



Plastics Interlaboratory Testing Program

Web Summary Report #111, 3rd 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.



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Results Summary for Report #111, 3rd Qtr 2019

Analysis 704 - Tensile Stress at Yield

Material: ABS	Sample F61	6,095.34	psi	2.19% COV
	Sample F62	6,091.40	psi	2.20% COV

Analysis 705 - Tensile Stress at Break

Material: ABS	Sample F61	4,878.88	psi	2.76% COV
	Sample F62	4,866.83	psi	2.68% COV

Analysis 706 - Percent Elongation at Yield

Material: ABS	Sample F61	2.4172	Percent	4.19% COV
	Sample F62	2.4281	Percent	3.98% COV

Analysis 708 - Modulus of Elasticity

Material: ABS	Sample F61	324.14	ksi	4.64% COV
	Sample F62	322.96	ksi	5.20% COV

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

Material: ABS/PC	Sample E61	108.93	Degrees C	2.32% COV
	Sample E62	109.03	Degrees C	2.22% COV

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

Material: PP	Sample G61	110.80	Degrees C	11.9% COV
	Sample G62	114.44	Degrees C	3.65% COV

Analysis 712 - Temperature of Deflection (1.80 MPa)

Material: ABS/PC	Sample N61	103.68	Degrees C	1.46% COV
	Sample N62	103.57	Degrees C	1.58% COV

Analysis 715 - Vicat Temperature (Rate A)

Material: ABS/PC	Sample H61	139.37	Degrees C	0.527% COV
	Sample H62	139.38	Degrees C	0.473% COV

Analysis 716 - Vicat Temperature (Rate B)

Material: ABS/PC	Sample R61	140.83	Degrees C	0.477% COV
	Sample R62	140.91	Degrees C	0.465% COV

Analysis 718 - Specific Gravity

Material: ABS	Sample T61	1.0413	sp gr 23/23 C	0.222% COV
	Sample T62	1.0414	sp gr 23/23 C	0.208% COV

Analysis 720 - Flexural Modulus

Material: ABS	Sample J61	364.07	ksi	4.64% COV
	Sample J62	364.12	ksi	4.70% COV

Analysis 721 - Flexural Stress at 5% Strain

Material: ABS	Sample J61	10,172.99	psi	3.30% COV
	Sample J62	10,185.05	psi	3.29% COV

Analysis 722 - Flexural Stress at Yield

Material: ABS	Sample J61	10,190.43	psi	3.55% COV
	Sample J62	10,199.98	psi	3.55% COV

Analysis 730 - Tensile Stress at Yield, ISO Method

Material: HIPS	Sample C61	24.668	MPa	3.31% COV
	Sample C62	24.686	MPa	3.29% COV

Analysis 731 - Tensile Stress at Break, ISO Method

Material: HIPS	Sample C61	19.876	MPa	4.40% COV
	Sample C62	19.951	MPa	4.41% COV



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Analysis 732 - Strain at Yield, ISO Method

Material: HIPS	Sample C61	1.2354	Percent	5.37% COV
	Sample C62	1.2354	Percent	5.57% COV

Analysis 734 - Modulus of Elasticity, ISO Method

Material: HIPS	Sample C61	2,265.43	MPa	4.41% COV
	Sample C62	2,269.63	MPa	4.23% COV

Analysis 736 - Flexural Modulus

Material: ABS/PC	Sample K61	2,208.88	MPa	3.91% COV
	Sample K62	2,212.34	MPa	4.06% COV

Analysis 737 - Flexural Stress at 3.5% Strain

Material: ABS/PC	Sample K61	67.564	MPa	2.81% COV
	Sample K62	67.865	MPa	2.94% COV

Analysis 738 - Flexural Stress at Yield

Material: ABS/PC	Sample K61	77.704	MPa	2.41% COV
	Sample K62	77.722	MPa	2.52% COV

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

Material: LDPE	Sample X61	21.047	grams/10 mins	3.63% COV
	Sample X62	20.917	grams/10 mins	3.84% COV

Analysis 755 - Moisture Content

Material: HIPS	Sample Y61	0.03071	Percent	40.6% COV
	Sample Y62	0.02967	Percent	44.0% COV

Analysis 757 - Ash Content

Material: PP	Sample L61	19.735	Percent	0.412% COV
	Sample L62	19.745	Percent	0.395% COV

Analysis 760 - DSC Crystallization Temperature

Material: PP	Sample W61	105.42	Degrees Celsius	2.43% COV
	Sample W62	105.49	Degrees Celsius	2.59% COV

Analysis 761 - DSC Melt Temperature

Material: PP	Sample W61	166.96	Degrees Celsius	1.13% COV
	Sample W62	166.92	Degrees Celsius	1.35% COV

Analysis 762 - DSC Enthalpy of Crystallization

Material: PP	Sample W61	99.408	Joules Per Gram	6.97% COV
	Sample W62	97.590	Joules Per Gram	5.70% COV

Analysis 763 - DSC Enthalpy of Fusion

Material: PP	Sample W61	91.164	Joules Per Gram	12.1% COV
	Sample W62	92.268	Joules Per Gram	11.0% COV

Analysis 764 - DSC Glass Transition Temperature

Material: PET	Sample V61	87.165	Degrees Celsius	1.39% COV
	Sample V62	87.376	Degrees Celsius	1.69% COV

Analysis 770 - Tensile Stress at Yield, Films

Material: LDPE	Sample B61	1,648.12	psi	4.98% COV
	Sample B62	1,655.15	psi	5.55% COV

Analysis 771 - Tensile Stress at Break, Films

Material: LDPE	Sample B61	2,946.67	psi	10.8% COV
	Sample B62	2,949.63	psi	11.3% COV



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Analysis 772 - Elongation at Yield, Films

Material: LDPE	Sample B61	56.339	Percent	11.3% COV
	Sample B62	58.742	Percent	12.8% COV

Analysis 773 - Elongation at Break, Films

Material: LDPE	Sample B61	776.30	Percent	19.1% COV
	Sample B62	781.65	Percent	21.1% COV

Analysis 774 - Thickness of Film Specimens

Material: LDPE	Sample B61	3.5240	mils	3.63% COV
	Sample B62	3.5184	mils	4.07% COV

Analysis 775 - Secant Modulus at 1% Strain

Material: LDPE	Sample B61	31,555.05	psi	11.7% COV
	Sample B62	30,992.43	psi	12.1% COV

Analysis 776 - Secant Modulus at 2% Strain

Material: LDPE	Sample B61	27,911.59	psi	8.57% COV
	Sample B62	27,046.38	psi	6.41% COV

Analysis 780 - Static Friction

Material: LDPE	Sample P61	0.13218	COF	17.8% COV
	Sample P62	0.13041	COF	18.9% COV

Analysis 781 - Kinetic Friction

Material: LDPE	Sample P61	0.10137	COF	24.2% COV
	Sample P62	0.09937	COF	25.0% COV

Analysis 782 - Tear Resistance of Film

Material: LDPE	Sample Q61	415.19	grams-force	18.2% COV
	Sample Q62	424.77	grams-force	16.2% COV

Analysis 785 - Percent Haze

Material: LDPE	Sample D61	12.751	Percent	4.95% COV
	Sample D62	12.641	Percent	5.52% COV

Analysis 786 - Total Transmittance

Material: LDPE	Sample D61	92.301	Percent	1.14% COV
	Sample D62	92.311	Percent	1.13% COV

Analysis 790 - Notched Izod Impact

Material: HIPS	Sample S61	1.6305	ft.lbf/in	7.81% COV
	Sample S62	1.6104	ft.lbf/in	6.98% COV

Analysis 791 - Notched Izod Impact

Material: ABS/PC	Sample Z61	39.644	kJ/m ²	11.3% COV
	Sample Z62	39.233	kJ/m ²	9.69% COV

Analysis 792 - Notched Charpy Impact

Material: ABS/PC	Sample M61	42.117	kJ/m ²	8.22% COV
	Sample M62	41.731	kJ/m ²	7.93% COV



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Tensile Stress at Yield - psi

WebCode	Data Flag	Sample F61			Sample F62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3FVRPM		5,970.6	-124.7	-0.93	6,097.4	6.0	0.04
3H8KTX	X	5,520.4	-575.0	-4.30	5,545.8	-545.6	-4.08
3LZVCZ		6,166.5	71.1	0.53	6,181.3	89.9	0.67
3M9ZRA		6,021.0	-74.3	-0.56	6,070.8	-20.6	-0.15
48AY7Y		6,065.5	-29.8	-0.22	6,033.9	-57.5	-0.43
4LGYTD		6,071.4	-23.9	-0.18	6,010.0	-81.4	-0.61
4QZ7JW		6,045.2	-50.1	-0.38	6,102.3	10.9	0.08
4XJAQY	X	5,941.8	-153.5	-1.15	5,513.4	-578.0	-4.32
64YGJN		6,262.6	167.3	1.25	6,131.2	39.8	0.30
6DRP4E		6,225.7	130.4	0.98	6,243.2	151.8	1.13
6EKKT9		6,286.0	190.7	1.43	6,233.1	141.7	1.06
6NE6GH		6,085.8	-9.5	-0.07	6,104.0	12.6	0.09
6U6GH6		6,184.6	89.3	0.67	6,202.9	111.5	0.83
7P8K4Y		6,339.7	244.3	1.83	6,307.5	216.1	1.61
84UWRQ		6,158.0	62.7	0.47	6,232.0	140.6	1.05
8B4B2A		6,144.8	49.5	0.37	6,222.6	131.2	0.98
8E3RCJ		6,158.1	62.7	0.47	6,140.7	49.3	0.37
8ZPCC9		6,227.0	131.7	0.99	6,339.6	248.2	1.85
98QMRA		6,308.6	213.3	1.60	6,173.0	81.6	0.61
A98GFP		5,833.0	-262.3	-1.96	5,862.8	-228.6	-1.71
AL4HHQ		6,169.0	73.7	0.55	6,080.8	-10.6	-0.08
APDWH6		6,236.7	141.3	1.06	6,323.7	232.3	1.73
BPK23K		5,963.2	-132.1	-0.99	6,039.6	-51.8	-0.39
BXQCLY		6,233.8	138.4	1.04	6,270.8	179.4	1.34
CGHDG3		6,100.0	4.7	0.03	6,103.8	12.4	0.09
DKCYG4		6,212.6	117.3	0.88	6,258.1	166.7	1.25
DKEJCU	X	6,656.4	561.1	4.20	6,078.6	-12.8	-0.10
DUPLXV		6,244.0	148.6	1.11	6,133.9	42.5	0.32
DW6F76		6,028.6	-66.7	-0.50	6,100.7	9.3	0.07
EH2BJP		6,224.0	128.7	0.96	6,240.4	149.0	1.11
EK3NVG		5,913.0	-182.3	-1.37	6,020.2	-71.2	-0.53
F3KVTY		6,070.0	-25.3	-0.19	6,032.0	-59.4	-0.44
F4DT26		5,920.4	-174.9	-1.31	5,857.2	-234.2	-1.75
G4ZDVF		5,945.6	-149.7	-1.12	5,956.4	-135.0	-1.01
G6FGNL		6,113.3	18.0	0.13	6,006.7	-84.7	-0.63



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Tensile Stress at Yield - psi

WebCode	Data Flag	Sample F61			Sample F62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
G8VBWV	*	6,422.2	326.9	2.45	6,421.6	330.2	2.47
GLHDLB	X	5,608.1	-487.2	-3.65	5,522.2	-569.2	-4.25
GREEED		6,266.2	170.9	1.28	6,250.6	159.2	1.19
J6EVGK		5,859.0	-236.3	-1.77	5,892.9	-198.5	-1.48
JA6LKM	*	5,726.6	-368.7	-2.76	5,693.4	-398.0	-2.97
JB49KU		6,152.8	57.5	0.43	6,176.0	84.6	0.63
JCT87J		6,174.1	78.8	0.59	6,094.0	2.6	0.02
JEARTY		6,237.4	142.1	1.06	6,160.2	68.8	0.51
JUX4XG		5,912.0	-183.3	-1.37	5,942.0	-149.4	-1.12
JVK7GN		6,155.2	59.9	0.45	6,133.6	42.2	0.32
KDHV46		5,969.8	-125.5	-0.94	5,903.1	-188.3	-1.41
KGRA4J		5,973.8	-121.5	-0.91	5,949.0	-142.4	-1.06
KYMUUC		6,080.8	-14.5	-0.11	6,149.4	58.0	0.43
LBGNMZ		6,158.0	62.7	0.47	6,234.0	142.6	1.07
M6C2Y2		6,011.0	-84.3	-0.63	5,923.6	-167.8	-1.25
N3LEJJ	X	6,756.0	660.7	4.95	6,578.0	486.6	3.63
NHPYRW		6,006.3	-89.0	-0.67	6,006.4	-85.0	-0.63
NUT7XT		5,987.4	-108.0	-0.81	6,001.8	-89.6	-0.67
NXEJ6B		6,108.5	13.1	0.10	6,072.7	-18.7	-0.14
PCQGNG		5,920.0	-175.3	-1.31	6,014.0	-77.4	-0.58
PHLUTE		6,132.2	36.9	0.28	6,090.5	-0.9	-0.01
R23CKA		5,992.2	-103.1	-0.77	6,007.0	-84.4	-0.63
RKAUFC		5,987.0	-108.3	-0.81	5,893.2	-198.2	-1.48
RU9MD7		6,165.9	70.6	0.53	6,137.8	46.4	0.35
RV49Z7		6,023.5	-71.9	-0.54	6,013.0	-78.4	-0.59
TX3FK8		6,274.7	179.3	1.34	6,119.8	28.4	0.21
U94N4C		5,943.0	-152.3	-1.14	5,956.2	-135.2	-1.01
ULEBHZ		6,171.6	76.3	0.57	6,263.8	172.4	1.29
UMN7X2		5,918.4	-176.9	-1.32	5,954.4	-137.0	-1.02
V6FRUD		6,098.6	3.3	0.02	6,073.6	-17.8	-0.13
VVNTZX		6,183.8	88.5	0.66	6,067.8	-23.6	-0.18
WC2XE2		6,152.0	56.6	0.42	6,163.1	71.7	0.54
WJC7RL		5,994.6	-100.7	-0.75	5,972.5	-118.9	-0.89
WNTKLH		5,982.0	-113.3	-0.85	5,996.0	-95.4	-0.71
Y6U72A		6,184.4	89.1	0.67	6,033.6	-57.8	-0.43



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Tensile Stress at Yield - psi

WebCode	Data Flag	Sample F61			Sample F62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
YBJGHY		6,132.2	36.9	0.28	6,199.0	107.6	0.80
YE3MRU		5,938.6	-156.7	-1.17	5,915.8	-175.6	-1.31
YJA9JX		6,163.7	68.4	0.51	6,196.6	105.2	0.79
ZVVUDV		6,090.8	-4.5	-0.03	6,122.4	31.0	0.23

Summary Statistics		
	Sample F61	Sample F62
Grand Means	6,095.34 psi	6,091.40 psi
Stnd Dev Btwn Labs	133.58 psi	133.89 psi
Statistics based on 69 of 74 reporting participants		

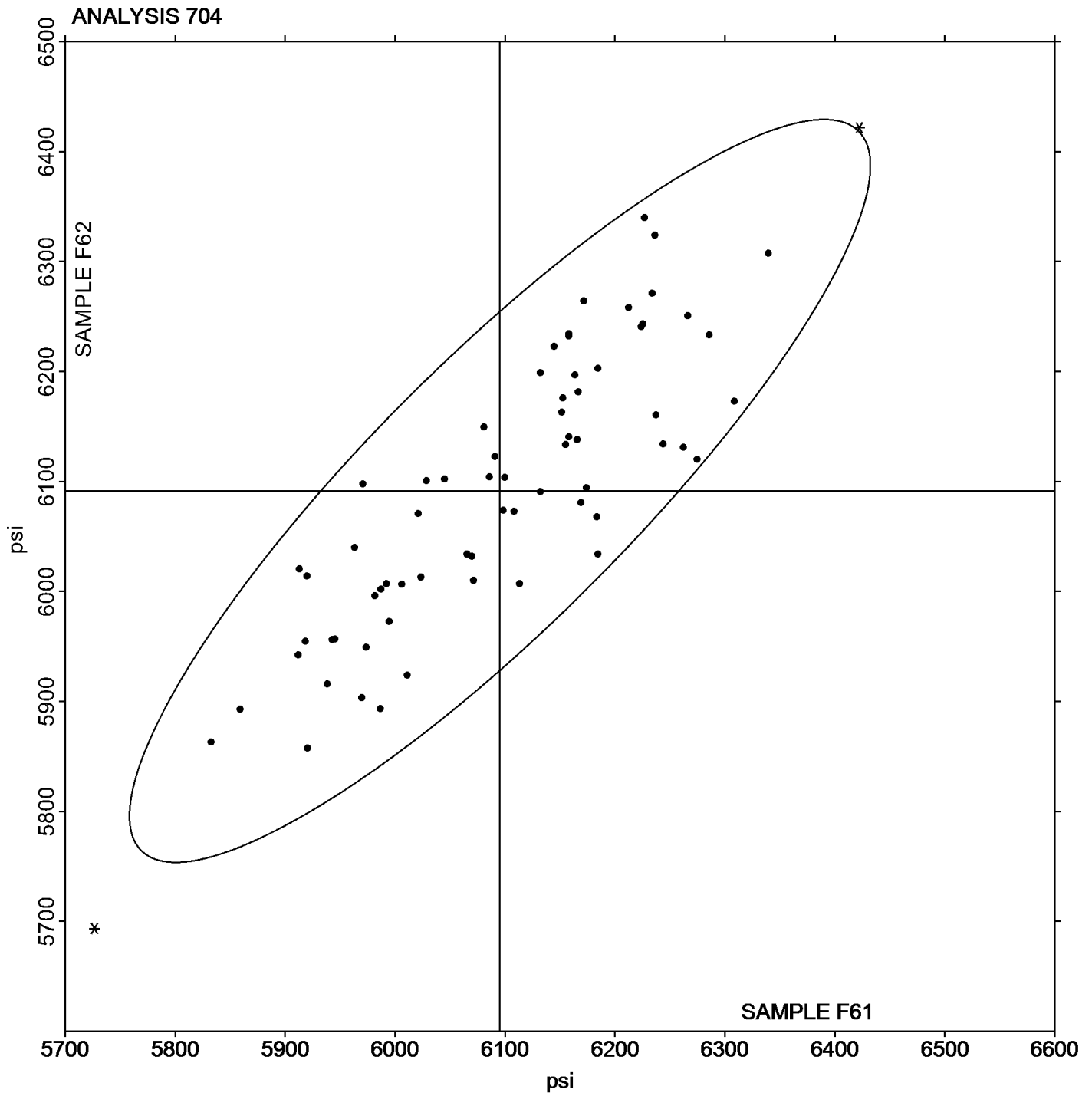
Sample F61: ABS & Sample F62: ABS

Comments on Assigned Data Flags for Test #704

- 4XJAQY (X) - Data for sample F62 are low. Inconsistent within the determinations of sample F61.
- 3H8KTX (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample F62.
- N3LEJJ (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample F61.
- GLHDLB (X) - Data for both samples are low. Possible Systematic Error.
- DKEJCU (X) - Data for sample F61 are high. Inconsistent within the determinations of sample F61.



Grand Mean Sample F61: 6,095.34 psi Grand Mean Sample F62: 6,091.40 psi





Plastics Interlaboratory Testing Program

Report #111

Analysis 705

3rd Qtr 2019

Tensile Stress at Break - psi

WebCode	Data Flag	Sample F61			Sample F62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3H8KTX	X	5,992.4	1,113.5	8.28	5,944.8	1,078.0	8.28
3LZVCZ		4,857.6	-21.2	-0.16	4,876.8	10.0	0.08
3M9ZRA		4,821.4	-57.5	-0.43	4,876.2	9.4	0.07
48AY7Y		4,721.3	-157.6	-1.17	4,743.1	-123.8	-0.95
4LGYTD		4,933.0	54.1	0.40	4,977.4	110.6	0.85
4QZ7JW		4,813.8	-65.1	-0.48	4,862.2	-4.6	-0.04
64YGJN		5,074.0	195.1	1.45	4,919.6	52.8	0.41
6DRP4E		4,895.4	16.5	0.12	4,963.6	96.7	0.74
6EKKT9		4,911.0	32.1	0.24	4,862.6	-4.2	-0.03
6NE6GH		4,883.0	4.1	0.03	4,847.8	-19.0	-0.15
6U6GH6		4,961.9	83.0	0.62	4,936.7	69.9	0.54
7P8K4Y		4,863.2	-15.7	-0.12	4,958.3	91.5	0.70
84UWRQ		4,909.8	30.9	0.23	5,015.2	148.4	1.14
8E3RCJ		4,981.8	102.9	0.77	4,907.2	40.4	0.31
8ZPCC9	*	4,796.4	-82.5	-0.61	5,018.4	151.6	1.16
98QMRA		5,027.8	148.9	1.11	4,968.8	102.0	0.78
A98GFP		4,713.8	-165.1	-1.23	4,720.8	-146.0	-1.12
AL4HHQ		4,951.6	72.7	0.54	4,866.4	-0.4	0.00
APDWH6		4,931.3	52.4	0.39	4,902.3	35.5	0.27
BPK23K		4,749.4	-129.5	-0.96	4,839.2	-27.6	-0.21
BXQCLY		4,962.7	83.8	0.62	5,004.8	137.9	1.06
DKCYG4		4,966.7	87.8	0.65	4,966.7	99.8	0.77
DKEJCU	X	5,581.5	702.6	5.22	4,918.1	51.3	0.39
DUPLXV		5,111.0	232.1	1.73	4,950.3	83.5	0.64
DW6F76		4,835.5	-43.4	-0.32	4,906.8	40.0	0.31
EH2BJP		5,036.4	157.5	1.17	5,045.4	178.6	1.37
F3KVTY		4,866.0	-12.9	-0.10	4,830.0	-36.8	-0.28
F4DT26		4,689.6	-189.3	-1.41	4,567.6	-299.2	-2.30
G4ZDVF		4,612.6	-266.3	-1.98	4,686.8	-180.0	-1.38
G6FGNL		4,790.0	-88.9	-0.66	4,794.8	-72.0	-0.55
G8VBWV	*	5,268.2	389.3	2.89	5,264.2	397.4	3.05
GLHDLB		4,947.6	68.8	0.51	4,773.3	-93.5	-0.72
GREEED		5,176.0	297.1	2.21	5,105.2	238.4	1.83
J6EVGK		4,815.6	-63.3	-0.47	4,808.0	-58.8	-0.45
JA6LKM		4,677.8	-201.1	-1.50	4,647.0	-219.8	-1.69



Plastics Interlaboratory Testing Program

Report #111

Analysis 705

3rd Qtr 2019

Tensile Stress at Break - psi

WebCode	Data Flag	Sample F61			Sample F62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
JB49KU		4,915.4	36.5	0.27	4,988.4	121.6	0.93
JCT87J		4,930.2	51.3	0.38	4,872.6	5.8	0.04
JEARTY		5,050.9	172.0	1.28	5,001.0	134.2	1.03
KDHV46		4,713.8	-165.1	-1.23	4,676.1	-190.8	-1.46
KGRA4J		4,672.2	-206.7	-1.54	4,673.8	-193.0	-1.48
KYMUUC		4,860.0	-18.9	-0.14	4,880.0	13.2	0.10
M6C2Y2		4,738.4	-140.5	-1.04	4,724.0	-142.8	-1.10
N3LEJJ	X	5,518.1	639.2	4.75	5,358.4	491.5	3.77
NHPYRW		4,736.3	-142.5	-1.06	4,728.8	-138.1	-1.06
NUT7XT		4,811.9	-67.0	-0.50	4,782.4	-84.5	-0.65
NXEJ6B		4,830.9	-48.0	-0.36	4,796.7	-70.1	-0.54
PCQGNG		4,772.0	-106.9	-0.79	4,842.0	-24.8	-0.19
PHLUTE		4,949.9	71.0	0.53	4,911.3	44.5	0.34
R23CKA		4,829.2	-49.7	-0.37	4,834.0	-32.8	-0.25
RKAUFC		4,865.6	-13.3	-0.10	4,703.8	-163.0	-1.25
RU9MD7		4,987.6	108.7	0.81	5,021.3	154.4	1.19
RV49Z7		4,665.3	-213.6	-1.59	4,665.0	-201.8	-1.55
TX3FK8	*	5,100.2	221.3	1.65	4,871.9	5.0	0.04
ULEBHZ		4,947.0	68.1	0.51	5,003.8	137.0	1.05
UMN7X2		4,653.8	-225.1	-1.67	4,722.2	-144.6	-1.11
V6FRUD		4,884.7	5.8	0.04	4,795.0	-71.8	-0.55
VVNTZX		4,942.0	63.1	0.47	4,913.8	47.0	0.36
WJC7RL		4,833.5	-45.3	-0.34	4,765.4	-101.4	-0.78
WNTKLH		5,074.0	195.1	1.45	5,064.0	197.2	1.51
Y6U72A		4,921.2	42.3	0.31	4,762.0	-104.8	-0.80
YBJGHY		4,870.4	-8.5	-0.06	4,980.6	113.8	0.87
YE3MRU		4,700.4	-178.5	-1.33	4,686.0	-180.8	-1.39
YJA9JX		4,923.5	44.7	0.33	4,937.2	70.3	0.54
ZVVUDV		4,878.2	-0.7	-0.01	4,860.0	-6.8	-0.05



Plastics Interlaboratory Testing Program

Report #111

Analysis 705

3rd Qtr 2019

Tensile Stress at Break - psi

Summary Statistics	<u>Sample F61</u>	<u>Sample F62</u>
Grand Means	4,878.88 psi	4,866.83 psi
Stnd Dev Btwn Labs	134.50 psi	130.25 psi

Statistics based on 61 of 64 reporting participants

Sample F61: ABS & Sample F62: ABS

Comments on Assigned Data Flags for Test #705

- 3H8KTX (X) - Data for both samples are high. Possible Systematic Error.
- N3LEJJ (X) - Data for both samples are high. Possible Systematic Error.
- DKEJCU (X) - Data for sample F61 are high. Inconsistent within the determinations of sample F61.



Plastics Interlaboratory Testing Program

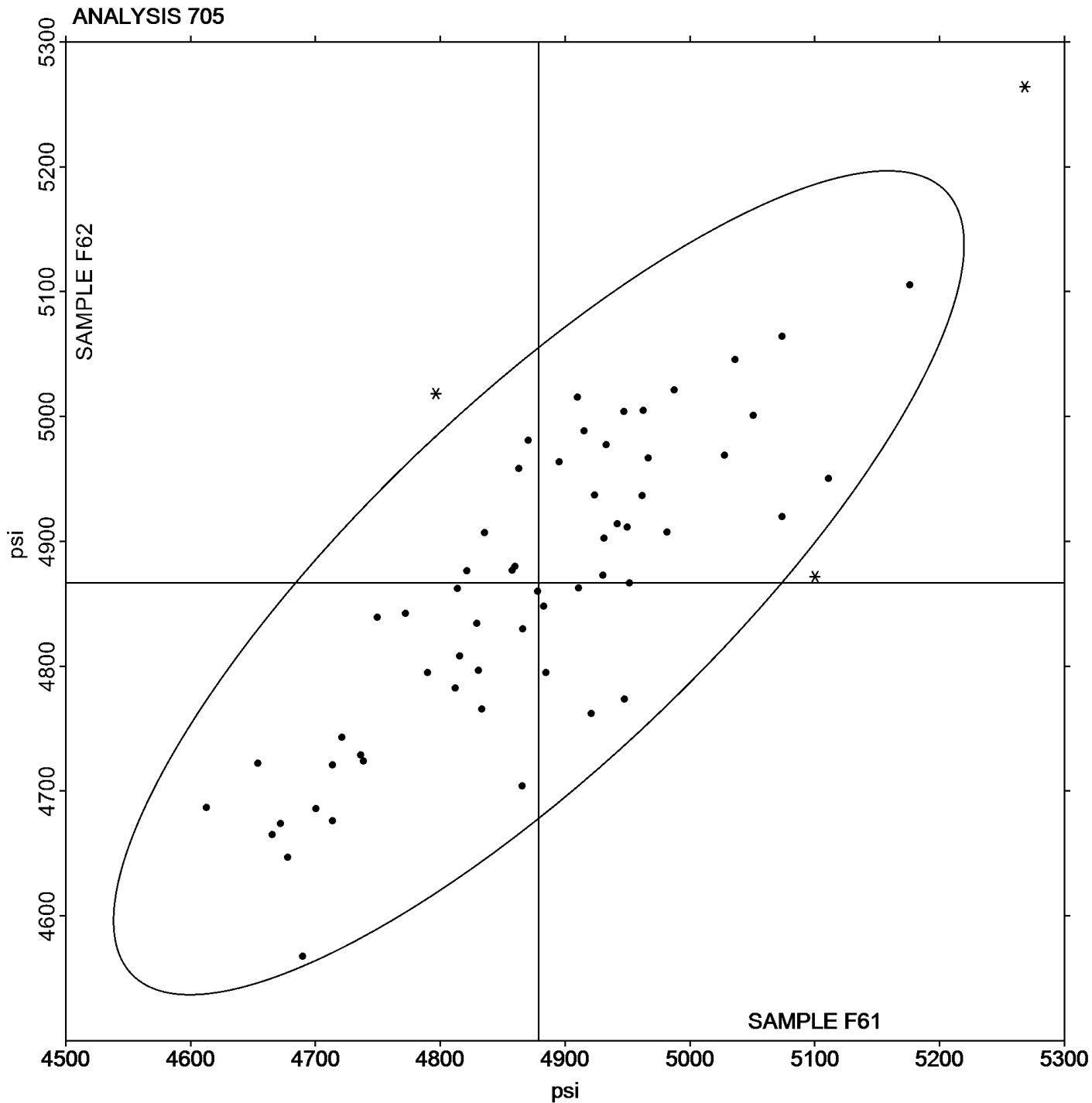
Analysis 705

Tensile Stress at Break - psi

Report #111

3rd Qtr 2019

Grand Mean Sample F61: 4,878.88 psi Grand Mean Sample F62: 4,866.83 psi





Plastics Interlaboratory Testing Program

Report #111

Analysis 706

3rd Qtr 2019

Percent Elongation at Yield - Percent

WebCode	Data Flag	Sample F61			Sample F62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3FVRPM		2.400	-0.017	-0.17	2.450	0.022	0.23
3H8KTX	X	8.156	5.739	56.60	7.088	4.660	48.17
3LZVCZ		2.424	0.007	0.07	2.430	0.002	0.02
3M9ZRA	X	3.114	0.697	6.87	3.112	0.684	7.07
48AY7Y		2.578	0.161	1.59	2.572	0.144	1.49
4LGYTD		2.418	0.001	0.01	2.408	-0.020	-0.21
4QZ7JW		2.450	0.033	0.32	2.466	0.038	0.39
4XJAQY	X	1.408	-1.009	-9.95	1.324	-1.104	-11.41
64YGJN		2.412	-0.005	-0.05	2.372	-0.056	-0.58
6EKKT9	*	2.174	-0.244	-2.40	2.181	-0.247	-2.55
6NE6GH		2.466	0.049	0.48	2.444	0.016	0.16
6U6GH6		2.506	0.089	0.88	2.496	0.068	0.71
7P8K4Y		2.622	0.205	2.02	2.598	0.170	1.76
84UWRQ		2.460	0.043	0.42	2.458	0.030	0.31
8E3RCJ		2.342	-0.075	-0.74	2.356	-0.072	-0.75
8ZPCC9		2.468	0.051	0.50	2.536	0.108	1.12
98QMRA		2.434	0.017	0.17	2.406	-0.022	-0.23
A98GFP		2.374	-0.043	-0.43	2.390	-0.038	-0.39
AL4HHQ	X	7.394	4.977	49.08	7.194	4.766	49.26
APDWH6		2.388	-0.029	-0.29	2.454	0.026	0.27
BPK23K	*	2.504	0.087	0.86	2.620	0.192	1.98
BXQCLY		2.490	0.073	0.72	2.513	0.085	0.88
CGHDG3		2.392	-0.025	-0.25	2.414	-0.014	-0.15
DKEJCU	X	3.281	0.864	8.52	2.585	0.156	1.62
DUPLXV		2.637	0.220	2.17	2.584	0.156	1.61
DW6F76		2.466	0.049	0.48	2.432	0.004	0.04
F3KVTY		2.386	-0.031	-0.31	2.420	-0.008	-0.08
F4DT26		2.300	-0.117	-1.16	2.242	-0.186	-1.92
G4ZDVF		2.498	0.081	0.80	2.476	0.048	0.50
G6FGNL	X	1.998	-0.419	-4.13	1.998	-0.430	-4.45
G8VBWV		2.498	0.081	0.80	2.492	0.064	0.66
GLHDLB	X	2.000	-0.417	-4.11	2.000	-0.428	-4.43
GREEED		2.374	-0.043	-0.43	2.430	0.002	0.02
J6EVGK		2.246	-0.171	-1.69	2.274	-0.154	-1.59
JA6LKM		2.400	-0.017	-0.17	2.400	-0.028	-0.29



Plastics Interlaboratory Testing Program

Report #111

Analysis 706

3rd Qtr 2019

Percent Elongation at Yield - Percent

WebCode	Data Flag	Sample F61			Sample F62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
JB49KU		2.410	-0.007	-0.07	2.388	-0.040	-0.41
JCT87J		2.264	-0.153	-1.51	2.226	-0.202	-2.09
JEARTY	X	6.140	3.723	36.72	6.200	3.772	38.99
KDHV46		2.400	-0.017	-0.17	2.400	-0.028	-0.29
KYMUUC		2.400	-0.017	-0.17	2.400	-0.028	-0.29
M6C2Y2		2.194	-0.223	-2.20	2.276	-0.152	-1.57
N3LEJJ		2.564	0.147	1.45	2.576	0.148	1.53
NHPYRW		2.432	0.015	0.15	2.426	-0.003	-0.03
NUT7XT		2.498	0.080	0.79	2.469	0.041	0.42
NXEJ6B		2.317	-0.100	-0.99	2.332	-0.096	-0.99
PCQGNG		2.382	-0.035	-0.35	2.434	0.006	0.06
R23CKA		2.310	-0.107	-1.06	2.330	-0.098	-1.01
RKAUFC		2.226	-0.191	-1.89	2.282	-0.146	-1.51
RU9MD7	X	10.180	7.763	76.56	8.094	5.666	58.57
RV49Z7		2.390	-0.027	-0.27	2.394	-0.034	-0.35
TX3FK8		2.582	0.165	1.63	2.566	0.138	1.43
U94N4C		2.404	-0.013	-0.13	2.360	-0.068	-0.70
ULEBHZ		2.324	-0.093	-0.92	2.434	0.006	0.06
UMN7X2		2.448	0.031	0.30	2.448	0.020	0.21
VVNTZX	X	2.452	0.035	0.34	2.314	-0.114	-1.18
WC2XE2	X	3.276	0.859	8.47	3.197	0.769	7.95
WJC7RL		2.343	-0.075	-0.74	2.428	0.000	0.00
WNTKLH	X	10.376	7.959	78.49	10.942	8.514	88.00
Y6U72A		2.462	0.045	0.44	2.466	0.038	0.39
YBJGHY		2.500	0.083	0.82	2.540	0.112	1.16
YE3MRU	X	1.308	-1.109	-10.94	1.494	-0.934	-9.66
YJA9JX	X	2.000	-0.417	-4.11	2.200	-0.228	-2.36
ZVVUDV		2.484	0.067	0.66	2.488	0.060	0.62



Plastics Interlaboratory Testing Program

Report #111

Analysis 706

3rd Qtr 2019

Percent Elongation at Yield - Percent

Summary Statistics	<u>Sample F61</u>	<u>Sample F62</u>
Grand Means	2.4172 Percent	2.4281 Percent
Std Dev Btwn Labs	0.1014 Percent	0.0967 Percent

Statistics based on 49 of 63 reporting participants

Sample F61: ABS & Sample F62: ABS

Comments on Assigned Data Flags for Test #706

- RU9MD7 (X) - Extreme data.
- 3M9ZRA (X) - Data for both samples are high. Possible Systematic Error.
- WNTZX (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
- 4XJAQY (X) - Data for both samples are low. Possible Systematic Error.
- YJA9JX (X) - Data for sample F61 are low. Inconsistent within the determinations of sample F62.
- AL4HHQ (X) - Extreme data.
- 3H8KTX (X) - Extreme data.
- WC2XE2 (X) - Data for both samples are high. Possible Systematic Error.
- JEARTY (X) - Extreme data.
- WNTKLH (X) - Extreme data.
- GLHDLB (X) - Data for both samples are low. Possible Systematic Error.
- YE3MRU (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of both samples.
- G6FGNL (X) - Data for both samples are low. Possible Systematic Error.
- DKEJCU (X) - Data for sample F61 are high. Inconsistent within the determinations of sample F61.



Plastics Interlaboratory Testing Program

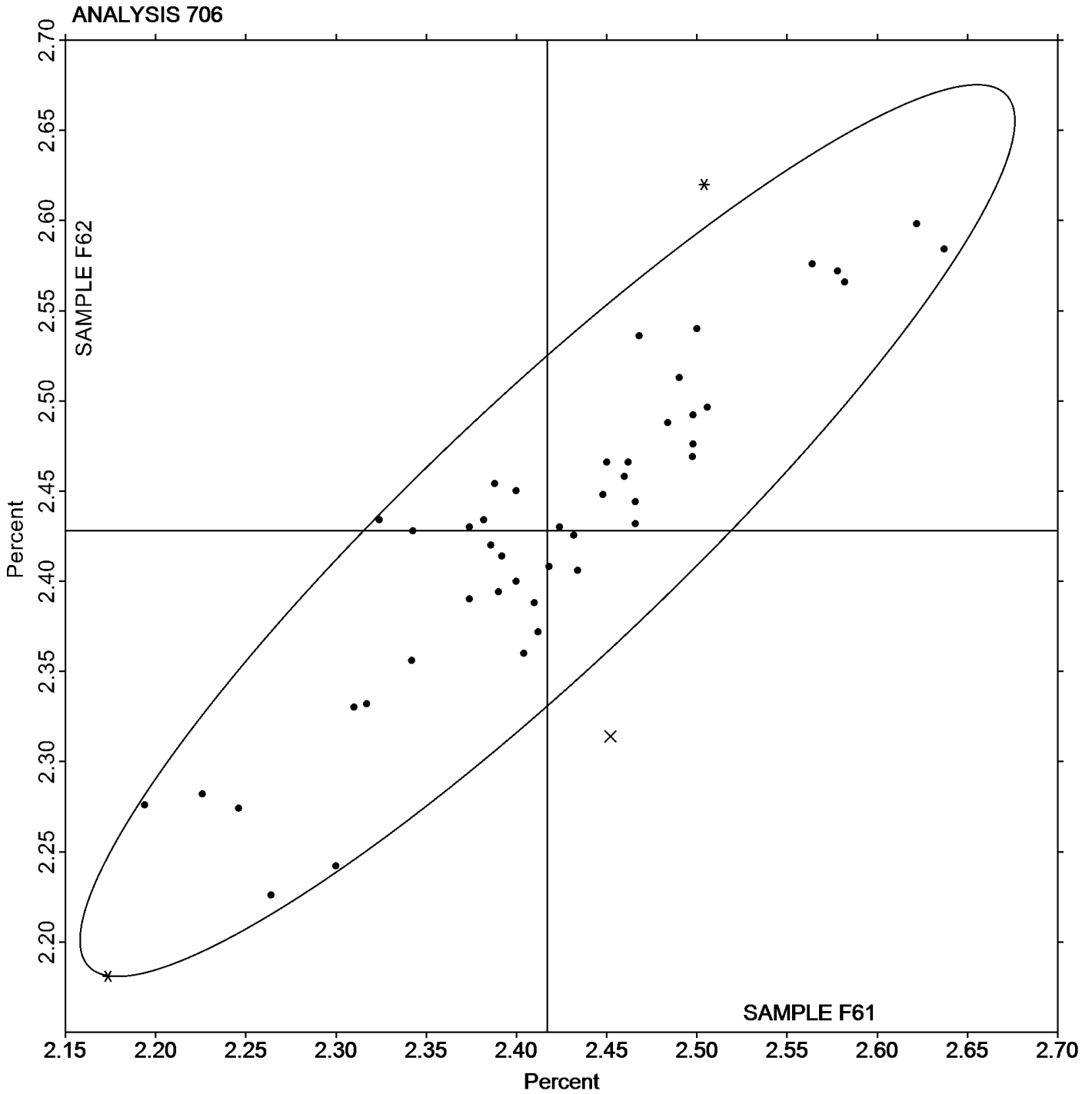
Analysis 706

Percent Elongation at Yield - Percent

Report #111

3rd Qtr 2019

Grand Mean Sample F61: 2.4172 Percent Grand Mean Sample F62: 2.4281 Percent





Plastics Interlaboratory Testing Program

Report #111

Analysis 708

3rd Qtr 2019

Modulus of Elasticity - ksi

WebCode	Data Flag	Sample F61			Sample F62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3FVRPM		300.08	-24.06	-1.60	301.70	-21.26	-1.27
3H8KTX		296.63	-27.52	-1.83	297.11	-25.85	-1.54
3LZVCZ		325.38	1.24	0.08	327.27	4.30	0.26
3M9ZRA	X	256.26	-67.88	-4.51	258.32	-64.64	-3.85
48AY7Y		316.76	-7.38	-0.49	316.00	-6.96	-0.41
4LGYTD		321.46	-2.68	-0.18	318.86	-4.10	-0.24
4QZ7JW		319.28	-4.87	-0.32	320.46	-2.50	-0.15
4XJAQY	X	560.40	236.26	15.71	547.94	224.98	13.40
64YGJN		339.50	15.36	1.02	337.94	14.98	0.89
6EKKT9		335.75	11.60	0.77	331.70	8.74	0.52
6NE6GH		324.04	-0.10	-0.01	324.96	2.00	0.12
6U6GH6		334.40	10.26	0.68	337.20	14.24	0.85
7P8K4Y		318.04	-6.10	-0.41	318.24	-4.72	-0.28
84UWRQ		332.10	7.96	0.53	327.58	4.62	0.27
8E3RCJ		343.19	19.05	1.27	341.02	18.05	1.07
8ZPCC9		329.50	5.36	0.36	331.66	8.70	0.52
98QMRA		343.26	19.12	1.27	340.98	18.02	1.07
A98GFP		328.04	3.90	0.26	324.50	1.54	0.09
AL4HHQ	X	107.73	-216.42	-14.39	107.24	-215.73	-12.84
APDWH6		339.33	15.19	1.01	336.11	13.15	0.78
BPK23K		316.00	-8.14	-0.54	304.00	-18.96	-1.13
BXQCLY		333.00	8.86	0.59	340.00	17.04	1.01
CGHDG3		337.90	13.76	0.91	337.70	14.74	0.88
DKEJCU		299.56	-24.58	-1.63	291.36	-31.60	-1.88
DUPLXV		291.10	-33.04	-2.20	290.03	-32.93	-1.96
DW6F76	*	314.09	-10.05	-0.67	327.59	4.63	0.28
EK3NVG		332.22	8.07	0.54	331.37	8.41	0.50
F3KVTY		326.00	1.86	0.12	316.80	-6.16	-0.37
F4DT26		344.64	20.50	1.36	342.12	19.16	1.14
G4ZDVF	X	400.20	76.06	5.06	394.06	71.10	4.23
G6FGNL	X	55.00	-269.14	-17.90	69.06	-253.90	-15.12
GLHDLB		306.98	-17.16	-1.14	307.14	-15.82	-0.94
GREEED		320.70	-3.44	-0.23	317.68	-5.28	-0.31
J6EVGK	*	343.63	19.48	1.30	357.81	34.85	2.07
JA6LKM		308.81	-15.33	-1.02	302.87	-20.09	-1.20



Plastics Interlaboratory Testing Program

Report #111

Analysis 708

3rd Qtr 2019

Modulus of Elasticity - ksi

WebCode	Data Flag	Sample F61			Sample F62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
JB49KU		336.80	12.66	0.84	334.60	11.64	0.69
JCT87J		326.91	2.77	0.18	327.78	4.82	0.29
KDHV46		325.79	1.64	0.11	326.66	3.69	0.22
KYMUUC		329.80	5.66	0.38	329.40	6.44	0.38
M6C2Y2		336.14	12.00	0.80	335.42	12.46	0.74
N3LEJJ		313.60	-10.54	-0.70	309.40	-13.56	-0.81
NHPYRW		321.36	-2.79	-0.19	315.32	-7.65	-0.46
NUT7XT		315.61	-8.53	-0.57	304.55	-18.41	-1.10
NXEJ6B	X	353.91	29.77	1.98	384.04	61.08	3.64
PCQGNG		321.40	-2.74	-0.18	325.40	2.44	0.15
R23CKA		330.52	6.38	0.42	336.28	13.32	0.79
RKAUFC		322.34	-1.80	-0.12	317.61	-5.35	-0.32
RU9MD7	*	364.38	40.24	2.68	360.17	37.21	2.22
RV49Z7		317.19	-6.95	-0.46	314.42	-8.55	-0.51
TX3FK8		342.42	18.27	1.22	343.83	20.87	1.24
U94N4C		330.86	6.72	0.45	330.66	7.70	0.46
ULEBHZ		313.96	-10.18	-0.68	313.88	-9.08	-0.54
UMN7X2		316.00	-8.14	-0.54	318.58	-4.38	-0.26
VVNTZX		304.62	-19.52	-1.30	304.24	-18.72	-1.11
WJC7RL	X	348.96	24.82	1.65	331.94	8.98	0.53
Y6U72A		325.59	1.45	0.10	314.48	-8.49	-0.51
YBJGHY	*	284.91	-39.24	-2.61	274.64	-48.33	-2.88
YJA9JX	X	487.88	163.74	10.89	486.77	163.80	9.75
ZVVUDV		329.78	5.64	0.37	334.08	11.12	0.66

Summary Statistics		
	Sample F61	Sample F62
Grand Means	324.144 ksi	322.964 ksi
Std Dev Btwn Labs	15.036 ksi	16.795 ksi
Statistics based on 51 of 59 reporting participants		

Sample F61: ABS & Sample F62: ABS



Comments on Assigned Data Flags for Test #708

3M9ZRA (X) - Data for both samples are low. Possible Systematic Error.

WJC7RL (X) - Inconsistent in testing between samples.

4XJAQY (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample F61.

NXEJ6B (X) - Data for sample F62 are high. Inconsistent within the determinations of both samples.

YJA9JX (X) - Data for both samples are high. Possible Systematic Error.

G4ZDVF (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample F62.

AL4HHQ (X) - Extreme data.

G6FGNL (X) - Extreme data.



Plastics Interlaboratory Testing Program

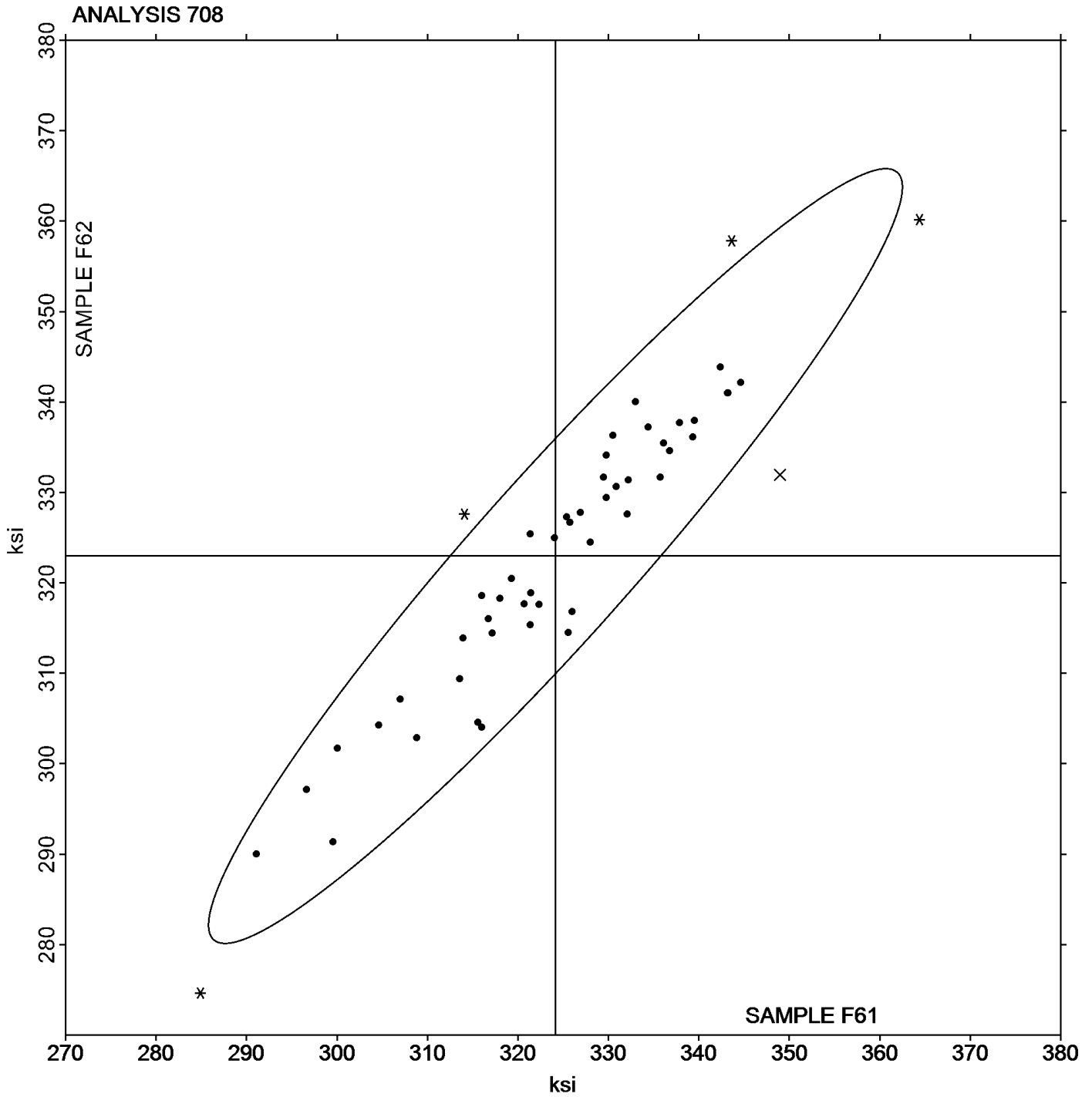
Analysis 708

Modulus of Elasticity - ksi

Report #111

3rd Qtr 2019

Grand Mean Sample F61: 324.14 ksi Grand Mean Sample F62: 322.96 ksi





Plastics Interlaboratory Testing Program

Report #111

Analysis 710

3rd Qtr 2019

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

WebCode	Data Flag	Sample E61			Sample E62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3FVRPM		114.88	5.94	2.35	113.18	4.15	1.71	CE
3LZVCZ		109.85	0.92	0.36	109.85	0.82	0.34	AT
4QZ7JW		108.65	-0.28	-0.11	110.53	1.50	0.62	TO
64YGJN		110.70	1.77	0.70	111.43	2.40	0.99	IN
7P8K4Y		109.05	0.12	0.05	108.93	-0.10	-0.04	ZW
84UWRQ		107.10	-1.83	-0.73	106.93	-2.10	-0.87	DN
8E3RCJ		108.25	-0.68	-0.27	108.50	-0.53	-0.22	TO
98QMRA		107.68	-1.26	-0.50	108.15	-0.88	-0.36	TO
APDWH6		106.73	-2.21	-0.88	106.45	-2.58	-1.06	RO
AUGLAP		104.13	-4.81	-1.91	106.38	-2.65	-1.09	CS
BPK23K	*	112.36	3.43	1.36	108.89	-0.14	-0.06	XX
CGHDG3		108.88	-0.06	-0.02	108.23	-0.80	-0.33	TO
EH2BJP		104.70	-4.23	-1.68	104.30	-4.73	-1.95	TO
FLN4HA		108.00	-0.93	-0.37	108.75	-0.28	-0.11	TO
G4ZDVF	*	115.28	6.34	2.51	116.60	7.57	3.13	CE
JA6LKM		110.93	1.99	0.79	110.98	1.95	0.80	TO
JATDY3		108.10	-0.83	-0.33	110.65	1.62	0.67	TO
JEARTY		109.90	0.97	0.38	110.10	1.07	0.44	CE
KDHV46		107.93	-1.01	-0.40	108.33	-0.70	-0.29	CF
NXEJ6B		108.75	-0.18	-0.07	108.40	-0.63	-0.26	CF
RU9MD7	X	3.21	-105.72	-41.90	12.67	-96.36	-39.77	CE
RV49Z7		108.65	-0.28	-0.11	108.68	-0.35	-0.15	TY
T3ZHQV		107.93	-1.01	-0.40	107.63	-1.40	-0.58	CE
U94N4C		107.90	-1.03	-0.41	106.98	-2.05	-0.85	TO
WNTKLH		108.28	-0.66	-0.26	108.53	-0.50	-0.21	TO
ZVVUDV		108.80	-0.13	-0.05	108.38	-0.65	-0.27	IN

Summary Statistics		Sample E61	Sample E62
Grand Means		108.934 Degrees C	109.028 Degrees C
Std Dev Btwn Labs		2.523 Degrees C	2.423 Degrees C
Statistics based on 25 of 26 reporting participants			

Sample E61: ABS/PC & Sample E62: ABS/PC



Plastics Interlaboratory Testing Program

Report #111

Analysis 710

3rd Qtr 2019

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

Comments on Assigned Data Flags for Test #710

RU9MD7 (X) - Extreme data.

Key to Instrument Codes Reported by Participants

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



Plastics Interlaboratory Testing Program

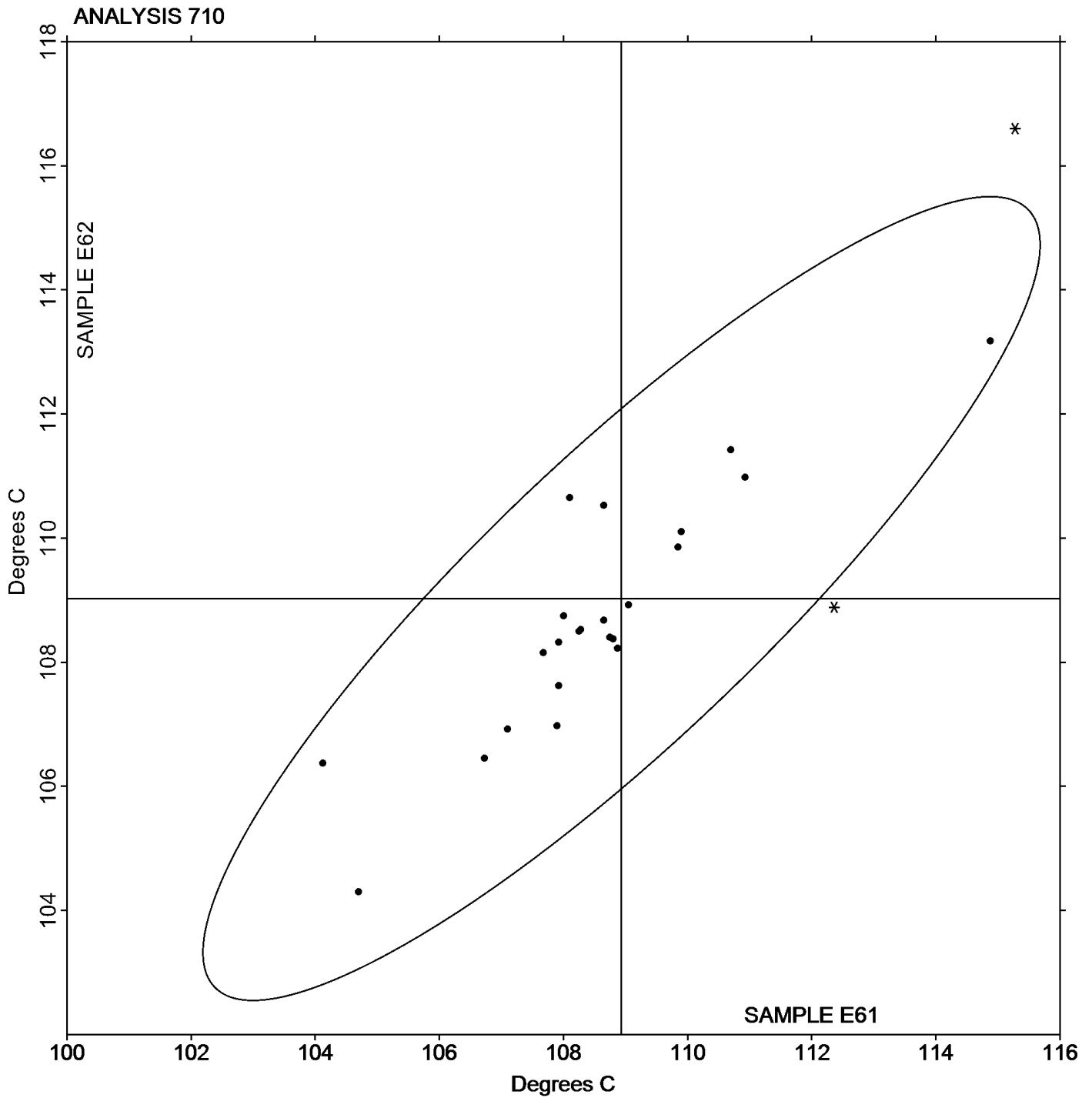
Report #111

Analysis 710

3rd Qtr 2019

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

Grand Mean Sample E61: 108.93 Degrees C Grand Mean Sample E62: 109.03 Degrees C





Plastics Interlaboratory Testing Program

Report #111

Analysis 711

3rd Qtr 2019

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

WebCode	Data Flag	Sample G61			Sample G62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2VCKL7		113.1	2.3	0.17	114.5	0.1	0.01	CE
3LZVCZ		114.0	3.2	0.24	113.1	-1.3	-0.31	AT
4QZ7JW		115.3	4.5	0.34	117.2	2.8	0.66	TO
98QMRA		113.2	2.4	0.18	113.3	-1.2	-0.28	TO
CJ62QG		113.5	2.7	0.20	111.7	-2.7	-0.66	CE
DKCYG4		110.9	0.1	0.01	107.5	-7.0	-1.67	XX
EH2BJP		113.2	2.4	0.18	113.3	-1.2	-0.28	TO
FLN4HA		120.3	9.4	0.71	119.3	4.8	1.15	TO
G4ZDVF		120.5	9.7	0.73	120.5	6.0	1.44	CE
JA6LKM		116.3	5.5	0.42	117.7	3.2	0.77	IN
JEARTY		111.2	0.4	0.03	112.6	-1.8	-0.43	CE
T3ZHQV		113.0	2.2	0.16	113.7	-0.8	-0.18	CE
TEG2TB		111.0	0.2	0.02	110.0	-4.4	-1.06	CE
U94N4C		112.5	1.7	0.13	110.0	-4.4	-1.06	TO
WNTKLH	*	64.2	-46.7	-3.53	122.4	8.0	1.90	TO

Summary Statistics		
	Sample G61	Sample G62
Grand Means	110.80 Degrees C	114.44 Degrees C
Stnd Dev Btwn Labs	13.23 Degrees C	4.18 Degrees C
Statistics based on 15 of 15 reporting participants		

Sample G61: PP & Sample G62: PP

Key to Instrument Codes Reported by Participants

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



Plastics Interlaboratory Testing Program

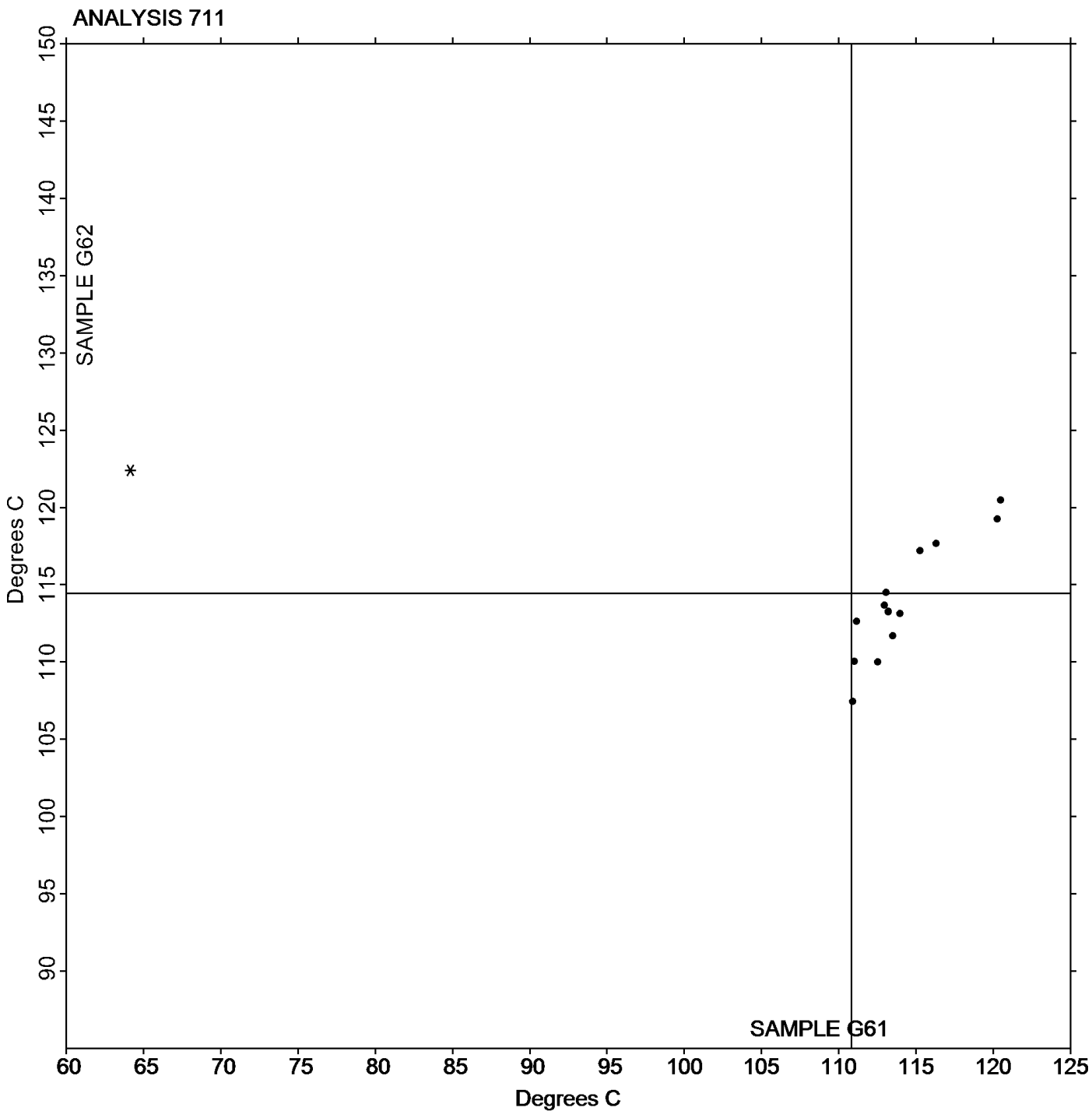
Report #111

Analysis 711

3rd Qtr 2019

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

Grand Mean Sample G61: 110.80 Degrees C Grand Mean Sample G62: 114.44 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 #111

Analysis 712

3rd Qtr 2019

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

WebCode	Data Flag	Sample N61			Sample N62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
247QE8		103.23	-0.46	-0.30	103.30	-0.27	-0.16	TO
2FG7G7		102.65	-1.03	-0.68	103.13	-0.44	-0.27	AT
3LZVCZ		104.23	0.55	0.36	103.90	0.33	0.20	AT
4HE7TM		105.78	2.09	1.38	105.73	2.16	1.32	TO
4QZ7JW		103.50	-0.18	-0.12	104.18	0.61	0.37	TO
73XCT9		105.20	1.52	1.00	104.75	1.18	0.72	DN
79TX9M		102.88	-0.81	-0.53	103.25	-0.32	-0.20	TO
7P8K4Y		103.28	-0.41	-0.27	103.80	0.23	0.14	ZW
98QMRA		106.58	2.89	1.91	107.63	4.06	2.49	TO
BJQB7D		103.25	-0.43	-0.29	103.00	-0.57	-0.35	TO
BPK23K		102.64	-1.04	-0.69	101.25	-2.32	-1.42	XX
C2HXRR		101.00	-2.68	-1.77	102.50	-1.07	-0.65	XX
CJ62QG		103.25	-0.43	-0.29	102.70	-0.87	-0.53	CF
DVDGYX		103.83	0.14	0.09	103.95	0.38	0.23	DN
G8VBWV	X	97.48	-6.21	-4.10	97.70	-5.87	-3.60	CE
JEARTY		105.60	1.92	1.27	103.97	0.40	0.24	CE
JUX4XG		102.50	-1.18	-0.78	102.33	-1.24	-0.76	XX
KBBQBG		106.03	2.34	1.55	105.33	1.76	1.08	CE
KGRA4J		102.95	-0.73	-0.48	103.08	-0.49	-0.30	CE
KKFPVB		102.13	-1.56	-1.03	101.00	-2.57	-1.57	CE
KYMUUC		104.85	1.17	0.77	103.25	-0.32	-0.20	XX
LBGNMZ		102.40	-1.28	-0.85	102.25	-1.32	-0.81	XX
N6RL2C		101.90	-1.78	-1.18	101.73	-1.84	-1.13	IN
N97FGD		104.68	0.99	0.66	105.05	1.48	0.91	RO
ND6TLL		101.20	-2.48	-1.64	100.90	-2.67	-1.63	CE
QNPXFR		105.75	2.07	1.37	106.10	2.53	1.55	IN
QVQACN		104.08	0.39	0.26	104.20	0.63	0.39	CE
R6CTCE		103.15	-0.53	-0.35	104.23	0.66	0.40	CE
R78E73		106.75	3.07	2.03	105.33	1.76	1.08	CE
RV49Z7		103.15	-0.53	-0.35	103.20	-0.37	-0.23	TY
T3ZHQV		101.98	-1.71	-1.13	101.53	-2.04	-1.25	CE
TH4Q62		102.88	-0.81	-0.53	101.83	-1.74	-1.07	CF
V6FRUD		102.40	-1.28	-0.85	103.05	-0.52	-0.32	CE
W3G2R3	X	110.70	7.02	4.64	110.98	7.41	4.54	XX
WNTKLH	X	131.50	27.82	18.39	131.30	27.73	16.99	TO



Plastics Interlaboratory Testing Program

Report #111

Analysis 712

3rd Qtr 2019

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

WebCode	Data Flag	Sample N61			Sample N62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XKLPVF		105.93	2.24	1.48	107.35	3.78	2.32	DN
Y742HB		103.38	-0.31	-0.20	103.60	0.03	0.02	TY
ZVVUDV		103.95	0.27	0.18	102.58	-0.99	-0.61	IN

Summary Statistics

	Sample N61	Sample N62
Grand Means	103.682 Degrees C	103.568 Degrees C
Std Dev Btwn Labs	1.513 Degrees C	1.632 Degrees C

Statistics based on 35 of 38 reporting participants

Sample N61: ABS/PC & Sample N62: ABS/PC

Comments on Assigned Data Flags for Test #712

- G8VBWV (X) - Data for both samples are low. Possible Systematic Error.
- WNTKLH (X) - Data for both samples are high. Possible Systematic Error.
- W3G2R3 (X) - Data for both samples are high. Possible Systematic Error.

Key to Instrument Codes Reported by Participants

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



Plastics Interlaboratory Testing Program

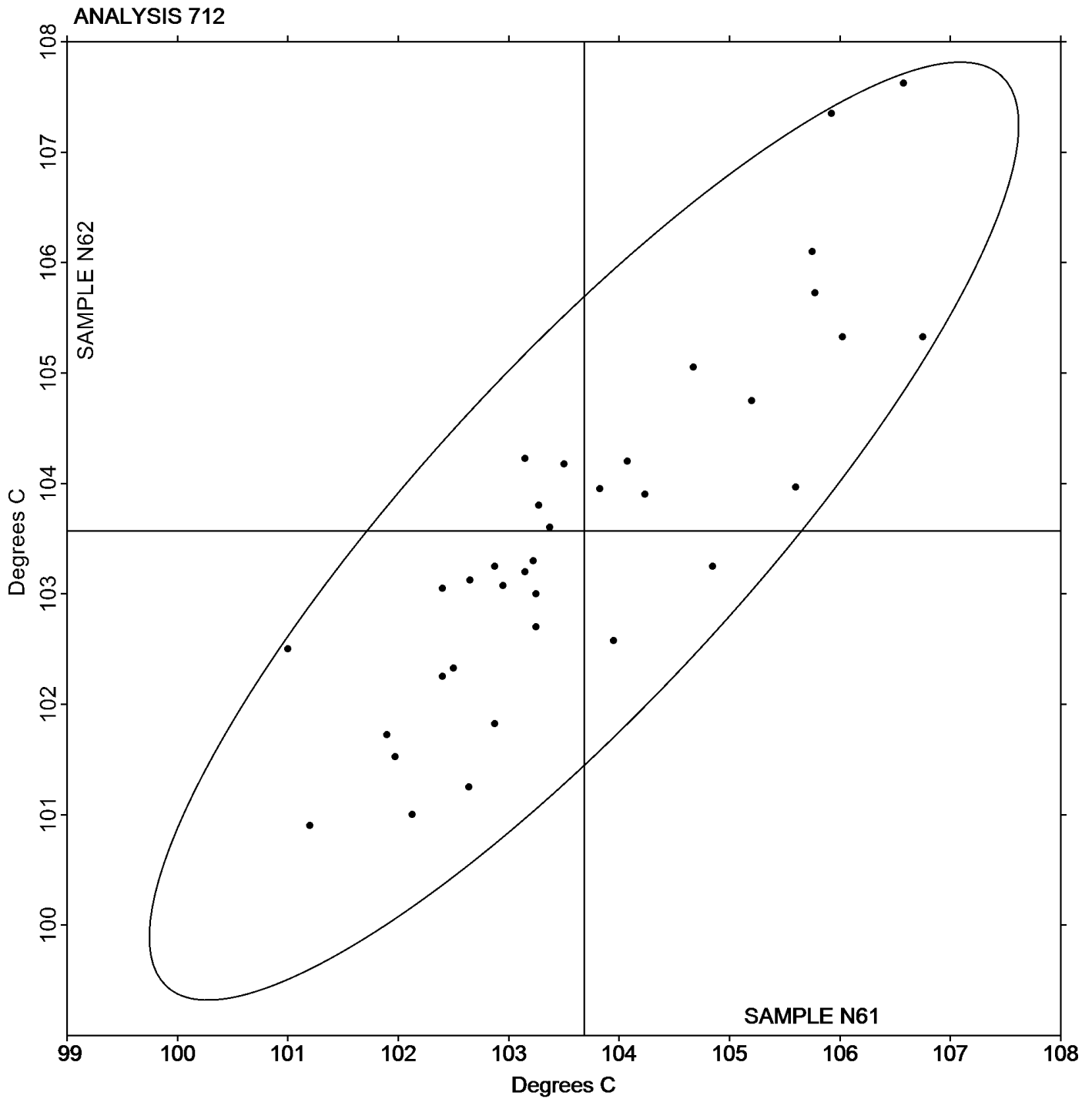
Report #111

Analysis 712

3rd Qtr 2019

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

Grand Mean Sample N61: 103.68 Degrees C Grand Mean Sample N62: 103.57 Degrees C





Plastics Interlaboratory Testing Program

Report #111

Analysis 715

3rd Qtr 2019

Vicat Softening Temperature (Rate A)

WebCode	Data Flag	Sample H61			Sample H62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
247QE8		138.28	-1.09	-1.48	138.92	-0.46	-0.70	TO
2VCKL7		139.85	0.48	0.65	139.72	0.34	0.52	CE
3GNPWT		138.63	-0.74	-1.00	139.02	-0.36	-0.54	CE
3LZVCZ		139.63	0.26	0.36	139.70	0.32	0.49	AT
4QZ7JW		139.02	-0.35	-0.48	139.03	-0.34	-0.52	TO
6NE6GH		139.35	-0.02	-0.03	139.02	-0.36	-0.54	CE
7P8K4Y		140.57	1.20	1.63	140.37	0.99	1.50	CF
84UWRQ		140.30	0.93	1.26	140.35	0.97	1.48	RR
APDWH6		139.13	-0.24	-0.32	138.82	-0.56	-0.85	RO
BPK23K	*	137.87	-1.50	-2.04	138.89	-0.49	-0.74	XX
C7EHXW		139.15	-0.22	-0.30	139.40	0.02	0.04	CE
CJ62QG		139.57	0.20	0.27	139.17	-0.21	-0.32	CF
J6EVGK		140.12	0.75	1.01	140.05	0.67	1.02	CE
JCMVK9		139.33	-0.04	-0.05	138.75	-0.63	-0.95	TO
KDHV46		139.63	0.26	0.36	139.60	0.22	0.34	CF
L3LJVK		139.42	0.05	0.06	139.40	0.02	0.04	CE
N97FGD		138.53	-0.84	-1.14	138.67	-0.71	-1.08	RO
NJ9PCD		139.43	0.06	0.08	139.50	0.12	0.19	CE
QNPXFR		138.80	-0.57	-0.78	138.60	-0.78	-1.18	IN
QVQACN		140.75	1.38	1.88	141.00	1.62	2.46	CF
RV49Z7		139.07	-0.30	-0.41	139.05	-0.33	-0.49	TY
T3ZHQV		138.68	-0.69	-0.94	138.67	-0.71	-1.08	CE
UNX4CJ		139.50	0.13	0.17	139.17	-0.21	-0.32	TO
W3G2R3		140.72	1.35	1.83	140.63	1.26	1.91	XX
ZNJQB3		138.95	-0.42	-0.57	138.92	-0.46	-0.70	AT

Summary Statistics

Grand Means

Sample H61
139.372 Degrees C

Sample H62
139.376 Degrees C

Std Dev Btwn Labs

0.735 Degrees C

0.659 Degrees C

Statistics based on 25 of 25 reporting participants

Sample H61: ABS/PC & Sample H62: ABS/PC



Plastics Interlaboratory Testing Program

Analysis 715

Vicat Softening Temperature (Rate A)

Report #111

3rd Qtr 2019

Key to Instrument Codes Reported by Participants

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



Plastics Interlaboratory Testing Program

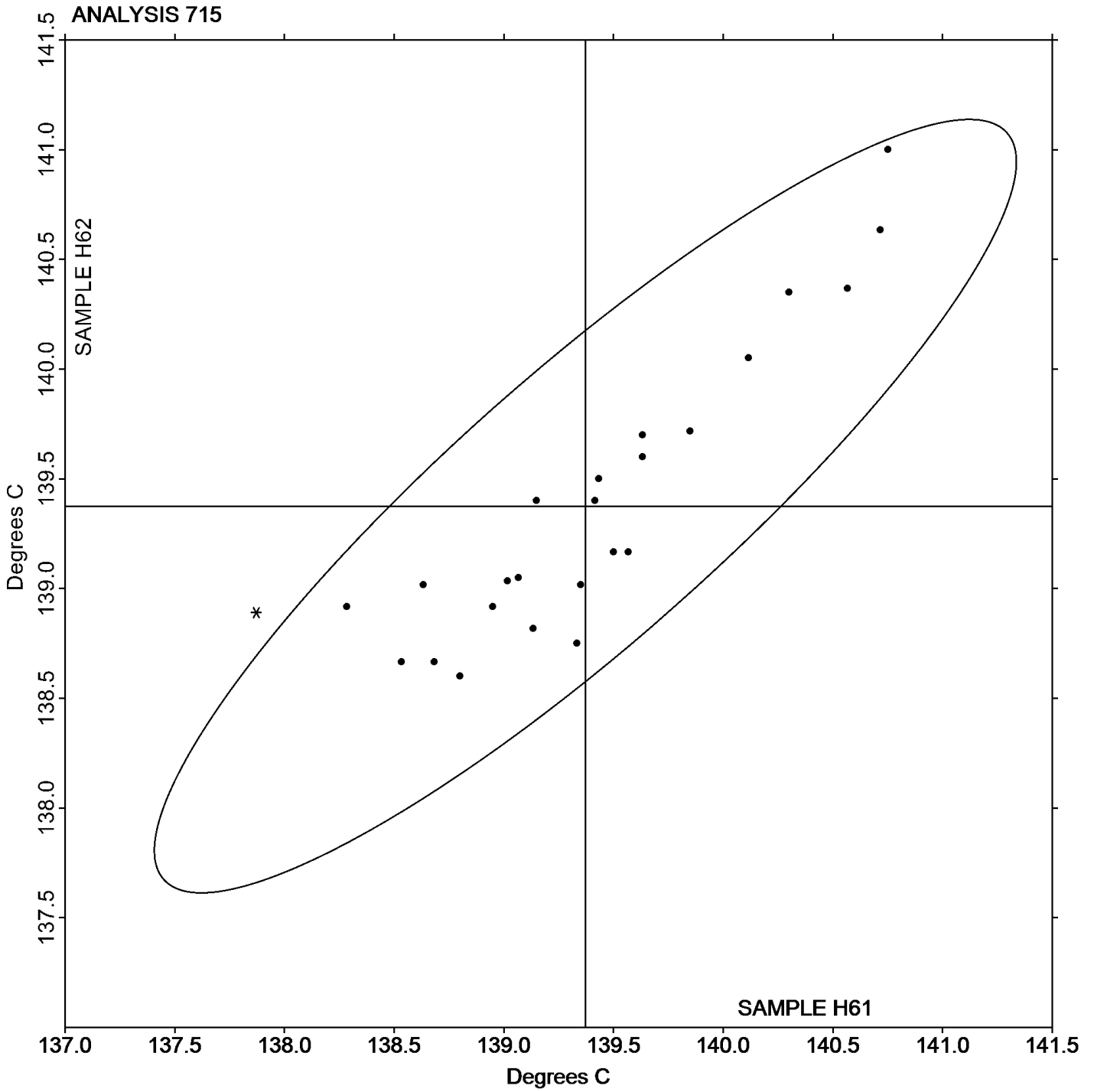
Analysis 715

Vicat Softening Temperature (Rate A)

Report #111

3rd Qtr 2019

Grand Mean Sample H61: 139.37 Degrees C Grand Mean Sample H62: 139.38 Degrees C





Plastics Interlaboratory Testing Program

Report #111

Analysis 716

3rd Qtr 2019

Vicat Softening Temperature (Rate B)

WebCode	Data Flag	<u>Sample R61</u>			<u>Sample R62</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
247QE8		139.88	-0.95	-1.41	140.37	-0.54	-0.83	TO
2VCKL7		141.25	0.42	0.62	141.33	0.42	0.65	CE
3GNPWT		140.35	-0.48	-0.72	140.42	-0.49	-0.75	CE
3LZVCZ		141.50	0.67	0.99	141.67	0.76	1.16	AT
4QZ7JW		140.48	-0.35	-0.52	140.57	-0.34	-0.52	TO
6NE6GH	*	141.63	0.80	1.19	140.60	-0.31	-0.47	CE
7P8K4Y		141.27	0.43	0.65	141.03	0.12	0.19	CF
84UWRQ		140.95	0.12	0.18	141.15	0.24	0.37	RR
APDWH6		140.87	0.03	0.05	140.93	0.02	0.04	RO
AUGLAP		140.75	-0.08	-0.12	141.42	0.51	0.77	CS
BPK23K		140.00	-0.83	-1.24	139.82	-1.09	-1.67	XX
C7EHXW		140.87	0.03	0.05	140.85	-0.06	-0.09	CE
CGHDG3		140.03	-0.80	-1.19	140.27	-0.64	-0.98	TO
CJ62QG		140.67	-0.17	-0.25	140.83	-0.08	-0.12	CF
J6EVGK		142.00	1.17	1.74	142.03	1.12	1.71	CE
JCMVK9		139.63	-1.20	-1.78	139.68	-1.23	-1.87	TO
KDHV46		141.72	0.88	1.32	141.48	0.57	0.88	CF
N97FGD		139.80	-1.03	-1.54	139.83	-1.08	-1.64	XX
NJ9PCD		140.73	-0.10	-0.15	140.83	-0.08	-0.12	CE
QVQACN		140.83	0.00	0.00	141.23	0.32	0.49	CF
RV49Z7		141.10	0.27	0.40	141.45	0.54	0.82	TY
W3G2R3		141.88	1.05	1.57	142.05	1.14	1.74	XX
YD836V		140.93	0.10	0.15	141.08	0.17	0.26	CE

Summary Statistics		
	<u>Sample R61</u>	<u>Sample R62</u>
Grand Means	140.832 Degrees C	140.910 Degrees C
Stnd Dev Btwn Labs	0.672 Degrees C	0.655 Degrees C
Statistics based on 23 of 23 reporting participants		

Sample R61: ABS/PC & Sample R62: ABS/PC



Plastics Interlaboratory Testing Program

Report #111

Analysis 716

3rd Qtr 2019

Vicat Softening Temperature (Rate B)

Key to Instrument Codes Reported by Participants

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



Plastics Interlaboratory Testing Program

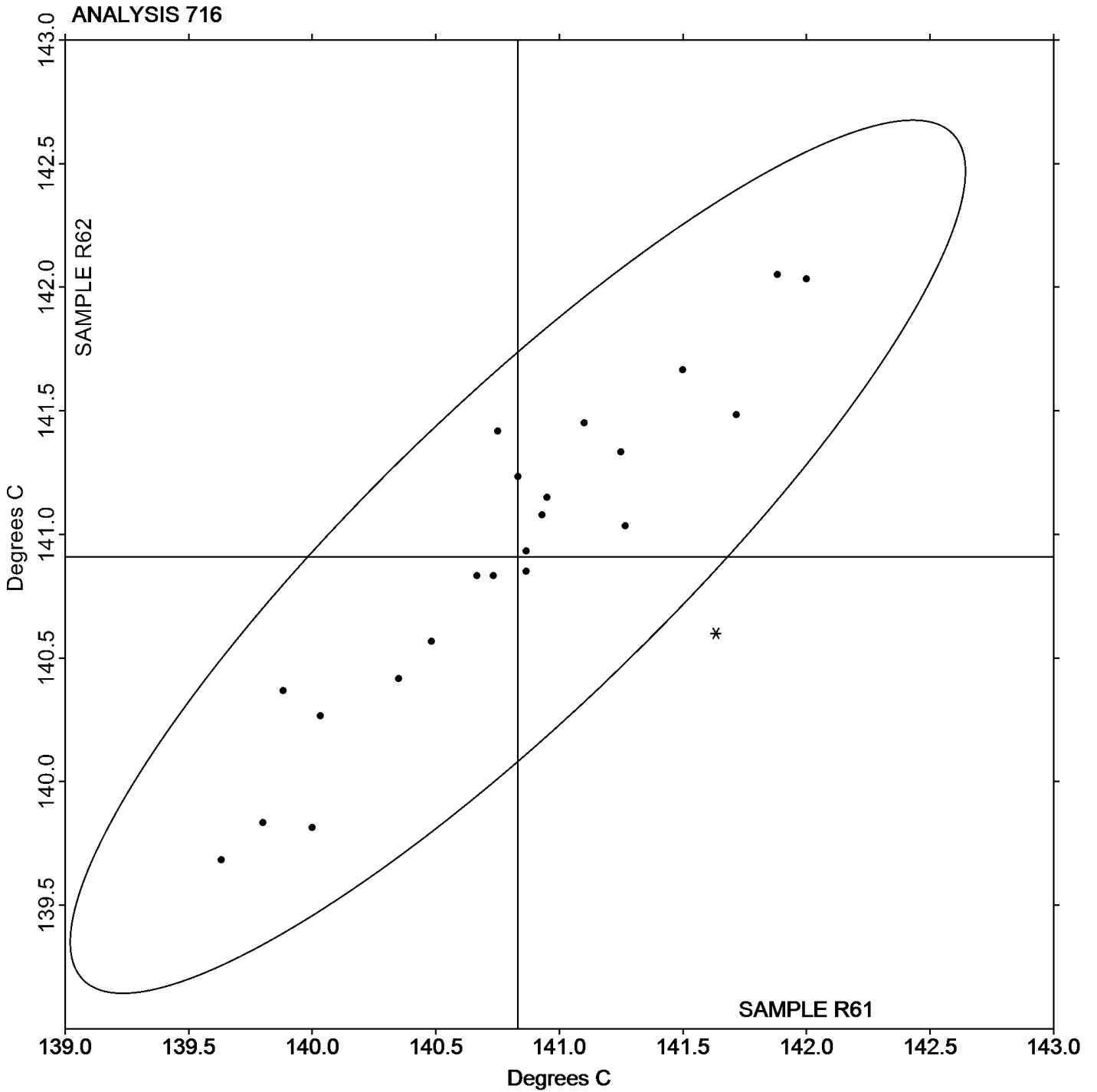
Report #111

Analysis 716

3rd Qtr 2019

Vicat Softening Temperature (Rate B)

Grand Mean Sample R61: 140.83 Degrees C Grand Mean Sample R62: 140.91 Degrees C





Plastics Interlaboratory Testing Program

Report #111

Analysis 718

3rd Qtr 2019

Specific Gravity - sp gr 23/23 C

WebCode	Data Flag	Sample T61			Sample T62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
22AZH6		1.03960	-0.00174	-0.75	1.03987	-0.00149	-0.69
247QE8		1.04323	0.00190	0.82	1.04370	0.00234	1.08
2FG7G7		1.04333	0.00200	0.86	1.04300	0.00164	0.76
2KDPJ4		1.03737	-0.00397	-1.72	1.03743	-0.00393	-1.81
2VCKL7		1.03860	-0.00274	-1.18	1.03903	-0.00233	-1.07
3FVRPM		1.04267	0.00133	0.58	1.04200	0.00064	0.29
3LZVCZ		1.04190	0.00056	0.24	1.04133	-0.00003	-0.01
3QKE4U		1.04363	0.00230	0.99	1.04347	0.00211	0.97
44QUN4		1.04283	0.00150	0.65	1.04297	0.00161	0.74
48AY7Y		1.03740	-0.00394	-1.70	1.03753	-0.00383	-1.77
4QZ7JW		1.04253	0.00120	0.52	1.04273	0.00137	0.63
4RVQ7V		1.04327	0.00193	0.83	1.04337	0.00201	0.93
63RYKR		1.03997	-0.00137	-0.59	1.03927	-0.00209	-0.97
64YGJN	X	1.03980	-0.00154	-0.66	1.03717	-0.00419	-1.93
68C8HR		1.03900	-0.00234	-1.01	1.03933	-0.00203	-0.94
6NE6GH		1.04250	0.00116	0.50	1.04267	0.00131	0.60
7LXTRP		1.04293	0.00160	0.69	1.04273	0.00137	0.63
7N2TLU	*	1.03557	-0.00577	-2.50	1.03577	-0.00559	-2.58
7P8K4Y		1.04337	0.00203	0.88	1.04350	0.00214	0.99
8AGNXX		1.04133	0.00000	0.00	1.04100	-0.00036	-0.17
8B2NKW	X	1.04220	0.00086	0.37	1.04003	-0.00133	-0.61
8E3RCJ		1.04213	0.00080	0.34	1.04257	0.00121	0.56
8F8X8W		1.04037	-0.00097	-0.42	1.04037	-0.00099	-0.46
93PPQL		1.04030	-0.00104	-0.45	1.04010	-0.00126	-0.58
98QMRA		1.03880	-0.00254	-1.10	1.03867	-0.00269	-1.24
9DZ32Y		1.04167	0.00033	0.14	1.04133	-0.00003	-0.01
AL4HHQ	*	1.03573	-0.00560	-2.42	1.03573	-0.00563	-2.60
ARURTN		1.04127	-0.00007	-0.03	1.04220	0.00084	0.39
BPK23K		1.04160	0.00026	0.11	1.04083	-0.00053	-0.24
BTVF3Z	X	1.03567	-0.00567	-2.45	1.03867	-0.00269	-1.24
BXQCLY		1.04443	0.00310	1.34	1.04457	0.00321	1.48
CGHDG3		1.04633	0.00500	2.16	1.04537	0.00401	1.85
CJ62QG		1.03900	-0.00234	-1.01	1.04000	-0.00136	-0.63
D7DUBR		1.04270	0.00136	0.59	1.04313	0.00177	0.82
DVDGYX		1.04000	-0.00134	-0.58	1.04033	-0.00103	-0.47



Plastics Interlaboratory Testing Program

Report #111

Analysis 718

3rd Qtr 2019

Specific Gravity - sp gr 23/23 C

WebCode	Data Flag	Sample T61			Sample T62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
EH2BJP		1.04233	0.00100	0.43	1.04333	0.00197	0.91
EZR7JR		1.04107	-0.00027	-0.12	1.04243	0.00107	0.49
G4VWFX		1.04357	0.00223	0.96	1.04420	0.00284	1.31
G4ZDVF		1.04383	0.00250	1.08	1.04430	0.00294	1.36
G8UB3M		1.04360	0.00226	0.98	1.04387	0.00251	1.16
GQ3MJC		1.03633	-0.00500	-2.16	1.03700	-0.00436	-2.01
H9Q3VJ		1.04227	0.00093	0.40	1.04237	0.00101	0.46
J6EVGK		1.04270	0.00136	0.59	1.04397	0.00261	1.20
JB49KU		1.04353	0.00220	0.95	1.04303	0.00167	0.77
JEARTY	X	1.04183	0.00050	0.21	1.03887	-0.00249	-1.15
JUX4XG		1.03767	-0.00367	-1.59	1.03900	-0.00236	-1.09
KBBQBG		1.04117	-0.00017	-0.07	1.04103	-0.00033	-0.15
KDHV46		1.03923	-0.00210	-0.91	1.03953	-0.00183	-0.84
KGRA4J		1.04360	0.00226	0.98	1.04327	0.00191	0.88
KKLTWH		1.04137	0.00003	0.01	1.04067	-0.00069	-0.32
KQW84G		1.04363	0.00230	0.99	1.04360	0.00224	1.03
KTE2G9	*	1.04360	0.00226	0.98	1.04187	0.00051	0.23
KYMUUC		1.04393	0.00260	1.12	1.04393	0.00257	1.19
LBGNMZ		1.04340	0.00206	0.89	1.04230	0.00094	0.43
LWW7RB		1.04133	0.00000	0.00	1.04100	-0.00036	-0.17
MLZCMP		1.03700	-0.00434	-1.88	1.03733	-0.00403	-1.86
MUNBMY	X	1.03737	-0.00397	-1.72	1.03550	-0.00586	-2.70
N6RL2C		1.04133	0.00000	0.00	1.04000	-0.00136	-0.63
NHPYRW		1.04297	0.00163	0.70	1.04183	0.00047	0.22
PEUERH		1.04169	0.00035	0.15	1.04244	0.00108	0.50
PHLUTE		1.04283	0.00150	0.65	1.04283	0.00147	0.68
PKH4CR		1.04187	0.00053	0.23	1.04107	-0.00029	-0.14
RKAUFC		1.04200	0.00066	0.29	1.04167	0.00031	0.14
RU9MD7	X	1.04033	-0.00100	-0.43	1.04267	0.00131	0.60
RV49Z7		1.03983	-0.00150	-0.65	1.04017	-0.00119	-0.55
T3ZHQV		1.04300	0.00166	0.72	1.04297	0.00161	0.74
TER8NF		1.03967	-0.00167	-0.72	1.04000	-0.00136	-0.63
U94N4C		1.04453	0.00320	1.38	1.04320	0.00184	0.85
VABGGC	X	1.03900	-0.00234	-1.01	1.04200	0.00064	0.29
VWLL2C		1.04363	0.00230	0.99	1.04327	0.00191	0.88



Plastics Interlaboratory Testing Program

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Analysis 718

3rd Qtr 2019

Specific Gravity - sp gr 23/23 C

WebCode	Data Flag	<u>Sample T61</u>			<u>Sample T62</u>		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
W9NT78		1.03700	-0.00434	-1.88	1.03700	-0.00436	-2.01
WC2XE2		1.04080	-0.00054	-0.23	1.04147	0.00011	0.05
WJC7RL		1.04317	0.00183	0.79	1.04217	0.00081	0.37
WNTKLH	X	1.03000	-0.01134	-4.90	1.02667	-0.01469	-6.78
X6DGCE	X	1.03820	-0.00314	-1.36	1.04220	0.00084	0.39
X9L9XX		1.03960	-0.00174	-0.75	1.04090	-0.00046	-0.21
XKLPVF		1.04127	-0.00007	-0.03	1.04073	-0.00063	-0.29
XUTACP		1.03947	-0.00187	-0.81	1.03960	-0.00176	-0.81
YE3MRU		1.03800	-0.00334	-1.44	1.03867	-0.00269	-1.24
ZGFTG6		1.04157	0.00023	0.10	1.04167	0.00031	0.14
ZVVUDV		1.04150	0.00016	0.07	1.04240	0.00104	0.48

Summary Statistics		
	<u>Sample T61</u>	<u>Sample T62</u>
Grand Means	1.041337 sp gr 23/23 C	1.041361 sp gr 23/23 C
Std Dev Btwn Labs	0.002312 sp gr 23/23 C	0.002168 sp gr 23/23 C
Statistics based on 72 of 81 reporting participants		

Sample T61: ABS & Sample T62: ABS

Comments on Assigned Data Flags for Test #718

- BTVF3Z (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample T61.
- VABGGC (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
- RU9MD7 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample T61.
- 8B2NKW (X) - Inconsistent in testing between samples.
- X6DGCE (X) - Inconsistent in testing between samples.
- MUNBMY (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
- JEARTY (X) - Inconsistent in testing between samples.
- WNTKLH (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of both samples.
- 64YGJN (X) - Inconsistent in testing between samples.



Plastics Interlaboratory Testing Program

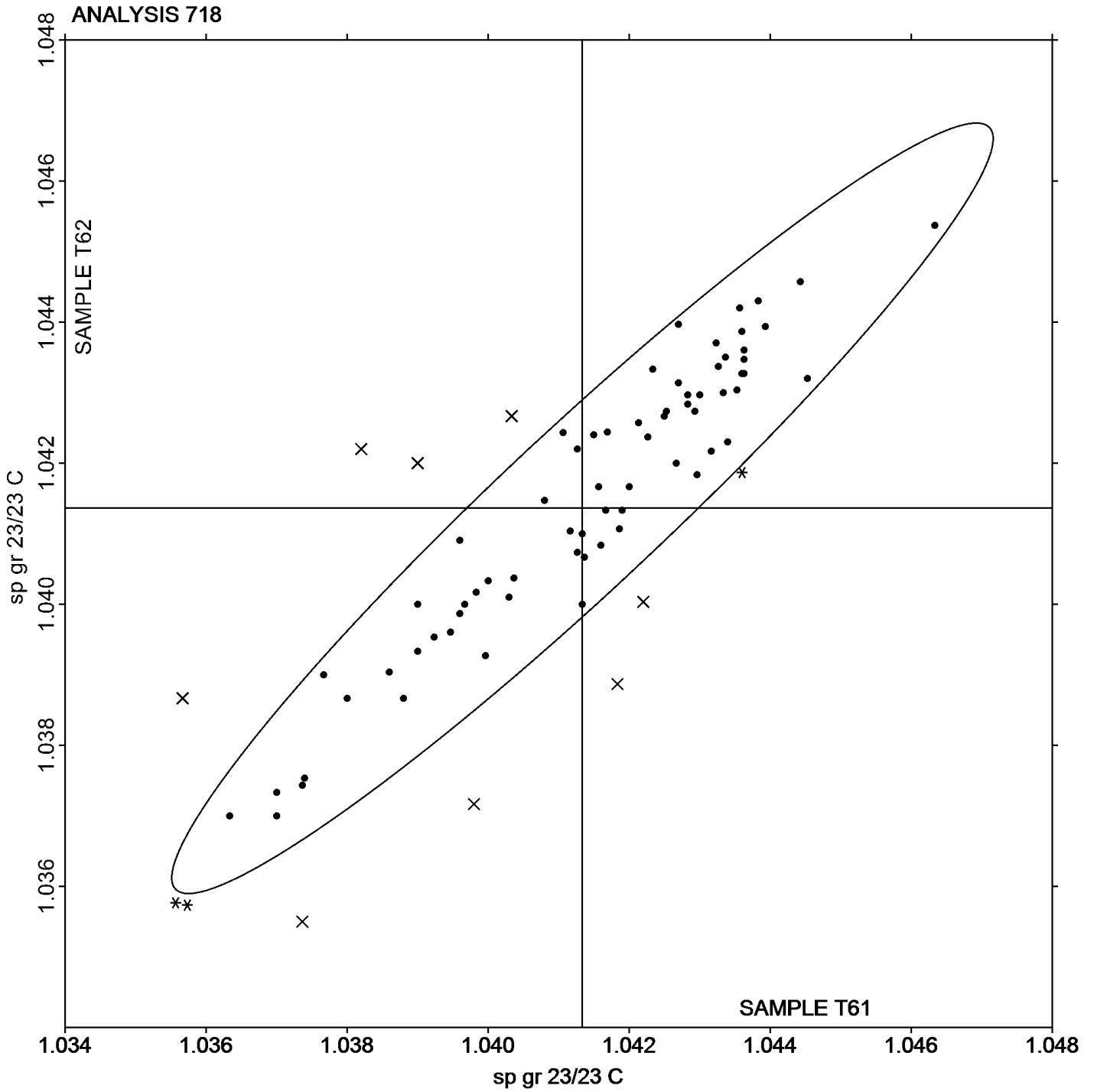
Analysis 718

Specific Gravity - sp gr 23/23 C

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Grand Mean Sample T61: 1.0413 sp gr 23/23 C Grand Mean Sample T62: 1.0414 sp gr 23/23 C





Plastics Interlaboratory Testing Program

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Analysis 720

3rd Qtr 2019

Flexural Modulus- ksi

WebCode	Data Flag	Sample J61			Sample J62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3FVRPM		339.7	-24.4	-1.45	339.9	-24.2	-1.41
3LZVCZ		349.2	-14.9	-0.88	349.0	-15.1	-0.88
3M9ZRA		373.6	9.6	0.57	369.9	5.7	0.34
3ZPLJU		369.1	5.1	0.30	369.0	4.9	0.28
48AY7Y		377.2	13.1	0.78	381.0	16.9	0.99
4LGYTD		367.4	3.3	0.19	365.2	1.1	0.06
4QZ7JW		385.7	21.7	1.28	382.1	18.0	1.05
4XJAQY		375.9	11.8	0.70	377.5	13.4	0.78
64TDFZ		348.6	-15.5	-0.92	348.4	-15.8	-0.92
64YGJN		374.1	10.0	0.59	371.1	7.0	0.41
6EKKT9		366.5	2.4	0.14	364.9	0.8	0.04
6NE6GH		372.9	8.8	0.52	373.8	9.7	0.57
6U6GH6		360.6	-3.5	-0.21	360.6	-3.5	-0.21
7MGAD7		372.3	8.2	0.49	371.9	7.8	0.45
7P8K4Y		338.9	-25.2	-1.49	337.9	-26.2	-1.53
7VXUDW		362.5	-1.5	-0.09	360.4	-3.8	-0.22
84UWRQ		350.2	-13.9	-0.82	350.1	-14.0	-0.82
8B4B2A	*	318.8	-45.2	-2.68	320.7	-43.4	-2.54
8E3RCJ		374.4	10.3	0.61	372.9	8.8	0.51
98QMRA		359.0	-5.1	-0.30	359.4	-4.7	-0.28
A98GFP		363.4	-0.6	-0.04	362.7	-1.4	-0.08
APDWH6		385.1	21.0	1.24	388.0	23.8	1.39
BPK23K		360.8	-3.3	-0.19	360.8	-3.3	-0.19
BV86UN		334.6	-29.5	-1.75	334.5	-29.6	-1.73
BXQCLY		363.8	-0.3	-0.02	363.0	-1.1	-0.07
CGHDG3		369.9	5.8	0.34	371.1	7.0	0.41
DW6F76	*	338.2	-25.8	-1.53	332.9	-31.2	-1.82
EH2BJP		355.0	-9.1	-0.54	354.6	-9.5	-0.56
EK3NVG		355.5	-8.6	-0.51	355.1	-9.0	-0.53
F4DT26		351.8	-12.3	-0.73	351.3	-12.8	-0.75
FLEHCG		371.8	7.7	0.46	374.4	10.3	0.60
FLN4HA		374.2	10.1	0.60	373.9	9.8	0.57
G4ZDVF		375.5	11.4	0.68	373.4	9.3	0.54
G8VBWV		387.2	23.2	1.37	388.8	24.7	1.44
GLHDLB		368.8	4.8	0.28	370.1	6.0	0.35



Plastics Interlaboratory Testing Program

Report #111

Analysis 720

3rd Qtr 2019

Flexural Modulus- ksi

WebCode	Data Flag	Sample J61			Sample J62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
GREEED	X	403.9	39.8	2.36	396.4	32.3	1.89
H9R3UY		359.7	-4.4	-0.26	362.2	-1.9	-0.11
HVZEEU		370.3	6.2	0.37	369.2	5.1	0.30
JA6LKM		382.6	18.5	1.10	385.0	20.9	1.22
JB49KU	X	370.8	6.7	0.40	381.2	17.1	1.00
JEARTY		388.3	24.2	1.43	389.9	25.7	1.50
JUX4XG	*	332.1	-31.9	-1.89	337.1	-27.0	-1.58
JVK7GN		399.2	35.1	2.08	400.8	36.7	2.14
KDHV46		357.0	-7.1	-0.42	360.0	-4.2	-0.24
KYMUUC		351.0	-13.1	-0.77	350.6	-13.5	-0.79
LBGNMZ		372.5	8.4	0.50	373.0	8.9	0.52
N3LEJJ	X	357.2	-6.9	-0.41	380.4	16.3	0.95
NNPZKB	X	337.2	-26.8	-1.59	351.2	-12.9	-0.75
NXEJ6B		393.2	29.2	1.73	392.7	28.6	1.67
PCQGNG		361.4	-2.7	-0.16	361.8	-2.3	-0.14
PKH4CR	X	373.2	9.1	0.54	338.4	-25.7	-1.50
RKAUFC	X	295.1	-68.9	-4.08	331.7	-32.4	-1.89
RU9MD7		355.4	-8.6	-0.51	350.9	-13.2	-0.77
RV49Z7		359.4	-4.7	-0.28	359.2	-4.9	-0.29
U94N4C	*	349.4	-14.7	-0.87	355.7	-8.4	-0.49
ULEBHZ		394.1	30.0	1.78	392.7	28.6	1.67
V6FRUD	*	376.4	12.3	0.73	369.4	5.3	0.31
WC2XE2	*	380.5	16.5	0.97	388.4	24.3	1.42
WJC7RL		362.2	-1.9	-0.11	365.1	1.0	0.06
WNTKLH	X	350.4	-13.7	-0.81	323.6	-40.5	-2.37
X3KTTJ		325.6	-38.5	-2.28	322.8	-41.3	-2.42
XFCCDG		362.8	-1.3	-0.08	362.4	-1.7	-0.10
Y6U72A	X	301.1	-62.9	-3.73	299.9	-64.2	-3.75
YBJGHY		362.2	-1.8	-0.11	362.2	-1.9	-0.11
YJA9JX		351.5	-12.6	-0.74	353.5	-10.6	-0.62
ZVVUDV		377.1	13.1	0.77	373.7	9.5	0.56



Plastics Interlaboratory Testing Program

Report #111

Analysis 720

3rd Qtr 2019

Flexural Modulus- ksi

Summary Statistics	<u>Sample J61</u>	<u>Sample J62</u>
Grand Means	364.07 ksi	364.12 ksi
Stnd Dev Btwn Labs	16.89 ksi	17.11 ksi

Statistics based on 58 of 66 reporting participants

Sample J61: ABS & Sample J62: ABS

Comments on Assigned Data Flags for Test #720

- JB49KU (X) - Inconsistent in testing between samples.
- GREEED (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
- RKAUFC (X) - Data for sample J61 are low. Inconsistent within the determinations of both samples.
- NNPZKB (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample J61.
- N3LEJJ (X) - Inconsistent in testing between samples.
- Y6U72A (X) - Data for both samples are low. Possible Systematic Error.
- PKH4CR (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample J61.
- WNTKLH (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

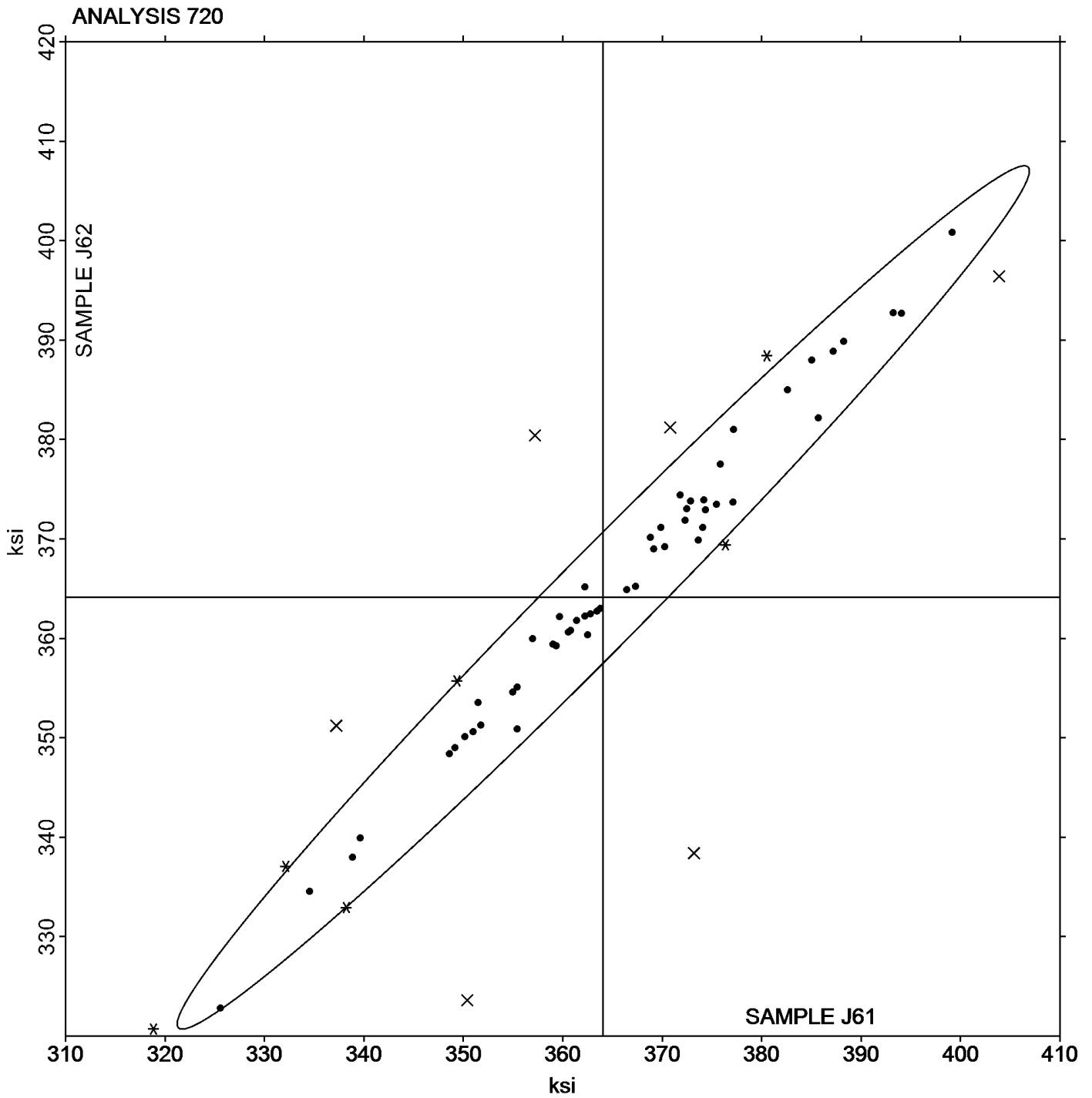


Plastics Interlaboratory Testing Program

Analysis 720 Flexural Modulus- ksi

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Grand Mean Sample J61: 364.07 ksi Grand Mean Sample J62: 364.12 ksi





Plastics Interlaboratory Testing Program

Report #111

Analysis 721

3rd Qtr 2019

Flexural Stress at 5% Strain - psi

WebCode	Data Flag	Sample J61			Sample J62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3LZVCZ		10,321	148	0.44	10,287	102	0.30
3M9ZRA		10,103	-70	-0.21	10,254	69	0.21
3ZPLJU		9,739	-434	-1.29	9,758	-427	-1.27
48AY7Y		10,157	-16	-0.05	10,097	-88	-0.26
4LGYTD		10,404	231	0.69	10,259	74	0.22
4QZ7JW	X	3,581	-6,592	-19.66	3,502	-6,683	-19.92
4XJAQY		10,256	83	0.25	10,271	86	0.26
64TDFZ		10,118	-55	-0.16	10,098	-87	-0.26
64YGJN		10,401	228	0.68	10,370	185	0.55
6EKKT9		10,414	241	0.72	10,399	214	0.64
6U6GH6		9,992	-181	-0.54	9,986	-199	-0.59
7MGAD7		10,077	-96	-0.29	10,059	-126	-0.38
7P8K4Y		10,292	119	0.35	10,180	-5	-0.02
7VXUDW		9,895	-278	-0.83	9,965	-220	-0.66
84UWRQ		10,288	115	0.34	10,239	54	0.16
8E3RCJ		10,120	-53	-0.16	10,005	-181	-0.54
98QMRA		10,547	374	1.12	10,606	421	1.25
A98GFP		9,608	-565	-1.68	9,602	-583	-1.74
APDWH6		10,623	450	1.34	10,729	543	1.62
BPK23K		10,210	37	0.11	10,125	-60	-0.18
BV86UN		10,042	-131	-0.39	10,082	-103	-0.31
BXQCLY		9,986	-187	-0.56	9,986	-199	-0.59
CGHDG3		9,894	-279	-0.83	9,906	-279	-0.83
DW6F76		9,931	-242	-0.72	9,998	-187	-0.56
EK3NVG		10,046	-127	-0.38	10,006	-179	-0.53
F4DT26		9,722	-451	-1.34	9,719	-466	-1.39
FLEHCG		10,114	-59	-0.18	10,147	-38	-0.11
G4ZDVF		10,497	324	0.97	10,523	338	1.01
G8VBWV	*	11,067	894	2.67	11,142	957	2.85
GLHDLB		9,988	-185	-0.55	9,918	-267	-0.79
GREEED		10,574	401	1.20	10,535	350	1.04
HVZEEU		10,012	-161	-0.48	10,046	-139	-0.41
JA6LKM		10,560	387	1.15	10,500	315	0.94
JB49KU		10,332	159	0.47	10,319	134	0.40
JEARTY		10,527	354	1.06	10,609	424	1.26



Plastics Interlaboratory Testing Program

Report #111

Analysis 721

3rd Qtr 2019

Flexural Stress at 5% Strain - psi

WebCode	Data Flag	Sample J61			Sample J62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
KDHV46		10,406	233	0.69	10,437	252	0.75
KYMUUC		10,470	297	0.89	10,496	311	0.93
N3LEJJ	X	9,922	-251	-0.75	10,782	597	1.78
NNPZKB	*	9,563	-610	-1.82	9,727	-458	-1.36
NXEJ6B		10,347	174	0.52	10,413	228	0.68
PKH4CR	X	10,160	-13	-0.04	9,752	-433	-1.29
RKAUFC	*	9,523	-650	-1.94	9,690	-495	-1.48
RV49Z7		9,935	-238	-0.71	9,874	-311	-0.93
U94N4C		10,196	23	0.07	10,299	114	0.34
ULEBHZ		10,933	760	2.27	10,995	810	2.41
WC2XE2		10,280	107	0.32	10,353	168	0.50
WJC7RL		10,025	-148	-0.44	9,972	-213	-0.63
WNTKLH	X	10,480,000	,469,827	31,224.27	10,562,000	0,551,815	31,456.17
X3KTTJ		9,537	-636	-1.90	9,561	-624	-1.86
XFCCDG		10,079	-94	-0.28	10,252	67	0.20
Y6U72A		10,425	252	0.75	10,435	250	0.74
YBJGHY		10,132	-41	-0.12	10,045	-140	-0.42
YJA9JX		9,599	-574	-1.71	9,643	-542	-1.62
ZVVUDV		10,341	168	0.50	10,338	153	0.46

Summary Statistics		
	Sample J61	Sample J62
Grand Means	10,173.0 psi	10,185.1 psi
Std Dev Btwn Labs	335.3 psi	335.4 psi
Statistics based on 50 of 54 reporting participants		

Sample J61: ABS & Sample J62: ABS

Comments on Assigned Data Flags for Test #721

- 4QZ7JW (X) - Extreme data.
- N3LEJJ (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
- PKH4CR (X) - Inconsistent in testing between samples.
- WNTKLH (X) - Extreme data.



Plastics Interlaboratory Testing Program

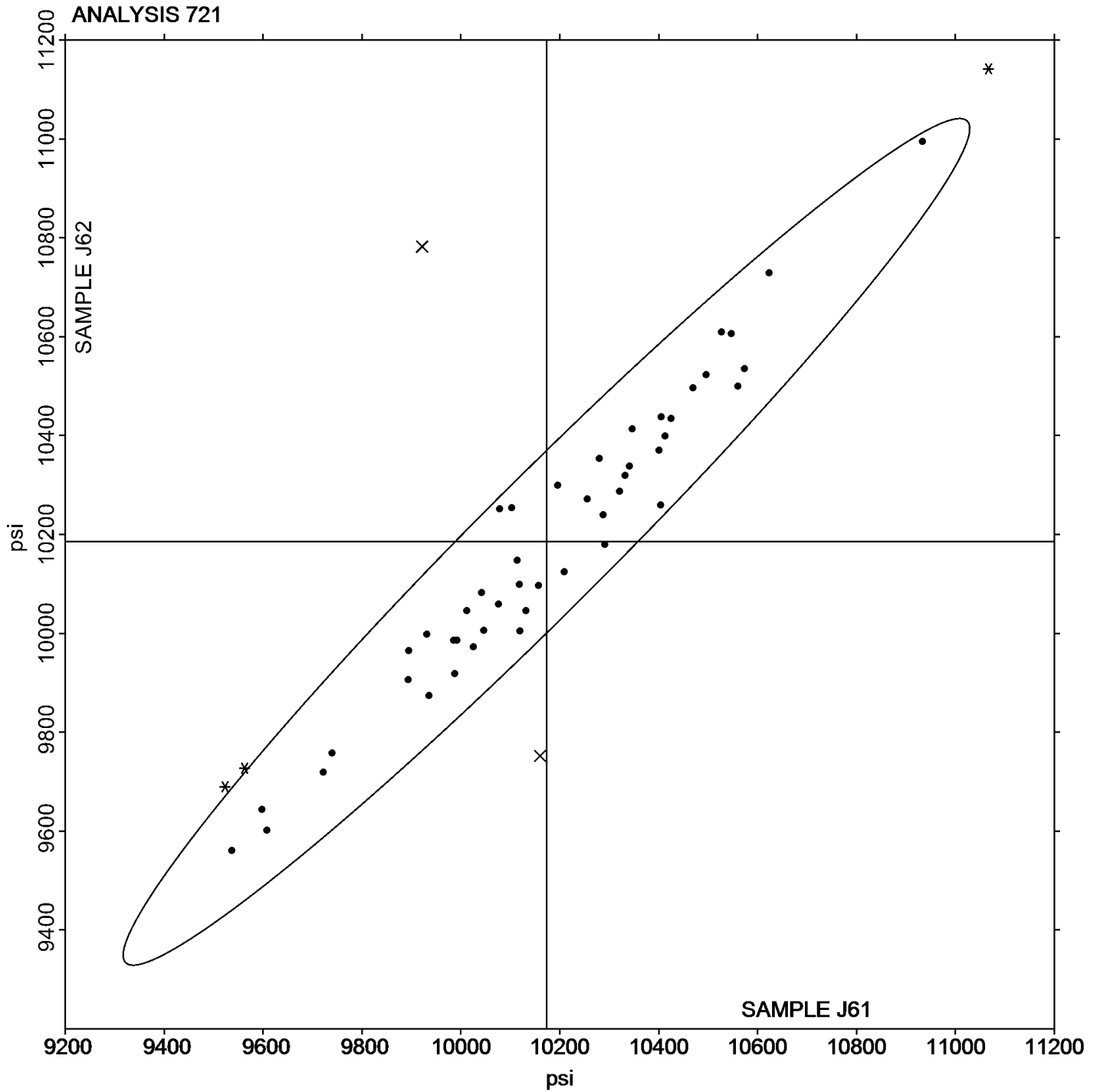
Report #111

Analysis 721

3rd Qtr 2019

Flexural Stress at 5% Strain - psi

Grand Mean Sample J61: 10,172.99 psi Grand Mean Sample J62: 10,185.05 psi





Plastics Interlaboratory Testing Program

Report #111

Analysis 722

3rd Qtr 2019

Flexural Stress at Yield - psi

WebCode	Data Flag	Sample J61			Sample J62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3LZVCZ		10,363	173	0.48	10,335	135	0.37
3M9ZRA		10,142	-48	-0.13	10,286	86	0.24
3ZPLJU		9,489	-701	-1.94	9,505	-695	-1.92
48AY7Y		10,196	6	0.02	10,152	-48	-0.13
4LGYTD		10,441	250	0.69	10,316	116	0.32
64TDFZ		10,143	-48	-0.13	10,124	-76	-0.21
64YGJN		10,434	244	0.67	10,381	181	0.50
6EKKT9		10,429	239	0.66	10,416	216	0.60
6NE6GH		10,255	64	0.18	10,248	48	0.13
6U6GH6		10,078	-112	-0.31	10,080	-120	-0.33
7MGAD7		10,117	-74	-0.20	10,098	-102	-0.28
7P8K4Y		10,269	79	0.22	10,166	-34	-0.09
7VXUDW		9,945	-246	-0.68	10,005	-195	-0.54
84UWRQ		10,318	128	0.35	10,262	62	0.17
98QMRA		10,526	336	0.93	10,591	391	1.08
A98GFP		9,628	-562	-1.55	9,622	-578	-1.60
APDWH6	*	10,617	426	1.18	10,791	591	1.63
BV86UN		10,042	-148	-0.41	10,082	-118	-0.32
BXQCLY		10,060	-130	-0.36	10,060	-140	-0.39
CGHDG3		9,992	-199	-0.55	9,997	-203	-0.56
DW6F76		9,959	-232	-0.64	10,020	-180	-0.50
EH2BJP		10,251	61	0.17	10,248	48	0.13
F4DT26		9,758	-433	-1.20	9,751	-449	-1.24
FLEHCG		10,152	-38	-0.11	10,195	-5	-0.01
G4ZDVF		10,504	314	0.87	10,532	332	0.92
G8VBWV	*	11,132	941	2.60	11,199	999	2.76
GLHDLB	*	9,203	-987	-2.73	9,181	-1,019	-2.82
GREEED		10,601	411	1.13	10,559	359	0.99
H9R3UY		9,898	-292	-0.81	9,988	-212	-0.58
HVZEEU		10,062	-128	-0.35	10,090	-110	-0.30
JA6LKM		10,560	370	1.02	10,480	280	0.77
JB49KU		10,441	251	0.69	10,418	218	0.60
JEARTY		10,227	36	0.10	10,309	109	0.30
KYMUUC		10,506	316	0.87	10,526	326	0.90
N3LEJJ	X	9,894	-296	-0.82	10,766	566	1.56



Plastics Interlaboratory Testing Program

Report #111

Analysis 722

3rd Qtr 2019

Flexural Stress at Yield - psi

WebCode	Data Flag	<u>Sample J61</u>			<u>Sample J62</u>		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
NNPZKB	X	9,590	-600	-1.66	9,861	-339	-0.94
NXEJ6B		10,449	258	0.71	10,506	306	0.84
PCQGNG		10,070	-120	-0.33	10,004	-196	-0.54
PKH4CR	X	8,406	-1,784	-4.93	7,830	-2,370	-6.55
RKAUFC	*	9,664	-526	-1.45	9,837	-363	-1.00
RU9MD7		10,687	496	1.37	10,623	423	1.17
RV49Z7		9,976	-215	-0.59	9,926	-274	-0.76
U94N4C		10,183	-7	-0.02	10,282	82	0.23
ULEBHZ		10,937	746	2.06	10,988	788	2.18
WJC7RL		10,025	-165	-0.46	9,972	-228	-0.63
WNTKLH		9,778	-412	-1.14	9,846	-354	-0.98
X3KTTJ		10,039	-152	-0.42	10,064	-136	-0.38
Y6U72A		10,425	235	0.65	10,435	235	0.65
YBJGHY		10,176	-14	-0.04	10,077	-123	-0.34
YJA9JX		9,599	-592	-1.64	9,643	-557	-1.54
ZVVUDV		10,395	205	0.57	10,386	186	0.51

Summary Statistics		<u>Sample J61</u>	<u>Sample J62</u>
Grand Means		10,190.4 psi	10,200.0 psi
Stnd Dev Btwn Labs		361.7 psi	362.0 psi
Statistics based on 48 of 51 reporting participants			

Sample J61: ABS & Sample J62: ABS

Comments on Assigned Data Flags for Test #722

- NNPZKB (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
- N3LEJJ (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
- PKH4CR (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample J61.



Plastics Interlaboratory Testing Program

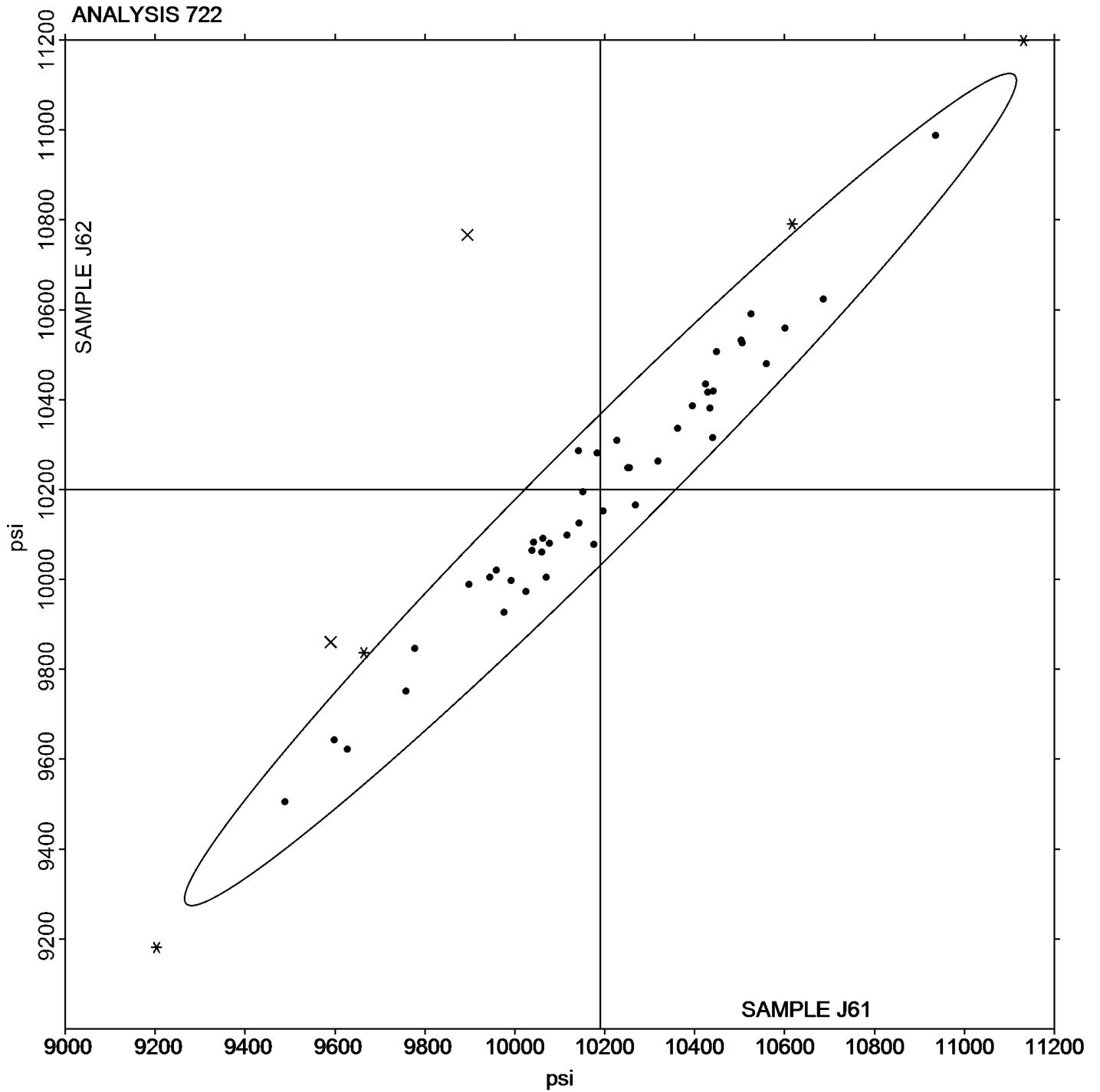
Analysis 722

Flexural Stress at Yield - psi

Report #111

3rd Qtr 2019

Grand Mean Sample J61: 10,190.43 psi Grand Mean Sample J62: 10,199.98 psi





Plastics Interlaboratory Testing Program

Report #111

Analysis 730

3rd Qtr 2019

Tensile Stress at Yield - MPa

WebCode	Data Flag	Sample C61			Sample C62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
247QE8		24.87	0.20	0.25	24.69	0.00	0.00
2FG7G7		24.50	-0.17	-0.21	24.62	-0.07	-0.08
2HMQ67	*	23.19	-1.47	-1.81	22.82	-1.87	-2.30
2VCKL7		24.73	0.07	0.08	24.93	0.24	0.29
3LZVCZ		24.15	-0.52	-0.64	24.19	-0.50	-0.61
44Y3BY		24.75	0.09	0.11	24.72	0.04	0.05
48AY7Y		24.39	-0.28	-0.34	24.51	-0.18	-0.22
4HE7TM		24.80	0.13	0.16	24.80	0.11	0.14
64YGJN		25.41	0.74	0.91	24.87	0.18	0.23
73XCT9		25.11	0.44	0.54	25.07	0.39	0.47
7P8K4Y		24.81	0.14	0.17	24.85	0.17	0.20
84UWRQ		24.92	0.25	0.31	25.20	0.51	0.63
8E3RCJ		24.50	-0.17	-0.21	24.56	-0.13	-0.16
8F8X8W		24.38	-0.29	-0.35	24.20	-0.49	-0.60
8TMA89		23.68	-0.98	-1.21	23.77	-0.92	-1.13
98QMRA		24.95	0.28	0.35	25.34	0.66	0.81
B7M2TZ		25.02	0.35	0.43	25.34	0.65	0.80
BJQB7D		25.46	0.79	0.97	25.56	0.87	1.07
BLXRMR		24.04	-0.63	-0.77	23.62	-1.06	-1.31
BTVF3Z		25.59	0.92	1.13	25.48	0.80	0.98
CJ62QG		24.34	-0.33	-0.40	24.46	-0.23	-0.28
DVDGYX		23.76	-0.90	-1.11	23.81	-0.88	-1.08
EWXQGX		24.82	0.15	0.19	24.92	0.23	0.29
JATDY3	X	26.98	2.32	2.84	26.16	1.47	1.81
JEARTY		25.74	1.07	1.31	25.76	1.07	1.32
JUX4XG	*	22.34	-2.33	-2.85	22.74	-1.95	-2.40
KBBQBG		25.83	1.17	1.43	25.99	1.30	1.60
KKFPVB		24.54	-0.13	-0.16	24.74	0.05	0.07
KKLTWH		26.70	2.03	2.49	26.55	1.86	2.29
KULPB6		25.26	0.59	0.72	25.10	0.41	0.51
LBGNMZ		24.33	-0.34	-0.41	24.79	0.10	0.13
M3FVQB		24.25	-0.42	-0.51	23.75	-0.94	-1.15
MAED7N		24.78	0.11	0.13	24.80	0.11	0.14
N6RL2C		24.34	-0.33	-0.41	24.51	-0.18	-0.22
ND6TLL		25.09	0.42	0.52	25.25	0.57	0.70



Plastics Interlaboratory Testing Program

Report #111

Analysis 730

3rd Qtr 2019

Tensile Stress at Yield - MPa

WebCode	Data Flag	Sample C61			Sample C62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
QVQACN	X	21.16	-3.51	-4.30	20.66	-4.03	-4.96
R6CTCE		24.51	-0.15	-0.19	24.67	-0.02	-0.02
R78E73	X	21.20	-3.47	-4.25	25.00	0.31	0.39
RV49Z7		24.51	-0.16	-0.20	24.38	-0.31	-0.38
TH4Q62		25.60	0.93	1.14	25.74	1.05	1.30
UHFMA7		25.05	0.39	0.47	25.05	0.36	0.45
V6FRUD	X	24.86	0.19	0.24	24.01	-0.68	-0.84
VABGGC		23.44	-1.23	-1.50	23.92	-0.77	-0.94
VWLL2C		23.05	-1.62	-1.98	23.04	-1.65	-2.03
WDXH22		24.26	-0.41	-0.50	24.53	-0.16	-0.19
WNTKLH		24.49	-0.18	-0.22	24.08	-0.61	-0.75
WZ6YKA		23.18	-1.49	-1.82	23.24	-1.45	-1.78
XKLPVF		25.26	0.59	0.72	25.28	0.59	0.73
XLCZM9		24.14	-0.53	-0.65	23.94	-0.75	-0.92
Y742HB		25.91	1.24	1.52	25.99	1.30	1.60
ZNJQB3		25.94	1.27	1.55	25.68	0.99	1.22
ZVVUDV		24.56	-0.11	-0.14	24.40	-0.28	-0.35
ZW9JG8		25.50	0.83	1.02	25.27	0.59	0.72
ZZCAP9		24.64	-0.03	-0.04	24.81	0.12	0.15

Summary Statistics		
	Sample C61	Sample C62
Grand Means	24.668 MPa	24.686 MPa
Stnd Dev Btwn Labs	0.816 MPa	0.813 MPa

Statistics based on 50 of 54 reporting participants

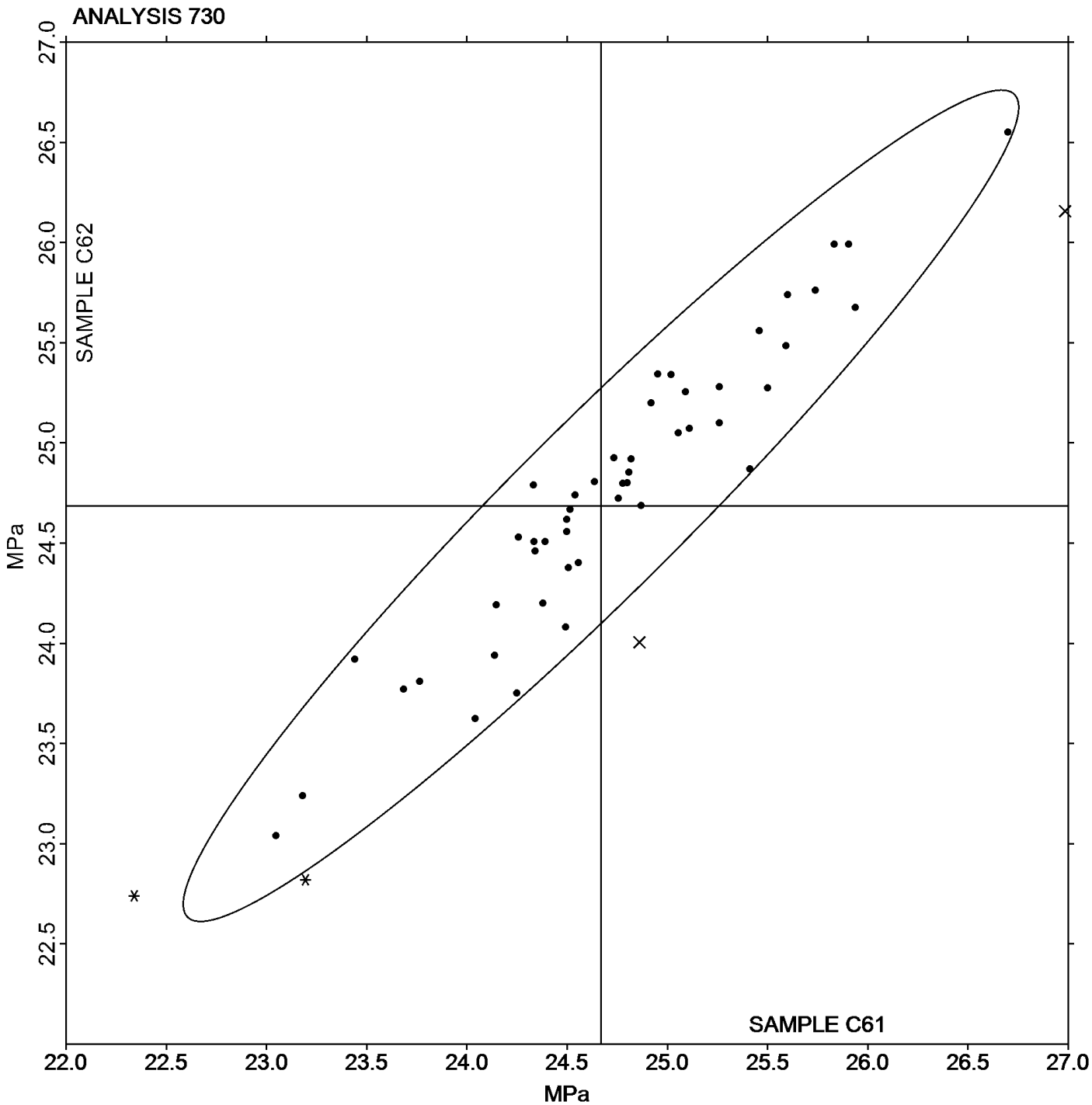
Sample C61: HIPS & Sample C62: HIPS

Comments on Assigned Data Flags for Test #730

- V6FRUD (X) - Inconsistent in testing between samples.
- QVQACN (X) - Data for both samples are low. Possible Systematic Error.
- JATDY3 (X) - Data for sample C61 are high. Inconsistent within the determinations of sample C62.
- R78E73 (X) - Data for sample C61 are low.



Grand Mean Sample C61: 24.668 MPa Grand Mean Sample C62: 24.686 MPa





Plastics Interlaboratory Testing Program

Report #111

Analysis 731

3rd Qtr 2019

Tensile Stress at Break - MPa

WebCode	Data Flag	Sample C61			Sample C62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
247QE8		20.55	0.68	0.77	21.02	1.06	1.21
2FG7G7		20.03	0.15	0.17	19.76	-0.20	-0.22
2VCKL7	X	19.93	0.05	0.06	18.10	-1.86	-2.11
3LZVCZ		19.84	-0.04	-0.04	19.73	-0.23	-0.26
44Y3BY		19.43	-0.44	-0.51	19.37	-0.58	-0.66
48AY7Y		19.08	-0.80	-0.92	19.46	-0.49	-0.56
4HE7TM		20.00	0.12	0.14	20.40	0.45	0.51
64YGJN		20.20	0.32	0.37	19.86	-0.09	-0.10
73XCT9		20.14	0.27	0.31	20.13	0.18	0.20
7P8K4Y		20.66	0.79	0.90	20.67	0.72	0.82
84UWRQ		20.38	0.50	0.58	20.22	0.27	0.31
8E3RCJ		19.95	0.08	0.09	20.27	0.31	0.36
8F8X8W		19.40	-0.48	-0.54	19.26	-0.69	-0.79
8TEPA4		19.80	-0.07	-0.09	19.83	-0.13	-0.14
8TMA89		18.54	-1.33	-1.52	18.52	-1.43	-1.62
98QMRA		20.47	0.59	0.68	20.65	0.70	0.80
BJQB7D		20.32	0.44	0.51	20.73	0.78	0.89
BLXRMR		19.91	0.03	0.03	19.21	-0.74	-0.84
CJ62QG		18.90	-0.98	-1.12	19.10	-0.85	-0.97
DVDGYX		20.15	0.27	0.31	20.18	0.22	0.26
EWXQGX		19.78	-0.10	-0.11	19.40	-0.55	-0.63
JATDY3	*	21.70	1.83	2.09	22.39	2.43	2.77
JEARTY		21.14	1.26	1.45	21.28	1.33	1.51
KBBQBG		21.14	1.26	1.45	20.96	1.01	1.15
KKFPVB	X	14.36	-5.52	-6.31	14.04	-5.91	-6.73
KKLTHW		21.07	1.20	1.37	21.24	1.29	1.46
M3FVQB		19.69	-0.19	-0.21	19.84	-0.11	-0.12
MAED7N		20.14	0.27	0.30	19.83	-0.12	-0.13
N6RL2C		19.41	-0.46	-0.53	19.60	-0.36	-0.40
ND6TLL		20.52	0.65	0.74	20.72	0.77	0.88
QVQACN	X	26.30	6.42	7.35	26.22	6.27	7.13
R6CTCE		19.54	-0.34	-0.39	19.67	-0.28	-0.32
RV49Z7		19.18	-0.70	-0.80	19.08	-0.87	-0.99
TH4Q62		20.74	0.86	0.99	21.06	1.11	1.26
UHFMA7	*	17.15	-2.72	-3.11	17.62	-2.33	-2.65



Plastics Interlaboratory Testing Program

Report #111

Analysis 731

3rd Qtr 2019

Tensile Stress at Break - MPa

WebCode	Data Flag	Sample C61			Sample C62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
VABGGC		18.12	-1.76	-2.01	18.52	-1.43	-1.63
WDXH22		19.26	-0.62	-0.71	19.95	0.00	0.00
WNTKLH		20.31	0.44	0.50	19.69	-0.26	-0.30
WZ6YKA		18.56	-1.32	-1.51	18.72	-1.23	-1.40
XKLPVF		20.22	0.34	0.39	20.10	0.15	0.17
Y742HB		20.62	0.75	0.86	20.50	0.54	0.62
ZVVUDV		18.96	-0.92	-1.05	19.69	-0.26	-0.29
ZW9JG8		20.26	0.38	0.44	20.26	0.31	0.35
ZZCAP9		19.64	-0.23	-0.27	19.53	-0.42	-0.48

Summary Statistics		
	Sample C61	Sample C62
Grand Means	19.876 MPa	19.951 MPa
Stnd Dev Btwn Labs	0.874 MPa	0.879 MPa
Statistics based on 41 of 44 reporting participants		

Sample C61: HIPS & Sample C62: HIPS

Comments on Assigned Data Flags for Test #731

- 2VCKL7 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
- KKFPVB (X) - Data for both samples are low. Possible Systematic Error.
- QVQACN (X) - Data for both samples are high. Possible Systematic Error.



Plastics Interlaboratory Testing Program

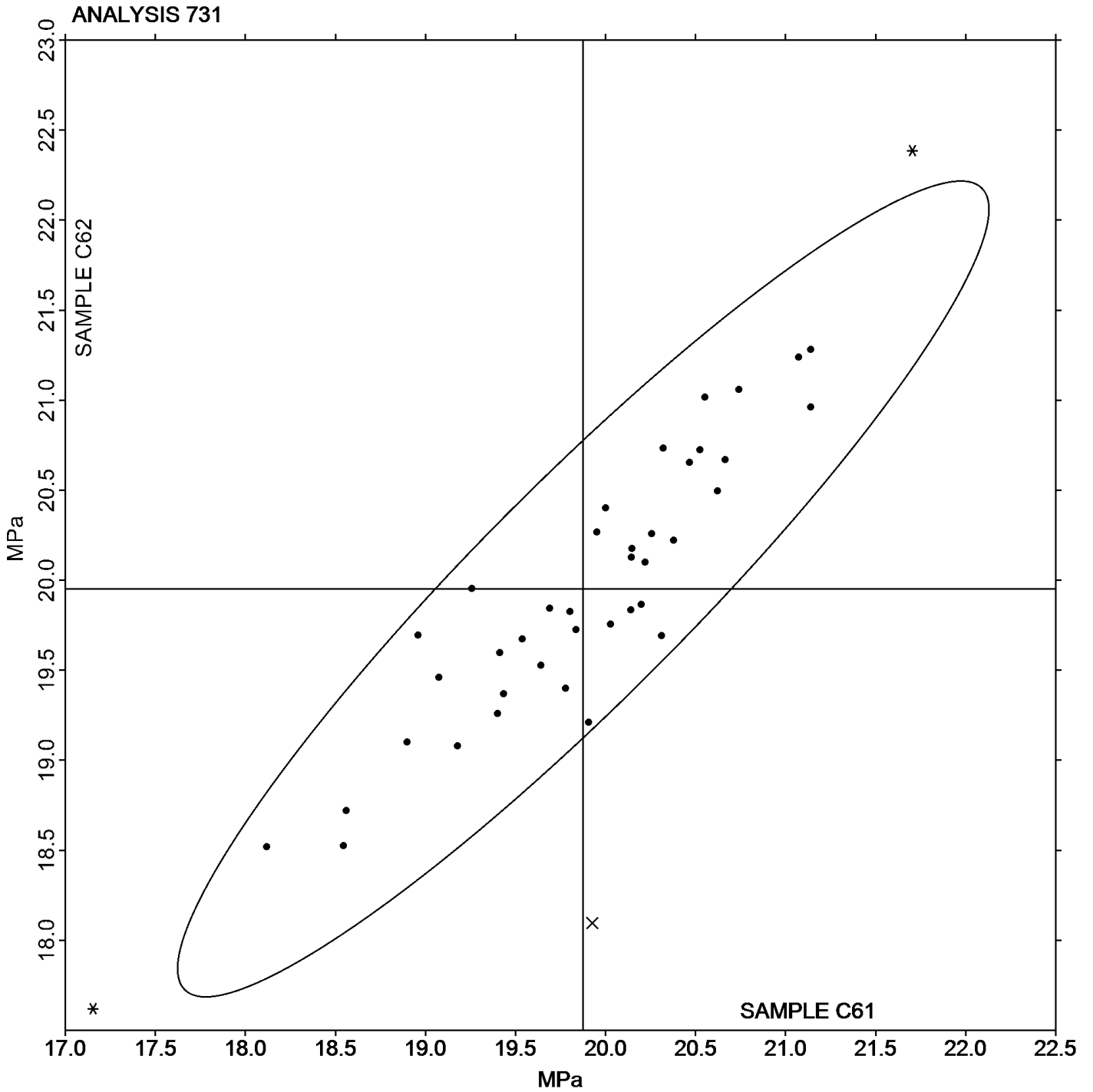
Analysis 731

Tensile Stress at Break - MPa

Report #111

3rd Qtr 2019

Grand Mean Sample C61: 19.876 MPa Grand Mean Sample C62: 19.951 MPa





Plastics Interlaboratory Testing Program

Report #111

Analysis 732

3rd Qtr 2019

Percent Strain at Yield

WebCode	Data Flag	Sample C61			Sample C62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
247QE8		1.238	0.003	0.04	1.222	-0.013	-0.20
2FG7G7		1.280	0.045	0.67	1.270	0.035	0.50
2VCKL7		1.206	-0.029	-0.44	1.234	-0.001	-0.02
3LZVCZ		1.164	-0.071	-1.07	1.163	-0.072	-1.05
44Y3BY		1.232	-0.003	-0.05	1.250	0.014	0.21
48AY7Y		1.264	0.029	0.43	1.264	0.029	0.42
4HE7TM		1.226	-0.009	-0.14	1.162	-0.073	-1.07
64YGJN		1.234	-0.001	-0.02	1.234	-0.001	-0.02
73XCT9		1.238	0.003	0.04	1.248	0.013	0.18
7P8K4Y		1.272	0.037	0.55	1.278	0.043	0.62
84UWRQ		1.254	0.019	0.28	1.268	0.033	0.47
8E3RCJ		1.166	-0.069	-1.05	1.154	-0.081	-1.18
8F8X8W	*	1.400	0.165	2.48	1.420	0.185	2.68
8TMA89		1.258	0.022	0.34	1.236	0.001	0.01
98QMRA		1.224	-0.011	-0.17	1.250	0.015	0.21
B7M2TZ		1.346	0.111	1.67	1.390	0.155	2.25
BJQB7D		1.200	-0.035	-0.53	1.200	-0.035	-0.52
BLXRMR	X	4.770	3.535	53.24	4.563	3.328	48.39
CJ62QG		1.280	0.045	0.67	1.280	0.045	0.65
DVDGYX		1.198	-0.037	-0.56	1.198	-0.037	-0.54
EWXQGX		1.362	0.127	1.91	1.368	0.133	1.93
JATDY3		1.370	0.135	2.03	1.342	0.107	1.55
JEARTY	X	2.540	1.305	19.65	2.580	1.345	19.55
KBBQBG		1.252	0.017	0.25	1.256	0.021	0.30
KKFPVB		1.200	-0.035	-0.53	1.200	-0.035	-0.52
KKLTHH		1.316	0.081	1.21	1.294	0.059	0.85
KULPB6	*	1.162	-0.073	-1.11	1.238	0.003	0.04
M3FVQB	*	1.236	0.001	0.01	1.150	-0.085	-1.24
MAED7N		1.173	-0.062	-0.94	1.177	-0.058	-0.85
N6RL2C		1.138	-0.097	-1.47	1.146	-0.089	-1.30
QVQACN		1.240	0.005	0.07	1.260	0.025	0.36
R6CTCE		1.239	0.003	0.05	1.233	-0.002	-0.03
RV49Z7		1.256	0.021	0.31	1.262	0.027	0.39
TH4Q62	X	0.540	-0.695	-10.47	0.520	-0.715	-10.40
UHFMA7		1.280	0.045	0.67	1.280	0.045	0.65



Plastics Interlaboratory Testing Program

Report #111

Analysis 732

3rd Qtr 2019

Percent Strain at Yield

WebCode	Data Flag	Sample C61			Sample C62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
VABGGC		1.260	0.025	0.37	1.200	-0.035	-0.52
VWLL2C		1.082	-0.153	-2.31	1.086	-0.149	-2.17
WDXH22	X	1.042	-0.193	-2.91	0.950	-0.285	-4.15
WNTKLH	X	6.716	5.481	82.54	6.150	4.915	71.46
WZ6YKA	X	1.848	0.613	9.23	1.858	0.623	9.05
XKLPVF		1.240	0.005	0.07	1.226	-0.009	-0.14
XLCZM9		1.180	-0.055	-0.83	1.200	-0.035	-0.52
Y742HB		1.108	-0.127	-1.92	1.128	-0.107	-1.56
ZVVUDV		1.194	-0.041	-0.62	1.214	-0.021	-0.31
ZW9JG8		1.184	-0.051	-0.77	1.166	-0.069	-1.01
ZZCAP9		1.264	0.029	0.43	1.270	0.035	0.50

Summary Statistics

	Sample C61	Sample C62
Grand Means	1.2354 Percent	1.2354 Percent
Std Dev Btwn Labs	0.0664 Percent	0.0688 Percent

Statistics based on 40 of 46 reporting participants

Sample C61: HIPS & Sample C62: HIPS

Comments on Assigned Data Flags for Test #732

- TH4Q62 (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of both samples.
- JEARTY (X) - Data for both samples are high. Possible Systematic Error.
- WNTKLH (X) - Extreme data.
- WDXH22 (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample C62.
- BLXRMR (X) - Extreme data.
- WZ6YKA (X) - Data for both samples are high. Possible Systematic Error.

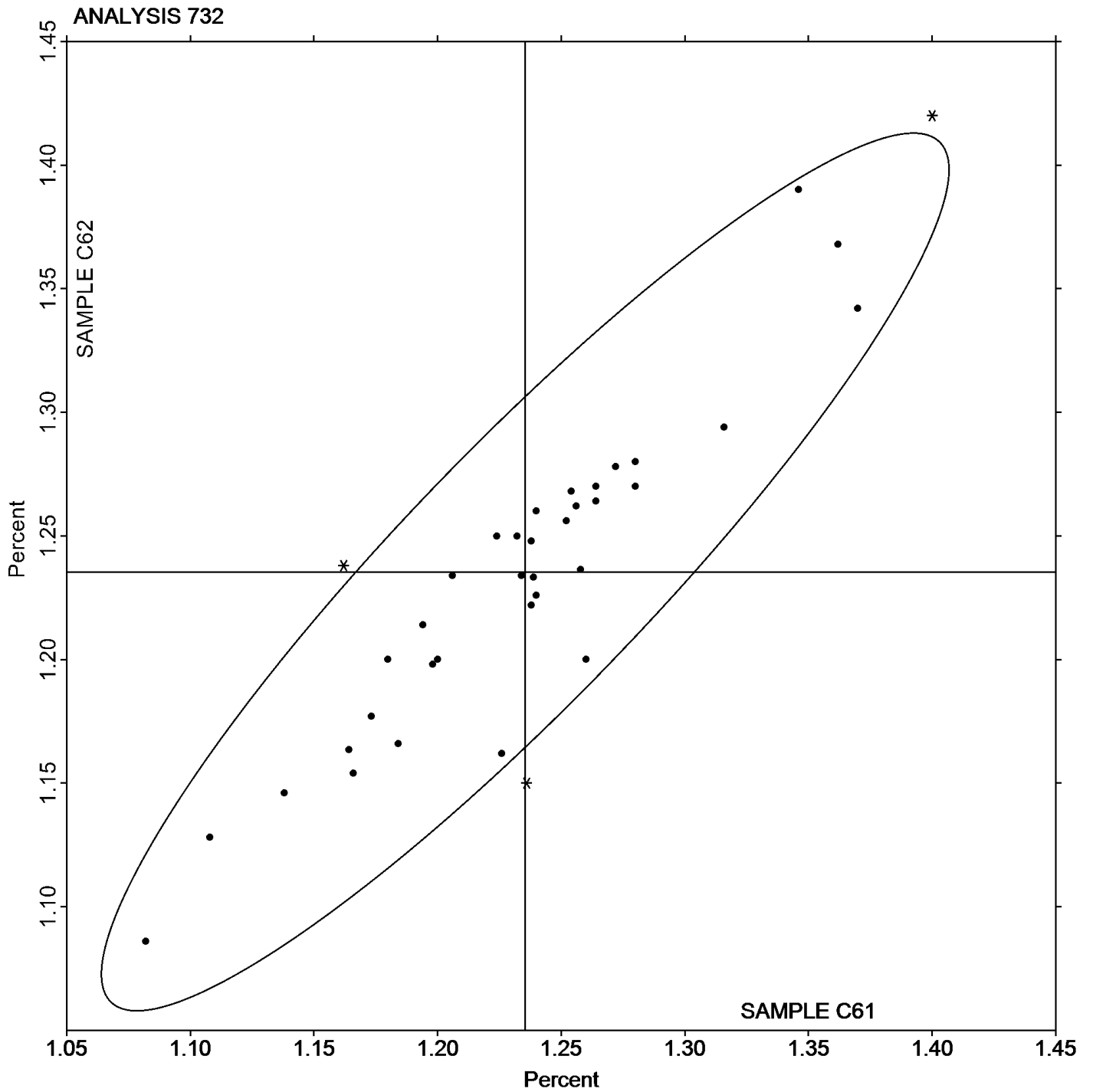


Plastics Interlaboratory Testing Program

Analysis 732 Percent Strain at Yield

Report #111
3rd Qtr 2019

Grand Mean Sample C61: 1.2354 Percent Grand Mean Sample C62: 1.2354 Percent





Plastics Interlaboratory Testing Program

Report #111

Analysis 734

3rd Qtr 2019

Modulus of Elasticity - MPa

WebCode	Data Flag	Sample C61			Sample C62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
247QE8		2,336	71	0.71	2,292	23	0.24
2FG7G7		2,307	42	0.42	2,346	77	0.80
2VCKL7		2,294	28	0.28	2,275	5	0.05
3LZVCZ		2,261	-5	-0.05	2,266	-4	-0.04
44Y3BY	*	2,048	-217	-2.18	2,191	-79	-0.82
48AY7Y		2,100	-165	-1.66	2,078	-192	-2.00
4HE7TM	*	2,286	20	0.20	2,434	164	1.71
64YGJN		2,257	-8	-0.08	2,256	-14	-0.14
73XCT9		2,215	-50	-0.50	2,201	-68	-0.71
7P8K4Y		2,164	-101	-1.01	2,169	-101	-1.05
84UWRQ		2,193	-73	-0.73	2,227	-43	-0.45
8E3RCJ		2,422	157	1.57	2,447	177	1.85
8F8X8W		2,290	24	0.24	2,237	-33	-0.34
8TMA89		2,179	-87	-0.87	2,147	-123	-1.28
98QMRA		2,342	76	0.76	2,321	52	0.54
BJQB7D		2,269	4	0.04	2,299	30	0.31
CJ62QG		2,238	-27	-0.27	2,234	-36	-0.37
DVDGYX		2,233	-32	-0.32	2,149	-121	-1.26
EWXQGX		2,225	-41	-0.41	2,205	-65	-0.68
JATDY3		2,127	-139	-1.39	2,166	-103	-1.08
KBBQBG		2,404	139	1.39	2,368	98	1.03
KKFPVB		2,296	30	0.30	2,306	36	0.38
KKLTHW		2,281	16	0.16	2,299	29	0.30
KULPB6		2,376	111	1.11	2,409	140	1.46
M3FVQB	X	2,235	-30	-0.30	2,500	231	2.41
MAED7N		2,305	40	0.40	2,293	24	0.25
N6RL2C		2,277	12	0.12	2,303	33	0.35
ND6TLL		2,303	38	0.38	2,348	79	0.82
QVQACN		2,317	52	0.52	2,323	54	0.56
R6CTCE		2,164	-102	-1.02	2,199	-71	-0.74
RV49Z7		2,195	-70	-0.70	2,191	-78	-0.82
TH4Q62		2,285	20	0.20	2,263	-7	-0.07
UHFMA7		2,140	-125	-1.25	2,145	-125	-1.30
VABGGC		2,206	-59	-0.59	2,244	-26	-0.27
VWLL2C		2,322	57	0.57	2,337	67	0.70



Plastics Interlaboratory Testing Program

Report #111

Analysis 734

3rd Qtr 2019

Modulus of Elasticity - MPa

WebCode	Data Flag	Sample C61			Sample C62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
WDXH22	X	2,237	-28	-0.28	2,965	695	7.24
WZ6YKA	X	1,468	-797	-7.98	1,486	-784	-8.17
XKLPVF		2,263	-3	-0.03	2,279	9	0.10
XLCZM9		2,292	27	0.27	2,304	34	0.36
Y742HB		2,456	190	1.91	2,463	194	2.02
ZNJQB3		2,380	115	1.15	2,384	114	1.19
ZVVUDV	*	2,489	224	2.24	2,361	91	0.95
ZW9JG8		2,319	53	0.53	2,268	-1	-0.01
ZZCAP9		2,026	-240	-2.40	2,027	-242	-2.53

Summary Statistics		
	Sample C61	Sample C62
Grand Means	2,265.4 MPa	2,269.6 MPa
Stnd Dev Btwn Labs	99.9 MPa	96.0 MPa

Statistics based on 41 of 44 reporting participants

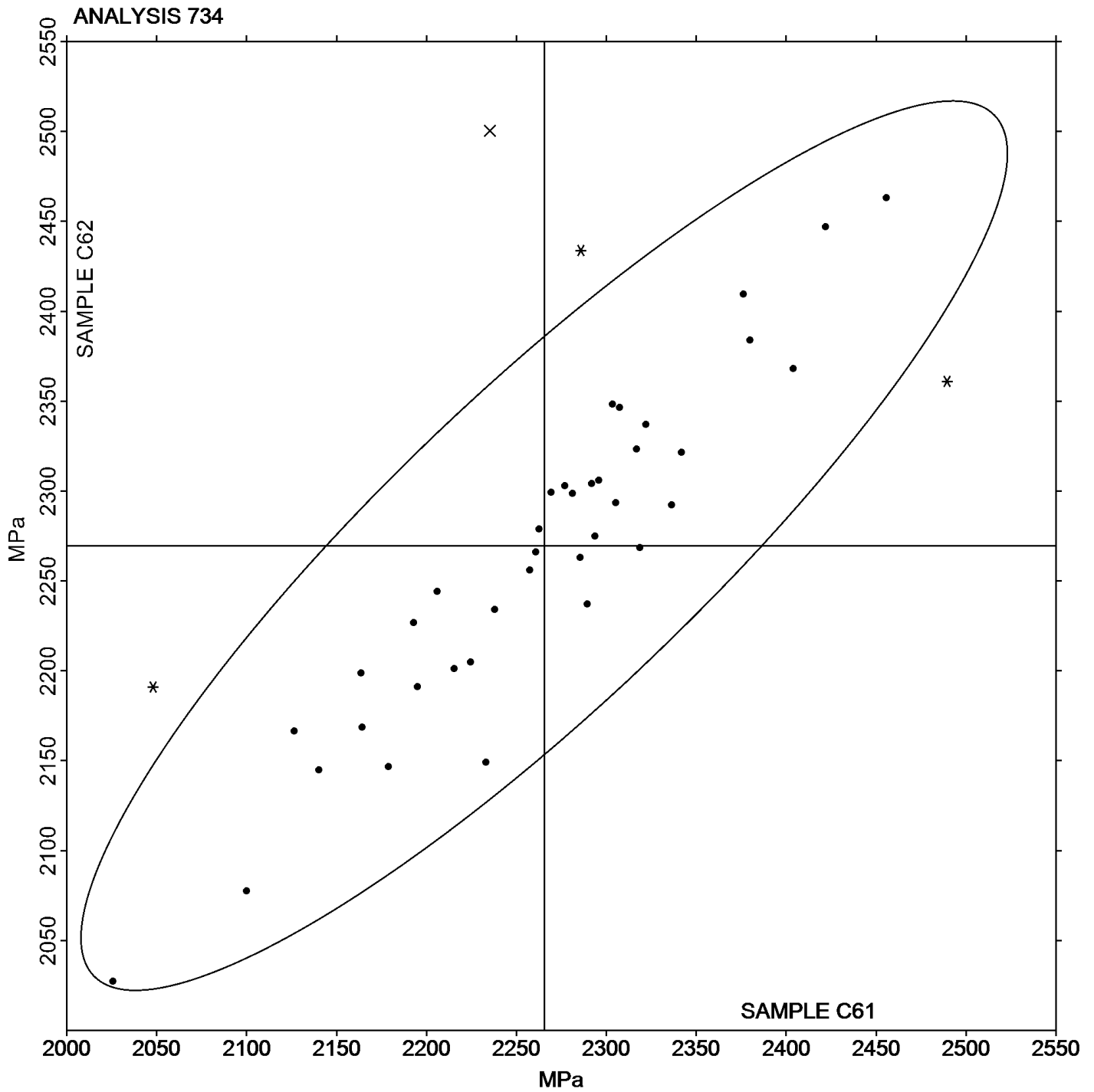
Sample C61: HIPS & Sample C62: HIPS

Comments on Assigned Data Flags for Test #734

- M3FVQB (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
- WDXH22 (X) - Data for sample C62 are high. Inconsistent within the determinations of both samples.
- WZ6YKA (X) - Data for both samples are low. Possible Systematic Error.



Grand Mean Sample C61: 2,265.43 MPa Grand Mean Sample C62: 2,269.63 MPa





Plastics Interlaboratory Testing Program

Report #111

Analysis 736

3rd Qtr 2019

Flexural Modulus - MPa

WebCode	Data Flag	Sample K61			Sample K62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
247QE8		2,187	-22	-0.25	2,189	-24	-0.26
2FG7G7		2,095	-114	-1.32	2,104	-108	-1.20
2VCKL7		2,090	-119	-1.38	2,086	-127	-1.41
3LZVCZ		2,201	-8	-0.09	2,208	-5	-0.05
44Y3BY		2,075	-134	-1.55	2,103	-109	-1.21
48AY7Y		2,148	-61	-0.71	2,154	-59	-0.65
4HE7TM		2,212	3	0.04	2,240	28	0.31
4XJAQY		2,152	-57	-0.66	2,176	-37	-0.41
64YGJN		2,221	12	0.14	2,227	14	0.16
73XCT9		2,230	21	0.24	2,249	36	0.41
7P8K4Y		2,312	103	1.19	2,346	133	1.49
8E3RCJ		2,194	-15	-0.18	2,201	-12	-0.13
8F8X8W		2,158	-51	-0.59	2,148	-64	-0.72
98QMRA		2,156	-53	-0.62	2,154	-58	-0.64
B7M2TZ		2,235	26	0.30	2,207	-5	-0.05
BJQB7D		2,210	1	0.01	2,223	11	0.12
BTVF3Z	X	2,595	387	4.47	2,850	638	7.10
C2HXRR		2,179	-30	-0.35	2,192	-20	-0.23
CJ62QG		2,200	-9	-0.10	2,180	-32	-0.36
DVDGYX		2,171	-38	-0.44	2,166	-46	-0.51
EWXQGX		2,186	-23	-0.26	2,206	-6	-0.07
FLN4HA		2,234	25	0.29	2,239	27	0.30
G8VBWV	*	2,464	255	2.95	2,464	252	2.80
J6EVGK		2,252	43	0.50	2,271	58	0.65
JATDY3		2,281	72	0.83	2,316	104	1.16
JEARTY	X	2,358	150	1.73	2,242	30	0.33
KBBQBG		2,356	147	1.70	2,373	160	1.78
KGRA4J		2,094	-115	-1.33	2,083	-130	-1.44
KKLTWH		2,365	156	1.80	2,368	155	1.73
KULPB6		2,203	-6	-0.07	2,162	-51	-0.56
LJKFNF		2,163	-46	-0.53	2,155	-57	-0.64
M3FVQB		2,174	-35	-0.40	2,191	-21	-0.24
MAED7N		2,099	-110	-1.27	2,140	-72	-0.80
N6RL2C		2,187	-22	-0.26	2,166	-46	-0.52
N97FGD		2,253	44	0.51	2,238	26	0.29



Plastics Interlaboratory Testing Program

Report #111

Analysis 736

3rd Qtr 2019

Flexural Modulus - MPa

WebCode	Data Flag	Sample K61			Sample K62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
ND6TLL		2,184	-25	-0.29	2,177	-36	-0.40
QNPXFR		2,388	179	2.08	2,386	174	1.93
QVQACN		2,292	83	0.96	2,287	74	0.83
R6CTCE		2,235	26	0.30	2,192	-20	-0.22
R78E73	X	2,285	76	0.88	2,419	206	2.30
RV49Z7		2,281	72	0.84	2,321	109	1.21
TH4Q62	*	2,250	42	0.48	2,313	101	1.12
UHFMA7		2,298	89	1.03	2,303	90	1.01
V6FRUD		2,192	-17	-0.19	2,179	-33	-0.37
VPNPHF		2,143	-66	-0.76	2,154	-59	-0.65
VWLL2C		2,239	30	0.35	2,252	39	0.44
WDXH22		2,074	-135	-1.56	2,064	-148	-1.65
WNTKLH	*	2,229	20	0.23	2,173	-39	-0.43
WZ6YKA		2,056	-153	-1.77	2,060	-152	-1.70
XKLPVF		2,353	144	1.67	2,349	136	1.52
XLCZM9		2,199	-10	-0.11	2,161	-52	-0.58
XUH79B		2,045	-164	-1.90	2,042	-170	-1.89
Y742HB		2,318	109	1.27	2,318	106	1.18
Z7KGT3		2,204	-5	-0.06	2,215	3	0.03
ZVVUDV		2,204	-5	-0.05	2,219	6	0.07
ZWXFCT		2,152	-56	-0.65	2,163	-49	-0.54

Summary Statistics		
	Sample K61	Sample K62
Grand Means	2,208.9 MPa	2,212.3 MPa
Stnd Dev Btwn Labs	86.4 MPa	89.9 MPa
Statistics based on 53 of 56 reporting participants		

Sample K61: ABS/PC & Sample K62: ABS/PC

Comments on Assigned Data Flags for Test #736

- BTVF3Z (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.
- JEARTY (X) - Inconsistent in testing between samples.
- R78E73 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.



Plastics Interlaboratory Testing Program

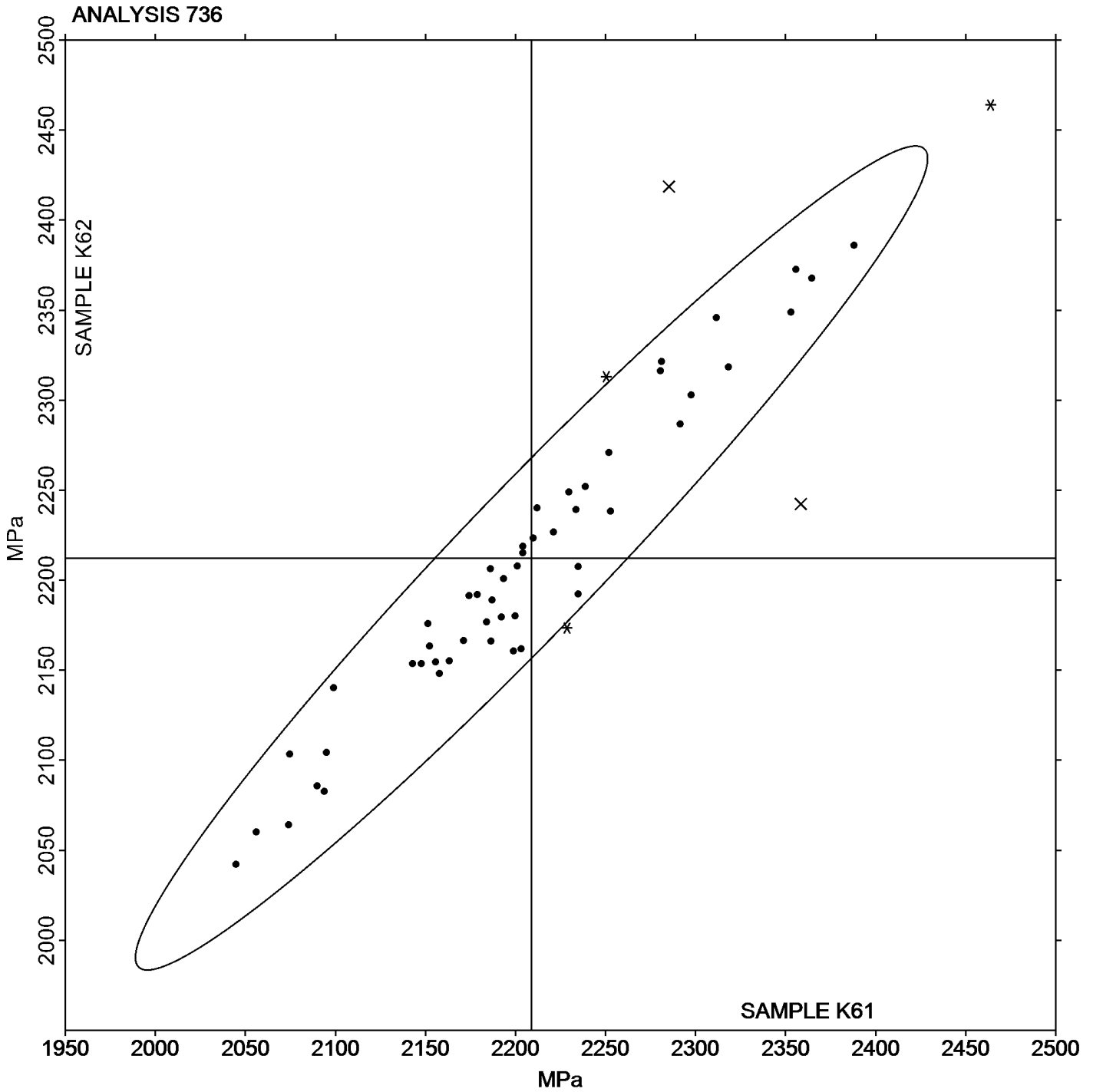
Analysis 736

Flexural Modulus - MPa

Report #111

3rd Qtr 2019

Grand Mean Sample K61: 2,208.88 MPa Grand Mean Sample K62: 2,212.34 MPa





Plastics Interlaboratory Testing Program

Report #111

Analysis 737

3rd Qtr 2019

Flexural Stress at 3.5% Strain - MPa

WebCode	Data Flag	Sample K61			Sample K62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
247QE8		65.78	-1.79	-0.94	65.75	-2.12	-1.06
2FG7G7		66.68	-0.88	-0.46	67.21	-0.66	-0.33
2VCKL7		66.34	-1.22	-0.64	66.56	-1.30	-0.65
3LZVCZ		67.60	0.03	0.02	67.96	0.10	0.05
44Y3BY		64.48	-3.08	-1.62	65.64	-2.23	-1.12
48AY7Y		66.20	-1.37	-0.72	66.77	-1.10	-0.55
4HE7TM		67.27	-0.29	-0.15	67.32	-0.54	-0.27
4XJAQY		69.57	2.00	1.05	70.73	2.86	1.44
64YGJN		66.86	-0.70	-0.37	67.42	-0.44	-0.22
73XCT9		66.84	-0.72	-0.38	67.68	-0.18	-0.09
7P8K4Y	*	71.93	4.36	2.30	73.00	5.13	2.58
8E3RCJ		68.75	1.19	0.63	68.50	0.64	0.32
8F8X8W		66.69	-0.87	-0.46	66.72	-1.14	-0.57
98QMRA		65.96	-1.60	-0.84	66.01	-1.86	-0.93
BJQB7D		67.20	-0.36	-0.19	68.34	0.48	0.24
CJ62QG		68.91	1.35	0.71	68.76	0.89	0.45
DVDGYX		66.06	-1.51	-0.79	65.94	-1.93	-0.97
EWXQGX		63.72	-3.84	-2.02	64.86	-3.00	-1.51
G8VBWV		70.26	2.70	1.42	70.24	2.38	1.19
J6EVGK		67.69	0.13	0.07	68.78	0.91	0.46
JATDY3		68.08	0.52	0.27	69.36	1.50	0.75
JEARTY	X	77.72	10.16	5.35	75.24	7.38	3.70
KBBQBG		71.37	3.81	2.01	71.71	3.84	1.93
KGRA4J	X	1.01	-66.56	-35.05	1.02	-66.85	-33.54
KKLTWH		71.59	4.02	2.12	71.86	3.99	2.00
LJKFNF		65.49	-2.07	-1.09	65.47	-2.39	-1.20
M3FVQB		65.80	-1.77	-0.93	66.15	-1.71	-0.86
MAED7N		66.40	-1.16	-0.61	67.31	-0.55	-0.28
N97FGD		68.34	0.78	0.41	67.77	-0.10	-0.05
ND6TLL		64.46	-3.10	-1.63	64.16	-3.70	-1.86
QVQACN		68.76	1.20	0.63	69.22	1.36	0.68
R6CTCE		67.16	-0.40	-0.21	66.11	-1.76	-0.88
RV49Z7		68.32	0.76	0.40	69.60	1.73	0.87
UHFMA7		68.62	1.06	0.56	68.60	0.74	0.37
VPNPHF		67.49	-0.07	-0.04	67.31	-0.55	-0.28



Plastics Interlaboratory Testing Program

Report #111

Analysis 737

3rd Qtr 2019

Flexural Stress at 3.5% Strain - MPa

WebCode	Data Flag	Sample K61			Sample K62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
VWLL2C		68.13	0.57	0.30	68.14	0.28	0.14
WDXH22		65.78	-1.78	-0.94	65.52	-2.35	-1.18
WZ6YKA	X	50.22	-17.34	-9.13	56.26	-11.60	-5.82
XKLPVF		69.93	2.37	1.25	69.99	2.12	1.06
XUH79B		66.21	-1.35	-0.71	65.95	-1.91	-0.96
Y742HB		68.90	1.33	0.70	69.65	1.78	0.89
Z7KGT3		67.19	-0.37	-0.20	67.18	-0.68	-0.34
ZNJQB3		70.02	2.46	1.29	69.76	1.90	0.95
ZVVUDV		67.27	-0.29	-0.15	67.47	-0.40	-0.20

Summary Statistics

	Sample K61	Sample K62
Grand Means	67.564 MPa	67.865 MPa
Stnd Dev Btwn Labs	1.899 MPa	1.993 MPa

Statistics based on 41 of 44 reporting participants

Sample K61: ABS/PC & Sample K62: ABS/PC

Comments on Assigned Data Flags for Test #737

- KGRA4J (X) - Extreme data.
- JEARTY (X) - Data for both samples are high. Possible Systematic Error.
- WZ6YKA (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of both samples.



Plastics Interlaboratory Testing Program

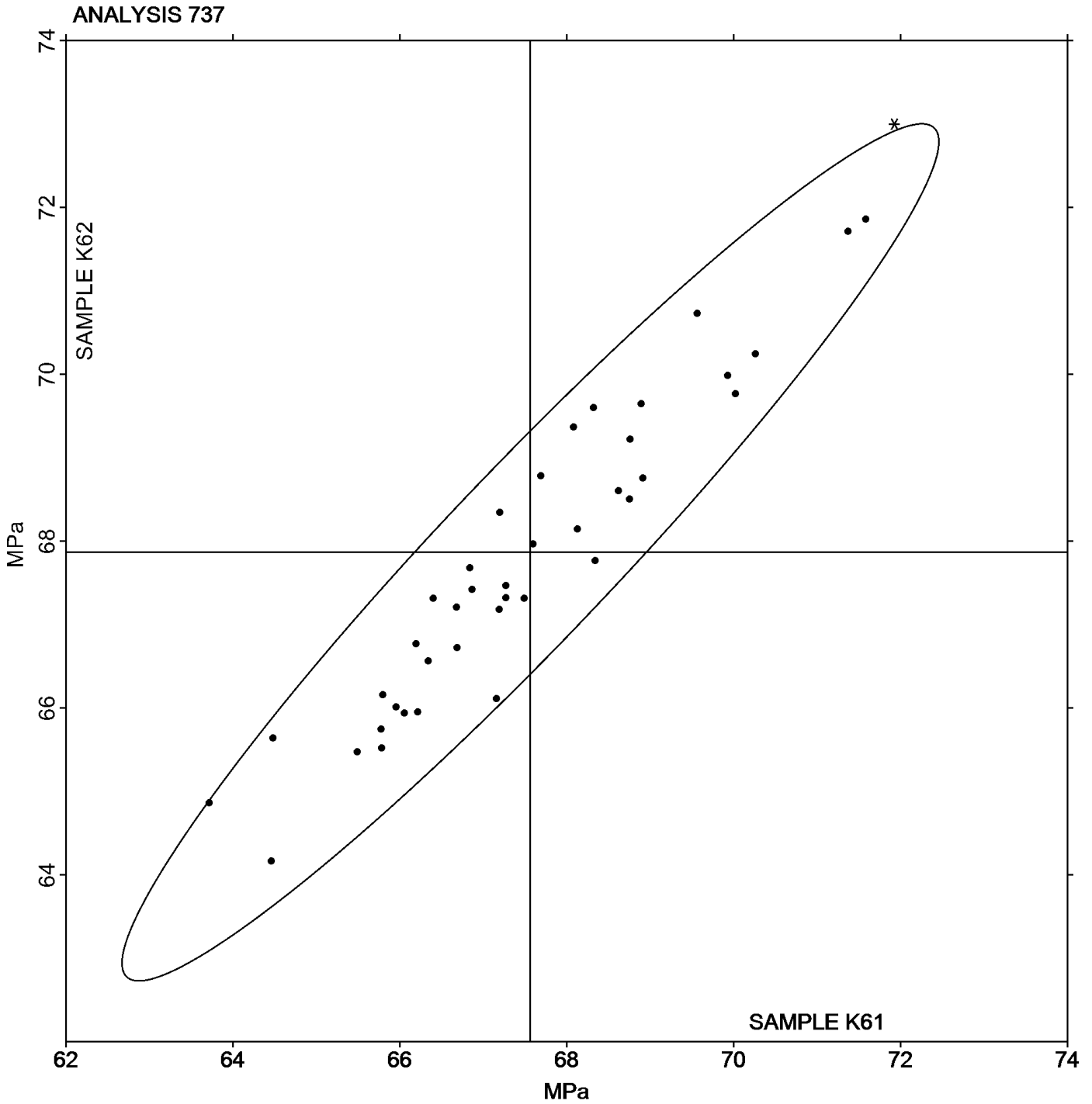
Analysis 737

Flexural Stress at 3.5% Strain - MPa

Report #111

3rd Qtr 2019

Grand Mean Sample K61: 67.564 MPa Grand Mean Sample K62: 67.865 MPa





Plastics Interlaboratory Testing Program

Report #111

Analysis 738

3rd Qtr 2019

Flexural Stress at Yield - MPa

WebCode	Data Flag	Sample K61			Sample K62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
247QE8		75.32	-2.38	-1.27	75.56	-2.16	-1.10
2FG7G7		80.55	2.84	1.52	81.59	3.86	1.97
2VCKL7		76.73	-0.97	-0.52	76.76	-0.97	-0.49
3LZVCZ		79.73	2.02	1.08	78.12	0.40	0.21
48AY7Y		76.17	-1.53	-0.82	76.34	-1.38	-0.70
4HE7TM		78.06	0.35	0.19	77.54	-0.18	-0.09
64YGJN		76.09	-1.62	-0.86	76.90	-0.83	-0.42
73XCT9		75.42	-2.29	-1.22	76.31	-1.41	-0.72
7P8K4Y	X	86.43	8.72	4.66	86.81	9.08	4.63
8F8X8W		77.60	-0.10	-0.06	77.10	-0.62	-0.32
98QMRA		78.71	1.00	0.54	79.88	2.16	1.10
B7M2TZ		75.56	-2.14	-1.15	74.90	-2.82	-1.44
CJ62QG		78.74	1.03	0.55	78.93	1.21	0.62
EWXQGX	*	72.06	-5.64	-3.02	72.96	-4.76	-2.43
G8VBWV		79.43	1.73	0.92	79.39	1.66	0.85
J6EVGK		78.94	1.24	0.66	80.22	2.49	1.27
JATDY3		79.05	1.35	0.72	80.08	2.36	1.20
JEARTY	*	77.72	0.02	0.01	75.24	-2.48	-1.27
KGRA4J		76.48	-1.23	-0.66	77.16	-0.56	-0.29
KULPB6		78.32	0.62	0.33	77.20	-0.52	-0.27
LJKFNF		76.69	-1.01	-0.54	77.68	-0.05	-0.02
M3FVQB		76.87	-0.84	-0.45	77.29	-0.43	-0.22
MAED7N		75.28	-2.43	-1.30	76.33	-1.39	-0.71
N97FGD		78.52	0.82	0.44	78.03	0.31	0.16
ND6TLL		75.42	-2.28	-1.22	74.62	-3.10	-1.58
QNPXFR		79.27	1.56	0.84	79.47	1.75	0.89
QVQACN		78.92	1.22	0.65	79.36	1.64	0.84
RV49Z7		78.64	0.94	0.50	79.16	1.44	0.73
TH4Q62		81.94	4.24	2.27	82.40	4.68	2.39
UHFMA7		78.74	1.04	0.55	78.48	0.76	0.39
WDXH22		76.86	-0.85	-0.45	76.52	-1.20	-0.61
WNTKLH		78.10	0.40	0.21	76.67	-1.05	-0.54
XLCZM9		79.44	1.74	0.93	78.06	0.34	0.17
XUH79B	X	30.16	-47.54	-25.42	29.92	-47.81	-24.39
Y742HB		79.03	1.33	0.71	79.09	1.37	0.70



Plastics Interlaboratory Testing Program

Report #111

Analysis 738

3rd Qtr 2019

Flexural Stress at Yield - MPa

WebCode	Data Flag	<u>Sample K61</u>			<u>Sample K62</u>		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
Z7KGT3		77.41	-0.29	-0.16	77.30	-0.42	-0.22
ZVVUDV		77.83	0.13	0.07	77.66	-0.07	-0.03

Summary Statistics		<u>Sample K61</u>	<u>Sample K62</u>
Grand Means		77.704 MPa	77.722 MPa
Std Dev Btwn Labs		1.870 MPa	1.960 MPa
Statistics based on 35 of 37 reporting participants			

Sample K61: ABS/PC & Sample K62: ABS/PC

Comments on Assigned Data Flags for Test #738

7P8K4Y (X) - Data for both samples are high. Possible Systematic Error.

XUH79B (X) - Extreme data.



Plastics Interlaboratory Testing Program

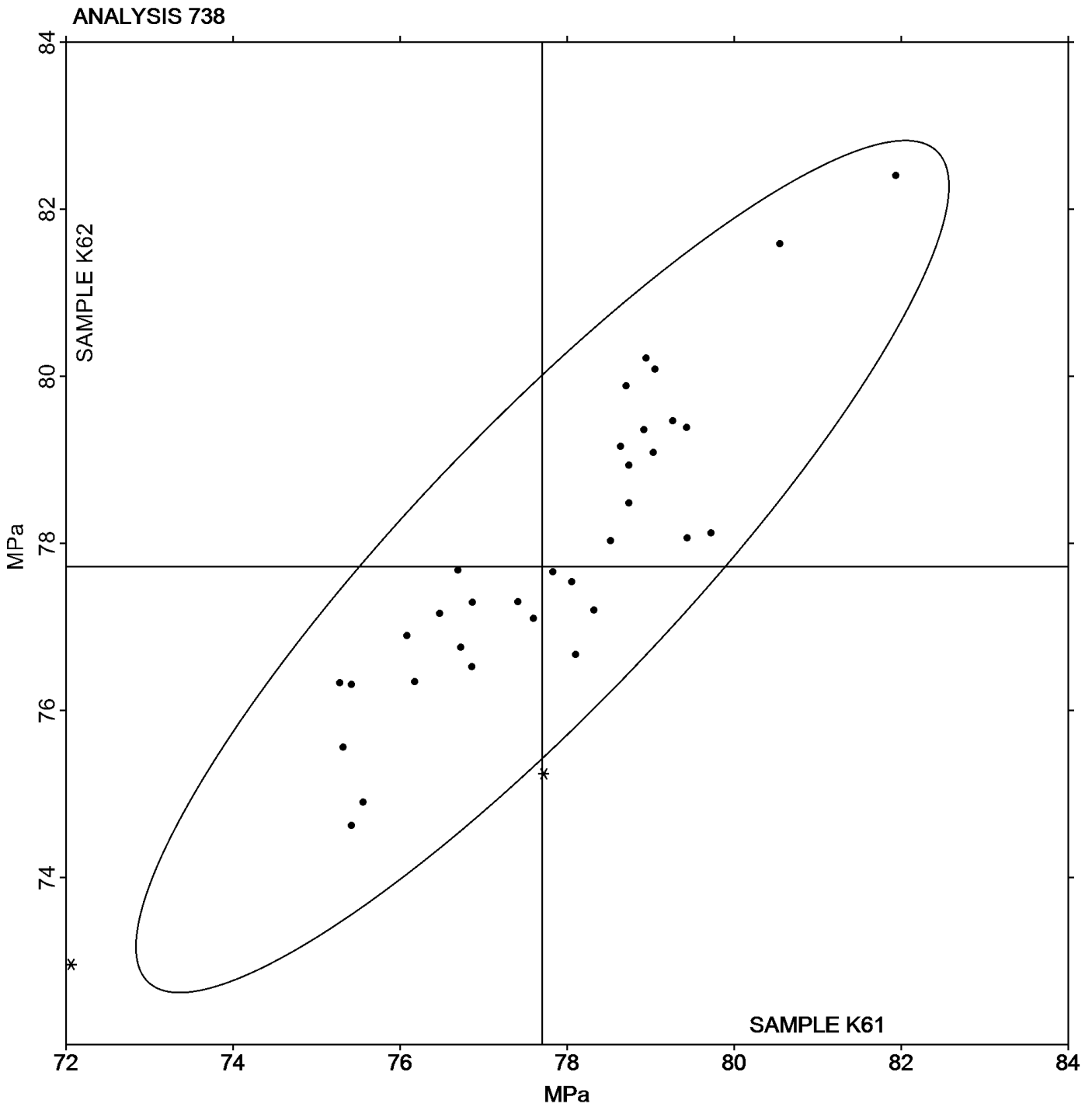
Analysis 738

Flexural Stress at Yield - MPa

Report #111

3rd Qtr 2019

Grand Mean Sample K61: 77.704 MPa Grand Mean Sample K62: 77.722 MPa





Plastics Interlaboratory Testing Program

Report #111

Analysis 750

3rd Qtr 2019

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

WebCode	Data Flag	Sample X61			Sample X62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
247QE8		20.75	-0.30	-0.39	20.30	-0.62	-0.77	TO
2VCKL7		21.51	0.46	0.60	21.99	1.07	1.34	DY
3FVRPM		21.00	-0.05	-0.06	20.35	-0.57	-0.71	TO
3LZVCZ		20.70	-0.35	-0.46	20.65	-0.27	-0.33	TO
3M9ZRA	X	20.70	-0.35	-0.46	15.74	-5.18	-6.45	WZ
3QKE4U		21.66	0.61	0.80	21.31	0.40	0.49	AT
3VBXXZ	X	48.00	26.95	35.32	51.50	30.58	38.09	TO
48AY7Y		20.19	-0.86	-1.12	20.76	-0.16	-0.20	CE
4XJAQY		20.95	-0.10	-0.13	20.95	0.03	0.04	TO
63RYKR		21.30	0.25	0.33	21.40	0.48	0.60	DY
672FCW		22.40	1.35	1.77	21.95	1.03	1.29	TO
6JG3BU		20.85	-0.20	-0.26	20.90	-0.02	-0.02	TO
6NE6GH		21.65	0.60	0.79	21.55	0.63	0.79	TO
73XCT9		20.65	-0.40	-0.52	20.90	-0.02	-0.02	DY
7LXTRP		20.52	-0.53	-0.70	20.48	-0.44	-0.54	CE
7P8K4Y		21.71	0.66	0.87	21.47	0.56	0.69	TO
8B4B2A		22.37	1.32	1.73	22.45	1.53	1.90	TO
8BRGLA		19.81	-1.24	-1.62	19.84	-1.08	-1.34	TO
8C3C92		21.00	-0.05	-0.06	20.70	-0.22	-0.27	KA
8E3RCJ		21.05	0.00	0.00	21.47	0.55	0.69	KA
8F8X8W		20.41	-0.64	-0.84	19.90	-1.02	-1.27	WZ
8TMA89	X	18.00	-3.05	-3.99	21.75	0.83	1.04	TO
8WFXCT		20.84	-0.21	-0.28	20.39	-0.53	-0.66	TO
93PPQL		20.45	-0.60	-0.78	20.10	-0.82	-1.02	WZ
98QMRA		21.70	0.65	0.86	22.00	1.08	1.35	TO
99GYZJ		21.36	0.31	0.41	21.21	0.29	0.36	TO
APDWH6		21.65	0.60	0.79	21.70	0.78	0.98	TO
B7M2TZ		21.28	0.23	0.30	21.15	0.23	0.28	TO
BJQB7D		20.00	-1.05	-1.37	19.35	-1.57	-1.95	WZ
BPK23K		19.60	-1.45	-1.90	19.25	-1.67	-2.08	XX
BTUTFU		21.70	0.65	0.85	21.09	0.17	0.22	TO
BTVF3Z		20.40	-0.65	-0.85	19.86	-1.06	-1.32	TO
CJ62QG		21.19	0.14	0.18	20.70	-0.22	-0.28	GO
D3ZY2K		20.91	-0.14	-0.19	20.81	-0.11	-0.13	TO
DQMY6R		22.41	1.37	1.79	21.95	1.03	1.29	TO



Plastics Interlaboratory Testing Program

Report #111

Analysis 750

3rd Qtr 2019

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

WebCode	Data Flag	Sample X61			Sample X62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
DVDGYX		20.35	-0.70	-0.92	20.06	-0.86	-1.07	TO
DW6F76		21.45	0.40	0.53	21.25	0.33	0.42	TO
EH2BJP	*	20.30	-0.75	-0.98	21.55	0.63	0.79	TO
EWXQGX		20.67	-0.38	-0.50	20.09	-0.83	-1.04	TO
F3KVTY		21.05	0.00	0.00	21.05	0.13	0.17	CE
FYBGUJ		22.47	1.42	1.86	21.78	0.86	1.08	DY
G8UB3M		19.95	-1.10	-1.44	20.00	-0.92	-1.14	DY
GANVCC	*	20.28	-0.77	-1.01	21.54	0.62	0.78	TM
GQ3MJC		21.25	0.20	0.27	21.50	0.58	0.73	TO
H9R3UY		22.61	1.56	2.04	22.11	1.19	1.49	RR
JA6LKM	X	20.70	-0.35	-0.46	25.75	4.83	6.02	TO
JATDY3	*	22.14	1.09	1.43	20.88	-0.04	-0.05	AT
JB49KU	X	14.95	-6.10	-7.99	15.16	-5.76	-7.17	TO
JCT87J		19.64	-1.41	-1.84	19.61	-1.30	-1.62	XX
JEARTY		21.65	0.60	0.79	22.20	1.28	1.60	TO
JF2PXX		20.80	-0.25	-0.32	21.50	0.58	0.73	DY
JUX4XG		20.20	-0.84	-1.11	20.01	-0.91	-1.13	XX
JVK7GN		20.65	-0.40	-0.52	20.55	-0.37	-0.46	TO
KBBQBG		21.89	0.84	1.10	21.91	0.99	1.24	DY
KDHV46		19.75	-1.30	-1.70	19.25	-1.67	-2.08	WZ
KGRA4J	X	19.30	-1.75	-2.29	20.70	-0.22	-0.27	TO
KKLTWH		21.92	0.87	1.14	22.00	1.08	1.35	DY
KYMUUC		21.69	0.65	0.85	21.35	0.44	0.54	KA
LBGNMZ		20.30	-0.75	-0.98	20.10	-0.82	-1.02	XX
LWW7RB		20.55	-0.50	-0.65	20.35	-0.57	-0.71	DY
M3FVQB	*	21.25	0.20	0.27	19.75	-1.17	-1.45	TO
MAED7N		21.05	0.00	0.00	20.77	-0.15	-0.18	DY
MKJ7X3		20.60	-0.45	-0.59	20.45	-0.47	-0.58	TO
MUNBMY		20.75	-0.30	-0.39	20.40	-0.52	-0.64	GO
N6RL2C		21.30	0.25	0.33	21.60	0.68	0.85	TO
NXEJ6B		20.74	-0.30	-0.40	20.51	-0.41	-0.51	DY
PCQGNG	*	20.67	-0.38	-0.49	19.19	-1.73	-2.16	TO
QVQACN		20.20	-0.84	-1.11	20.01	-0.90	-1.12	GO
QZ7GH8		21.55	0.50	0.65	21.41	0.50	0.62	DY
R23CKA		20.98	-0.07	-0.09	21.11	0.19	0.23	TO



Plastics Interlaboratory Testing Program

Report #111

Analysis 750

3rd Qtr 2019

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

WebCode	Data Flag	Sample X61			Sample X62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
R6CTCE	*	19.00	-2.05	-2.68	19.56	-1.36	-1.69	WZ
RNCML4		21.08	0.03	0.04	20.98	0.06	0.08	DY
RU9MD7		20.65	-0.40	-0.52	21.15	0.23	0.29	TO
RV49Z7		21.03	-0.02	-0.03	20.65	-0.27	-0.33	TY
T3ZHQV		21.30	0.25	0.33	21.45	0.53	0.66	TO
TH4Q62		21.50	0.45	0.59	21.65	0.73	0.91	GO
TLKXM9		22.49	1.44	1.89	22.40	1.48	1.85	DY
U94N4C		21.50	0.45	0.59	22.25	1.33	1.66	CE
UNX4CJ		20.15	-0.90	-1.18	20.40	-0.52	-0.64	TO
V6FRUD	*	23.15	2.10	2.76	22.20	1.28	1.60	TO
VPNPHF		21.05	0.00	0.00	20.75	-0.17	-0.21	TO
W3G2R3		22.30	1.25	1.64	21.70	0.78	0.98	XX
W9NT78		21.17	0.12	0.16	20.58	-0.34	-0.43	TO
WC2XE2		21.60	0.55	0.72	21.60	0.68	0.85	TO
WNTKLH	X	23.63	2.58	3.38	20.93	0.01	0.02	TO
X9L9XX		21.35	0.30	0.40	21.05	0.13	0.17	DY
XG7ZR7		20.33	-0.72	-0.94	20.38	-0.54	-0.67	CE
XKLPVF		21.48	0.43	0.56	21.81	0.89	1.11	DY
XLCZM9		20.70	-0.35	-0.46	20.70	-0.22	-0.27	TO
Z8PB3W		21.09	0.04	0.06	21.03	0.11	0.14	TO
ZHTKB8		21.00	-0.05	-0.06	20.60	-0.32	-0.39	TO
ZVVUDV		20.55	-0.50	-0.65	20.35	-0.57	-0.71	TO

Summary Statistics

	Sample X61	Sample X62
Grand Means	21.047 grams/10 mins	20.917 grams/10 mins
Std Dev Btwn Labs	0.763 grams/10 mins	0.803 grams/10 mins

Statistics based on 85 of 92 reporting participants

Sample X61: LDPE & Sample X62: LDPE



Plastics Interlaboratory Testing Program

Analysis 750

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

Report #111

3rd Qtr 2019

Comments on Assigned Data Flags for Test #750

- KGRA4J (X) - Inconsistent in testing between samples.
- JB49KU (X) - Data for both samples are low. Possible Systematic Error.
- 3VBXXZ (X) - Extreme data.
- 8TMA89 (X) - Data for sample X61 are low.
- 3M9ZRA (X) - Data for sample X62 are low.
- JA6LKM (X) - Data for sample X62 are high. Inconsistent within the determinations of sample X61.
- WNTKLH (X) - Data for sample X61 are high. Inconsistent within the determinations of sample X62.

Key to Instrument Codes Reported by Participants

AT	Atlas	CE	Ceast
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

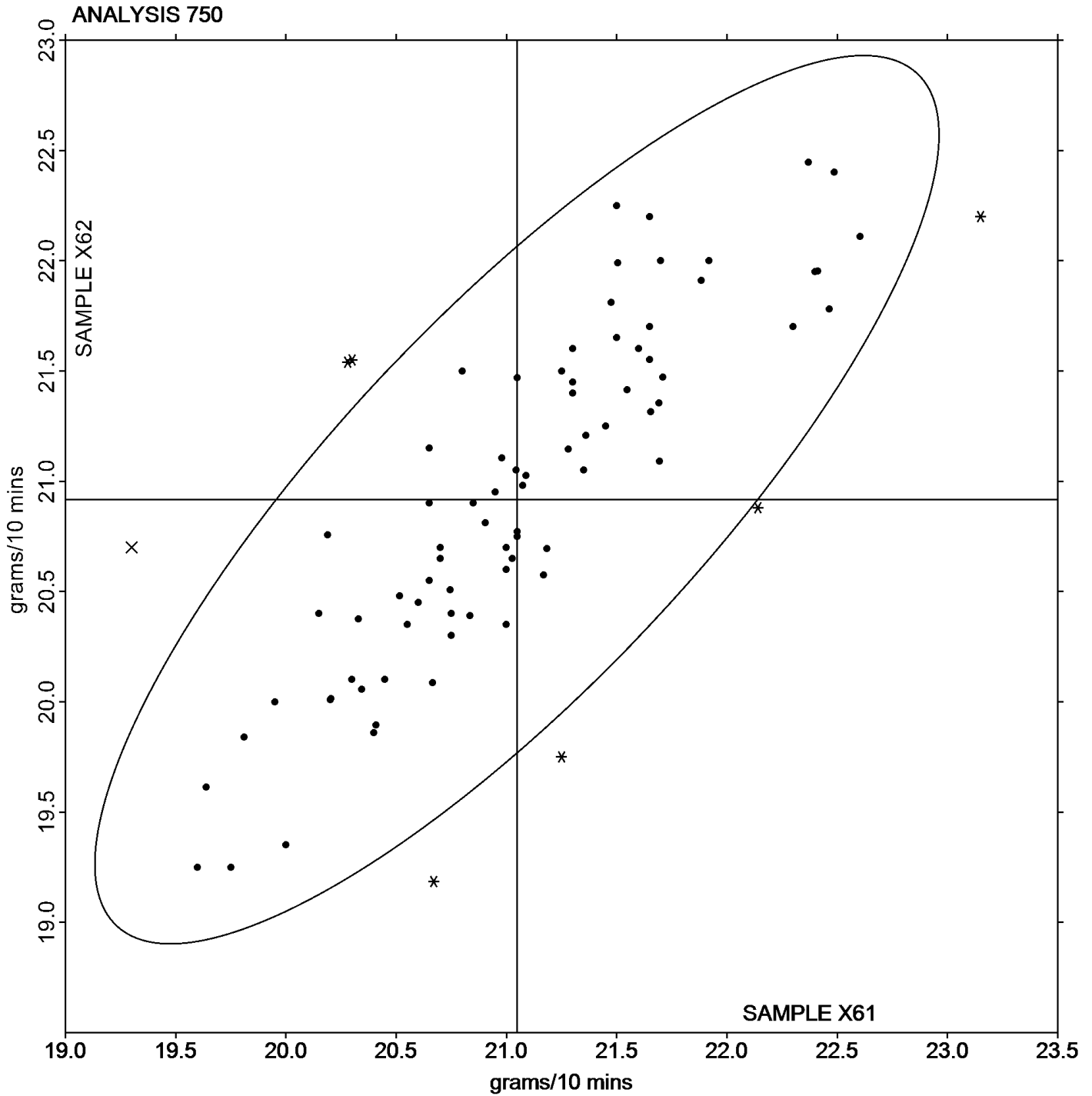
Analysis 750

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

Report #111

3rd Qtr 2019

Grand Mean Sample X61: 21.047 grams/10 mins Grand Mean Sample X62: 20.917 grams/10 mins





Plastics Interlaboratory Testing Program

Report #111

Analysis 755

3rd Qtr 2019

Moisture Content of Plastics

WebCode	Data Flag	Sample Y61			Sample Y62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
247QE8	*	0.06933	0.03862	3.10	0.06700	0.03733	2.86	SA
2FG7G7		0.03600	0.00529	0.42	0.03433	0.00467	0.36	CT
3NE7L2		0.02467	-0.00604	-0.48	0.02200	-0.00767	-0.59	ML
43BKJA		0.05930	0.02859	2.29	0.06230	0.03263	2.50	MT
63RYKR		0.03000	-0.00071	-0.06	0.03667	0.00700	0.54	MU
662PW2		0.05200	0.02129	1.71	0.05500	0.02533	1.94	SB
6NE6GH		0.05100	0.02029	1.63	0.04933	0.01967	1.51	ML
7LXTRP		0.02167	-0.00904	-0.73	0.02167	-0.00800	-0.61	MU
8ZPCC9		0.03762	0.00691	0.55	0.03906	0.00939	0.72	AZ
ARURTN		0.03033	-0.00038	-0.03	0.02833	-0.00133	-0.10	MU
BTVF3Z		0.02027	-0.01044	-0.84	0.01940	-0.01027	-0.79	AZ
DVDGYX		0.03923	0.00852	0.68	0.03630	0.00663	0.51	MS
EH2BJP		0.03500	0.00429	0.34	0.03650	0.00683	0.52	BA
ETYELX		0.02376	-0.00695	-0.56	0.02566	-0.00401	-0.31	MU
EWXQGX		0.04250	0.01179	0.95	0.04150	0.01183	0.91	AZ
FLN4HA		0.02533	-0.00538	-0.43	0.02367	-0.00600	-0.46	MK
FYBGUJ		0.02700	-0.00371	-0.30	0.02600	-0.00367	-0.28	MB
G8UB3M		0.02267	-0.00804	-0.65	0.02367	-0.00600	-0.46	MJ
KBBQBG		0.04100	0.01029	0.83	0.04100	0.01133	0.87	CT
LWW7RB		0.02640	-0.00431	-0.35	0.01740	-0.01227	-0.94	AZ
MKJ7X3		0.02967	-0.00104	-0.08	0.03000	0.00033	0.03	AZ
N3LEJJ		0.02437	-0.00634	-0.51	0.02313	-0.00653	-0.50	AZ
N6RL2C		0.03293	0.00222	0.18	0.03233	0.00267	0.20	AZ
P8M2H3		0.02867	-0.00204	-0.16	0.02600	-0.00367	-0.28	MK
PBDU73		0.03300	0.00229	0.18	0.03000	0.00033	0.03	SB
PCQGNG		0.02990	-0.00081	-0.06	0.02353	-0.00613	-0.47	AZ
R6H2NJ		0.02340	-0.00731	-0.59	0.02287	-0.00680	-0.52	ML
TAPRN4		0.02707	-0.00364	-0.29	0.02547	-0.00420	-0.32	CS
VABGGC	*	0.00233	-0.02838	-2.28	0.00500	-0.02467	-1.89	AZ
VPFCHX	X	0.06500	0.03429	2.75	0.05000	0.02033	1.56	SA
VPNPHF	*	0.02233	-0.00838	-0.67	0.01300	-0.01667	-1.28	ML
W3G2R3		0.01500	-0.01571	-1.26	0.01700	-0.01267	-0.97	XX
W9NT78		0.02050	-0.01021	-0.82	0.01650	-0.01317	-1.01	XX
WC2XE2		0.03100	0.00029	0.02	0.02500	-0.00467	-0.36	CT
WJC7RL		0.01773	-0.01298	-1.04	0.01720	-0.01247	-0.96	MD



Plastics Interlaboratory Testing Program

Report #111

Analysis 755

3rd Qtr 2019

Moisture Content of Plastics

WebCode	Data Flag	<u>Sample Y61</u>			<u>Sample Y62</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
X3UMHW		0.02127	-0.00944	-0.76	0.02133	-0.00833	-0.64	AZ
X9L9XX		0.03167	0.00096	0.08	0.03233	0.00267	0.20	AZ
XKLPVF		0.03030	-0.00041	-0.03	0.03020	0.00053	0.04	AZ

Summary Statistics

	<u>Sample Y61</u>	<u>Sample Y62</u>
Grand Means	0.030709 Percent	0.029667 Percent
Std Dev Btwn Labs	0.012468 Percent	0.013045 Percent
Statistics based on 37 of 38 reporting participants		

Sample Y61: HIPS & Sample Y62: HIPS

Comments on Assigned Data Flags for Test #755

VPFCHX (X) - Data for sample Y61 are high.

Key to Instrument Codes Reported by Participants

AZ Arizona Instruments Moisture Analyzer	BA Brabender Aquatrac
CS Cosa Instruments	CT Computrac Moisture Analyzer
MB Omnimark Mark 3	MD Mettler Toledo DL37
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	SB Sartorius Mark 3
XX Instrument manufacturer not specified by lab	



Plastics Interlaboratory Testing Program

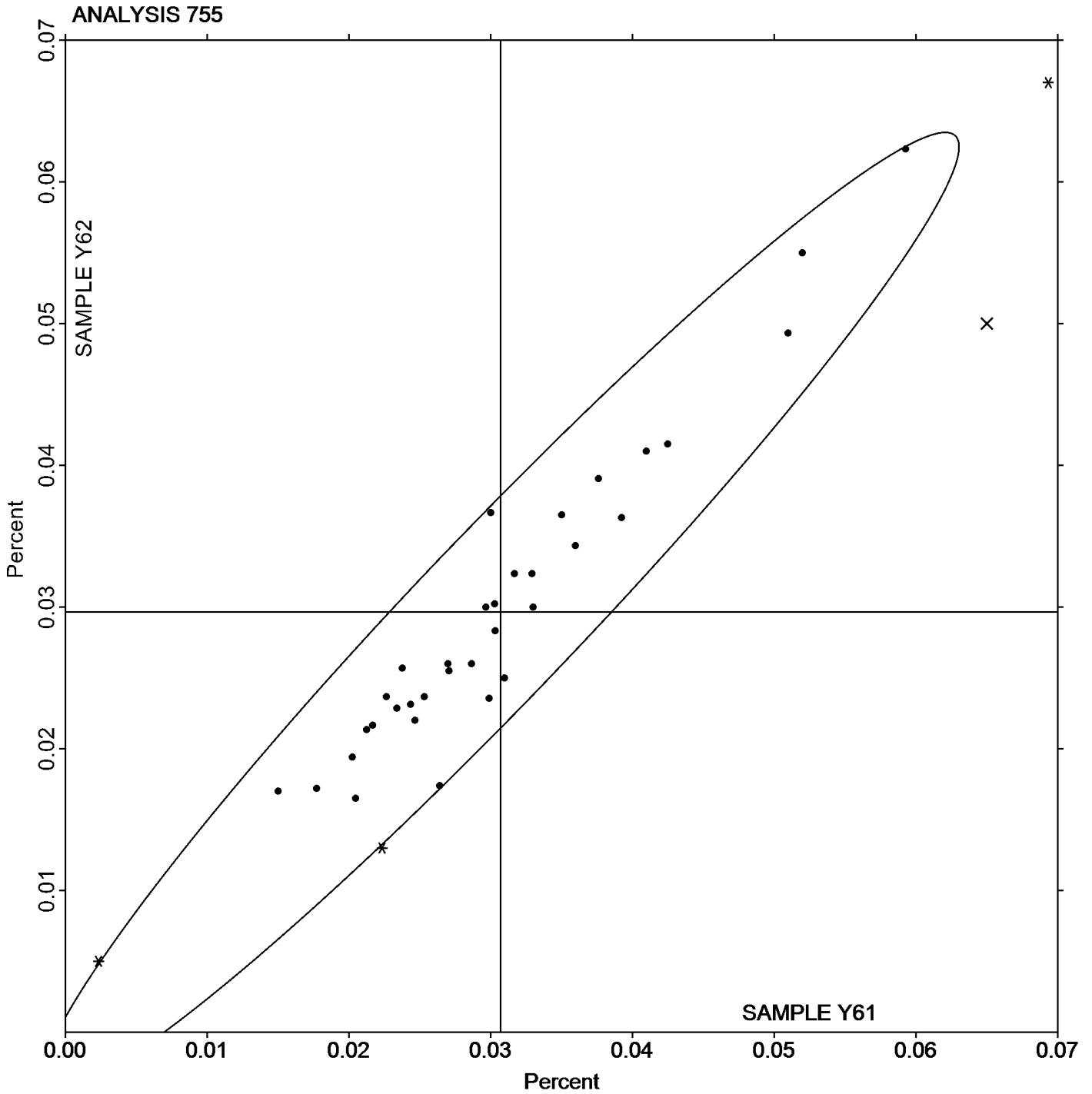
Analysis 755

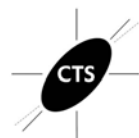
Moisture Content of Plastics

Report #111

3rd Qtr 2019

Grand Mean Sample Y61: 0.03071 Percent Grand Mean Sample Y62: 0.02967 Percent





Plastics Interlaboratory Testing Program

Report #111

Analysis 757

3rd Qtr 2019

Ash Content in Thermoplastics - Percent

WebCode	Data Flag	Sample L61			Sample L62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
247QE8		19.785	0.050	0.61	19.790	0.045	0.57
2FG7G7		19.790	0.055	0.67	19.760	0.015	0.19
2VCKL7		19.615	-0.120	-1.48	19.615	-0.130	-1.67
3LZVCZ		19.763	0.027	0.33	19.794	0.048	0.62
43BKJA		19.795	0.060	0.73	19.790	0.045	0.57
48AY7Y		19.765	0.030	0.36	19.770	0.025	0.32
63RYKR		19.805	0.070	0.85	19.745	0.000	-0.01
64YGJN		19.605	-0.130	-1.60	19.675	-0.070	-0.90
662PW2		19.620	-0.115	-1.42	19.625	-0.120	-1.54
6DRP4E		19.738	0.002	0.02	19.729	-0.017	-0.22
6NE6GH		19.800	0.065	0.79	19.795	0.050	0.64
73XCT9		19.725	-0.010	-0.13	19.780	0.035	0.44
7LXTRP		19.771	0.035	0.44	19.797	0.051	0.66
7P8K4Y		19.695	-0.040	-0.50	19.700	-0.045	-0.58
8C3C92		19.785	0.050	0.61	19.805	0.060	0.76
8E3RCJ		19.830	0.095	1.16	19.825	0.080	1.02
99GYZJ		19.710	-0.026	-0.32	19.796	0.051	0.65
BJQB7D		19.825	0.090	1.10	19.825	0.080	1.02
BPK23K		19.720	-0.015	-0.19	19.845	0.100	1.28
BTVF3Z		19.725	-0.010	-0.13	19.685	-0.060	-0.77
C2HXRR		19.785	0.050	0.61	19.775	0.030	0.38
CJ62QG		19.765	0.030	0.36	19.780	0.035	0.44
EWXQGX		19.706	-0.029	-0.36	19.670	-0.075	-0.97
FYBGUJ		19.800	0.065	0.79	19.815	0.070	0.89
G8UB3M	*	19.540	-0.195	-2.40	19.540	-0.205	-2.63
JA6LKM	*	19.685	-0.050	-0.62	19.850	0.105	1.34
JUX4XG		19.639	-0.097	-1.19	19.618	-0.127	-1.63
JVK7GN	*	19.500	-0.235	-2.89	19.550	-0.195	-2.51
JWC6QF		19.758	0.023	0.28	19.732	-0.014	-0.18
KBBQBG		19.805	0.070	0.85	19.730	-0.015	-0.20
KDHV46		19.775	0.039	0.48	19.772	0.026	0.34
KKLTWH		19.690	-0.045	-0.56	19.750	0.005	0.06
L3LJVK		19.755	0.020	0.24	19.770	0.025	0.32
LBGNMZ		19.665	-0.070	-0.87	19.700	-0.045	-0.58
N6RL2C	*	19.905	0.170	2.08	19.790	0.045	0.57



Plastics Interlaboratory Testing Program

Report #111

Analysis 757

3rd Qtr 2019

Ash Content in Thermoplastics - Percent

WebCode	Data Flag	Sample L61			Sample L62		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
NHPYRW		19.775	0.040	0.49	19.755	0.010	0.12
P8M2H3		19.760	0.025	0.30	19.740	-0.005	-0.07
PKH4CR		19.760	0.025	0.30	19.840	0.095	1.21
QVQACN		19.555	-0.180	-2.22	19.585	-0.160	-2.06
R6CTCE		19.800	0.065	0.79	19.745	0.000	-0.01
RU9MD7		19.605	-0.130	-1.60	19.580	-0.165	-2.12
TER8NF	*	19.680	-0.055	-0.68	19.840	0.095	1.21
VABGGC	X	113.716	93.980	1,154.78	118.713	98.968	1,268.98
VPNPHF		19.790	0.055	0.67	19.795	0.050	0.64
VVNTZX		19.702	-0.034	-0.42	19.715	-0.030	-0.39
W3G2R3		19.815	0.080	0.98	19.775	0.030	0.38
X3UMHW	X	19.362	-0.373	-4.59	19.620	-0.125	-1.61
X9L9XX		19.780	0.045	0.55	19.790	0.045	0.57
XKLPVF		19.790	0.055	0.67	19.805	0.060	0.76
ZHTKB8		19.775	0.040	0.49	19.800	0.055	0.70
ZNJQB3		19.775	0.040	0.49	19.720	-0.025	-0.33
ZVVUDV		19.775	0.040	0.49	19.800	0.055	0.70

Summary Statistics		
	Sample L61	Sample L62
Grand Means	19.7355 Percent	19.7454 Percent
Std Dev Btwn Labs	0.0814 Percent	0.0780 Percent
Statistics based on 50 of 52 reporting participants		

Sample L61: PP & Sample L62: PP

Comments on Assigned Data Flags for Test #757

VABGGC (X) - Extreme data.

X3UMHW (X) - Data for sample L61 are low.



Plastics Interlaboratory Testing Program

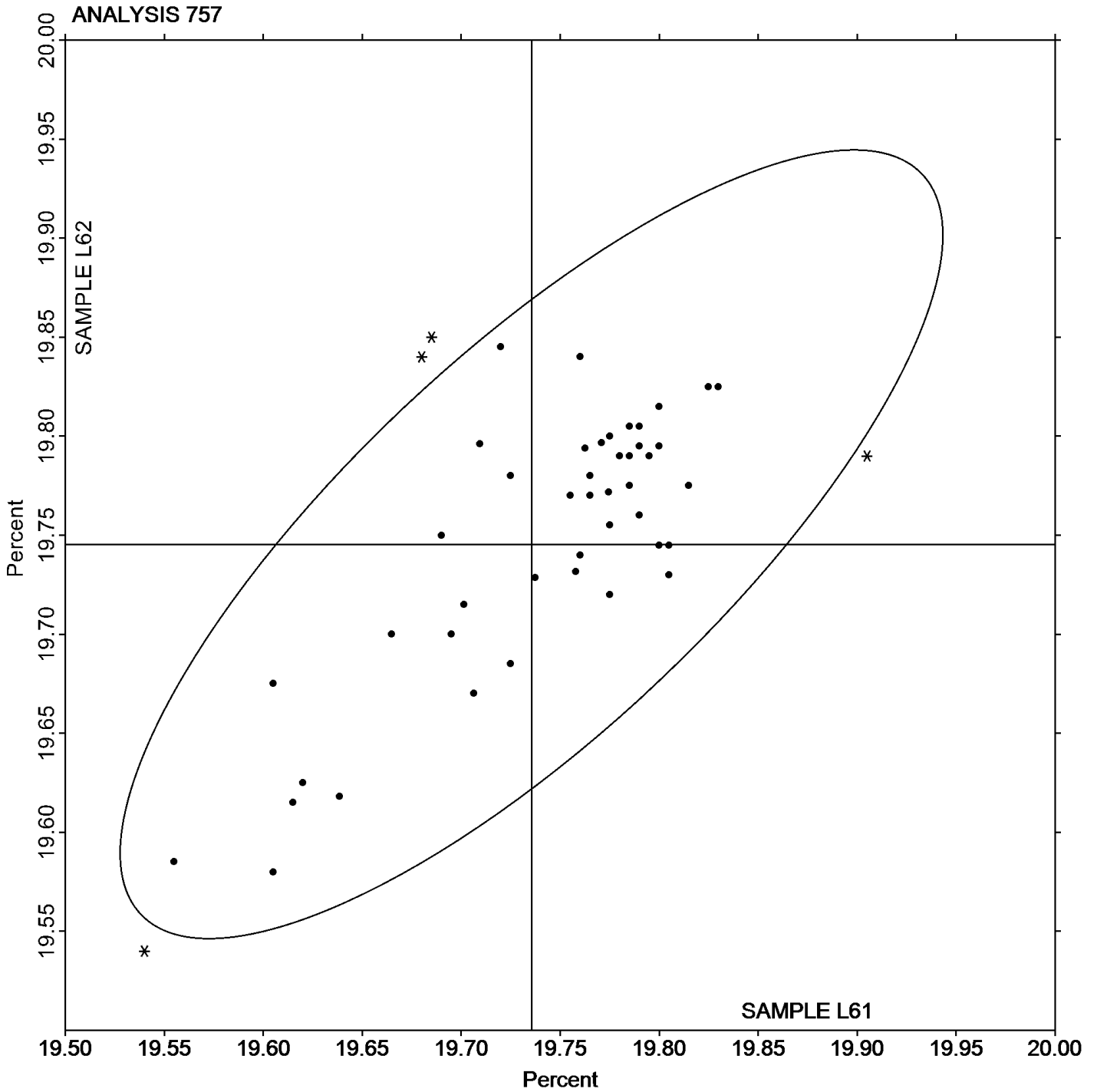
Analysis 757

Ash Content in Thermoplastics - Percent

Report #111

3rd Qtr 2019

Grand Mean Sample L61: 19.735 Percent Grand Mean Sample L62: 19.745 Percent





Plastics Interlaboratory Testing Program

Report #111

Analysis 760

3rd Qtr 2019

DSC Crystallization Temperature

WebCode	Data Flag	Sample W61			Sample W62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
43BKJA		106.48	1.05	0.41	105.70	0.21	0.08	TA
46JX2C		101.87	-3.56	-1.39	102.73	-2.75	-1.01	NZ
73XCT9		108.47	3.04	1.19	108.90	3.41	1.25	TA
7P8K4Y		106.61	1.18	0.46	108.75	3.27	1.20	TA
8F8X8W		106.49	1.07	0.42	104.00	-1.49	-0.55	TA
8WAKQH		105.13	-0.30	-0.12	107.69	2.20	0.81	MT
9AFZAT		103.08	-2.34	-0.91	103.54	-1.95	-0.71	PE
9E88T2		104.21	-1.21	-0.47	103.98	-1.50	-0.55	NZ
BJQB7D		103.87	-1.56	-0.61	103.97	-1.52	-0.56	PE
C364YH		100.90	-4.52	-1.77	99.20	-6.29	-2.30	NZ
HF4ZFL		104.23	-1.19	-0.46	103.50	-1.99	-0.73	PE
J24GH7		106.40	0.98	0.38	105.83	0.35	0.13	TA
JUX4XG		106.12	0.70	0.27	105.55	0.06	0.02	TA
LBGNMZ		107.69	2.26	0.88	105.98	0.49	0.18	TA
PCQGNG		100.33	-5.09	-1.99	102.67	-2.82	-1.03	MT
QVQACN		107.73	2.31	0.90	107.87	2.38	0.87	TA
R6CTCE		105.80	0.37	0.15	105.76	0.28	0.10	TA
UNX4CJ		108.46	3.04	1.19	109.40	3.91	1.43	TA
W9NT78		103.90	-1.52	-0.59	103.03	-2.45	-0.90	NZ
WKU9QH		110.39	4.97	1.94	110.30	4.81	1.76	MT
XKLPVF		105.72	0.29	0.11	106.85	1.37	0.50	TA

Summary Statistics

	Sample W61	Sample W62
Grand Means	105.422 Degrees Celsius	105.486 Degrees Celsius
Stnd Dev Btwn Labs	2.561 Degrees Celsius	2.732 Degrees Celsius

Statistics based on 21 of 21 reporting participants

Sample W61: PP & Sample W62: PP

Key to Instrument Codes Reported by Participants

MT	Mettler Toledo Instruments	NZ	Netzsch Instruments
PE	Perkins Elmer Instruments	TA	TA Instruments



Plastics Interlaboratory Testing Program

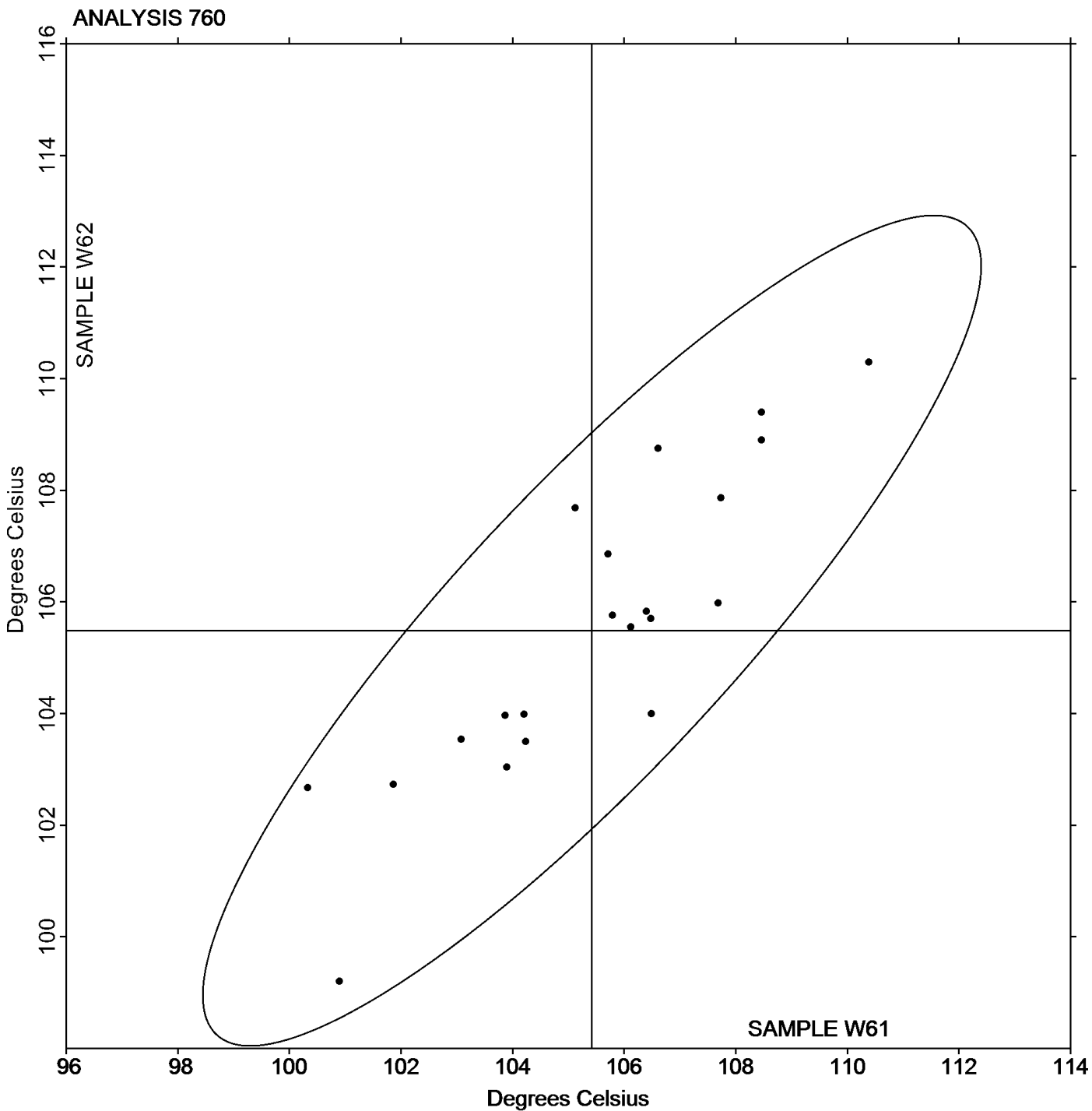
Analysis 760

DSC Crystallization Temperature

Report #111

3rd Qtr 2019

Grand Mean Sample W61: 105.42 Degrees Celsius Grand Mean Sample W62: 105.49 Degrees Celsius





Plastics Interlaboratory Testing Program

Report #111

Analysis 761

3rd Qtr 2019

DSC Melt Temperature

WebCode	Data Flag	<u>Sample W61</u>			<u>Sample W62</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
43BKJA		169.73	2.77	1.46	169.97	3.05	1.36	TA
46JX2C		170.00	3.04	1.61	169.40	2.48	1.10	NZ
73XCT9		165.30	-1.66	-0.88	165.07	-1.85	-0.82	TA
7P8K4Y		165.76	-1.20	-0.64	165.08	-1.84	-0.81	TA
8F8X8W		166.09	-0.87	-0.46	165.92	-1.00	-0.44	TA
8WAKQH	*	167.23	0.27	0.14	164.95	-1.97	-0.87	MT
99GYZJ		163.42	-3.54	-1.87	162.59	-4.32	-1.92	TA
9AFZAT		168.97	2.01	1.06	169.05	2.13	0.95	PE
9E88T2		167.71	0.75	0.40	168.17	1.25	0.56	NZ
BJQB7D		164.70	-2.26	-1.20	164.57	-2.35	-1.04	PE
C364YH	*	172.10	5.14	2.72	173.90	6.98	3.10	NZ
DVDGYX		166.58	-0.38	-0.20	167.69	0.78	0.35	TA
EH2BJP		164.23	-2.73	-1.44	164.13	-2.78	-1.23	TA
HF4ZFL		168.23	1.27	0.67	168.10	1.18	0.53	PE
J24GH7		166.80	-0.16	-0.08	167.23	0.32	0.14	TA
JUX4XG		167.48	0.52	0.27	167.58	0.66	0.29	XX
LBGNMZ		166.07	-0.89	-0.47	166.68	-0.23	-0.10	XX
N6RL2C		166.13	-0.83	-0.44	166.21	-0.71	-0.31	PE
PCQGNG		168.44	1.48	0.79	167.89	0.97	0.43	MT
QVQACN		164.97	-1.99	-1.05	164.87	-2.05	-0.91	TA
R6CTCE		166.45	-0.51	-0.27	167.16	0.24	0.11	TA
UNX4CJ		165.98	-0.98	-0.52	164.97	-1.95	-0.86	TA
W9NT78		166.87	-0.09	-0.05	167.67	0.75	0.33	NZ
WKU9QH		167.17	0.21	0.11	167.03	0.11	0.05	MT
XKLPVF		167.46	0.50	0.27	166.61	-0.31	-0.14	TA
ZNJQB3		167.07	0.11	0.06	167.33	0.42	0.19	TA

Summary Statistics		
	<u>Sample W61</u>	<u>Sample W62</u>
Grand Means	166.959 Degrees Celsius	166.916 Degrees Celsius
Stnd Dev Btwn Labs	1.890 Degrees Celsius	2.253 Degrees Celsius
Statistics based on 26 of 26 reporting participants		

Sample W61: PP & Sample W62: PP



Plastics Interlaboratory Testing Program

Analysis 761

DSC Melt Temperature

Report #111

3rd Qtr 2019

Key to Instrument Codes Reported by Participants

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

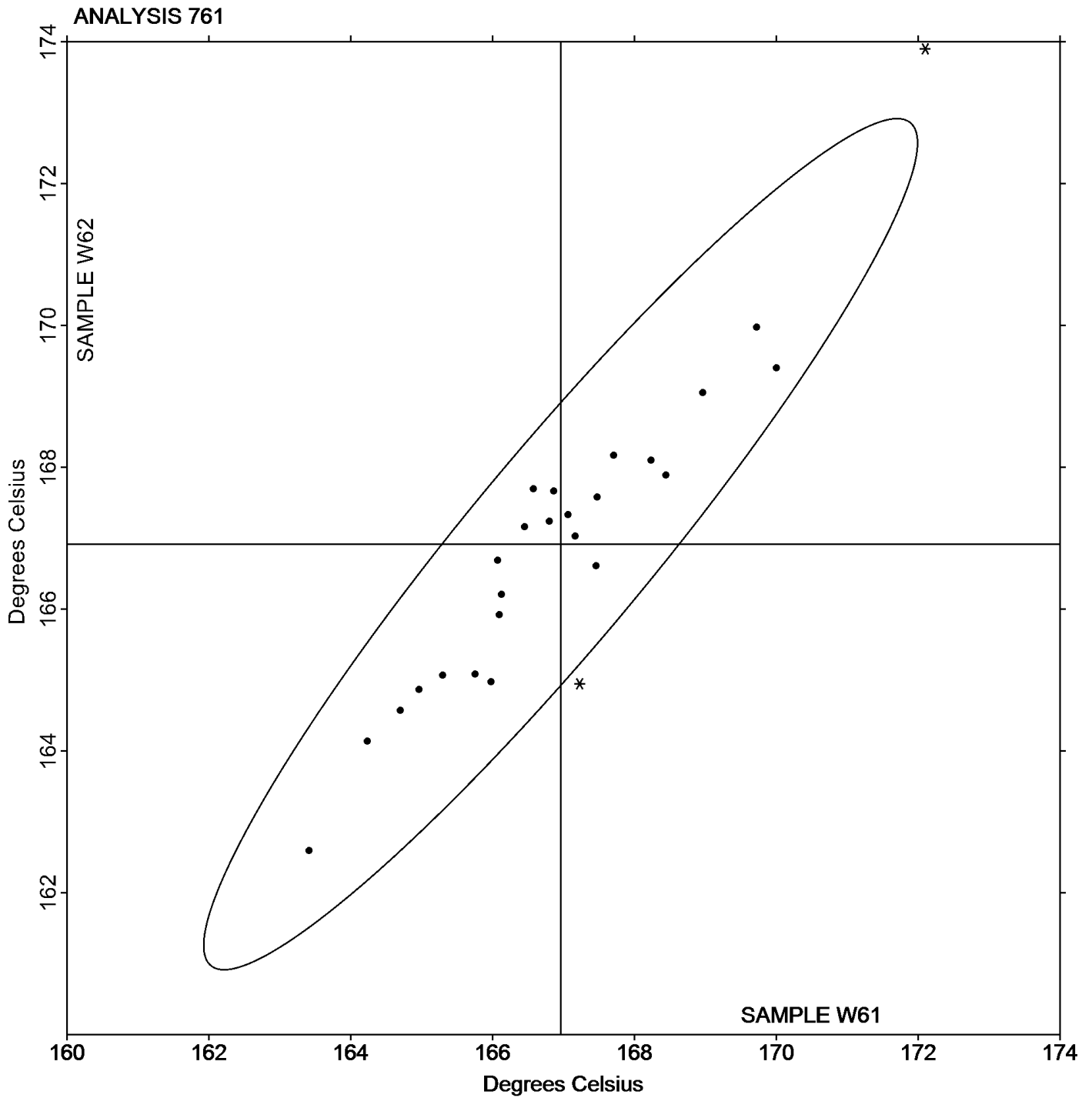


Plastics Interlaboratory Testing Program

Analysis 761
DSC Melt Temperature

Report #111
3rd Qtr 2019

Grand Mean Sample W61: 166.96 Degrees Celsius Grand Mean Sample W62: 166.92 Degrees Celsius





Plastics Interlaboratory Testing Program

Report #111

Analysis 762

3rd Qtr 2019

DSC Enthalpy of Crystallization

WebCode	Data Flag	Sample W61			Sample W62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
43BKJA		99.28	-0.13	-0.02	96.75	-0.84	-0.15	TA
46JX2C		86.50	-12.91	-1.86	85.57	-12.02	-2.16	NZ
73XCT9		97.31	-2.10	-0.30	96.33	-1.26	-0.23	TA
7P8K4Y		101.06	1.66	0.24	102.40	4.81	0.86	TA
8F8X8W		104.27	4.86	0.70	102.17	4.58	0.82	TA
9AFZAT	X	-95.12	-194.53	-28.07	-96.01	-193.60	-34.78	PE
9E88T2	X	-106.61	-206.02	-29.73	-106.66	-204.25	-36.69	NZ
C364YH		104.30	4.89	0.71	103.70	6.11	1.10	NZ
HF4ZFL		94.61	-4.80	-0.69	94.72	-2.87	-0.51	PE
J24GH7		114.63	15.22	2.20	103.41	5.82	1.05	TA
QVQACN		103.27	3.86	0.56	102.63	5.04	0.91	TA
UNX4CJ		96.05	-3.36	-0.48	97.09	-0.50	-0.09	TA
W9NT78		96.23	-3.17	-0.46	91.50	-6.09	-1.09	NZ
WКУ9QH		95.39	-4.01	-0.58	94.81	-2.78	-0.50	MT

Summary Statistics

Grand Means

Sample W61

99.408 Joules Per Gram

Sample W62

97.590 Joules Per Gram

Std Dev Btwn Labs

6.930 Joules Per Gram

5.566 Joules Per Gram

Statistics based on 12 of 14 reporting participants

Sample W61: PP & Sample W62: PP

Comments on Assigned Data Flags for Test #762

9AFZAT (X) - Extreme data.

9E88T2 (X) - Extreme data.

Key to Instrument Codes Reported by Participants

MT Mettler Toledo Instruments

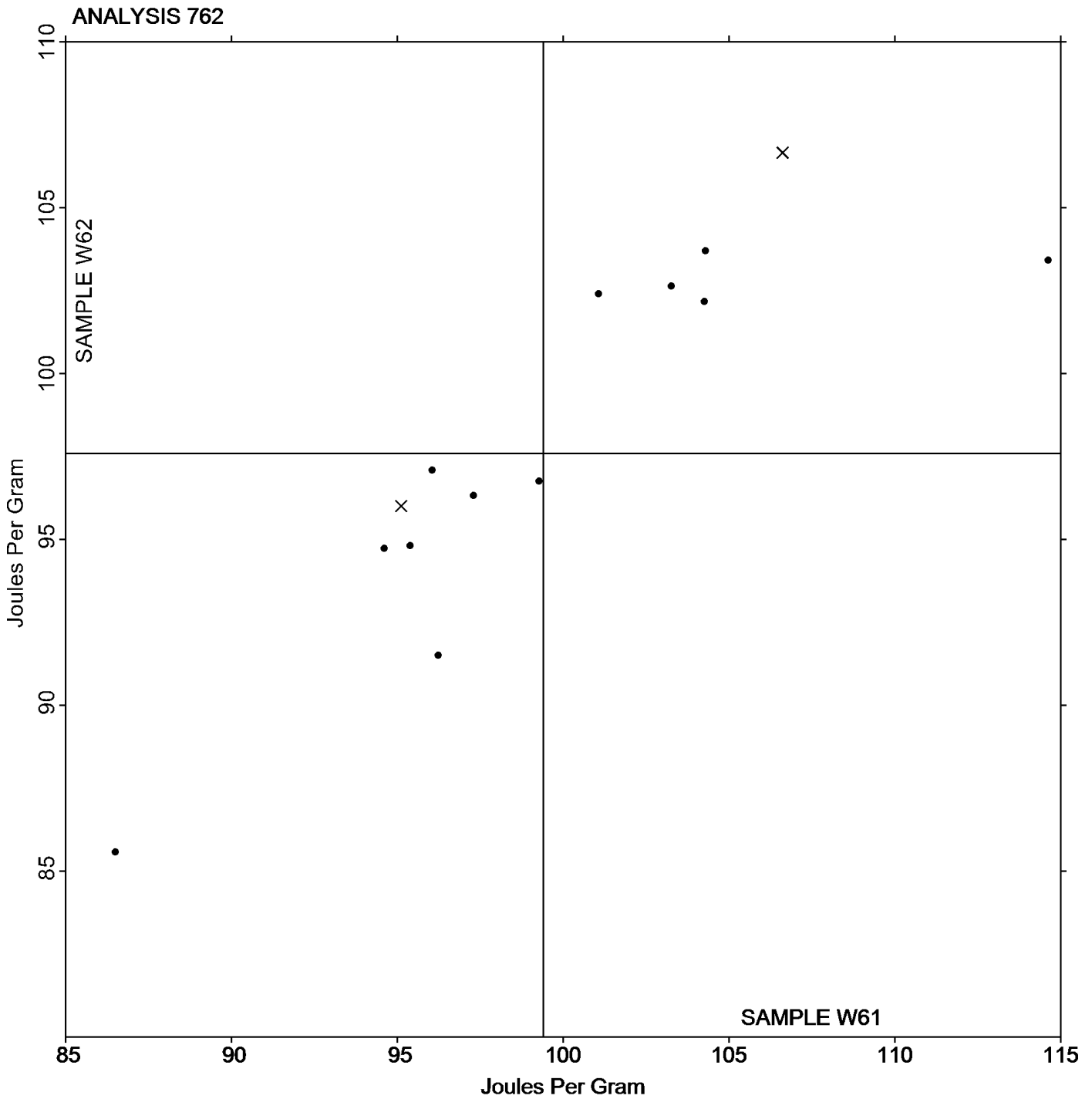
NZ Netzsch Instruments

PE Perkins Elmer Instruments

TA TA Instruments



Grand Mean Sample W61: 99.408 Joules Per Gram Grand Mean Sample W62: 97.590 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 #111

Analysis 763

3rd Qtr 2019

DSC Enthalpy of Fusion

WebCode	Data Flag	Sample W61			Sample W62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
43BKJA		81.83	-9.34	-0.84	89.14	-3.13	-0.31	TA
46JX2C		85.90	-5.26	-0.48	86.37	-5.90	-0.58	NZ
73XCT9		97.19	6.03	0.55	98.15	5.88	0.58	TA
7P8K4Y		94.57	3.41	0.31	93.64	1.37	0.14	TA
8F8X8W		104.77	13.60	1.23	92.78	0.51	0.05	TA
9AFZAT		87.91	-3.26	-0.29	88.67	-3.59	-0.35	PE
9E88T2		111.49	20.33	1.84	111.31	19.04	1.88	NZ
C364YH		95.84	4.68	0.42	94.81	2.54	0.25	NZ
DVDGYX		79.89	-11.27	-1.02	80.69	-11.58	-1.14	TA
HF4ZFL		86.35	-4.81	-0.44	86.16	-6.11	-0.60	PE
J24GH7		104.90	13.74	1.24	112.90	20.64	2.04	TA
QVQACN		102.63	11.47	1.04	103.30	11.03	1.09	TA
UNX4CJ		83.94	-7.23	-0.65	90.67	-1.60	-0.16	TA
W9NT78		81.67	-9.50	-0.86	78.60	-13.67	-1.35	NZ
WKU9QH		89.13	-2.04	-0.18	89.53	-2.74	-0.27	MT
ZKGWBC		70.61	-20.55	-1.86	79.58	-12.69	-1.25	SH

Summary Statistics

	Sample W61	Sample W62
Grand Means	91.164 Joules Per Gram	92.268 Joules Per Gram
Stnd Dev Btwn Labs	11.055 Joules Per Gram	10.133 Joules Per Gram

Statistics based on 16 of 16 reporting participants

Sample W61: PP & Sample W62: PP

Key to Instrument Codes Reported by Participants

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



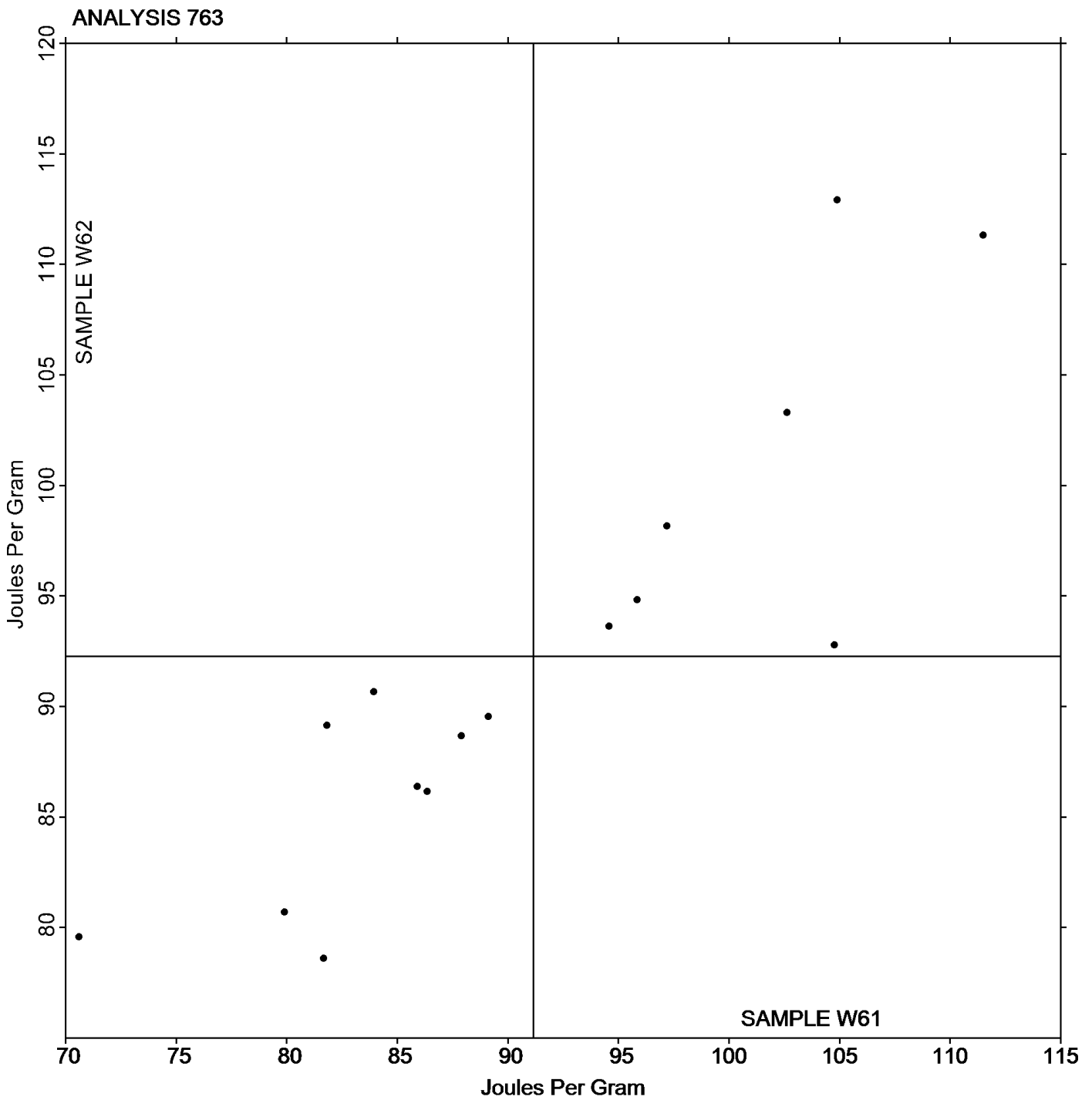
Plastics Interlaboratory Testing Program

Analysis 763 DSC Enthalpy of Fusion

Report #111

3rd Qtr 2019

Grand Mean Sample W61: 91.164 Joules Per Gram Grand Mean Sample W62: 92.268 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 #111

Analysis 764

3rd Qtr 2019

DSC Glass Transition Temperature

WebCode	Data Flag	Sample V61			Sample V62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
43BKJA	X	228.71	141.54	116.59	228.43	141.05	95.44	TA
46JX2C		88.63	1.47	1.21	89.63	2.26	1.53	NZ
73XCT9		86.63	-0.53	-0.44	86.53	-0.84	-0.57	TA
7P8K4Y		87.44	0.28	0.23	87.85	0.48	0.32	TA
8F8X8W		87.07	-0.10	-0.08	87.27	-0.10	-0.07	TA
8WAKQH		87.68	0.52	0.43	87.52	0.14	0.10	MT
9AFZAT		86.60	-0.57	-0.47	86.63	-0.74	-0.50	PE
9E88T2		88.57	1.40	1.15	88.64	1.27	0.86	NZ
C364YH		87.20	0.03	0.03	86.30	-1.08	-0.73	NZ
HF4ZFL		87.43	0.27	0.22	87.20	-0.18	-0.12	PE
J24GH7		88.57	1.40	1.15	90.23	2.86	1.93	TA
PCQGNG		89.14	1.97	1.62	89.14	1.76	1.19	MT
QVQACN		85.43	-1.73	-1.43	85.27	-2.11	-1.43	TA
UNX4CJ		86.70	-0.47	-0.39	87.09	-0.29	-0.20	TA
W9NT78		87.13	-0.03	-0.03	87.75	0.37	0.25	NZ
WKU9QH		85.56	-1.61	-1.33	85.78	-1.59	-1.08	MT
ZKGWBC		84.86	-2.30	-1.90	85.17	-2.21	-1.49	SH

Summary Statistics

Grand Means

Sample V61
87.165 Degrees Celsius

Sample V62
87.376 Degrees Celsius

Std Dev Btwn Labs

1.214 Degrees Celsius

1.478 Degrees Celsius

Statistics based on 16 of 17 reporting participants

Sample V61: PET & Sample V62: PET

Comments on Assigned Data Flags for Test #764

43BKJA (X) - Extreme data.

Key to Instrument Codes Reported by Participants

MT Mettler Toledo Instruments

NZ Netzsch Instruments

PE Perkins Elmer Instruments

SH Shimadzu

TA TA Instruments



Plastics Interlaboratory Testing Program

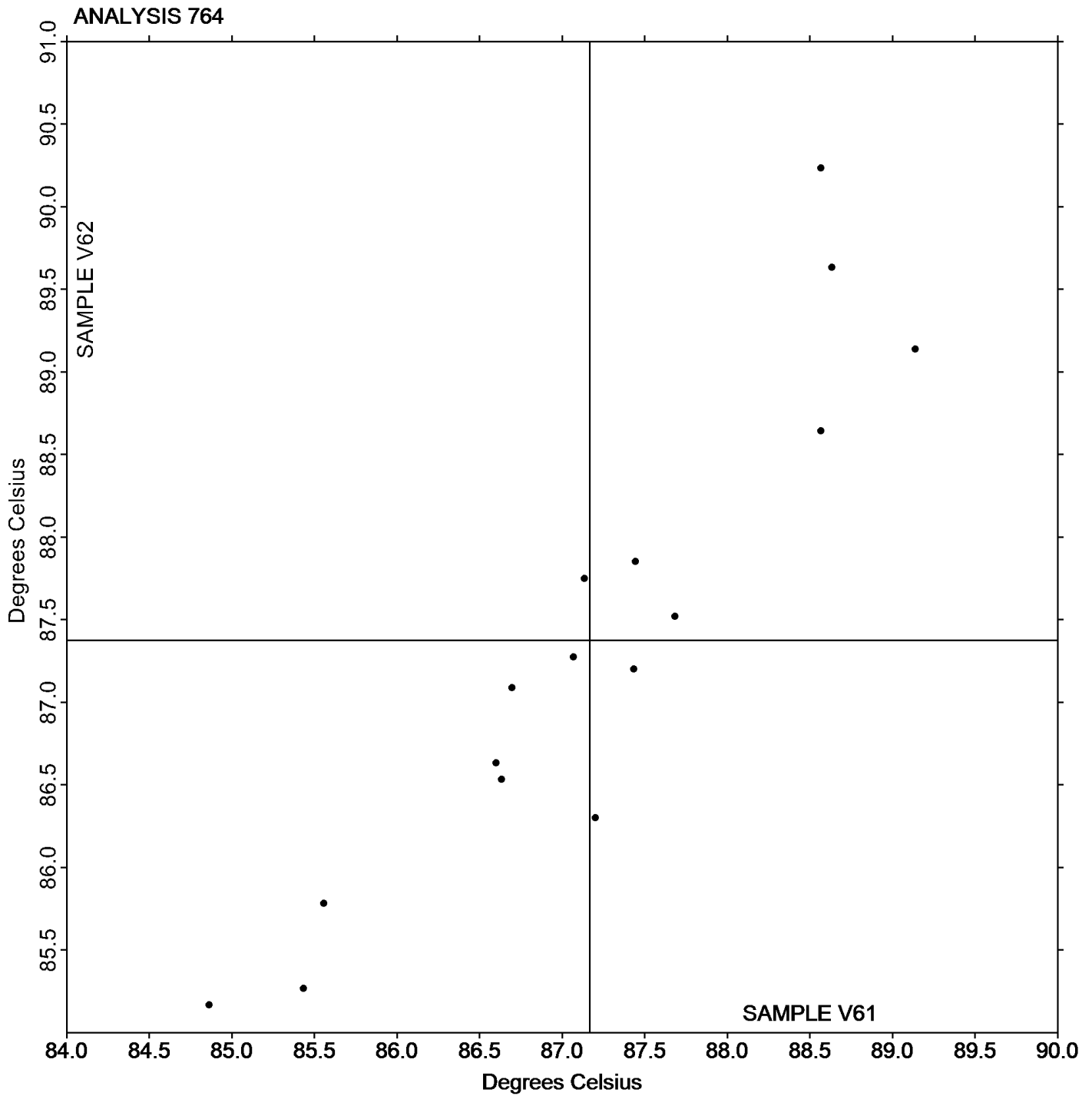
Analysis 764

DSC Glass Transition Temperature

Report #111

3rd Qtr 2019

Grand Mean Sample V61: 87.165 Degrees Celsius Grand Mean Sample V62: 87.376 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 #111

Analysis 770

3rd Qtr 2019

Tensile Stress at Yield, Film Samples - psi

WebCode	Data Flag	Sample B61			Sample B62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2R34U2		1,682	33	0.41	1,674	19	0.20	IN
3HR29Z		1,690	42	0.51	1,676	21	0.23	IN
3T289W	X	6	-1,643	-20.02	5	-1,650	-17.94	XX
4QZ7JW	X	1,425	-223	-2.72	1,042	-613	-6.66	IN
7C26KN	X	5	-1,643	-20.02	5	-1,650	-17.94	IR
84UWRQ		1,698	49	0.60	1,764	109	1.19	MT
93PPQL		1,632	-17	-0.20	1,614	-41	-0.45	IN
9UVJXK	X	5	-1,643	-20.02	5	-1,650	-17.94	IN
BT2LPZ		1,574	-74	-0.90	1,659	4	0.04	SH
C364YH		1,703	54	0.66	1,708	53	0.58	IN
CUJGDF	X	5	-1,643	-20.02	5	-1,650	-17.95	XX
EFWN2E	X	5	-1,643	-20.02	5	-1,650	-17.94	XX
F4JW39		1,669	21	0.26	1,664	9	0.09	TO
G4ZDVF		1,610	-38	-0.47	1,636	-19	-0.20	MT
GANVCC		1,719	70	0.86	1,747	91	0.99	OA
HBFFCG		1,592	-56	-0.68	1,659	4	0.04	IN
J82EHH	X	6	-1,643	-20.02	6	-1,649	-17.94	XX
JA6LKM		1,614	-34	-0.42	1,637	-18	-0.20	IN
JB49KU		1,637	-11	-0.14	1,667	12	0.13	XX
JZ8APG	X	6	-1,643	-20.02	5	-1,650	-17.95	XX
KDHV46	*	1,482	-166	-2.03	1,401	-254	-2.76	WZ
KQW84G		1,845	197	2.41	1,805	149	1.63	LI
Q3MAMA	X	5	-1,643	-20.02	5	-1,650	-17.95	XX
R2BUTA	X	5	-1,643	-20.02	5	-1,650	-17.94	XX
T3ZHQV		1,722	74	0.90	1,726	70	0.77	IN
VTN6LW	X	6	-1,642	-20.02	6	-1,649	-17.94	XX
WCJPP8		1,684	36	0.44	1,658	3	0.04	IN
WKHAV9	X	121	-1,528	-18.62	120	-1,535	-16.70	IN
XFCCDG		1,610	-38	-0.46	1,608	-47	-0.51	MT
XG7ZR7		1,503	-145	-1.77	1,478	-177	-1.93	IN
YUE29R		1,650	2	0.03	1,667	12	0.13	IN



Plastics Interlaboratory Testing Program

Report #111

Analysis 770

3rd Qtr 2019

Tensile Stress at Yield, Film Samples - psi

Summary Statistics		
	<u>Sample B61</u>	<u>Sample B62</u>
Grand Means	1,648.1 psi	1,655.1 psi
Stnd Dev Btwn Labs	82.0 psi	91.9 psi
Statistics based on 19 of 31 reporting participants		

Sample B61: LDPE & Sample B62: LDPE

Comments on Assigned Data Flags for Test #770

- 7C26KN (X) - Extreme data.
- 9UVJXK (X) - Extreme data.
- VTN6LW (X) - Extreme data.
- CUJGDF (X) - Extreme data.
- EFWN2E (X) - Extreme data.
- R2BUTA (X) - Extreme data.
- Q3MAMA (X) - Extreme data.
- J82EHH (X) - Extreme data.
- 3T289W (X) - Extreme data.
- JZ8APG (X) - Extreme data.
- 4QZ7JW (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample B62.
- WKHAV9 (X) - Extreme data.

Key to Instrument Codes Reported by Participants

- | | |
|--|---------------------------------|
| IN Instron | IR Instron with retrofit |
| LI Lloyd Instruments | MT MTS/Sintech |
| OA Oakland Testing | SH Shimadzu |
| TO Tinius Olsen | WZ Zwick |
| XX Instrument manufacturer not specified by lab | |



Plastics Interlaboratory Testing Program

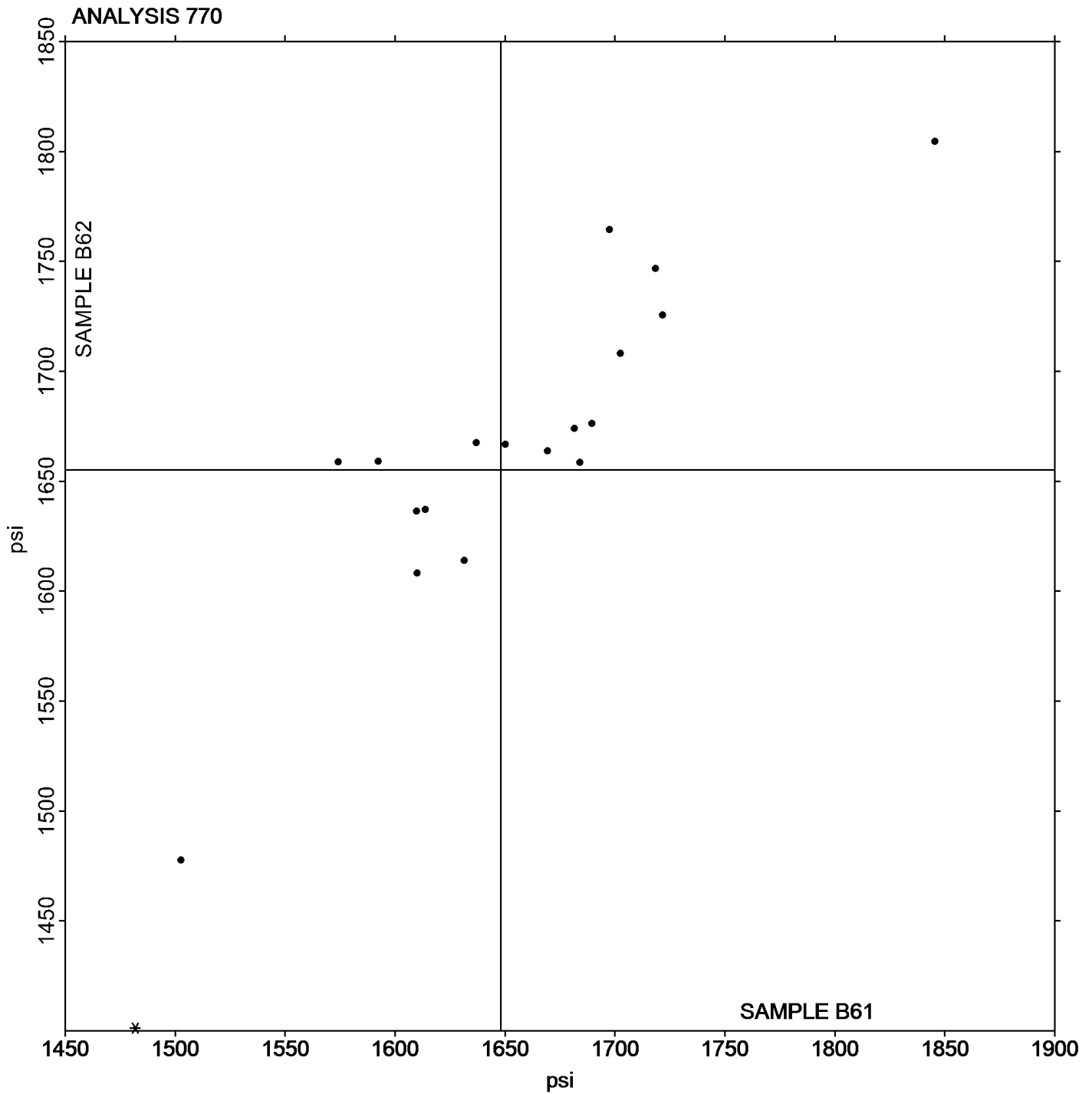
Report #111

Analysis 770

3rd Qtr 2019

Tensile Stress at Yield, Film Samples - psi

Grand Mean Sample B61: 1,648.12 psi Grand Mean Sample B62: 1,655.15 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 #111

Analysis 771

3rd Qtr 2019

Tensile Stress at Break, Film Samples - psi

WebCode	Data Flag	Sample B61			Sample B62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2R34U2		3,159	213	0.67	3,207	257	0.77	IN
3HR29Z		2,973	26	0.08	2,902	-48	-0.14	IN
4QZ7JW	X	2,688	-259	-0.81	1,445	-1,504	-4.53	IN
79NHVL		2,870	-77	-0.24	2,610	-340	-1.02	XX
84UWRQ		3,214	268	0.84	3,382	432	1.30	MT
93PPQL		2,955	8	0.03	3,003	53	0.16	IN
BT2LPZ		2,697	-250	-0.79	3,051	101	0.30	SH
C364YH		3,037	91	0.28	2,802	-148	-0.44	IN
F4JW39		2,567	-380	-1.19	2,684	-266	-0.80	TO
G4ZDVF		2,632	-314	-0.99	2,827	-123	-0.37	MT
GANVCC		3,300	353	1.11	3,382	433	1.30	OA
HBFFCG		3,369	423	1.33	3,530	580	1.75	IN
JA6LKM		3,031	85	0.27	3,196	246	0.74	IN
JB49KU		2,365	-581	-1.83	2,403	-547	-1.65	UC
KDHV46		3,140	193	0.61	2,957	8	0.02	WZ
KQW84G		2,822	-125	-0.39	2,599	-351	-1.06	LI
T3ZHQV		3,525	578	1.82	3,380	430	1.29	IN
WCJPP8		3,234	287	0.90	3,057	108	0.32	IN
WKHAV9	X	221	-2,726	-8.56	219	-2,730	-8.22	IN
XFCCDG		2,513	-434	-1.36	2,546	-403	-1.21	MT
XG7ZR7		2,524	-423	-1.33	2,465	-485	-1.46	IN
YUE29R		3,006	60	0.19	3,011	62	0.19	IN

Summary Statistics		
	Sample B61	Sample B62
Grand Means	2,946.7 psi	2,949.6 psi
Std Dev Btwn Labs	318.4 psi	332.2 psi
Statistics based on 20 of 22 reporting participants		

Sample B61: LDPE & Sample B62: LDPE

Comments on Assigned Data Flags for Test #771

4QZ7JW (X) - Data for sample B62 are low. Inconsistent within the determinations of sample B61.

WKHAV9 (X) - Extreme data.



Plastics Interlaboratory Testing Program

Analysis 771

Tensile Stress at Break, Film Samples - psi

Report #111

3rd Qtr 2019

Key to Instrument Codes Reported by Participants

IN	Instron	LI	Lloyd Instruments
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

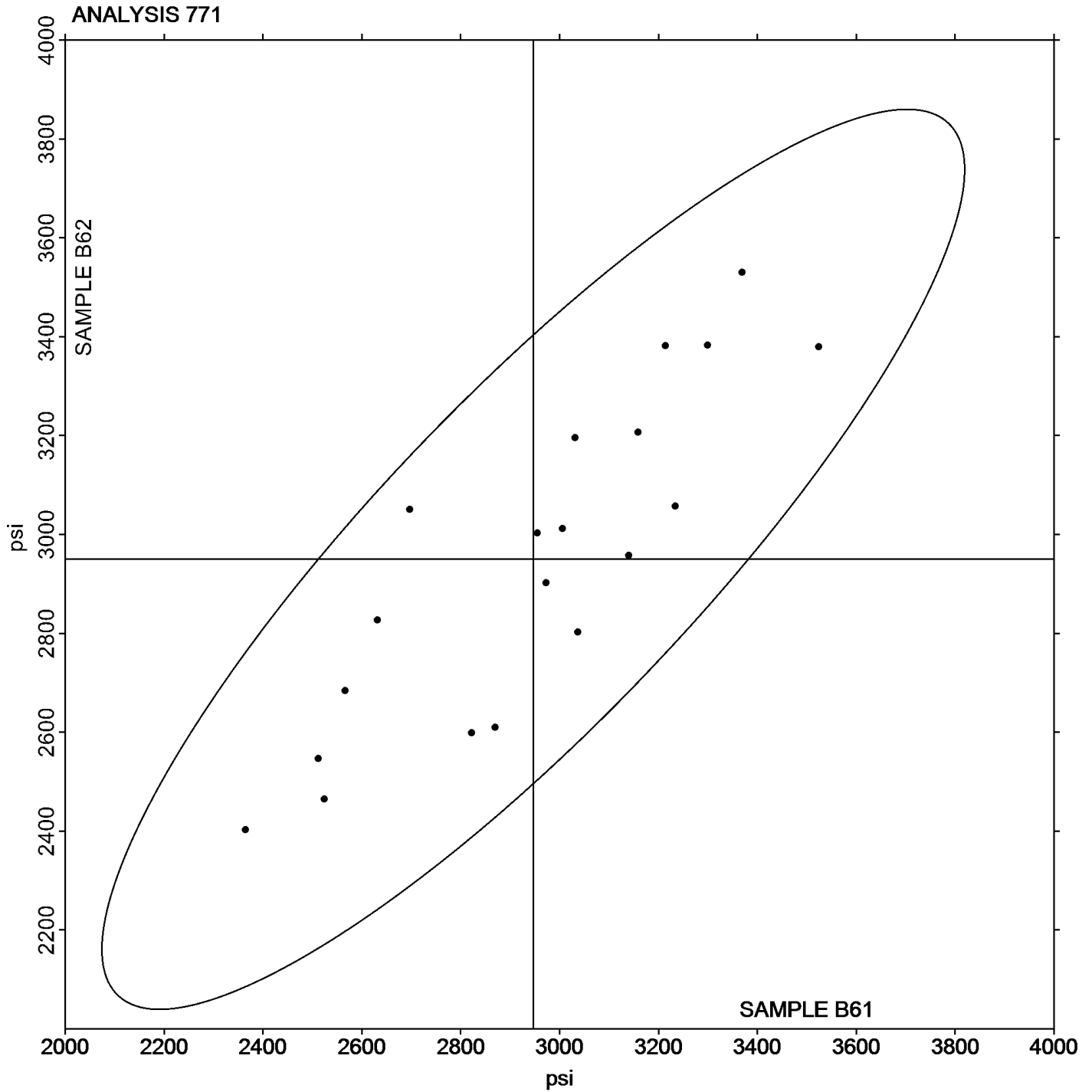
Report #111

Analysis 771

3rd Qtr 2019

Tensile Stress at Break, Film Samples - psi

Grand Mean Sample B61: 2,946.67 psi Grand Mean Sample B62: 2,949.63 psi





Plastics Interlaboratory Testing Program

Report #111

Analysis 772

3rd Qtr 2019

Percent Elongation at Yield, Films

WebCode	Data Flag	Sample B61			Sample B62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2R34U2		56.31	-0.03	0.00	59.20	0.46	0.06	IN
3HR29Z		51.58	-4.76	-0.75	52.35	-6.39	-0.85	IN
4QZ7JW	X	8.19	-48.15	-7.54	7.09	-51.66	-6.85	IN
84UWRQ		57.80	1.46	0.23	60.30	1.56	0.21	MT
93PPQL		56.13	-0.21	-0.03	56.51	-2.23	-0.30	IN
BT2LPZ		59.33	2.99	0.47	60.03	1.28	0.17	SH
C364YH		52.21	-4.13	-0.65	52.99	-5.75	-0.76	IN
F4JW39		56.36	0.02	0.00	58.10	-0.64	-0.09	TO
G4ZDVF	X	20.16	-36.18	-5.67	17.46	-41.28	-5.47	MT
HBFFCG		59.25	2.91	0.46	64.14	5.40	0.72	IN
JA6LKM		69.85	13.51	2.12	70.84	12.10	1.60	IN
KDHV46		44.06	-12.28	-1.92	45.71	-13.03	-1.73	WZ
KQW84G	*	61.66	5.32	0.83	74.55	15.81	2.09	LI
T3ZHQV		50.52	-5.82	-0.91	51.90	-6.84	-0.91	IN
WCJPP8		49.85	-6.49	-1.02	53.17	-5.57	-0.74	IN
WKHAV9		55.30	-1.04	-0.16	56.60	-2.14	-0.28	XX
XG7ZR7	X	9.78	-46.56	-7.29	10.17	-48.58	-6.44	IN
YUE29R		64.88	8.54	1.34	64.74	6.00	0.79	IN

Summary Statistics		
	Sample B61	Sample B62
Grand Means	56.339 Percent	58.742 Percent
Stnd Dev Btwn Labs	6.386 Percent	7.546 Percent
Statistics based on 15 of 18 reporting participants		

Sample B61: LDPE & Sample B62: LDPE

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

Comments on Assigned Data Flags for Test #772

- XG7ZR7 (X) - Extreme data.
- 4QZ7JW (X) - Extreme data.
- G4ZDVF (X) - Extreme data.

Key to Instrument Codes Reported by Participants

- | | |
|---|----------------------|
| IN Instron | LI Lloyd Instruments |
| MT MTS/Sintech | SH Shimadzu |
| TO Tinius Olsen | WZ Zwick |
| XX Instrument manufacturer not specified by lab | |



Plastics Interlaboratory Testing Program

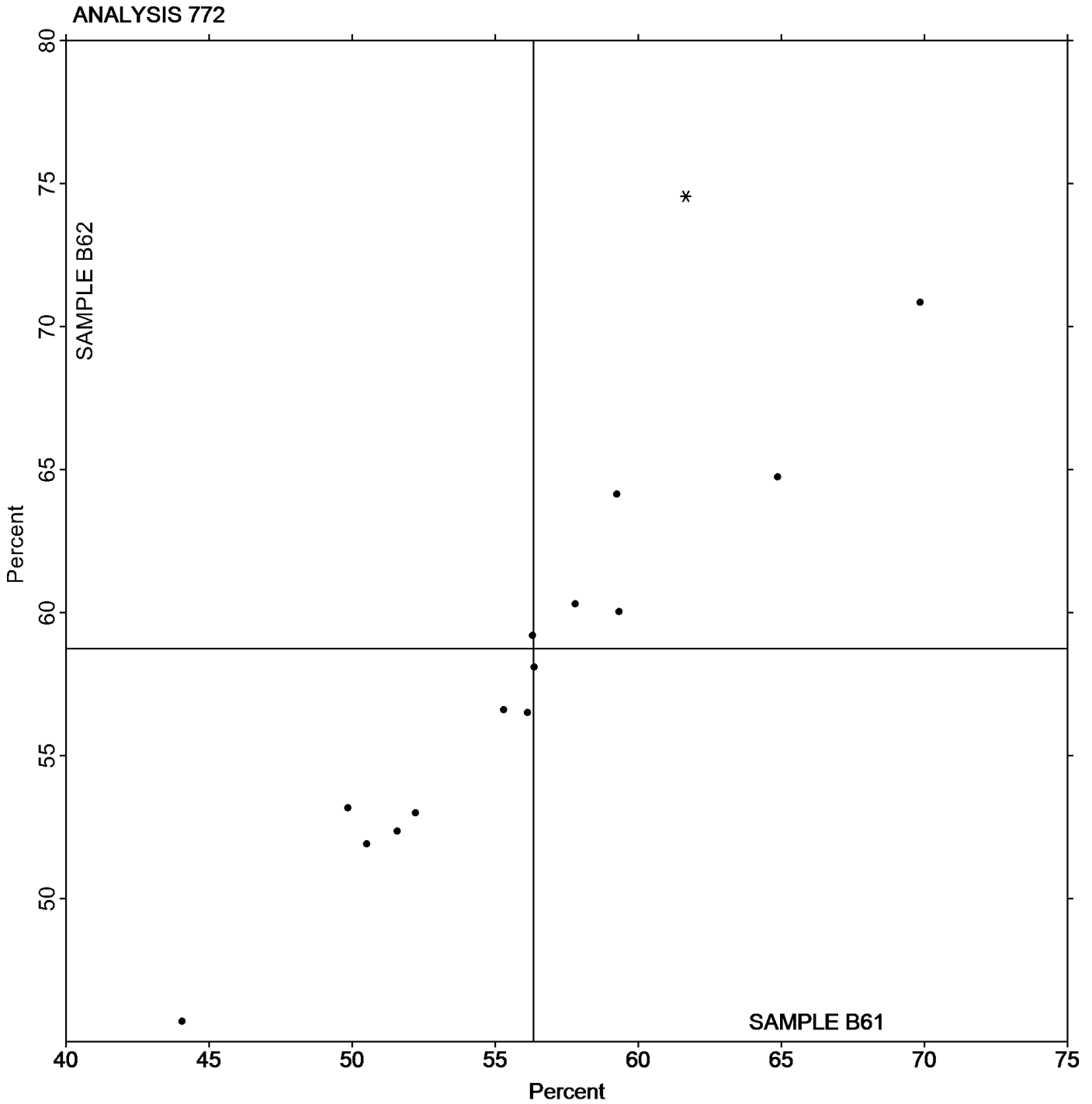
Analysis 772

Percent Elongation at Yield, Films

Report #111

3rd Qtr 2019

Grand Mean Sample B61: 56.339 Percent Grand Mean Sample B62: 58.742 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 #111

Analysis 773

3rd Qtr 2019

Percent Elongation at Break, Film Samples

WebCode	Data Flag	<u>Sample B61</u>			<u>Sample B62</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2R34U2		705.0	-71.3	-0.48	692.6	-89.1	-0.54	IN
3HR29Z		623.3	-153.0	-1.03	609.2	-172.5	-1.04	IN
4QZ7JW	X	772.2	-4.1	-0.03	327.2	-454.4	-2.75	IN
79NHVL	X	1,122.9	346.6	2.34	1,029.7	248.1	1.50	XX
84UWRQ		711.1	-65.2	-0.44	717.2	-64.4	-0.39	MT
93PPQL		873.9	97.6	0.66	899.9	118.3	0.72	IN
BT2LPZ		879.3	103.0	0.70	931.3	149.7	0.91	SH
C364YH		653.2	-123.1	-0.83	611.1	-170.5	-1.03	IN
F4JW39		592.5	-183.8	-1.24	600.7	-180.9	-1.09	TO
G4ZDVF		756.4	-19.9	-0.13	774.9	-6.7	-0.04	MT
GANVCC		819.4	43.1	0.29	840.1	58.5	0.35	OA
HBFFCG		947.0	170.7	1.15	942.0	160.4	0.97	IN
JA6LKM	*	1,157.7	381.4	2.58	1,230.9	449.3	2.72	IN
KDHV46		671.0	-105.3	-0.71	663.0	-118.6	-0.72	WZ
KQW84G		748.3	-28.0	-0.19	747.7	-33.9	-0.21	LI
T3ZHQV		707.6	-68.7	-0.46	686.5	-95.1	-0.58	IN
WCJPP8		685.8	-90.5	-0.61	672.5	-109.1	-0.66	IN
WKHAV9		850.2	73.9	0.50	854.0	72.4	0.44	IN
XFCCDG		802.8	26.5	0.18	805.8	24.2	0.15	MT
XG7ZR7		576.6	-199.7	-1.35	587.4	-194.3	-1.18	IN
YUE29R		988.5	212.2	1.43	984.5	202.9	1.23	IN

Summary Statistics		
	<u>Sample B61</u>	<u>Sample B62</u>
Grand Means	776.30 Percent	781.65 Percent
Stnd Dev Btwn Labs	148.05 Percent	165.32 Percent

Statistics based on 19 of 21 reporting participants

Sample B61: LDPE & Sample B62: LDPE

Comments on Assigned Data Flags for Test #773

4QZ7JW (X) - Data for sample B62 are low. Inconsistent within the determinations of both samples.

79NHVL (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample B62.



Plastics Interlaboratory Testing Program

Analysis 773

Percent Elongation at Break, Film Samples

Report #111

3rd Qtr 2019

Key to Instrument Codes Reported by Participants

IN Instron

MT MTS/Sintech

SH Shimadzu

WZ Zwick

LI Lloyd Instruments

OA Oakland Testing

TO Tinius Olsen

XX Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

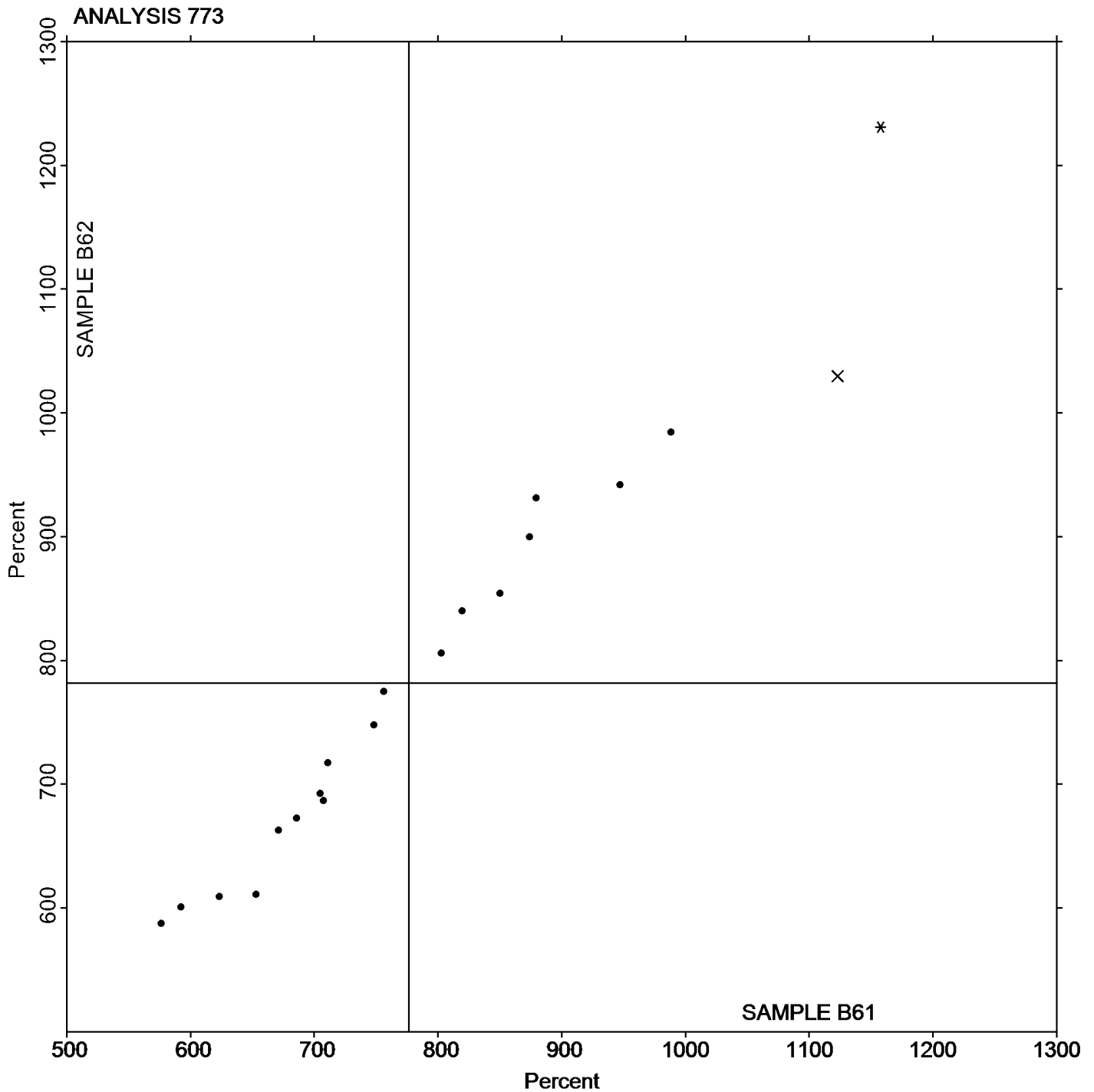
Analysis 773

Percent Elongation at Break, Film Samples

Report #111

3rd Qtr 2019

Grand Mean Sample B61: 776.30 Percent Grand Mean Sample B62: 781.65 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 #111

Analysis 774

3rd Qtr 2019

Thickness of Film Tensile Samples - mils

WebCode	Data Flag	<u>Sample B61</u>			<u>Sample B62</u>		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2R34U2		3.5340	0.0100	0.08	3.5420	0.0236	0.16
3HR29Z		3.4960	-0.0280	-0.22	3.5390	0.0206	0.14
4QZ7JW		3.5950	0.0710	0.55	3.5780	0.0596	0.42
79NHVL		3.5000	-0.0240	-0.19	3.6457	0.1273	0.89
84UWRQ		3.4060	-0.1180	-0.92	3.3290	-0.1894	-1.32
93PPQL		3.6200	0.0960	0.75	3.6350	0.1166	0.81
9A963V		3.3790	-0.1450	-1.13	3.3940	-0.1244	-0.87
BT2LPZ	*	3.5453	0.0213	0.17	3.2631	-0.2554	-1.78
C364YH		3.6020	0.0780	0.61	3.5410	0.0226	0.16
CHRHUQ		3.5310	0.0070	0.05	3.5230	0.0046	0.03
F4JW39	*	3.8977	0.3737	2.92	3.9095	0.3911	2.73
G4ZDVF		3.4600	-0.0640	-0.50	3.3900	-0.1284	-0.90
GANVCC		3.3800	-0.1440	-1.13	3.5050	-0.0134	-0.09
HBFFCG	*	3.7284	0.2044	1.60	3.4843	-0.0341	-0.24
JA6LKM		3.5360	0.0120	0.09	3.6410	0.1226	0.86
JB49KU		3.4900	-0.0340	-0.27	3.4800	-0.0384	-0.27
KDHV46		3.5426	0.0185	0.14	3.5938	0.0754	0.53
KQW84G		3.2556	-0.2685	-2.10	3.2445	-0.2739	-1.91
T3ZHQV		3.4590	-0.0650	-0.51	3.4280	-0.0904	-0.63
WCJPP8		3.5260	0.0020	0.02	3.5830	0.0646	0.45
WKHAV9		3.5000	-0.0240	-0.19	3.5500	0.0316	0.22
XFCCDG		3.4860	-0.0380	-0.30	3.5630	0.0446	0.31
XG7ZR7		3.5079	-0.0161	-0.13	3.5552	0.0368	0.26
XUTACP		3.4094	-0.1146	-0.90	3.3543	-0.1641	-1.15
YUE29R		3.7140	0.1900	1.48	3.6890	0.1706	1.19

Summary Statistics		
	<u>Sample B61</u>	<u>Sample B62</u>
Grand Means	3.52404 mils	3.51842 mils
Stnd Dev Btwn Labs	0.12796 mils	0.14319 mils
Statistics based on 25 of 25 reporting participants		

Sample B61: LDPE & Sample B62: LDPE



Plastics Interlaboratory Testing Program

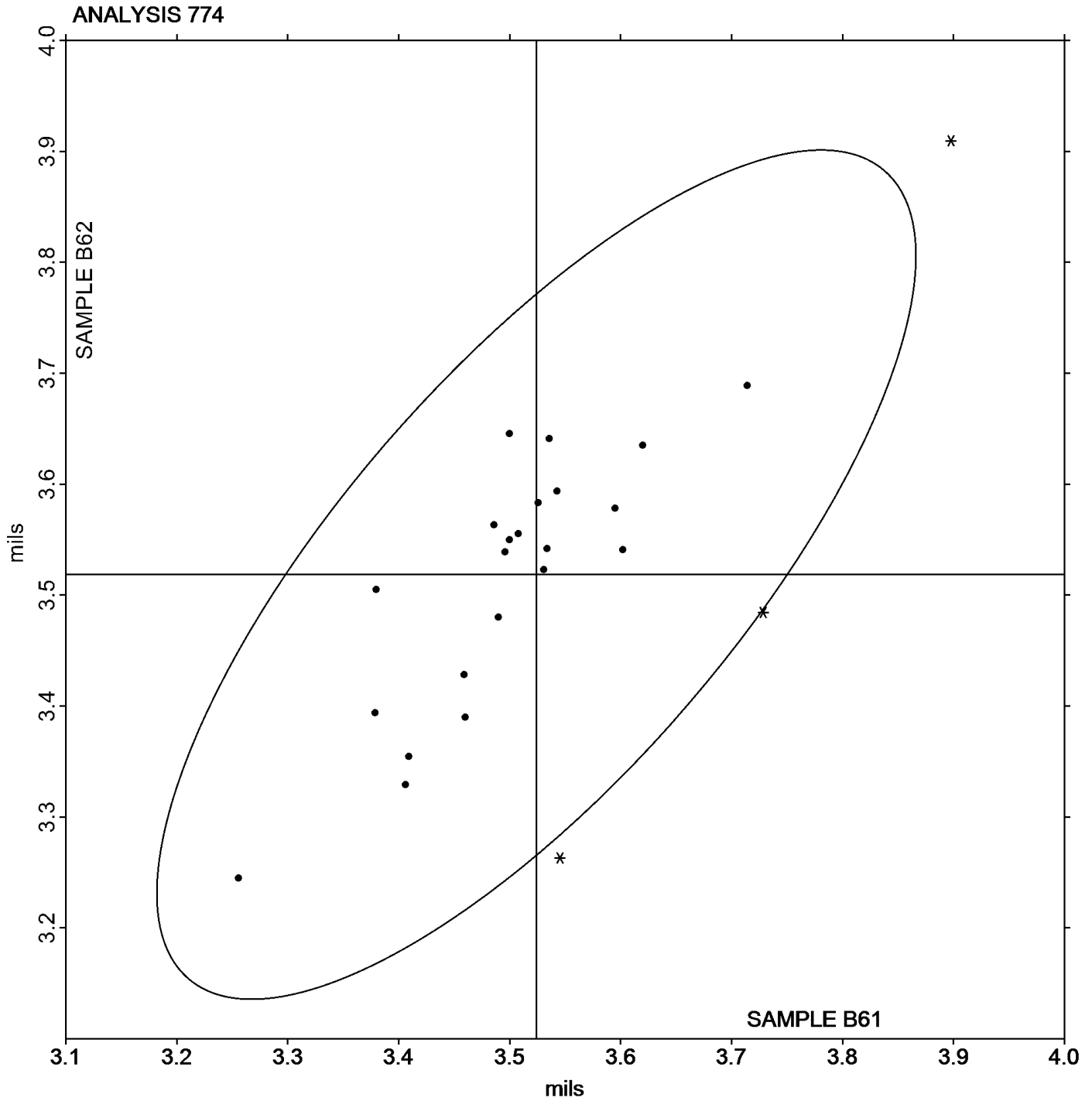
Analysis 774

Thickness of Film Tensile Samples - mils

Report #111

3rd Qtr 2019

Grand Mean Sample B61: 3.5240 mils Grand Mean Sample B62: 3.5184 mils





Plastics Interlaboratory Testing Program

Report #111

Analysis 775

3rd Qtr 2019

Secant Modulus at 1% Strain - psi

WebCode	Data Flag	Sample B61			Sample B62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2R34U2		28,454	-3,101	-0.84	26,815	-4,177	-1.12	IN
3HR29Z		31,742	186	0.05	31,489	497	0.13	IN
4QZ7JW		34,950	3,395	0.92	32,685	1,693	0.45	IN
93PPQL		32,192	637	0.17	31,307	315	0.08	IN
BT2LPZ		39,961	8,406	2.27	39,312	8,320	2.22	SH
C364YH		33,551	1,996	0.54	28,356	-2,637	-0.70	IN
F4JW39		23,148	-8,407	-2.27	24,733	-6,259	-1.67	TO
G4ZDVF		32,255	699	0.19	32,270	1,277	0.34	XX
GANVCC		31,961	406	0.11	32,677	1,685	0.45	OA
HBFFCG	X	8,228	-23,327	-6.31	8,172	-22,820	-6.10	IN
JA6LKM		30,138	-1,417	-0.38	32,484	1,492	0.40	IN
KDHV46		27,282	-4,273	-1.16	25,005	-5,988	-1.60	WZ
KQW84G		33,273	1,718	0.46	35,132	4,140	1.11	LI
T3ZHQV		30,915	-640	-0.17	30,337	-656	-0.18	IN
WCJPP8		31,875	320	0.09	31,237	245	0.07	IN
XFCCDG		31,631	76	0.02	31,048	55	0.01	MT

Summary Statistics

	Sample B61	Sample B62
Grand Means	31,555.1 psi	30,992.4 psi
Stnd Dev Btwn Labs	3,696.5 psi	3,743.5 psi

Statistics based on 15 of 16 reporting participants

Sample B61: LDPE & Sample B62: LDPE

Comments on Assigned Data Flags for Test #775

HBFFCG (X) - Extreme data.

Key to Instrument Codes Reported by Participants

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



Plastics Interlaboratory Testing Program

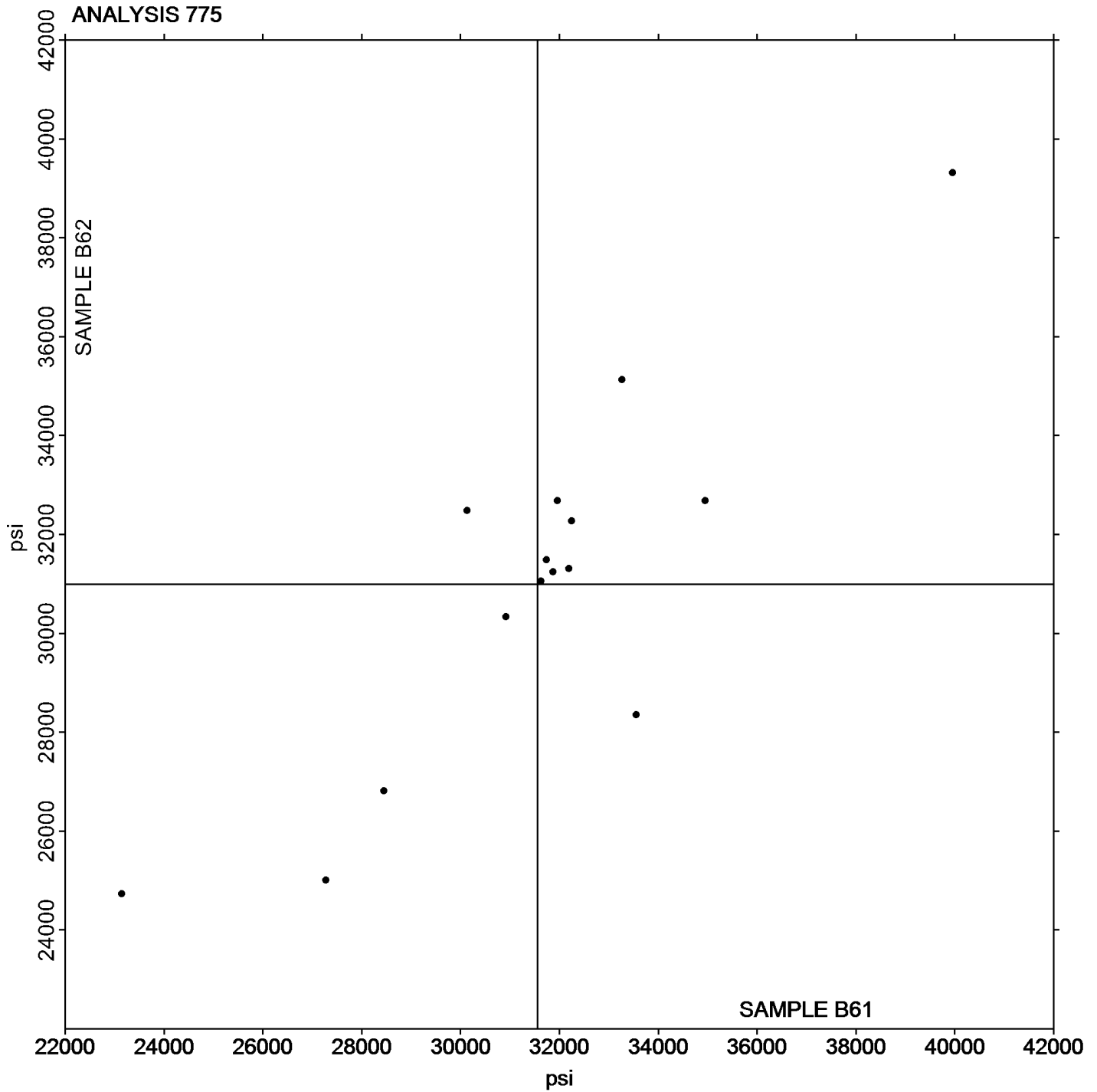
Report #111

Analysis 775

3rd Qtr 2019

Secant Modulus at 1% Strain - psi

Grand Mean Sample B61: 31,555.05 psi Grand Mean Sample B62: 30,992.43 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 #111

Analysis 776

3rd Qtr 2019

Secant Modulus at 2% Strain - psi

WebCode	Data Flag	Sample B61			Sample B62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2R34U2		25,851	-2,061	-0.86	24,815	-2,231	-1.29	IN
3HR29Z		27,595	-316	-0.13	27,509	462	0.27	IN
4QZ7JW		28,514	603	0.25	27,044	-3	0.00	MT
93PPQL		27,006	-906	-0.38	26,380	-667	-0.38	IN
BT2LPZ		31,087	3,175	1.33	30,678	3,632	2.10	SH
C364YH		33,390	5,478	2.29	27,998	952	0.55	IN
F4JW39		26,608	-1,303	-0.54	25,101	-1,945	-1.12	TO
G4ZDVF		26,738	-1,173	-0.49	26,640	-407	-0.23	XX
HBFFCG	X	7,424	-20,488	-8.56	7,352	-19,695	-11.36	IN
JA6LKM		25,161	-2,750	-1.15	26,013	-1,034	-0.60	IN
KQW84G		28,142	231	0.10	29,171	2,124	1.23	LI
WCJPP8		26,935	-977	-0.41	26,163	-883	-0.51	IN

Summary Statistics		
	Sample B61	Sample B62
Grand Means	27,911.6 psi	27,046.4 psi
Std Dev Btwn Labs	2,393.1 psi	1,733.3 psi
Statistics based on 11 of 12 reporting participants		

Sample B61: LDPE & Sample B62: LDPE

Comments on Assigned Data Flags for Test #776

HBFFCG (X) - Extreme data.

Key to Instrument Codes Reported by Participants

IN	Instron	LI	Lloyd Instruments
MT	MTS/Sintech	SH	Shimadzu
TO	Tinius Olsen	XX	Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

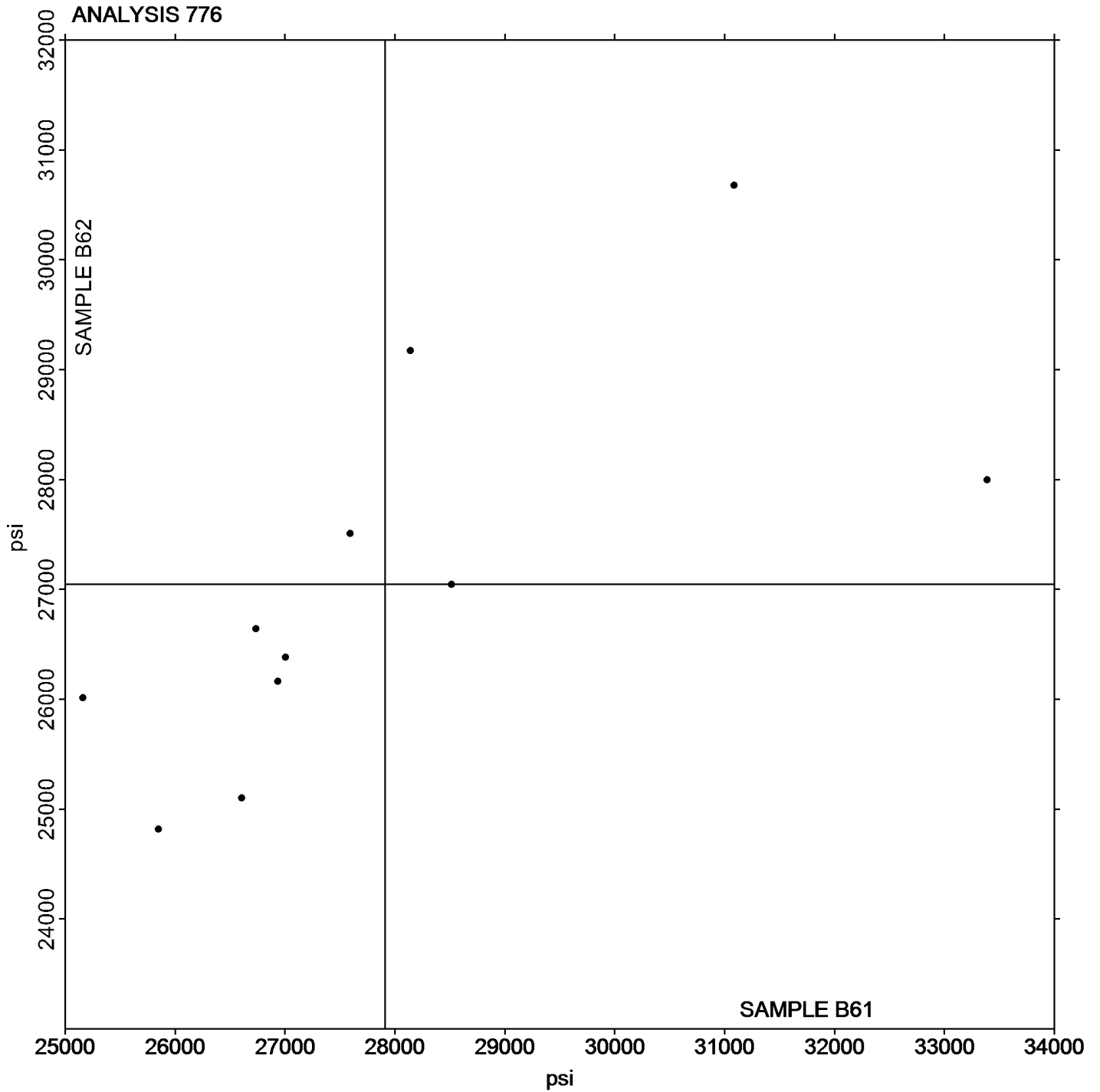
Report #111

Analysis 776

3rd Qtr 2019

Secant Modulus at 2% Strain - psi

Grand Mean Sample B61: 27,911.59 psi Grand Mean Sample B62: 27,046.38 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 #111

Analysis 780

3rd Qtr 2019

Coefficient of Static Friction

WebCode	Data Flag	Sample P61			Sample P62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3T289W		0.1380	0.0058	0.25	0.1300	-0.0004	-0.02	XX
4QZ7JW		0.1188	-0.0134	-0.57	0.1298	-0.0006	-0.02	MI
662PW2		0.1120	-0.0202	-0.86	0.1074	-0.0230	-0.93	TN
7C26KN		0.1160	-0.0162	-0.69	0.1200	-0.0104	-0.42	TN
84UWRQ		0.1082	-0.0240	-1.02	0.1188	-0.0116	-0.47	XX
93PPQL		0.1356	0.0034	0.15	0.1266	-0.0038	-0.15	TN
9UVJXK		0.1460	0.0138	0.59	0.1500	0.0196	0.80	XX
BT2LPZ		0.1339	0.0017	0.07	0.1620	0.0316	1.28	SA
BXQCLY		0.1386	0.0064	0.27	0.1373	0.0068	0.28	IG
C364YH		0.0960	-0.0362	-1.54	0.1000	-0.0304	-1.24	TH
CUJGDF		0.1620	0.0298	1.27	0.1680	0.0376	1.53	XX
EFWN2E		0.1760	0.0438	1.86	0.1540	0.0236	0.96	XX
F4JW39		0.1344	0.0022	0.09	0.1348	0.0044	0.18	RD
GANVCC		0.1410	0.0088	0.37	0.1244	-0.0060	-0.24	DY
GCUHPG		0.1314	-0.0008	-0.03	0.1120	-0.0184	-0.75	IP
J82EHH		0.1100	-0.0222	-0.94	0.1100	-0.0204	-0.83	XX
JZ8APG		0.1480	0.0158	0.67	0.1320	0.0016	0.06	XX
KDHV46		0.0792	-0.0530	-2.25	0.0798	-0.0506	-2.06	TH
Q3MAMA		0.1260	-0.0062	-0.26	0.1080	-0.0224	-0.91	XX
R2BUTA		0.1200	-0.0122	-0.52	0.1220	-0.0084	-0.34	XX
T3ZHQV		0.1464	0.0142	0.60	0.1296	-0.0008	-0.03	TH
TER8NF		0.1000	-0.0322	-1.37	0.1000	-0.0304	-1.24	KA
VTN6LW		0.1320	-0.0002	-0.01	0.1220	-0.0084	-0.34	XX
VVNTZX		0.1746	0.0424	1.80	0.1744	0.0440	1.79	TH
XFCCDG		0.1542	0.0220	0.94	0.1588	0.0284	1.15	MI
XG7ZR7		0.1584	0.0262	1.11	0.1790	0.0486	1.97	IS
YE3MRU	X	0.1166	-0.0156	-0.66	0.0336	-0.0968	-3.93	IS

Summary Statistics

	Sample P61	Sample P62
Grand Means	0.13218 COF	0.13041 COF
Std Dev Btwn Labs	0.02354 COF	0.02462 COF

Statistics based on 26 of 27 reporting participants

Sample P61: LDPE & Sample P62: LDPE



Plastics Interlaboratory Testing Program

Analysis 780

Coefficient of Static Friction

Report #111

3rd Qtr 2019

Comments on Assigned Data Flags for Test #780

YE3MRU (X) - Data for sample P62 are low. Inconsistent within the determinations of both samples.

Key to Instrument Codes Reported by Participants

DY	Dynisco Model D1055	IG	Instron
IP	Instron 4000 Series	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

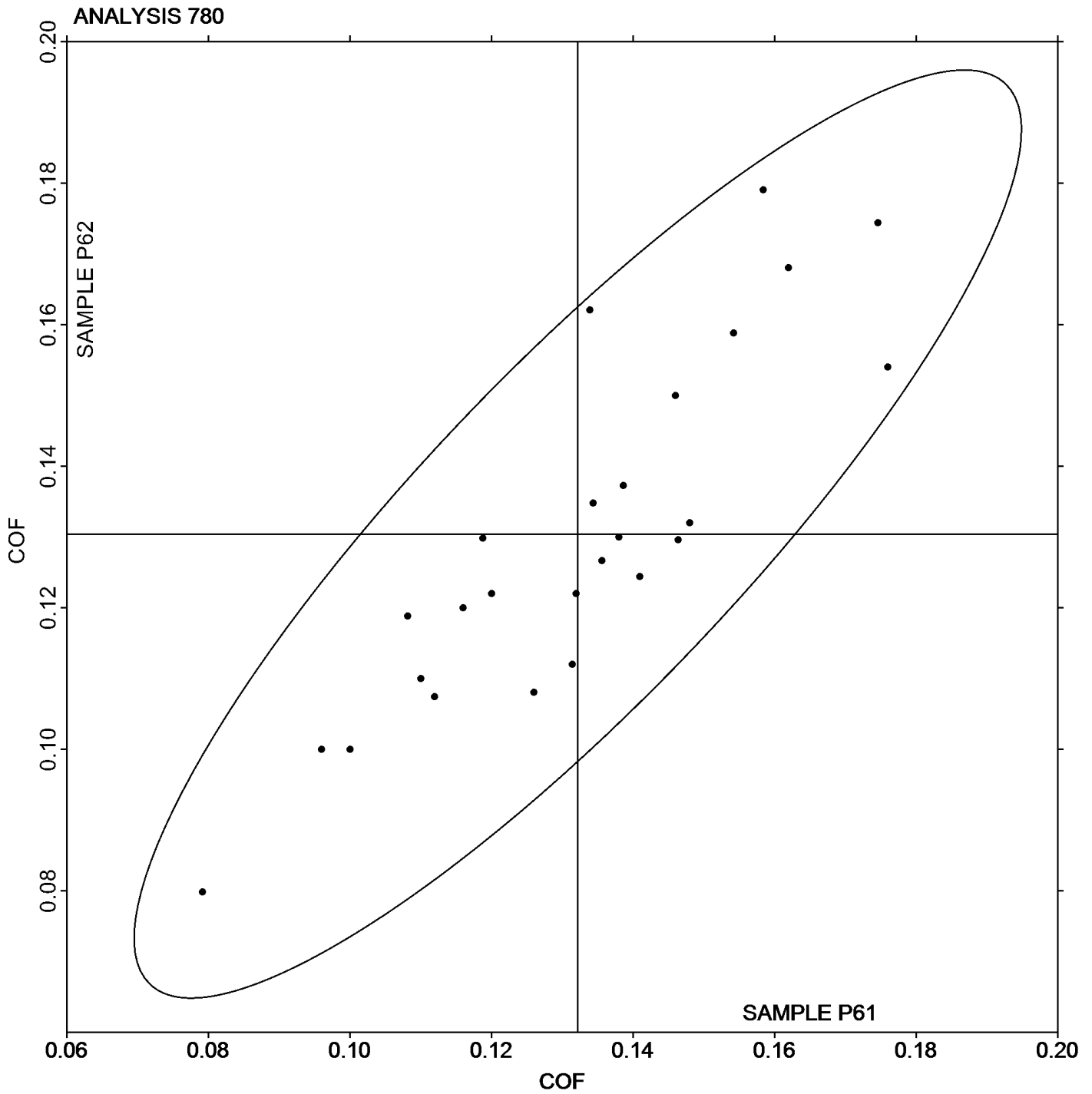
Analysis 780

Coefficient of Static Friction

Report #111

3rd Qtr 2019

Grand Mean Sample P61: 0.13218 COF Grand Mean Sample P62: 0.13041 COF





Plastics Interlaboratory Testing Program

Report #111

Analysis 781

3rd Qtr 2019

Coefficient of Kinetic Friction

WebCode	Data Flag	Sample P61			Sample P62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
4QZ7JW		0.0910	-0.0104	-0.42	0.0986	-0.0008	-0.03	MI
662PW2		0.0876	-0.0138	-0.56	0.0854	-0.0140	-0.56	TN
84UWRQ		0.1024	0.0010	0.04	0.1122	0.0128	0.52	XX
93PPQL		0.0928	-0.0086	-0.35	0.0964	-0.0030	-0.12	TN
BT2LPZ		0.0643	-0.0371	-1.51	0.0602	-0.0392	-1.58	SA
BXQCLY		0.0628	-0.0386	-1.57	0.0679	-0.0315	-1.27	IG
C364YH		0.0960	-0.0054	-0.22	0.0940	-0.0054	-0.22	TH
F4JW39		0.1246	0.0232	0.95	0.1236	0.0242	0.98	RD
GANVCC		0.1226	0.0212	0.86	0.1226	0.0232	0.94	DY
GCUHPG		0.0700	-0.0314	-1.28	0.0544	-0.0450	-1.81	IP
KDHV46	X	0.0100	-0.0914	-3.72	0.0100	-0.0894	-3.60	TH
T3ZHQV		0.1376	0.0362	1.47	0.1244	0.0250	1.01	TH
TER8NF		0.1460	0.0446	1.82	0.1340	0.0346	1.39	KA
VVNTZX		0.0952	-0.0062	-0.25	0.0922	-0.0072	-0.29	TH
XFCCDG		0.1184	0.0170	0.69	0.1210	0.0216	0.87	MI
XG7ZR7		0.1140	0.0126	0.51	0.1218	0.0224	0.90	IS
YE3MRU		0.0966	-0.0047	-0.19	0.0813	-0.0181	-0.73	IS

Summary Statistics		Sample P61	Sample P62
Grand Means		0.10137 COF	0.09937 COF
Std Dev Btwn Labs		0.02456 COF	0.02483 COF
Statistics based on 16 of 17 reporting participants			

Sample P61: LDPE & Sample P62: LDPE

Comments on Assigned Data Flags for Test #781

KDHV46 (X) - Extreme data.

Key to Instrument Codes Reported by Participants

DY	Dynisco Model D1055	IG	Instron
IP	Instron 4000 Series	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

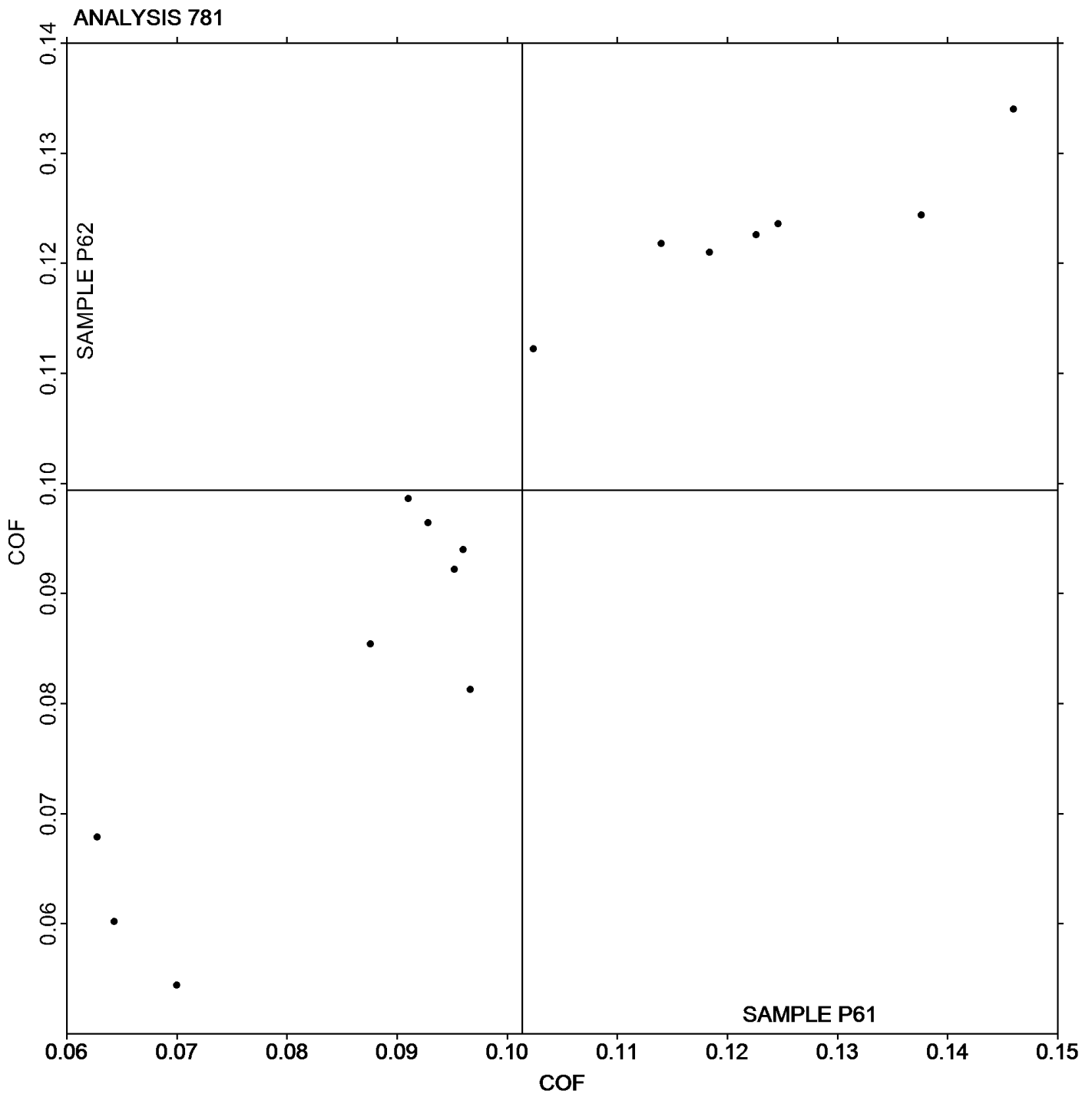
Analysis 781

Coefficient of Kinetic Friction

Report #111

3rd Qtr 2019

Grand Mean Sample P61: 0.10137 COF Grand Mean Sample P62: 0.09937 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 #111

Analysis 782

3rd Qtr 2019

Tear Resistance of Films

WebCode	Data Flag	Sample Q61			Sample Q62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2R34U2		442.1	26.9	0.36	380.6	-44.2	-0.64	TM
4QZ7JW		343.2	-72.0	-0.95	514.1	89.3	1.29	TE
9Z8JK8		551.8	136.6	1.81	496.2	71.4	1.03	TG
BT2LPZ		412.3	-2.9	-0.04	419.8	-5.0	-0.07	TE
C364YH		403.5	-11.7	-0.15	409.0	-15.8	-0.23	TE
G4ZDVF		334.9	-80.3	-1.06	380.6	-44.2	-0.64	TA
GANVCC		281.3	-133.9	-1.77	296.0	-128.8	-1.87	TA
KDHV46		431.4	16.2	0.21	441.3	16.5	0.24	TA
N97FGD		525.8	110.6	1.47	546.1	121.3	1.76	TA
T3ZHQV		426.5	11.3	0.15	421.0	-3.8	-0.05	TE
XFCCDG		393.4	-21.8	-0.29	365.4	-59.4	-0.86	TE
XG7ZR7		436.2	21.0	0.28	427.4	2.6	0.04	SZ

Summary Statistics		
	Sample Q61	Sample Q62
Grand Means	415.19 grams-force	424.77 grams-force
Std Dev Btwn Labs	75.45 grams-force	69.00 grams-force
Statistics based on 12 of 12 reporting participants		

Sample Q61: LDPE & Sample Q62: LDPE

Key to Instrument Codes Reported by Participants

- | | |
|----------------------------------|----------------------------------|
| SZ Textest FX 3700 | TA Thwing-Albert |
| TE Thwing-Albert Pro Tear | TG Thwing-Albert Model 93 |
| TM TMI No. 83-1100 | |



Plastics Interlaboratory Testing Program

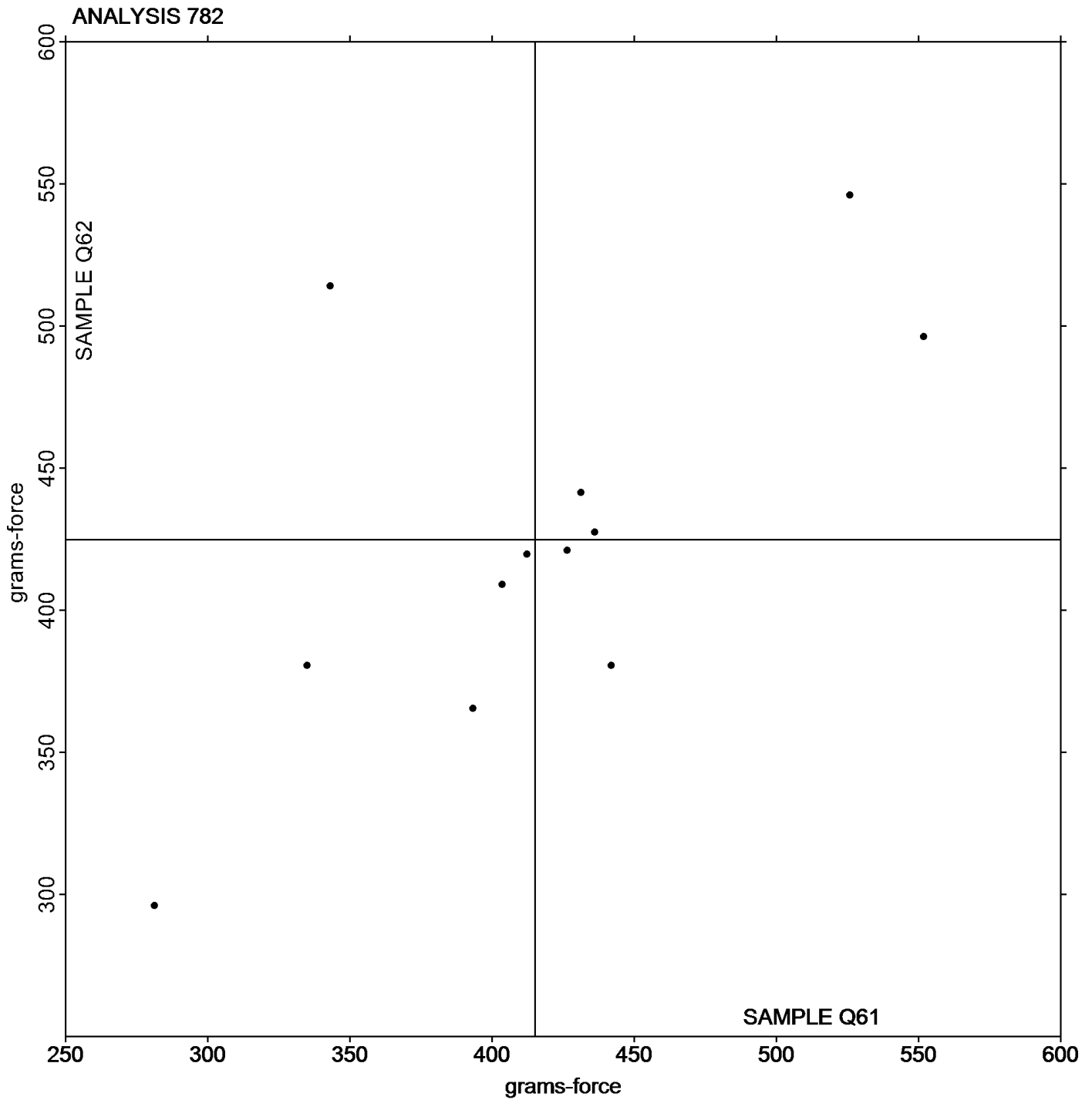
Analysis 782

Tear Resistance of Films

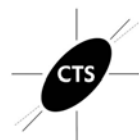
Report #111

3rd Qtr 2019

Grand Mean Sample Q61: 415.19 grams-force Grand Mean Sample Q62: 424.77 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 #111

Analysis 785

3rd Qtr 2019

Percent Haze of Film

WebCode	Data Flag	Sample D61			Sample D62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
4QZ7JW	X	15.575	2.824	4.47	13.200	0.559	0.80	BJ
6JG3BU		13.188	0.437	0.69	12.850	0.209	0.30	BJ
8E3RCJ		12.750	-0.001	0.00	13.013	0.371	0.53	BJ
93PPQL		13.100	0.349	0.55	12.500	-0.141	-0.20	BJ
9A963V		13.313	0.562	0.89	12.750	0.109	0.16	BJ
9Z8JK8		11.963	-0.788	-1.25	12.013	-0.629	-0.90	BJ
AL3LRW		12.835	0.084	0.13	12.645	0.004	0.01	XR
BT2LPZ		12.563	-0.188	-0.30	12.238	-0.404	-0.58	BJ
BWZZDQ		12.803	0.052	0.08	13.025	0.384	0.55	BJ
C364YH		13.075	0.324	0.51	12.613	-0.029	-0.04	BJ
CNMFKD		12.025	-0.726	-1.15	12.513	-0.129	-0.18	BJ
EERURK		12.599	-0.152	-0.24	12.009	-0.632	-0.91	XR
F2AZ88		11.461	-1.290	-2.04	11.054	-1.587	-2.28	BJ
FZLHFH		13.206	0.455	0.72	13.164	0.523	0.75	XR
GANVCC		12.863	0.112	0.18	13.103	0.461	0.66	XR
HK3CJA		12.113	-0.638	-1.01	12.175	-0.466	-0.67	BJ
JVD8PN		12.856	0.105	0.17	13.156	0.515	0.74	XX
KDHV46		13.150	0.399	0.63	13.063	0.421	0.60	BJ
L3LJVK		12.688	-0.063	-0.10	12.625	-0.016	-0.02	BJ
MG7J7F		13.908	1.157	1.83	13.848	1.206	1.73	XX
N97FGD		12.725	-0.026	-0.04	12.800	0.159	0.23	BJ
R23CKA		12.875	0.124	0.20	12.938	0.296	0.42	BJ
R76QJL		12.600	-0.151	-0.24	12.375	-0.266	-0.38	BJ
RV49Z7		12.663	-0.088	-0.14	12.675	0.034	0.05	BJ
T3ZHQV		12.638	-0.113	-0.18	12.313	-0.329	-0.47	BJ
TQ68K9	*	11.000	-1.751	-2.77	10.663	-1.979	-2.84	HL
WGT7GC		14.376	1.625	2.57	14.311	1.670	2.39	XR
XG7ZR7		12.825	0.074	0.12	12.550	-0.091	-0.13	BJ
XLGDA4		12.725	-0.026	-0.04	12.613	-0.029	-0.04	BJ
Y3Q9X9		12.684	-0.067	-0.11	12.285	-0.356	-0.51	BJ
ZVVUDV		12.963	0.212	0.33	13.363	0.721	1.03	BJ



Plastics Interlaboratory Testing Program

Report #111

Analysis 785

3rd Qtr 2019

Percent Haze of Film

Summary Statistics		
	<u>Sample D61</u>	<u>Sample D62</u>
Grand Means	12.7509 Percent	12.6412 Percent
Stnd Dev Btwn Labs	0.6318 Percent	0.6976 Percent
Statistics based on 30 of 31 reporting participants		

Sample D61: LDPE & Sample D62: LDPE

Comments on Assigned Data Flags for Test #785

4QZ7JW (X) - Data for sample D61 are high.

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

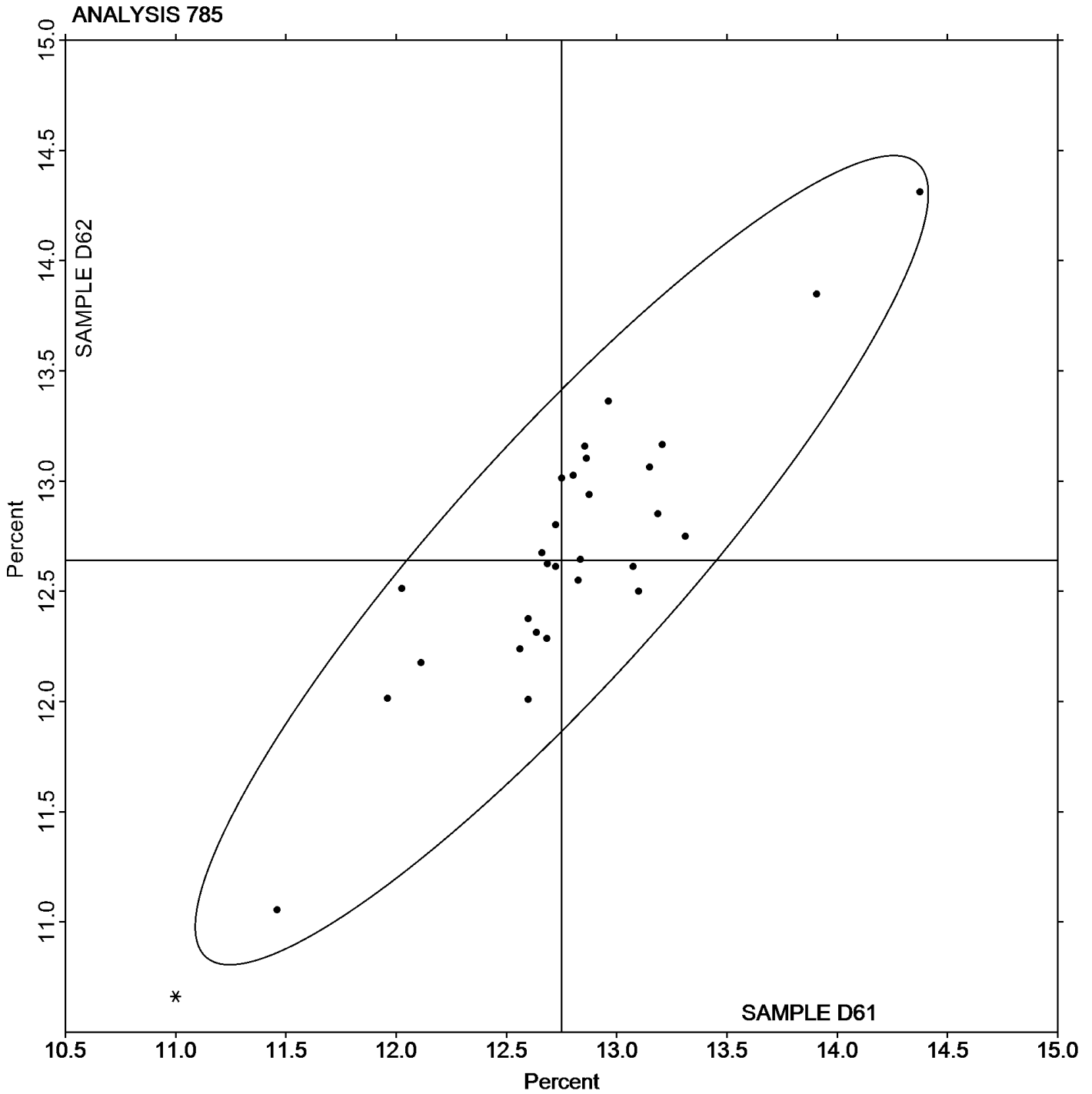
Analysis 785

Percent Haze of Film

Report #111

3rd Qtr 2019

Grand Mean Sample D61: 12.751 Percent Grand Mean Sample D62: 12.641 Percent





Plastics Interlaboratory Testing Program

Report #111

Analysis 786

3rd Qtr 2019

Total Luminous transmittance of film

WebCode	Data Flag	Sample D61			Sample D62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
4QZ7JW	X	92.30	0.00	0.00	91.94	-0.37	-0.36	BJ
6JG3BU		93.76	1.46	1.39	93.74	1.43	1.37	BJ
8E3RCJ		93.24	0.94	0.89	93.31	1.00	0.96	BJ
93PPQL		92.84	0.54	0.51	92.88	0.56	0.54	BJ
9A963V		93.99	1.69	1.60	93.90	1.59	1.53	BJ
9Z8JK8		92.16	-0.14	-0.13	92.10	-0.21	-0.20	XX
AL3LRW		91.60	-0.70	-0.67	91.53	-0.78	-0.75	XR
BT2LPZ		92.41	0.11	0.11	92.60	0.29	0.28	BJ
BWZZDQ		92.52	0.21	0.20	92.49	0.18	0.17	BJ
C364YH		92.06	-0.24	-0.23	92.05	-0.26	-0.25	BJ
CNMFKD		92.78	0.47	0.45	92.79	0.48	0.46	BJ
EERURK		90.68	-1.62	-1.54	90.72	-1.60	-1.53	XR
F2AZ88		93.15	0.85	0.81	93.24	0.93	0.89	BJ
FZLHFH		91.13	-1.17	-1.11	91.22	-1.09	-1.05	XR
HK3CJA		93.40	1.10	1.04	93.34	1.03	0.99	BJ
JVD8PN		91.66	-0.64	-0.61	91.69	-0.62	-0.60	XX
KDHV46		91.75	-0.55	-0.52	91.75	-0.56	-0.54	BJ
L3LJVK		92.35	0.05	0.05	92.53	0.21	0.21	BJ
MG7J7F		90.79	-1.51	-1.44	90.70	-1.61	-1.55	XX
N97FGD		93.91	1.61	1.53	93.90	1.59	1.53	BJ
R23CKA		92.23	-0.08	-0.07	92.25	-0.06	-0.06	BJ
R76QJL		92.86	0.56	0.53	92.74	0.43	0.41	BJ
RV49Z7		92.93	0.62	0.59	92.94	0.63	0.60	BJ
T3ZHQV		91.59	-0.71	-0.68	91.58	-0.74	-0.71	BJ
TQ68K9		90.24	-2.06	-1.96	90.34	-1.97	-1.90	HL
WGT7GC		91.37	-0.93	-0.89	91.41	-0.90	-0.86	XR
XG7ZR7		90.51	-1.79	-1.70	90.53	-1.79	-1.72	BJ
XLGDA4		93.26	0.96	0.91	93.21	0.90	0.87	BJ
Y3Q9X9		93.26	0.96	0.91	93.27	0.96	0.92	BJ



Plastics Interlaboratory Testing Program

Report #111

Analysis 786

3rd Qtr 2019

Total Luminous transmittance of film

Summary Statistics		
	<u>Sample D61</u>	<u>Sample D62</u>
Grand Means	92.301 Percent	92.311 Percent
Stnd Dev Btwn Labs	1.053 Percent	1.040 Percent
Statistics based on 28 of 29 reporting participants		

Sample D61: LDPE & Sample D62: LDPE

Comments on Assigned Data Flags for Test #786

4QZ7JW (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample D62.

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

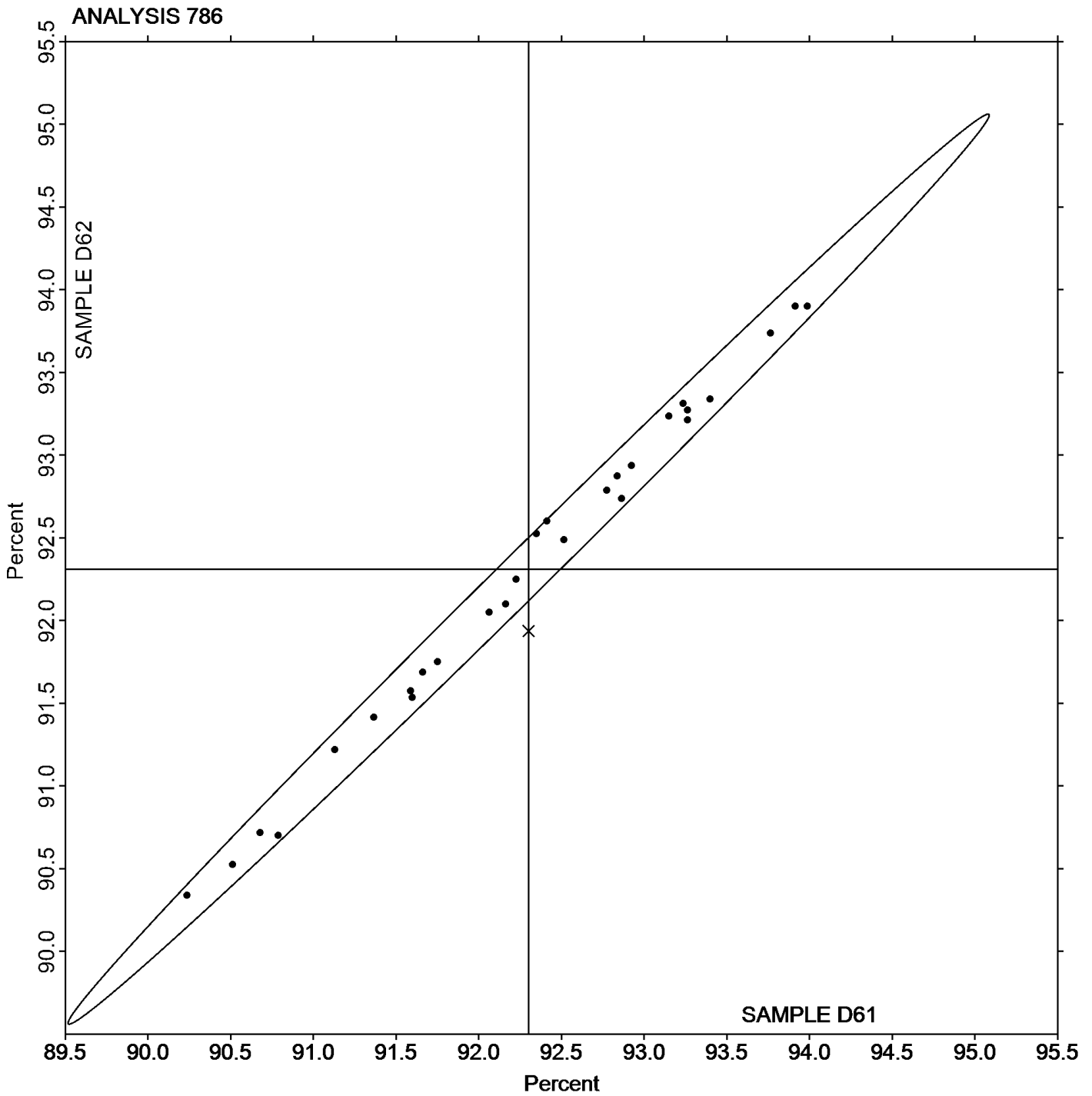
Analysis 786

Total Luminous transmittance of film

Report #111

3rd Qtr 2019

Grand Mean Sample D61: 92.301 Percent Grand Mean Sample D62: 92.311 Percent





Plastics Interlaboratory Testing Program

Report #111

Analysis 790

3rd Qtr 2019

Notched Izod Impact - ft.lbf/in

WebCode	Data Flag	Sample S61			Sample S62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2FG7G7		1.66	0.03	0.23	1.58	-0.03	-0.29	TO
2VCKL7		1.62	-0.01	-0.10	1.61	0.00	-0.03	CE
3GNPWT	*	1.98	0.35	2.73	1.90	0.29	2.61	TO
3LZVCZ		1.70	0.07	0.52	1.61	0.00	0.00	WZ
3M9ZRA		1.73	0.10	0.77	1.68	0.07	0.60	TM
3QKE4U		1.62	-0.01	-0.05	1.68	0.07	0.66	TM
43JYG8		1.56	-0.07	-0.59	1.59	-0.02	-0.20	TM
4LGYTD		1.62	-0.01	-0.11	1.60	-0.01	-0.09	WZ
4QZ7JW		1.46	-0.17	-1.34	1.49	-0.12	-1.11	TO
64YGJN		1.43	-0.20	-1.61	1.42	-0.19	-1.71	TM
662PW2		1.91	0.28	2.16	1.85	0.24	2.13	TM
6DRP4E	*	1.95	0.32	2.51	1.94	0.33	2.93	TM
6EKKT9		1.61	-0.02	-0.17	1.60	-0.01	-0.08	WZ
6NE6GH		1.67	0.04	0.34	1.65	0.04	0.39	TM
7P8K4Y		1.65	0.02	0.18	1.58	-0.04	-0.31	WZ
84UWRQ		1.58	-0.05	-0.40	1.49	-0.12	-1.06	TM
8BRGLA		1.68	0.05	0.37	1.72	0.11	0.94	TM
8E3RCJ		1.75	0.12	0.92	1.68	0.07	0.66	BA
8ZPCC9		1.65	0.02	0.17	1.57	-0.04	-0.36	CE
98QMRA		1.56	-0.07	-0.52	1.55	-0.06	-0.50	TO
APDWH6		1.69	0.06	0.45	1.61	-0.01	-0.05	TO
ARURTN		1.71	0.08	0.59	1.70	0.09	0.77	TO
AUGLAP		1.53	-0.10	-0.79	1.56	-0.05	-0.45	TM
BPK23K	X	1.97	0.34	2.68	2.04	0.43	3.79	XX
BTUTFU		1.88	0.25	1.94	1.78	0.17	1.55	BA
C7EHXW		1.70	0.07	0.58	1.70	0.09	0.77	TO
CD39LN		1.43	-0.20	-1.54	1.41	-0.20	-1.75	TM
CGHDG3		1.72	0.09	0.67	1.68	0.07	0.60	TO
DW6F76	X	0.01	-1.62	-12.77	0.01	-1.60	-14.28	CE
EH2BJP		1.42	-0.21	-1.66	1.44	-0.17	-1.50	TO
G4ZDVF		1.63	0.00	-0.01	1.60	-0.01	-0.06	TM
G8VBWV		1.52	-0.11	-0.87	1.54	-0.07	-0.66	TO
GQ3MJC		1.65	0.02	0.14	1.67	0.05	0.49	TO
GREEED		1.77	0.14	1.13	1.74	0.13	1.19	CE
H9R3UY		1.64	0.01	0.07	1.64	0.03	0.24	TO



Plastics Interlaboratory Testing Program

Report #111

Analysis 790

3rd Qtr 2019

Notched Izod Impact - ft.lbf/in

WebCode	Data Flag	Sample S61			Sample S62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
J6EVGK		1.42	-0.21	-1.69	1.40	-0.21	-1.86	DY
JA6LKM		1.58	-0.05	-0.39	1.60	-0.01	-0.06	TO
JATDY3	X	1.56	-0.07	-0.57	1.75	0.14	1.24	CS
JB49KU		1.49	-0.14	-1.14	1.57	-0.04	-0.40	TO
JEARTY		1.57	-0.06	-0.48	1.56	-0.05	-0.48	TO
JUX4XG		1.66	0.03	0.27	1.57	-0.04	-0.33	XX
JVK7GN		1.59	-0.04	-0.35	1.60	-0.01	-0.07	TO
KDHV46		1.54	-0.09	-0.68	1.52	-0.09	-0.79	WZ
KGRA4J		1.56	-0.07	-0.59	1.51	-0.10	-0.88	CE
LBGNMZ		1.62	-0.01	-0.04	1.56	-0.05	-0.46	XX
M6C2Y2		1.52	-0.11	-0.90	1.58	-0.03	-0.31	TO
N3LEJJ		1.63	0.00	-0.02	1.56	-0.05	-0.41	TO
NXEJ6B	X	2.16	0.53	4.13	2.15	0.54	4.82	CE
PCQGNG		1.73	0.10	0.75	1.72	0.11	0.98	TM
R23CKA		1.52	-0.11	-0.87	1.50	-0.11	-0.96	CE
RU9MD7		1.67	0.04	0.34	1.63	0.02	0.14	TO
RV49Z7		1.59	-0.04	-0.35	1.59	-0.02	-0.17	TY
T3ZHQV		1.68	0.05	0.39	1.58	-0.03	-0.25	CE
U94N4C		1.53	-0.10	-0.79	1.54	-0.07	-0.66	TO
V6FRUD		1.44	-0.19	-1.47	1.52	-0.09	-0.77	TO
WC2XE2		1.55	-0.08	-0.66	1.56	-0.05	-0.47	TO
WJC7RL		1.85	0.22	1.75	1.84	0.23	2.04	TM
WNTKLH	X	1.52	-0.11	-0.88	1.71	0.10	0.89	TO
ZVVUDV		1.66	0.03	0.20	1.59	-0.02	-0.15	TM

Summary Statistics		
	Sample S61	Sample S62
Grand Means	1.631 ft.lbf/in	1.610 ft.lbf/in
Stnd Dev Btwn Labs	0.127 ft.lbf/in	0.112 ft.lbf/in
Statistics based on 54 of 59 reporting participants		

Sample S61: HIPS & Sample S62: HIPS



Comments on Assigned Data Flags for Test #790

JATDY3 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample S62.

DW6F76 (X) - Extreme data.

NXEJ6B (X) - Data for both samples are high. Possible Systematic Error.

BPK23K (X) - Data for sample S62 are high.

WNTKLH (X) - Inconsistent in testing between samples.

Key to Instrument Codes Reported by Participants

BA Baldwin

CE Ceast

CS CSI

DY Dynatup

TM TMI

TO Tinius Olsen

TY Toyoseiki

WZ Zwick

XX Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

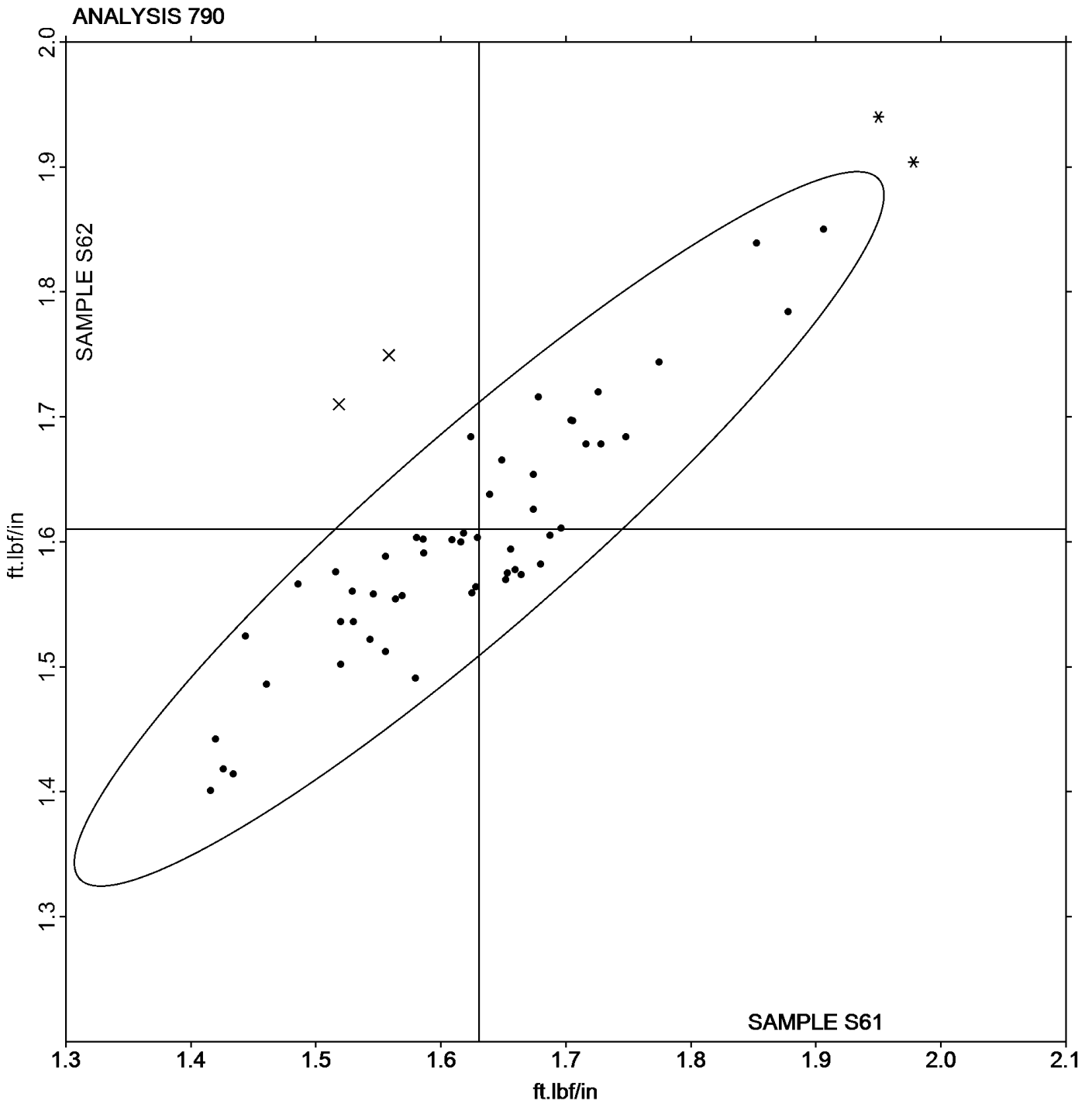
Analysis 790

Notched Izod Impact - ft.lbf/in

Report #111

3rd Qtr 2019

Grand Mean Sample S61: 1.6305 ft.lbf/in Grand Mean Sample S62: 1.6104 ft.lbf/in





Plastics Interlaboratory Testing Program

Report #111

Analysis 791

3rd Qtr 2019

Notched Izod Impact - kJ/m²

WebCode	Data Flag	Sample Z61			Sample Z62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
247QE8		36.99800	-2.64551	-0.59	36.95400	-2.27891	-0.60	TO
3LZVCZ		37.73000	-1.91351	-0.43	37.05800	-2.17491	-0.57	WZ
3M9ZRA		38.88600	-0.75751	-0.17	39.78200	0.54909	0.14	TM
48AY7Y		39.41400	-0.22951	-0.05	39.41400	0.18109	0.05	CE
73XCT9		43.16000	3.51649	0.79	43.86000	4.62709	1.22	TO
79TX9M		43.64000	3.99649	0.90	39.24000	0.00709	0.00	TO
7P8K4Y		39.73600	0.09249	0.02	39.95600	0.72309	0.19	WZ
8E3RCJ		38.33600	-1.30751	-0.29	37.43540	-1.79751	-0.47	CE
8F8X8W		39.81800	0.17449	0.04	41.41600	2.18309	0.57	XX
98QMRA		37.57400	-2.06951	-0.46	37.62600	-1.60691	-0.42	TO
B7B3YQ		41.28000	1.63649	0.37	38.20000	-1.03291	-0.27	CE
BTVF3Z		42.02800	2.38449	0.53	43.34320	4.11029	1.08	TM
C2HXRR		33.31800	-6.32551	-1.42	33.73400	-5.49891	-1.45	XX
CJ62QG		40.41200	0.76849	0.17	39.40200	0.16909	0.04	WZ
DVDGYX		35.33200	-4.31151	-0.97	36.61600	-2.61691	-0.69	TO
JEARTY		33.56000	-6.08351	-1.36	32.64000	-6.59291	-1.73	TO
KGRA4J		47.92000	8.27649	1.86	44.40000	5.16709	1.36	CE
KKFPVB		42.80400	3.16049	0.71	41.27000	2.03709	0.54	WZ
M3FVQB		37.17200	-2.47151	-0.55	35.72000	-3.51291	-0.92	CE
QVQACN		39.96000	0.31649	0.07	40.08000	0.84709	0.22	WZ
R78E73		47.18000	7.53649	1.69	47.16000	7.92709	2.08	WZ
RV49Z7		43.94400	4.30049	0.96	41.33400	2.10109	0.55	XX
V6FRUD		35.63280	-4.01071	-0.90	36.45400	-2.77891	-0.73	TO
VWLL2C		40.45200	0.80849	0.18	40.24400	1.01109	0.27	CE
WNTKLH		28.31240	11.33111	-2.54	31.33302	-7.89989	-2.08	TO
YCPY7X		46.13200	6.48849	1.45	45.38400	6.15109	1.62	CE

Summary Statistics		Sample Z61	Sample Z62
Grand Means		39.643508 kJ/m ²	39.232908 kJ/m ²
Std Dev Btwn Labs		4.460695 kJ/m ²	3.802428 kJ/m ²
Statistics based on 26 of 26 reporting participants			

Sample Z61: ABS/PC & Sample Z62: ABS/PC



Plastics Interlaboratory Testing Program

Analysis 791

Notched Izod Impact - kJ/m^2

Report #111

3rd Qtr 2019

Key to Instrument Codes Reported by Participants

CE Ceast

TO Tinius Olsen

XX Instrument manufacturer not specified by lab

TM TMI

WZ Zwick



Plastics Interlaboratory Testing Program

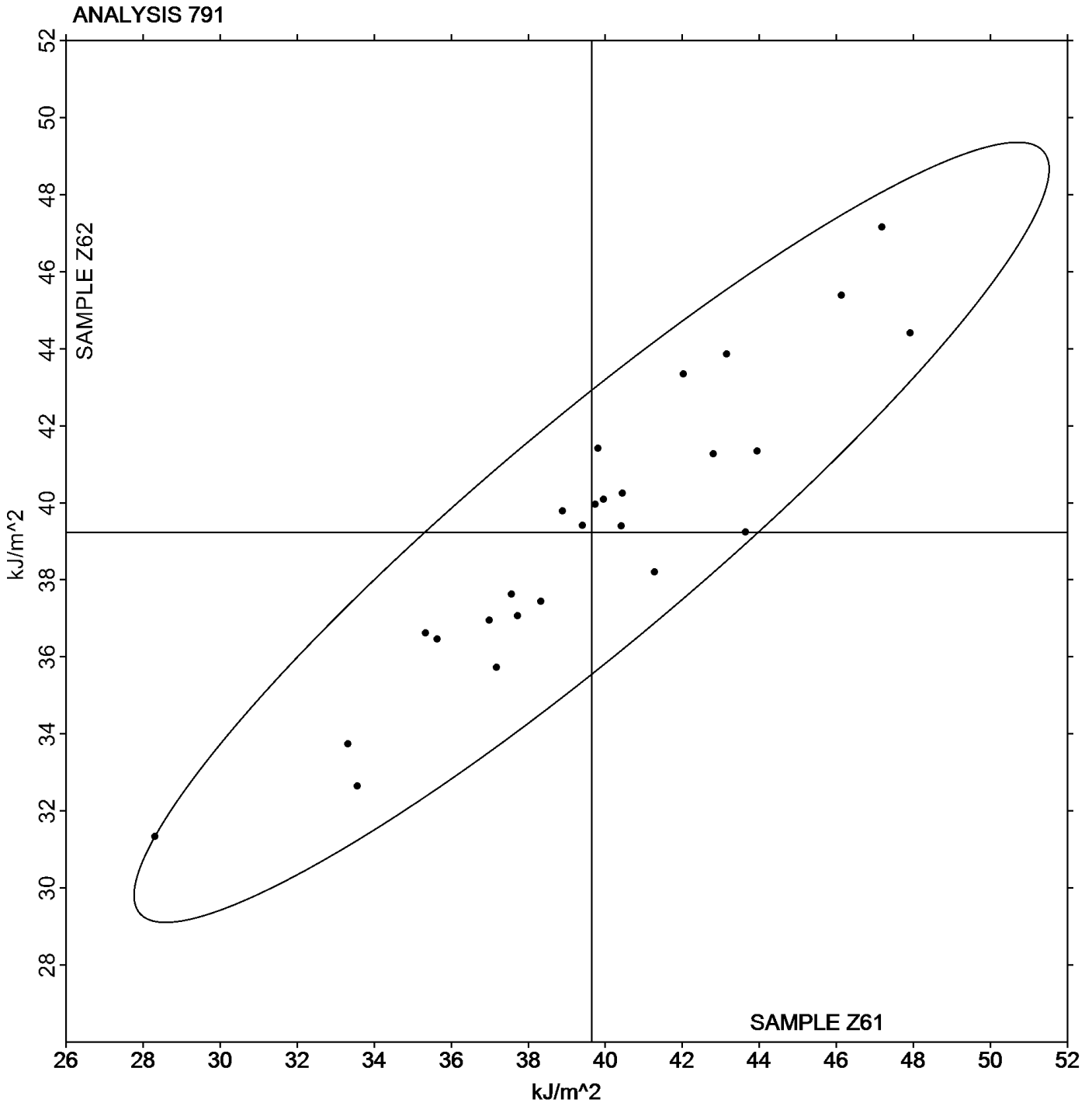
Report #111

Analysis 791

3rd Qtr 2019

Notched Izod Impact - kJ/m^2

Grand Mean Sample Z61: 39.644 kJ/m^2 Grand Mean Sample Z62: 39.233 kJ/m^2





Plastics Interlaboratory Testing Program

Report #111

Analysis 792

3rd Qtr 2019

Notched Charpy Impact - kJ/m²

WebCode	Data Flag	Sample M61			Sample M62			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
247QE8		38.37	-3.74	-1.08	39.82	-1.91	-0.58	TO
2HMQ67		39.97	-2.14	-0.62	38.47	-3.26	-0.99	XX
2VCKL7		46.37	4.26	1.23	44.27	2.54	0.77	CE
3FVRPM	*	52.22	10.10	2.92	51.72	9.99	3.02	TO
3LZVCZ		38.10	-4.01	-1.16	37.98	-3.76	-1.13	WZ
43JYG8		42.68	0.56	0.16	41.40	-0.34	-0.10	TM
4HE7TM	*	41.41	-0.70	-0.20	37.36	-4.37	-1.32	TO
7P8K4Y		42.74	0.63	0.18	43.80	2.07	0.62	WZ
8E3RCJ		38.77	-3.35	-0.97	37.04	-4.69	-1.42	CE
8F8X8W		46.57	4.45	1.28	44.16	2.43	0.73	XX
98QMRA		40.79	-1.33	-0.38	41.91	0.18	0.06	TO
APDWH6		43.60	1.48	0.43	42.95	1.22	0.37	TO
B7M2TZ		43.14	1.02	0.30	45.37	3.64	1.10	TM
BJQB7D		41.36	-0.76	-0.22	40.62	-1.11	-0.34	TO
BPK23K		40.25	-1.87	-0.54	38.38	-3.36	-1.01	XX
CJ62QG		38.61	-3.50	-1.01	38.46	-3.27	-0.99	WZ
DVDGYX		39.06	-3.06	-0.88	39.36	-2.37	-0.72	TO
EWXQGX		40.78	-1.34	-0.39	39.91	-1.83	-0.55	CE
FLEHCG		42.18	0.07	0.02	42.31	0.58	0.17	XX
JEARTY		36.14	-5.98	-1.73	37.15	-4.58	-1.38	TO
JUX4XG		42.04	-0.08	-0.02	40.98	-0.75	-0.23	XX
KBBQBG		47.76	5.64	1.63	47.75	6.01	1.82	WZ
KDHV46		37.92	-4.20	-1.21	40.31	-1.43	-0.43	WZ
KGRA4J		44.73	2.61	0.75	43.99	2.26	0.68	IN
KKLTWH		42.48	0.36	0.10	41.16	-0.57	-0.17	WZ
LBGNMZ		37.58	-4.54	-1.31	38.74	-2.99	-0.90	XX
M3FVQB		39.07	-3.05	-0.88	38.98	-2.75	-0.83	CE
MAED7N		43.77	1.66	0.48	44.29	2.56	0.77	XX
N6RL2C		36.86	-5.26	-1.52	36.82	-4.91	-1.48	IN
N97FGD		41.08	-1.04	-0.30	39.60	-2.13	-0.64	TO
ND6TLL		39.62	-2.49	-0.72	41.38	-0.35	-0.11	CE
NJ9PCD		39.32	-2.80	-0.81	38.55	-3.18	-0.96	TM
QVQACN		45.20	3.08	0.89	44.73	3.00	0.91	WZ
R6CTCE		42.79	0.67	0.19	41.38	-0.35	-0.11	IN
R78E73	*	50.56	8.44	2.44	47.70	5.97	1.80	WZ



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		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
RV49Z7		43.24	1.13	0.33	41.47	-0.27	-0.08	TY
T3ZHQV		45.58	3.46	1.00	45.24	3.51	1.06	CE
TH4Q62		39.60	-2.52	-0.73	40.83	-0.90	-0.27	IN
U94N4C		41.15	-0.97	-0.28	37.52	-4.21	-1.27	TO
UHFMA7		46.56	4.45	1.28	46.09	4.36	1.32	XX
V6FRUD		38.10	-4.02	-1.16	38.58	-3.15	-0.95	TO
VWLL2C		42.26	0.15	0.04	42.31	0.58	0.18	CE
WZ6YKA	X	29.44	-12.68	-3.66	29.82	-11.91	-3.60	TO
XKLPVF		45.28	3.16	0.91	44.80	3.07	0.93	WZ
XLCZM9		43.76	1.64	0.47	40.80	-0.93	-0.28	TM
Y742HB		41.12	-1.00	-0.29	41.54	-0.19	-0.06	WZ
YCPY7X		44.82	2.71	0.78	46.12	4.39	1.33	CE
ZNJQB3		46.52	4.40	1.27	46.08	4.35	1.31	CE
ZVVUDV		42.89	0.77	0.22	44.72	2.98	0.90	TM
ZWXFCT		38.97	-3.15	-0.91	39.93	-1.81	-0.55	TO

Summary Statistics		
	Sample M61	Sample M62
Grand Means	42.117 kJ/m ²	41.731 kJ/m ²
Stnd Dev Btwn Labs	3.464 kJ/m ²	3.311 kJ/m ²
Statistics based on 49 of 50 reporting participants		

Sample M61: ABS/PC & Sample M62: ABS/PC

Comments on Assigned Data Flags for Test #792

WZ6YKA (X) - Data for both samples are low. Possible Systematic Error.

Key to Instrument Codes Reported by Participants

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



Plastics Interlaboratory Testing Program

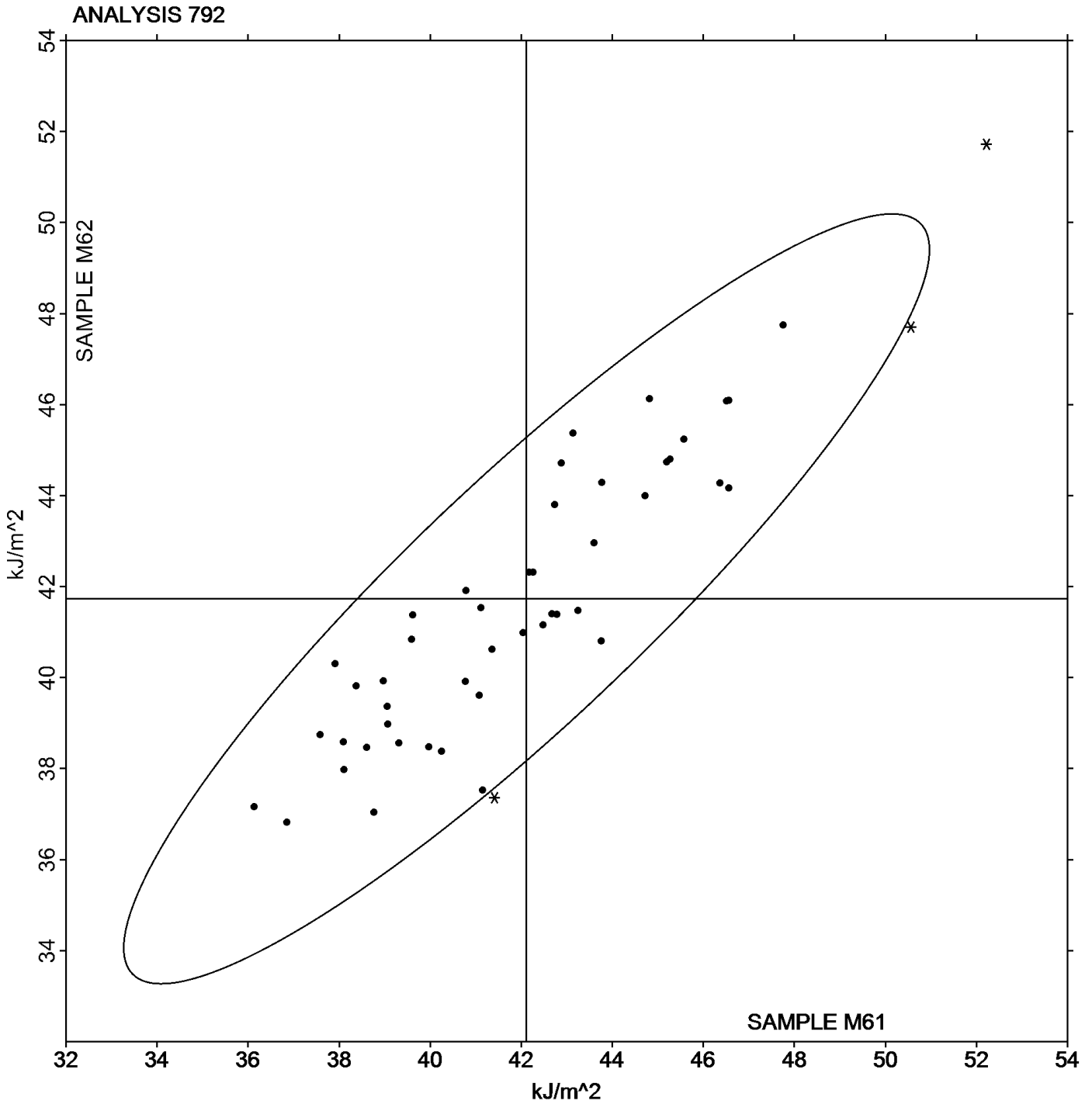
Report #111

Analysis 792

3rd Qtr 2019

Notched Charpy Impact - kJ/m^2

Grand Mean Sample M61: 42.117 kJ/m^2 Grand Mean Sample M62: 41.731 kJ/m^2



-End of Report-