843	0.00140	0.62	1.13807	0.00116	0.47
VX8KR6		1.13851	0.00148	0.65	1.13884	0.00193	0.78
VZQGBP		1.13710	0.00007	0.03	1.13647	-0.00044	-0.18
WC4VXN		1.13767	0.00063	0.28	1.13667	-0.00024	-0.10



Plastics Interlaboratory Testing Program

Report #110

Analysis 718

2nd Qtr 2019

Specific Gravity - sp gr 23/23 C

WebCode	Data Flag	Sample T59			Sample T60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
WDYJCD		1.13953	0.00250	1.10	1.13893	0.00202	0.82
WJ766G		1.13933	0.00230	1.01	1.14033	0.00342	1.39
XRTMUA		1.13490	-0.00213	-0.94	1.13353	-0.00338	-1.37
Z4ELVV	X	1.12820	-0.00883	-3.90	1.12820	-0.00871	-3.54
Z4WPD4		1.13630	-0.00073	-0.32	1.13617	-0.00074	-0.30
ZAHPJ9		1.13870	0.00167	0.73	1.13890	0.00199	0.81
ZEF8XN		1.13720	0.00017	0.07	1.13647	-0.00044	-0.18
ZYLH6C	X	1.14300	0.00597	2.63	1.13833	0.00142	0.58

Summary Statistics		Sample T59	Sample T60
Grand Means		1.137034 sp gr 23/23 C	1.136908 sp gr 23/23 C
Std Dev Btwn Labs		0.002268 sp gr 23/23 C	0.002463 sp gr 23/23 C
Statistics based on 70 of 78 reporting participants			

Sample T59: ABS/PC & Sample T60: ABS/PC

Comments on Assigned Data Flags for Test #718

- Z4ELVV (X) - Data for both samples are low. Possible Systematic Error.
- F3CW9D (X) - Data for sample T60 are low. Inconsistent within the determinations of sample T60.
- APKEQR (X) - Data for sample T59 are low.
- R3A2UP (X) - Inconsistent in testing between samples.
- ZYLH6C (X) - Inconsistent in testing between samples.
- 39HJ6L (X) - Data for sample T60 are low. Inconsistent within the determinations of both samples.
- AVKU6D (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
- GWYJ4 (X) - Data for sample T59 are low. Inconsistent within the determinations of sample T59.



Plastics Interlaboratory Testing Program

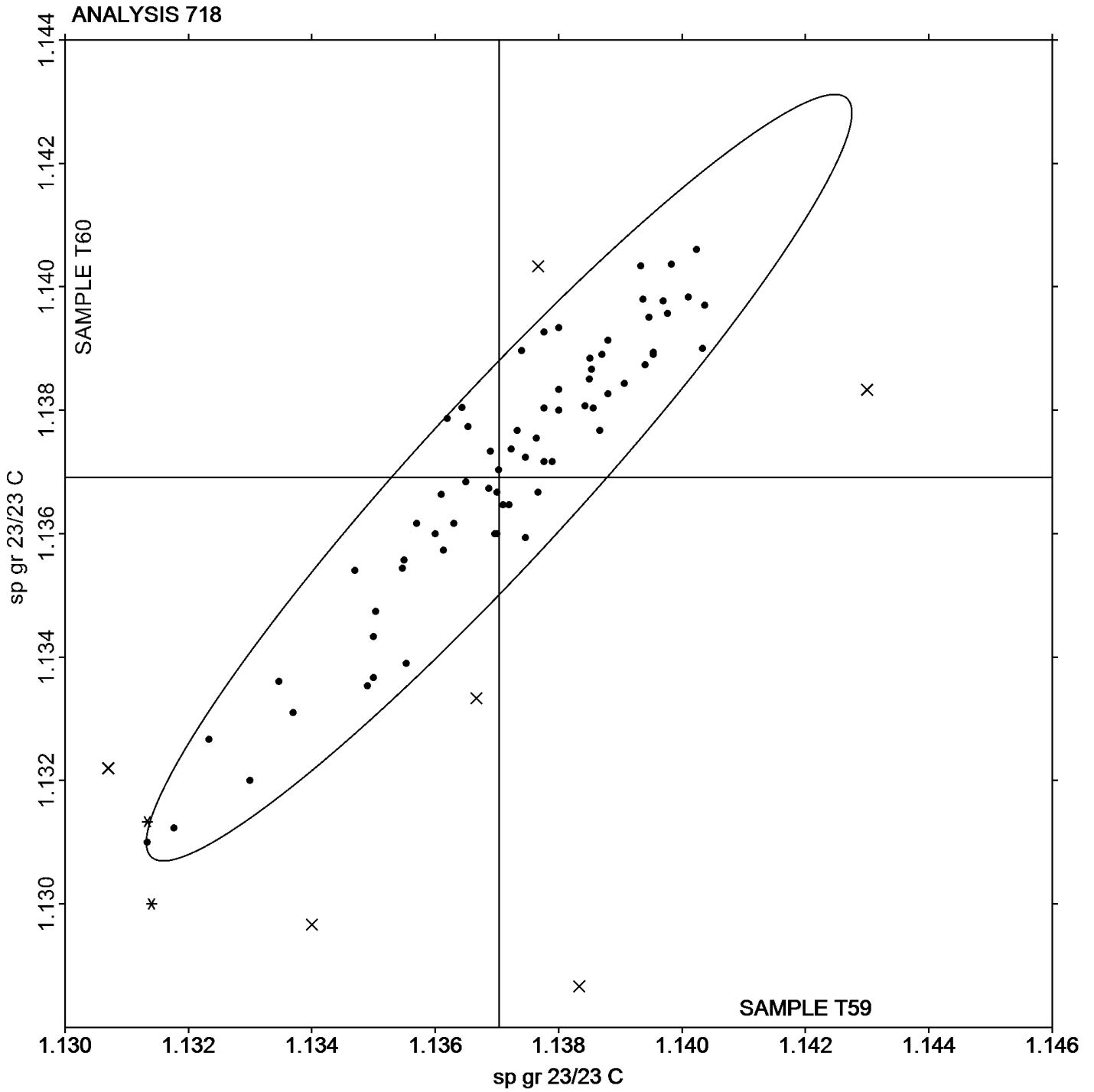
Analysis 718

Specific Gravity - sp gr 23/23 C

Report #110

2nd Qtr 2019

Grand Mean Sample T59: 1.1370 sp gr 23/23 C Grand Mean Sample T60: 1.1369 sp gr 23/23 C





Plastics Interlaboratory Testing Program

Report #110

Analysis 720

2nd Qtr 2019

Flexural Modulus- ksi

WebCode	Data Flag	Sample J59			Sample J60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2CP8G6		330.4	-6.2	-0.33	332.2	-4.5	-0.24
362ZC6		351.6	15.0	0.81	351.6	14.9	0.79
39HJ6L		319.6	-17.0	-0.92	319.6	-17.1	-0.90
3AT8LD		332.1	-4.5	-0.24	330.5	-6.2	-0.33
3JUTMK	*	385.7	49.1	2.65	383.6	46.9	2.48
4KKB4C		350.0	13.4	0.72	349.8	13.0	0.69
4KMYNW		323.3	-13.3	-0.72	326.7	-10.0	-0.53
4MXP7D		324.5	-12.1	-0.65	323.9	-12.8	-0.67
6PKLE4	*	299.1	-37.5	-2.03	290.7	-46.0	-2.43
6YKJR6		329.7	-6.9	-0.37	329.8	-7.0	-0.37
78EUEL		344.0	7.5	0.40	344.6	7.9	0.42
83UF8Q		331.2	-5.3	-0.29	330.7	-6.0	-0.32
8PCHB3		342.7	6.1	0.33	342.9	6.2	0.32
93EBFK		343.5	7.0	0.38	342.9	6.2	0.33
9DP6C6	*	347.7	11.2	0.60	357.4	20.7	1.09
9JKF3W	*	342.2	5.6	0.30	333.2	-3.5	-0.18
AQUHAG		344.8	8.2	0.45	344.4	7.7	0.41
AR3VRJ		334.0	-2.6	-0.14	334.8	-1.9	-0.10
AVKU6D		313.6	-23.0	-1.24	315.2	-21.5	-1.14
BC8PYF		312.0	-24.5	-1.33	308.7	-28.0	-1.48
CBXRWK		338.6	2.0	0.11	338.4	1.7	0.09
E3WAGY		339.1	2.5	0.14	339.5	2.8	0.15
EAAEVC		318.5	-18.1	-0.98	319.0	-17.7	-0.94
EJKMT6		348.6	12.0	0.65	344.6	7.9	0.42
F38GUR	X	369.6	33.0	1.79	358.6	21.9	1.16
GJYR6Z		320.6	-16.0	-0.86	320.7	-16.0	-0.84
H8C4CK		360.4	23.8	1.29	361.4	24.7	1.30
HTEZ79		352.7	16.2	0.87	349.0	12.3	0.65
J3WZ8N	X	364.9	28.3	1.53	347.6	10.9	0.57
J83UQY		365.6	29.0	1.57	367.1	30.4	1.61
JJMZ3U		346.1	9.5	0.51	343.2	6.5	0.34
JQ3PLB	X	472.4	135.8	7.34	378.8	42.1	2.22
K6WT47		341.4	4.8	0.26	343.6	6.8	0.36
KAYDPJ		321.5	-15.1	-0.82	322.2	-14.5	-0.77
KC2CXQ		336.9	0.3	0.02	335.0	-1.7	-0.09



Plastics Interlaboratory Testing Program

Report #110

Analysis 720

2nd Qtr 2019

Flexural Modulus- ksi

WebCode	Data Flag	Sample J59			Sample J60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
KDWYCF		344.6	8.0	0.43	344.6	7.9	0.42
L3KFYA		310.9	-25.7	-1.39	314.3	-22.4	-1.18
L3L76R	X	355.5	19.0	1.03	342.5	5.8	0.31
LD4TET	X	305.4	-31.1	-1.68	320.7	-16.0	-0.85
Q6JRJT		326.2	-10.4	-0.56	329.8	-6.9	-0.37
QDDWDU	*	316.6	-19.9	-1.08	324.3	-12.5	-0.66
QH4KJY		376.3	39.8	2.15	376.8	40.0	2.11
RFEK6N		305.0	-31.5	-1.70	305.8	-31.0	-1.63
T2ALUW		325.2	-11.4	-0.61	325.6	-11.1	-0.59
THYXZC		367.0	30.5	1.65	366.2	29.5	1.56
TY46FE		342.8	6.3	0.34	348.5	11.8	0.62
V46CHL		341.4	4.8	0.26	339.0	2.3	0.12
V86EQV		327.8	-8.7	-0.47	328.5	-8.2	-0.43
VCKXZQ		346.4	9.8	0.53	349.9	13.2	0.70
VZQGBP		345.8	9.2	0.50	344.6	7.9	0.42
W4AQ6M		337.8	1.3	0.07	330.2	-6.5	-0.34
WDYJCD		351.2	14.6	0.79	351.2	14.5	0.76
WZ8W4W		370.0	33.5	1.81	375.9	39.2	2.07
XMFR6Y		320.3	-16.2	-0.88	319.4	-17.3	-0.91
XWLRKR	X	12.4	-324.2	-17.52	12.4	-324.3	-17.12
ZAHPJ9		322.6	-13.9	-0.75	322.6	-14.2	-0.75
ZMACRP		346.4	9.8	0.53	349.2	12.5	0.66
ZUPZJ7		321.1	-15.5	-0.84	321.9	-14.8	-0.78
ZYLH6C		300.9	-35.7	-1.93	300.7	-36.0	-1.90

Summary Statistics		
	Sample J59	Sample J60
Grand Means	336.57 ksi	336.71 ksi
Stnd Dev Btwn Labs	18.50 ksi	18.94 ksi
Statistics based on 53 of 59 reporting participants		

Sample J59: ABS/PC & Sample J60: ABS/PC



Comments on Assigned Data Flags for Test #720

J3WZ8N (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample J59.

XWLRKR (X) - Extreme data.

F38GUR (X) - Inconsistent in testing between samples.

LD4TET (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

L3L76R (X) - Inconsistent in testing between samples.

JQ3PLB (X) - Data for sample J59 are high.

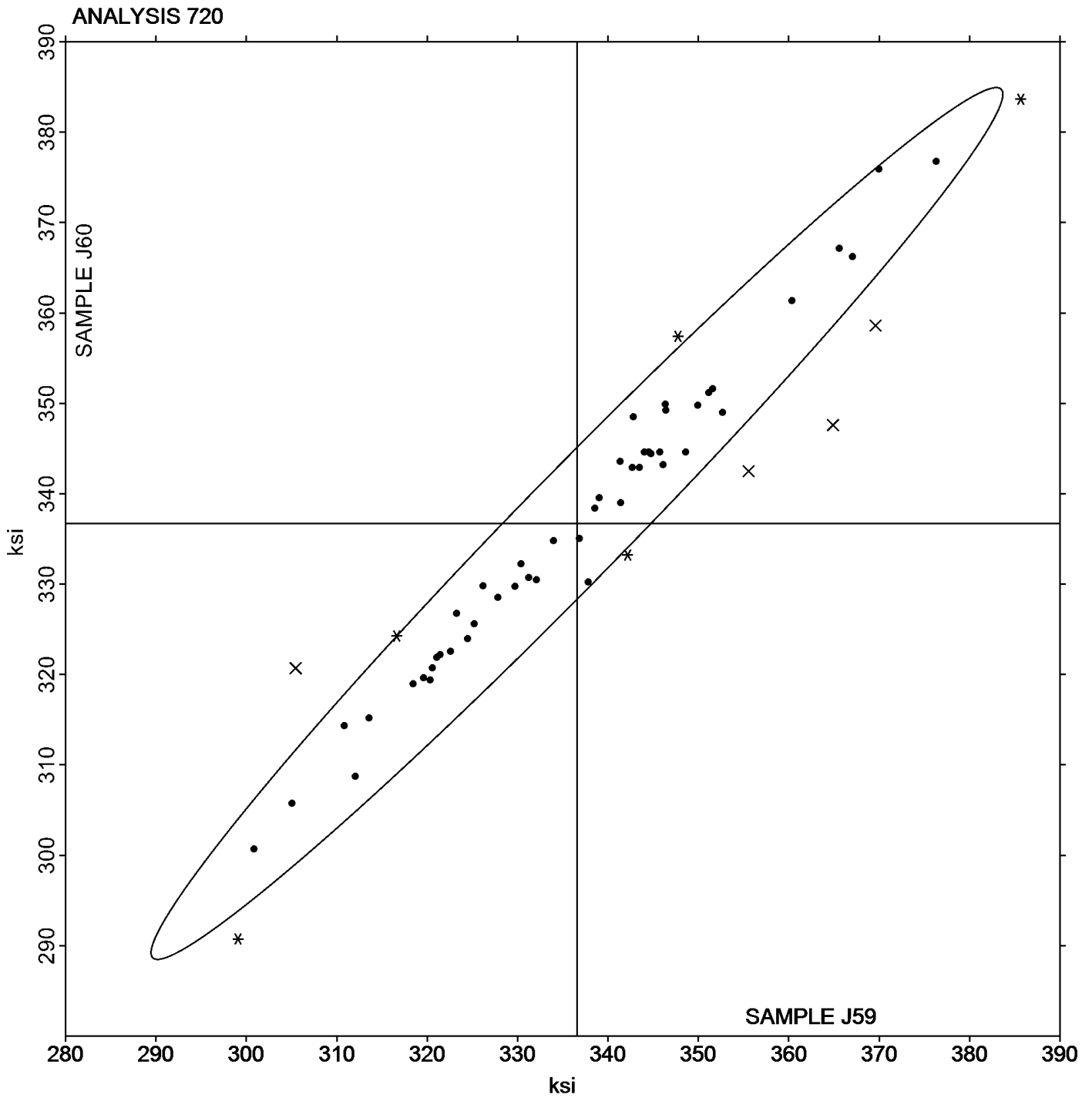


Plastics Interlaboratory Testing Program

Analysis 720
Flexural Modulus- ksi

Report #110
2nd Qtr 2019

Grand Mean Sample J59: 336.57 ksi Grand Mean Sample J60: 336.71 ksi





Plastics Interlaboratory Testing Program

Report #110

Analysis 721

2nd Qtr 2019

Flexural Stress at 5% Strain - psi

WebCode	Data Flag	Sample J59			Sample J60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2CP8G6		11,215	-578	-1.07	11,219	-553	-1.00
362ZC6		11,600	-193	-0.36	11,600	-171	-0.31
39HJ6L		11,495	-298	-0.55	11,471	-300	-0.55
3JUTMK		12,475	683	1.26	12,448	677	1.23
4KKB4C		11,958	165	0.30	11,915	144	0.26
4KMYNW		11,386	-407	-0.75	11,372	-399	-0.73
4MXP7D		11,012	-780	-1.44	11,042	-730	-1.33
6YKJR6		12,029	236	0.44	11,995	224	0.41
78EUEL		12,660	867	1.60	12,680	909	1.65
83UF8Q		11,538	-255	-0.47	11,519	-252	-0.46
93EBFK		11,947	154	0.29	11,901	130	0.24
9DP6C6		12,180	387	0.72	12,348	577	1.05
9JKF3W		12,447	654	1.21	12,204	432	0.79
AQUHAG		11,680	-113	-0.21	11,740	-31	-0.06
AVKU6D	X	8,846	-2,947	-5.45	8,828	-2,943	-5.35
BC8PYF		10,848	-945	-1.75	10,711	-1,060	-1.93
CBXRWK		11,824	31	0.06	11,826	55	0.10
E3WAGY		11,811	18	0.03	11,819	48	0.09
EAAEVC		11,368	-425	-0.79	11,389	-382	-0.69
EJKMT6		11,180	-613	-1.13	10,960	-811	-1.48
GJYR6Z		11,197	-596	-1.10	11,166	-605	-1.10
H8C4CK		12,614	821	1.52	12,687	916	1.67
HTEZ79		12,052	259	0.48	11,921	150	0.27
J3WZ8N		12,095	302	0.56	12,088	317	0.58
J83UQY	*	13,474	1,681	3.11	13,384	1,613	2.93
JJMZ3U		12,110	317	0.59	12,061	289	0.53
JQ3PLB		12,680	887	1.64	12,620	849	1.54
K6WT47		11,580	-213	-0.39	11,571	-200	-0.36
KAYDPJ		11,694	-99	-0.18	11,697	-74	-0.14
KC2CXQ		11,252	-540	-1.00	11,224	-547	-1.00
KDWYCF		11,614	-178	-0.33	11,623	-148	-0.27
L3KFYA		11,583	-210	-0.39	11,629	-142	-0.26
L3L76R		11,995	202	0.37	11,774	2	0.00
LD4TET	*	11,055	-738	-1.36	11,297	-474	-0.86
Q6JRJT		11,230	-562	-1.04	11,203	-569	-1.03



Plastics Interlaboratory Testing Program

Report #110

Analysis 721

2nd Qtr 2019

Flexural Stress at 5% Strain - psi

WebCode	Data Flag	Sample J59			Sample J60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
QDDWDU		11,440	-353	-0.65	11,404	-367	-0.67
QH4KJY		12,835	1,042	1.93	12,975	1,204	2.19
T2ALUW		12,060	267	0.49	12,054	283	0.51
TY46FE		12,112	320	0.59	12,104	333	0.61
V46CHL		11,658	-135	-0.25	11,411	-360	-0.65
V86EQV		11,078	-715	-1.32	11,124	-647	-1.18
VCKXZQ		11,710	-83	-0.15	11,832	61	0.11
W4AQ6M	*	11,742	-51	-0.09	11,413	-358	-0.65
WDYJCD		11,560	-233	-0.43	11,560	-211	-0.38
WZ8W4W		12,678	885	1.64	12,721	950	1.73
XMFR6Y		11,737	-56	-0.10	11,661	-110	-0.20
XWLRKR		11,800	7	0.01	11,734	-37	-0.07
ZMACRP		11,835	42	0.08	11,893	122	0.22
ZUPZJ7		11,439	-354	-0.65	11,646	-125	-0.23
ZYLH6C		11,284	-508	-0.94	11,147	-624	-1.13

Summary Statistics		Sample J59	Sample J60
Grand Means		11,792.8 psi	11,771.1 psi
Stnd Dev Btwn Labs		540.8 psi	549.8 psi
Statistics based on 49 of 50 reporting participants			

Sample J59: ABS/PC & Sample J60: ABS/PC

Comments on Assigned Data Flags for Test #721

AVKU6D (X) - Data for both samples are low. Possible Systematic Error.



Plastics Interlaboratory Testing Program

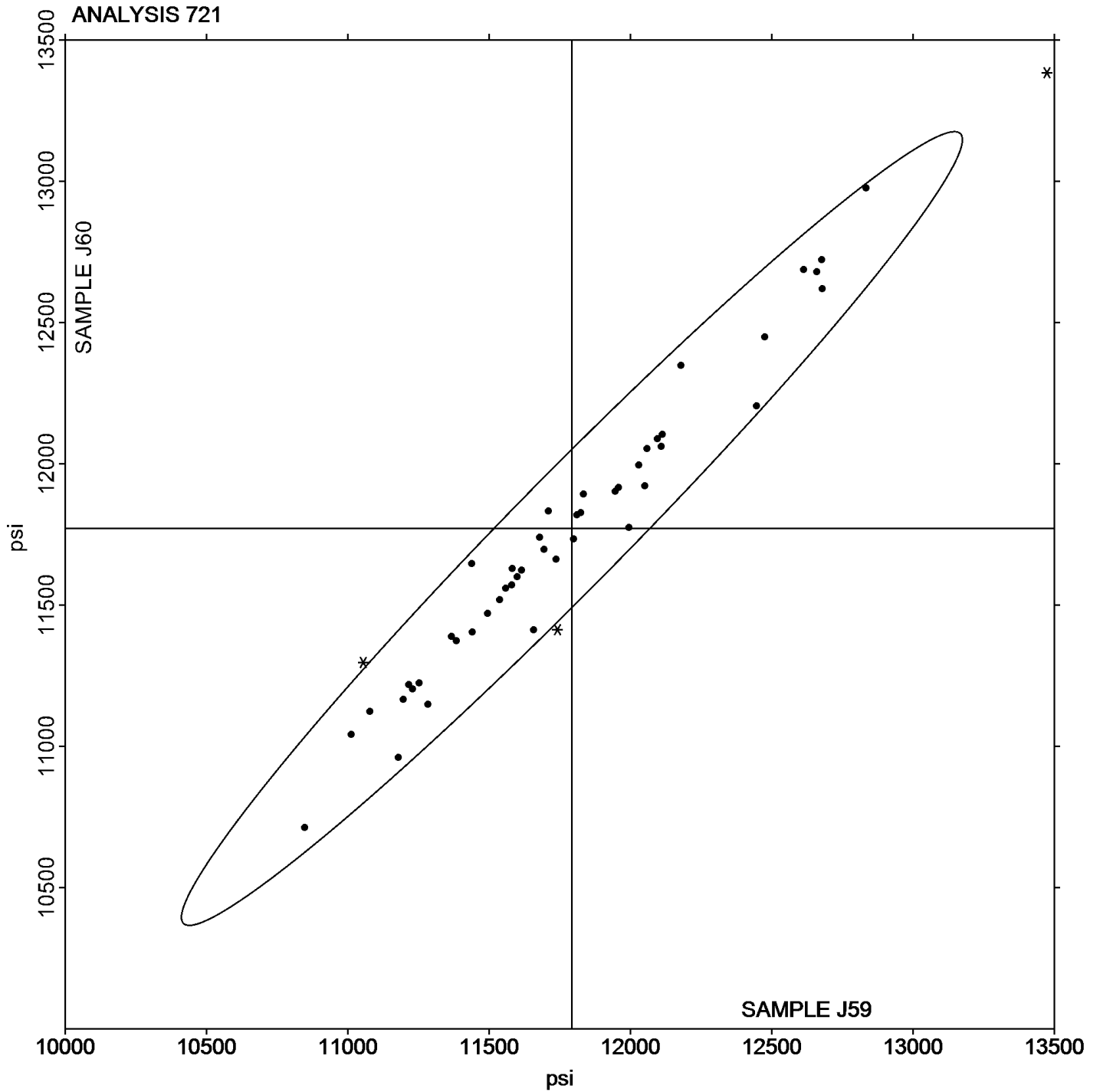
Report #110

Analysis 721

2nd Qtr 2019

Flexural Stress at 5% Strain - psi

Grand Mean Sample J59: 11,792.77 psi Grand Mean Sample J60: 11,771.12 psi





Plastics Interlaboratory Testing Program

Report #110

Analysis 722

2nd Qtr 2019

Flexural Stress at Yield - psi

WebCode	Data Flag	Sample J59			Sample J60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2CP8G6		11,403	-445	-0.90	11,409	-445	-0.85
3AT8LD		11,488	-360	-0.73	11,571	-283	-0.54
3JUTMK	X	9,896	-1,952	-3.95	9,777	-2,078	-3.96
4KKB4C		11,958	110	0.22	11,915	61	0.12
4KMYNW		11,550	-298	-0.60	11,521	-333	-0.63
4MXP7D		11,592	-256	-0.52	11,623	-232	-0.44
6YKJR6		12,184	337	0.68	12,113	259	0.49
78EUEL		12,845	997	2.02	12,865	1,011	1.93
83UF8Q		11,677	-171	-0.35	11,649	-206	-0.39
8PCHB3		12,056	209	0.42	11,977	123	0.23
93EBFK		12,092	244	0.49	12,049	195	0.37
9DP6C6		11,880	32	0.07	12,048	194	0.37
AQUHAG		11,700	-148	-0.30	11,780	-74	-0.14
AR3VRJ		11,880	32	0.07	11,760	-94	-0.18
BC8PYF		10,849	-999	-2.02	10,716	-1,139	-2.17
GJYR6Z		11,325	-522	-1.06	11,320	-534	-1.02
H8C4CK		12,881	1,033	2.09	12,966	1,112	2.12
HTEZ79		12,039	191	0.39	11,911	57	0.11
J3WZ8N		12,203	356	0.72	12,270	416	0.79
J83UQY	X	14,071	2,223	4.49	14,219	2,364	4.51
JJMZ3U		12,125	278	0.56	12,067	213	0.41
JQ3PLB		12,620	772	1.56	12,620	766	1.46
K6WT47		11,580	-268	-0.54	11,571	-283	-0.54
KAYDPJ		11,782	-66	-0.13	11,823	-31	-0.06
KC2CXQ		11,378	-469	-0.95	11,325	-530	-1.01
KDWYCF		11,705	-143	-0.29	11,716	-138	-0.26
L3KFYA		11,931	83	0.17	11,963	109	0.21
L3L76R		12,121	274	0.55	12,312	458	0.87
LD4TET	X	7,164	-4,684	-9.47	7,381	-4,473	-8.53
Q6JRJT		11,231	-617	-1.25	11,291	-563	-1.07
QDDWDU		11,475	-372	-0.75	11,440	-414	-0.79
QH4KJY		12,954	1,107	2.24	13,113	1,259	2.40
T2ALUW	*	11,820	-28	-0.06	12,074	220	0.42
THYXZC		11,313	-534	-1.08	11,300	-555	-1.06
TY46FE		12,278	430	0.87	12,247	393	0.75



Plastics Interlaboratory Testing Program

Report #110

Analysis 722

2nd Qtr 2019

Flexural Stress at Yield - psi

WebCode	Data Flag	Sample J59			Sample J60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
V46CHL		11,539	-309	-0.62	11,425	-429	-0.82
V86EQV		11,079	-769	-1.55	11,122	-732	-1.40
W4AQ6M	X	11,896	49	0.10	11,550	-304	-0.58
WZ8W4W		12,750	902	1.82	12,765	911	1.74
XMFR6Y		11,737	-110	-0.22	11,661	-193	-0.37
ZMACRP		11,984	137	0.28	12,048	194	0.37
ZUPZJ7		11,620	-227	-0.46	11,646	-208	-0.40
ZYLH6C		11,434	-414	-0.84	11,317	-537	-1.02

Summary Statistics

	Sample J59	Sample J60
Grand Means	11,847.6 psi	11,854.1 psi
Std Dev Btwn Labs	494.7 psi	524.4 psi

Statistics based on 39 of 43 reporting participants

Sample J59: ABS/PC & Sample J60: ABS/PC

Comments on Assigned Data Flags for Test #722

- W4AQ6M (X) - Inconsistent in testing between samples.
- J83UQY (X) - Data for both samples are high. Possible Systematic Error.
- LD4TET (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of both samples.
- 3JUTMK (X) - Data for both samples are low. Possible Systematic Error.



Plastics Interlaboratory Testing Program

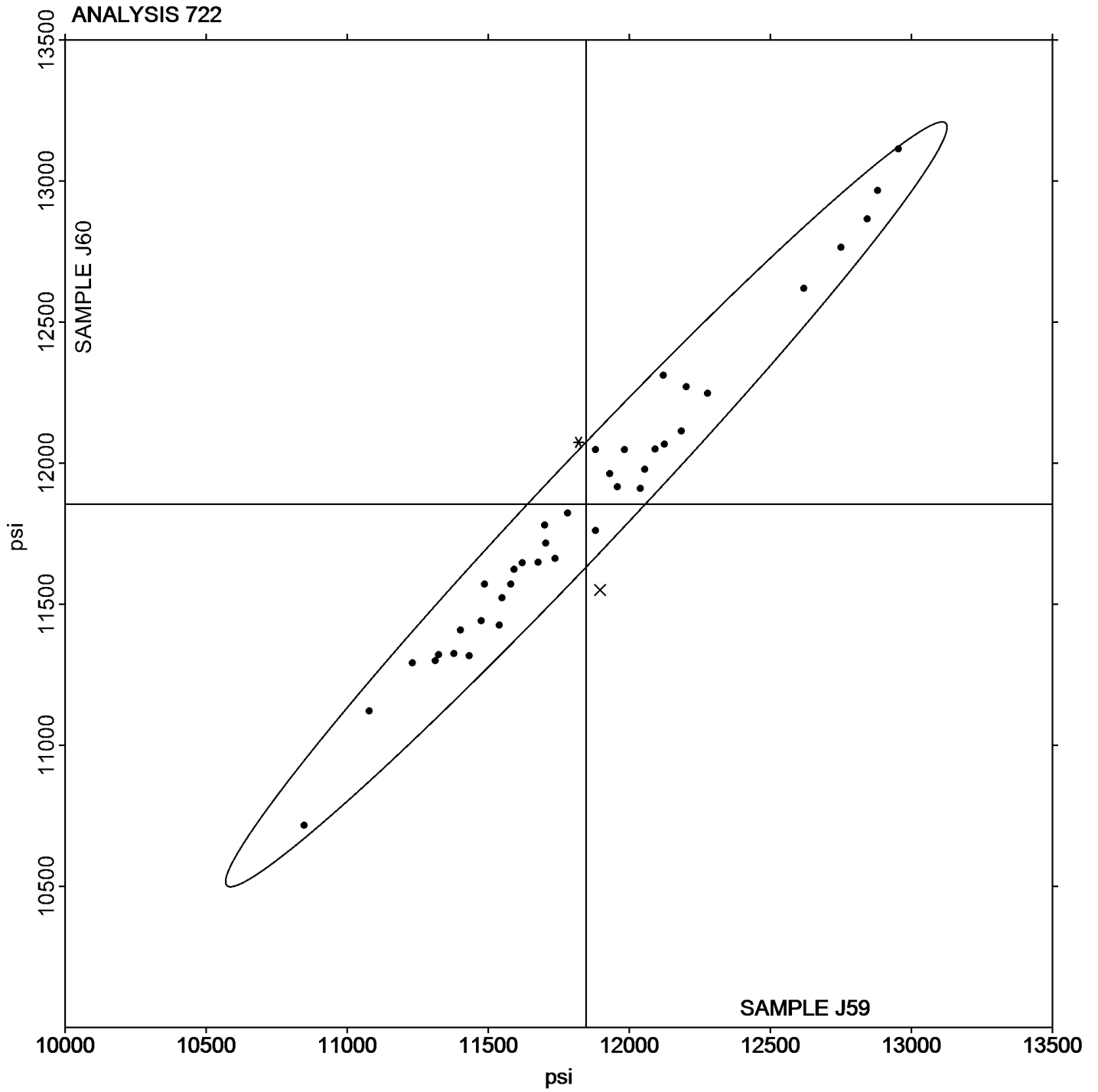
Report #110

Analysis 722

2nd Qtr 2019

Flexural Stress at Yield - psi

Grand Mean Sample J59: 11,847.64 psi Grand Mean Sample J60: 11,854.11 psi





Plastics Interlaboratory Testing Program

Report #110

Analysis 730

2nd Qtr 2019

Tensile Stress at Yield - MPa

WebCode	Data Flag	Sample C59			Sample C60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3RVTEY		52.75	1.60	1.60	52.63	1.59	1.60
4BG86T		50.46	-0.69	-0.70	50.32	-0.72	-0.72
6PKLE4		51.62	0.47	0.47	51.52	0.48	0.48
6YB6TC		51.25	0.09	0.09	51.29	0.25	0.25
6YKJR6		51.56	0.40	0.41	51.86	0.82	0.83
6ZKA7Z		52.24	1.09	1.09	52.31	1.27	1.28
728C87		51.39	0.23	0.23	51.45	0.41	0.41
7GN4DZ		51.30	0.14	0.14	51.33	0.29	0.29
8PCHB3		51.28	0.12	0.12	50.70	-0.34	-0.34
93EBFK		51.46	0.31	0.31	51.34	0.30	0.30
9DP6C6		50.86	-0.29	-0.30	50.96	-0.08	-0.08
9KUN8B	*	49.56	-1.60	-1.60	48.46	-2.58	-2.59
AVKU6D		51.37	0.21	0.21	51.72	0.69	0.69
B9WJUV		50.65	-0.50	-0.51	50.57	-0.47	-0.47
BDNQC4		51.94	0.79	0.79	52.14	1.10	1.11
BUWFWV		50.71	-0.44	-0.44	50.68	-0.36	-0.36
CTWYW4		50.50	-0.65	-0.66	50.61	-0.42	-0.43
EDV7ZR		52.28	1.13	1.13	51.68	0.64	0.65
EDXUG7		52.02	0.87	0.87	52.18	1.14	1.15
EEKHQK		50.86	-0.29	-0.30	50.61	-0.43	-0.43
ERXDEW		51.06	-0.10	-0.10	51.24	0.20	0.20
FBP4Q3		51.54	0.39	0.39	50.96	-0.08	-0.08
FL48PK		53.39	2.23	2.24	53.06	2.02	2.03
FLD7RG	X	42.10	-9.06	-9.09	42.11	-8.93	-8.97
FZ2ABY		49.80	-1.35	-1.36	50.00	-1.04	-1.04
GCEPXX		51.28	0.13	0.13	51.56	0.52	0.52
HJ7K2L		49.66	-1.49	-1.50	49.54	-1.50	-1.51
HTEZ79		49.87	-1.28	-1.29	49.73	-1.30	-1.31
J3WZ8N		51.66	0.51	0.51	50.54	-0.49	-0.50
J9XH89		49.78	-1.37	-1.38	50.65	-0.39	-0.39
JQ3PLB		52.38	1.23	1.23	53.00	1.96	1.97
KAYDPJ		53.12	1.96	1.97	52.90	1.87	1.87
KJ69RP		51.23	0.08	0.08	50.80	-0.24	-0.24
L3L76R		51.66	0.50	0.50	51.22	0.18	0.18
NG2WDJ		50.48	-0.67	-0.68	50.12	-0.92	-0.92



Plastics Interlaboratory Testing Program

Report #110

Analysis 730

2nd Qtr 2019

Tensile Stress at Yield - MPa

WebCode	Data Flag	<u>Sample C59</u>			<u>Sample C60</u>		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
NJ98AM		51.84	0.69	0.69	50.94	-0.10	-0.10
QAAMLY		50.08	-1.07	-1.08	50.62	-0.42	-0.42
QEN2QH		52.49	1.34	1.35	51.31	0.27	0.27
QHP843		51.42	0.27	0.27	51.66	0.62	0.62
R3A2UP		50.52	-0.63	-0.64	51.11	0.08	0.08
RDCLUW		50.44	-0.71	-0.72	49.98	-1.06	-1.06
VX8KR6		52.21	1.06	1.06	51.94	0.90	0.91
VZQGBP		51.80	0.65	0.65	50.88	-0.16	-0.16
WC4VXN		50.79	-0.37	-0.37	50.68	-0.36	-0.36
WJ766G		51.02	-0.13	-0.13	51.04	0.00	0.00
YUUVVX		49.78	-1.37	-1.38	50.38	-0.66	-0.66
ZUPZJ7		50.34	-0.81	-0.82	50.14	-0.90	-0.90
ZYLH6C	*	48.54	-2.61	-2.63	48.46	-2.58	-2.59

Summary Statistics		
	<u>Sample C59</u>	<u>Sample C60</u>
Grand Means	51.154 MPa	51.039 MPa
Stnd Dev Btwn Labs	0.996 MPa	0.995 MPa
Statistics based on 47 of 48 reporting participants		

Sample C59: ABS/PC & Sample C60: ABS/PC

Comments on Assigned Data Flags for Test #730

FLD7RG (X) - Data for both samples are low. Possible Systematic Error.



Plastics Interlaboratory Testing Program

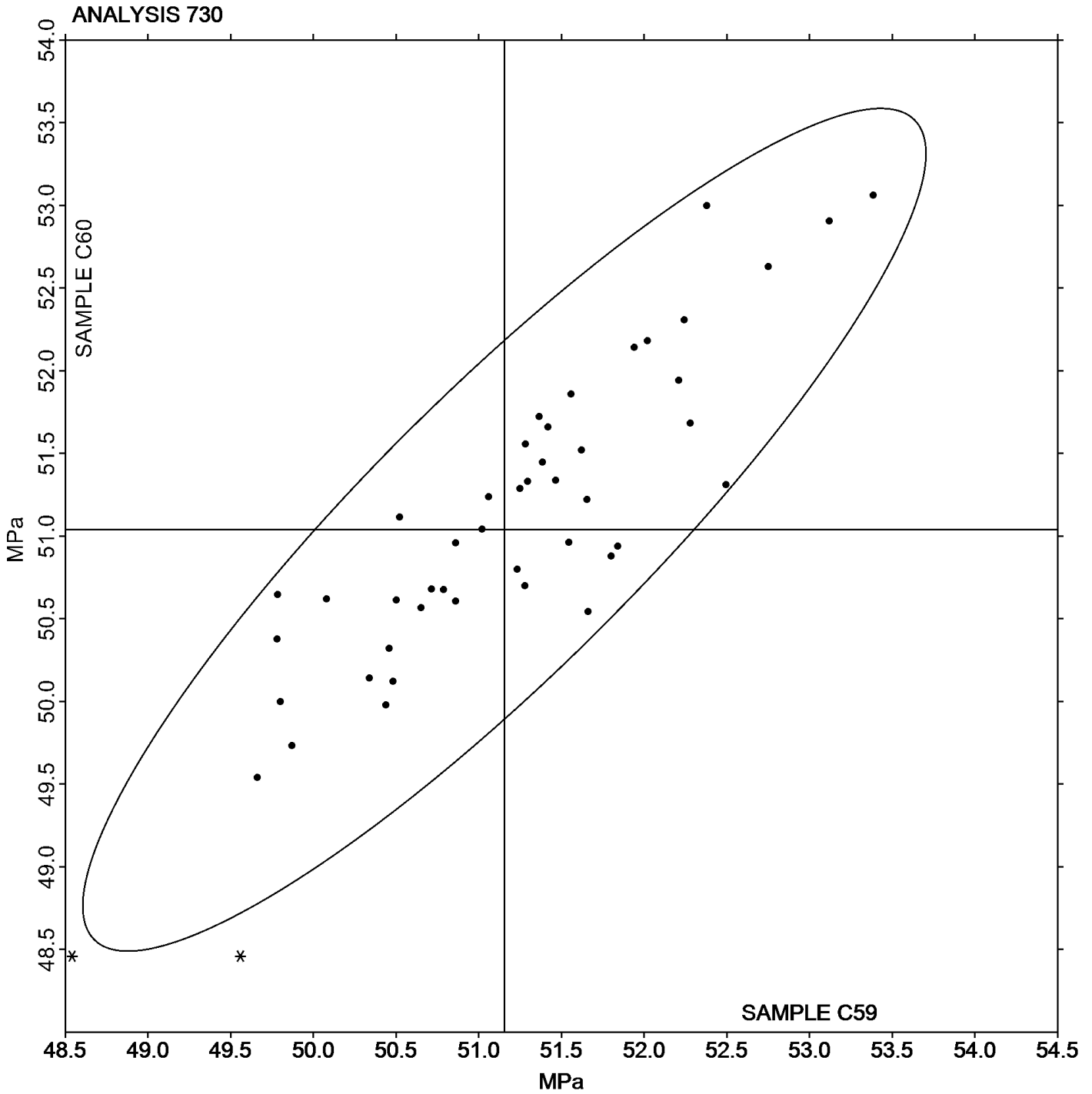
Report #110

Analysis 730

2nd Qtr 2019

Tensile Stress at Yield - MPa

Grand Mean Sample C59: 51.154 MPa Grand Mean Sample C60: 51.039 MPa





Plastics Interlaboratory Testing Program

Report #110

Analysis 731

2nd Qtr 2019

Tensile Stress at Break - MPa

WebCode	Data Flag	Sample C59			Sample C60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3RVTEY		45.02	1.46	1.15	44.76	1.29	0.98
4BG86T		41.80	-1.76	-1.38	41.20	-2.27	-1.73
6YB6TC		43.01	-0.55	-0.43	43.62	0.15	0.11
6YKJR6		43.88	0.32	0.25	43.10	-0.37	-0.28
6ZKA7Z		44.84	1.28	1.00	46.13	2.66	2.03
728C87		43.24	-0.32	-0.25	43.49	0.01	0.01
7GN4DZ		43.18	-0.38	-0.30	43.02	-0.46	-0.35
93EBFK		42.94	-0.62	-0.49	44.05	0.58	0.44
9DP6C6		43.84	0.28	0.22	44.10	0.63	0.48
9KUN8B		41.71	-1.84	-1.45	40.41	-3.06	-2.33
AVKU6D		44.39	0.83	0.65	44.83	1.36	1.03
BDNQC4		43.76	0.20	0.16	44.02	0.55	0.42
BUWFWV		44.51	0.95	0.74	43.50	0.02	0.02
CTWYW4		42.09	-1.47	-1.16	42.59	-0.88	-0.67
CX6GWR		43.40	-0.16	-0.13	43.10	-0.38	-0.29
EDV7ZR		44.76	1.21	0.95	44.27	0.79	0.60
EDXUG7		44.42	0.86	0.68	44.56	1.09	0.83
ERXDEW		43.87	0.31	0.24	42.92	-0.55	-0.42
FBP4Q3		44.32	0.76	0.60	43.91	0.44	0.33
FL48PK		46.06	2.50	1.96	45.81	2.33	1.78
GCEPXX		43.88	0.32	0.25	43.79	0.32	0.24
HJ7K2L		41.86	-1.70	-1.34	42.88	-0.59	-0.45
HTEZ79		42.96	-0.60	-0.47	44.05	0.58	0.44
J3WZ8N		43.86	0.30	0.23	43.86	0.39	0.29
J9XH89		42.10	-1.45	-1.14	43.04	-0.43	-0.33
JQ3PLB		45.12	1.56	1.23	46.20	2.73	2.08
KAYDPJ		45.00	1.44	1.13	44.31	0.84	0.64
L3L76R		44.36	0.81	0.63	44.17	0.70	0.53
NG2WDJ		43.15	-0.41	-0.32	42.02	-1.45	-1.11
NJ98AM		44.80	1.24	0.98	43.38	-0.09	-0.07
QAAMLY	X	30.52	-13.04	-10.25	30.70	-12.77	-9.73
QEN2QH		44.63	1.07	0.84	43.16	-0.32	-0.24
QHP843		44.46	0.90	0.71	44.30	0.83	0.63
R3A2UP		43.31	-0.25	-0.19	43.19	-0.28	-0.22
RDCLUW		41.90	-1.66	-1.30	41.82	-1.65	-1.26



Plastics Interlaboratory Testing Program

Report #110

Analysis 731

2nd Qtr 2019

Tensile Stress at Break - MPa

WebCode	Data Flag	<u>Sample C59</u>			<u>Sample C60</u>		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
WC4VXN		44.16	0.60	0.47	43.58	0.11	0.08
WJ766G	*	40.28	-3.28	-2.58	41.36	-2.11	-1.61
YUUVVX		44.28	0.72	0.57	43.33	-0.14	-0.11
ZUPZJ7		42.92	-0.64	-0.50	43.38	-0.09	-0.07
ZYLH6C		40.74	-2.82	-2.22	40.26	-3.21	-2.45

Summary Statistics		
	<u>Sample C59</u>	<u>Sample C60</u>
Grand Means	43.559 MPa	43.474 MPa
Std Dev Btwn Labs	1.272 MPa	1.313 MPa
Statistics based on 39 of 40 reporting participants		

Sample C59: ABS/PC & Sample C60: ABS/PC

Comments on Assigned Data Flags for Test #731

QAAMLY (X) - Data for both samples are low. Possible Systematic Error.



Plastics Interlaboratory Testing Program

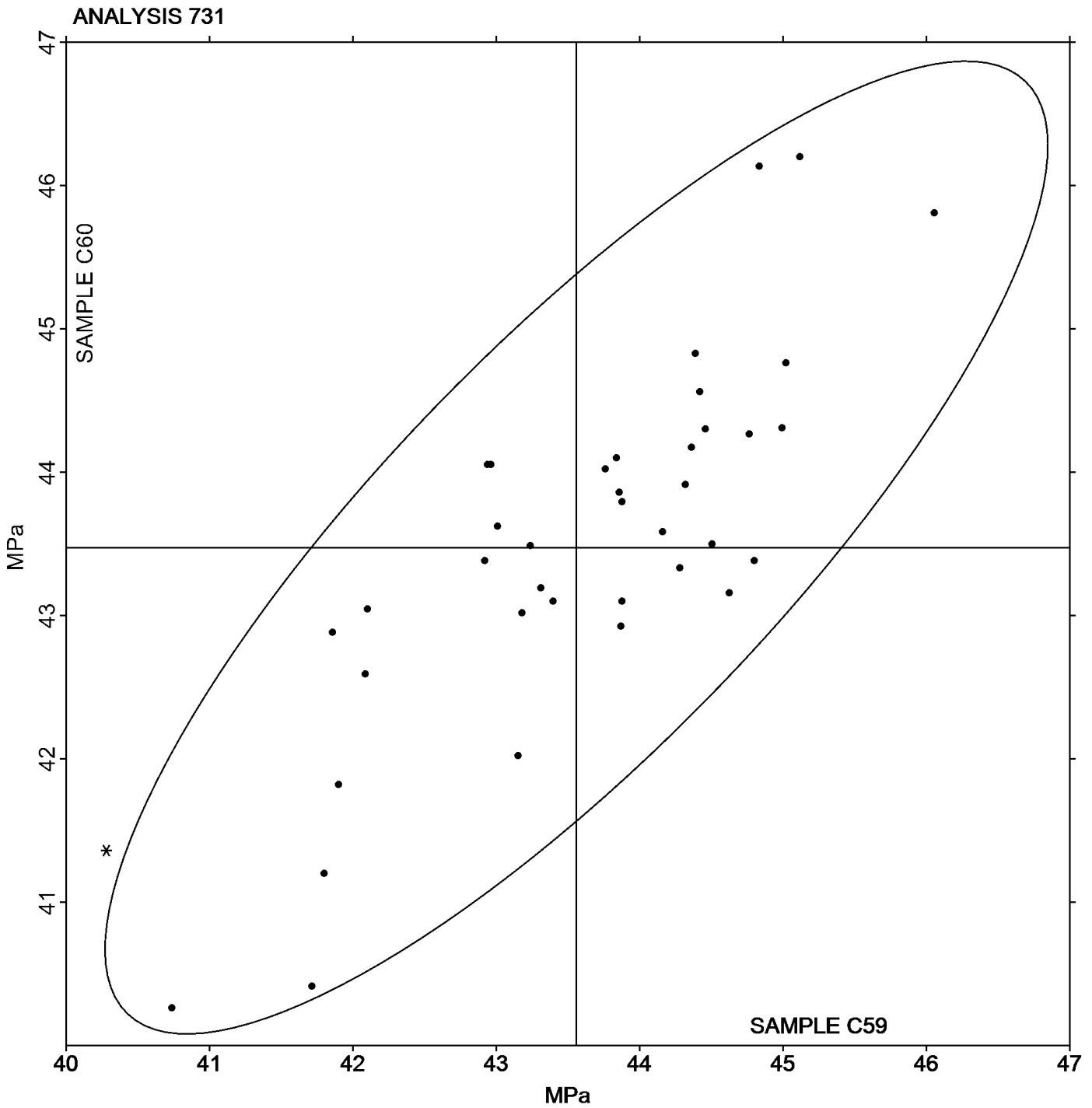
Analysis 731

Tensile Stress at Break - MPa

Report #110

2nd Qtr 2019

Grand Mean Sample C59: 43.559 MPa Grand Mean Sample C60: 43.474 MPa





Plastics Interlaboratory Testing Program

Report #110

Analysis 732

2nd Qtr 2019

Percent Strain at Yield

WebCode	Data Flag	Sample C59			Sample C60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3RVTEY		4.662	0.120	0.79	4.616	0.076	0.50
4BG86T		4.714	0.172	1.14	4.690	0.150	0.98
6YB6TC	X	5.536	0.994	6.56	5.602	1.062	6.95
6YKJR6		4.532	-0.010	-0.06	4.534	-0.006	-0.04
6ZKA7Z		4.580	0.038	0.25	4.576	0.036	0.24
728C87		4.594	0.052	0.35	4.594	0.054	0.35
7GN4DZ		4.602	0.060	0.40	4.612	0.072	0.47
8PCHB3		4.618	0.076	0.50	4.668	0.128	0.84
93EBFK		4.628	0.086	0.57	4.570	0.030	0.20
9DP6C6		4.760	0.218	1.44	4.740	0.200	1.31
9KUN8B	X	4.796	0.254	1.68	5.004	0.464	3.04
B9WJUV		4.414	-0.128	-0.84	4.414	-0.126	-0.82
BDNQC4		4.440	-0.102	-0.67	4.460	-0.080	-0.52
BUWFWV		4.524	-0.018	-0.12	4.452	-0.088	-0.57
CTWYW4		4.314	-0.228	-1.50	4.308	-0.232	-1.52
EDV7ZR		4.530	-0.012	-0.08	4.418	-0.122	-0.80
EDXUG7		4.520	-0.022	-0.14	4.484	-0.056	-0.37
EEKHQK		4.434	-0.108	-0.71	4.512	-0.028	-0.18
ERXDEW		4.529	-0.013	-0.08	4.566	0.027	0.17
FBP4Q3		4.411	-0.130	-0.86	4.377	-0.163	-1.07
FL48PK		4.746	0.204	1.35	4.758	0.218	1.43
FLD7RG	X	55.380	50.838	335.62	56.096	51.556	337.44
GCEPXX		4.562	0.020	0.13	4.528	-0.012	-0.08
HJ7K2L		4.700	0.158	1.05	4.640	0.100	0.66
HTEZ79		4.520	-0.022	-0.14	4.622	0.082	0.54
J3WZ8N	X	12.660	8.118	53.60	12.944	8.404	55.01
J9XH89		4.410	-0.132	-0.87	4.408	-0.132	-0.86
JQ3PLB	*	4.108	-0.434	-2.86	4.092	-0.448	-2.93
KAYDPJ		4.800	0.258	1.71	4.808	0.268	1.76
L3L76R		4.568	0.026	0.17	4.618	0.078	0.51
NG2WDJ		4.646	0.104	0.69	4.611	0.072	0.47
NJ98AM		4.704	0.162	1.07	4.780	0.240	1.57
QAAMLY		4.540	-0.002	-0.01	4.440	-0.100	-0.65
QEN2QH		4.338	-0.204	-1.34	4.468	-0.072	-0.47
QHP843		4.360	-0.182	-1.20	4.380	-0.160	-1.05



Plastics Interlaboratory Testing Program

Report #110

Analysis 732

2nd Qtr 2019

Percent Strain at Yield

WebCode	Data Flag	<u>Sample C59</u>			<u>Sample C60</u>		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
R3A2UP		4.618	0.076	0.50	4.496	-0.044	-0.29
RDCLUW		4.780	0.238	1.57	4.700	0.160	1.05
VX8KR6		4.578	0.036	0.24	4.520	-0.020	-0.13
WC4VXN		4.486	-0.056	-0.37	4.428	-0.112	-0.73
WJ766G		4.620	0.078	0.52	4.700	0.160	1.05
YUUVVX		4.408	-0.134	-0.88	4.532	-0.008	-0.05
ZUPZJ7		4.604	0.062	0.41	4.712	0.172	1.13
ZYLH6C		4.220	-0.322	-2.12	4.220	-0.320	-2.09

Summary Statistics

	<u>Sample C59</u>	<u>Sample C60</u>
Grand Means	4.5416 Percent	4.5398 Percent
Std Dev Btwn Labs	0.1515 Percent	0.1528 Percent

Statistics based on 39 of 43 reporting participants

Sample C59: ABS/PC & Sample C60: ABS/PC

Comments on Assigned Data Flags for Test #732

- 6YB6TC (X) - Data for both samples are high. Possible Systematic Error.
- J3WZ8N (X) - Extreme data.
- 9KUN8B (X) - Data for sample C60 are high.
- FLD7RG (X) - Extreme data.



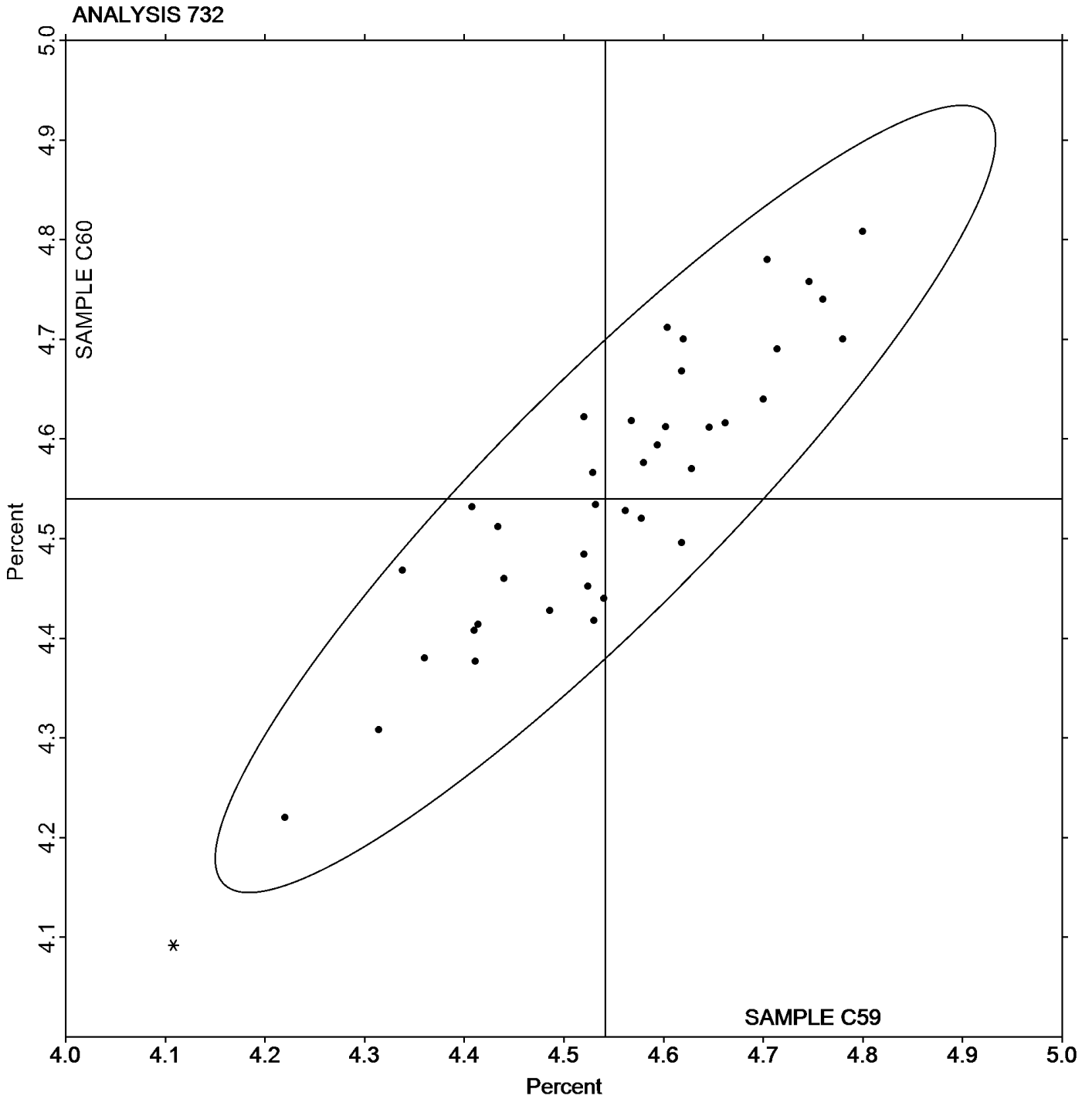
Plastics Interlaboratory Testing Program

Analysis 732 Percent Strain at Yield

Report #110

2nd Qtr 2019

Grand Mean Sample C59: 4.5416 Percent Grand Mean Sample C60: 4.5398 Percent





Plastics Interlaboratory Testing Program

Report #110

Analysis 734

2nd Qtr 2019

Modulus of Elasticity - MPa

WebCode	Data Flag	Sample C59			Sample C60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
36BARV	*	2,570	254	2.63	2,558	234	2.44
3RVTEY		2,440	124	1.29	2,436	111	1.16
4BG86T		2,135	-181	-1.88	2,130	-195	-2.04
6YB6TC		2,244	-73	-0.75	2,215	-110	-1.15
6YKJR6		2,225	-91	-0.95	2,225	-100	-1.04
6ZKA7Z		2,284	-32	-0.33	2,261	-64	-0.67
728C87		2,349	33	0.34	2,341	16	0.17
7GN4DZ		2,191	-125	-1.30	2,269	-56	-0.59
93EBFK		2,375	59	0.62	2,372	47	0.49
9DP6C6	X	2,226	-90	-0.93	2,503	178	1.86
9KUN8B		2,134	-182	-1.89	2,100	-224	-2.35
B9WJUV		2,361	45	0.47	2,369	44	0.46
BDNQC4		2,339	23	0.24	2,336	11	0.12
BUWFWV		2,387	71	0.74	2,411	87	0.91
CTWYW4		2,162	-155	-1.60	2,170	-155	-1.62
EDV7ZR		2,346	30	0.31	2,343	19	0.19
EDXUG7		2,301	-15	-0.16	2,313	-12	-0.12
EEKHQK		2,342	26	0.27	2,369	44	0.46
ERXDEW		2,224	-92	-0.96	2,304	-21	-0.22
FBP4Q3		2,263	-53	-0.55	2,324	-1	-0.01
FL48PK		2,381	65	0.67	2,402	77	0.81
FLD7RG	X	644	-1,672	-17.36	656	-1,669	-17.45
GCEPXX		2,220	-96	-0.99	2,212	-113	-1.18
HJ7K2L		2,319	3	0.03	2,318	-7	-0.07
HTEZ79		2,315	-1	-0.01	2,306	-19	-0.20
J9XH89		2,289	-28	-0.29	2,383	58	0.61
JQ3PLB		2,498	182	1.89	2,510	185	1.94
L3L76R		2,364	47	0.49	2,362	37	0.38
NG2WDJ		2,245	-71	-0.74	2,285	-40	-0.42
NJ98AM		2,336	20	0.21	2,286	-39	-0.41
QAAMLY	X	2,219	-97	-1.01	2,435	110	1.15
QEN2QH		2,420	104	1.08	2,349	25	0.26
QHP843		2,447	131	1.36	2,397	72	0.75
R3A2UP		2,386	70	0.73	2,405	81	0.84
RDCLUW		2,294	-22	-0.23	2,278	-47	-0.49



Plastics Interlaboratory Testing Program

Report #110

Analysis 734

2nd Qtr 2019

Modulus of Elasticity - MPa

WebCode	Data Flag	<u>Sample C59</u>			<u>Sample C60</u>		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
WC4VXN	*	2,317	1	0.01	2,450	125	1.31
WJ766G		2,314	-2	-0.02	2,336	11	0.12
YUUVVX		2,187	-129	-1.34	2,212	-112	-1.18
ZUPZJ7		2,317	1	0.01	2,322	-3	-0.03
ZYLH6C		2,376	60	0.62	2,360	35	0.37

Summary Statistics		
	<u>Sample C59</u>	<u>Sample C60</u>
Grand Means	2,316.2 MPa	2,324.8 MPa
Stnd Dev Btwn Labs	96.3 MPa	95.6 MPa
Statistics based on 37 of 40 reporting participants		

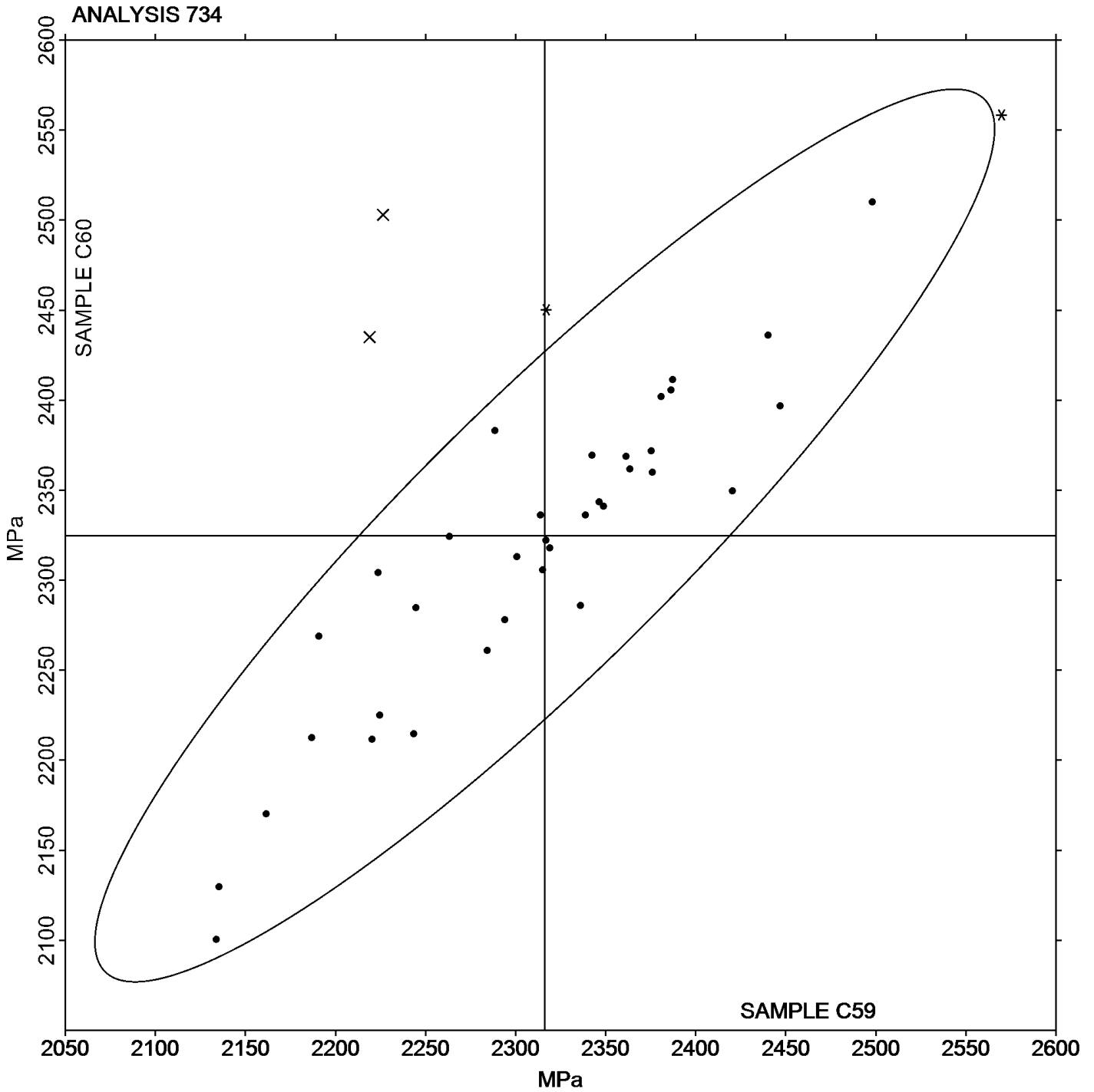
Sample C59: ABS/PC & Sample C60: ABS/PC

Comments on Assigned Data Flags for Test #734

- 9DP6C6 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
- QAAMLY (X) - Inconsistent in testing between samples.
- FLD7RG (X) - Extreme data.



Grand Mean Sample C59: 2,316.16 MPa Grand Mean Sample C60: 2,324.84 MPa





Plastics Interlaboratory Testing Program

Report #110

Analysis 736

2nd Qtr 2019

Flexural Modulus - MPa

WebCode	Data Flag	Sample K59			Sample K60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3RVTEY		2,394	137	1.21	2,428	172	1.45
4BG86T		2,315	59	0.51	2,315	59	0.50
6YB6TC		2,116	-140	-1.23	2,131	-124	-1.05
6YKJR6		2,242	-15	-0.13	2,252	-3	-0.03
6ZKA7Z		2,185	-72	-0.63	2,195	-61	-0.52
728C87		2,245	-12	-0.11	2,262	6	0.05
78EUEL		2,268	11	0.10	2,268	13	0.11
7WBT22		2,144	-112	-0.99	2,161	-95	-0.80
8PCHB3		2,298	41	0.36	2,314	58	0.49
9DP6C6		2,240	-16	-0.14	2,250	-6	-0.05
9KUN8B		2,257	0	0.00	2,268	13	0.11
AVKU6D		2,266	9	0.08	2,258	2	0.02
AXDP39		2,422	166	1.45	2,444	188	1.59
B9WJUV		2,266	9	0.08	2,259	4	0.03
BDNQC4		2,325	68	0.60	2,269	13	0.11
BUFWV		2,146	-111	-0.97	2,156	-100	-0.84
CTWYW4		2,396	140	1.23	2,389	134	1.13
EDXUG7		2,405	148	1.30	2,412	157	1.32
ERXDEW		2,126	-131	-1.15	2,109	-147	-1.24
FBP4Q3		2,251	-6	-0.05	2,273	17	0.15
FL48PK		2,474	218	1.91	2,485	229	1.93
FZMJQU		2,206	-51	-0.45	2,206	-50	-0.42
GCEPXX		2,239	-17	-0.15	2,247	-9	-0.08
HBD2AT		2,193	-63	-0.56	2,171	-84	-0.71
HJ7K2L		2,229	-28	-0.24	2,184	-72	-0.61
HTEZ79		2,196	-61	-0.53	2,188	-68	-0.58
J3WZ8N		2,117	-140	-1.23	2,133	-122	-1.03
J9XH89		2,184	-73	-0.64	2,186	-70	-0.59
JQ3PLB	*	2,598	341	3.00	2,614	358	3.02
KAYDPJ		2,247	-10	-0.09	2,271	15	0.13
KJ69RP	X	43	-2,214	-19.45	42	-2,214	-18.70
L3L76R	*	2,258	2	0.01	2,325	69	0.58
NDEBCV		2,230	-26	-0.23	2,223	-33	-0.28
NG2WDJ		2,071	-185	-1.63	2,066	-189	-1.60
NJ98AM	*	2,373	116	1.02	2,310	54	0.46



Plastics Interlaboratory Testing Program

Report #110

Analysis 736

2nd Qtr 2019

Flexural Modulus - MPa

WebCode	Data Flag	<u>Sample K59</u>			<u>Sample K60</u>		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
QEN2QH		2,161	-96	-0.84	2,152	-104	-0.88
QHP843		2,172	-85	-0.74	2,156	-99	-0.84
R3A2UP		2,240	-16	-0.14	2,232	-24	-0.20
RDCLUW		2,270	13	0.12	2,228	-28	-0.24
WC4VXN		2,271	15	0.13	2,282	26	0.22
YB28AA		2,501	245	2.15	2,494	238	2.01
YUUVVX		2,164	-92	-0.81	2,101	-155	-1.31
ZYLH6C		2,078	-179	-1.57	2,079	-177	-1.49

Summary Statistics		<u>Sample K59</u>	<u>Sample K60</u>
Grand Means		2,256.7 MPa	2,255.9 MPa
Stnd Dev Btwn Labs		113.8 MPa	118.4 MPa
Statistics based on 42 of 43 reporting participants			

Sample K59: HIPS & Sample K60: HIPS

Comments on Assigned Data Flags for Test #736

KJ69RP (X) - Extreme data.



Plastics Interlaboratory Testing Program

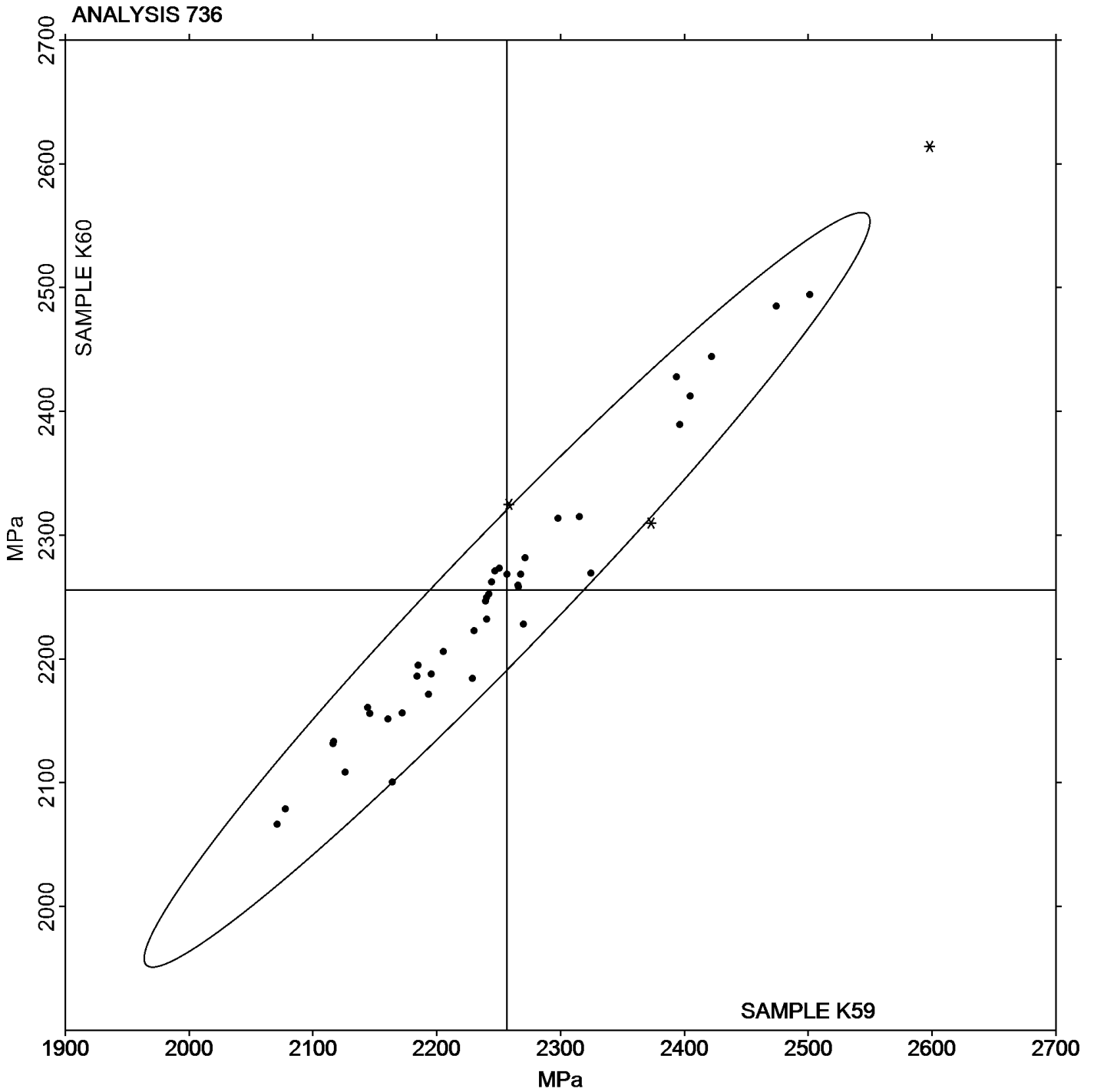
Report #110

Analysis 736

2nd Qtr 2019

Flexural Modulus - MPa

Grand Mean Sample K59: 2,256.69 MPa Grand Mean Sample K60: 2,255.86 MPa





Plastics Interlaboratory Testing Program

Report #110

Analysis 737

2nd Qtr 2019

Flexural Stress at 3.5% Strain - MPa

WebCode	Data Flag	Sample K59			Sample K60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3RVTEY		42.33	3.22	2.36	42.30	3.16	2.27
4BG86T		39.54	0.43	0.31	39.54	0.40	0.29
6YB6TC		38.13	-0.98	-0.72	38.46	-0.68	-0.49
6YKJR6		38.88	-0.23	-0.17	39.12	-0.02	-0.01
6ZKA7Z		38.75	-0.36	-0.27	38.78	-0.36	-0.26
728C87		38.69	-0.42	-0.31	38.67	-0.47	-0.34
78EUEL		38.70	-0.41	-0.30	38.84	-0.30	-0.21
93EBFK		39.07	-0.04	-0.03	39.01	-0.13	-0.09
9DP6C6		38.84	-0.27	-0.20	39.04	-0.10	-0.07
9KUN8B		40.89	1.77	1.30	40.78	1.65	1.18
AVKU6D	X	40,180.00	0,140.89	29,444.96	40,120.00	40,080.86	28,776.71
B9WJUV		38.68	-0.43	-0.32	38.69	-0.45	-0.32
BDNQC4	X	38.96	-0.15	-0.11	38.12	-1.02	-0.73
BUWFWV		37.77	-1.34	-0.98	37.92	-1.22	-0.87
CTWYW4		37.46	-1.65	-1.21	37.53	-1.60	-1.15
EDXUG7		40.26	1.15	0.84	40.46	1.32	0.95
ERXDEW		38.16	-0.96	-0.70	38.31	-0.82	-0.59
FBP4Q3		39.88	0.77	0.57	39.72	0.58	0.42
FL48PK		42.43	3.32	2.43	42.66	3.53	2.53
FZMJQU		38.60	-0.51	-0.38	39.03	-0.10	-0.07
GCEPXX		38.78	-0.34	-0.25	38.66	-0.48	-0.34
HBD2AT		37.90	-1.21	-0.89	37.91	-1.23	-0.88
HJ7K2L		38.10	-1.01	-0.74	38.04	-1.10	-0.79
HTEZ79		38.05	-1.06	-0.78	38.11	-1.03	-0.74
J3WZ8N		39.43	0.32	0.24	39.22	0.09	0.06
J9XH89		39.31	0.20	0.15	39.21	0.08	0.05
JQ3PLB	X	44.28	5.17	3.79	44.06	4.92	3.54
KAYDPJ		40.96	1.85	1.36	41.08	1.94	1.40
L3L76R		39.74	0.63	0.46	40.12	0.98	0.70
NDEBCV		37.54	-1.58	-1.16	37.31	-1.82	-1.31
NG2WDJ		37.88	-1.23	-0.91	37.98	-1.16	-0.83
NJ98AM		37.28	-1.83	-1.34	37.08	-2.06	-1.48
QEN2QH		39.18	0.07	0.05	39.17	0.04	0.03
QHP843		39.37	0.26	0.19	39.19	0.06	0.04
R3A2UP		38.25	-0.86	-0.63	38.21	-0.93	-0.67



Plastics Interlaboratory Testing Program

Report #110

Analysis 737

2nd Qtr 2019

Flexural Stress at 3.5% Strain - MPa

WebCode	Data Flag	<u>Sample K59</u>			<u>Sample K60</u>		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
RDCLUW	*	39.19	0.07	0.05	38.68	-0.46	-0.33
WC4VXN		39.03	-0.08	-0.06	38.93	-0.20	-0.15
YB28AA	*	42.87	3.76	2.76	42.99	3.86	2.77
YUUVVX	X	37.55	-1.56	-1.14	36.65	-2.48	-1.78
ZYLH6C		38.12	-0.99	-0.73	38.14	-0.99	-0.71

Summary Statistics		
	<u>Sample K59</u>	<u>Sample K60</u>
Grand Means	39.112 MPa	39.136 MPa
Stnd Dev Btwn Labs	1.363 MPa	1.393 MPa
Statistics based on 36 of 40 reporting participants		

Sample K59: HIPS & Sample K60: HIPS

Comments on Assigned Data Flags for Test #737

BDNQC4 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample K60.

YUUVVX (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample K59.

AVKU6D (X) - Extreme data.

JQ3PLB (X) - Data for both samples are high. Possible Systematic Error.



Plastics Interlaboratory Testing Program

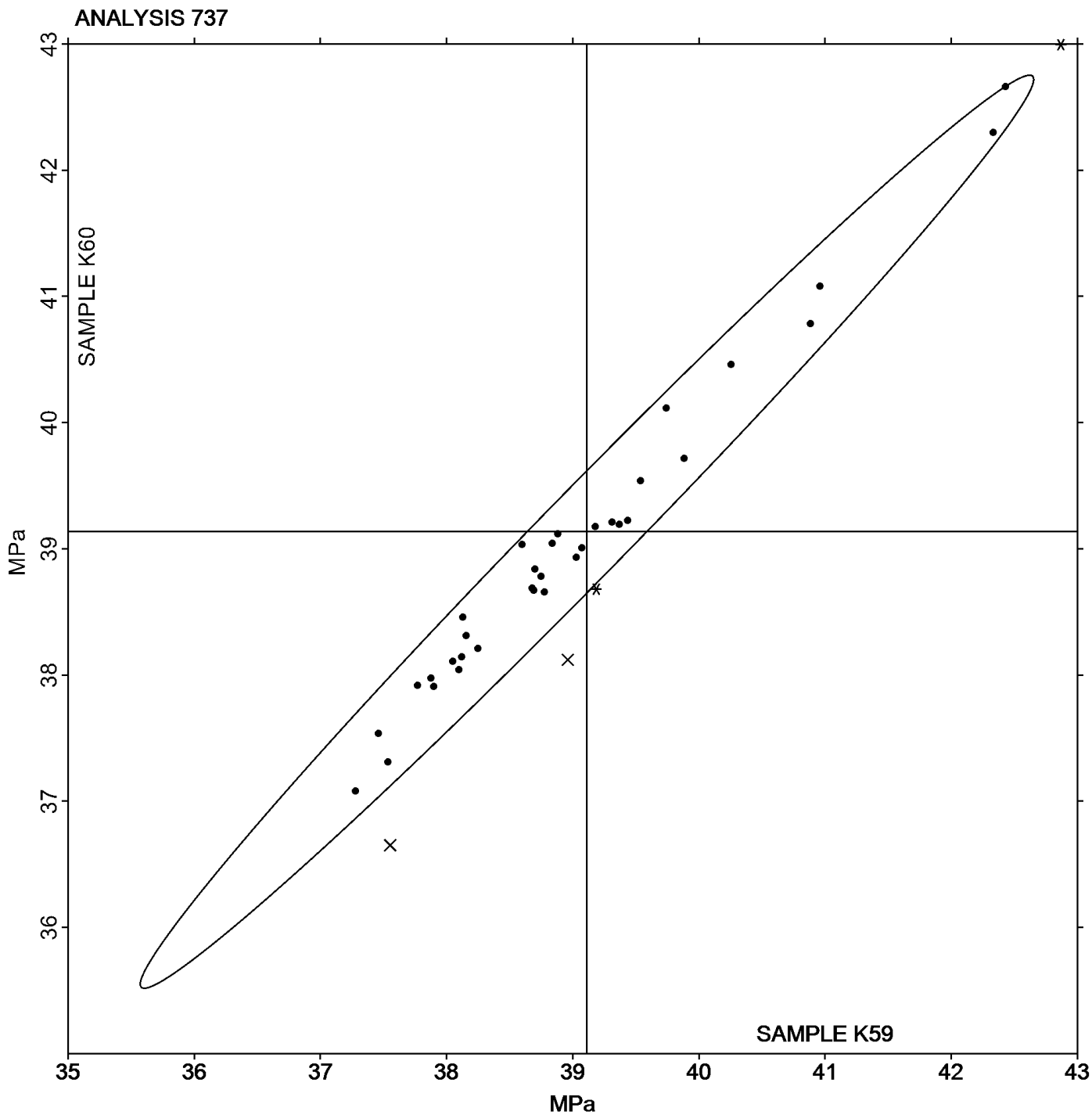
Report #110

Analysis 737

2nd Qtr 2019

Flexural Stress at 3.5% Strain - MPa

Grand Mean Sample K59: 39.112 MPa Grand Mean Sample K60: 39.136 MPa





Plastics Interlaboratory Testing Program

Report #110

Analysis 738

2nd Qtr 2019

Flexural Stress at Yield - MPa

WebCode	Data Flag	Sample K59			Sample K60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
4BG86T		40.04	0.65	0.62	40.02	0.58	0.53
6YB6TC		38.62	-0.78	-0.75	38.74	-0.70	-0.65
6YKJR6		39.49	0.10	0.09	39.96	0.52	0.48
6ZKA7Z		39.17	-0.23	-0.22	39.30	-0.14	-0.13
728C87		38.97	-0.43	-0.41	39.00	-0.44	-0.40
78EUEL		39.30	-0.09	-0.09	39.46	0.02	0.02
8PCHB3		39.23	-0.17	-0.16	39.74	0.30	0.28
93EBFK		39.45	0.05	0.05	39.40	-0.04	-0.04
9DP6C6		38.84	-0.55	-0.53	39.04	-0.40	-0.37
9KUN8B		41.47	2.07	1.99	41.38	1.94	1.79
AVKU6D	X	35,220.00	5,180.61	3,824.05	35,700.00	35,660.56	32,873.04
AXDP39	*	42.06	2.67	2.56	42.48	3.04	2.80
BDNQC4	*	39.62	0.23	0.22	38.78	-0.66	-0.61
BUWFWV		38.14	-1.25	-1.20	38.55	-0.89	-0.82
BZBNFK		39.84	0.45	0.43	39.56	0.12	0.11
ERXDEW		38.72	-0.67	-0.65	39.03	-0.41	-0.37
FBP4Q3		40.28	0.88	0.85	40.09	0.65	0.60
FZMJQU		38.91	-0.48	-0.47	39.32	-0.12	-0.11
HBD2AT		38.30	-1.09	-1.05	38.47	-0.97	-0.90
HJ7K2L		38.62	-0.77	-0.74	38.72	-0.72	-0.66
HTEZ79		38.34	-1.06	-1.02	38.46	-0.98	-0.90
J3WZ8N		40.46	1.06	1.02	40.15	0.71	0.66
J9XH89		39.96	0.57	0.54	39.90	0.46	0.42
JQ3PLB	X	44.44	5.05	4.85	44.22	4.78	4.41
KAYDPJ		41.44	2.05	1.97	41.65	2.21	2.04
L3L76R		40.81	1.42	1.36	41.18	1.74	1.60
NDEBCV		38.00	-1.39	-1.34	38.00	-1.44	-1.33
NJ98AM		37.78	-1.61	-1.55	37.78	-1.66	-1.53
QEN2QH		39.72	0.33	0.32	39.76	0.32	0.30
R3A2UP		38.62	-0.77	-0.74	38.67	-0.77	-0.71
RDCLUW		39.88	0.48	0.46	39.44	0.00	0.00
WC4VXN		39.26	-0.14	-0.13	39.17	-0.27	-0.25
YUUVVX	*	38.46	-0.94	-0.90	37.61	-1.83	-1.69
ZYLH6C		38.86	-0.54	-0.52	39.25	-0.19	-0.18



Plastics Interlaboratory Testing Program

Report #110

Analysis 738

2nd Qtr 2019

Flexural Stress at Yield - MPa

Summary Statistics	<u>Sample K59</u>	<u>Sample K60</u>
Grand Means	39.395 MPa	39.440 MPa
Stnd Dev Btwn Labs	1.040 MPa	1.085 MPa

Statistics based on 32 of 34 reporting participants

Sample K59: HIPS & Sample K60: HIPS

Comments on Assigned Data Flags for Test #738

AVKU6D (X) - Extreme data.

JQ3PLB (X) - Data for both samples are high. Possible Systematic Error.



Plastics Interlaboratory Testing Program

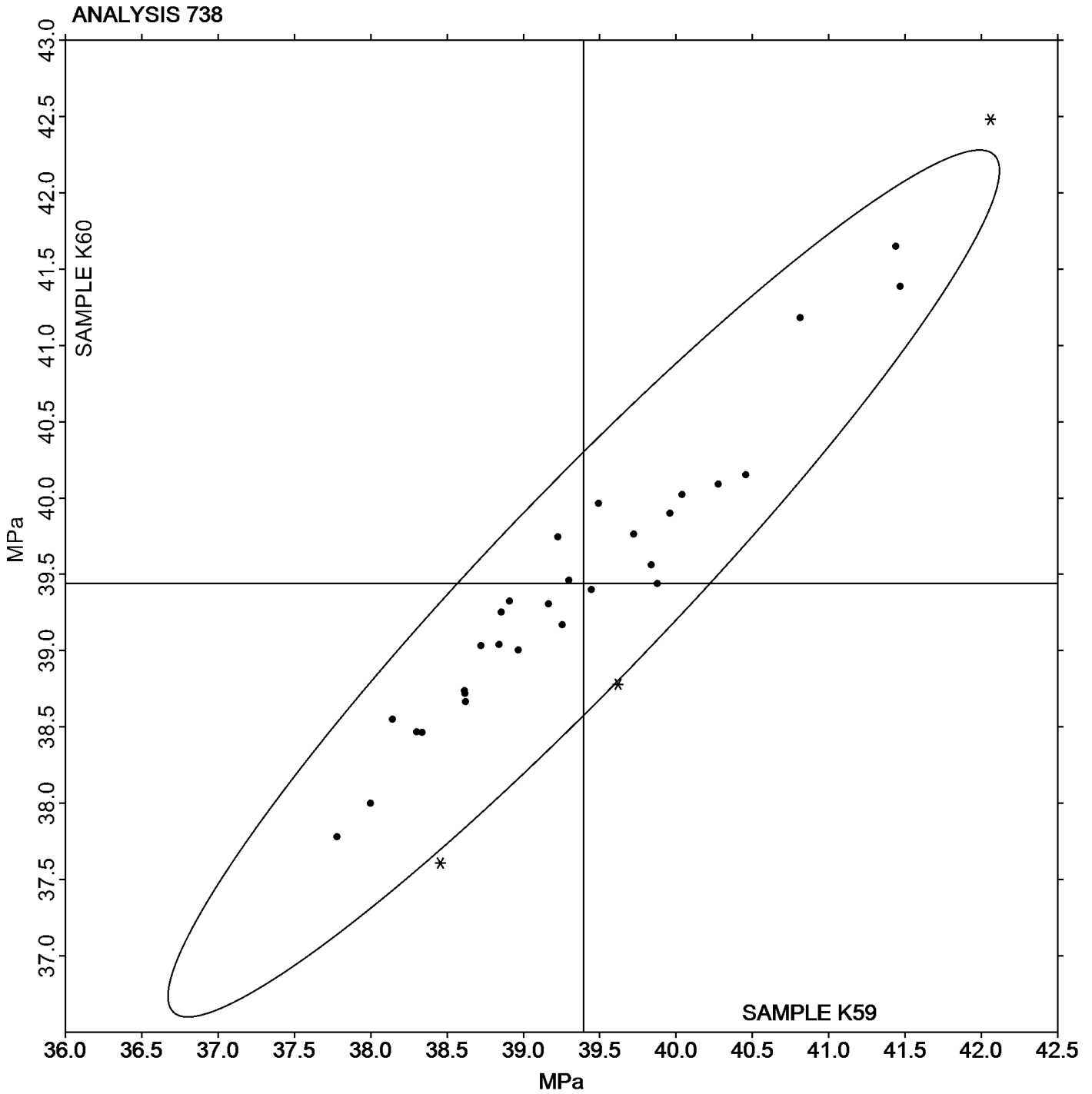
Analysis 738

Flexural Stress at Yield - MPa

Report #110

2nd Qtr 2019

Grand Mean Sample K59: 39.395 MPa Grand Mean Sample K60: 39.440 MPa





Plastics Interlaboratory Testing Program

Report #110

Analysis 750

2nd Qtr 2019

Flow Rates of Thermoplastics (190 or 230C/2.16 kg) - g/10 mins

WebCode	Data Flag	Sample X59			Sample X60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2Q9QCT	X	14.01	0.20	0.27	15.20	1.45	2.31	TO
2VXGAN		13.35	-0.46	-0.62	13.40	-0.35	-0.56	DY
36BARV	X	4.35	-9.46	-12.71	4.52	-9.23	-14.71	XX
39HJ6L	X	17.56	3.74	5.03	16.87	3.12	4.96	XX
3AT8LD		14.73	0.92	1.23	14.65	0.90	1.43	RR
3PMWFN	X	17.54	3.73	5.01	18.38	4.63	7.37	DY
3RVTEY		14.11	0.30	0.40	13.38	-0.37	-0.59	DY
3UKBH7		14.65	0.84	1.13	14.55	0.80	1.28	TO
3X2KPH		12.55	-1.26	-1.69	13.05	-0.70	-1.11	WZ
64GYCL		13.76	-0.05	-0.07	13.53	-0.22	-0.35	TM
6PKLE4		13.33	-0.48	-0.65	13.83	0.08	0.13	XX
6YKJR6		13.40	-0.42	-0.56	13.17	-0.58	-0.92	TO
6ZKA7Z		13.95	0.14	0.19	13.90	0.15	0.24	TO
728C87		13.20	-0.61	-0.82	13.30	-0.45	-0.72	WZ
73GBCM		13.53	-0.29	-0.38	13.38	-0.37	-0.60	DY
7CC6XZ		15.00	1.19	1.60	14.95	1.20	1.91	DY
83UF8Q		12.86	-0.96	-1.28	12.44	-1.31	-2.09	DY
8GTCJX		14.32	0.51	0.68	14.40	0.65	1.04	TO
8PCHB3		14.33	0.51	0.69	13.85	0.10	0.15	TO
93EBFK		13.55	-0.26	-0.35	13.75	0.00	0.00	TO
9DP6C6		14.38	0.57	0.76	14.36	0.61	0.97	TO
9JKF3W		13.90	0.09	0.12	13.85	0.10	0.16	CE
9KUN8B		14.55	0.74	0.99	14.30	0.55	0.88	AT
AQUHAG	X	14.95	1.14	1.53	13.10	-0.65	-1.03	TO
AR3VRJ		12.80	-1.01	-1.36	12.95	-0.80	-1.27	TO
AVKU6D		13.78	-0.03	-0.04	14.51	0.76	1.21	TO
AW6DL7		13.95	0.14	0.19	13.80	0.05	0.08	TO
BDNQC4		13.10	-0.72	-0.96	13.21	-0.54	-0.87	GO
BUWFWV		14.42	0.60	0.81	14.17	0.42	0.66	DY
CBXRWK		14.75	0.94	1.26	14.85	1.10	1.75	TO
CTWYW4	X	5.86	-7.95	-10.68	5.81	-7.94	-12.65	DY
DQ3TRX	X	16.58	2.76	3.71	15.63	1.88	3.00	TO
EAAEVC		14.10	0.28	0.38	14.14	0.39	0.62	WZ
EDXUG7		13.45	-0.36	-0.48	13.31	-0.44	-0.70	DY
EJKMT6		14.81	0.99	1.34	14.69	0.94	1.50	TO



Plastics Interlaboratory Testing Program

Report #110

Analysis 750

2nd Qtr 2019

Flow Rates of Thermoplastics (190 or 230C/2.16 kg) - g/10 mins

WebCode	Data Flag	Sample X59			Sample X60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
ERXDEW		12.90	-0.91	-1.22	12.77	-0.98	-1.57	DY
EWC9ZL		13.20	-0.61	-0.82	12.60	-1.15	-1.83	DY
F38GUR		14.20	0.39	0.52	13.80	0.05	0.08	TO
FBP4Q3	X	4.71	-9.10	-12.22	4.80	-8.95	-14.26	TO
FL48PK		13.90	0.08	0.11	13.26	-0.49	-0.79	DY
GCEPXX		12.67	-1.14	-1.53	12.96	-0.79	-1.26	WZ
GJW3WW	X	4.64	-9.18	-12.33	4.80	-8.95	-14.27	TO
GN97MY		14.40	0.59	0.79	13.40	-0.35	-0.56	TO
HJ7K2L	X	4.68	-9.14	-12.27	4.75	-9.00	-14.34	WZ
J3WZ8N		13.14	-0.67	-0.89	14.08	0.33	0.52	TO
JJMZ3U		13.85	0.04	0.05	13.75	0.00	0.00	TO
JQ3PLB	X	12.00	-1.81	-2.43	13.90	0.15	0.24	TO
KAYDPJ		13.70	-0.11	-0.14	14.01	0.26	0.41	TO
L3L76R		14.30	0.49	0.66	14.05	0.30	0.48	TO
L7N6MC		13.56	-0.25	-0.33	13.54	-0.20	-0.33	TO
LAAQQL		14.50	0.69	0.93	13.85	0.10	0.16	KA
LCEEWB		13.85	0.04	0.05	13.61	-0.14	-0.22	CE
LEXFV4		13.44	-0.37	-0.50	13.16	-0.59	-0.94	DY
LJH8F7		14.10	0.29	0.39	14.10	0.35	0.56	WZ
MAPDJZ	*	14.40	0.59	0.79	15.05	1.30	2.07	TO
NJ98AM	X	18.31	4.50	6.04	16.77	3.02	4.81	CE
PTVNHN		14.20	0.39	0.52	14.30	0.55	0.88	DY
PYLXRL		12.92	-0.90	-1.20	13.32	-0.43	-0.69	CE
QDDWDU		13.45	-0.36	-0.48	12.95	-0.80	-1.27	TO
QHP843		14.10	0.29	0.39	13.75	0.00	0.00	WZ
R79QLW		13.14	-0.68	-0.91	13.21	-0.54	-0.87	CE
RDCLUW		13.43	-0.38	-0.51	13.52	-0.23	-0.37	GO
RFEK6N		14.41	0.60	0.80	13.85	0.10	0.15	TO
T2ALUW		14.63	0.82	1.10	14.41	0.66	1.05	KA
T6BQ8H		12.44	-1.37	-1.84	13.00	-0.75	-1.19	TO
UXRNZE		14.49	0.68	0.91	13.82	0.07	0.12	CE
VBNFPN		14.25	0.44	0.59	13.55	-0.20	-0.32	DA
VBQ4B9	X	12.25	-1.56	-2.10	15.81	2.06	3.29	TO
VPMFLX		13.96	0.15	0.20	13.88	0.13	0.21	DY
VX8KR6		13.77	-0.04	-0.05	14.30	0.55	0.88	TO



Plastics Interlaboratory Testing Program

Report #110

Analysis 750

2nd Qtr 2019

Flow Rates of Thermoplastics (190 or 230C/2.16 kg) - g/10 mins

WebCode	Data Flag	Sample X59			Sample X60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
VZQGBP		14.50	0.69	0.93	14.25	0.50	0.80	XX
WC4VXN	*	13.30	-0.52	-0.69	14.33	0.58	0.92	TO
YB28AA		12.60	-1.21	-1.63	12.65	-1.10	-1.75	TO
YUUVVX		15.10	1.29	1.73	14.55	0.80	1.28	TO
Z4ELVV	X	14.30	0.49	0.66	12.30	-1.45	-2.31	TY
ZAHPJ9		13.04	-0.78	-1.04	13.33	-0.42	-0.67	TO
ZEF8XN		13.42	-0.40	-0.53	13.60	-0.15	-0.24	DY
ZRGWPU	*	16.01	2.20	2.96	14.91	1.16	1.85	XX
ZYLH6C	*	11.88	-1.93	-2.59	12.64	-1.11	-1.78	GO

Summary Statistics		
	Sample X59	Sample X60
Grand Means	13.811 grams/10 mins	13.749 grams/10 mins
Stnd Dev Btwn Labs	0.744 grams/10 mins	0.628 grams/10 mins
Statistics based on 65 of 79 reporting participants		

Sample X59: PP & Sample X60: PP

Comments on Assigned Data Flags for Test #750

- DQ3TRX (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample X60.
- FBP4Q3 (X) - Extreme data.
- CTWYW4 (X) - Extreme data.
- Z4ELVV (X) - Inconsistent in testing between samples.
- 2Q9QCT (X) - Inconsistent in testing between samples.
- GJW3WW (X) - Extreme data.
- NJ98AM (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample X60.
- AQUHAG (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample X60.
- 39HJ6L (X) - Data for both samples are high. Possible Systematic Error.
- HJ7K2L (X) - Extreme data.
- VBQ4B9 (X) - Data for sample X60 are high.
- JQ3PLB (X) - Inconsistent in testing between samples.
- 3PMWFN (X) - Data for both samples are high. Possible Systematic Error.
- 36BARV (X) - Extreme data.



Plastics Interlaboratory Testing Program

Report #110

Analysis 750

2nd Qtr 2019

Flow Rates of Thermoplastics (190 or 230C/2.16 kg) - g/10 mins

Key to Instrument Codes Reported by Participants

AT	Atlas	CE	Ceast
DA	Davenport	DY	Dynisco
GO	Gottfert	KA	Kayeness
RR	Ray Ran	TM	TMI
TO	Tinius Olsen	TY	Toyoseiki Seisakusho
WZ	Zwick	XX	Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

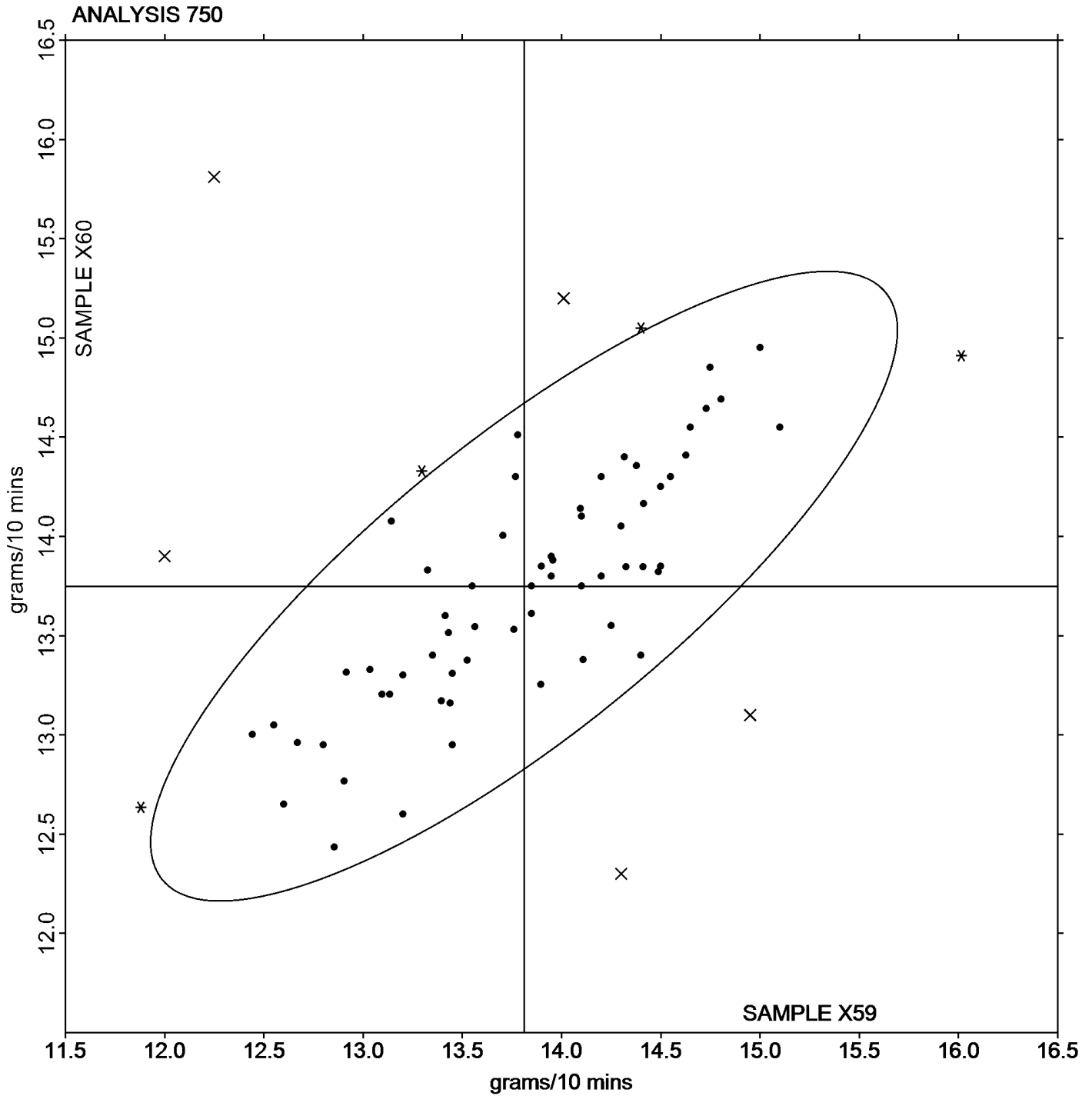
Report #110

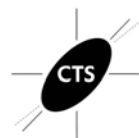
Analysis 750

2nd Qtr 2019

Flow Rates of Thermoplastics (190 or 230C/2.16 kg) - g/10 mins

Grand Mean Sample X59: 13.811 grams/10 mins Grand Mean Sample X60: 13.749 grams/10 mins





Plastics Interlaboratory Testing Program

Report #110

Analysis 755

2nd Qtr 2019

Moisture Content of Plastics

WebCode	Data Flag	Sample Y59			Sample Y60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2VXGAN		0.09333	-0.01473	-0.69	0.10333	-0.01153	-0.56	MS
3RVTEY		0.08350	-0.02456	-1.15	0.09050	-0.02436	-1.18	CT
6ZKA7Z	*	0.16600	0.05794	2.72	0.17233	0.05747	2.78	SA
73GBCM		0.10800	-0.00006	0.00	0.10900	-0.00586	-0.28	MB
78EUEL		0.09800	-0.01006	-0.47	0.10633	-0.00853	-0.41	MK
7CC6XZ		0.13127	0.02320	1.09	0.12620	0.01134	0.55	AZ
93EBFK	X	0.17100	0.06294	2.96	0.10367	-0.01119	-0.54	MK
9KDL69		0.10433	-0.00373	-0.18	0.10867	-0.00619	-0.30	MK
A7QL7U		0.12200	0.01394	0.65	0.13000	0.01514	0.73	MB
AR3VRJ		0.09127	-0.01680	-0.79	0.09343	-0.02143	-1.04	AZ
CBXRWK		0.11550	0.00744	0.35	0.11450	-0.00036	-0.02	ML
E38BKK		0.11320	0.00514	0.24	0.11937	0.00451	0.22	AZ
EDXUG7		0.09900	-0.00906	-0.43	0.11500	0.00014	0.01	MB
EWC9ZL		0.11400	0.00594	0.28	0.12467	0.00981	0.47	MJ
EWPYTC		0.11600	0.00794	0.37	0.13133	0.01647	0.80	MU
FBP4Q3	X	0.18703	0.07897	3.71	0.15337	0.03851	1.86	MU
HJCLFU	*	0.06439	-0.04367	-2.05	0.06479	-0.05007	-2.42	MU
MRQ3TC		0.11200	0.00394	0.18	0.11000	-0.00486	-0.23	MU
NJ98AM		0.09700	-0.01106	-0.52	0.10200	-0.01286	-0.62	AZ
NWTJUU		0.11667	0.00860	0.40	0.12333	0.00847	0.41	ML
Q6JRJT	X	0.10800	-0.00006	0.00	0.08350	-0.03136	-1.52	MA
R3A2UP		0.09367	-0.01440	-0.68	0.09800	-0.01686	-0.82	CT
R79QLW		0.09267	-0.01540	-0.72	0.10133	-0.01353	-0.65	MU
TJUDKV		0.11463	0.00657	0.31	0.11957	0.00471	0.23	MT
V46CHL		0.11433	0.00627	0.29	0.11987	0.00501	0.24	AZ
VBQ4B9	*	0.17350	0.06544	3.07	0.17400	0.05914	2.86	XX
WC4VXN		0.10050	-0.00756	-0.36	0.10667	-0.00819	-0.40	MS
WH6DVM		0.10253	-0.00553	-0.26	0.10837	-0.00649	-0.31	ML
WJ766G	X	0.03033	-0.07773	-3.65	0.05667	-0.05819	-2.81	AZ
WRB9XT		0.10700	-0.00106	-0.05	0.12233	0.00747	0.36	CS
XRTMUA		0.08950	-0.01856	-0.87	0.11000	-0.00486	-0.23	AZ
YB28AA		0.09733	-0.01073	-0.50	0.11200	-0.00286	-0.14	ML
ZAHPJ9		0.11220	0.00414	0.19	0.11923	0.00437	0.21	AQ
ZEF8XN		0.09853	-0.00953	-0.45	0.10960	-0.00526	-0.25	AZ



Plastics Interlaboratory Testing Program

Report #110

Analysis 755

2nd Qtr 2019

Moisture Content of Plastics

Summary Statistics

	<u>Sample Y59</u>	<u>Sample Y60</u>
Grand Means	0.108062 Percent	0.114858 Percent
Std Dev Btwn Labs	0.021297 Percent	0.020681 Percent

Statistics based on 30 of 34 reporting participants

Sample Y59: ABS/PC & Sample Y60: ABS/PC

Comments on Assigned Data Flags for Test #755

WJ766G (X) - Data for both samples are low. Possible Systematic Error.

FBP4Q3 (X) - Data for sample Y59 are high.

93EBFK (X) - Data for sample Y59 are high.

Q6JRJT (X) - Inconsistent in testing between samples.

Key to Instrument Codes Reported by Participants

AQ Aquastar	AZ Arizona Instruments Moisture Analyzer
CS Cosa Instruments	CT Computrac Moisture Analyzer
MA Omnimark Mark 2	MB Omnimark Mark 3
MJ Mitsubishi KF Analyzer Series	MK Mitsubishi KF Analyzer CA
ML Metrohm Coulometer	MS Metrohm Coulometer 831 KF
MT Mettler Toledo DL39	MU Mettler Toledo
SA Sartorius MA30	XX Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

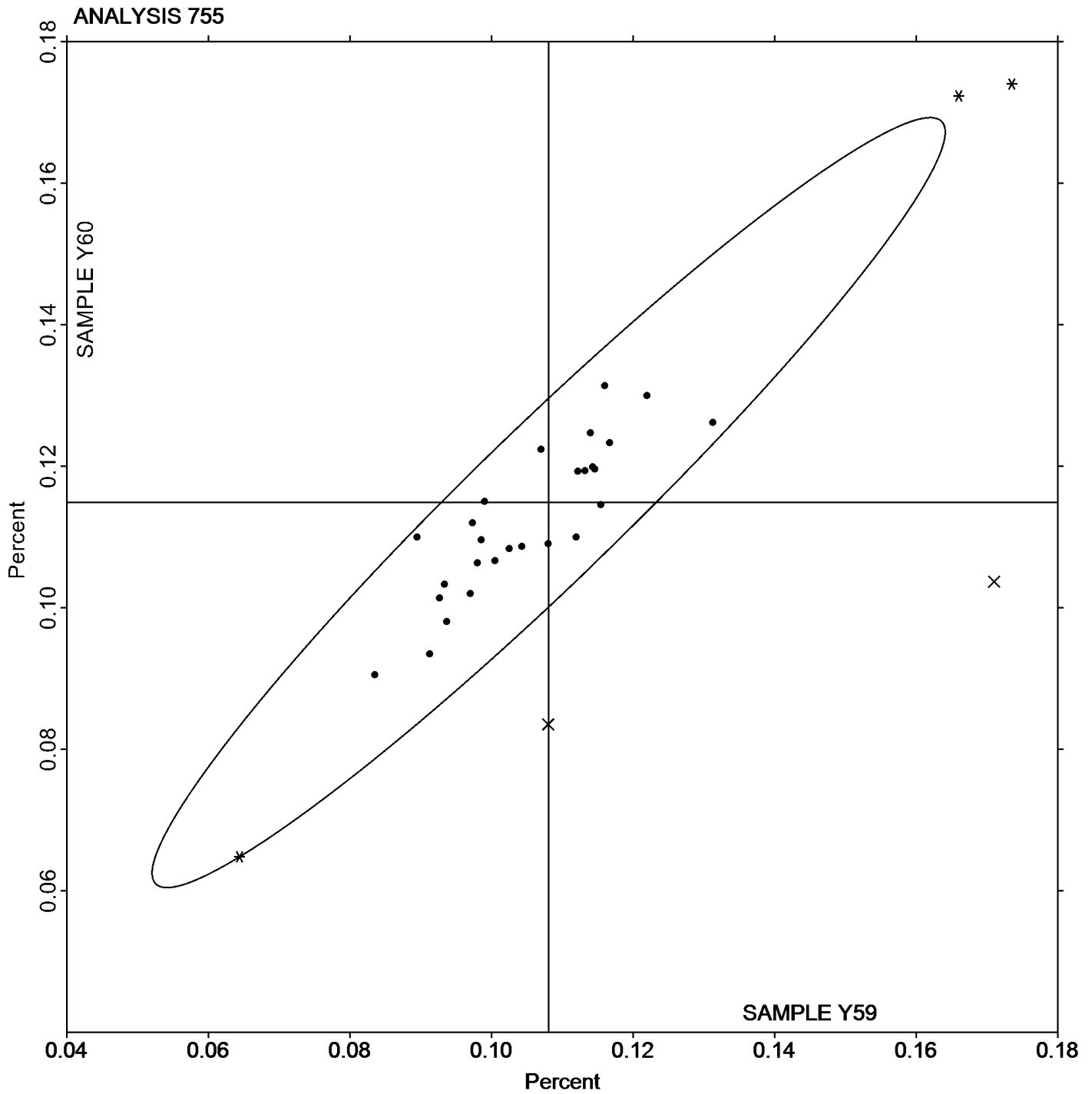
Analysis 755

Moisture Content of Plastics

Report #110

2nd Qtr 2019

Grand Mean Sample Y59: 0.10806 Percent Grand Mean Sample Y60: 0.11486 Percent





Plastics Interlaboratory Testing Program

Report #110

Analysis 757

2nd Qtr 2019

Ash Content in Thermoplastics - Percent

WebCode	Data Flag	Sample L59			Sample L60		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2VXGAN	*	30.500	-0.008	-0.02	31.000	0.495	1.72
39HJ6L		30.055	-0.453	-1.37	30.520	0.015	0.05
3RVTEY		30.375	-0.133	-0.40	30.310	-0.195	-0.68
6PKLE4		30.195	-0.313	-0.94	30.245	-0.260	-0.91
6YKJR6		30.955	0.447	1.35	30.625	0.120	0.42
6ZKA7Z		30.695	0.187	0.57	30.755	0.250	0.87
728C87		30.425	-0.083	-0.25	30.555	0.050	0.17
73GBCM		30.150	-0.358	-1.08	30.195	-0.310	-1.08
7WBT22		30.520	0.012	0.04	30.515	0.010	0.03
8PCHB3		30.225	-0.283	-0.85	30.230	-0.275	-0.96
93EBFK	*	29.740	-0.768	-2.32	29.620	-0.885	-3.08
9KDL69	*	31.075	0.567	1.71	31.245	0.740	2.57
A7QL7U		29.775	-0.733	-2.21	30.245	-0.260	-0.91
AMJC6W		30.820	0.312	0.94	30.750	0.245	0.85
AQUHAG	*	30.980	0.472	1.42	30.355	-0.150	-0.52
AW6DL7		30.520	0.012	0.04	30.480	-0.025	-0.09
BDNQC4		30.120	-0.388	-1.17	30.270	-0.235	-0.82
BUWFWV		30.375	-0.133	-0.40	30.335	-0.170	-0.59
CBXRWK		30.420	-0.088	-0.26	30.615	0.110	0.38
CX3UFD		30.849	0.341	1.03	30.790	0.284	0.99
E38BKK		30.743	0.235	0.71	30.725	0.220	0.76
E3R8WK		30.630	0.122	0.37	30.583	0.077	0.27
EAAEVC		30.734	0.226	0.68	30.880	0.375	1.30
EDXUG7		30.200	-0.308	-0.93	30.220	-0.285	-0.99
EWC9ZL		30.335	-0.173	-0.52	30.340	-0.165	-0.58
F38GUR	X	33.200	2.692	8.12	33.700	3.195	11.12
FBP4Q3		30.890	0.382	1.15	30.695	0.190	0.66
FL48PK		30.375	-0.133	-0.40	30.355	-0.150	-0.52
GCEPXX		30.670	0.162	0.49	30.605	0.100	0.35
HTEZ79		30.125	-0.383	-1.15	30.215	-0.290	-1.01
J6MBYG		30.485	-0.023	-0.07	30.305	-0.200	-0.70
KAYDPJ		30.110	-0.398	-1.20	30.180	-0.325	-1.13
KH4K4J		30.710	0.202	0.61	30.685	0.180	0.62
KJ69RP	*	31.200	0.692	2.09	30.700	0.195	0.68
LAAQQL		30.795	0.287	0.87	30.860	0.355	1.23



Plastics Interlaboratory Testing Program

Report #110

Analysis 757

2nd Qtr 2019

Ash Content in Thermoplastics - Percent

WebCode	Data Flag	<u>Sample L59</u>			<u>Sample L60</u>		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
LD4TET		30.720	0.212	0.64	30.730	0.225	0.78
NJ98AM		30.633	0.125	0.38	30.460	-0.046	-0.16
QHP843		30.440	-0.068	-0.20	30.430	-0.075	-0.26
R3A2UP		30.590	0.082	0.25	30.605	0.100	0.35
R79QLW		30.695	0.187	0.57	30.715	0.210	0.73
RDCLUW		30.485	-0.023	-0.07	30.415	-0.090	-0.31
TJUDKV		30.735	0.227	0.69	30.515	0.010	0.03
VBNFPN		29.950	-0.558	-1.68	29.975	-0.530	-1.85
VZQGBP		30.155	-0.353	-1.06	30.365	-0.140	-0.49
WC4VXN		30.600	0.092	0.28	30.605	0.100	0.35
WJ766G	X	30.625	0.117	0.35	28.870	-1.635	-5.69
YB28AA		30.340	-0.168	-0.51	30.405	-0.100	-0.35
Z4WPD4	*	30.705	0.197	0.60	31.090	0.585	2.03
Z8HD7G		30.604	0.096	0.29	30.450	-0.055	-0.19
ZAHPJ9		31.130	0.622	1.88	30.745	0.240	0.83
ZEF8XN		30.325	-0.183	-0.55	30.260	-0.245	-0.85

Summary Statistics		
	<u>Sample L59</u>	<u>Sample L60</u>
Grand Means	30.5077 Percent	30.5055 Percent
Stnd Dev Btwn Labs	0.3315 Percent	0.2873 Percent
Statistics based on 49 of 51 reporting participants		

Sample L59: PBT & Sample L60: PBT

Comments on Assigned Data Flags for Test #757

WJ766G (X) - Data for sample L60 are low. Inconsistent within the determinations of sample L60.

F38GUR (X) - Data for both samples are high. Possible Systematic Error.



Plastics Interlaboratory Testing Program

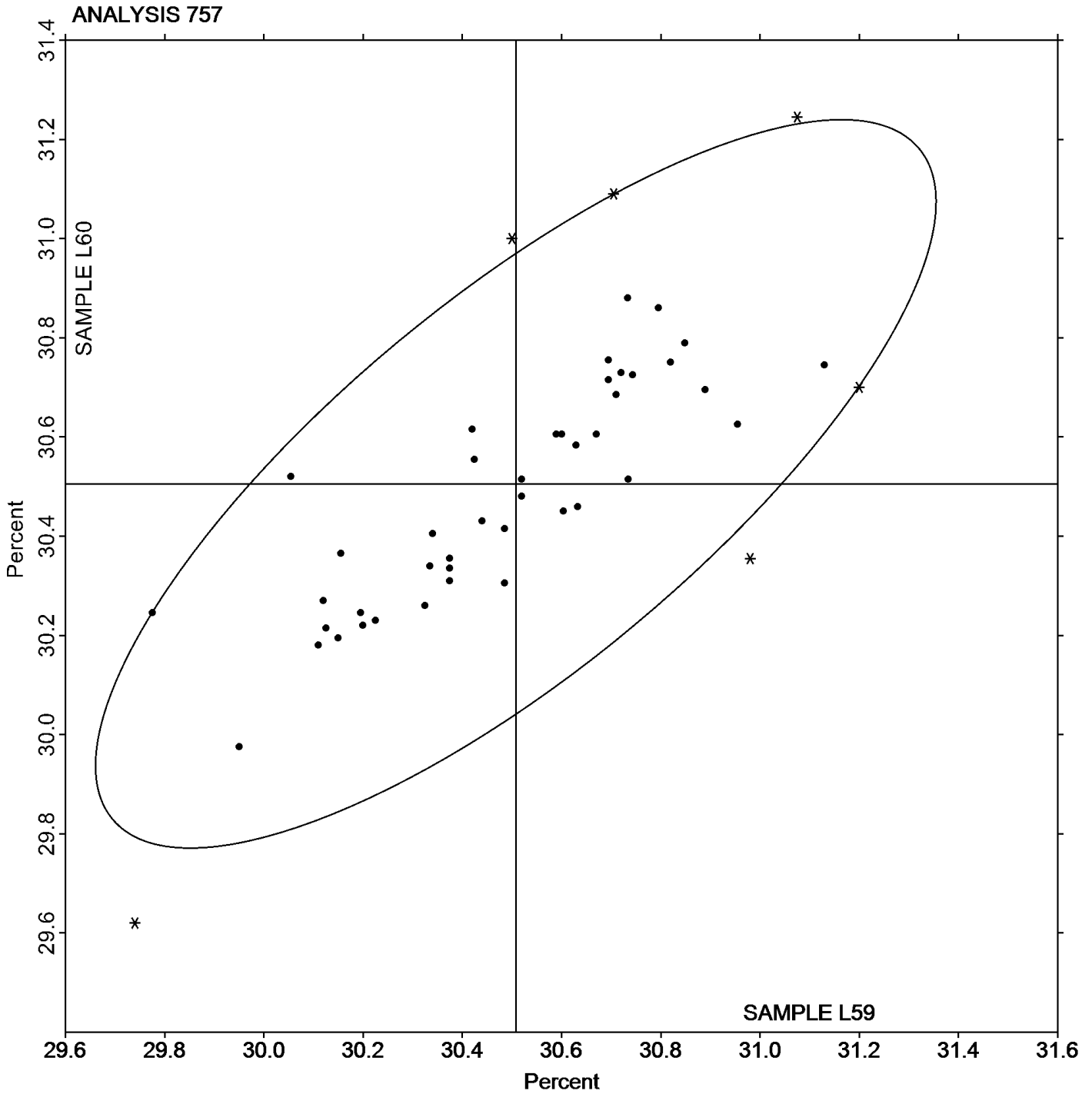
Analysis 757

Ash Content in Thermoplastics - Percent

Report #110

2nd Qtr 2019

Grand Mean Sample L59: 30.508 Percent Grand Mean Sample L60: 30.505 Percent





Plastics Interlaboratory Testing Program

Report #110

Analysis 760

2nd Qtr 2019

DSC Crystallization Temperature

WebCode	Data Flag	Sample W59			Sample W60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3B2HCP		175.63	1.49	0.65	175.68	1.46	0.55	MT
3BPHW8		178.20	4.06	1.79	179.60	5.38	2.05	PE
4QCHLK		178.80	4.67	2.05	178.77	4.55	1.73	MT
6PKLE4		172.92	-1.22	-0.54	173.24	-0.98	-0.37	TA
728C87		173.57	-0.57	-0.25	173.70	-0.52	-0.20	TA
AR3VRJ		171.78	-2.36	-1.04	171.33	-2.89	-1.10	MT
BDNQC4		174.70	0.56	0.25	174.10	-0.12	-0.05	TA
BVZDPB		170.19	-3.95	-1.73	170.39	-3.83	-1.46	PE
CTWYW4		173.97	-0.16	-0.07	174.34	0.12	0.05	TA
DQ3TRX		176.68	2.54	1.12	176.58	2.35	0.90	TA
EEKHQK		175.03	0.90	0.39	173.63	-0.59	-0.22	TA
FR6F3E		171.37	-2.77	-1.22	170.93	-3.29	-1.25	PE
GCEPXX		174.21	0.07	0.03	174.01	-0.21	-0.08	TA
HJ7K2L		171.80	-2.34	-1.03	171.49	-2.74	-1.04	TA
KAYDPJ		174.11	-0.03	-0.01	174.74	0.52	0.20	TA
KJ69RP	X	223.96	49.83	21.89	224.08	49.85	18.97	XX
QHP843		174.47	0.33	0.15	173.20	-1.02	-0.39	PE
TJUDKV		176.72	2.58	1.14	178.95	4.72	1.80	TA
TN6GF6		175.30	1.16	0.51	175.90	1.68	0.64	NZ
VBQ4B9		171.17	-2.97	-1.30	171.40	-2.82	-1.07	NZ
VZQGBP		172.69	-1.45	-0.64	172.37	-1.86	-0.71	TA
Z4ELVV	X	188.54	14.41	6.33	188.76	14.54	5.53	SH
ZYLH6C		173.56	-0.58	-0.25	174.31	0.09	0.03	TA

Summary Statistics		
	Sample W59	Sample W60
Grand Means	174.136 Degrees Celsius	174.222 Degrees Celsius
Stnd Dev Btwn Labs	2.276 Degrees Celsius	2.628 Degrees Celsius
Statistics based on 21 of 23 reporting participants		

Sample W59: PBT & Sample W60: PBT

Comments on Assigned Data Flags for Test #760

KJ69RP (X) - Data for both samples are high. Possible Systematic Error.

Z4ELVV (X) - Data for both samples are high. Possible Systematic Error.



Plastics Interlaboratory Testing Program

Report #110

Analysis 760

2nd Qtr 2019

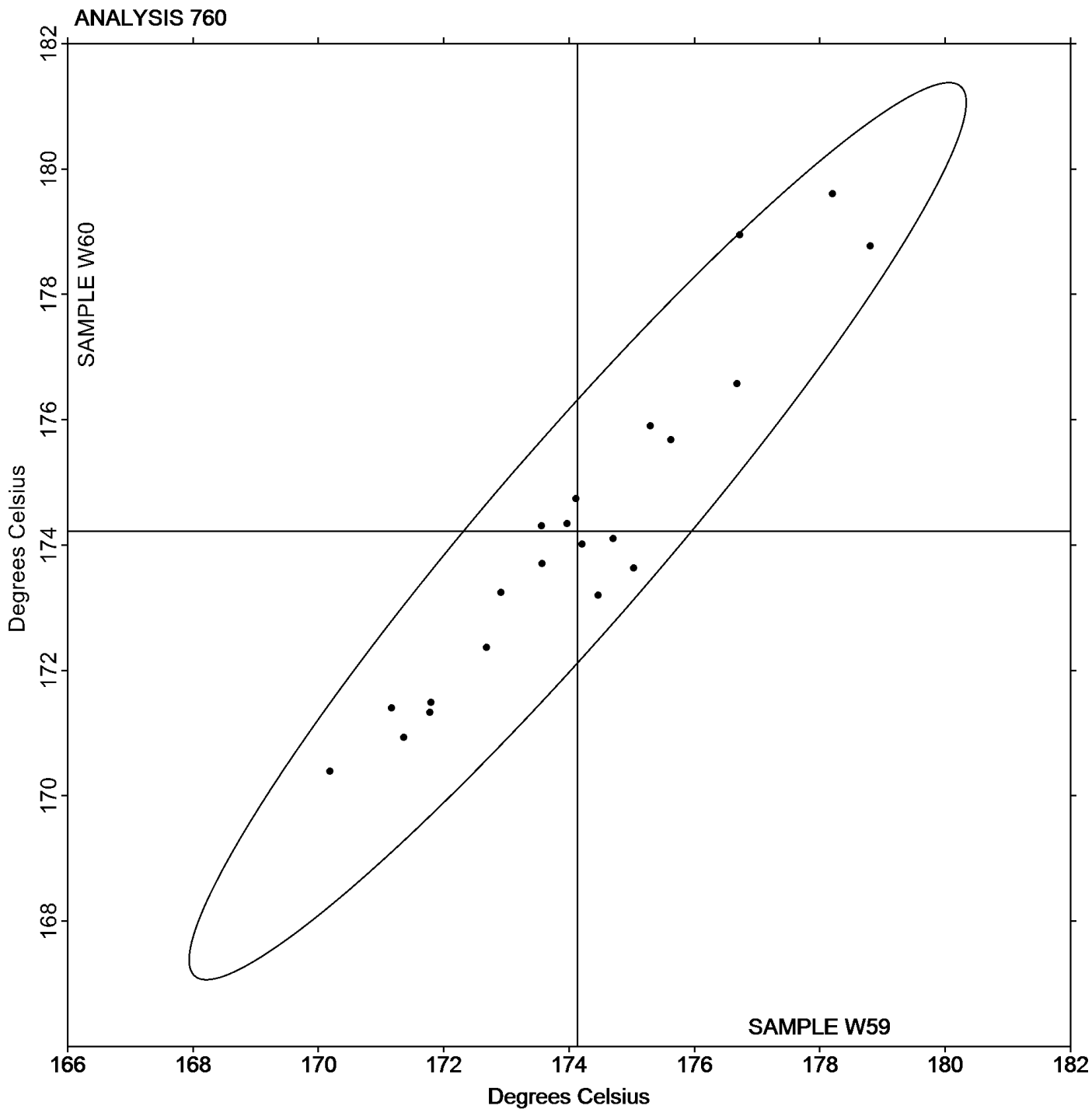
DSC Crystallization Temperature

Key to Instrument Codes Reported by Participants

MT	Mettler Toledo Instruments	NZ	Netzsch Instruments
PE	Perkins Elmer Instruments	SH	Shimadzu
TA	TA Instruments	XX	Instrument manufacturer not specified by lab



Grand Mean Sample W59: 174.14 Degrees Celsius Grand Mean Sample W60: 174.22 Degrees Celsius





Plastics Interlaboratory Testing Program

Report #110

Analysis 761

2nd Qtr 2019

DSC Melt Temperature

WebCode	Data Flag	Sample W59			Sample W60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3B2HCP		221.63	-2.79	-1.62	221.71	-2.55	-1.58	MT
3BPHW8		224.73	0.31	0.18	224.13	-0.13	-0.08	PE
4QCHLK		223.98	-0.44	-0.26	223.80	-0.46	-0.29	MT
6PKLE4		225.06	0.64	0.37	225.10	0.84	0.52	XX
728C87		222.27	-2.15	-1.25	222.97	-1.30	-0.80	TA
AR3VRJ		223.67	-0.75	-0.44	224.11	-0.15	-0.09	MT
BDNQC4		222.83	-1.59	-0.92	223.00	-1.26	-0.78	TA
BVZDPB		225.07	0.65	0.38	224.88	0.61	0.38	PE
CTWYW4		226.32	1.90	1.10	225.01	0.74	0.46	TA
DQ3TRX		221.37	-3.05	-1.77	221.02	-3.24	-2.01	TA
EEKHQK		224.60	0.18	0.11	224.70	0.44	0.27	TA
FBP4Q3		224.77	0.35	0.20	224.50	0.24	0.15	PE
FR6F3E		223.87	-0.55	-0.32	222.97	-1.30	-0.80	PE
GCEPXX		225.84	1.42	0.82	225.64	1.37	0.85	TA
HJ7K2L	X	223.52	-0.90	-0.52	227.23	2.97	1.84	TA
KAYDPJ		223.99	-0.43	-0.25	223.68	-0.58	-0.36	TA
NPV38K		223.73	-0.69	-0.40	223.83	-0.43	-0.27	TA
QHP843		223.53	-0.89	-0.51	224.50	0.24	0.15	PE
TJUDKV		227.73	3.31	1.92	227.66	3.39	2.11	TA
TN6GF6		228.70	4.28	2.49	228.50	4.24	2.63	NZ
VBQ4B9		225.93	1.51	0.88	225.40	1.14	0.71	NZ
VZQGBP		224.59	0.17	0.10	224.34	0.08	0.05	XX
WC4VXN		225.12	0.70	0.41	225.26	0.99	0.62	TA
Z4ELVV		222.27	-2.15	-1.25	222.55	-1.72	-1.06	SH
Z8HD7G		223.76	-0.66	-0.38	223.27	-0.99	-0.62	TA
ZYLH6C		225.12	0.70	0.41	224.05	-0.22	-0.13	TA

Summary Statistics		Sample W59	Sample W60
Grand Means		224.419 Degrees Celsius	224.263 Degrees Celsius
Std Dev Btwn Labs		1.721 Degrees Celsius	1.611 Degrees Celsius
Statistics based on 25 of 26 reporting participants			

Sample W59: PBT & Sample W60: PBT



Comments on Assigned Data Flags for Test #761

HJ7K2L (X) - Inconsistent in testing between samples.

Key to Instrument Codes Reported by Participants

MT Mettler Toledo Instruments

NZ Netzsch Instruments

PE Perkins Elmer Instruments

SH Shimadzu

TA TA Instruments

XX Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

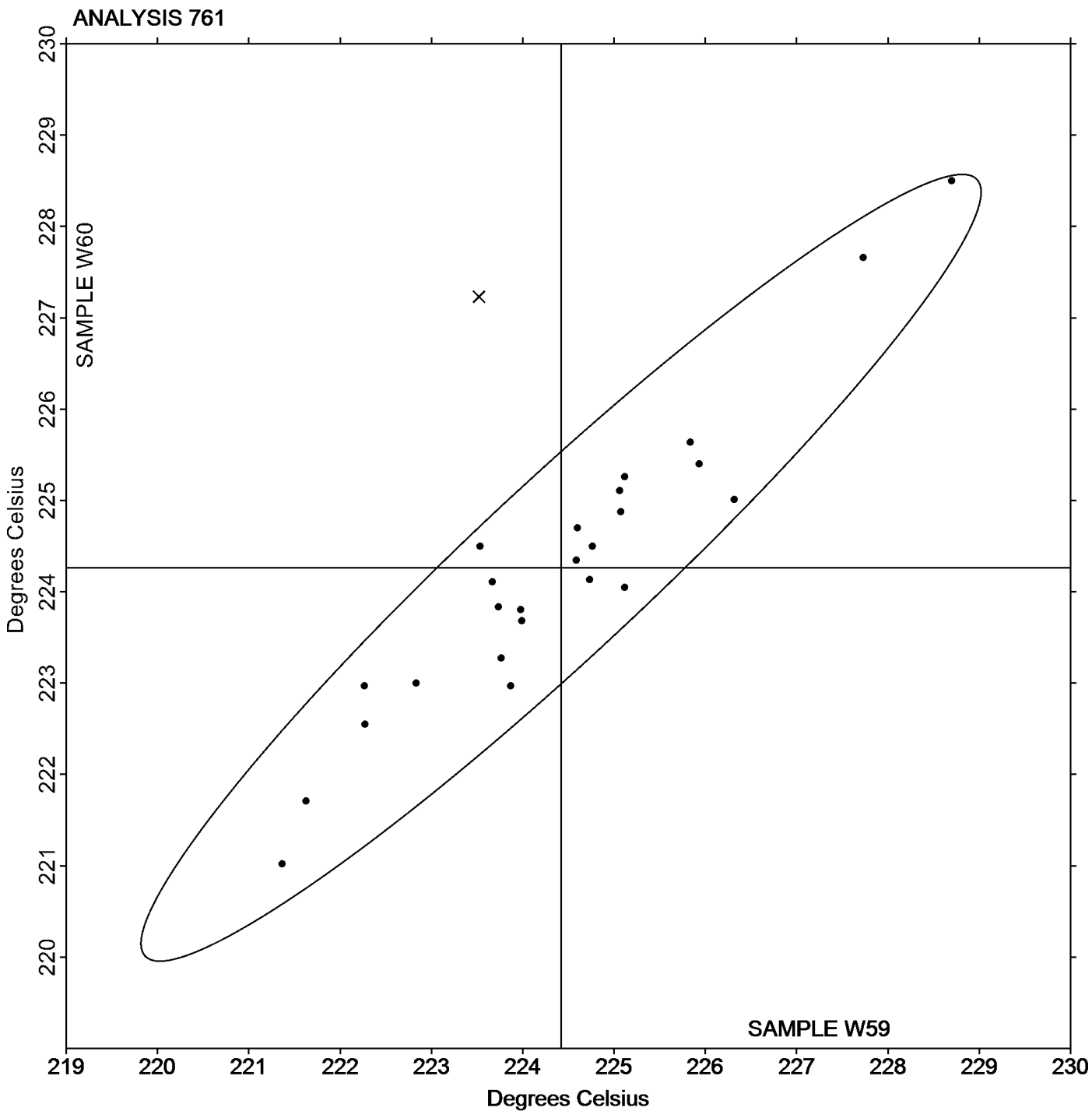
Analysis 761

DSC Melt Temperature

Report #110

2nd Qtr 2019

Grand Mean Sample W59: 224.42 Degrees Celsius Grand Mean Sample W60: 224.26 Degrees Celsius





Plastics Interlaboratory Testing Program

Report #110

Analysis 762

2nd Qtr 2019

DSC Enthalpy of Crystallization

WebCode	Data Flag	Sample W59			Sample W60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3BPHW8		63.52	16.29	2.64	60.90	13.30	2.25	PE
4QCHLK		45.42	-1.80	-0.29	46.50	-1.10	-0.19	MT
728C87		45.85	-1.38	-0.22	46.01	-1.59	-0.27	TA
BDNQC4		50.90	3.68	0.60	50.43	2.83	0.48	TA
DQ3TRX		49.31	2.08	0.34	49.61	2.01	0.34	TA
FR6F3E		46.20	-1.02	-0.17	45.90	-1.70	-0.29	PE
HJ7K2L		46.84	-0.39	-0.06	49.77	2.17	0.37	TA
KAYDPJ		47.03	-0.19	-0.03	46.77	-0.83	-0.14	TA
TJUDKV		45.38	-1.85	-0.30	53.54	5.94	1.01	TA
TN6GF6		49.12	1.90	0.31	45.14	-2.46	-0.42	NZ
VBQ4B9		42.41	-4.81	-0.78	41.74	-5.86	-0.99	NZ
Z4ELVV		35.61	-11.61	-1.88	35.74	-11.86	-2.01	SH
ZYLH6C		46.31	-0.91	-0.15	46.74	-0.86	-0.15	TA

Summary Statistics

Grand Means

Sample W59

47.223 Joules Per Gram

Sample W60

47.598 Joules Per Gram

Std Dev Btwn Labs

6.161 Joules Per Gram

5.902 Joules Per Gram

Statistics based on 13 of 13 reporting participants

Sample W59: PBT & Sample W60: PBT

Key to Instrument Codes Reported by Participants

MT Mettler Toledo Instruments

NZ Netzsch Instruments

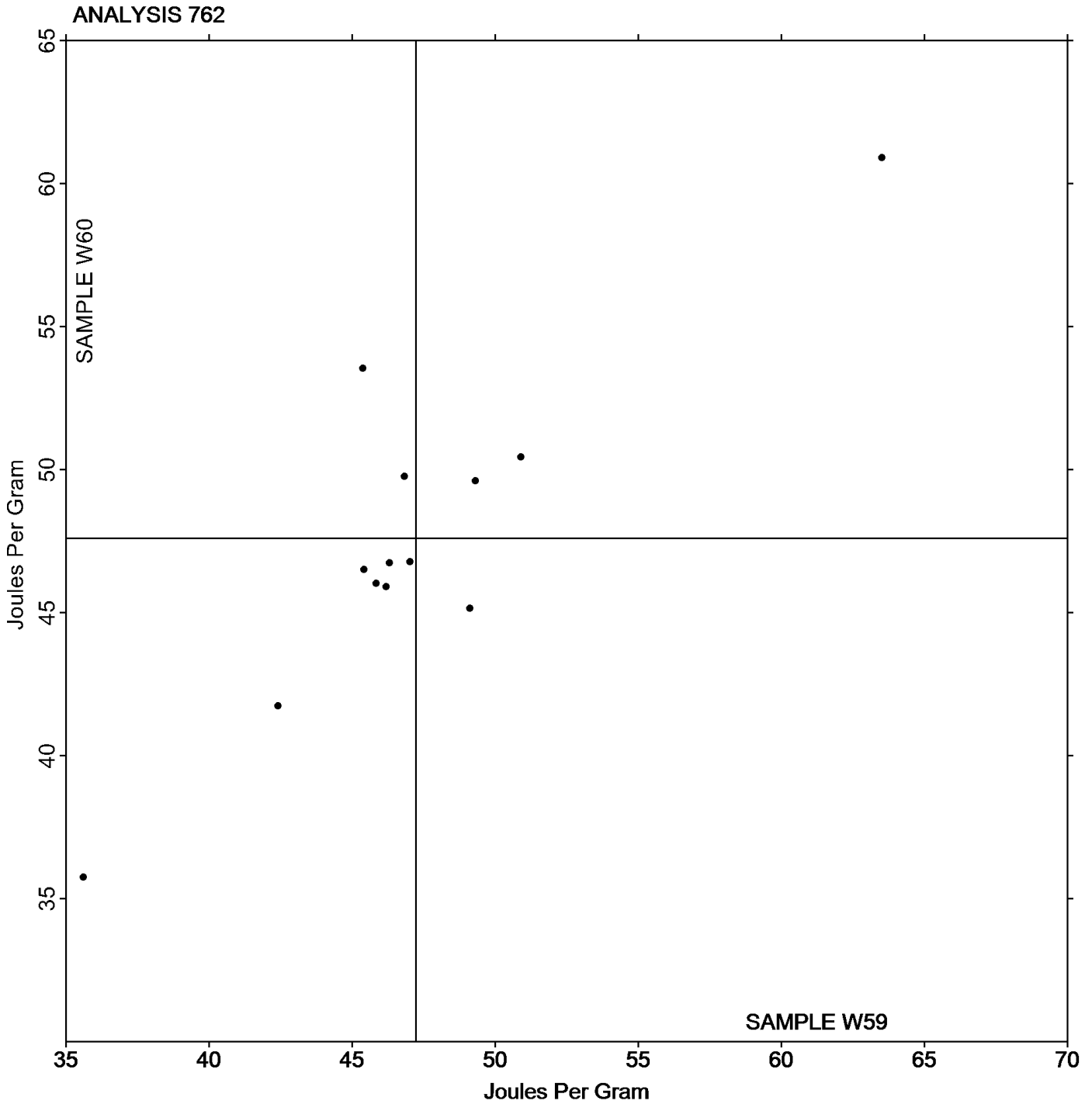
PE Perkins Elmer Instruments

SH Shimadzu

TA TA Instruments



Grand Mean Sample W59: 47.223 Joules Per Gram Grand Mean Sample W60: 47.598 Joules Per Gram



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



Plastics Interlaboratory Testing Program

Report #110

Analysis 763

2nd Qtr 2019

DSC Enthalpy of Fusion

WebCode	Data Flag	<u>Sample W59</u>			<u>Sample W60</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3BPHW8		67.63	24.60	2.74	62.54	19.90	2.51	PE
4QCHLK		39.65	-3.38	-0.38	40.68	-1.96	-0.25	MT
728C87		37.47	-5.56	-0.62	36.23	-6.41	-0.81	TA
BDNQC4		52.40	9.37	1.04	51.83	9.19	1.16	TA
DQ3TRX		46.49	3.46	0.38	40.50	-2.14	-0.27	TA
FR6F3E		44.03	1.00	0.11	43.50	0.86	0.11	PE
HJ7K2L		39.96	-3.07	-0.34	47.15	4.51	0.57	TA
KAYDPJ		38.04	-4.99	-0.56	38.82	-3.82	-0.48	TA
TJUDKV		45.24	2.21	0.25	47.03	4.39	0.55	TA
TN6GF6		40.93	-2.10	-0.23	37.50	-5.14	-0.65	NZ
VBQ4B9		36.33	-6.71	-0.75	36.04	-6.60	-0.83	NZ
Z4ELVV		32.23	-10.80	-1.20	33.51	-9.13	-1.15	SH
ZYLH6C		39.03	-4.00	-0.45	39.00	-3.64	-0.46	TA

Summary Statistics

	<u>Sample W59</u>	<u>Sample W60</u>
Grand Means	43.034 Joules Per Gram	42.641 Joules Per Gram
Stnd Dev Btwn Labs	8.988 Joules Per Gram	7.913 Joules Per Gram

Statistics based on 13 of 13 reporting participants

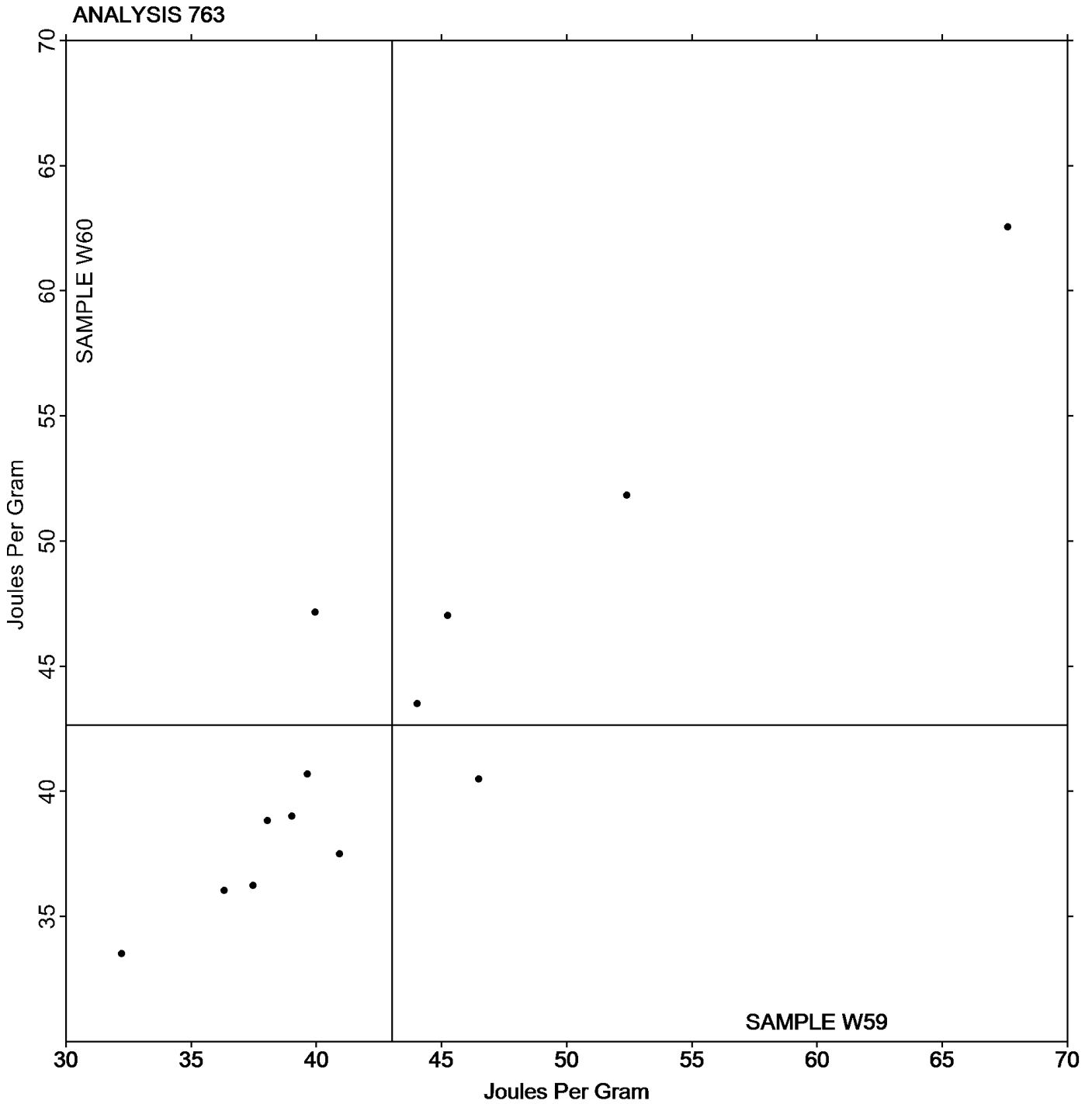
Sample W59: PBT & Sample W60: PBT

Key to Instrument Codes Reported by Participants

- | | | | |
|----|----------------------------|----|---------------------|
| MT | Mettler Toledo Instruments | NZ | Netzsch Instruments |
| PE | Perkins Elmer Instruments | SH | Shimadzu |
| TA | TA Instruments | | |



Grand Mean Sample W59: 43.034 Joules Per Gram Grand Mean Sample W60: 42.641 Joules Per Gram



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



Plastics Interlaboratory Testing Program

Report #110

Analysis 764

2nd Qtr 2019

DSC Glass Transition Temperature

WebCode	Data Flag	<u>Sample V59</u>			<u>Sample V60</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3B2HCP		140.82	29.27	2.20	141.49	30.27	2.29	MT
3BPHW8		105.10	-6.45	-0.48	104.83	-6.39	-0.48	PE
4QCHLK		108.93	-2.61	-0.20	108.83	-2.39	-0.18	MT
AR3VRJ		108.25	-3.30	-0.25	107.80	-3.42	-0.26	MT
BDNQC4		104.40	-7.15	-0.54	105.63	-5.59	-0.42	TA
BVZDPB		103.56	-7.99	-0.60	104.99	-6.23	-0.47	XX
DQ3TRX		102.07	-9.48	-0.71	101.69	-9.53	-0.72	TA
FR6F3E		106.20	-5.35	-0.40	106.50	-4.72	-0.36	PE
HJ7K2L	X	75.30	-36.25	-2.72	109.46	-1.76	-0.13	TA
KAYDPJ		108.04	-3.50	-0.26	107.59	-3.63	-0.28	TA
TJUDKV		143.83	32.29	2.42	141.60	30.38	2.30	TA
TN6GF6		106.90	-4.65	-0.35	105.00	-6.22	-0.47	NZ
VBQ4B9		104.20	-7.35	-0.55	100.87	-10.35	-0.78	NZ
WC4VXN	X	38.46	-73.09	-5.48	38.54	-72.68	-5.50	TA
Z4ELVV		113.04	1.49	0.11	113.76	2.54	0.19	SH
ZYLH6C		106.30	-5.25	-0.39	106.50	-4.72	-0.36	TA

Summary Statistics		
	<u>Sample V59</u>	<u>Sample V60</u>
Grand Means	111.546 Degrees Celsius	111.220 Degrees Celsius
Stnd Dev Btwn Labs	13.329 Degrees Celsius	13.210 Degrees Celsius
Statistics based on 14 of 16 reporting participants		

Sample V59: ABS & Sample V60: ABS

Comments on Assigned Data Flags for Test #764

WC4VXN (X) - Extreme data.

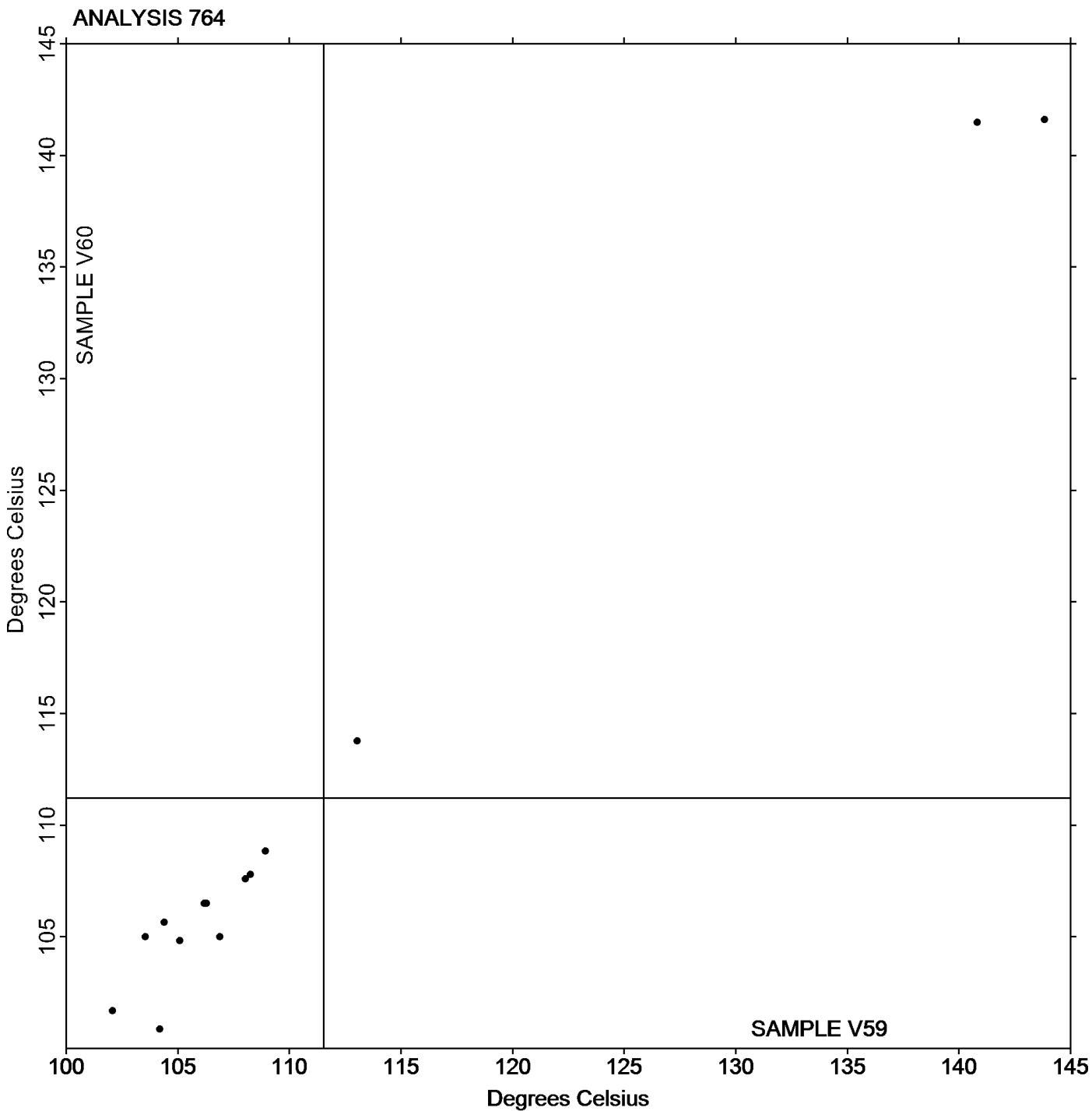
HJ7K2L (X) - Data appears to be entered incorrectly for sample V59.

Key to Instrument Codes Reported by Participants

MT Mettler Toledo Instruments	NZ Netzsch Instruments
PE Perkins Elmer Instruments	SH Shimadzu
TA TA Instruments	XX Instrument manufacturer not specified by lab



Grand Mean Sample V59: 111.55 Degrees Celsius Grand Mean Sample V60: 111.22 Degrees Celsius



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



Plastics Interlaboratory Testing Program

Report #110

Analysis 770

2nd Qtr 2019

Tensile Stress at Yield, Film Samples - psi

WebCode	Data Flag	Sample B59			Sample B60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2XHFGR		2,637	236	0.50	2,656	214	0.44	IN
64GYCL		2,757	356	0.75	2,813	371	0.76	OA
9H8XVK		1,444	-957	-2.02	1,457	-985	-2.01	TO
B4UJJC		2,147	-255	-0.54	2,191	-251	-0.51	XX
BBDYVM		2,754	353	0.74	2,811	369	0.75	IN
C4UWVK		2,786	385	0.81	2,780	338	0.69	XX
EAAEVC		2,589	187	0.39	2,600	158	0.32	WZ
GN97MY		2,867	465	0.98	2,808	367	0.75	IN
KDWYCF		1,856	-545	-1.15	1,834	-607	-1.24	IN
LJH8F7		1,897	-504	-1.06	1,956	-486	-0.99	IN
MHW6VB		2,735	334	0.70	2,940	498	1.02	IN
TN6GF6		2,770	368	0.78	2,788	347	0.71	IN
UXRNZE		1,767	-634	-1.34	1,792	-650	-1.33	IN
ZUPZJ7		2,615	213	0.45	2,757	316	0.64	MT

Summary Statistics		
	Sample B59	Sample B60
Grand Means	2,401.5 psi	2,441.7 psi
Stnd Dev Btwn Labs	475.0 psi	490.1 psi
Statistics based on 14 of 14 reporting participants		

Sample B59: LDPE-3MIL & Sample B60: LDPE-3MIL

Key to Instrument Codes Reported by Participants

- IN Instron
- OA Oakland Testing
- WZ Zwick
- MT MTS/Sintech
- TO Tinius Olsen
- XX Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

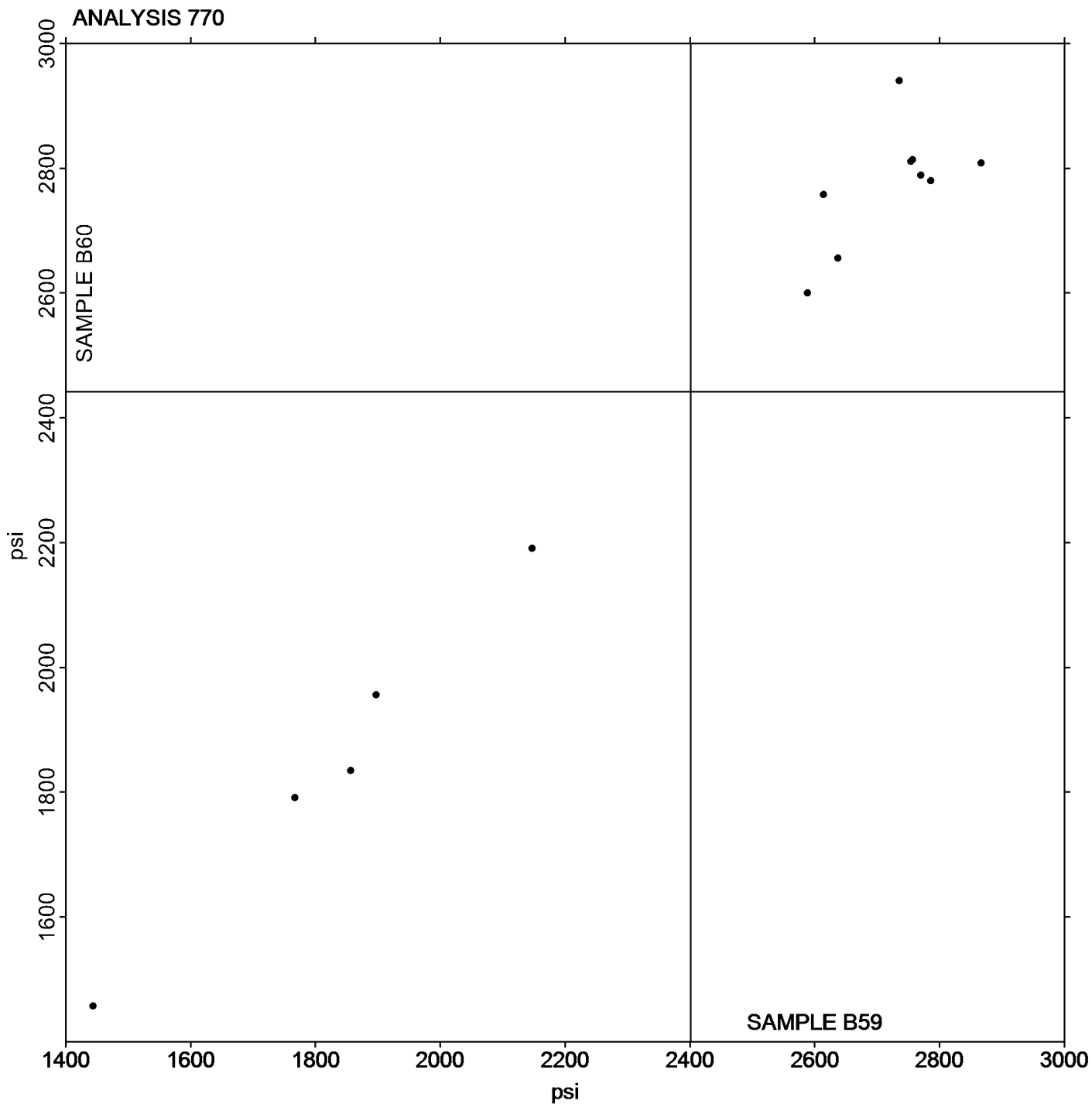
Report #110

Analysis 770

2nd Qtr 2019

Tensile Stress at Yield, Film Samples - psi

Grand Mean Sample B59: 2,401.55 psi Grand Mean Sample B60: 2,441.68 psi



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



Plastics Interlaboratory Testing Program

Report #110

Analysis 771

2nd Qtr 2019

Tensile Stress at Break, Film Samples - psi

WebCode	Data Flag	Sample B59			Sample B60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2XHFGR		3,549	-155	-0.56	3,660	-101	-0.38	IN
64GYCL		3,689	-15	-0.05	3,985	224	0.84	OA
9H8XVK	X	1,354	-2,349	-8.45	1,429	-2,332	-8.72	TO
AQUHAG		3,911	208	0.75	3,816	55	0.20	IN
B4UJJC		3,151	-552	-1.99	3,266	-495	-1.85	XX
BBDYVM		3,976	273	0.98	3,885	124	0.46	IN
C4UWNK		3,736	32	0.12	3,732	-29	-0.11	XX
E3WAGY		3,775	72	0.26	3,788	27	0.10	MT
EAAEVC		3,300	-404	-1.45	3,513	-248	-0.93	WZ
EJKMT6		3,170	-533	-1.92	3,332	-429	-1.60	UC
GN97MY		4,081	377	1.36	4,000	239	0.89	IN
KDWYCF	*	3,703	0	0.00	3,269	-492	-1.84	IN
LJH8F7		3,968	264	0.95	4,036	276	1.03	IN
MHW6VB		3,843	139	0.50	4,025	264	0.99	IN
TN6GF6		3,958	254	0.91	3,923	162	0.60	IN
UXRNZE		3,804	100	0.36	3,952	192	0.72	IN
Z4ELVV		3,817	114	0.41	4,019	258	0.97	SH
ZNGLTU		3,815	112	0.40	3,936	175	0.66	IN
ZUPZJ7		3,416	-287	-1.03	3,561	-200	-0.75	MT

Summary Statistics		
	Sample B59	Sample B60
Grand Means	3,703.3 psi	3,760.9 psi
Stnd Dev Btwn Labs	278.1 psi	267.5 psi
Statistics based on 18 of 19 reporting participants		

Sample B59: LDPE-3MIL & Sample B60: LDPE-3MIL

Comments on Assigned Data Flags for Test #771

9H8XVK (X) - Data for both samples are low. Possible Systematic Error.

Key to Instrument Codes Reported by Participants

IN	Instron	MT	MTS/Sintech
OA	Oakland Testing	SH	Shimadzu
TO	Tinius Olsen	UC	United
WZ	Zwick	XX	Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

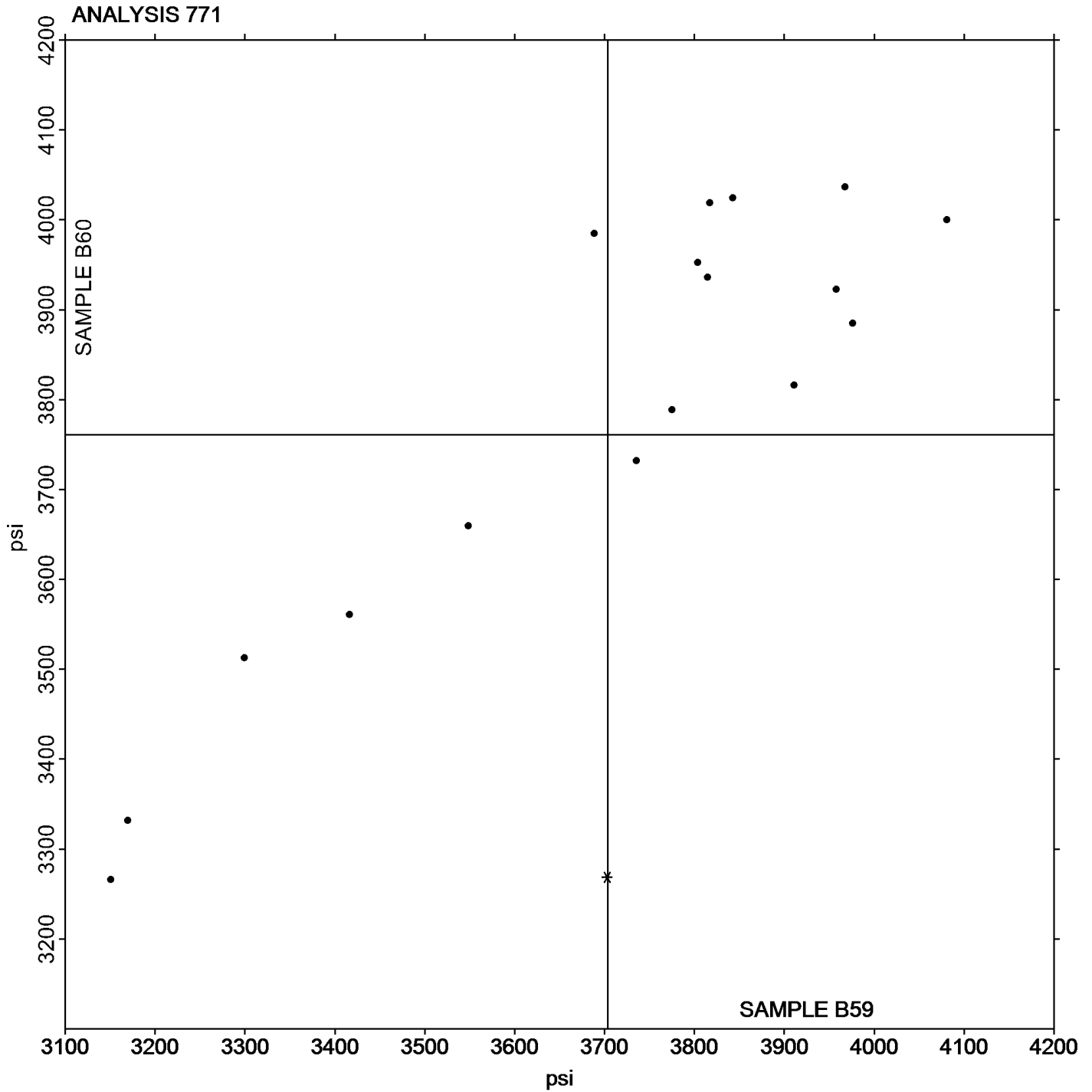
Analysis 771

Tensile Stress at Break, Film Samples - psi

Report #110

2nd Qtr 2019

Grand Mean Sample B59: 3,703.31 psi Grand Mean Sample B60: 3,760.89 psi



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



Plastics Interlaboratory Testing Program

Report #110

Analysis 772

2nd Qtr 2019

Percent Elongation at Yield, Films

WebCode	Data Flag	Sample B59			Sample B60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2XHFGR		109.70	11.92	1.21	110.54	10.97	1.30	IN
9H8XVK	X	216.60	118.82	12.09	174.70	75.13	8.91	TO
B4UJJC	X	66.80	-30.98	-3.15	68.40	-31.17	-3.70	XX
BBDYVM		97.38	-0.40	-0.04	102.18	2.61	0.31	IN
C4UWNK		95.39	-2.39	-0.24	94.01	-5.56	-0.66	XX
EAAEVC		81.01	-16.77	-1.71	86.16	-13.42	-1.59	WZ
GN97MY		88.88	-8.90	-0.91	91.53	-8.04	-0.95	IN
KDWYCF	X	8.26	-89.52	-9.11	8.18	-91.39	-10.84	IN
LJH8F7	X	9.51	-88.27	-8.98	11.99	-87.58	-10.39	IN
MHW6VB		102.86	5.08	0.52	102.03	2.46	0.29	IN
TN6GF6		97.33	-0.45	-0.05	101.33	1.76	0.21	IN
UXRNZE	X	7.02	-90.76	-9.24	7.47	-92.11	-10.93	IN
ZUPZJ7		109.67	11.89	1.21	108.81	9.24	1.10	MT

Summary Statistics		
	Sample B59	Sample B60
Grand Means	97.778 Percent	99.574 Percent
Std Dev Btwn Labs	9.825 Percent	8.427 Percent
Statistics based on 8 of 13 reporting participants		

Sample B59: LDPE-3MIL & Sample B60: LDPE-3MIL

Note: Results for test 772 exhibit higher variability than historical averages. Use caution when interpreting results.

Comments on Assigned Data Flags for Test #772

- LJH8F7 (X) - Extreme data.
- UXRNZE (X) - Extreme data.
- KDWYCF (X) - Extreme data.
- 9H8XVK (X) - Extreme data.
- B4UJJC (X) - Extreme data.

Key to Instrument Codes Reported by Participants

- IN Instron
- TO Tinius Olsen
- XX Instrument manufacturer not specified by lab
- MT MTS/Sintech
- WZ Zwick



Plastics Interlaboratory Testing Program

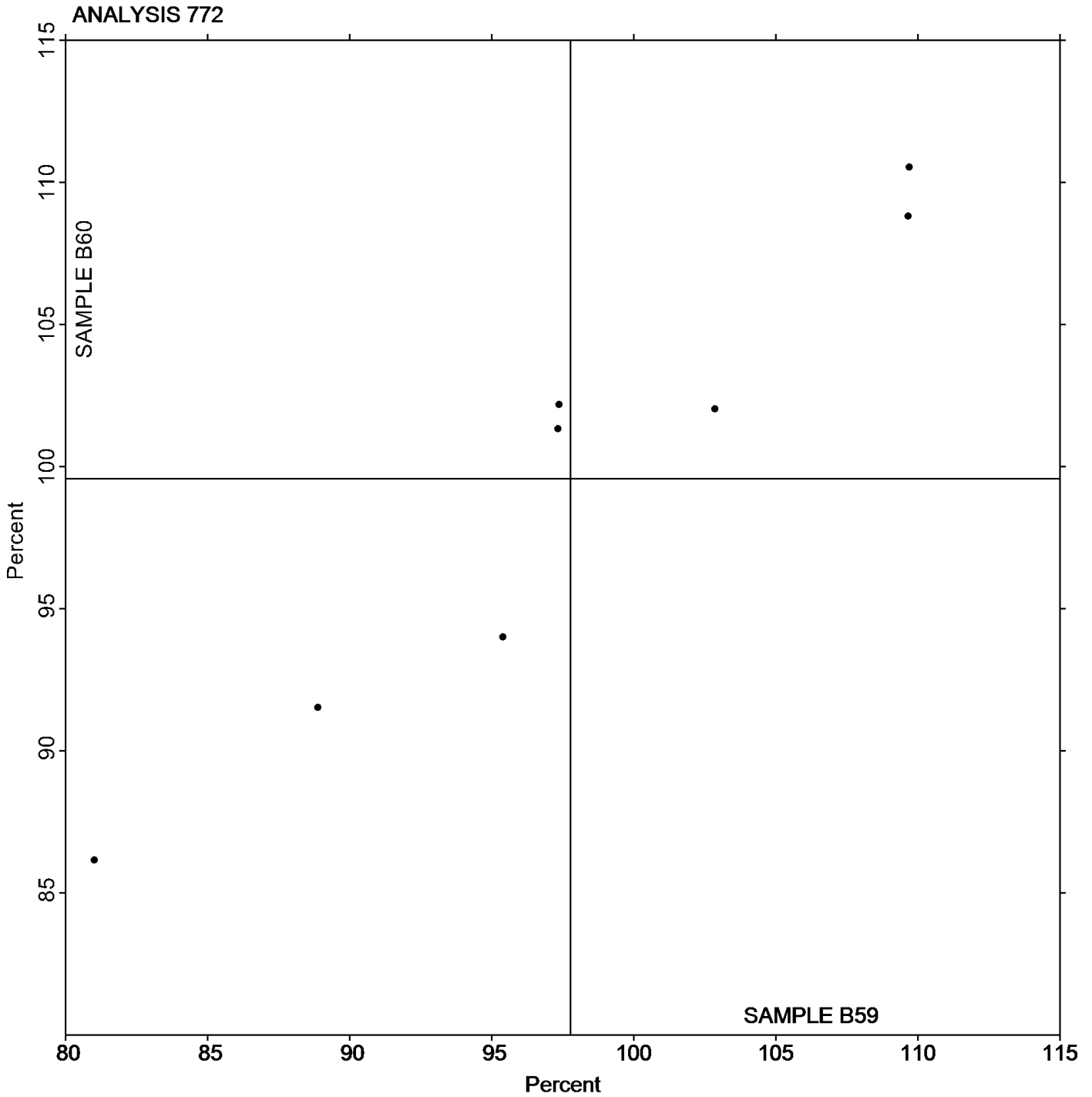
Analysis 772

Percent Elongation at Yield, Films

Report #110

2nd Qtr 2019

Grand Mean Sample B59: 97.778 Percent Grand Mean Sample B60: 99.574 Percent



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



Plastics Interlaboratory Testing Program

Report #110

Analysis 773

2nd Qtr 2019

Percent Elongation at Break, Film Samples

WebCode	Data Flag	Sample B59			Sample B60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2XHFGR		610.2	121.2	1.05	632.6	135.0	1.20	IN
64GYCL		467.1	-21.9	-0.19	499.9	2.3	0.02	OA
9H8XVK		264.6	-224.4	-1.94	251.4	-246.2	-2.20	TO
AQUHAG		720.9	231.9	2.00	719.8	222.3	1.98	IN
B4UJJC	X	902.0	413.0	3.57	914.0	416.4	3.71	XX
BBDYVM		471.7	-17.3	-0.15	461.1	-36.4	-0.33	IN
C4UWNK		424.6	-64.4	-0.56	428.2	-69.3	-0.62	XX
E3WAGY		470.3	-18.7	-0.16	481.6	-16.0	-0.14	MT
EAAEVC		367.0	-122.0	-1.05	392.0	-105.6	-0.94	WZ
GN97MY		466.5	-22.5	-0.19	473.1	-24.5	-0.22	IN
KDWYCF		446.8	-42.2	-0.36	486.9	-10.7	-0.10	IN
LJH8F7		566.1	77.1	0.67	583.7	86.1	0.77	IN
MHW6VB		456.3	-32.7	-0.28	464.9	-32.7	-0.29	IN
TN6GF6		474.2	-14.8	-0.13	470.9	-26.7	-0.24	IN
UXRNZE		441.0	-48.0	-0.41	467.0	-30.6	-0.27	IN
Z4ELVV	*	717.5	228.5	1.97	670.9	173.3	1.55	SH
ZNGLTU		548.4	59.4	0.51	571.6	74.0	0.66	IN
ZUPZJ7		399.8	-89.2	-0.77	402.9	-94.7	-0.84	MT

Summary Statistics		
	Sample B59	Sample B60
Grand Means	488.99 Percent	497.56 Percent
Stnd Dev Btwn Labs	115.78 Percent	112.11 Percent
Statistics based on 17 of 18 reporting participants		

Sample B59: LDPE-3MIL & Sample B60: LDPE-3MIL

Comments on Assigned Data Flags for Test #773

B4UJJC (X) - Extreme data.

Key to Instrument Codes Reported by Participants

IN	Instron	MT	MTS/Sintech
OA	Oakland Testing	SH	Shimadzu
TO	Tinius Olsen	WZ	Zwick
XX	Instrument manufacturer not specified by lab		



Plastics Interlaboratory Testing Program

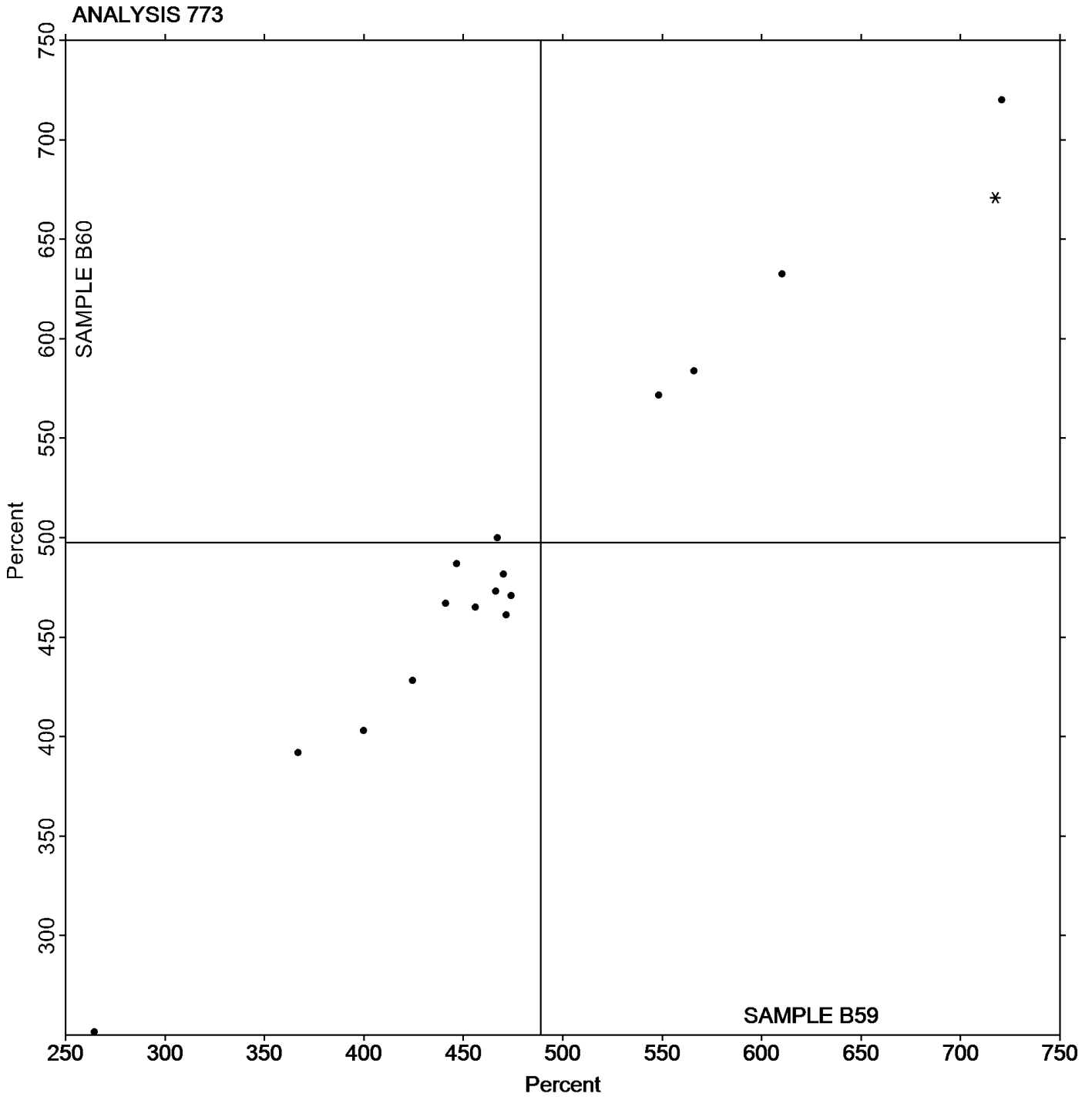
Report #110

Analysis 773

2nd Qtr 2019

Percent Elongation at Break, Film Samples

Grand Mean Sample B59: 488.99 Percent Grand Mean Sample B60: 497.56 Percent



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



Plastics Interlaboratory Testing Program

Report #110

Analysis 774

2nd Qtr 2019

Thickness of Film Tensile Samples - mils

WebCode	Data Flag	<u>Sample B59</u>			<u>Sample B60</u>		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2XHFGR		2.9460	0.0081	0.13	2.9780	0.0607	0.87
64GYCL		2.9560	0.0181	0.29	2.8760	-0.0413	-0.59
8XQ3ZU		2.7700	-0.1679	-2.64	2.7790	-0.1383	-1.98
9H8XVK		2.8268	-0.1110	-1.75	2.8386	-0.0786	-1.13
A7BD2Y		2.9300	-0.0079	-0.12	2.9200	0.0027	0.04
AQUHAG		3.0400	0.1021	1.61	3.0900	0.1727	2.48
B4UJJC		2.9528	0.0149	0.23	2.9646	0.0473	0.68
BBDYVM		2.8540	-0.0839	-1.32	2.8850	-0.0323	-0.46
C4UWNK		2.9850	0.0471	0.74	2.8460	-0.0713	-1.02
E3WAGY		2.9640	0.0261	0.41	2.9770	0.0597	0.86
EAAEVC		2.9430	0.0051	0.08	2.8973	-0.0200	-0.29
EJKMT6		3.0000	0.0621	0.98	2.9700	0.0527	0.76
GN97MY		2.8710	-0.0669	-1.05	2.8890	-0.0283	-0.41
KDWYCF		2.9780	0.0401	0.63	2.9310	0.0137	0.20
LJH8F7		3.0100	0.0721	1.14	3.0200	0.1027	1.47
MHW6VB		2.9200	-0.0179	-0.28	2.8450	-0.0723	-1.04
TN6GF6		2.9240	-0.0139	-0.22	2.9160	-0.0013	-0.02
UXRNZE		2.9764	0.0386	0.61	2.9567	0.0395	0.57
Z4ELVV		2.9803	0.0424	0.67	2.8937	-0.0236	-0.34
ZNGLTU		2.9310	-0.0069	-0.11	2.8650	-0.0523	-0.75
ZUPZJ7		2.9370	-0.0009	-0.01	2.9250	0.0077	0.11

Summary Statistics		
	<u>Sample B59</u>	<u>Sample B60</u>
Grand Means	2.93787 mils	2.91728 mils
Stnd Dev Btwn Labs	0.06347 mils	0.06975 mils
Statistics based on 21 of 21 reporting participants		

Sample B59: LDPE-3MIL & Sample B60: LDPE-3MIL



Plastics Interlaboratory Testing Program

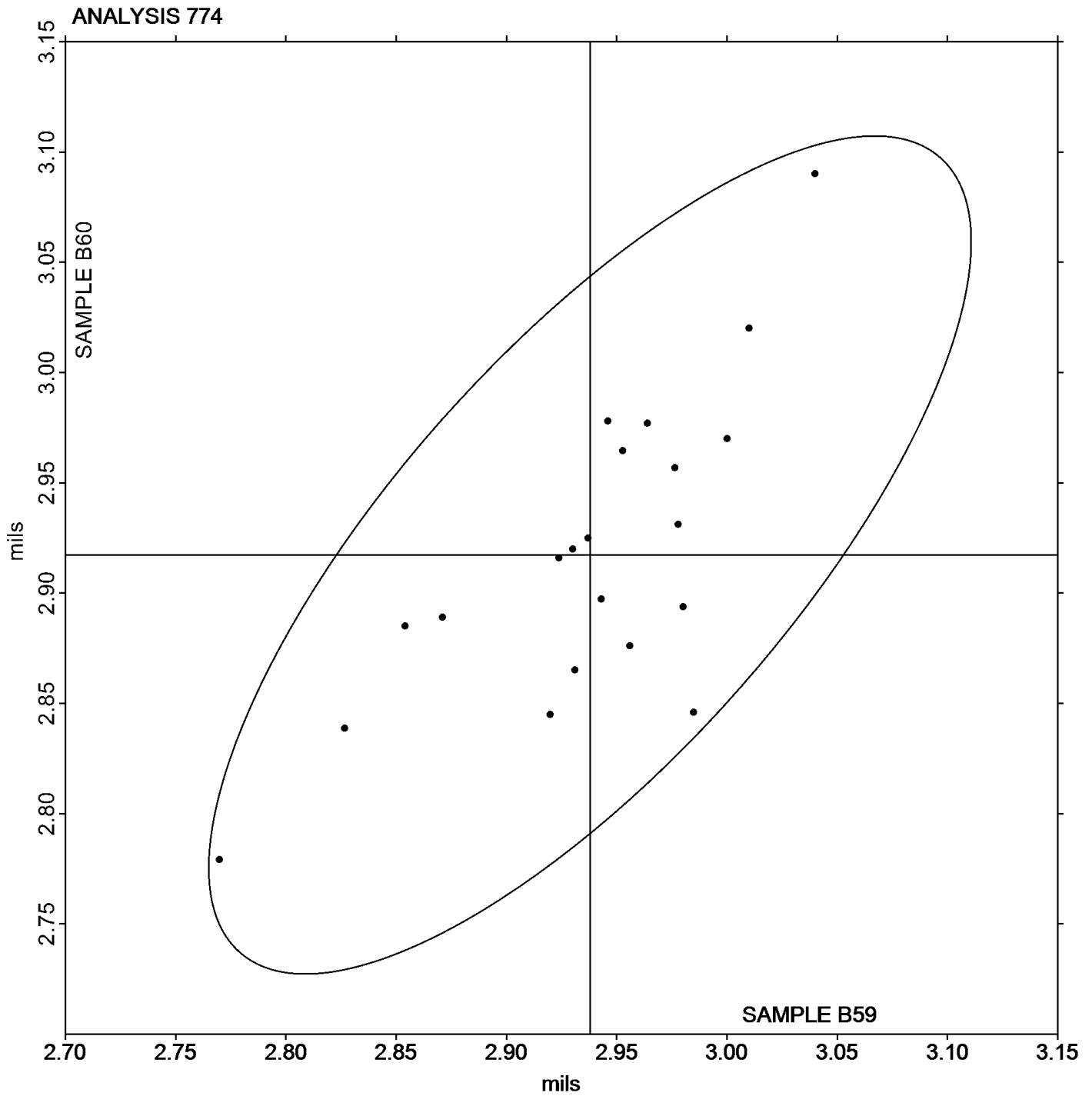
Analysis 774

Thickness of Film Tensile Samples - mils

Report #110

2nd Qtr 2019

Grand Mean Sample B59: 2.9379 mils Grand Mean Sample B60: 2.9173 mils





Plastics Interlaboratory Testing Program

Report #110

Analysis 775

2nd Qtr 2019

Secant Modulus at 1% Strain - psi

WebCode	Data Flag	Sample B59			Sample B60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
64GYCL		41,742	538	0.19	43,201	2,531	0.88	OA
9H8XVK	X	16,795	-24,409	-8.67	16,975	-23,696	-8.22	TO
B4UJJC	X	55,660	14,456	5.13	68,470	27,800	9.64	XX
BBDYVM		38,540	-2,664	-0.95	38,843	-1,828	-0.63	IN
C4UWNK		42,913	1,709	0.61	42,137	1,466	0.51	XX
E3WAGY		40,189	-1,015	-0.36	39,963	-707	-0.25	MT
EAAEVC		35,665	-5,539	-1.97	34,867	-5,803	-2.01	WZ
GN97MY		42,731	1,527	0.54	41,812	1,142	0.40	IN
KDWYCF		45,117	3,913	1.39	41,977	1,307	0.45	IN
LJH8F7		43,572	2,368	0.84	42,601	1,930	0.67	IN
MHW6VB		39,095	-2,109	-0.75	37,334	-3,337	-1.16	IN
TN6GF6		42,476	1,272	0.45	43,970	3,299	1.14	IN

Summary Statistics		
	Sample B59	Sample B60
Grand Means	41,203.9 psi	40,670.4 psi
Std Dev Btwn Labs	2,815.3 psi	2,883.3 psi
Statistics based on 10 of 12 reporting participants		

Sample B59: LDPE-3MIL & Sample B60: LDPE-3MIL

Comments on Assigned Data Flags for Test #775

9H8XVK (X) - Extreme data.

B4UJJC (X) - Extreme data.

Key to Instrument Codes Reported by Participants

IN	Instron	MT	MTS/Sintech
OA	Oakland Testing	TO	Tinius Olsen
WZ	Zwick	XX	Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

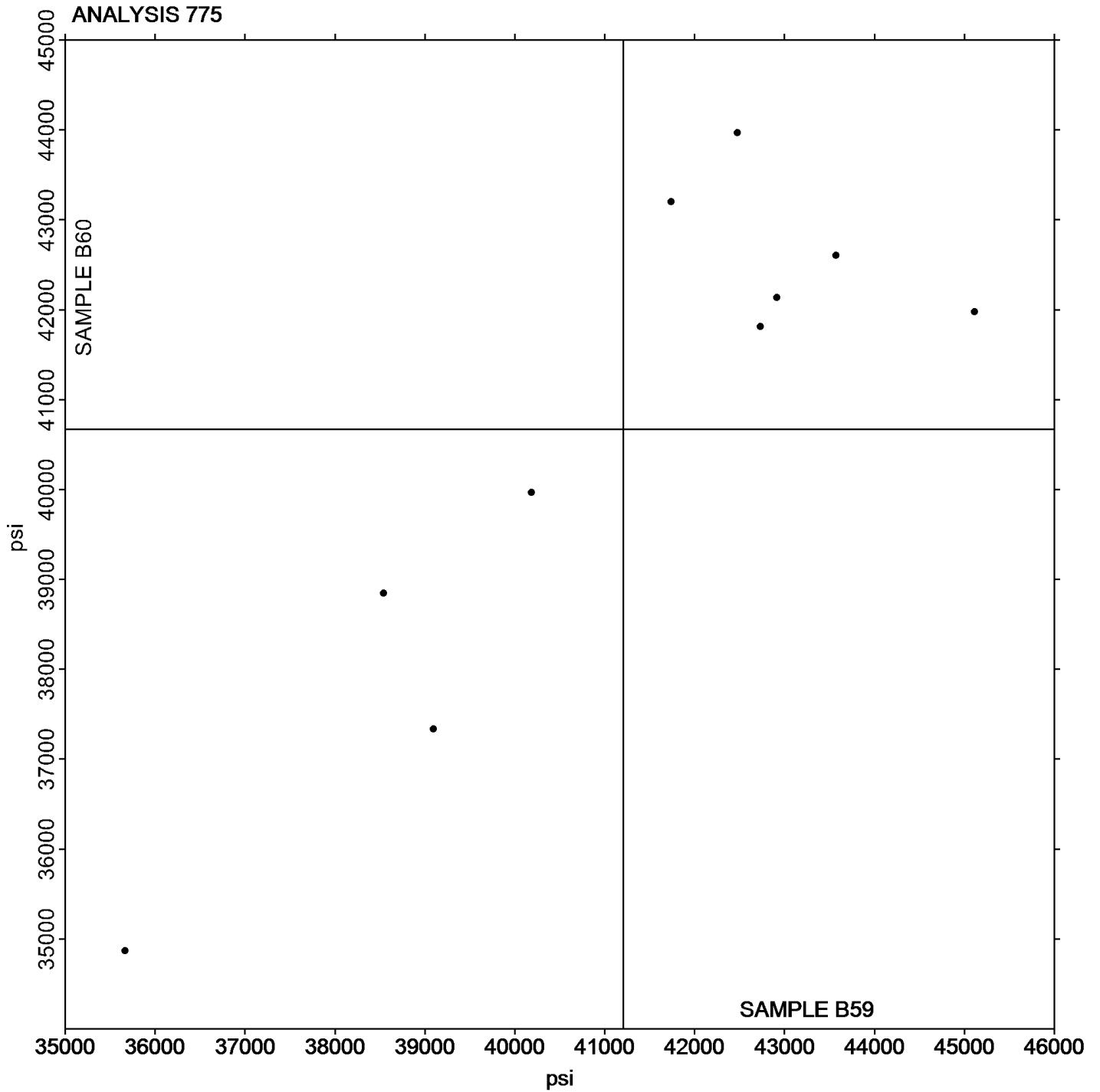
Report #110

Analysis 775

2nd Qtr 2019

Secant Modulus at 1% Strain - psi

Grand Mean Sample B59: 41,203.92 psi Grand Mean Sample B60: 40,670.42 psi



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



Plastics Interlaboratory Testing Program

Report #110

Analysis 776

2nd Qtr 2019

Secant Modulus at 2% Strain - psi

WebCode	Data Flag	Sample B59			Sample B60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
9H8XVK	X	10,870	-25,333	-15.94	12,871	-24,106	-5.55	TO
B4UJJC		39,200	2,997	1.89	46,640	9,663	2.23	XX
BBDYVM		34,315	-1,888	-1.19	34,560	-2,416	-0.56	IN
C4UWNK		35,867	-336	-0.21	35,426	-1,550	-0.36	XX
KDWYCF		36,672	469	0.30	35,311	-1,666	-0.38	MT
LJH8F7		36,805	602	0.38	36,131	-845	-0.19	IN
MHW6VB		34,957	-1,245	-0.78	34,168	-2,809	-0.65	IN
TN6GF6		35,603	-599	-0.38	36,601	-376	-0.09	IN

Summary Statistics		
	Sample B59	Sample B60
Grand Means	36,202.7 psi	36,976.9 psi
Std Dev Btwn Labs	1,589.3 psi	4,342.5 psi
Statistics based on 7 of 8 reporting participants		

Sample B59: LDPE-3MIL & Sample B60: LDPE-3MIL

Comments on Assigned Data Flags for Test #776

9H8XVK (X) - Extreme data.

Key to Instrument Codes Reported by Participants

- | | |
|-----------------|---|
| IN Instron | MT MTS/Sintech |
| TO Tinius Olsen | XX Instrument manufacturer not specified by lab |



Plastics Interlaboratory Testing Program

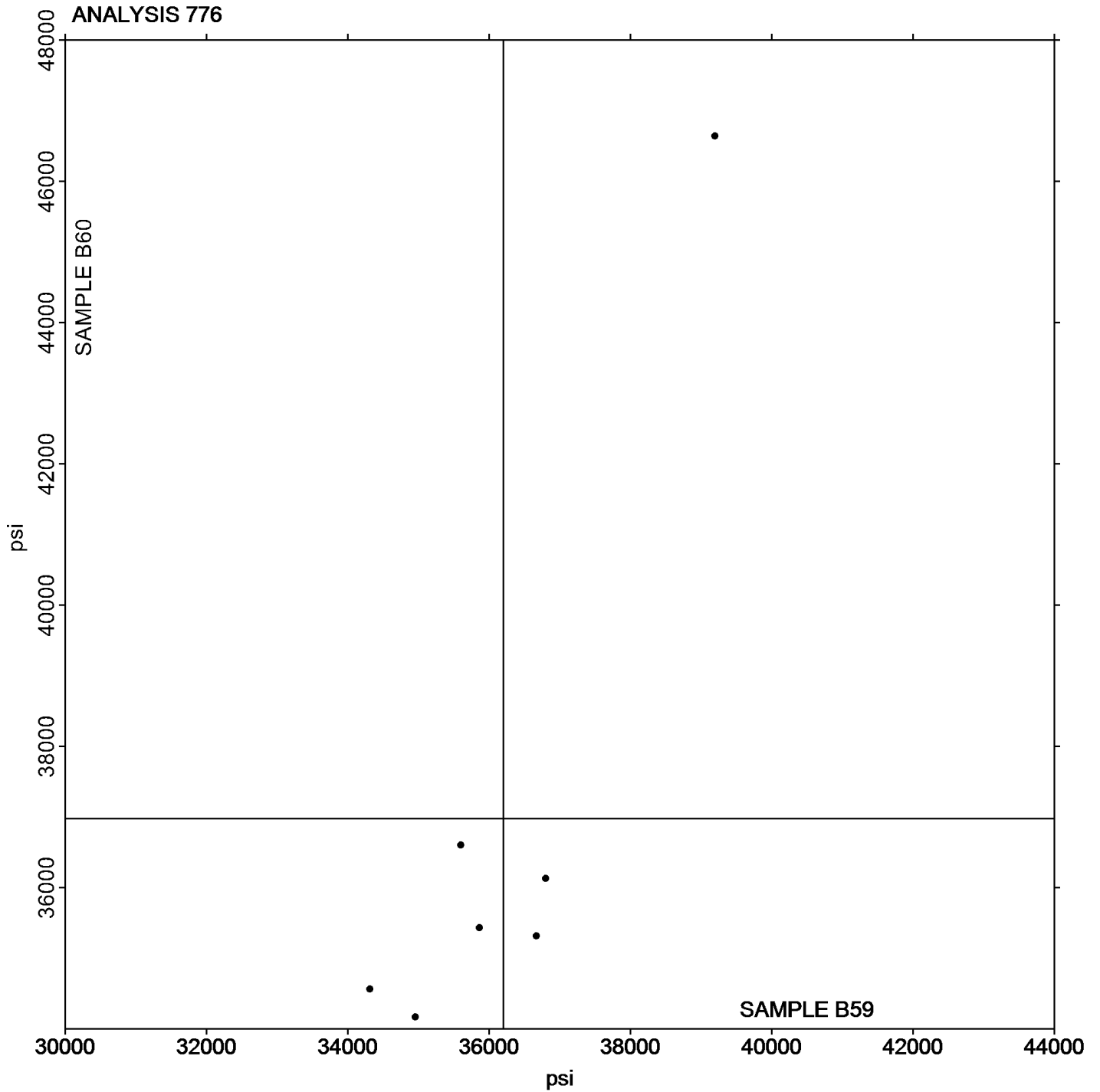
Report #110

Analysis 776

2nd Qtr 2019

Secant Modulus at 2% Strain - psi

Grand Mean Sample B59: 36,202.69 psi Grand Mean Sample B60: 36,976.88 psi



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



Plastics Interlaboratory Testing Program

Report #110

Analysis 780

2nd Qtr 2019

Coefficient of Static Friction

WebCode	Data Flag	Sample P59			Sample P60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
64GYCL		0.1216	-0.0248	-0.55	0.1356	-0.0016	-0.04	DY
9H8XVK		0.1596	0.0132	0.29	0.1570	0.0198	0.54	RD
A7QL7U		0.1130	-0.0334	-0.74	0.1068	-0.0304	-0.83	TN
AMJC6W		0.1180	-0.0284	-0.63	0.0960	-0.0412	-1.13	KA
E3WAGY		0.1396	-0.0068	-0.15	0.1510	0.0138	0.38	MI
EAAEVC		0.0936	-0.0528	-1.17	0.1080	-0.0292	-0.80	TH
GN97MY		0.1164	-0.0300	-0.66	0.1058	-0.0314	-0.86	TH
GWYJ4	X	0.2793	0.1329	2.93	0.1607	0.0235	0.64	IS
KDWYCF		0.1826	0.0362	0.80	0.1632	0.0260	0.71	MI
LJH8F7		0.2226	0.0762	1.68	0.1526	0.0154	0.42	TN
MHW6VB		0.1020	-0.0444	-0.98	0.0920	-0.0452	-1.24	XX
TN6GF6		0.1060	-0.0404	-0.89	0.1040	-0.0332	-0.91	TH
UXRNZE		0.1630	0.0166	0.37	0.1582	0.0210	0.58	IS
WDYJCD		0.2390	0.0926	2.04	0.2187	0.0816	2.23	IG
Z4ELVV		0.1726	0.0262	0.58	0.1712	0.0340	0.93	SA

Summary Statistics		
	Sample P59	Sample P60
Grand Means	0.14640 COF	0.13715 COF
Std Dev Btwn Labs	0.04532 COF	0.03653 COF
Statistics based on 14 of 15 reporting participants		

Sample P59: LDPE-4MIL & Sample P60: LDPE-4MIL

Comments on Assigned Data Flags for Test #780

GWYJ4 (X) - Extreme data.

Key to Instrument Codes Reported by Participants

DY	Dynisco Model D1055	IG	Instron
IS	Instron 5000 Series	KA	Kayeness Inc.
MI	MTS Insight	RD	RDM CF
SA	Shimadzu Autograph	TH	Thwing Albert Friction/Peel Tester Model 225-1
TN	TMI #32-06	XX	Instrument make/model not specified by lab



Plastics Interlaboratory Testing Program

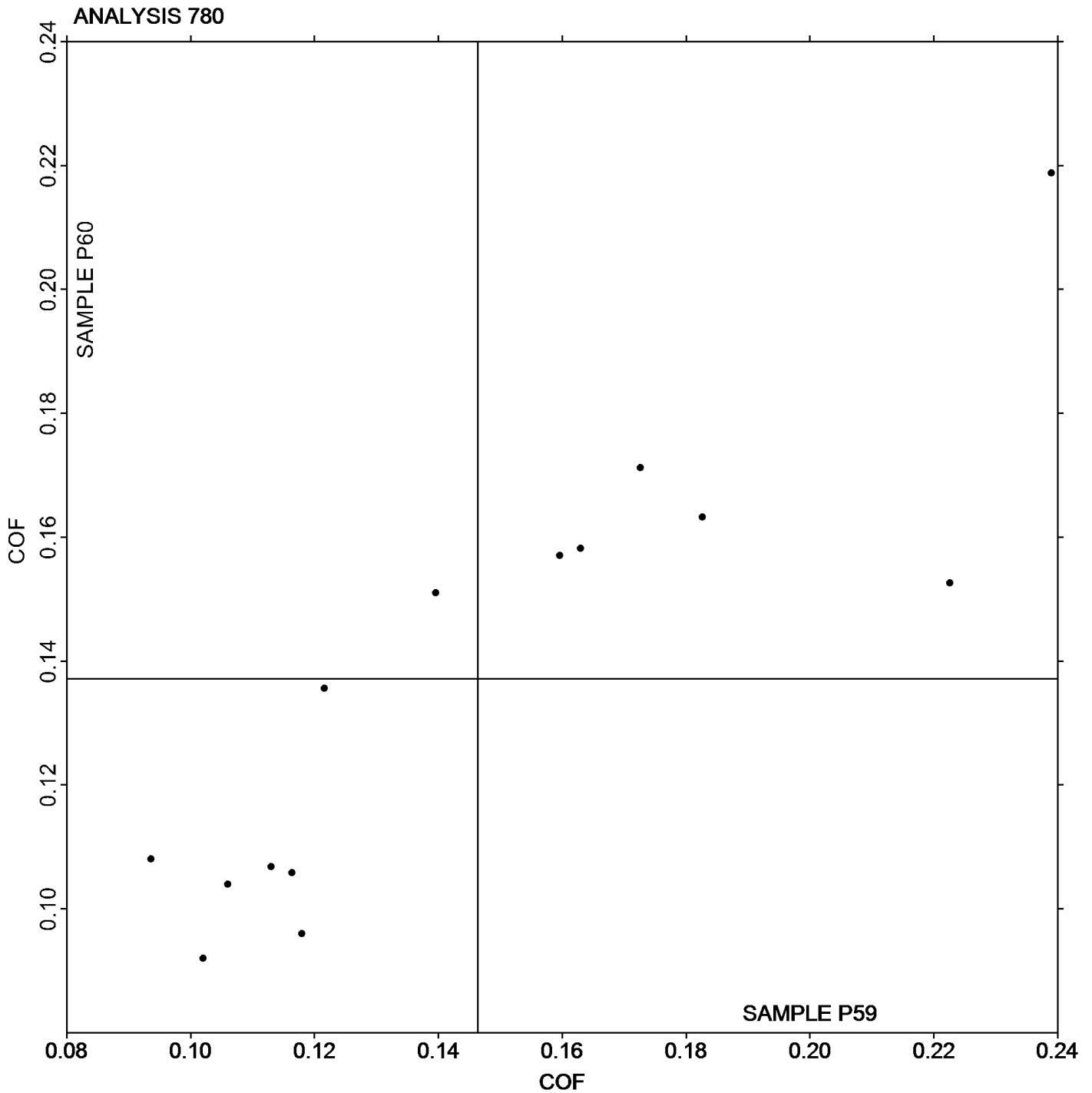
Analysis 780

Coefficient of Static Friction

Report #110

2nd Qtr 2019

Grand Mean Sample P59: 0.14640 COF Grand Mean Sample P60: 0.13715 COF



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



Plastics Interlaboratory Testing Program

Report #110

Analysis 781

2nd Qtr 2019

Coefficient of Kinetic Friction

WebCode	Data Flag	Sample P59			Sample P60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
64GYCL		0.0944	-0.0041	-0.13	0.1086	0.0135	0.48	DY
9H8XVK		0.1482	0.0497	1.61	0.1462	0.0511	1.80	RD
A7QL7U		0.0808	-0.0177	-0.58	0.0746	-0.0205	-0.72	TN
AMJC6W		0.1380	0.0395	1.28	0.1080	0.0129	0.45	KA
E3WAGY		0.0814	-0.0171	-0.56	0.0862	-0.0089	-0.31	MI
EAAEVC		0.0276	-0.0709	-2.30	0.0268	-0.0683	-2.40	TH
GN97MY		0.1186	0.0201	0.65	0.1030	0.0079	0.28	TH
GWYJ4		0.0837	-0.0148	-0.48	0.0804	-0.0147	-0.52	IS
KDWYCF		0.0878	-0.0107	-0.35	0.0838	-0.0113	-0.40	MI
LJH8F7		0.1418	0.0433	1.40	0.1426	0.0475	1.67	TN
MHW6VB		0.0760	-0.0225	-0.73	0.0780	-0.0171	-0.60	XX
TN6GF6		0.0820	-0.0165	-0.54	0.0840	-0.0111	-0.39	TH
UXRNZE		0.1000	0.0015	0.05	0.1026	0.0075	0.26	IS
WDYJCD		0.1080	0.0095	0.31	0.0969	0.0019	0.07	IG
Z4ELVV		0.1098	0.0113	0.37	0.1042	0.0091	0.32	SA

Summary Statistics		
	Sample P59	Sample P60
Grand Means	0.09854 COF	0.09506 COF
Std Dev Btwn Labs	0.03081 COF	0.02847 COF
Statistics based on 15 of 15 reporting participants		

Sample P59: LDPE-4MIL & Sample P60: LDPE-4MIL

Key to Instrument Codes Reported by Participants

DY	Dynisco Model D1055	IG	Instron
IS	Instron 5000 Series	KA	Kayeness Inc.
MI	MTS Insight	RD	RDM CF
SA	Shimadzu Autograph	TH	Thwing Albert Friction/Peel Tester Model 225-1
TN	TMI #32-06	XX	Instrument make/model not specified by lab



Plastics Interlaboratory Testing Program

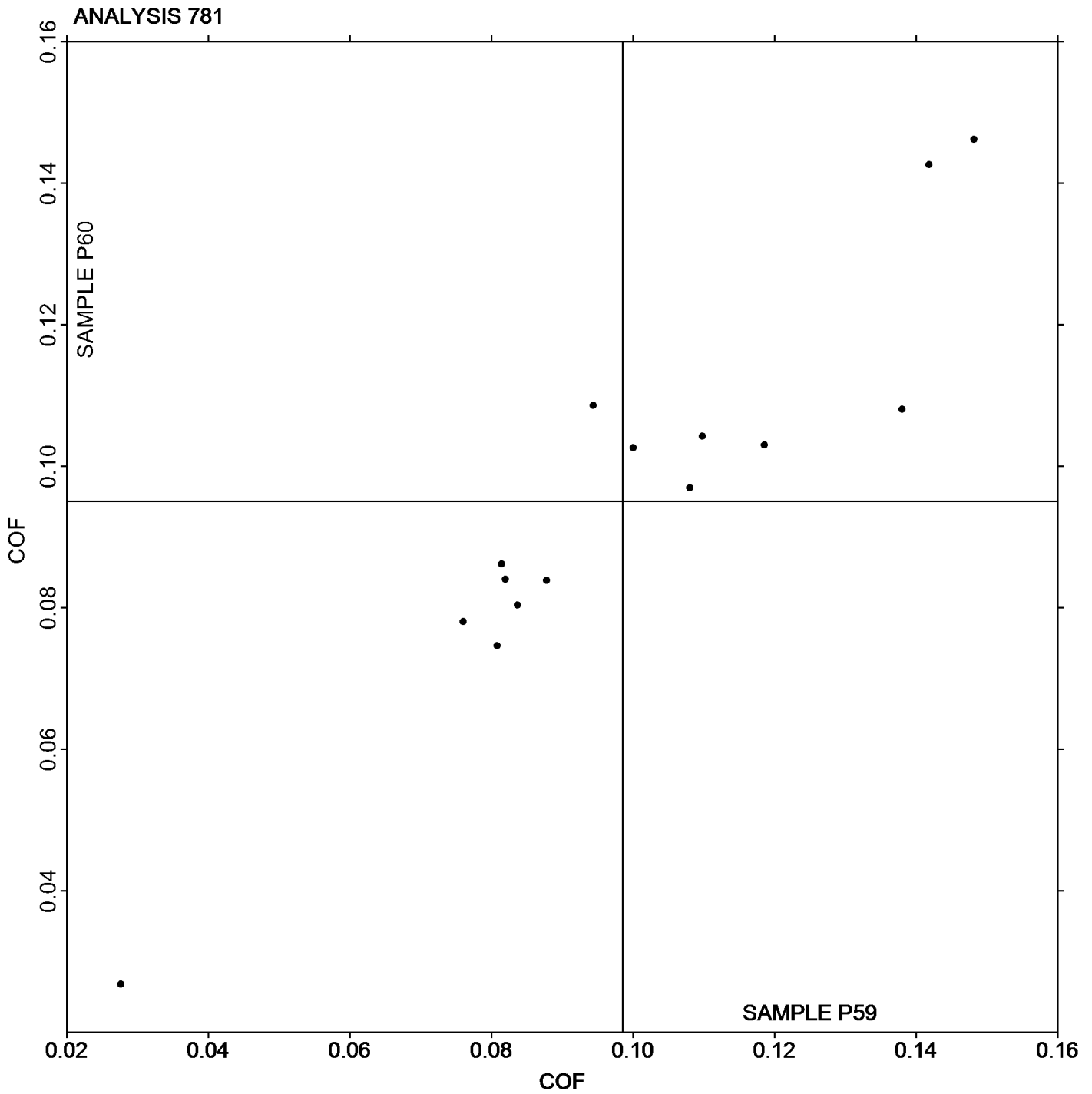
Report #110

Analysis 781

2nd Qtr 2019

Coefficient of Kinetic Friction

Grand Mean Sample P59: 0.09854 COF Grand Mean Sample P60: 0.09506 COF



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



Plastics Interlaboratory Testing Program

Report #110

Analysis 782

2nd Qtr 2019

Tear Resistance of Films

WebCode	Data Flag	Sample Q59			Sample Q60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
64GYCL		228.5	-71.7	-0.97	193.9	-127.7	-1.65	TA
E3WAGY		243.5	-56.7	-0.77	253.9	-67.7	-0.87	TE
EAAEVC		300.5	0.3	0.00	301.1	-20.5	-0.26	TA
FZMJQU		468.0	167.8	2.27	468.8	147.2	1.90	TA
GN97MY		295.9	-4.3	-0.06	323.3	1.7	0.02	TE
KDWYCF		292.3	-7.9	-0.11	359.4	37.9	0.49	TE
LJH8F7		190.3	-109.9	-1.48	244.7	-76.9	-0.99	TM
MHW6VB		265.7	-34.5	-0.47	295.7	-25.9	-0.33	TM
TN6GF6		324.5	24.3	0.33	354.6	33.0	0.43	TE
UXRNZE		355.2	55.0	0.74	409.0	87.4	1.13	SZ
Z4ELVV		337.7	37.5	0.51	332.8	11.3	0.15	LO

Summary Statistics

	Sample Q59	Sample Q60
Grand Means	300.19 grams-force	321.57 grams-force
Stnd Dev Btwn Labs	74.08 grams-force	77.36 grams-force

Statistics based on 11 of 11 reporting participants

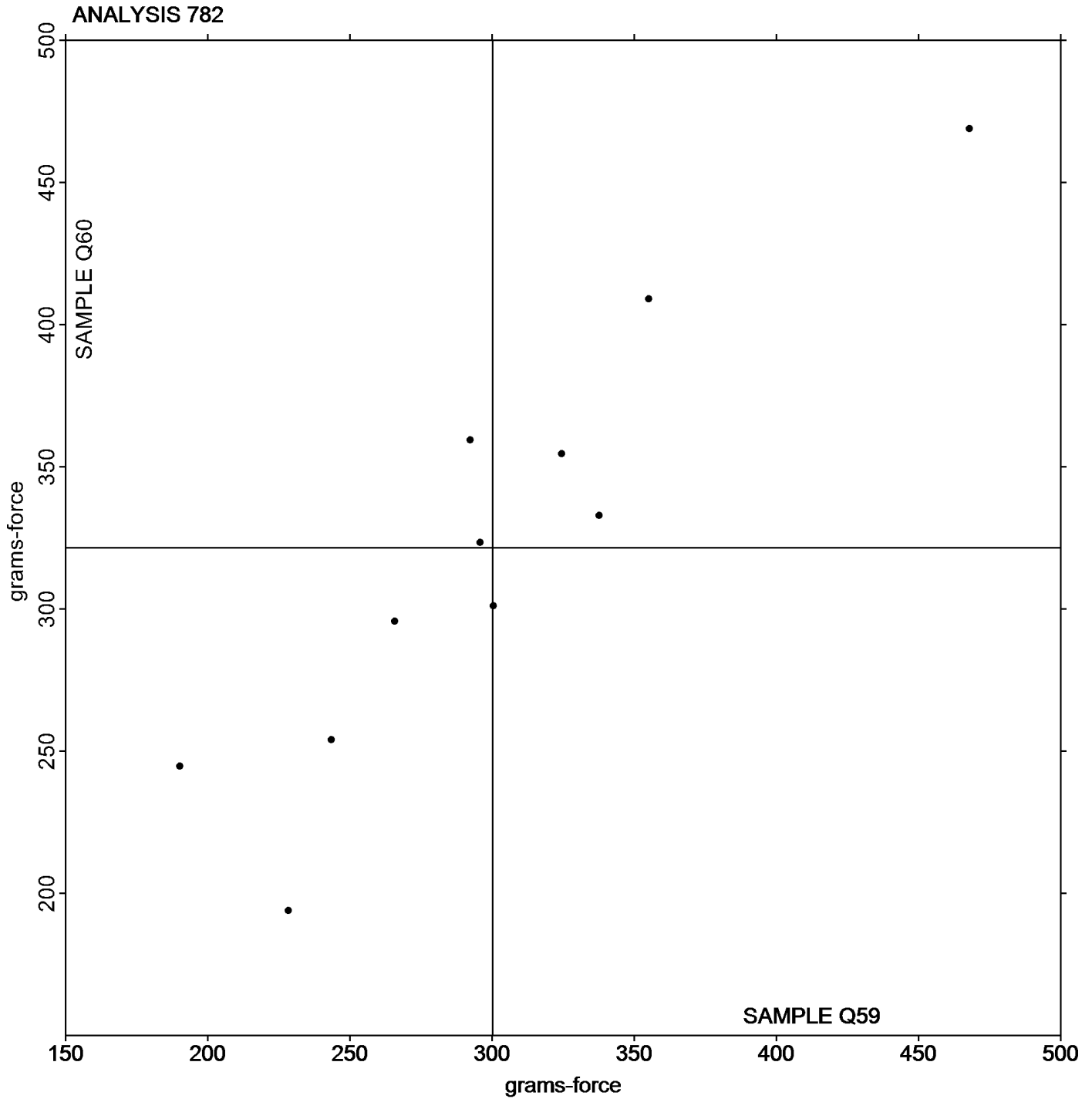
Sample Q59: LDPE-3MIL & Sample Q60: LDPE-3MIL

Key to Instrument Codes Reported by Participants

- LO Lorentzen & Wettre Model II
- TA Thwing-Albert
- TM TMI No. 83-1100
- SZ Textest FX 3700
- TE Thwing-Albert Pro Tear



Grand Mean Sample Q59: 300.19 grams-force Grand Mean Sample Q60: 321.57 grams-force



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



Plastics Interlaboratory Testing Program

Report #110

Analysis 785

2nd Qtr 2019

Percent Haze of Film

WebCode	Data Flag	Sample D59			Sample D60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
64GYCL		24.454	1.608	0.99	24.490	1.540	1.03	XR
76MVZM		22.219	-0.627	-0.39	21.971	-0.979	-0.65	XR
83YRVM		22.463	-0.383	-0.24	23.925	0.975	0.65	BJ
89ZZ8G		22.863	0.017	0.01	23.875	0.925	0.62	BJ
8XQ3ZU	*	24.863	2.017	1.24	21.400	-1.550	-1.03	BJ
93EBFK		22.150	-0.696	-0.43	24.213	1.262	0.84	BJ
9W4CTT		26.293	3.447	2.12	26.635	3.685	2.46	BJ
EAAEVC		21.725	-1.121	-0.69	22.050	-0.900	-0.60	BJ
FBJR7Q		24.449	1.603	0.99	23.579	0.628	0.42	XX
FZMJQU		22.063	-0.783	-0.48	22.900	-0.050	-0.03	BJ
GN97MY		21.075	-1.771	-1.09	23.450	0.500	0.33	BJ
KDWYCF		23.038	0.192	0.12	22.325	-0.625	-0.42	BJ
KPZE4D		26.658	3.812	2.35	24.959	2.008	1.34	XX
LCEEWB		22.663	-0.183	-0.11	23.438	0.487	0.33	BJ
LJH8F7		21.025	-1.821	-1.12	22.100	-0.850	-0.57	BJ
MC4AQW		22.563	-0.283	-0.17	23.613	0.662	0.44	BJ
MQWFEM		22.113	-0.733	-0.45	22.475	-0.475	-0.32	BJ
QXJMCA		22.685	-0.161	-0.10	22.141	-0.809	-0.54	XR
TN6GF6		22.713	-0.133	-0.08	21.888	-1.063	-0.71	BJ
UXRNZE		23.050	0.204	0.13	23.313	0.362	0.24	BJ
V6PVYE		19.988	-2.858	-1.76	19.475	-3.475	-2.32	HL
VDY9WA		22.105	-0.741	-0.46	21.700	-1.250	-0.83	BJ
WZLGFU		21.095	-1.751	-1.08	21.020	-1.930	-1.29	XX
ZAKD7E		25.018	2.172	1.34	24.815	1.865	1.24	XR
ZRZPTD		21.825	-1.021	-0.63	22.013	-0.938	-0.63	BJ

Summary Statistics

	Sample D59	Sample D60
Grand Means	22.8460 Percent	22.9504 Percent
Std Dev Btwn Labs	1.6239 Percent	1.4980 Percent
Statistics based on 25 of 25 reporting participants		

Sample D59: LDPE-4MIL & Sample D60: LDPE-4MIL



Plastics Interlaboratory Testing Program

Analysis 785

Percent Haze of Film

Report #110

2nd Qtr 2019

Key to Instrument Codes Reported by Participants

BJ BYK-Gardner Haze-Gard Plus/i

HL Hunterlab Ultrascan

XR X-Rite Spectrocolorimeter (any model)

XX Instrument make/model not specified by lab



Plastics Interlaboratory Testing Program

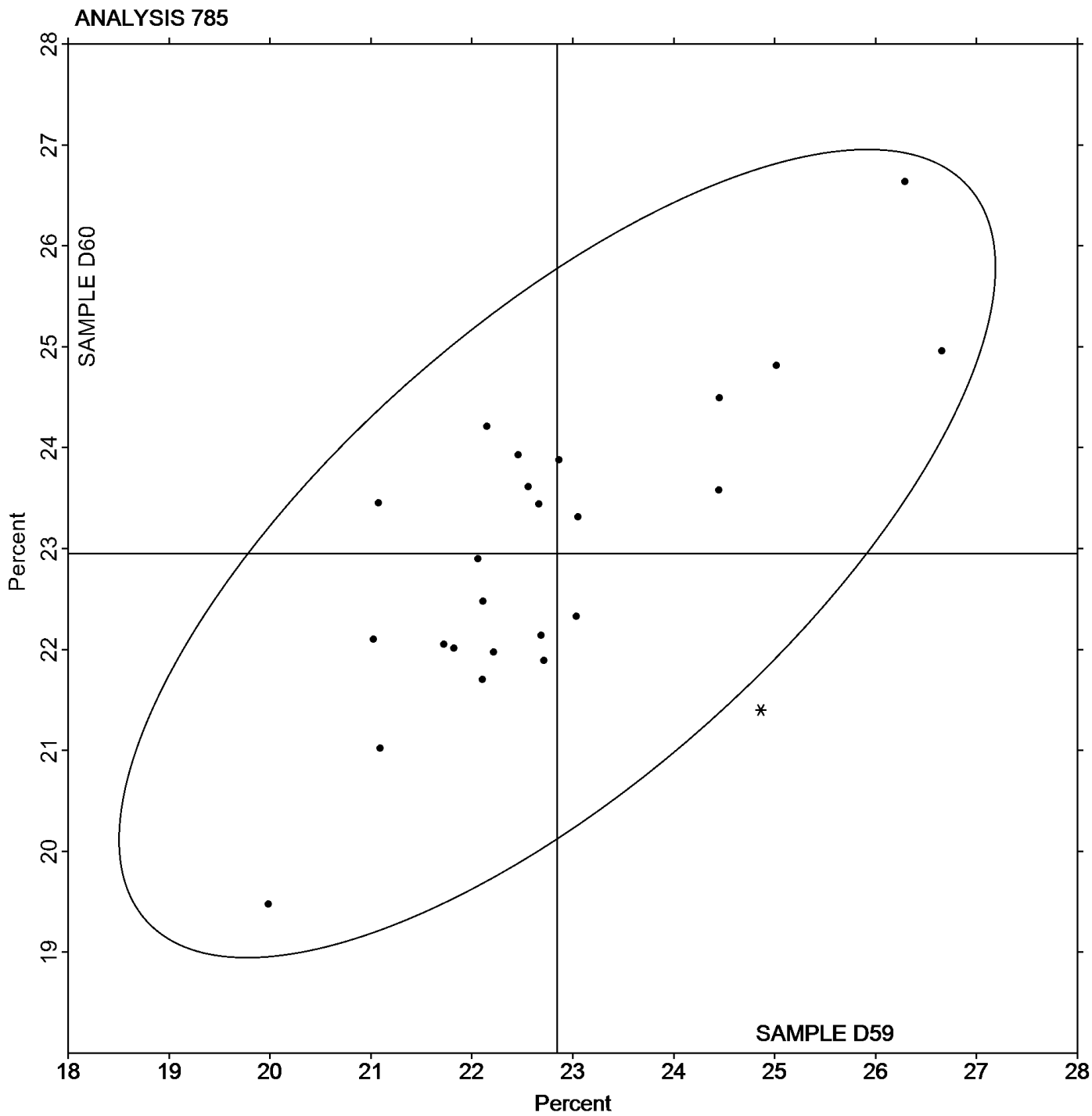
Analysis 785

Percent Haze of Film

Report #110

2nd Qtr 2019

Grand Mean Sample D59: 22.846 Percent Grand Mean Sample D60: 22.950 Percent





Plastics Interlaboratory Testing Program

Report #110

Analysis 786

2nd Qtr 2019

Total Luminous transmittance of film

WebCode	Data Flag	Sample D59			Sample D60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
76MVZM		91.80	-0.69	-0.47	91.70	-0.85	-0.60	XR
83YRVM		93.29	0.79	0.54	93.28	0.72	0.51	BJ
89ZZ8G		90.55	-1.95	-1.33	90.70	-1.85	-1.31	BJ
8XQ3ZU		94.79	2.29	1.56	94.71	2.16	1.53	BJ
93EBFK	*	96.81	4.32	2.94	96.75	4.20	2.97	BJ
9W4CTT		92.55	0.05	0.04	92.42	-0.14	-0.10	BJ
EAAEVC		92.08	-0.42	-0.29	92.19	-0.36	-0.26	BJ
FBJR7Q		91.87	-0.63	-0.43	91.92	-0.63	-0.45	XX
FZMJQU		93.49	0.99	0.68	93.80	1.25	0.88	BJ
GN97MY		92.08	-0.42	-0.29	91.91	-0.64	-0.45	BJ
KDWYCF		93.00	0.50	0.34	92.84	0.29	0.20	BJ
KPZE4D		90.94	-1.56	-1.06	90.80	-1.75	-1.24	XX
LCEEWB		92.64	0.14	0.10	92.70	0.15	0.11	BJ
LJH8F7		93.49	0.99	0.68	93.45	0.90	0.63	BJ
MC4AQW		92.81	0.32	0.22	92.85	0.30	0.21	BJ
MQWFEM	X	81.20	-11.30	-7.70	80.10	-12.45	-8.80	BJ
QXJMCA		92.04	-0.45	-0.31	92.13	-0.42	-0.30	XR
TN6GF6		92.69	0.19	0.13	92.75	0.20	0.14	BJ
UXRNZE	*	90.56	-1.93	-1.32	91.25	-1.30	-0.92	BJ
V6PVYE		90.35	-2.15	-1.46	90.50	-2.05	-1.45	HL
VDY9WA		93.67	1.17	0.80	93.79	1.24	0.88	BJ
WZLGFU		90.86	-1.64	-1.12	91.02	-1.53	-1.08	XX
ZAKD7E		92.10	-0.39	-0.27	92.12	-0.44	-0.31	XR
ZRZPTD		92.98	0.48	0.33	93.11	0.56	0.40	BJ

Summary Statistics		
	Sample D59	Sample D60
Grand Means	92.497 Percent	92.551 Percent
Stnd Dev Btwn Labs	1.466 Percent	1.415 Percent
Statistics based on 23 of 24 reporting participants		

Sample D59: LDPE-4MIL & Sample D60: LDPE-4MIL

Comments on Assigned Data Flags for Test #786

MQWFEM (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of both samples.



Plastics Interlaboratory Testing Program

Report #110

Analysis 786

2nd Qtr 2019

Total Luminous transmittance of film

Key to Instrument Codes Reported by Participants

BJ BYK-Gardner Haze-Gard Plus/i

HL Hunterlab Ultrascan XE

XR X-Rite Spectrocolorimeter (any model)

XX Instrument make/model not specified by lab



Plastics Interlaboratory Testing Program

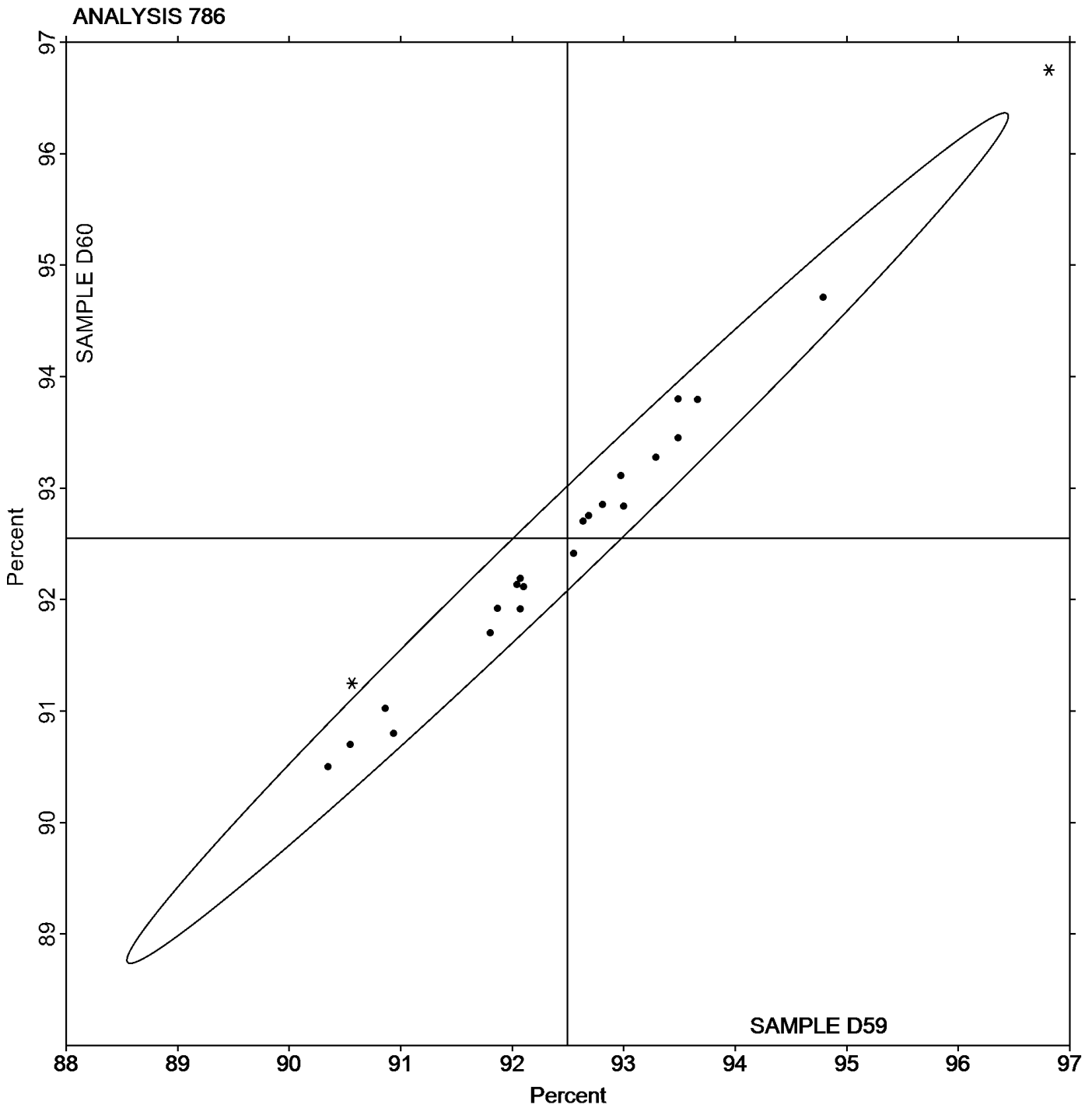
Analysis 786

Total Luminous transmittance of film

Report #110

2nd Qtr 2019

Grand Mean Sample D59: 92.497 Percent Grand Mean Sample D60: 92.551 Percent





Plastics Interlaboratory Testing Program

Report #110

Analysis 790

2nd Qtr 2019

Notched Izod Impact - ft.lbf/in

WebCode	Data Flag	Sample S59			Sample S60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
39HJ6L		9.68	0.04	0.07	9.76	0.13	0.22	XX
3AT8LD		8.70	-0.94	-1.62	8.76	-0.87	-1.47	TO
3E4HCL		10.42	0.78	1.34	10.14	0.52	0.87	TM
6PKLE4		9.55	-0.09	-0.15	9.51	-0.12	-0.20	XX
6YKJR6		9.77	0.13	0.22	9.76	0.13	0.22	WZ
83UF8Q	*	8.14	-1.50	-2.58	8.23	-1.40	-2.36	CE
8PCHB3		9.81	0.17	0.30	9.81	0.18	0.30	CE
93EBFK		10.03	0.40	0.68	10.11	0.48	0.80	TM
9DP6C6	X	10.87	1.23	2.12	10.27	0.64	1.08	TO
9JKF3W		9.00	-0.64	-1.10	9.07	-0.56	-0.94	TO
9KUN8B		9.74	0.10	0.18	9.72	0.09	0.15	CS
A7QL7U		9.73	0.09	0.15	9.64	0.01	0.02	TM
AQUHAG		9.07	-0.56	-0.97	9.09	-0.54	-0.90	TO
AR3VRJ		9.48	-0.16	-0.27	9.79	0.16	0.27	TM
AVKU6D	X	1.23	-8.40	-14.46	1.27	-8.35	-14.07	TO
BUWFWV		10.38	0.74	1.28	10.05	0.43	0.72	CE
CBXRWK		9.19	-0.44	-0.76	9.38	-0.25	-0.43	TM
CKKZ3T		9.63	-0.01	-0.01	9.55	-0.07	-0.13	TO
CX3UFD		10.83	1.19	2.05	10.76	1.13	1.91	XX
EAAEVC		9.40	-0.24	-0.41	9.40	-0.23	-0.39	WZ
EJKMT6	*	9.51	-0.13	-0.22	9.00	-0.63	-1.06	TO
F38GUR		9.27	-0.37	-0.63	9.25	-0.38	-0.64	TO
GJW3WW		10.54	0.90	1.55	10.73	1.10	1.86	TM
GN97MY		9.68	0.05	0.08	9.86	0.23	0.39	CE
HBD2AT		9.33	-0.31	-0.53	9.03	-0.60	-1.01	DY
HTEZ79		8.96	-0.68	-1.17	9.17	-0.45	-0.77	TM
J3WZ8N		8.80	-0.83	-1.44	8.57	-1.06	-1.78	TO
JJMZ3U		10.05	0.41	0.71	9.94	0.31	0.53	TO
JQ3PLB		8.49	-1.15	-1.98	8.44	-1.19	-2.00	TO
K8T77Q		10.09	0.45	0.78	10.19	0.57	0.95	CE
KAYDPJ		9.61	-0.03	-0.05	9.63	0.00	0.01	WZ
KDWYCF		10.00	0.36	0.63	10.06	0.43	0.73	TO
KH4K4J		9.11	-0.52	-0.90	9.12	-0.50	-0.85	TM
L3L76R	X	18.88	9.25	15.91	19.99	10.36	17.44	TO
LCEEWB		10.01	0.38	0.65	10.05	0.42	0.70	CE



Plastics Interlaboratory Testing Program

Report #110

Analysis 790

2nd Qtr 2019

Notched Izod Impact - ft.lbf/in

WebCode	Data Flag	Sample S59			Sample S60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
MAPDJZ		10.68	1.04	1.79	10.82	1.20	2.01	TO
Q6JRJT		9.21	-0.43	-0.73	9.46	-0.17	-0.29	TM
QDDWDU		9.06	-0.58	-0.99	8.98	-0.65	-1.09	CE
R3A2UP		9.82	0.19	0.32	9.96	0.33	0.55	TO
UYKU6C		10.50	0.86	1.49	10.57	0.94	1.59	TM
V46CHL	X	9.26	-0.38	-0.65	10.01	0.38	0.64	TO
VX8KR6		9.55	-0.09	-0.16	9.33	-0.30	-0.50	CE
VZQGBP		9.58	-0.05	-0.09	9.32	-0.30	-0.51	XX
WZ8W4W		9.93	0.29	0.50	9.83	0.20	0.34	CE
XH24K3		9.44	-0.19	-0.34	9.84	0.21	0.35	TM
ZAHPJ9		10.38	0.74	1.28	10.36	0.73	1.23	TO
ZUPZJ7		9.81	0.17	0.29	9.92	0.30	0.50	TM
ZX88YT		10.22	0.58	1.00	10.05	0.43	0.72	TO
ZYLH6C		9.50	-0.14	-0.24	9.27	-0.36	-0.61	CE

Summary Statistics		
	Sample S59	Sample S60
Grand Means	9.637 ft.lbf/in	9.629 ft.lbf/in
Stnd Dev Btwn Labs	0.581 ft.lbf/in	0.594 ft.lbf/in
Statistics based on 45 of 49 reporting participants		

Sample S59: ABS/PC & Sample S60: ABS/PC

Comments on Assigned Data Flags for Test #790

- V46CHL (X) - Inconsistent in testing between samples.
- 9DP6C6 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
- L3L76R (X) - Extreme data.
- AVKU6D (X) - Extreme data.

Key to Instrument Codes Reported by Participants

- | | |
|---|----------|
| CE Ceast | CS CSI |
| DY Dynatup | TM TMI |
| TO Tinius Olsen | WZ Zwick |
| XX Instrument manufacturer not specified by lab | |



Plastics Interlaboratory Testing Program

Report #110

Analysis 791

2nd Qtr 2019

Notched Izod Impact - kJ/m²

WebCode	Data Flag	Sample Z59			Sample Z60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
36BARV		21.12000	1.24769	1.18	21.42000	1.56388	1.31	WZ
3X2KPH	X	42.89600	13.02369	21.83	42.71000	22.85388	19.18	TM
6N7DRW		18.50000	-1.37231	-1.30	18.90000	-0.95612	-0.80	CE
6YKJR6		19.76600	-0.10631	-0.10	19.82000	-0.03612	-0.03	WZ
6ZKA7Z		19.38400	-0.48831	-0.46	19.40000	-0.45612	-0.38	TO
728C87	*	22.00000	2.12769	2.02	23.00000	3.14388	2.64	TO
7WBT22		19.52400	-0.34831	-0.33	19.40000	-0.45612	-0.38	XX
9B9G9L		22.28600	2.41369	2.29	21.89200	2.03588	1.71	CE
9DP6C6		19.39200	-0.48031	-0.46	19.61400	-0.24212	-0.20	TO
AVKU6D	X	6.71000	13.16231	-12.48	6.49800	-13.35812	-11.21	TO
B9WJUV		19.27400	-0.59831	-0.57	19.28000	-0.57612	-0.48	CE
BDNQC4		19.64000	-0.23231	-0.22	19.36000	-0.49612	-0.42	WZ
CTWYW4		20.09000	0.21769	0.21	19.26180	-0.59432	-0.50	CE
FBP4Q3		21.26160	1.38929	1.32	21.41900	1.56288	1.31	XX
HJ7K2L		18.12400	-1.74831	-1.66	18.27400	-1.58212	-1.33	XX
J3WZ8N		19.01200	-0.86031	-0.82	18.98480	-0.87132	-0.73	TO
KAYDPJ		19.77000	-0.10231	-0.10	19.82400	-0.03212	-0.03	WZ
L3L76R	X	10.50400	-9.36831	-8.88	9.91600	-9.94012	-8.34	TO
LJH8F7		19.00000	-0.87231	-0.83	19.12000	-0.73612	-0.62	CE
QAAMLY		20.21600	0.34369	0.33	20.31200	0.45588	0.38	WZ
RDCLUW		19.62200	-0.25031	-0.24	19.72800	-0.12812	-0.11	WZ
RWFJ26		20.04000	0.16769	0.16	19.92000	0.06388	0.05	TO
VX8KR6		19.94000	0.06769	0.06	19.86000	0.00388	0.00	CE
WC4VXN		20.52520	0.65289	0.62	20.28100	0.42488	0.36	TO
YUUVVX		18.70400	-1.16831	-1.11	17.76400	-2.09212	-1.76	CE

Summary Statistics		Sample Z59	Sample Z60
Grand Means		19.872309 kJ/m ²	19.856118 kJ/m ²
Stnd Dev Btwn Labs		1.054626 kJ/m ²	1.191829 kJ/m ²
Statistics based on 22 of 25 reporting participants			

Sample Z59: ABS & Sample Z60: ABS



Comments on Assigned Data Flags for Test #791

3X2KPH (X) - Extreme data.

L3L76R (X) - Extreme data.

AVKU6D (X) - Extreme data.

Key to Instrument Codes Reported by Participants

CE Ceast

TM TMI

TO Tinius Olsen

WZ Zwick

XX Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

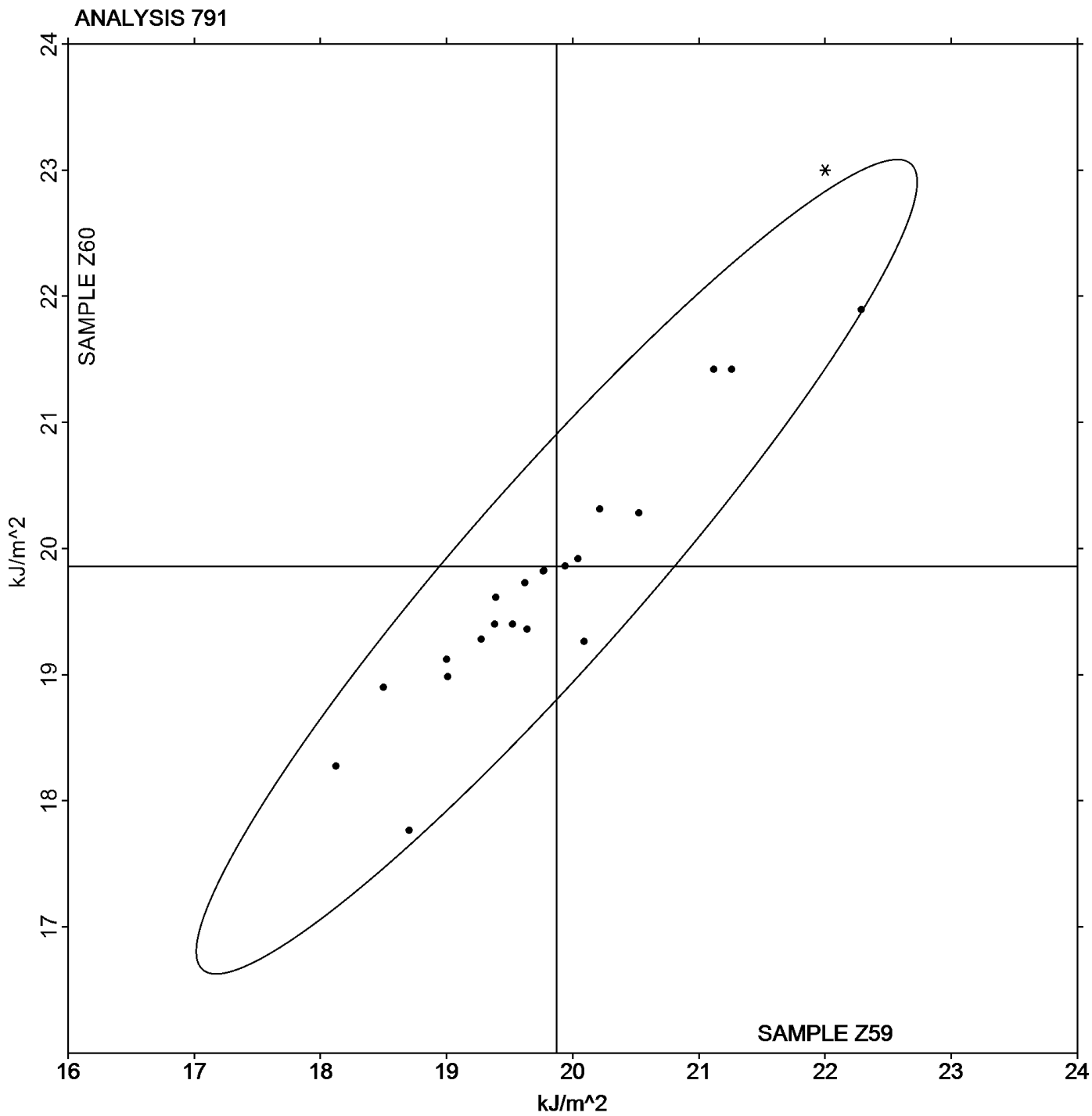
Analysis 791

Notched Izod Impact - kJ/m^2

Report #110

2nd Qtr 2019

Grand Mean Sample Z59: 19.872 kJ/m^2 Grand Mean Sample Z60: 19.856 kJ/m^2





Plastics Interlaboratory Testing Program

Report #110

Analysis 792

2nd Qtr 2019

Notched Charpy Impact - kJ/m²

WebCode	Data Flag	Sample M59			Sample M60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
36BARV		17.48	-1.44	-1.64	17.82	-1.24	-1.60	WZ
39HJ6L	X	22.36	3.43	3.91	22.11	3.05	3.91	XX
3KCP7W		19.51	0.58	0.66	19.08	0.01	0.02	TM
3RVTEY		17.97	-0.95	-1.08	18.33	-0.73	-0.94	WZ
4BG86T		17.84	-1.08	-1.23	18.58	-0.49	-0.62	XX
6PKLE4		18.53	-0.39	-0.44	18.01	-1.06	-1.36	XX
6YB6TC	X	8.60	-10.33	-11.75	8.81	-10.26	-13.16	TO
6YKJR6		19.34	0.42	0.47	19.56	0.50	0.64	WZ
6ZKA7Z		19.28	0.36	0.41	19.27	0.20	0.26	TO
8PCHB3		18.89	-0.04	-0.04	19.19	0.12	0.16	CE
93EBFK		18.64	-0.28	-0.32	19.02	-0.04	-0.05	TM
9B9G9L		19.80	0.88	1.00	19.69	0.63	0.81	CE
9DP6C6		18.53	-0.39	-0.45	19.00	-0.07	-0.09	TO
9JKF3W		18.63	-0.29	-0.33	18.87	-0.19	-0.24	TO
B9WJUV		19.86	0.93	1.06	20.09	1.03	1.32	CE
BDNQC4		19.34	0.42	0.47	19.70	0.64	0.82	WZ
BUWFWV		20.24	1.32	1.50	19.50	0.44	0.56	CE
CTWYW4		19.59	0.67	0.76	19.93	0.87	1.12	CE
EAAEVC		17.99	-0.94	-1.07	18.24	-0.82	-1.05	WZ
EDXUG7		17.92	-1.00	-1.14	17.78	-1.28	-1.65	IN
ERXDEW		19.08	0.15	0.18	19.16	0.10	0.13	XX
FBP4Q3	*	19.91	0.98	1.12	18.62	-0.45	-0.58	TO
FL48PK		17.70	-1.22	-1.39	19.02	-0.04	-0.06	WZ
FZ2ABY		18.42	-0.50	-0.57	18.45	-0.62	-0.79	XX
FZMJQU		19.12	0.19	0.22	19.45	0.39	0.49	TO
GCEPXX		19.37	0.45	0.51	19.91	0.85	1.08	IN
HJ7K2L		17.02	-1.91	-2.17	17.13	-1.94	-2.48	XX
J3WZ8N		19.19	0.26	0.30	19.47	0.41	0.52	TO
JJMZ3U		19.01	0.09	0.10	19.32	0.26	0.33	TO
JQ3PLB		18.80	-0.12	-0.14	19.62	0.56	0.71	TO
KAYDPJ		18.63	-0.30	-0.34	18.55	-0.51	-0.66	WZ
KJ69RP	*	21.49	2.57	2.92	20.66	1.60	2.05	CE
L3L76R		19.78	0.85	0.97	20.71	1.65	2.12	TO
NDEBCV		19.59	0.67	0.76	19.82	0.75	0.96	TO
NJ98AM		19.43	0.50	0.57	19.30	0.24	0.31	CE



Plastics Interlaboratory Testing Program

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Analysis 792

2nd Qtr 2019

Notched Charpy Impact - kJ/m²

WebCode	Data Flag	Sample M59			Sample M60			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
QEN2QH		19.17	0.25	0.28	19.20	0.13	0.17	CE
QHP843		20.42	1.50	1.70	19.90	0.84	1.07	TO
RDCLUW		19.60	0.67	0.77	19.46	0.39	0.50	WZ
UYKU6C		17.99	-0.94	-1.06	17.92	-1.14	-1.47	TM
VX8KR6		17.81	-1.12	-1.27	18.83	-0.23	-0.30	IN
VZQGBP		17.77	-1.16	-1.32	17.91	-1.15	-1.48	XX
WC4VXN		18.49	-0.43	-0.49	18.43	-0.63	-0.81	TO
YUUVVX		18.73	-0.20	-0.23	19.24	0.17	0.22	CE
ZMACRP		19.05	0.12	0.14	19.61	0.55	0.70	XX
ZYLH6C		18.82	-0.10	-0.12	18.41	-0.66	-0.84	CE

Summary Statistics		
	Sample M59	Sample M60
Grand Means	18.925 kJ/m ²	19.064 kJ/m ²
Stnd Dev Btwn Labs	0.879 kJ/m ²	0.780 kJ/m ²
Statistics based on 43 of 45 reporting participants		

Sample M59: ABS & Sample M60: ABS

Comments on Assigned Data Flags for Test #792

6YB6TC (X) - Extreme data.

39HJ6L (X) - Data for both samples are high. Possible Systematic Error.

Key to Instrument Codes Reported by Participants

CE	Ceast	IN	Instron
TM	TMI	TO	Tinius Olsen
WZ	Zwick	XX	Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

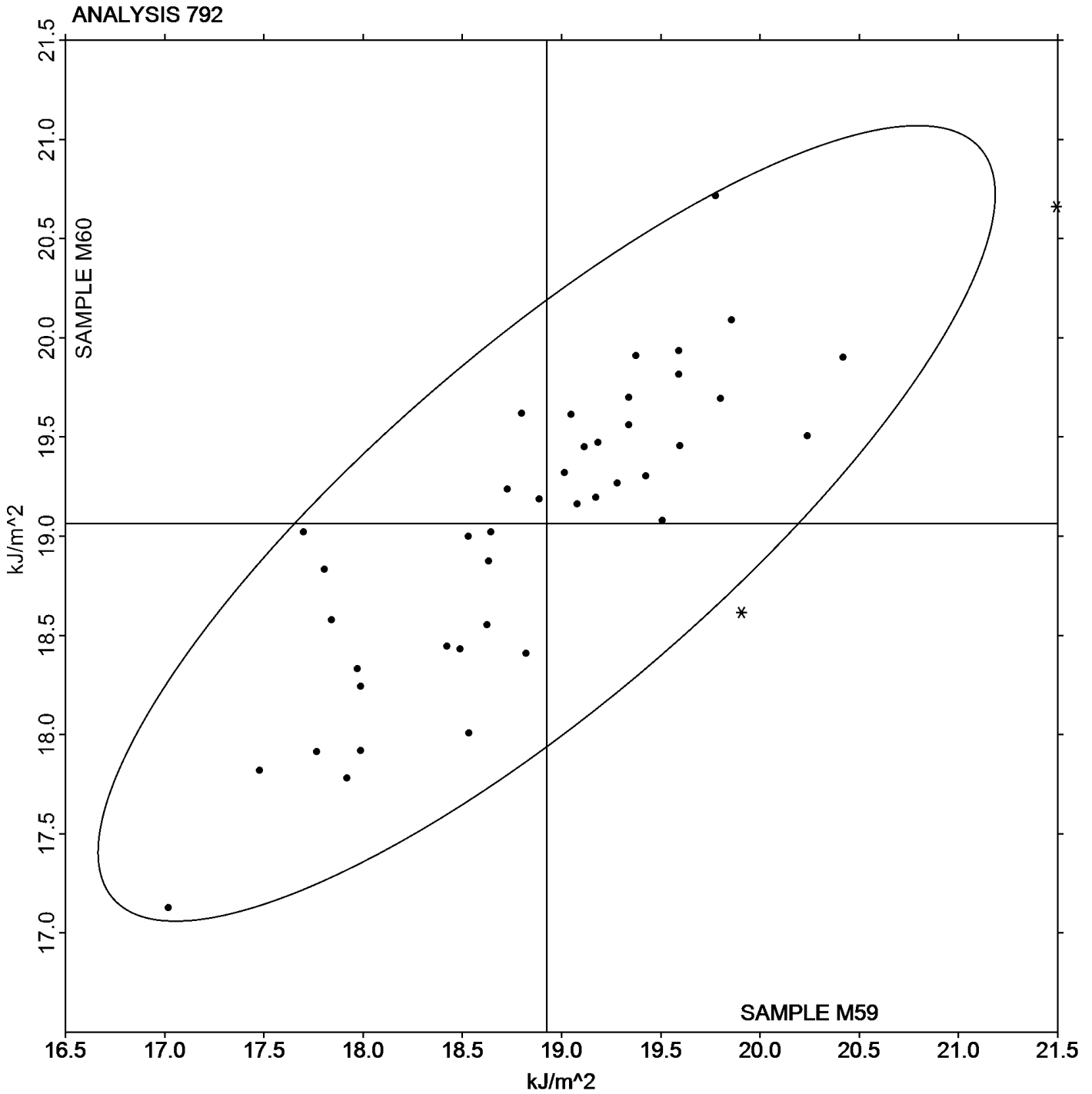
Analysis 792

Notched Charpy Impact - kJ/m²

Report #110

2nd Qtr 2019

Grand Mean Sample M59: 18.925 kJ/m² Grand Mean Sample M60: 19.064 kJ/m²



-End of Report-