

Plastics Interlaboratory Testing Program

Web Summary Report #113, 1st Qtr 2020

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About CTS and the Plastics Interlaboratory Program

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

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

The program allows laboratories to compare periodically the level and uniformity of their testing with that of other participating laboratories. It also provides a realistic assessment of the state of plastics testing proficiency.

For each test there is a summary of the statistics for the analysis and a graphical representation of the data. Also shown are notes concerning specific laboratory results, as well as significant findings related to instrument types or other testing variations. Refer to the KEY FOR SUMMARY REPORT for an explanation of terms and guidelines for interpreting the results.

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Key for Web Summary Report (Page 1 of 2)

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

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

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

Common Problems Highlighted in Footnotes

1. **Extreme data** - The laboratory's results for one or both samples are so inconsistent with those of the other participants that the lab mean(s) fall outside the plot. The participant is advised to immediately review his data and/or testing procedure.
2. **Systematic bias** - The laboratory's results are either consistently high or low for both samples when compared to the other participants (the plotted point falls near the top or bottom of the ellipse). This indicates that the participant is performing the test with a constant bias. Causes of systematic errors include improper calibration, the particular make/model of equipment or a modification to the testing procedure.
3. **Inconsistency in testing between samples/sample sets** - The laboratory's results indicate that there are differences in the way the two samples tested (the plotted point falls to the side of the ellipse). This type of error may be attributed to the analyst deviating from the procedure when testing one of the samples or a material interaction occurrence with the instrument or room conditions. The inconsistency is reflected in the CPVs for the two samples, such as a +1.5 CPV for sample A and a -2.2 CPV for sample B. CTS also will specify if the laboratory's data for one sample are high/low compared to the other participants. If this inconsistency is slight, the lab's plotted point will be an * that falls on the edge of the ellipse.
4. **Inconsistency in testing within a sample** - The laboratory's within-lab standard deviation for a specified sample is high when compared to the other participants, often causing the lab's plotted point to fall outside of the ellipse.

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



Plastics Interlaboratory Testing Program

Results Summary for Report #1113, 1st Qtr 2020

Analysis 704 - Tensile Stress at Yield

Material: HIPS	Sample F65	4,199.86	psi	2.38% COV
	Sample F66	4,196.55	psi	2.54% COV

Analysis 705 - Tensile Stress at Break

Material: HIPS	Sample F65	3,258.44	psi	3.55% COV
	Sample F66	3,265.60	psi	3.13% COV

Analysis 706 - Percent Elongation at Yield

Material: HIPS	Sample F65	1.3652	Percent	6.45% COV
	Sample F66	1.3614	Percent	6.59% COV

Analysis 708 - Modulus of Elasticity

Material: HIPS	Sample F65	353.36	ksi	3.18% COV
	Sample F66	354.27	ksi	3.38% COV

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

Material: ABS	Sample E65	79.843	Degrees C	1.40% COV
	Sample E66	79.788	Degrees C	1.08% COV

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

Material: PP	Sample G65	112.71	Degrees C	3.04% COV
	Sample G66	113.10	Degrees C	2.83% COV

Analysis 712 - Temperature of Deflection (1.80 MPa)

Material: HIPS	Sample N65	77.873	Degrees C	0.992% COV
	Sample N66	77.695	Degrees C	1.11% COV

Analysis 715 - Vicat Temperature (Rate A)

Material: HIPS	Sample H65	95.565	Degrees C	0.658% COV
	Sample H66	95.520	Degrees C	0.617% COV

Analysis 716 - Vicat Temperature (Rate B)

Material: HIPS	Sample R65	97.767	Degrees C	0.651% COV
	Sample R66	97.655	Degrees C	0.684% COV

Analysis 718 - Specific Gravity

Material: ABS/PC	Sample T65	1.1372	sp gr 23/23 C	0.221% COV
	Sample T66	1.1370	sp gr 23/23 C	0.230% COV

Analysis 720 - Flexural Modulus

Material: ABS/PC	Sample J65	332.31	ksi	5.24% COV
	Sample J66	330.92	ksi	5.36% COV

Analysis 721 - Flexural Stress at 5% Strain

Material: ABS/PC	Sample J65	11,745.15	psi	4.07% COV
	Sample J66	11,713.18	psi	4.03% COV

Analysis 722 - Flexural Stress at Yield

Material: ABS/PC	Sample J65	11,847.53	psi	3.79% COV
	Sample J66	11,829.18	psi	3.63% COV

Analysis 730 - Tensile Stress at Yield, ISO Method

Material: HIPS	Sample C65	28.197	MPa	3.47% COV
	Sample C66	27.949	MPa	3.42% COV

Analysis 731 - Tensile Stress at Break, ISO Method

Material: HIPS	Sample C65	21.420	MPa	3.08% COV
	Sample C66	21.080	MPa	3.37% COV



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Analysis 732 - Strain at Yield, ISO Method

Material: HIPS	Sample C65	1.3056	Percent	5.22% COV
	Sample C66	1.3028	Percent	5.14% COV

Analysis 734 - Modulus of Elasticity, ISO Method

Material: HIPS	Sample C65	2,412.24	MPa	5.04% COV
	Sample C66	2,391.36	MPa	4.67% COV

Analysis 736 - Flexural Modulus

Material: HIPS	Sample K65	2,413.29	MPa	4.56% COV
	Sample K66	2,418.37	MPa	4.64% COV

Analysis 737 - Flexural Stress at 3.5% Strain

Material: HIPS	Sample K65	44.958	MPa	4.31% COV
	Sample K66	45.224	MPa	4.07% COV

Analysis 738 - Flexural Stress at Yield

Material: HIPS	Sample K65	44.727	MPa	5.22% COV
	Sample K66	44.918	MPa	5.80% COV

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

Material: HDPE	Sample X65	6.5853	grams/10 mins	2.85% COV
	Sample X66	8.1527	grams/10 mins	3.49% COV

Analysis 755 - Moisture Content

Material: ABS/PC	Sample Y65	0.12091	Percent	15.2% COV
	Sample Y66	0.12184	Percent	14.2% COV

Analysis 757 - Ash Content

Material: PP	Sample L65	19.752	Percent	0.334% COV
	Sample L66	19.764	Percent	0.272% COV

Analysis 760 - DSC Crystallization Temperature

Material: PP	Sample W65	117.59	Degrees Celsius	3.59% COV
	Sample W66	117.52	Degrees Celsius	3.90% COV

Analysis 761 - DSC Melt Temperature

Material: PP	Sample W65	164.71	Degrees Celsius	1.09% COV
	Sample W66	165.01	Degrees Celsius	0.992% COV

Analysis 762 - DSC Enthalpy of Crystallization

Material: PP	Sample W65	101.48	Joules Per Gram	6.67% COV
	Sample W66	100.96	Joules Per Gram	9.14% COV

Analysis 763 - DSC Enthalpy of Fusion

Material: PP	Sample W65	98.315	Joules Per Gram	11.2% COV
	Sample W66	95.626	Joules Per Gram	10.0% COV

Analysis 764 - DSC Glass Transition Temperature

Material: PET	Sample V65	87.050	Degrees Celsius	2.23% COV
	Sample V66	87.190	Degrees Celsius	1.69% COV

Analysis 770 - Tensile Stress at Yield, Films

Material: LDPE	Sample B65	1,635.18	psi	11.6% COV
	Sample B66	1,620.54	psi	13.7% COV

Analysis 771 - Tensile Stress at Break, Films

Material: LDPE	Sample B65	2,886.45	psi	15.5% COV
	Sample B66	2,941.49	psi	17.2% COV



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Analysis 772 - Elongation at Yield, Films

Material: LDPE	Sample B65	49.870	Percent	19.3% COV
	Sample B66	44.462	Percent	35.5% COV

Analysis 773 - Elongation at Break, Films

Material: LDPE	Sample B65	791.32	Percent	18.6% COV
	Sample B66	819.66	Percent	26.0% COV

Analysis 774 - Thickness of Film Specimens

Material: LDPE	Sample B65	3.5777	mils	2.79% COV
	Sample B66	3.6650	mils	3.31% COV

Analysis 775 - Secant Modulus at 1% Strain

Material: LDPE	Sample B65	31,542.07	psi	10.7% COV
	Sample B66	31,761.42	psi	10.6% COV

Analysis 776 - Secant Modulus at 2% Strain

Material: LDPE	Sample B65	28,009.50	psi	11.6% COV
	Sample B66	27,878.93	psi	10.6% COV

Analysis 780 - Static Friction

Material: LDPE	Sample P65	0.13076	COF	37.6% COV
	Sample P66	0.12656	COF	36.6% COV

Analysis 781 - Kinetic Friction

Material: LDPE	Sample P65	0.10823	COF	40.4% COV
	Sample P66	0.10405	COF	40.2% COV

Analysis 782 - Tear Resistance of Film

Material: LDPE	Sample Q65	244.99	grams-force	9.20% COV
	Sample Q66	247.66	grams-force	9.18% COV

Analysis 785 - Percent Haze

Material: LDPE	Sample D65	11.611	Percent	4.76% COV
	Sample D66	11.563	Percent	4.49% COV

Analysis 786 - Total Transmittance

Material: LDPE	Sample D65	91.834	Percent	1.09% COV
	Sample D66	91.834	Percent	1.12% COV

Analysis 790 - Notched Izod Impact

Material: ABS/PC	Sample S65	9.6330	ft.lbf/in	7.29% COV
	Sample S66	9.6451	ft.lbf/in	7.23% COV

Analysis 791 - Notched Izod Impact

Material: HIPS	Sample Z65	8.3612	kJ/m ²	7.00% COV
	Sample Z66	8.3423	kJ/m ²	6.68% COV

Analysis 792 - Notched Charpy Impact

Material: HIPS	Sample M65	8.1457	kJ/m ²	4.54% COV
	Sample M66	8.1444	kJ/m ²	4.47% COV



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Analysis 704

1st Qtr 2020

Tensile Stress at Yield - psi

WebCode	Data Flag	Sample F65			Sample F66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
289RUM		4,341.2	141.3	1.41	4,382.8	186.2	1.75
2M2HUQ		4,095.4	-104.5	-1.05	4,036.6	-160.0	-1.50
3JJRZE		4,153.4	-46.5	-0.47	4,135.8	-60.8	-0.57
3UFV49		4,107.5	-92.4	-0.92	4,084.3	-112.3	-1.05
3YBH4N		4,150.0	-49.9	-0.50	4,126.0	-70.6	-0.66
4JEU3N		4,058.2	-141.7	-1.42	4,065.2	-131.3	-1.23
4QXXAQ		4,180.0	-19.9	-0.20	4,266.0	69.4	0.65
6BFJBQ		4,148.2	-51.7	-0.52	4,147.8	-48.8	-0.46
6EFRFZ		4,307.4	107.5	1.08	4,214.2	17.6	0.17
6LVEN4		4,204.0	4.1	0.04	4,224.0	27.4	0.26
7HMRY6	X	4,330.0	130.1	1.30	4,088.0	-108.6	-1.02
7HUKCK		4,088.0	-111.9	-1.12	4,054.0	-142.6	-1.34
8WA8UG		4,154.6	-45.3	-0.45	4,137.0	-59.6	-0.56
8YE3AE		4,208.5	8.6	0.09	4,165.5	-31.1	-0.29
96YD8F	X	3,412.0	-787.9	-7.89	3,588.0	-608.6	-5.71
9HH6KN		4,135.9	-63.9	-0.64	4,127.2	-69.3	-0.65
9P4XY9		4,096.8	-103.1	-1.03	4,199.7	3.2	0.03
9YRRDQ		4,304.0	104.1	1.04	4,248.6	52.0	0.49
B9JBBU		4,256.6	56.7	0.57	4,252.0	55.4	0.52
BVJF6F		4,305.2	105.3	1.05	4,225.8	29.2	0.27
CREA6Z		4,177.7	-22.2	-0.22	4,140.3	-56.3	-0.53
DH7PQB		4,297.8	97.9	0.98	4,293.8	97.2	0.91
EEKCG8		4,159.0	-40.9	-0.41	4,249.8	53.2	0.50
ERPTZG		4,258.2	58.3	0.58	4,246.4	49.8	0.47
EXXAHH		4,215.4	15.5	0.16	4,230.2	33.6	0.32
F9UBW8		4,206.1	6.3	0.06	4,206.1	9.6	0.09
FMX792	X	4,317.8	117.9	1.18	4,480.4	283.8	2.66
GTQPCV		4,308.0	108.1	1.08	4,316.0	119.4	1.12
HE77G7		4,042.0	-157.9	-1.58	4,030.2	-166.4	-1.56
HHL2UJ		4,208.6	8.7	0.09	4,214.1	17.6	0.17
HKFMQV		4,326.4	126.5	1.27	4,221.2	24.6	0.23
HPRGXD		4,121.1	-78.7	-0.79	4,164.7	-31.8	-0.30
HZQ9AK		4,079.8	-120.1	-1.20	3,998.0	-198.6	-1.86
J8N7QL		4,280.0	80.1	0.80	4,282.0	85.4	0.80
JDVTLB		4,254.4	54.5	0.55	4,278.1	81.6	0.77



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Analysis 704

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Tensile Stress at Yield - psi

WebCode	Data Flag	Sample F65			Sample F66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
K2CWHQ	*	4,410.2	210.4	2.11	4,496.0	299.4	2.81
KELCQG		4,052.4	-147.5	-1.48	4,099.0	-97.6	-0.92
M8XBWA		4,140.0	-59.9	-0.60	4,190.8	-5.8	-0.05
MPVU83		4,010.0	-189.9	-1.90	4,034.0	-162.6	-1.53
MQ8AZH		4,127.8	-72.1	-0.72	4,117.6	-79.0	-0.74
N7J8KA		4,253.6	53.7	0.54	4,243.0	46.4	0.44
PH8L33		4,218.8	18.9	0.19	4,225.2	28.6	0.27
Q4GG2J		4,130.7	-69.1	-0.69	4,046.6	-150.0	-1.41
T8VMNJ		4,236.8	36.9	0.37	4,229.2	32.6	0.31
TC689B		4,374.4	174.5	1.75	4,345.6	149.0	1.40
TWHBLN	*	4,456.8	256.9	2.57	4,451.0	254.4	2.39
UGXDXY		4,272.0	72.1	0.72	4,314.0	117.4	1.10
URJED9		4,241.6	41.7	0.42	4,228.6	32.0	0.30
VZKFYQ		4,055.0	-144.9	-1.45	4,059.2	-137.4	-1.29
W43324		4,291.8	92.0	0.92	4,267.0	70.4	0.66
WMY9U4		4,210.4	10.5	0.11	4,196.2	-0.4	0.00
X7MEBT		4,185.2	-14.7	-0.15	4,146.2	-50.4	-0.47
Y8FFYV		4,198.4	-1.5	-0.01	4,219.4	22.8	0.21
YBUXC7		4,051.6	-148.3	-1.48	4,049.6	-147.0	-1.38
YQ97CA		4,245.6	45.7	0.46	4,299.1	102.6	0.96

Summary Statistics		
	Sample F65	Sample F66
Grand Means	4,199.86 psi	4,196.55 psi
Stnd Dev Btwn Labs	99.89 psi	106.54 psi
Statistics based on 52 of 55 reporting participants		

Sample F65: HIPS & Sample F66: HIPS

Comments on Assigned Data Flags for Test #704

- 96YD8F (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample F65.
- FMX792 (X) - Inconsistent in testing between samples.
- 7HMRY6 (X) - Inconsistent in testing between samples.



Plastics Interlaboratory Testing Program

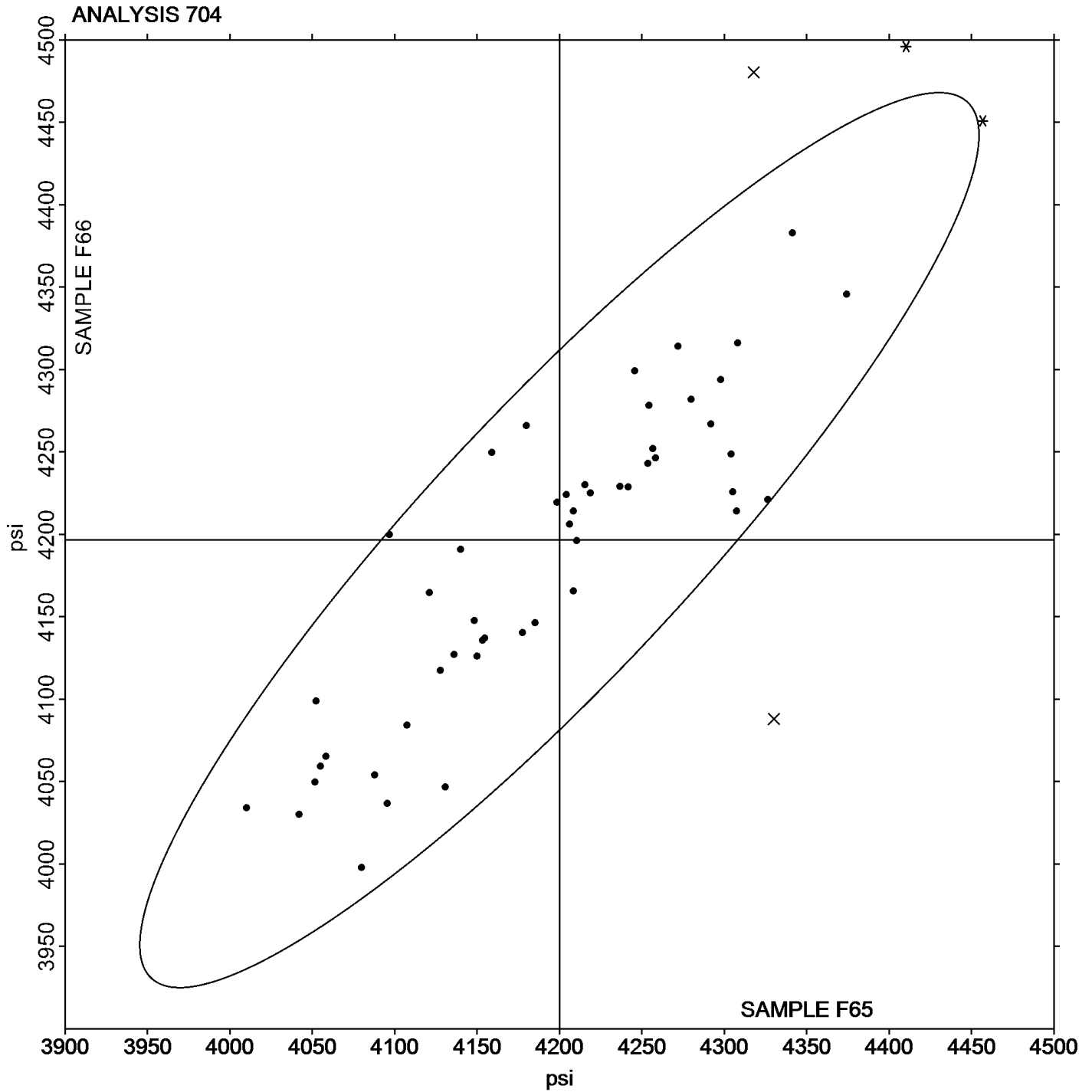
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Tensile Stress at Yield - psi

Grand Mean Sample F65: 4,199.86 psi Grand Mean Sample F66: 4,196.55 psi





Plastics Interlaboratory Testing Program

Report #113

Analysis 705

1st Qtr 2020

Tensile Stress at Break - psi

WebCode	Data Flag	Sample F65			Sample F66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
289RUM		3,308.8	50.4	0.44	3,329.6	64.0	0.63
2M2HUQ		3,142.8	-115.6	-1.00	3,139.6	-126.0	-1.23
3YBH4N		3,262.0	3.6	0.03	3,222.0	-43.6	-0.43
4JEU3N		3,160.3	-98.2	-0.85	3,211.9	-53.7	-0.52
6BFJBQ		3,274.4	16.0	0.14	3,343.4	77.8	0.76
6EFRFZ		3,384.8	126.4	1.09	3,309.0	43.4	0.42
7HMRY6	X	3,409.0	150.6	1.30	3,177.0	-88.6	-0.87
7HUKCK		3,178.0	-80.4	-0.70	3,218.0	-47.6	-0.47
7JHH3X		3,018.2	-240.2	-2.08	3,060.0	-205.6	-2.01
8WA8UG		3,329.4	71.0	0.61	3,344.4	78.8	0.77
96YD8F	X	2,801.4	-457.0	-3.95	3,034.4	-231.2	-2.26
9HH6KN		3,199.9	-58.6	-0.51	3,176.4	-89.2	-0.87
9P4XY9		3,241.3	-17.1	-0.15	3,299.3	33.7	0.33
9YRRDQ		3,388.0	129.6	1.12	3,342.8	77.2	0.75
B9JBBU		3,331.4	73.0	0.63	3,363.0	97.4	0.95
BVJF6F		3,158.4	-100.0	-0.86	3,099.6	-166.0	-1.62
CREA6Z		3,348.7	90.2	0.78	3,292.4	26.8	0.26
DH7PQB		3,313.2	54.8	0.47	3,367.8	102.2	1.00
ERPTZG		3,270.8	12.4	0.11	3,286.0	20.4	0.20
EXXAHH		3,258.6	0.2	0.00	3,233.8	-31.8	-0.31
F9UBW8		3,190.9	-67.6	-0.58	3,306.9	41.3	0.40
GTQPCV		3,331.0	72.5	0.63	3,318.6	53.0	0.52
HE77G7		3,015.6	-242.8	-2.10	3,063.2	-202.4	-1.98
HHL2UJ		3,359.9	101.4	0.88	3,331.5	65.9	0.64
HKFMQV		3,381.0	122.6	1.06	3,303.6	38.0	0.37
HPRGXD		3,321.3	62.9	0.54	3,320.0	54.4	0.53
HZQ9AK		3,147.6	-110.8	-0.96	3,143.2	-122.4	-1.20
J8N7QL		3,358.0	99.6	0.86	3,342.0	76.4	0.75
JDVTLB		3,333.5	75.1	0.65	3,383.5	117.9	1.15
K2CWHQ		3,465.4	207.0	1.79	3,486.7	221.1	2.16
KELCQG		3,068.2	-190.2	-1.64	3,179.4	-86.2	-0.84
M8XBWA		3,148.2	-110.2	-0.95	3,258.8	-6.8	-0.07
MQ8AZH		3,163.6	-94.8	-0.82	3,155.2	-110.4	-1.08
N7J8KA		3,368.0	109.6	0.95	3,312.2	46.6	0.46
Q4GG2J		3,182.2	-76.3	-0.66	3,176.4	-89.2	-0.87



Plastics Interlaboratory Testing Program

Report #113

Analysis 705

1st Qtr 2020

Tensile Stress at Break - psi

WebCode	Data Flag	Sample F65			Sample F66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
T8VMNJ		3,152.0	-106.4	-0.92	3,186.4	-79.2	-0.77
TC689B		3,348.4	90.0	0.78	3,327.4	61.8	0.60
TWHBLN		3,433.9	175.5	1.52	3,381.7	116.1	1.14
UGXDXY		3,324.0	65.6	0.57	3,306.0	40.4	0.39
URJED9		3,390.2	131.8	1.14	3,381.0	115.4	1.13
VZKIFYQ		3,015.6	-242.8	-2.10	3,054.6	-211.0	-2.06
W43324		3,330.4	71.9	0.62	3,342.6	77.0	0.75
WMY9U4		3,322.4	64.0	0.55	3,331.0	65.4	0.64
X7MEBT		3,118.4	-140.0	-1.21	3,104.4	-161.2	-1.58
YBUXC7		3,184.0	-74.4	-0.64	3,189.6	-76.0	-0.74
YQ97CA		3,348.7	90.3	0.78	3,361.4	95.8	0.94

Summary Statistics		
	Sample F65	Sample F66
Grand Means	3,258.44 psi	3,265.60 psi
Std Dev Btwn Labs	115.69 psi	102.30 psi
Statistics based on 44 of 46 reporting participants		

Sample F65: HIPS & Sample F66: HIPS

Comments on Assigned Data Flags for Test #705

96YD8F (X) - Data for sample F65 are low. Inconsistent within the determinations of both samples.

7HMR6 (X) - Inconsistent in testing between samples.



Plastics Interlaboratory Testing Program

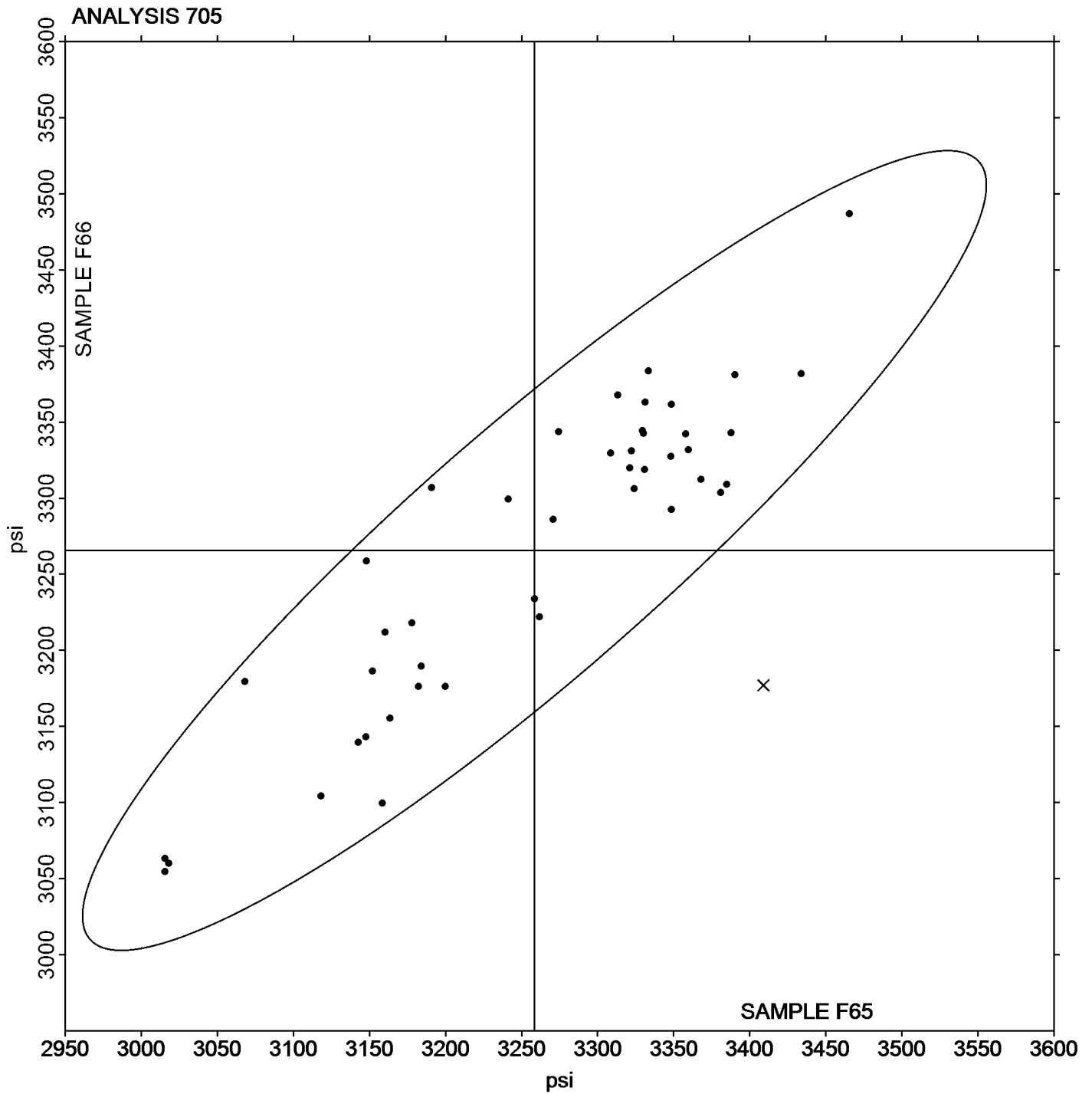
Report #113

Analysis 705

1st Qtr 2020

Tensile Stress at Break - psi

Grand Mean Sample F65: 3,258.44 psi Grand Mean Sample F66: 3,265.60 psi





Plastics Interlaboratory Testing Program

Report #113

Analysis 706

1st Qtr 2020

Percent Elongation at Yield - Percent

WebCode	Data Flag	Sample F65			Sample F66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
289RUM		1.400	0.035	0.40	1.382	0.021	0.23
2M2HUQ		1.368	0.003	0.03	1.328	-0.033	-0.37
3JJRZE		1.376	0.011	0.12	1.364	0.003	0.03
3YBH4N		1.368	0.003	0.03	1.364	0.003	0.03
4JEU3N		1.525	0.160	1.81	1.549	0.187	2.09
6BFJBQ	*	1.602	0.237	2.69	1.632	0.271	3.01
6EFRFZ		1.240	-0.125	-1.42	1.220	-0.141	-1.58
7HMR6		1.172	-0.193	-2.19	1.202	-0.159	-1.78
7HUKCK		1.334	-0.031	-0.35	1.314	-0.047	-0.53
8WA8UG		1.338	-0.027	-0.31	1.338	-0.023	-0.26
9HH6KN		1.356	-0.009	-0.10	1.360	-0.001	-0.02
9P4XY9		1.340	-0.025	-0.29	1.328	-0.033	-0.37
9YRRDQ		1.480	0.115	1.30	1.422	0.061	0.68
B9JBBU	X	4.310	2.945	33.44	4.284	2.923	32.56
BVJF6F		1.390	0.025	0.28	1.401	0.039	0.44
CREA6Z		1.344	-0.021	-0.24	1.332	-0.029	-0.33
DH7PQB	X	1.426	0.061	0.69	1.606	0.245	2.73
ERPTZG		1.374	0.009	0.10	1.370	0.009	0.10
EXXAHH		1.382	0.017	0.19	1.388	0.027	0.30
F9UBW8		1.334	-0.031	-0.35	1.336	-0.025	-0.28
FMX792		1.400	0.035	0.40	1.452	0.091	1.01
GTQPCV		1.398	0.033	0.37	1.400	0.039	0.43
HE77G7		1.378	0.013	0.15	1.372	0.011	0.12
HHL2UJ		1.151	-0.214	-2.43	1.165	-0.197	-2.19
HKFMQV		1.364	-0.001	-0.01	1.316	-0.045	-0.51
HPRGXD		1.362	-0.003	-0.04	1.350	-0.011	-0.13
HZQ9AK		1.422	0.057	0.65	1.380	0.019	0.21
J8N7QL		1.360	-0.005	-0.06	1.366	0.005	0.05
JDVTLB	X	1.368	0.003	0.03	1.750	0.389	4.33
K2CWHQ		1.433	0.068	0.77	1.456	0.094	1.05
KELCQG		1.288	-0.077	-0.88	1.266	-0.095	-1.06
M8XBWA	X	1.458	0.093	1.05	1.634	0.273	3.04
MQ8AZH		1.428	0.063	0.71	1.416	0.055	0.61
N7J8KA		1.392	0.027	0.30	1.390	0.029	0.32
PH8L33	X	1.520	0.155	1.76	1.400	0.039	0.43



Plastics Interlaboratory Testing Program

Report #113

Analysis 706

1st Qtr 2020

Percent Elongation at Yield - Percent

WebCode	Data Flag	Sample F65			Sample F66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
Q4GG2J	*	1.380	0.015	0.17	1.300	-0.061	-0.68
T8VMNJ	X	2.684	1.319	14.98	2.798	1.437	16.01
TC689B		1.350	-0.015	-0.17	1.320	-0.041	-0.46
TWHBLN		1.480	0.115	1.30	1.480	0.119	1.32
UGXDXY		1.400	0.035	0.40	1.440	0.079	0.88
URJED9		1.332	-0.033	-0.38	1.326	-0.035	-0.39
VZKFYQ	X	0.962	-0.403	-4.58	0.964	-0.397	-4.43
W43324		1.424	0.059	0.67	1.418	0.057	0.63
WMY9U4		1.362	-0.003	-0.04	1.368	0.007	0.07
X7MEBT		1.331	-0.035	-0.39	1.337	-0.024	-0.27
Y8FFYV		1.330	-0.035	-0.40	1.358	-0.003	-0.04
YBUXC7	*	1.120	-0.245	-2.78	1.152	-0.209	-2.33
YQ97CA	X	2.000	0.635	7.21	2.000	0.639	7.11

Summary Statistics		
	Sample F65	Sample F66
Grand Means	1.3652 Percent	1.3614 Percent
Std Dev Btwn Labs	0.0881 Percent	0.0898 Percent

Statistics based on 40 of 48 reporting participants

Sample F65: HIPS & Sample F66: HIPS

Comments on Assigned Data Flags for Test #706

- DH7PQB (X) - Data for sample F66 are high. Inconsistent within the determinations of both samples.
- M8XBWA (X) - Data for sample F66 are high. Inconsistent within the determinations of both samples.
- JDVTLB (X) - Data for sample F66 are high. Inconsistent within the determinations of both samples.
- PH8L33 (X) - Inconsistent in testing between samples.
- YQ97CA (X) - Data for both samples are high. Possible Systematic Error.
- B9JBBU (X) - Extreme data.
- T8VMNJ (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample F66.
- VZKFYQ (X) - Data for both samples are low. Possible Systematic Error.



Plastics Interlaboratory Testing Program

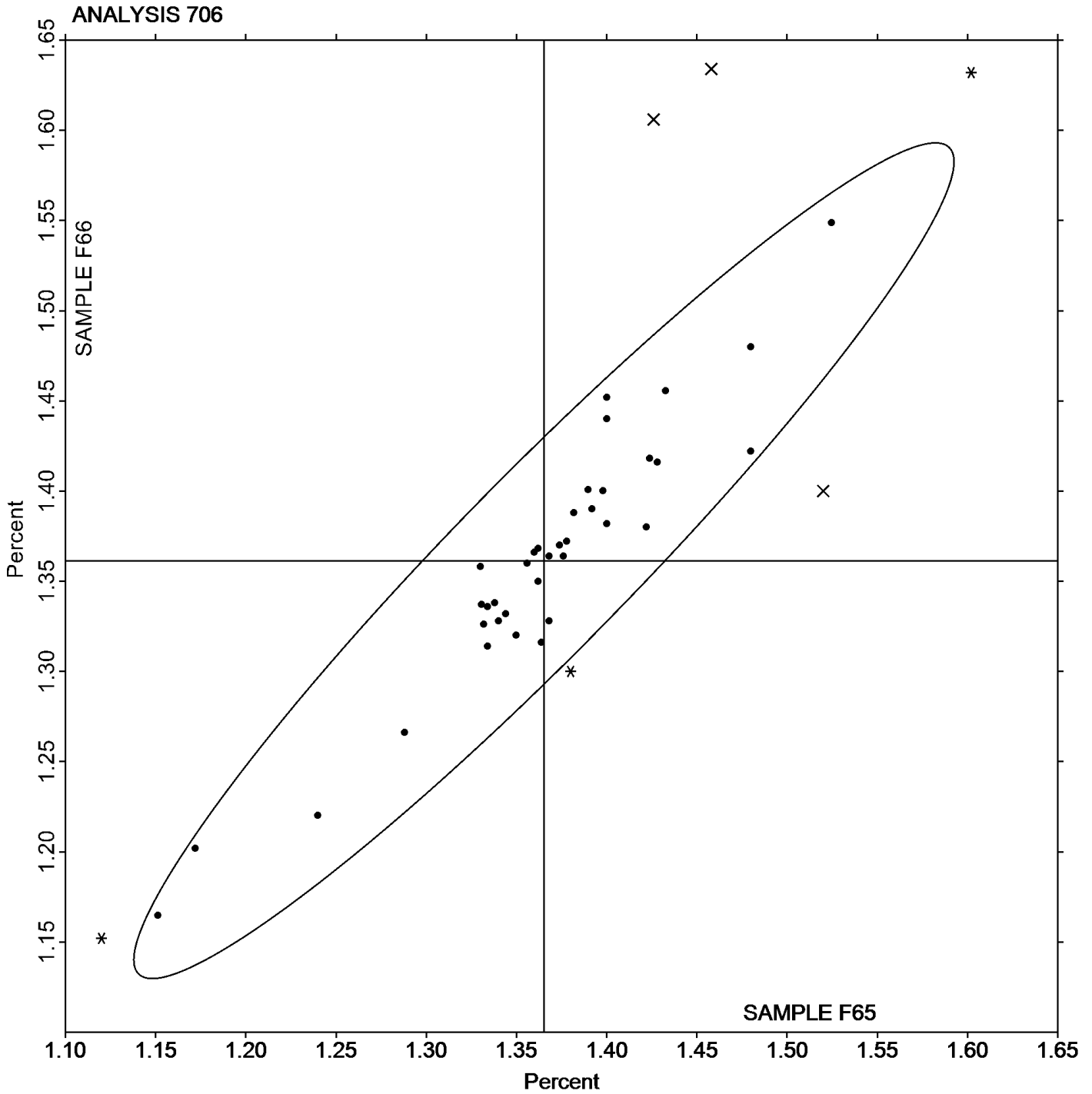
Report #113

Analysis 706

1st Qtr 2020

Percent Elongation at Yield - Percent

Grand Mean Sample F65: 1.3652 Percent Grand Mean Sample F66: 1.3614 Percent





Plastics Interlaboratory Testing Program

Report #113

Analysis 708

1st Qtr 2020

Modulus of Elasticity - ksi

WebCode	Data Flag	Sample F65			Sample F66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
289RUM		362.84	9.48	0.84	361.38	7.11	0.59
2M2HUQ		364.46	11.10	0.99	370.96	16.69	1.40
3JJRZE		353.84	0.48	0.04	352.78	-1.49	-0.12
3YBH4N		359.48	6.12	0.55	353.62	-0.65	-0.05
4JEU3N	X	302.09	-51.28	-4.57	299.07	-55.20	-4.62
6BFJBQ	X	269.26	-84.10	-7.49	275.46	-78.81	-6.59
6EFRFZ	X	420.74	67.38	6.00	409.91	55.64	4.65
7HMRY6		358.00	4.64	0.41	365.60	11.33	0.95
7HUKCK		358.60	5.24	0.47	357.60	3.33	0.28
96YD8F		349.00	-4.36	-0.39	359.20	4.93	0.41
9HH6KN		341.62	-11.74	-1.05	341.16	-13.11	-1.10
9P4XY9		351.81	-1.55	-0.14	370.63	16.35	1.37
9YRRDQ		345.38	-7.98	-0.71	358.28	4.01	0.34
B9JBBU	X	126.58	-226.78	-20.20	127.18	-227.09	-18.99
BVJF6F		365.74	12.38	1.10	354.29	0.02	0.00
CREA6Z		340.03	-13.33	-1.19	338.67	-15.61	-1.31
DH7PQB	X	329.44	-23.92	-2.13	295.64	-58.64	-4.90
ERPTZG		364.78	11.42	1.02	364.44	10.17	0.85
EXXAHH		367.12	13.76	1.23	368.80	14.53	1.21
F9UBW8		359.35	5.99	0.53	349.98	-4.29	-0.36
FMX792	*	338.70	-14.66	-1.31	360.36	6.09	0.51
GTQPCV		345.12	-8.24	-0.73	344.14	-10.13	-0.85
HE77G7		342.58	-10.78	-0.96	343.52	-10.75	-0.90
HHL2UJ		358.08	4.72	0.42	356.16	1.88	0.16
HKFMQV		365.32	11.96	1.07	369.94	15.67	1.31
HPRGXD		364.60	11.24	1.00	371.52	17.24	1.44
HZQ9AK		346.20	-7.16	-0.64	331.40	-22.87	-1.91
J8N7QL		362.20	8.84	0.79	352.60	-1.67	-0.14
JDVTLB	X	318.52	-34.84	-3.10	247.12	-107.15	-8.96
K2CWHQ		345.43	-7.93	-0.71	348.34	-5.93	-0.50
KELCQG		366.92	13.56	1.21	376.34	22.07	1.85
M8XBWA		360.72	7.36	0.66	363.10	8.83	0.74
MQ8AZH		332.74	-20.62	-1.84	326.86	-27.41	-2.29
N7J8KA		359.18	5.82	0.52	360.96	6.69	0.56
PH8L33	*	318.76	-34.60	-3.08	327.20	-27.07	-2.26



Plastics Interlaboratory Testing Program

Report #113

Analysis 708

1st Qtr 2020

Modulus of Elasticity - ksi

WebCode	Data Flag	Sample F65			Sample F66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
Q4GG2J		351.37	-1.99	-0.18	352.10	-2.18	-0.18
T8VMNJ		349.20	-4.16	-0.37	350.06	-4.21	-0.35
TC689B		351.78	-1.58	-0.14	353.72	-0.55	-0.05
TWHBLN		345.60	-7.76	-0.69	345.11	-9.17	-0.77
UGXDXY		355.60	2.24	0.20	356.20	1.93	0.16
URJED9		357.58	4.22	0.38	359.12	4.85	0.41
VZKFYQ	X	595.10	241.74	21.54	592.52	238.25	19.92
W43324		352.01	-1.35	-0.12	350.88	-3.40	-0.28
WMY9U4		336.02	-17.34	-1.54	337.08	-17.19	-1.44
X7MEBT		362.22	8.86	0.79	356.71	2.44	0.20
Y8FFYV		371.08	17.72	1.58	355.88	1.61	0.13
YBUXC7	X	406.91	53.55	4.77	397.23	42.96	3.59
YQ97CA	X	477.54	124.18	11.06	475.36	121.08	10.13

Summary Statistics		
	Sample F65	Sample F66
Grand Means	353.361 ksi	354.274 ksi
Std Dev Btwn Labs	11.225 ksi	11.958 ksi
Statistics based on 39 of 48 reporting participants		

Sample F65: HIPS & Sample F66: HIPS

Comments on Assigned Data Flags for Test #708

- DH7PQB (X) - Data for sample F66 are low. Inconsistent within the determinations of sample F65.
- JDVTLB (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of both samples.
- 4JEU3N (X) - Data for both samples are low. Possible Systematic Error.
- 6BFJBQ (X) - Data for both samples are low. Possible Systematic Error.
- 6EFRFZ (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample F65.
- YBUXC7 (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample F65.
- YQ97CA (X) - Data for both samples are high. Possible Systematic Error.
- B9JBBU (X) - Data for both samples are low. Possible Systematic Error.
- VZKFYQ (X) - Data for both samples are high. Possible Systematic Error.



Plastics Interlaboratory Testing Program

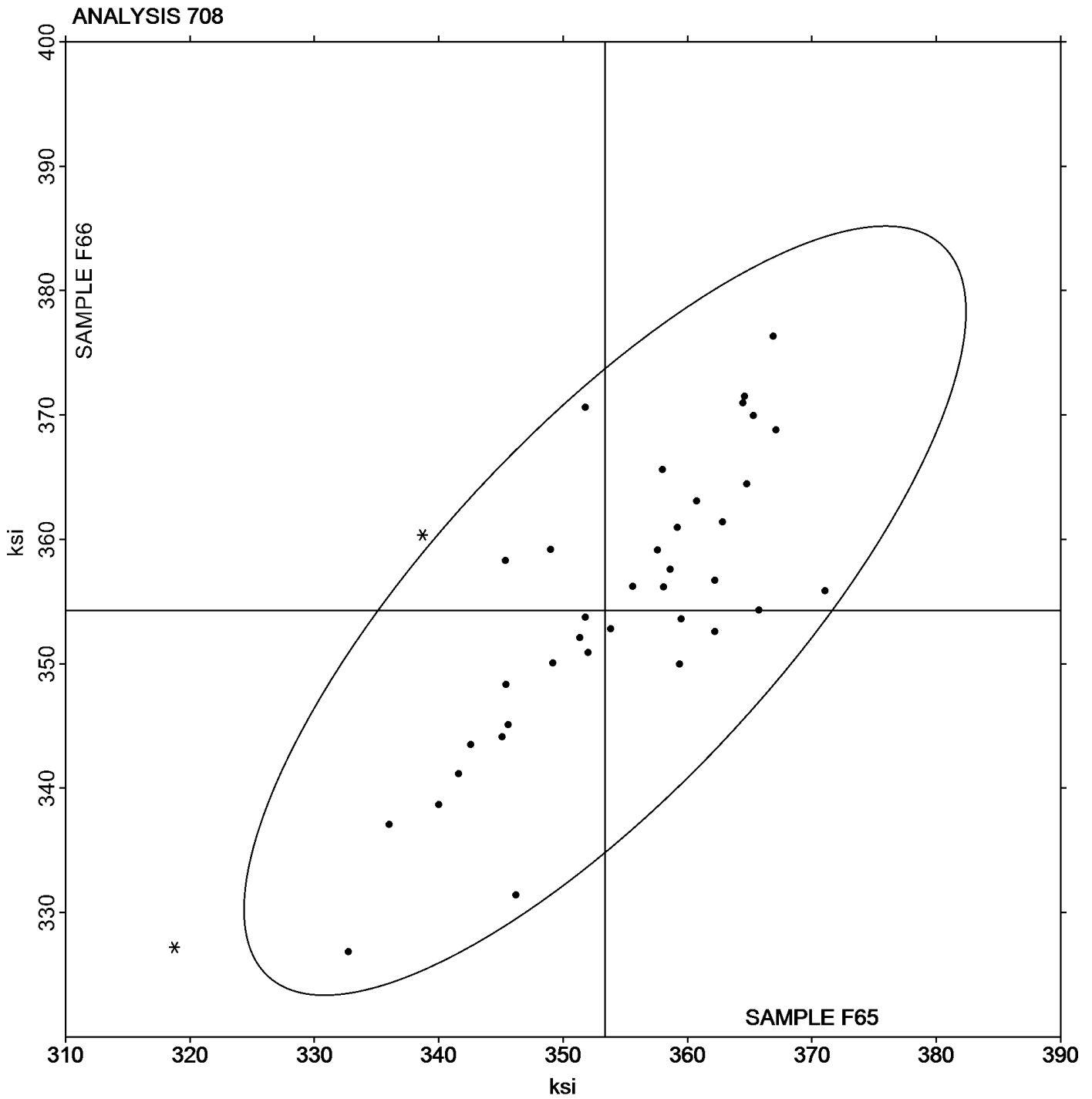
Report #113

Analysis 708

1st Qtr 2020

Modulus of Elasticity - ksi

Grand Mean Sample F65: 353.36 ksi Grand Mean Sample F66: 354.27 ksi





Plastics Interlaboratory Testing Program

Report #113

Analysis 710

1st Qtr 2020

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

WebCode	Data Flag	Sample E65			Sample E66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2M2HUQ		78.88	-0.97	-0.87	79.65	-0.14	-0.16	CE
3JJRZE		78.60	-1.24	-1.11	79.33	-0.46	-0.54	TO
3YBH4N		80.05	0.21	0.19	79.33	-0.46	-0.54	CE
4CR2QP		81.70	1.86	1.66	80.70	0.91	1.06	TO
7HUKCK	X	86.53	6.68	5.98	81.10	1.31	1.52	CE
8WA8UG		78.55	-1.29	-1.16	78.28	-1.51	-1.76	TO
8YE3AE		78.10	-1.75	-1.56	78.43	-1.36	-1.58	TO
9YRRDQ		79.98	0.13	0.12	79.98	0.19	0.22	CF
CREA6Z		80.78	0.93	0.83	80.50	0.71	0.83	AT
EEKCG8		80.73	0.88	0.79	80.80	1.01	1.17	TO
ERPTZG		79.48	-0.37	-0.33	79.08	-0.71	-0.83	DN
EXXAHH		78.68	-1.17	-1.05	78.98	-0.81	-0.94	IN
F9UBW8		79.45	-0.39	-0.35	79.28	-0.51	-0.60	RO
HZQ9AK	*	82.64	2.80	2.50	81.39	1.60	1.86	XX
JVCZCD		79.90	0.06	0.05	80.05	0.26	0.30	AT
MQPFY9		80.53	0.68	0.61	80.53	0.74	0.86	IN
PH8L33		80.38	0.53	0.48	80.18	0.39	0.45	CE
Q4GG2J		80.78	0.93	0.83	80.98	1.19	1.38	CF
TKMF8T		79.05	-0.79	-0.71	79.30	-0.49	-0.57	TO
TWHBLN		79.60	-0.24	-0.22	79.70	-0.09	-0.10	ZW
URJED9		78.50	-1.34	-1.20	78.48	-1.31	-1.52	IN
W43324		80.35	0.51	0.45	80.43	0.64	0.74	TO
XK63PW		79.88	0.03	0.03	80.03	0.24	0.28	XX

Summary Statistics		
	Sample E65	Sample E66
Grand Means	79.843 Degrees C	79.788 Degrees C
Stnd Dev Btwn Labs	1.117 Degrees C	0.861 Degrees C
Statistics based on 22 of 23 reporting participants		

Sample E65: ABS & Sample E66: ABS

Comments on Assigned Data Flags for Test #710

7HUKCK (X) - Data for sample E65 are high. Inconsistent within the determinations of sample E65.



Plastics Interlaboratory Testing Program

Report #113

Analysis 710

1st Qtr 2020

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

Key to Instrument Codes Reported by Participants

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



Plastics Interlaboratory Testing Program

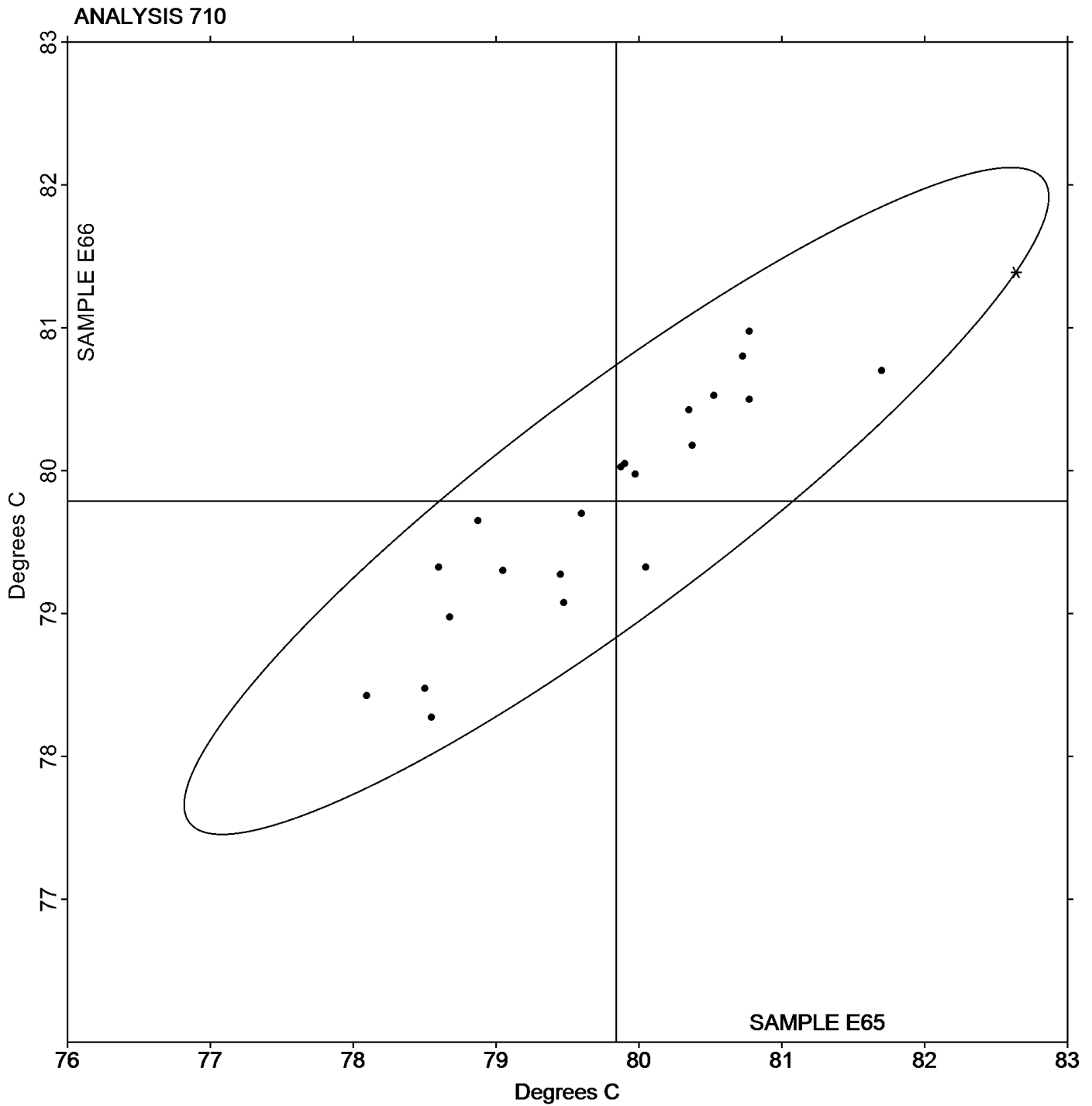
Report #113

Analysis 710

1st Qtr 2020

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

Grand Mean Sample E65: 79.843 Degrees C Grand Mean Sample E66: 79.788 Degrees C





Plastics Interlaboratory Testing Program

Report #113

Analysis 711

1st Qtr 2020

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

WebCode	Data Flag	Sample G65			Sample G66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2M2HUQ		112.0	-0.8	-0.22	112.2	-0.9	-0.28	CE
3JJRZE		108.6	-4.2	-1.21	112.9	-0.2	-0.07	TO
8WA8UG		110.2	-2.6	-0.75	109.3	-3.8	-1.19	TO
8YE3AE		115.8	3.0	0.89	111.8	-1.3	-0.42	TO
B3YBX3		109.2	-3.5	-1.03	110.7	-2.4	-0.74	CE
CREA6Z		119.2	6.5	1.89	120.4	7.3	2.27	AT
EEKCG8		110.7	-2.0	-0.59	114.6	1.5	0.46	TO
ERPTZG		114.7	2.0	0.57	114.4	1.3	0.41	DN
TWHBLN		111.4	-1.3	-0.39	110.0	-3.1	-0.98	ZW
UGXDXY		115.6	2.8	0.83	114.8	1.7	0.53	CE

Summary Statistics

	Sample G65	Sample G66
Grand Means	112.71 Degrees C	113.10 Degrees C
Std Dev Btwn Labs	3.43 Degrees C	3.20 Degrees C

Statistics based on 10 of 10 reporting participants

Sample G65: PP & Sample G66: PP

Key to Instrument Codes Reported by Participants

- | | |
|------------|-----------------|
| AT Atlas | CE Ceast |
| DN DYNISCO | TO Tinius Olsen |
| ZW Zwick | |



Plastics Interlaboratory Testing Program

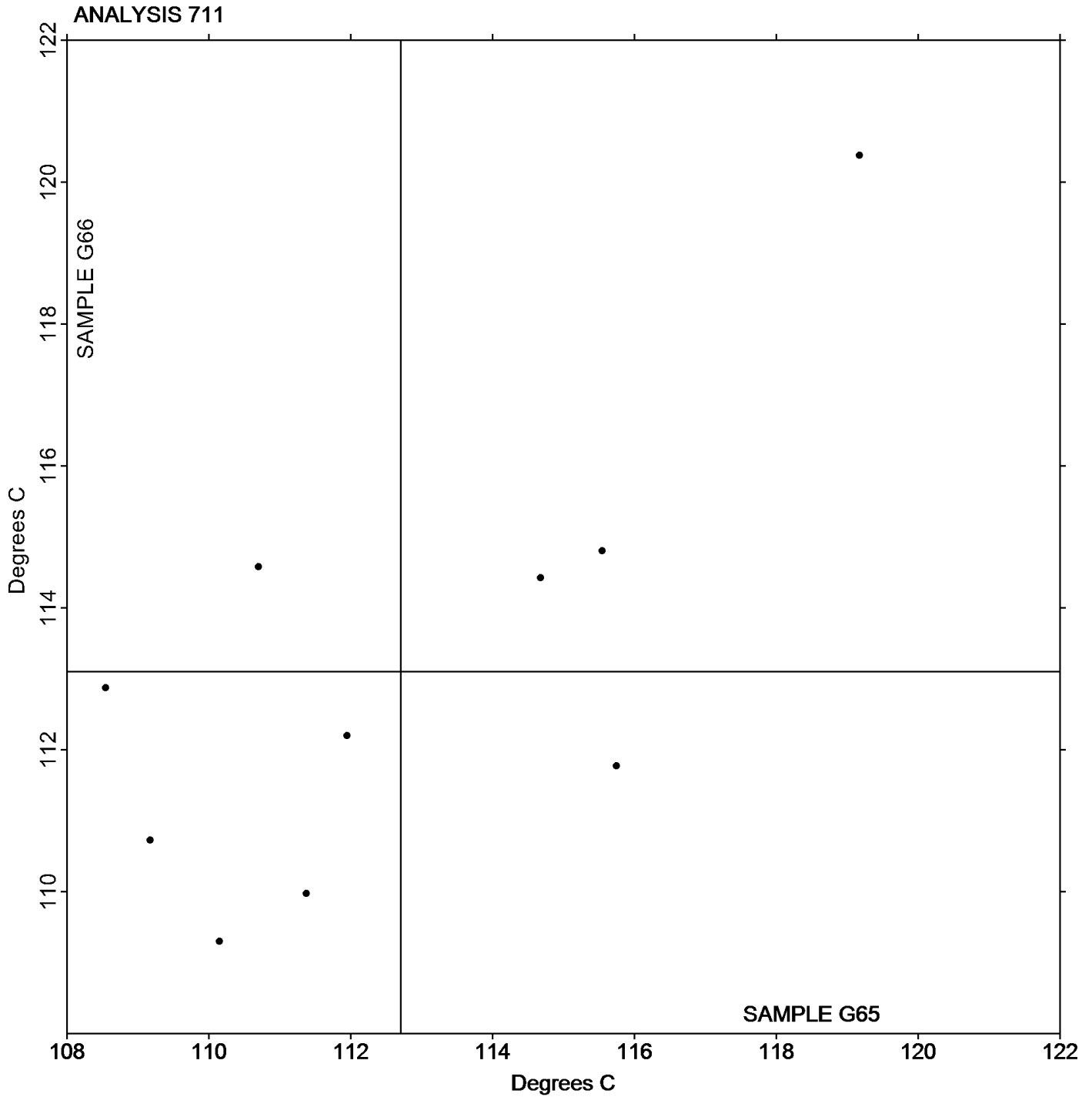
Report #113

Analysis 711

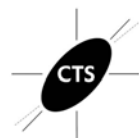
1st Qtr 2020

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

Grand Mean Sample G65: 112.71 Degrees C Grand Mean Sample G66: 113.10 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 #113

Analysis 712

1st Qtr 2020

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

WebCode	Data Flag	Sample N65			Sample N66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2M2HUQ	*	76.60	-1.27	-1.65	77.33	-0.37	-0.43	CE
2XKWXT		78.63	0.75	0.97	78.30	0.60	0.70	IN
48YZQV		79.18	1.30	1.69	79.10	1.40	1.63	CE
4QXXAQ		76.28	-1.60	-2.07	76.00	-1.70	-1.97	XX
6EFRFZ		78.30	0.43	0.55	78.43	0.73	0.85	TO
6Y3JGH		77.68	-0.20	-0.26	77.48	-0.22	-0.26	CE
766QVK		77.70	-0.17	-0.22	77.43	-0.27	-0.31	CE
7PUCAG		78.10	0.23	0.29	78.03	0.33	0.38	ZW
88KTNA		78.65	0.78	1.01	78.48	0.78	0.91	CE
8YE3AE		77.06	-0.82	-1.06	76.81	-0.89	-1.03	TO
8ZAEDU		77.10	-0.77	-1.00	76.75	-0.95	-1.10	TO
9HH6KN		77.43	-0.45	-0.58	77.30	-0.40	-0.46	CE
CREA6Z		79.15	1.28	1.65	78.80	1.10	1.28	AT
D7CLCJ	*	79.13	1.25	1.62	79.88	2.18	2.53	CE
DTUNGF		78.65	0.78	1.01	78.43	0.73	0.85	TO
EJVJPY		78.33	0.45	0.59	78.23	0.53	0.61	XX
EXXAHH		77.65	-0.22	-0.29	76.88	-0.82	-0.95	IN
GZZP4E		78.35	0.48	0.62	78.20	0.50	0.59	DN
HZQ9AK		77.78	-0.09	-0.12	76.67	-1.03	-1.20	XX
JVCZCD		77.48	-0.40	-0.52	77.88	0.18	0.21	AT
KJCPHW		76.88	-1.00	-1.29	76.55	-1.15	-1.33	TO
MPVU83		76.80	-1.07	-1.39	76.38	-1.32	-1.53	XX
MY8PRB		78.18	0.30	0.39	77.38	-0.32	-0.37	TO
QPCBHK		77.00	-0.87	-1.13	77.00	-0.70	-0.81	TO
TWHBLN		78.25	0.38	0.49	77.80	0.10	0.12	ZW
UGXDXY		77.70	-0.17	-0.22	77.65	-0.05	-0.05	CF
V246D6		78.93	1.05	1.36	78.58	0.88	1.02	CF
W43324		77.38	-0.50	-0.64	77.40	-0.30	-0.34	TO
WAQM6J		77.70	-0.17	-0.22	77.35	-0.35	-0.40	TO
WJFBZL		77.93	0.05	0.07	78.00	0.30	0.35	TY
XMU6YR		78.15	0.28	0.36	78.13	0.43	0.50	CE



Plastics Interlaboratory Testing Program

Report #113

Analysis 712

1st Qtr 2020

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

Summary Statistics		
	<u>Sample N65</u>	<u>Sample N66</u>
Grand Means	77.873 Degrees C	77.695 Degrees C
Stnd Dev Btwn Labs	0.772 Degrees C	0.862 Degrees C
Statistics based on 31 of 31 reporting participants		

Sample N65: HIPS & Sample N66: HIPS

Key to Instrument Codes Reported by Participants

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



Plastics Interlaboratory Testing Program

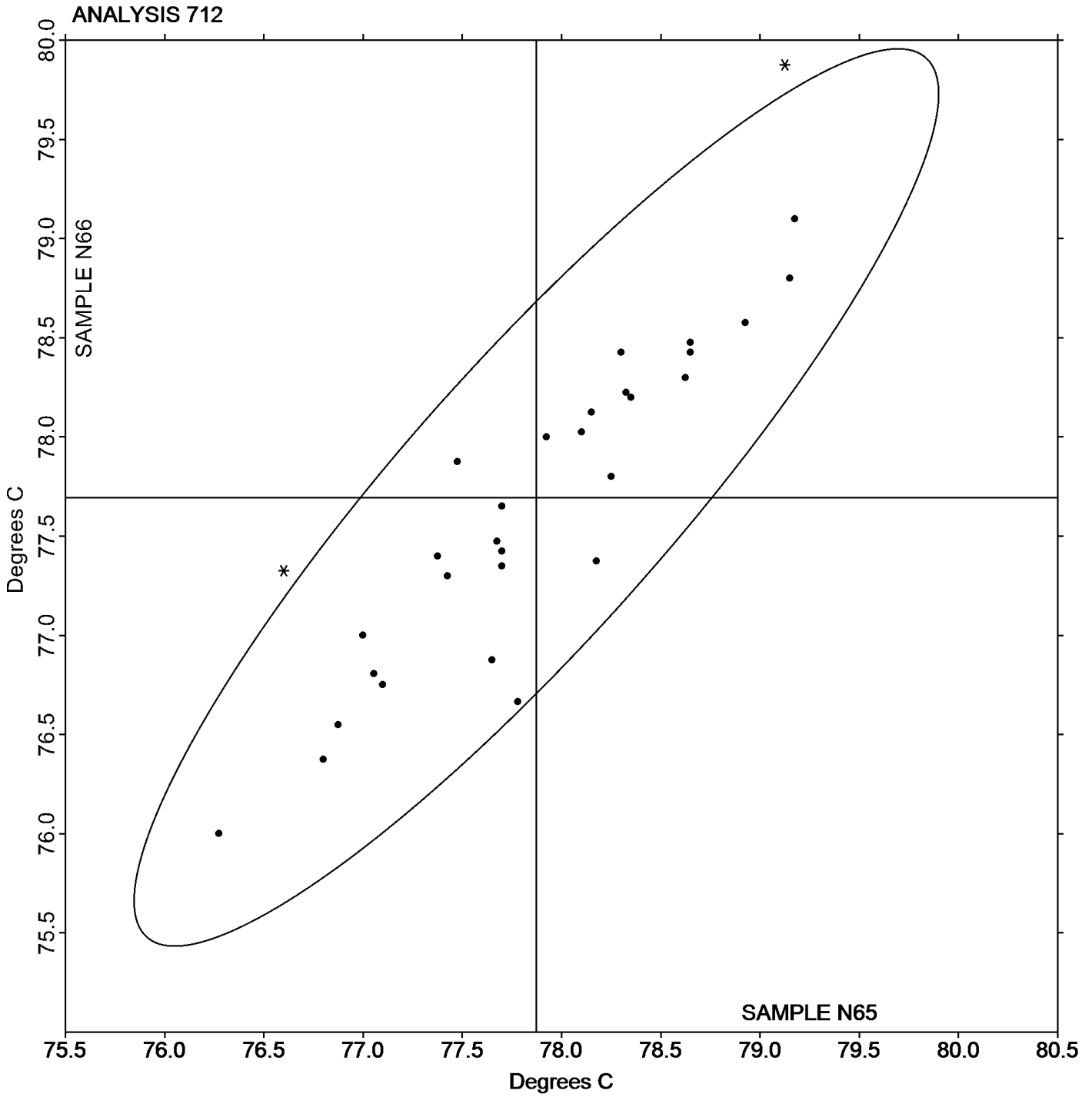
Report #113

Analysis 712

1st Qtr 2020

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

Grand Mean Sample N65: 77.873 Degrees C Grand Mean Sample N66: 77.695 Degrees C





Plastics Interlaboratory Testing Program

Report #113

Analysis 715

1st Qtr 2020

Vicat Softening Temperature (Rate A)

WebCode	Data Flag	Sample H65			Sample H66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2M2HUQ		94.68	-0.88	-1.40	94.80	-0.72	-1.22	CE
3YBH4N		96.20	0.63	1.01	95.80	0.28	0.47	CE
6Y3JGH		95.00	-0.57	-0.90	94.98	-0.54	-0.91	CE
7HUKCK		96.17	0.60	0.96	95.88	0.36	0.62	CE
8YE3AE		95.18	-0.39	-0.61	95.25	-0.28	-0.47	TO
9HH6KN		96.38	0.82	1.30	96.57	1.05	1.78	CE
CREA6Z		95.68	0.12	0.19	95.37	-0.15	-0.26	WZ
D7CLCJ		96.48	0.92	1.46	96.45	0.93	1.58	CF
DUNEKA		95.42	-0.15	-0.24	95.43	-0.09	-0.15	CE
F9UBW8		95.08	-0.48	-0.77	95.03	-0.49	-0.83	RO
HZQ9AK	*	96.11	0.54	0.87	95.46	-0.06	-0.10	XX
J7W8B3		95.45	-0.12	-0.18	95.45	-0.07	-0.12	CE
N7J8KA		96.47	0.90	1.43	96.43	0.91	1.55	RR
Q4GG2J		95.72	0.15	0.24	95.67	0.15	0.25	CF
TG6XC3		94.70	-0.87	-1.38	94.82	-0.70	-1.19	TO
TWHBLN		96.40	0.83	1.33	96.57	1.05	1.78	CF
UGXDXY		95.03	-0.53	-0.85	94.93	-0.59	-1.00	CF
V23992		94.87	-0.70	-1.11	94.90	-0.62	-1.05	AT
W43324		95.13	-0.43	-0.69	95.35	-0.17	-0.29	TO
Y8FFYV		95.15	-0.42	-0.66	95.27	-0.25	-0.43	TO

Summary Statistics		
	Sample H65	Sample H66
Grand Means	95.565 Degrees C	95.520 Degrees C
Stnd Dev Btwn Labs	0.629 Degrees C	0.589 Degrees C
Statistics based on 20 of 20 reporting participants		

Sample H65: HIPS & Sample H66: HIPS

Key to Instrument Codes Reported by Participants

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



Plastics Interlaboratory Testing Program

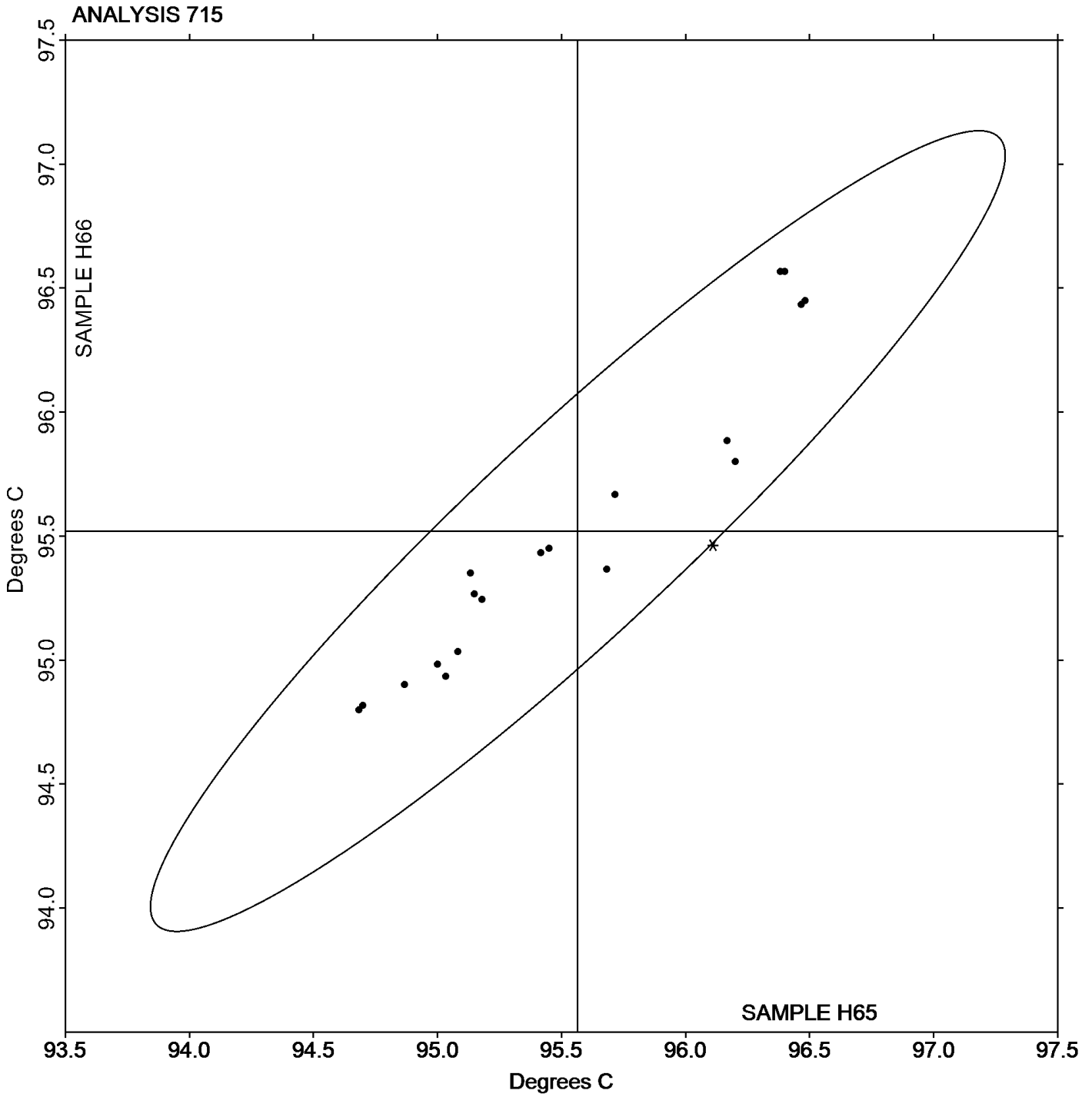
Report #113

Analysis 715

1st Qtr 2020

Vicat Softening Temperature (Rate A)

Grand Mean Sample H65: 95.565 Degrees C Grand Mean Sample H66: 95.520 Degrees C





Plastics Interlaboratory Testing Program

Report #113

Analysis 716

1st Qtr 2020

Vicat Softening Temperature (Rate B)

WebCode	Data Flag	Sample R65			Sample R66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3YBH4N		98.62	0.85	1.33	97.83	0.18	0.27	CE
6Y3JGH		97.15	-0.62	-0.97	97.07	-0.59	-0.88	CE
7HUKCK		98.47	0.70	1.10	98.27	0.61	0.92	CE
8YE3AE		96.87	-0.90	-1.41	97.23	-0.43	-0.64	TO
9HH6KN		98.72	0.95	1.49	98.60	0.94	1.42	CE
CREA6Z		98.27	0.50	0.78	98.37	0.71	1.07	AT
D7CLCJ		98.20	0.43	0.68	98.17	0.51	0.77	CF
DUNEKA		97.43	-0.33	-0.52	97.40	-0.26	-0.38	CE
F9UBW8		97.20	-0.57	-0.89	97.27	-0.39	-0.58	RO
HZQ9AK	*	97.13	-0.64	-1.00	96.02	-1.64	-2.45	XX
N7J8KA		98.62	0.85	1.33	98.73	1.08	1.62	RR
Q4GG2J		98.12	0.35	0.55	98.10	0.44	0.67	CF
TG6XC3		97.05	-0.72	-1.13	97.05	-0.61	-0.91	TO
TWHBLN		98.35	0.58	0.92	97.95	0.29	0.44	CF
UGXDXY		97.57	-0.20	-0.32	97.63	-0.02	-0.03	CF
V23992		97.52	-0.25	-0.39	97.38	-0.27	-0.41	AT
W43324		97.38	-0.38	-0.60	97.48	-0.17	-0.26	TO
Y8FFYV		97.17	-0.60	-0.94	97.25	-0.41	-0.61	TO

Summary Statistics		
	Sample R65	Sample R66
Grand Means	97.767 Degrees C	97.655 Degrees C
Stnd Dev Btwn Labs	0.637 Degrees C	0.667 Degrees C
Statistics based on 18 of 18 reporting participants		

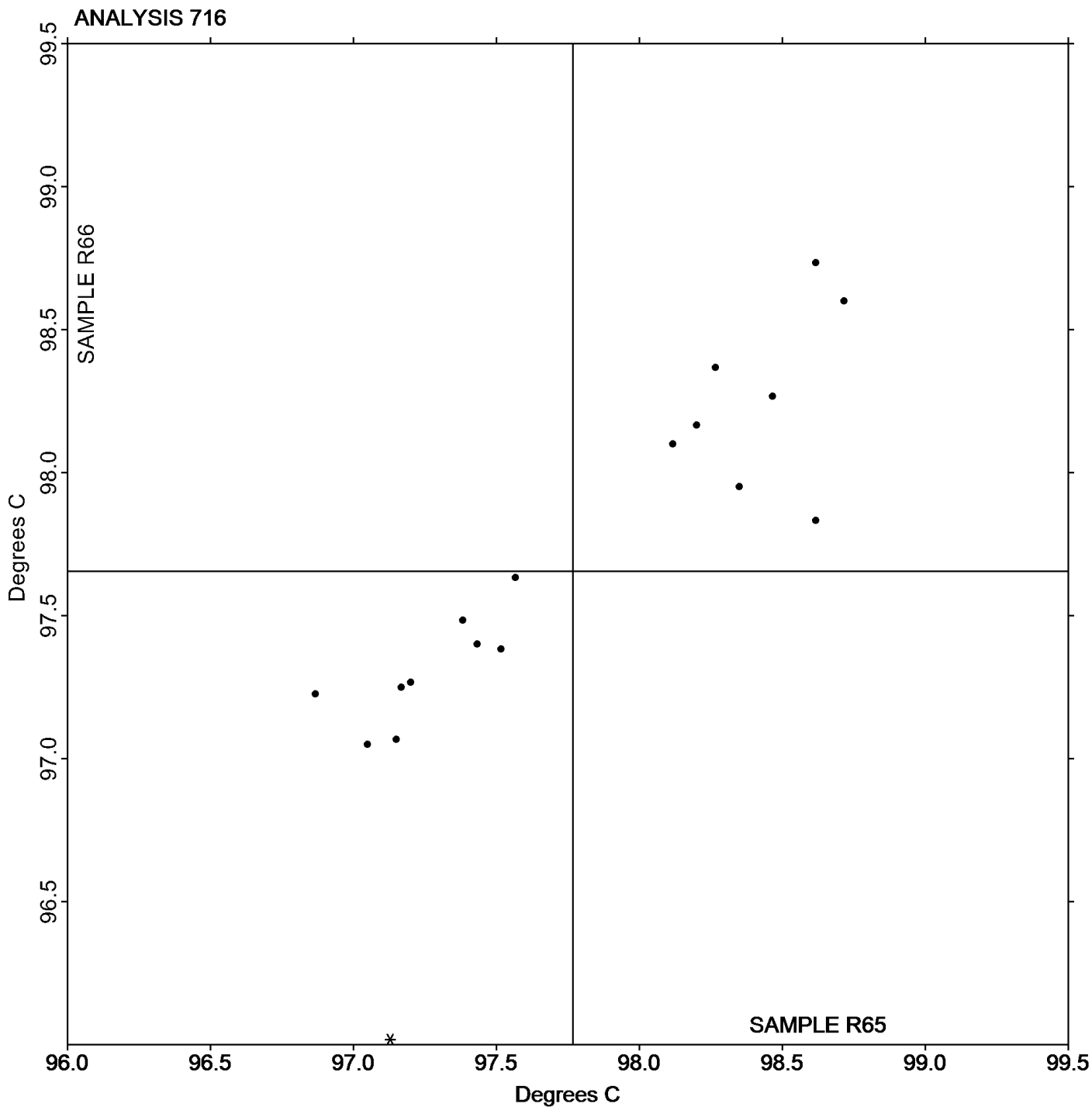
Sample R65: HIPS & Sample R66: HIPS

Key to Instrument Codes Reported by Participants

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



Grand Mean Sample R65: 97.767 Degrees C Grand Mean Sample R66: 97.655 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 #113

Analysis 718

1st Qtr 2020

Specific Gravity - sp gr 23/23 C

WebCode	Data Flag	Sample T65			Sample T66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2M2HUQ		1.13697	-0.00025	-0.10	1.13693	-0.00004	-0.02
2P7EUK		1.13183	-0.00539	-2.14	1.13090	-0.00607	-2.33
2TGL4C		1.13863	0.00141	0.56	1.13663	-0.00034	-0.13
2XKWXT	*	1.13997	0.00275	1.09	1.14193	0.00496	1.90
3JZRZE	X	1.13450	-0.00272	-1.08	1.13890	0.00193	0.74
3RNYEE		1.13967	0.00245	0.97	1.13900	0.00203	0.78
3UFV49		1.13433	-0.00289	-1.15	1.13533	-0.00164	-0.63
3YBH4N		1.13700	-0.00022	-0.09	1.13700	0.00003	0.01
3ZXEU2		1.13791	0.00069	0.27	1.13813	0.00116	0.44
48YZQV		1.13717	-0.00005	-0.02	1.13720	0.00023	0.09
4QXXAQ		1.13767	0.00045	0.18	1.13800	0.00103	0.39
4YMUMD		1.13700	-0.00022	-0.09	1.13567	-0.00131	-0.50
6EFRFZ	X	1.13333	-0.00389	-1.55	1.13000	-0.00697	-2.67
6Y3JGH		1.14057	0.00335	1.33	1.14037	0.00339	1.30
766QVK		1.13807	0.00085	0.34	1.13833	0.00136	0.52
7E8BU8		1.13497	-0.00225	-0.90	1.13587	-0.00111	-0.42
7HUKCK	X	1.13967	0.00245	0.97	1.13533	-0.00164	-0.63
7JHH3X		1.13767	0.00045	0.18	1.13800	0.00103	0.39
7PUCAG		1.13600	-0.00122	-0.49	1.13600	-0.00097	-0.37
7ZMPHZ		1.13900	0.00178	0.71	1.14033	0.00336	1.29
88KTNA	M	1.07600	-0.06122	-24.37	No data reported for this sample		
8WA8UG		1.13903	0.00181	0.72	1.13887	0.00189	0.72
8YE3AE		1.13847	0.00125	0.50	1.13840	0.00143	0.55
9CBQQ7		1.13300	-0.00422	-1.68	1.13300	-0.00397	-1.52
9HH6KN		1.14073	0.00351	1.40	1.14047	0.00349	1.34
9P4XY9	X	1.13103	-0.00619	-2.46	1.13743	0.00046	0.18
9WZTW8	X	1.12143	-0.01579	-6.28	1.12817	-0.00881	-3.37
A7M873		1.13633	-0.00089	-0.35	1.13520	-0.00177	-0.68
CREA6Z		1.13877	0.00155	0.62	1.13850	0.00153	0.58
DWMPEN		1.13577	-0.00145	-0.58	1.13537	-0.00161	-0.62
EDARAH		1.13567	-0.00155	-0.62	1.13433	-0.00264	-1.01
EEKCG8		1.13840	0.00118	0.47	1.13793	0.00096	0.37
ERPT33		1.13667	-0.00055	-0.22	1.13667	-0.00031	-0.12
ERPTZG		1.13830	0.00108	0.43	1.13833	0.00136	0.52
EXXAHH		1.13897	0.00175	0.69	1.13887	0.00189	0.72



Plastics Interlaboratory Testing Program

Report #113

Analysis 718

1st Qtr 2020

Specific Gravity - sp gr 23/23 C

WebCode	Data Flag	Sample T65			Sample T66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
FMX792		1.14087	0.00365	1.45	1.13900	0.00203	0.78
GDGRGW	X	1.12537	-0.01185	-4.72	1.12313	-0.01384	-5.30
GZZP4E		1.13833	0.00111	0.44	1.13767	0.00069	0.27
H27GRL		1.13860	0.00138	0.55	1.13860	0.00163	0.62
HCQPC9		1.13897	0.00175	0.69	1.13813	0.00116	0.44
HE77G7		1.13230	-0.00492	-1.96	1.13337	-0.00361	-1.38
HHX8TA		1.13970	0.00248	0.99	1.13953	0.00256	0.98
HZQ9AK		1.14167	0.00445	1.77	1.14233	0.00536	2.05
JXYF6U	X	1.12480	-0.01242	-4.94	1.12890	-0.00807	-3.09
JZN3J3		1.13927	0.00205	0.81	1.13957	0.00259	0.99
L3K9ZR		1.13497	-0.00225	-0.90	1.13500	-0.00197	-0.76
M8XBWA		1.13507	-0.00215	-0.86	1.13497	-0.00201	-0.77
MPVU83		1.13200	-0.00522	-2.08	1.13233	-0.00464	-1.78
NYGD68		1.13763	0.00041	0.16	1.13737	0.00039	0.15
P7QZHF	*	1.13067	-0.00655	-2.61	1.13000	-0.00697	-2.67
PH8L33		1.13773	0.00051	0.20	1.13797	0.00099	0.38
PUC3DC		1.13820	0.00098	0.39	1.13813	0.00116	0.44
PY9UJN		1.13823	0.00101	0.40	1.13613	-0.00084	-0.32
Q4GG2J		1.13487	-0.00235	-0.94	1.13507	-0.00191	-0.73
TK2LQP		1.14000	0.00278	1.11	1.14000	0.00303	1.16
TWHBLN		1.13903	0.00181	0.72	1.13913	0.00216	0.83
TY3KCZ		1.13630	-0.00092	-0.37	1.13550	-0.00147	-0.56
U27D6D		1.13633	-0.00089	-0.35	1.13667	-0.00031	-0.12
UGXDXY		1.13500	-0.00222	-0.88	1.13600	-0.00097	-0.37
ULQQ7F		1.13300	-0.00422	-1.68	1.13367	-0.00331	-1.27
URJED9	*	1.13490	-0.00232	-0.92	1.13197	-0.00501	-1.92
V6X4MU	X	1.17767	0.04045	16.10	1.18067	0.04369	16.73
VDWNUW		1.13500	-0.00222	-0.88	1.13533	-0.00164	-0.63
VZKFYQ	X	1.13300	-0.00422	-1.68	1.32000	0.18303	70.08
W43324		1.13750	0.00028	0.11	1.13603	-0.00094	-0.36
X7MEBT		1.13833	0.00111	0.44	1.13827	0.00129	0.50
X9DDRC		1.14067	0.00345	1.37	1.13900	0.00203	0.78
Y8FFYV		1.14207	0.00485	1.93	1.14123	0.00426	1.63
YBUXC7		1.13600	-0.00122	-0.49	1.13600	-0.00097	-0.37
YNG8WQ	*	1.13557	-0.00165	-0.66	1.13287	-0.00411	-1.57



Plastics Interlaboratory Testing Program

Report #113

Analysis 718

1st Qtr 2020

Specific Gravity - sp gr 23/23 C

WebCode	Data Flag	Sample T65			Sample T66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
YRXN2N	X	1.13630	-0.00092	-0.37	1.28823	0.15126	57.92
Z7YQ9N	X	1.14153	0.00431	1.72	1.13763	0.00066	0.25

Summary Statistics		Sample T65		Sample T66	
Grand Means		1.137221	sp gr 23/23 C	1.136973	sp gr 23/23 C
Std Dev Btwn Labs		0.002513	sp gr 23/23 C	0.002612	sp gr 23/23 C
Statistics based on 60 of 72 reporting participants					

Sample T65: ABS/PC & Sample T66: ABS/PC

Comments on Assigned Data Flags for Test #718

- Z7YQ9N (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample T66.
- 7HUKCK (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample T65.
- 9P4XY9 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample T65.
- 3JJRZE (X) - Inconsistent in testing between samples.
- 9WZTW8 (X) - Data for both samples are low. Possible Systematic Error.
- GDGRGW (X) - Data for both samples are low. Possible Systematic Error.
- JXYF6U (X) - Data for both samples are low. Possible Systematic Error.
- V6X4MU (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.
- 6EFRFZ (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample T65.
- 88KTNA (M) - Participant did not submit data for sample T66.
- YRXN2N (X) - Data for sample T66 are high. Inconsistent within the determinations of sample T66.
- VZKFYQ (X) - Data for sample T66 are high. Inconsistent within the determinations of sample T66.

Results by Methodology (as reported by laboratory)

Test Methodology	Sample T65 <i>ABS/PC</i>			Sample T66 <i>ABS/PC</i>			Labs Incl / Rpt
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM	
ASTM D792 Method A (water)	1.137261	0.003000	0.000	1.137000	0.003000	0.000	46/56
ASTM D792 Method B (not water)	1.137475	0.002000	0.000	1.137000	0.003000	0.000	4/4
ASTM D1505	1.136967	0.000000	0.000	1.137000	0.000000	0.000	1/1
ISO 1183	1.136933	0.003000	0.000	1.137000	0.003000	0.000	9/11



Plastics Interlaboratory Testing Program

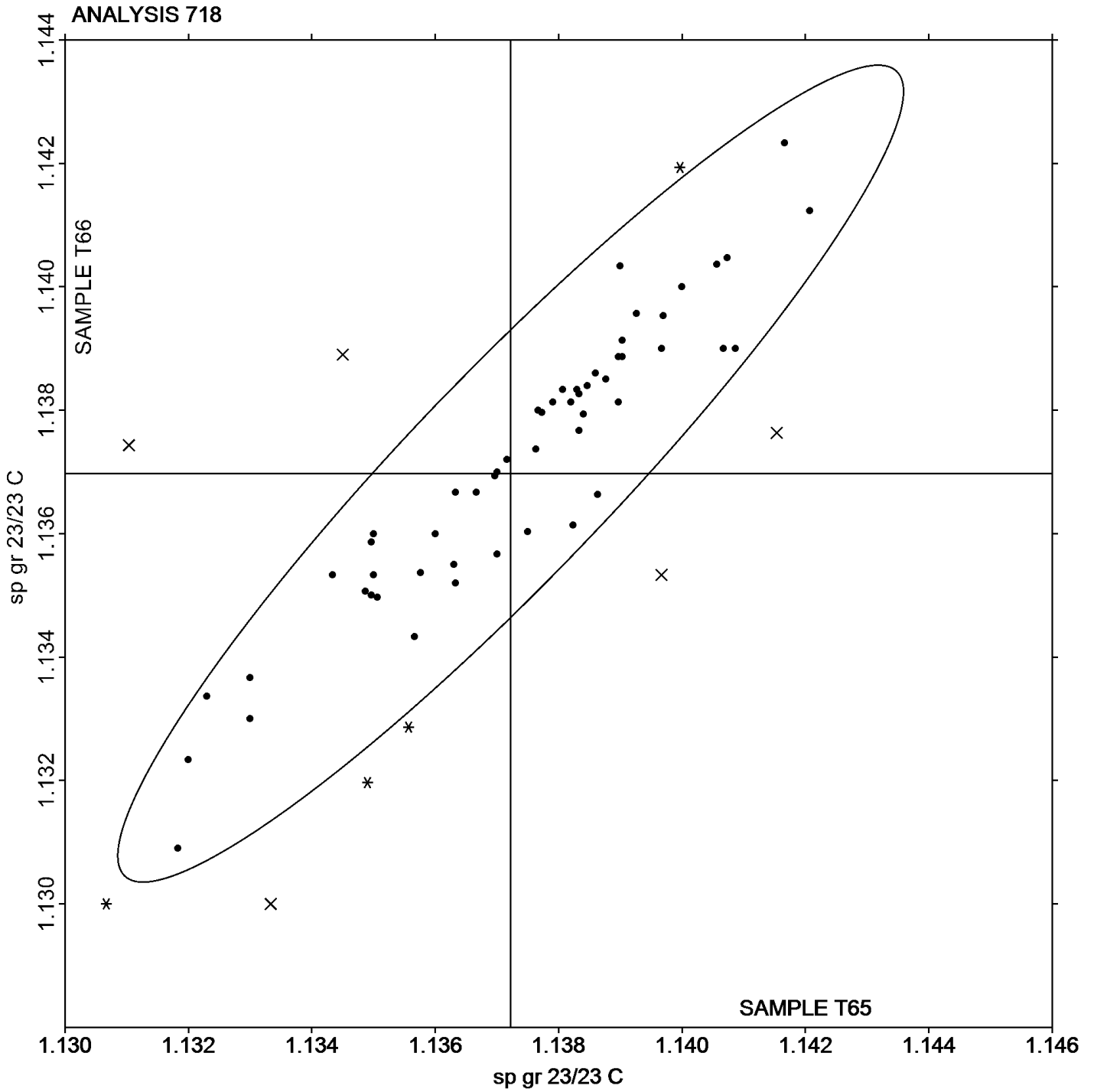
Report #113

Analysis 718

1st Qtr 2020

Specific Gravity - sp gr 23/23 C

Grand Mean Sample T65: 1.1372 sp gr 23/23 C Grand Mean Sample T66: 1.1370 sp gr 23/23 C





Plastics Interlaboratory Testing Program

Report #113

Analysis 720

1st Qtr 2020

Flexural Modulus- ksi

WebCode	Data Flag	Sample J65			Sample J66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
289RUM		315.4	-16.9	-0.97	305.8	-25.1	-1.42
2M2HUQ		345.4	13.1	0.75	343.4	12.4	0.70
3JJRZE		343.6	11.3	0.65	343.2	12.3	0.69
4QXXAQ		341.1	8.8	0.51	340.8	9.9	0.56
6B64K3		337.2	4.9	0.28	335.0	4.1	0.23
6EFRFZ		368.4	36.1	2.07	367.8	36.8	2.08
6LVEN4		317.0	-15.3	-0.88	317.4	-13.5	-0.76
8WA8UG		338.8	6.5	0.37	343.8	12.9	0.73
8YE3AE		315.9	-16.4	-0.94	318.3	-12.7	-0.71
96YD8F		304.4	-27.9	-1.60	305.6	-25.3	-1.43
9HH6KN		299.6	-32.7	-1.88	297.8	-33.1	-1.87
9P4XY9		315.8	-16.5	-0.95	306.0	-24.9	-1.40
9YRRDQ		334.7	2.4	0.14	330.6	-0.3	-0.02
BLVGQ4		325.4	-6.9	-0.39	324.8	-6.1	-0.34
BVJF6F		327.6	-4.7	-0.27	327.4	-3.5	-0.20
CREA6Z		332.3	0.0	0.00	333.6	2.7	0.15
DH7PQB		335.1	2.8	0.16	337.3	6.4	0.36
EEKCG8		342.3	10.0	0.58	332.8	1.9	0.10
EHZUL6		345.3	13.0	0.75	340.5	9.5	0.54
ERPTZG		345.8	13.5	0.77	344.9	14.0	0.79
EXXAHH		349.3	17.0	0.98	349.7	18.8	1.06
F9UBW8		344.8	12.5	0.72	341.0	10.1	0.57
FMX792		335.8	3.5	0.20	329.7	-1.2	-0.07
FWERU3		324.1	-8.2	-0.47	324.0	-6.9	-0.39
GTQPCV	*	347.0	14.7	0.84	334.4	3.5	0.20
HE77G7	X	376.6	44.3	2.54	300.0	-31.0	-1.75
HKFMQV		318.1	-14.3	-0.82	315.0	-15.9	-0.90
HPRGXD		338.6	6.3	0.36	340.0	9.0	0.51
HZQ9AK		334.0	1.7	0.10	334.0	3.1	0.17
J8N7QL		329.0	-3.3	-0.19	326.8	-4.1	-0.23
JDVTLB		333.2	0.9	0.05	329.4	-1.6	-0.09
JVCZCD		340.1	7.8	0.45	340.4	9.4	0.53
K2CWHQ		342.8	10.5	0.60	340.5	9.5	0.54
KLMMWE		332.8	0.5	0.03	333.0	2.0	0.11
M8XBWA		342.3	10.0	0.57	340.5	9.6	0.54



Plastics Interlaboratory Testing Program

Report #113

Analysis 720

1st Qtr 2020

Flexural Modulus- ksi

WebCode	Data Flag	Sample J65			Sample J66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
MPVU83		296.2	-36.1	-2.08	297.3	-33.6	-1.89
N7J8KA		322.9	-9.4	-0.54	320.9	-10.0	-0.57
PGCBYM		316.7	-15.6	-0.90	320.7	-10.2	-0.58
PH8L33		321.4	-10.9	-0.63	325.1	-5.9	-0.33
PUXMBW		326.9	-5.4	-0.31	316.8	-14.1	-0.80
Q4GG2J		289.5	-42.8	-2.46	290.1	-40.8	-2.30
R3QHLZ		350.7	18.4	1.06	353.1	22.2	1.25
TC689B	*	383.8	51.5	2.96	384.4	53.5	3.02
TWHBLN		323.9	-8.4	-0.48	322.5	-8.5	-0.48
URJED9		313.7	-18.6	-1.07	314.0	-17.0	-0.96
VZKFYQ	X	217.2	-115.1	-6.61	188.2	-142.7	-8.05
W43324		351.8	19.5	1.12	354.3	23.4	1.32
X7MEBT		328.8	-3.5	-0.20	328.4	-2.5	-0.14
YBUXC7		341.6	9.2	0.53	332.9	2.0	0.11
YNG8WQ		356.6	24.3	1.40	359.2	28.3	1.60
YNMGTX		315.0	-17.3	-0.99	315.0	-15.9	-0.90
YQ97CA		332.7	0.3	0.02	336.5	5.6	0.32

Summary Statistics		
	Sample J65	Sample J66
Grand Means	332.31 ksi	330.92 ksi
Std Dev Btwn Labs	17.40 ksi	17.73 ksi
Statistics based on 50 of 52 reporting participants		

Sample J65: ABS/PC & Sample J66: ABS/PC

Comments on Assigned Data Flags for Test #720

HE77G7 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

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



Plastics Interlaboratory Testing Program

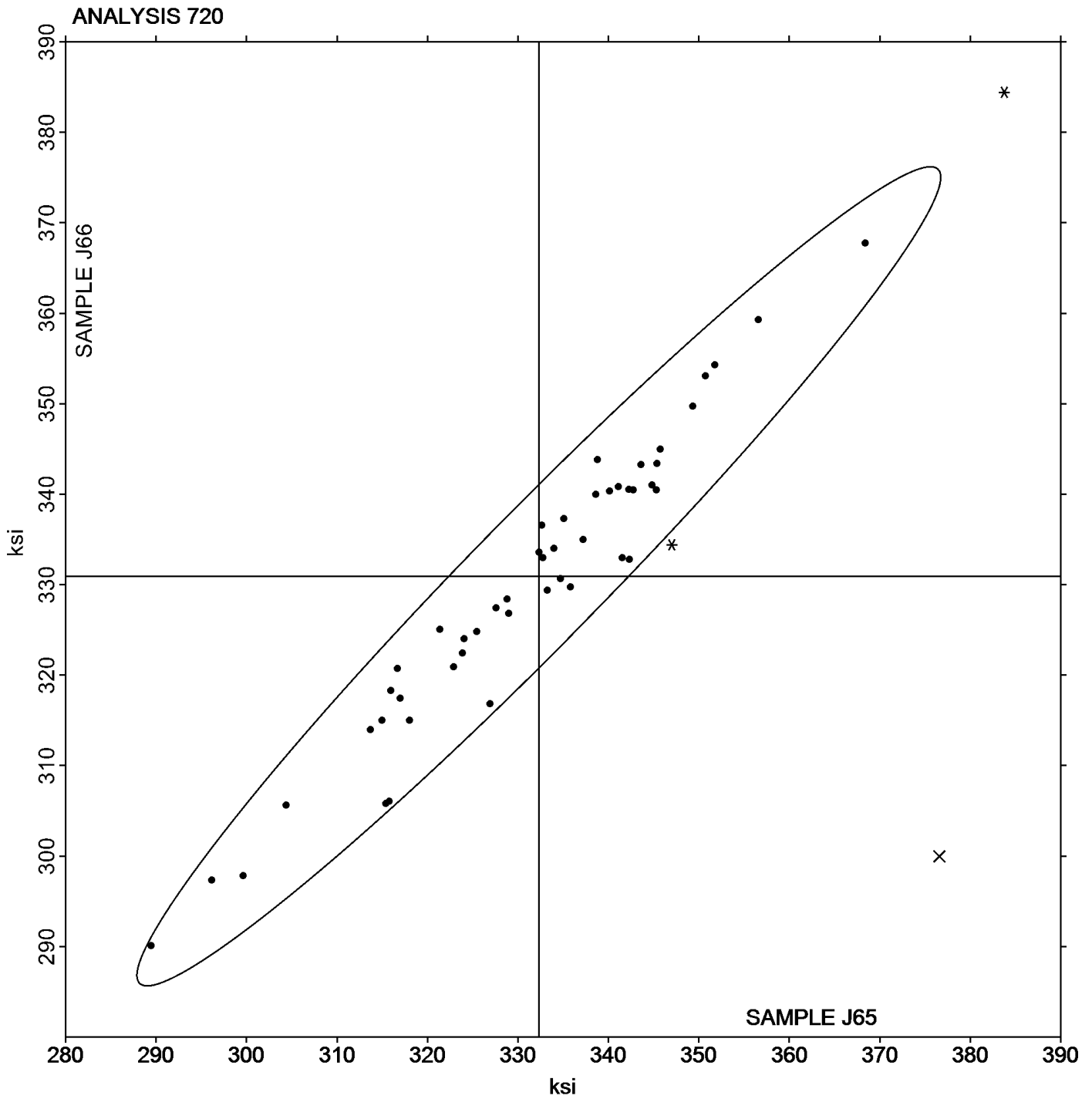
Report #113

Analysis 720

1st Qtr 2020

Flexural Modulus- ksi

Grand Mean Sample J65: 332.31 ksi Grand Mean Sample J66: 330.92 ksi





Plastics Interlaboratory Testing Program

Report #113

Analysis 721

1st Qtr 2020

Flexural Stress at 5% Strain - psi

WebCode	Data Flag	Sample J65			Sample J66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
289RUM	*	12,289	544	1.14	12,013	300	0.63
3JZRZE		11,764	19	0.04	11,727	14	0.03
6B64K3		12,018	273	0.57	11,926	213	0.45
6EFRFZ		12,317	572	1.20	12,319	606	1.28
8WA8UG	X	11,462	-283	-0.59	11,777	64	0.14
96YD8F	X	7,767	-3,978	-8.33	7,710	-4,003	-8.48
9HH6KN		11,362	-383	-0.80	11,263	-450	-0.95
9YRRDQ		11,641	-104	-0.22	11,520	-194	-0.41
BVJF6F		11,160	-585	-1.22	11,080	-633	-1.34
CREA6Z		12,095	349	0.73	12,120	407	0.86
DH7PQB		11,413	-332	-0.69	11,403	-310	-0.66
EHZUL6		12,353	608	1.27	12,343	630	1.33
ERPTZG		11,763	18	0.04	11,713	0	0.00
EXXAHH		11,928	183	0.38	12,041	328	0.69
F9UBW8		11,905	159	0.33	11,836	123	0.26
FMX792		12,350	605	1.27	12,224	510	1.08
GTQPCV	X	11,228	-517	-1.08	11,701	-12	-0.03
HE77G7		10,946	-799	-1.67	10,913	-800	-1.69
HKFMQV		12,472	727	1.52	12,438	725	1.53
HPRGXD		11,675	-70	-0.15	11,683	-30	-0.06
HZQ9AK		11,869	123	0.26	11,882	169	0.36
JDVTLB		11,581	-165	-0.34	11,580	-133	-0.28
K2CWHQ		12,125	380	0.80	12,093	380	0.81
KLMMWE		11,869	124	0.26	11,880	167	0.35
M8XBWA		11,761	15	0.03	11,700	-13	-0.03
N7J8KA		11,379	-366	-0.77	11,353	-360	-0.76
PGCBYM		10,903	-842	-1.76	10,941	-773	-1.64
PUXMBW		11,920	174	0.37	11,993	280	0.59
Q4GG2J		11,623	-122	-0.25	11,557	-156	-0.33
R3QHLZ		11,889	144	0.30	11,947	234	0.49
TC689B	*	13,028	1,283	2.68	12,961	1,247	2.64
TWHBLN		11,842	97	0.20	11,766	53	0.11
URJED9		11,340	-406	-0.85	11,366	-347	-0.73
VZKFYQ	X	229	-11,516	-24.11	228	-11,486	-24.32
X7MEBT		11,160	-585	-1.22	11,180	-533	-1.13



Plastics Interlaboratory Testing Program

Report #113

Analysis 721

1st Qtr 2020

Flexural Stress at 5% Strain - psi

WebCode	Data Flag	Sample J65			Sample J66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
YBUXC7		11,379	-366	-0.77	11,173	-541	-1.14
YNG8WQ		11,846	101	0.21	11,890	177	0.37
YNMGTX		11,079	-666	-1.39	10,992	-721	-1.53
YQ97CA		11,036	-709	-1.48	11,146	-567	-1.20

Summary Statistics		Sample J65	Sample J66
Grand Means		11,745.1 psi	11,713.2 psi
Stnd Dev Btwn Labs		477.7 psi	472.2 psi
Statistics based on 35 of 39 reporting participants			

Sample J65: ABS/PC & Sample J66: ABS/PC

Comments on Assigned Data Flags for Test #721

- 8WA8UG (X) - Inconsistent in testing between samples.
- 96YD8F (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample J66.
- GTQPCV (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
- VZKFYQ (X) - Extreme data.



Plastics Interlaboratory Testing Program

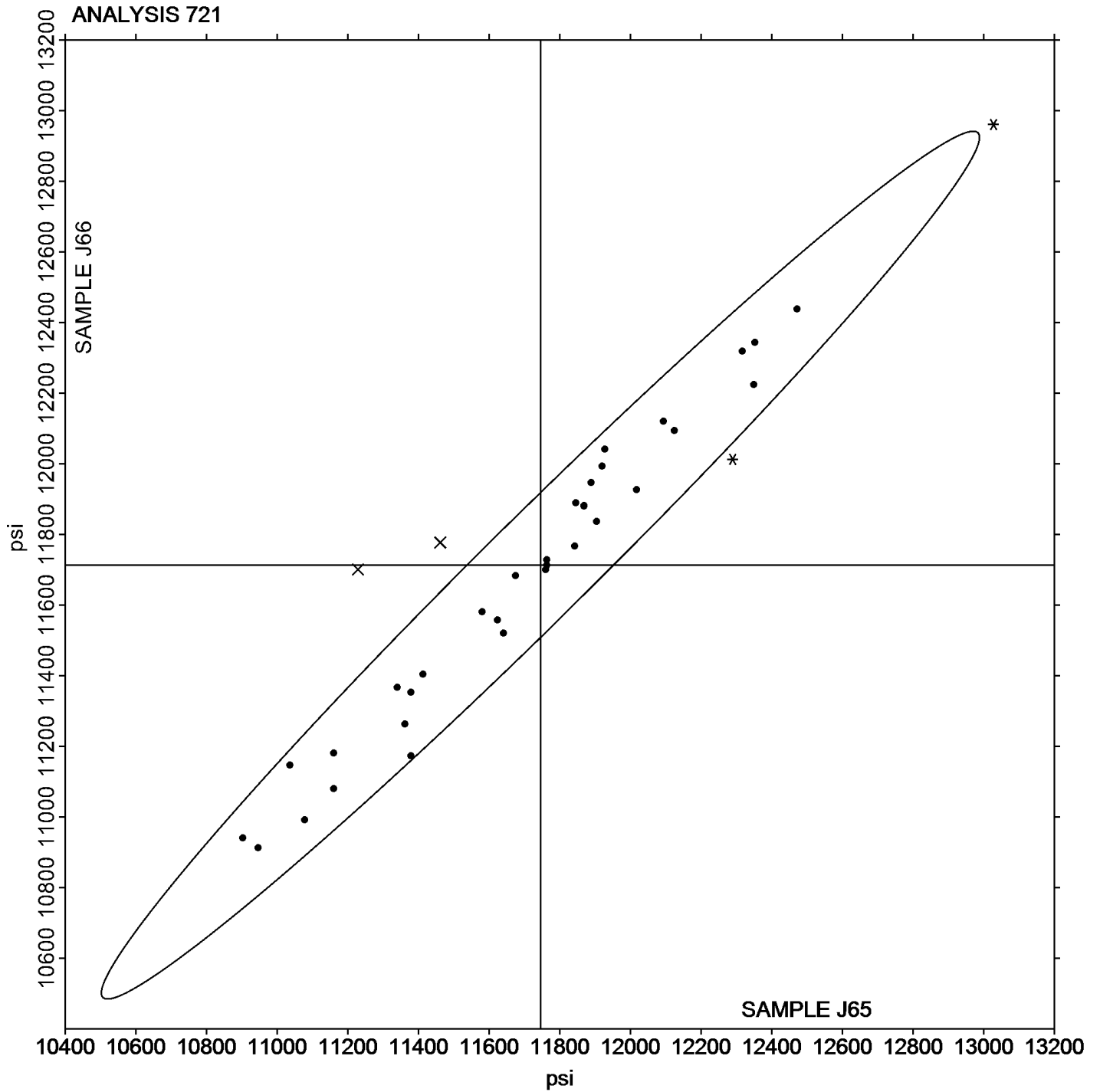
Report #113

Analysis 721

1st Qtr 2020

Flexural Stress at 5% Strain - psi

Grand Mean Sample J65: 11,745.15 psi Grand Mean Sample J66: 11,713.18 psi





Plastics Interlaboratory Testing Program

Report #113

Analysis 722

1st Qtr 2020

Flexural Stress at Yield - psi

WebCode	Data Flag	Sample J65			Sample J66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
6B64K3		12,166	318	0.71	12,069	240	0.56
8WA8UG	*	11,540	-308	-0.69	11,873	44	0.10
9HH6KN		11,549	-298	-0.66	11,476	-353	-0.82
9P4XY9		12,431	583	1.30	12,231	402	0.93
9YRRDQ		11,756	-92	-0.20	11,653	-176	-0.41
BLVGQ4		11,415	-433	-0.96	11,498	-331	-0.77
CREA6Z		12,261	414	0.92	12,243	414	0.96
DH7PQB		11,456	-391	-0.87	11,451	-379	-0.88
EEKCG8		12,085	237	0.53	11,857	28	0.06
EXXAHH		12,033	185	0.41	12,160	331	0.77
F9UBW8		11,951	104	0.23	11,864	35	0.08
GTQPCV	X	5	-11,843	-26.39	5	-11,824	-27.50
HE77G7	X	349	-11,499	-25.62	349	-11,480	-26.70
HKFMQV		12,472	625	1.39	12,443	614	1.43
HPRGXD		11,697	-151	-0.34	11,705	-124	-0.29
J8N7QL		11,760	-88	-0.20	11,640	-189	-0.44
JDVTLB		11,732	-116	-0.26	11,715	-114	-0.27
K2CWHQ		12,312	465	1.04	12,299	470	1.09
KLMMWE		11,998	150	0.33	12,031	202	0.47
M8XBWA		11,851	3	0.01	11,797	-32	-0.08
N7J8KA		11,523	-324	-0.72	11,499	-330	-0.77
PGCBYM		11,055	-792	-1.77	11,111	-718	-1.67
PUXMBW		12,156	308	0.69	12,206	377	0.88
R3QHLZ		11,513	-334	-0.74	11,561	-268	-0.62
TC689B	*	13,135	1,287	2.87	13,073	1,244	2.89
TWHBLN		11,937	90	0.20	11,893	64	0.15
VZKFYQ	X	9,373	-2,475	-5.51	9,297	-2,532	-5.89
YBUXC7		11,379	-468	-1.04	11,174	-655	-1.52
YNG8WQ		11,870	22	0.05	11,976	147	0.34
YNMGTX		11,662	-186	-0.41	11,571	-259	-0.60
YQ97CA		11,036	-812	-1.81	11,146	-683	-1.59



Plastics Interlaboratory Testing Program

Report #113

Analysis 722

1st Qtr 2020

Flexural Stress at Yield - psi

Summary Statistics	<u>Sample J65</u>	<u>Sample J66</u>
Grand Means	11,847.5 psi	11,829.2 psi
Stnd Dev Btwn Labs	448.8 psi	430.0 psi

Statistics based on 28 of 31 reporting participants

Sample J65: ABS/PC & Sample J66: ABS/PC

Comments on Assigned Data Flags for Test #722

GTQPCV (X) - Extreme data.

HE77G7 (X) - Extreme data.

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



Plastics Interlaboratory Testing Program

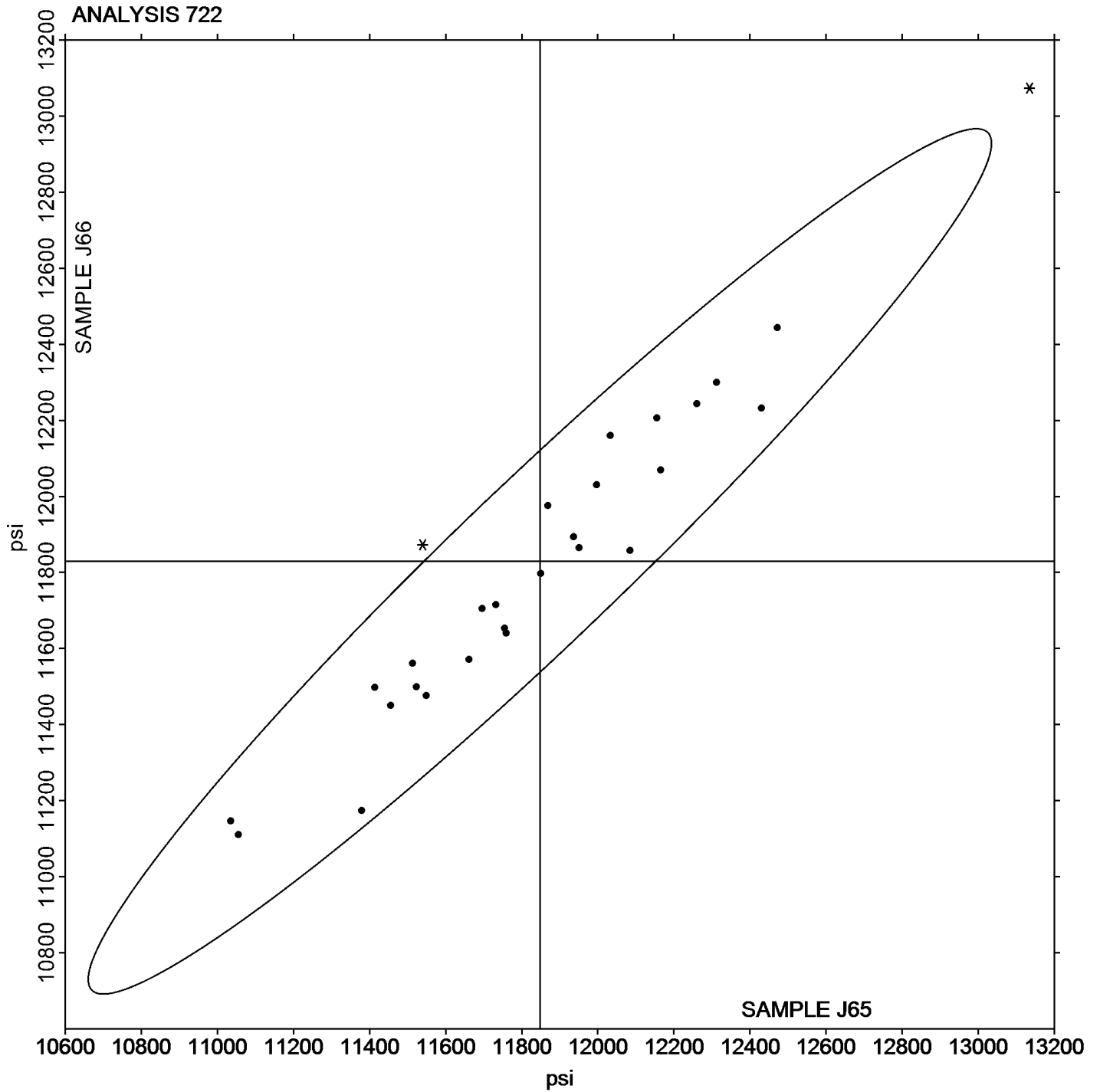
Report #113

Analysis 722

1st Qtr 2020

Flexural Stress at Yield - psi

Grand Mean Sample J65: 11,847.53 psi Grand Mean Sample J66: 11,829.18 psi





Plastics Interlaboratory Testing Program

Report #113

Analysis 730

1st Qtr 2020

Tensile Stress at Yield - MPa

WebCode	Data Flag	Sample C65			Sample C66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2M2HUQ		27.03	-1.17	-1.20	26.73	-1.22	-1.27
2P7EUK		28.64	0.44	0.45	28.24	0.29	0.30
2XKWXT		28.26	0.06	0.06	27.81	-0.14	-0.14
3UFV49		26.96	-1.24	-1.26	26.92	-1.03	-1.08
42RDYR		26.86	-1.34	-1.37	26.84	-1.11	-1.16
48YZQV		30.16	1.96	2.00	29.19	1.24	1.30
4CR2QP	X	24.45	-3.75	-3.83	24.81	-3.14	-3.29
4QXXAQ		28.11	-0.09	-0.09	27.74	-0.21	-0.22
4V8DHF		29.99	1.79	1.83	29.23	1.28	1.34
6EFRFZ		28.12	-0.08	-0.08	27.34	-0.61	-0.64
6R3ZHT		28.08	-0.11	-0.12	28.22	0.27	0.28
6Y3JGH		27.80	-0.40	-0.41	28.02	0.07	0.07
7PUCAG		28.30	0.10	0.10	28.36	0.41	0.43
88KTNA		29.27	1.07	1.09	28.81	0.86	0.91
8ZAEDU		28.62	0.42	0.43	28.30	0.35	0.37
9HH6KN		27.49	-0.71	-0.72	27.60	-0.35	-0.36
A7M873		27.70	-0.50	-0.51	26.74	-1.21	-1.27
BBVUNY	X	34.09	5.89	6.01	33.38	5.43	5.68
C6FUHX	X	22.81	-5.39	-5.50	23.25	-4.70	-4.92
CREA6Z		27.79	-0.41	-0.42	27.87	-0.08	-0.09
D7CLCJ		29.38	1.18	1.21	29.22	1.27	1.33
DTUNGF		27.09	-1.10	-1.13	27.56	-0.39	-0.41
EXXAHH	X	26.76	-1.44	-1.47	28.13	0.18	0.19
FTTYR9		26.53	-1.67	-1.71	25.77	-2.18	-2.28
FWERU3	*	27.37	-0.83	-0.85	26.10	-1.85	-1.94
GF8QXF		28.60	0.40	0.41	27.97	0.02	0.03
GZZP4E		26.92	-1.27	-1.30	26.67	-1.28	-1.34
H27GRL		27.31	-0.88	-0.90	28.00	0.05	0.05
HCQPC9		26.09	-2.11	-2.15	26.35	-1.60	-1.68
HHX8TA		27.83	-0.37	-0.38	27.79	-0.16	-0.17
HNZKB6		28.60	0.40	0.41	28.54	0.59	0.62
KJCPHW		27.66	-0.54	-0.55	27.54	-0.41	-0.43
KTKHUC		28.05	-0.15	-0.15	28.57	0.62	0.65
MPVU83		26.78	-1.42	-1.45	26.76	-1.19	-1.25
MY8PRB		27.91	-0.29	-0.30	28.19	0.24	0.25



Plastics Interlaboratory Testing Program

Report #113

Analysis 730

1st Qtr 2020

Tensile Stress at Yield - MPa

WebCode	Data Flag	<u>Sample C65</u>			<u>Sample C66</u>		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
N7J8KA		28.28	0.08	0.08	27.80	-0.15	-0.16
PH8L33		28.49	0.29	0.30	28.39	0.44	0.46
PUXMBW		27.95	-0.25	-0.25	27.38	-0.57	-0.60
TWHBLN		28.78	0.59	0.60	28.69	0.74	0.77
UDYYB9		29.62	1.42	1.46	28.80	0.85	0.89
UGXDXY		28.16	-0.04	-0.04	27.66	-0.29	-0.30
UPRF2V		29.02	0.82	0.84	29.19	1.24	1.30
URJED9		28.09	-0.11	-0.11	27.66	-0.29	-0.31
UYFENU		29.18	0.99	1.01	29.15	1.20	1.26
V246D6		29.20	1.00	1.02	28.94	0.99	1.04
W43324		29.24	1.04	1.06	28.44	0.49	0.52
WJFBZL		29.74	1.54	1.57	29.51	1.56	1.63
XMU6YR		28.03	-0.17	-0.17	27.01	-0.94	-0.98
YNG8WQ		27.81	-0.38	-0.39	27.71	-0.24	-0.25
YRXN2N	*	30.35	2.15	2.20	30.41	2.46	2.57
ZLFJ22		27.30	-0.90	-0.92	27.40	-0.55	-0.57
ZWQVAP		28.96	0.76	0.78	28.45	0.50	0.52

Summary Statistics		
	<u>Sample C65</u>	<u>Sample C66</u>
Grand Means	28.197 MPa	27.949 MPa
Std Dev Btwn Labs	0.979 MPa	0.955 MPa
Statistics based on 48 of 52 reporting participants		

Sample C65: HIPS & Sample C66: HIPS

Comments on Assigned Data Flags for Test #730

- EXXAHH (X) - Inconsistent in testing between samples.
- 4CR2QP (X) - Data for both samples are low. Possible Systematic Error.
- BBVUNY (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.
- C6FUHX (X) - Data for both samples are low. Possible Systematic Error.



Plastics Interlaboratory Testing Program

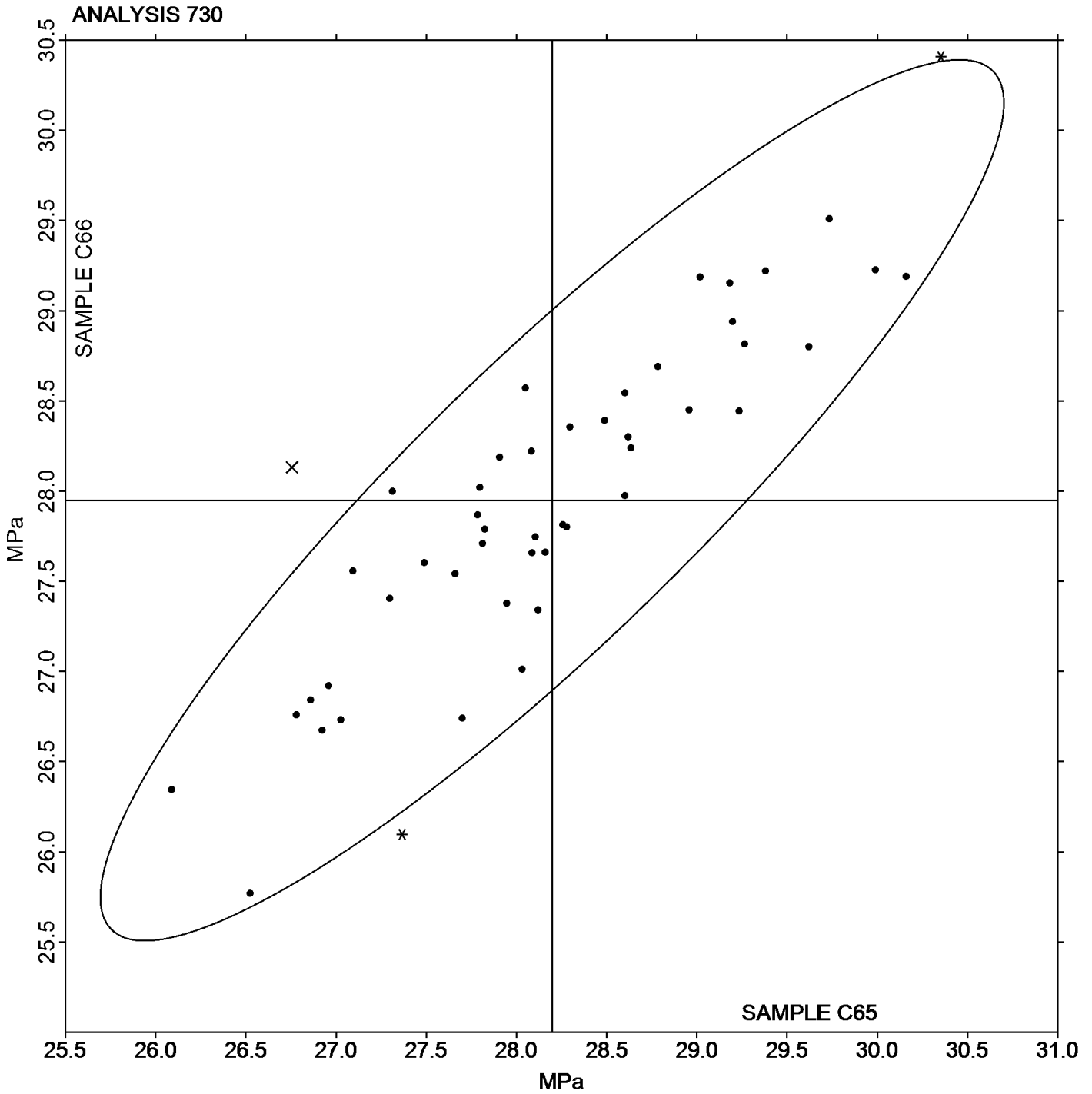
Report #113

Analysis 730

1st Qtr 2020

Tensile Stress at Yield - MPa

Grand Mean Sample C65: 28.197 MPa Grand Mean Sample C66: 27.949 MPa





Plastics Interlaboratory Testing Program

Report #113

Analysis 731

1st Qtr 2020

Tensile Stress at Break - MPa

WebCode	Data Flag	Sample C65			Sample C66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2M2HUQ		20.10	-1.32	-1.99	20.01	-1.07	-1.50
2P7EUK		21.28	-0.14	-0.21	21.25	0.17	0.24
2XKWXT		21.52	0.10	0.15	20.87	-0.21	-0.29
42RDYR		20.30	-1.12	-1.69	20.22	-0.86	-1.21
48YZQV		22.68	1.26	1.91	21.96	0.88	1.24
4CR2QP		20.04	-1.38	-2.09	20.39	-0.69	-0.97
4V8DHF		22.61	1.19	1.81	21.56	0.48	0.67
6EFRFZ		21.66	0.24	0.36	20.60	-0.48	-0.67
6R3ZHT		21.15	-0.27	-0.40	21.50	0.42	0.60
6Y3JGH		21.07	-0.35	-0.52	20.66	-0.42	-0.59
7PUCAG		21.62	0.20	0.31	21.53	0.45	0.64
88KTNA	X	47.27	25.85	39.12	45.52	24.44	34.37
8YE3AE		21.82	0.40	0.60	21.49	0.41	0.58
8ZAEDU		21.50	0.08	0.12	20.74	-0.34	-0.48
9HH6KN		20.69	-0.73	-1.11	20.88	-0.20	-0.28
A7M873		21.06	-0.36	-0.54	20.44	-0.64	-0.90
BBVUNY	X	27.06	5.64	8.54	26.59	5.51	7.75
C6FUHX	X	17.34	-4.08	-6.17	17.44	-3.64	-5.12
CREA6Z		21.56	0.14	0.22	21.16	0.08	0.12
D7CLCJ		21.82	0.40	0.61	21.66	0.58	0.82
DTUNGF		21.45	0.03	0.04	20.51	-0.57	-0.81
EXXAHH	X	20.39	-1.03	-1.56	21.93	0.85	1.20
FTTYR9		20.45	-0.97	-1.47	19.61	-1.47	-2.07
FWERU3		21.00	-0.42	-0.64	20.18	-0.90	-1.27
GF8QXF		21.86	0.44	0.67	20.58	-0.50	-0.70
GZZP4E		21.38	-0.04	-0.06	21.14	0.06	0.09
H27GRL		21.22	-0.20	-0.31	21.50	0.42	0.60
HHX8TA		20.83	-0.59	-0.89	20.17	-0.91	-1.27
HNZKB6		21.40	-0.02	-0.03	21.30	0.22	0.30
KTKHUC		21.56	0.14	0.21	22.20	1.12	1.58
MY8PRB		21.25	-0.17	-0.26	21.64	0.56	0.79
N7J8KA		21.26	-0.16	-0.24	20.32	-0.76	-1.07
PUXMBW		21.02	-0.40	-0.61	20.64	-0.44	-0.62
TWHBLN		22.39	0.97	1.47	22.75	1.67	2.35
UGXDXY		21.48	0.06	0.09	20.54	-0.54	-0.76



Plastics Interlaboratory Testing Program

Report #113

Analysis 731

1st Qtr 2020

Tensile Stress at Break - MPa

WebCode	Data Flag	Sample C65			Sample C66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
UPRF2V		21.67	0.25	0.37	21.56	0.48	0.67
URJED9		21.43	0.01	0.02	21.36	0.28	0.40
UYFENU		21.50	0.08	0.12	21.79	0.71	1.00
V246D6		22.28	0.86	1.30	21.64	0.56	0.79
W43324		22.05	0.63	0.95	21.22	0.14	0.19
WJFBZL		22.69	1.27	1.93	22.01	0.93	1.31
XMU6YR		20.72	-0.70	-1.06	20.02	-1.06	-1.48
YNG8WQ		21.32	-0.10	-0.16	21.60	0.52	0.73
YRXN2N		22.73	1.31	1.99	22.45	1.37	1.93
ZLFJ22		20.60	-0.82	-1.25	20.75	-0.33	-0.47
ZWQVAP		21.61	0.19	0.28	20.92	-0.16	-0.22

Summary Statistics		
	Sample C65	Sample C66
Grand Means	21.420 MPa	21.080 MPa
Std Dev Btwn Labs	0.661 MPa	0.711 MPa
Statistics based on 42 of 46 reporting participants		

Sample C65: HIPS & Sample C66: HIPS

Comments on Assigned Data Flags for Test #731

- EXXAHH (X) - Inconsistent in testing between samples.
- BBVUNY (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.
- C6FUHX (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample C66.
- 88KTNA (X) - Extreme data.



Plastics Interlaboratory Testing Program

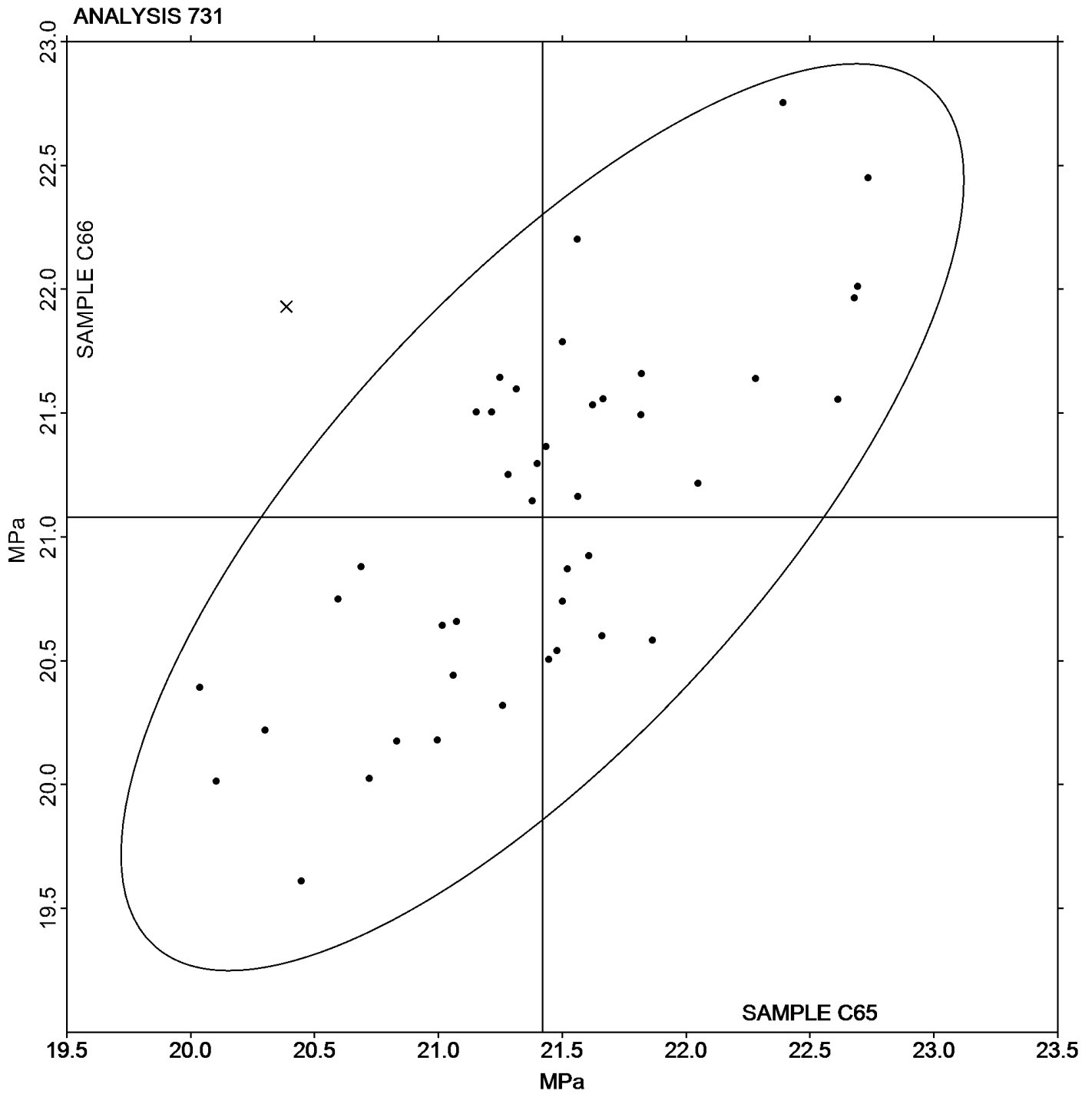
Report #113

Analysis 731

1st Qtr 2020

Tensile Stress at Break - MPa

Grand Mean Sample C65: 21.420 MPa Grand Mean Sample C66: 21.080 MPa





Plastics Interlaboratory Testing Program

Report #113

Analysis 732

1st Qtr 2020

Percent Strain at Yield

WebCode	Data Flag	Sample C65			Sample C66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2M2HUQ		1.310	0.004	0.06	1.342	0.039	0.58
2P7EUK	X	1.162	-0.144	-2.11	1.004	-0.299	-4.46
2XKWXT		1.366	0.061	0.89	1.368	0.065	0.97
42RDYR		1.440	0.134	1.97	1.432	0.129	1.93
48YZQV		1.394	0.088	1.30	1.382	0.079	1.18
4CR2QP		1.242	-0.064	-0.93	1.228	-0.075	-1.12
4V8DHF		1.332	0.027	0.39	1.340	0.037	0.55
6EFRFZ		1.290	-0.016	-0.23	1.284	-0.019	-0.28
6R3ZHT		1.304	-0.002	-0.02	1.300	-0.003	-0.04
7PUCAG		1.304	-0.002	-0.02	1.302	-0.001	-0.01
88KTNA		1.304	-0.002	-0.02	1.304	0.001	0.02
8ZAEDU		1.260	-0.046	-0.67	1.260	-0.043	-0.64
9HH6KN		1.280	-0.026	-0.38	1.296	-0.007	-0.10
A7M873	*	1.454	0.148	2.18	1.470	0.167	2.50
BBVUNY	X	1.894	0.588	8.64	1.704	0.401	5.99
C6FUHX	X	1.046	-0.260	-3.81	1.078	-0.225	-3.36
CREA6Z		1.268	-0.037	-0.55	1.276	-0.027	-0.40
D7CLCJ		1.300	-0.006	-0.08	1.300	-0.003	-0.04
DTUNGF	*	1.218	-0.088	-1.29	1.270	-0.033	-0.49
EXXAHH	*	1.176	-0.130	-1.90	1.140	-0.163	-2.43
FTTYR9	X	1.166	-0.140	-2.05	1.785	0.482	7.20
GF8QXF		1.376	0.070	1.03	1.352	0.049	0.73
GZZP4E		1.252	-0.054	-0.79	1.232	-0.071	-1.06
H27GRL	X	1.760	0.454	6.67	1.780	0.477	7.12
HCQPC9	*	1.114	-0.192	-2.81	1.130	-0.173	-2.58
HHX8TA	X	1.266	-0.040	-0.58	1.364	0.061	0.91
HNZKB6		1.332	0.026	0.39	1.340	0.037	0.55
KJCPHW		1.300	-0.006	-0.08	1.280	-0.023	-0.34
KTKHUC		1.224	-0.082	-1.20	1.254	-0.049	-0.73
MY8PRB		1.280	-0.026	-0.38	1.280	-0.023	-0.34
N7J8KA		1.292	-0.014	-0.20	1.282	-0.021	-0.31
PH8L33		1.320	0.014	0.21	1.320	0.017	0.26
PUXMBW		1.316	0.010	0.15	1.284	-0.019	-0.28
TWHBLN		1.354	0.048	0.71	1.358	0.055	0.82
UDYYB9		1.302	-0.004	-0.05	1.308	0.005	0.08



Plastics Interlaboratory Testing Program

Report #113

Analysis 732

1st Qtr 2020

Percent Strain at Yield

WebCode	Data Flag	Sample C65			Sample C66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
UGXDXY		1.300	-0.006	-0.08	1.300	-0.003	-0.04
UPRF2V		1.346	0.040	0.59	1.344	0.041	0.61
URJED9		1.324	0.018	0.27	1.280	-0.023	-0.34
UYFENU		1.354	0.048	0.71	1.324	0.021	0.32
V246D6		1.322	0.016	0.24	1.310	0.007	0.11
W43324		1.392	0.086	1.27	1.358	0.055	0.82
WJFBZL		1.206	-0.100	-1.46	1.190	-0.113	-1.68
XMU6YR		1.302	-0.004	-0.06	1.330	0.027	0.40
YNG8WQ		1.256	-0.049	-0.72	1.262	-0.041	-0.61
YRXN2N		1.286	-0.020	-0.29	1.284	-0.019	-0.28
ZLFJ22		1.430	0.124	1.83	1.418	0.115	1.72
ZWQVAP	X	1.443	0.138	2.02	2.347	1.044	15.59

Summary Statistics		
	Sample C65	Sample C66
Grand Means	1.3056 Percent	1.3028 Percent
Std Dev Btwn Labs	0.0681 Percent	0.0670 Percent
Statistics based on 40 of 47 reporting participants		

Sample C65: HIPS & Sample C66: HIPS

Comments on Assigned Data Flags for Test #732

- HHX8TA (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample C66.
- 2P7EUK (X) - Data for sample C66 are low. Inconsistent within the determinations of both samples.
- ZWQVAP (X) - Data for sample C66 are high. Inconsistent within the determinations of sample C66.
- H27GRL (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample C66.
- BBVUNY (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.
- C6FUHX (X) - Data for both samples are low. Possible Systematic Error.
- FTTYR9 (X) - Data for sample C66 are high. Inconsistent within the determinations of sample C65.



Plastics Interlaboratory Testing Program

Report #113

Analysis 734

1st Qtr 2020

Modulus of Elasticity - MPa

WebCode	Data Flag	Sample C65			Sample C66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2M2HUQ		2,284	-128	-1.06	2,301	-90	-0.80
2P7EUK	X	4,702	2,289	18.84	4,653	2,261	20.23
2XKWXT		2,374	-38	-0.31	2,341	-50	-0.45
42RDYR		2,334	-78	-0.64	2,380	-11	-0.10
48YZQV		2,451	39	0.32	2,394	3	0.03
4CR2QP		2,195	-217	-1.79	2,208	-183	-1.64
4V8DHF		2,131	-281	-2.31	2,181	-210	-1.88
6EFRFZ		2,410	-2	-0.02	2,352	-40	-0.35
6R3ZHT		2,374	-38	-0.32	2,391	0	0.00
7PUCAG		2,484	72	0.59	2,545	154	1.38
88KTNA		2,556	143	1.18	2,573	182	1.63
8ZAEDU	X	3,100	687	5.66	2,426	34	0.31
9HH6KN		2,339	-73	-0.60	2,314	-77	-0.69
A7M873		2,337	-75	-0.62	2,294	-98	-0.87
BBVUNY	X	1,960	-452	-3.72	1,972	-419	-3.75
C6FUHX		2,410	-2	-0.02	2,401	10	0.09
CREA6Z		2,326	-86	-0.71	2,312	-79	-0.71
D7CLCJ		2,443	31	0.26	2,435	43	0.39
DTUNGF	*	2,597	184	1.52	2,390	-2	-0.02
EXXAHH		2,590	178	1.47	2,534	143	1.28
FTTYR9	X	2,365	-47	-0.39	1,838	-553	-4.95
GF8QXF		2,343	-69	-0.57	2,304	-87	-0.78
GZZP4E		2,416	3	0.03	2,426	34	0.31
HCQPC9		2,446	33	0.27	2,406	15	0.13
HHX8TA		2,395	-17	-0.14	2,424	32	0.29
HNZKB6		2,241	-171	-1.41	2,254	-138	-1.23
KJCPHW		2,417	5	0.04	2,416	25	0.22
KTKHUC		2,446	34	0.28	2,466	74	0.66
MY8PRB		2,460	48	0.40	2,453	61	0.55
N7J8KA		2,506	94	0.77	2,337	-54	-0.48
PH8L33		2,280	-132	-1.09	2,280	-111	-1.00
PUXMBW		2,380	-32	-0.26	2,262	-130	-1.16
TWHBLN		2,352	-60	-0.50	2,349	-42	-0.38
UDYYB9	*	2,717	304	2.50	2,586	195	1.74
UGXDXY		2,484	72	0.59	2,422	31	0.27



Plastics Interlaboratory Testing Program

Report #113

Analysis 734

1st Qtr 2020

Modulus of Elasticity - MPa

WebCode	Data Flag	Sample C65			Sample C66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
UPRF2V		2,338	-75	-0.61	2,336	-56	-0.50
URJED9		2,397	-15	-0.12	2,424	33	0.29
UYFENU		2,528	116	0.95	2,488	96	0.86
V246D6		2,391	-22	-0.18	2,388	-3	-0.03
W43324		2,278	-135	-1.11	2,320	-71	-0.64
WJFBZL		2,659	247	2.03	2,604	212	1.90
XMU6YR		2,301	-111	-0.92	2,192	-199	-1.78
YNG8WQ		2,519	107	0.88	2,530	139	1.24
YRXN2N	*	2,560	148	1.22	2,640	249	2.23
ZLFJ22	X	1,160	-1,253	-10.31	775	-1,617	-14.46
ZWQVAP	X	2,633	220	1.81	2,096	-295	-2.64

Summary Statistics

	Sample C65	Sample C66
Grand Means	2,412.2 MPa	2,391.4 MPa
Std Dev Btwn Labs	121.5 MPa	111.8 MPa

Statistics based on 40 of 46 reporting participants

Sample C65: HIPS & Sample C66: HIPS

Comments on Assigned Data Flags for Test #734

- 8ZAEDU (X) - Data for sample C65 are high. Inconsistent within the determinations of sample C65.
- ZLFJ22 (X) - Extreme data.
- 2P7EUK (X) - Extreme data.
- ZWQVAP (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
- BBVUNY (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of both samples.
- FTTYR9 (X) - Data for sample C66 are low. Inconsistent within the determinations of sample C65.



Plastics Interlaboratory Testing Program

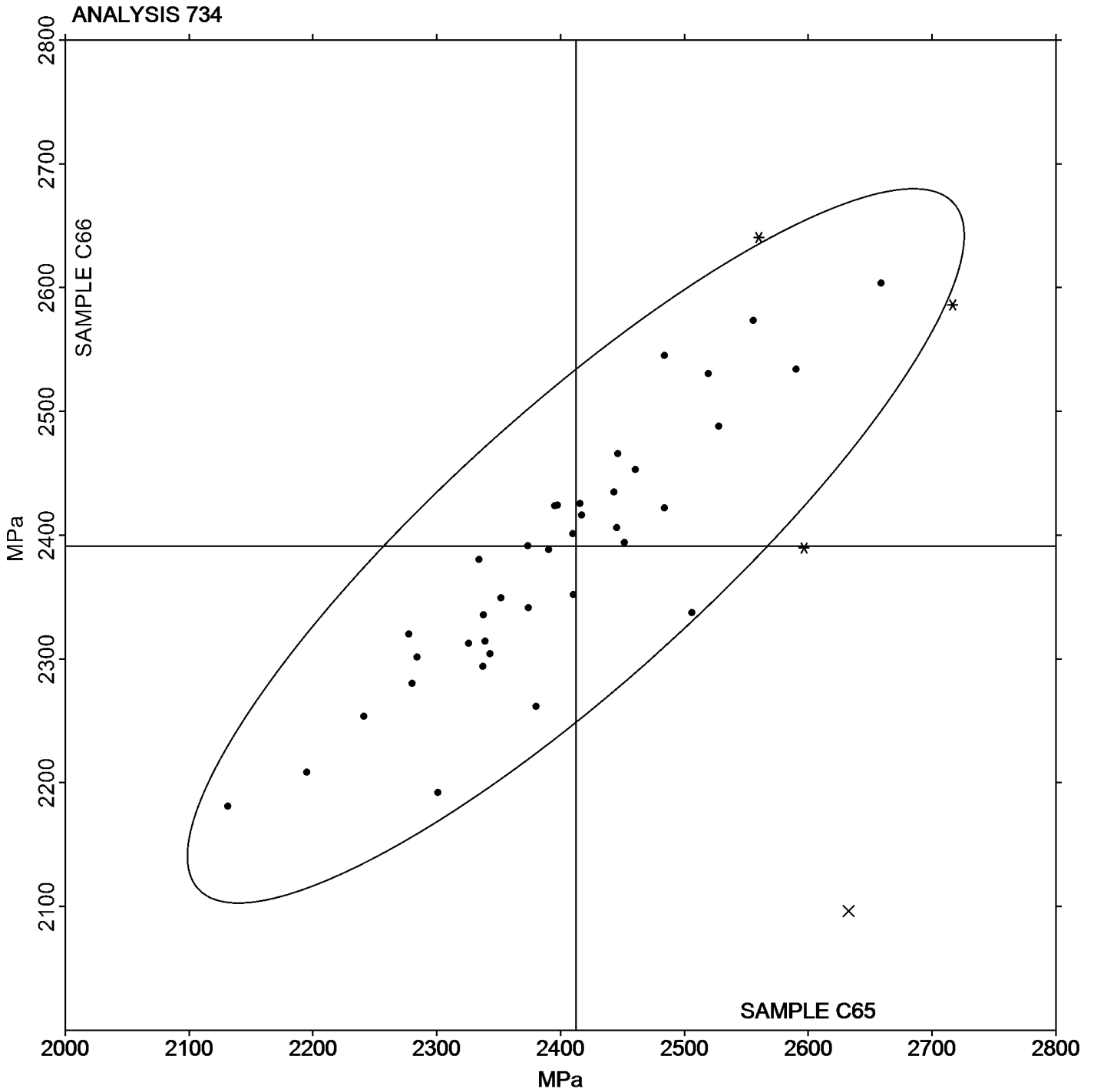
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Analysis 734

1st Qtr 2020

Modulus of Elasticity - MPa

Grand Mean Sample C65: 2,412.24 MPa Grand Mean Sample C66: 2,391.36 MPa





Plastics Interlaboratory Testing Program

Report #113

Analysis 736

1st Qtr 2020

Flexural Modulus - MPa

WebCode	Data Flag	Sample K65			Sample K66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2M2HUQ		2,411	-2	-0.02	2,440	21	0.19
2XKWXT		2,576	163	1.48	2,611	193	1.72
42RDYR		2,359	-54	-0.49	2,348	-70	-0.63
48YZQV		2,631	218	1.98	2,616	197	1.76
4CR2QP		2,416	2	0.02	2,476	57	0.51
4V8DHF		2,284	-129	-1.17	2,237	-182	-1.62
4YMUMD		2,306	-108	-0.98	2,340	-78	-0.69
6EFRFZ	*	2,495	82	0.75	2,628	210	1.87
6Y3JGH		2,390	-23	-0.21	2,412	-7	-0.06
7PUCAG		2,292	-121	-1.10	2,366	-53	-0.47
88KTNA		2,564	151	1.37	2,514	95	0.85
8YE3AE		2,377	-36	-0.33	2,421	2	0.02
8ZAEDU		2,526	113	1.02	2,517	99	0.88
9HH6KN		2,254	-159	-1.44	2,264	-155	-1.38
A7M873		2,295	-118	-1.07	2,288	-131	-1.16
C6FUHX		2,481	68	0.62	2,523	104	0.93
CREA6Z		2,408	-6	-0.05	2,415	-3	-0.03
D7CLCJ		2,407	-6	-0.06	2,371	-47	-0.42
DTUNGF		2,339	-74	-0.67	2,361	-58	-0.51
EXXAHH		2,411	-3	-0.02	2,480	62	0.55
GF8QXF		2,441	28	0.25	2,498	80	0.71
GZZP4E		2,412	-1	-0.01	2,407	-11	-0.10
HCQPC9		2,491	78	0.71	2,449	30	0.27
HHX8TA		2,395	-18	-0.16	2,424	5	0.05
JVCZCD		2,465	52	0.47	2,491	72	0.64
KJCPHW		2,331	-82	-0.75	2,301	-118	-1.05
KTKHUC		2,598	185	1.68	2,617	199	1.77
MY8PRB		2,330	-83	-0.75	2,377	-41	-0.37
QPCBHK		2,256	-158	-1.43	2,323	-95	-0.85
TWHBLN		2,367	-47	-0.42	2,365	-53	-0.48
UDYYB9		2,378	-35	-0.32	2,348	-70	-0.63
UGXDXY		2,366	-47	-0.43	2,386	-32	-0.29
URJED9		2,386	-27	-0.24	2,390	-29	-0.25
V246D6		2,604	191	1.73	2,527	108	0.97
W43324		2,592	179	1.63	2,577	158	1.41



Plastics Interlaboratory Testing Program

Report #113

Analysis 736

1st Qtr 2020

Flexural Modulus - MPa

WebCode	Data Flag	<u>Sample K65</u>			<u>Sample K66</u>		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
WJFBZL		2,416	3	0.02	2,357	-61	-0.55
XMU6YR		2,397	-16	-0.14	2,392	-27	-0.24
YRXN2N	*	2,610	196	1.78	2,503	85	0.76
ZLFJ22		2,217	-196	-1.78	2,184	-234	-2.08
ZWQVAP		2,255	-158	-1.44	2,193	-225	-2.01

Summary Statistics		
	<u>Sample K65</u>	<u>Sample K66</u>
Grand Means	2,413.3 MPa	2,418.4 MPa
Std Dev Btwn Labs	110.0 MPa	112.3 MPa
Statistics based on 40 of 40 reporting participants		

Sample K65: HIPS & Sample K66: HIPS



Plastics Interlaboratory Testing Program

Report #113

Analysis 737

1st Qtr 2020

Flexural Stress at 3.5% Strain - MPa

WebCode	Data Flag	Sample K65			Sample K66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2XKWXT		42.55	-2.41	-1.24	44.32	-0.90	-0.49
42RDYR	X	38.92	-6.04	-3.11	41.98	-3.24	-1.76
48YZQV		48.81	3.85	1.99	49.39	4.16	2.26
4CR2QP		44.72	-0.24	-0.12	45.52	0.29	0.16
4V8DHF		45.54	0.58	0.30	44.18	-1.04	-0.57
4YMUMD		45.04	0.08	0.04	45.44	0.22	0.12
6EFRFZ		47.54	2.58	1.33	47.79	2.56	1.39
6Y3JGH		45.30	0.35	0.18	46.06	0.84	0.46
7PUCAG		45.59	0.63	0.32	46.14	0.92	0.50
88KTNA		47.03	2.07	1.07	46.97	1.74	0.95
8ZAEDU		47.50	2.54	1.31	47.40	2.18	1.18
9HH6KN		43.57	-1.38	-0.71	43.38	-1.84	-1.00
A7M873	X	9.16	-35.80	-18.46	9.07	-36.16	-19.64
C6FUHX	*	38.93	-6.03	-3.11	40.36	-4.86	-2.64
CREA6Z		44.81	-0.14	-0.07	45.61	0.39	0.21
D7CLCJ		43.70	-1.26	-0.65	42.58	-2.64	-1.44
DTUNGF		43.80	-1.16	-0.60	44.84	-0.38	-0.21
EXXAHH		44.11	-0.84	-0.44	44.97	-0.25	-0.14
GF8QXF		44.50	-0.46	-0.24	45.68	0.46	0.25
GZZP4E		44.09	-0.87	-0.45	44.47	-0.76	-0.41
HCQPC9		45.28	0.32	0.17	44.59	-0.63	-0.34
HHX8TA		45.12	0.16	0.08	45.58	0.36	0.19
KTKHUC		47.39	2.43	1.25	47.63	2.40	1.30
MY8PRB		43.85	-1.11	-0.57	45.13	-0.09	-0.05
QPCBHK		42.96	-2.00	-1.03	43.54	-1.68	-0.91
TWHBLN		46.88	1.92	0.99	46.32	1.10	0.60
UGXDXY		44.10	-0.86	-0.44	44.13	-1.10	-0.60
URJED9		43.74	-1.22	-0.63	43.89	-1.34	-0.73
V246D6		47.10	2.14	1.10	46.77	1.55	0.84
W43324		47.09	2.13	1.10	47.65	2.42	1.32
WJFBZL		45.28	0.32	0.16	44.51	-0.72	-0.39
XMU6YR		43.41	-1.55	-0.80	43.64	-1.58	-0.86
YRXN2N		46.37	1.41	0.73	46.41	1.19	0.65
ZLFJ22		42.97	-1.99	-1.03	42.29	-2.94	-1.60



Plastics Interlaboratory Testing Program

Report #113

Analysis 737

1st Qtr 2020

Flexural Stress at 3.5% Strain - MPa

Summary Statistics	<u>Sample K65</u>	<u>Sample K66</u>
Grand Means	44.958 MPa	45.224 MPa
Stnd Dev Btwn Labs	1.939 MPa	1.841 MPa

Statistics based on 32 of 34 reporting participants

Sample K65: HIPS & Sample K66: HIPS

Comments on Assigned Data Flags for Test #737

42RDYR (X) - Data for sample K65 are low. Inconsistent within the determinations of sample K66.

A7M873 (X) - Extreme data.



Plastics Interlaboratory Testing Program

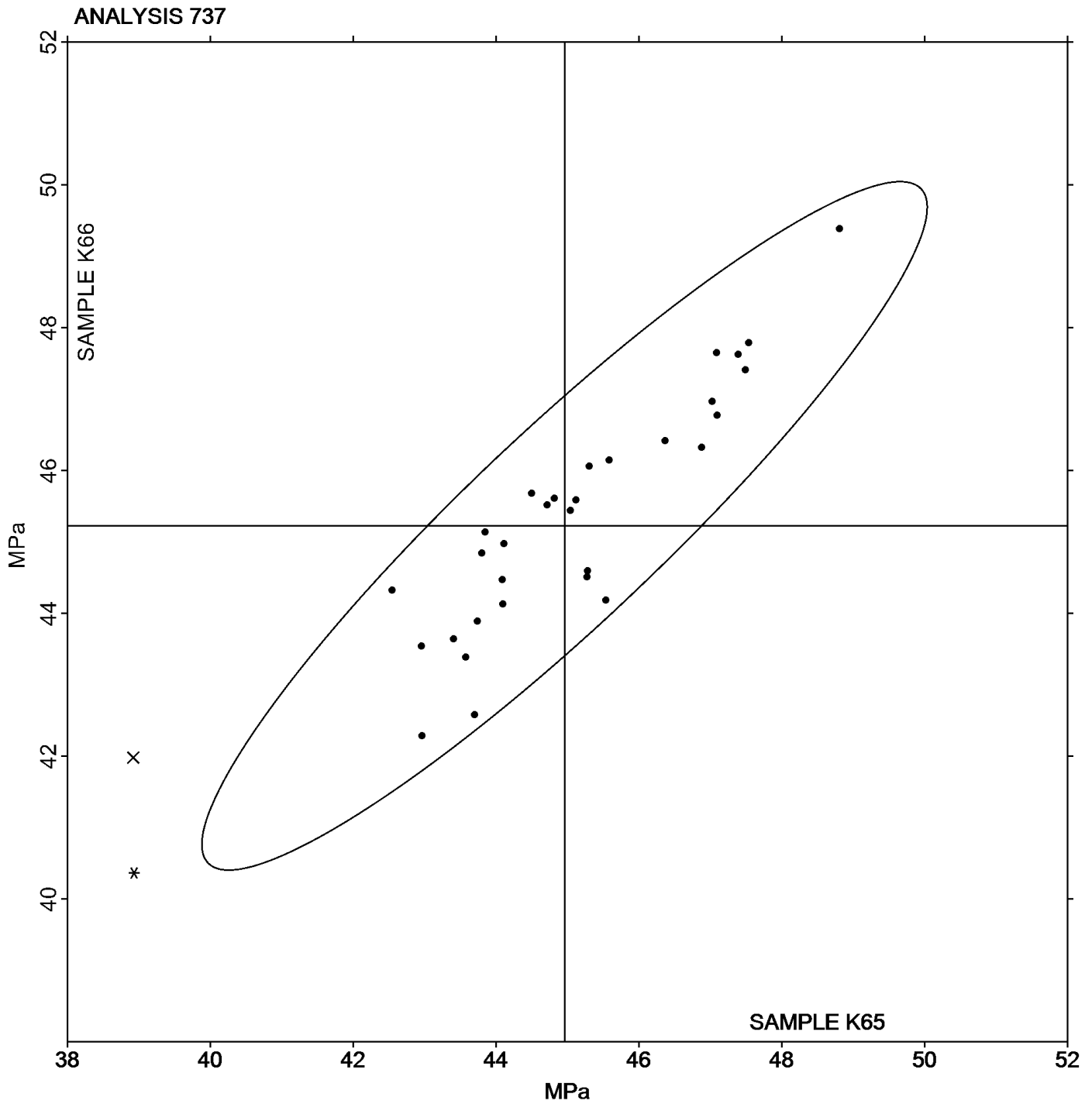
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Analysis 737

1st Qtr 2020

Flexural Stress at 3.5% Strain - MPa

Grand Mean Sample K65: 44.958 MPa Grand Mean Sample K66: 45.224 MPa





Plastics Interlaboratory Testing Program

Report #113

Analysis 738

1st Qtr 2020

Flexural Stress at Yield - MPa

WebCode	Data Flag	Sample K65			Sample K66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
42RDYR	X	39.30	-5.43	-2.32	42.54	-2.38	-0.91
4CR2QP		45.21	0.49	0.21	46.24	1.32	0.51
4YMUMD		39.14	-5.59	-2.39	39.40	-5.52	-2.12
6Y3JGH		45.76	1.03	0.44	47.28	2.36	0.91
7PUCAG		46.16	1.43	0.61	46.79	1.87	0.72
88KTNA	X	20.71	-24.02	-10.28	25.08	-19.84	-7.62
9HH6KN		44.86	0.13	0.06	45.11	0.19	0.07
A7M873		45.28	0.55	0.24	45.62	0.70	0.27
C6FUHX		39.32	-5.41	-2.32	38.93	-5.99	-2.30
CREA6Z		45.41	0.68	0.29	46.57	1.65	0.64
D7CLCJ		44.24	-0.49	-0.21	42.84	-2.08	-0.80
DTUNGF		44.86	0.14	0.06	45.39	0.47	0.18
EXXAHH		44.68	-0.05	-0.02	45.25	0.33	0.13
GF8QXF		44.88	0.15	0.07	46.08	1.16	0.45
GZZP4E		44.23	-0.50	-0.21	44.69	-0.22	-0.09
KJCPHW		40.22	-4.51	-1.93	39.20	-5.72	-2.20
KTKHUC		48.09	3.36	1.44	48.40	3.48	1.34
MY8PRB		44.38	-0.34	-0.15	45.85	0.93	0.36
TWHBLN		47.94	3.21	1.37	47.84	2.92	1.12
UDYYB9		44.44	-0.29	-0.12	43.79	-1.13	-0.43
UGXDXY		44.84	0.12	0.05	44.96	0.04	0.02
URJED9		44.62	-0.11	-0.05	44.56	-0.35	-0.14
V246D6		48.22	3.49	1.49	47.11	2.19	0.84
W43324		47.78	3.05	1.31	48.36	3.44	1.32
WJFBZL		45.53	0.81	0.35	44.90	-0.02	-0.01
XMU6YR		44.53	-0.20	-0.09	44.89	-0.03	-0.01
ZLFJ22		43.57	-1.16	-0.50	42.90	-2.02	-0.78

Summary Statistics

	Sample K65	Sample K66
Grand Means	44.727 MPa	44.918 MPa
Std Dev Btwn Labs	2.335 MPa	2.604 MPa

Statistics based on 25 of 27 reporting participants

Sample K65: HIPS & Sample K66: HIPS



Plastics Interlaboratory Testing Program

Analysis 738

Flexural Stress at Yield - MPa

Report #113

1st Qtr 2020

Comments on Assigned Data Flags for Test #738

42RDYR (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample K66.

88KTNA (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of both samples.



Plastics Interlaboratory Testing Program

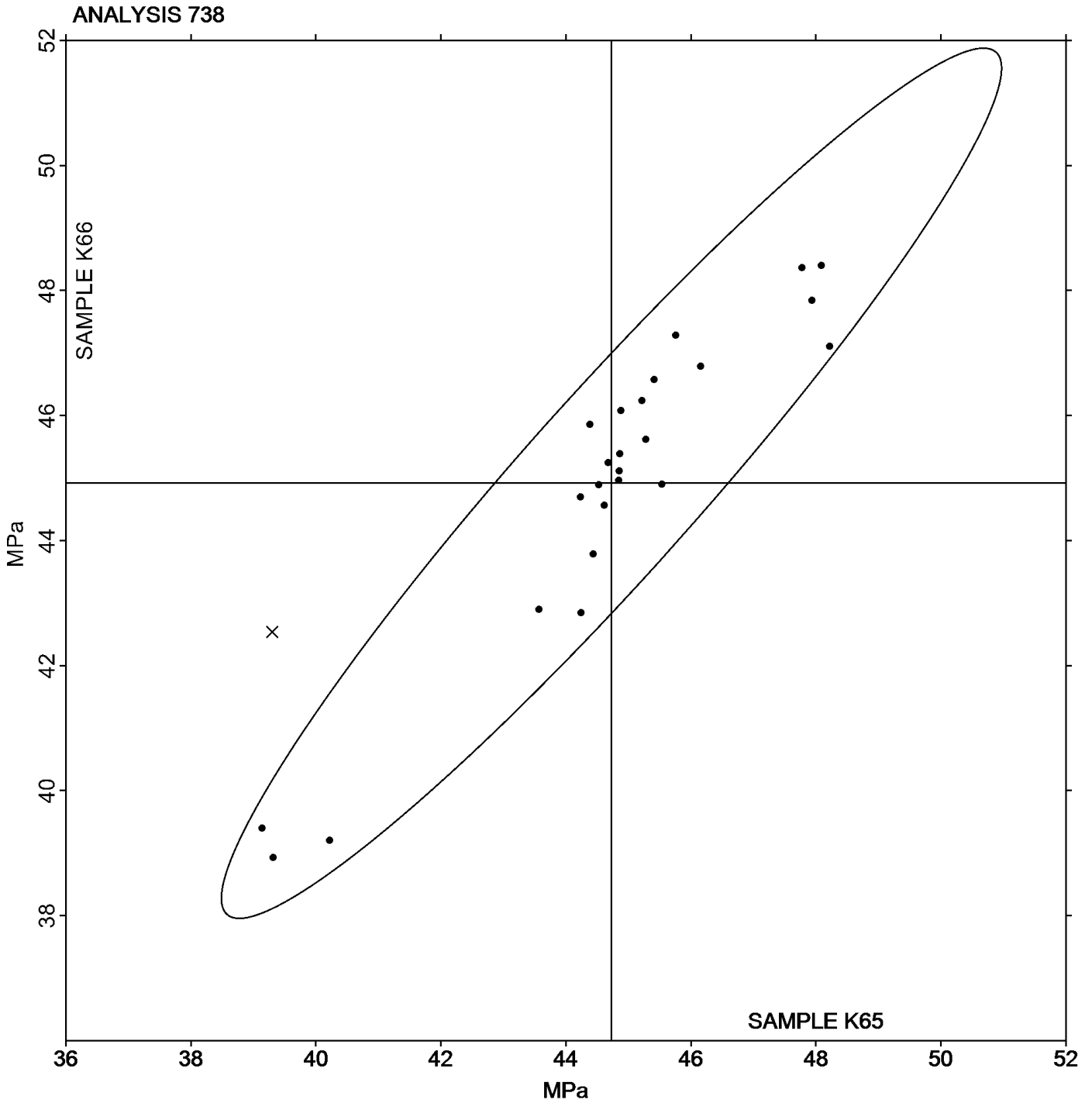
Report #113

Analysis 738

1st Qtr 2020

Flexural Stress at Yield - MPa

Grand Mean Sample K65: 44.727 MPa Grand Mean Sample K66: 44.918 MPa





Plastics Interlaboratory Testing Program

Report #113

Analysis 750

1st Qtr 2020

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

WebCode	Data Flag	Sample X65			Sample X66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2M2HUQ		6.90	0.31	1.68	8.50	0.35	1.22	TO
2P7EUK		6.50	-0.09	-0.45	7.90	-0.25	-0.89	KA
2XKWXT	X	5.12	-1.47	-7.83	5.75	-2.41	-8.47	DY
38XW9E		6.59	0.00	0.03	8.11	-0.04	-0.15	DY
3D8W2W		6.80	0.21	1.14	8.73	0.58	2.03	TO
3JJRZE	*	6.55	-0.04	-0.19	8.60	0.45	1.57	CE
42RDYR		6.59	0.00	0.00	8.31	0.15	0.54	TO
48YZQV		6.67	0.08	0.44	8.28	0.13	0.46	DY
4CR2QP		6.75	0.16	0.88	8.35	0.20	0.69	AT
4QXXAQ		6.58	-0.01	-0.03	7.95	-0.20	-0.71	XX
64DCRG		6.29	-0.30	-1.60	7.84	-0.31	-1.10	XX
6EFRFZ		6.65	0.06	0.35	8.15	0.00	-0.01	TO
6Y3JGH		6.64	0.05	0.27	8.22	0.07	0.24	DY
7HUKCK		6.47	-0.12	-0.61	8.12	-0.03	-0.12	WZ
88KTNA		6.39	-0.20	-1.05	7.88	-0.27	-0.97	XX
8RR4P8		7.05	0.47	2.49	8.75	0.60	2.11	TO
8WA8UG		6.40	-0.19	-0.99	8.00	-0.15	-0.54	TO
8YE3AE		6.17	-0.41	-2.20	7.64	-0.51	-1.80	TO
9DEWPT		6.60	0.02	0.10	8.27	0.12	0.41	XX
9HH6KN		6.31	-0.28	-1.49	7.90	-0.25	-0.89	GO
9L6JD6	X	0.56	-6.02	-32.10	0.71	-7.45	-26.21	TO
9P4XY9		6.70	0.11	0.61	8.35	0.20	0.69	TO
9YRRDQ		6.65	0.06	0.32	8.26	0.11	0.38	DY
A7M873		6.30	-0.29	-1.52	7.60	-0.55	-1.95	WZ
B9JBBU		6.57	-0.01	-0.06	8.13	-0.02	-0.07	TO
BBVUNY		6.60	0.01	0.08	8.05	-0.10	-0.36	WZ
BLVGQ4		6.95	0.36	1.94	8.70	0.55	1.93	RR
BNMFWE		6.50	-0.09	-0.45	8.40	0.25	0.87	TO
C6FUHX	*	6.74	0.15	0.82	7.88	-0.27	-0.96	TO
CREA6Z		6.49	-0.09	-0.49	8.35	0.19	0.68	TO
D7CLCJ	X	7.06	0.48	2.54	7.84	-0.31	-1.09	GO
EDARAH		6.60	0.01	0.08	8.10	-0.05	-0.19	TO
EEKCG8	X	5.85	-0.74	-3.92	23.55	15.40	54.19	TO
ERPT33		6.39	-0.20	-1.07	8.27	0.11	0.40	DY
EXXAHH		6.68	0.09	0.48	8.51	0.36	1.26	TO



Plastics Interlaboratory Testing Program

Report #113

Analysis 750

1st Qtr 2020

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

WebCode	Data Flag	Sample X65			Sample X66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
F9UBW8		6.61	0.02	0.11	8.20	0.05	0.17	TO
FUBWBZ		6.98	0.39	2.08	8.49	0.33	1.17	TO
G4VG2Q		6.37	-0.21	-1.13	7.90	-0.25	-0.89	TO
GZZP4E		6.76	0.17	0.93	8.33	0.17	0.61	TO
HHL2UJ	*	6.24	-0.34	-1.82	7.41	-0.74	-2.60	XX
HHVGPD		6.58	-0.01	-0.03	7.84	-0.31	-1.09	TO
HHX8TA		6.95	0.36	1.94	8.70	0.55	1.93	TO
HPRGXD		6.65	0.06	0.35	8.20	0.05	0.17	TO
HZQ9AK	X	5.24	-1.35	-7.17	6.70	-1.45	-5.11	XX
J3RV2F		6.25	-0.34	-1.81	7.88	-0.27	-0.96	XX
J8N7QL		6.61	0.02	0.11	8.45	0.30	1.05	TO
KELCQG		6.52	-0.07	-0.37	8.06	-0.10	-0.34	TO
L3K9ZR		6.60	0.02	0.10	8.14	-0.01	-0.04	TO
LDKYJE	X	7.22	0.63	3.36	8.43	0.28	0.98	DY
MMPC6Z		6.65	0.06	0.35	8.10	-0.05	-0.19	TO
MPVU83		6.41	-0.18	-0.96	8.02	-0.14	-0.48	XX
MQPFY9		6.65	0.06	0.35	8.10	-0.05	-0.19	TO
MYGXDG		6.42	-0.17	-0.88	7.72	-0.43	-1.52	TM
ND9A7D	X	5.09	-1.50	-7.97	7.67	-0.49	-1.71	TO
NXJZKZ	X	7.91	1.32	7.03	8.57	0.42	1.47	DY
NYGD68		6.45	-0.14	-0.72	8.05	-0.10	-0.36	WZ
PH8L33		6.45	-0.14	-0.72	8.00	-0.16	-0.56	TO
PUC3DC		6.31	-0.28	-1.47	7.66	-0.50	-1.75	CE
Q4GG2J		6.46	-0.13	-0.67	7.90	-0.25	-0.89	WZ
R3QHLZ	X	6.80	0.21	1.12	7.54	-0.61	-2.16	DY
T3WDDH	X	4.74	-1.85	-9.86	5.40	-2.76	-9.71	TO
T6NCRF		6.78	0.20	1.05	8.43	0.28	0.97	DY
TWHBLN		6.58	-0.01	-0.05	7.99	-0.16	-0.56	TO
TY3KCZ		6.50	-0.09	-0.45	8.08	-0.08	-0.27	DY
U27D6D		6.75	0.16	0.85	8.37	0.21	0.75	DY
UGXDXY		6.57	-0.02	-0.08	8.11	-0.04	-0.15	GO
V246D6		6.56	-0.03	-0.16	7.83	-0.32	-1.13	GO
VDWNUW		6.75	0.16	0.88	8.40	0.25	0.87	TO
WAQM3X	X	7.05	0.46	2.45	7.65	-0.50	-1.77	HA
WAQM6J		6.60	0.01	0.08	8.15	0.00	-0.01	TO



Plastics Interlaboratory Testing Program

Report #113

Analysis 750

1st Qtr 2020

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

WebCode	Data Flag	Sample X65			Sample X66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
WMY9U4	X	12.55	5.96	31.79	12.10	3.95	13.89	TO
X9DDRC		6.70	0.11	0.60	8.39	0.24	0.84	TO
YRXN2N		6.55	-0.04	-0.19	8.20	0.05	0.17	TO
ZLFJ22		6.70	0.11	0.61	8.15	0.00	-0.01	TO
ZNWQGN		6.90	0.31	1.68	8.30	0.15	0.52	TO

Summary Statistics

	Sample X65	Sample X66
Grand Means	6.585 grams/10 mins	8.153 grams/10 mins
Stnd Dev Btwn Labs	0.188 grams/10 mins	0.284 grams/10 mins
Statistics based on 63 of 75 reporting participants		

Sample X65: HDPE & Sample X66: HDPE

Comments on Assigned Data Flags for Test #750

- NXJZKZ (X) - Data for sample X65 are high.
- 2XKWXI (X) - Data for both samples are low. Inconsistent within the determinations of both samples.
- 9L6JD6 (X) - Extreme data.
- EEKCG8 (X) - Extreme data.
- R3QHLZ (X) - Inconsistent in testing between samples.
- D7CLCJ (X) - Inconsistent in testing between samples.
- WAQM3X (X) - Inconsistent in testing between samples.
- WMY9U4 (X) - Data for both samples are high. Inconsistent within the determinations of sample X65.
- HZQ9AK (X) - Data for both samples are low.
- ND9A7D (X) - Data for sample X65 are low.
- LDKYJE (X) - Data for sample X65 are high. Inconsistent within the determinations of sample X66.
- T3WDDH (X) - Data for both samples are low. Inconsistent within the determinations of sample X66.

Results by Methodology (as reported by laboratory)

Test Methodology	Sample X65 <i>HDPE</i>			Sample X66 <i>HDPE</i>			Labs Incl / Rpt
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM	
Procedure A of ASTM D1238	6.599	0.181	0.014	8.192	0.277	0.039	38/45
Procedure B of ASTM D1238	6.594	0.216	0.009	8.154	0.301	0.001	11/12
Procedure A of ISO 1133	6.558	0.128	-0.027	7.986	0.212	-0.167	10/12
Procedure B of ISO 1133	6.722	0.323	0.136	8.523	0.250	0.370	2/4



Plastics Interlaboratory Testing Program

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1st Qtr 2020

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

Key to Instrument Codes Reported by Participants

AT	Atlas	CE	Ceast
DY	Dynisco	GO	Gottfert
HA	Haake	KA	Kayeness
RR	Ray Ran	TM	TMI
TO	Tinius Olsen	WZ	Zwick
XX	Instrument manufacturer not specified by lab		



Plastics Interlaboratory Testing Program

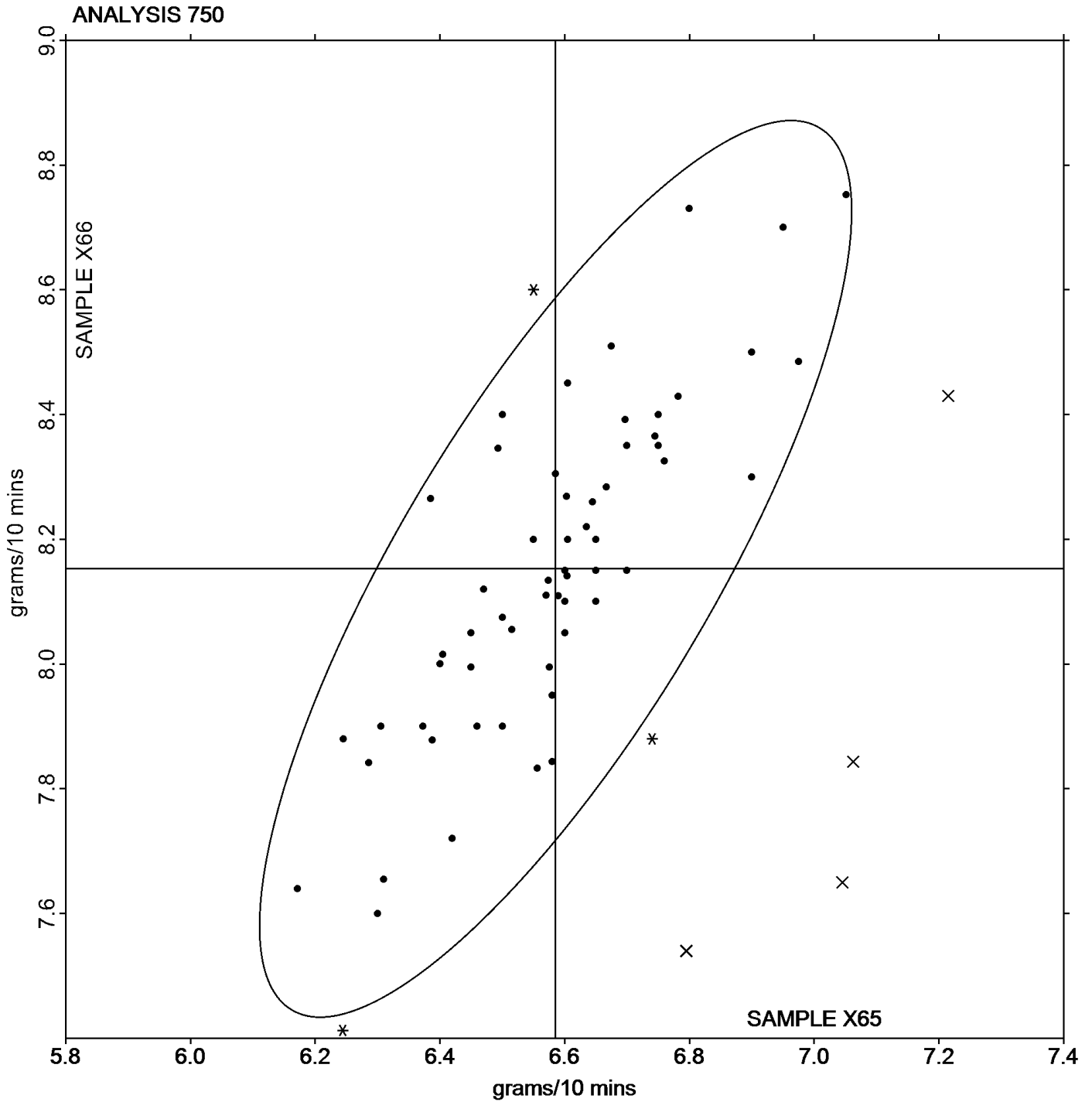
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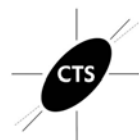
Analysis 750

1st Qtr 2020

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

Grand Mean Sample X65: 6.5853 grams/10 mins Grand Mean Sample X66: 8.1527 grams/10 mins





Plastics Interlaboratory Testing Program

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Analysis 755

1st Qtr 2020

Moisture Content of Plastics

WebCode	Data Flag	Sample Y65			Sample Y66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
42RDYR		0.10700	-0.01391	-0.76	0.11250	-0.00934	-0.54	AZ
48YZQV		0.12870	0.00779	0.42	0.13530	0.01346	0.78	XX
4YMUMD		0.12333	0.00242	0.13	0.12000	-0.00184	-0.11	MK
766QVK		0.11777	-0.00315	-0.17	0.11663	-0.00521	-0.30	MR
7HUKCK		0.13550	0.01459	0.80	0.13050	0.00866	0.50	AZ
7PUCAG		0.10467	-0.01625	-0.89	0.10500	-0.01684	-0.98	CT
88KTNA		0.14000	0.01909	1.04	0.14000	0.01816	1.05	XX
8WA8UG		0.16000	0.03909	2.13	0.15900	0.03716	2.15	SA
8YE3AE		0.08910	-0.03181	-1.74	0.08867	-0.03318	-1.92	AQ
9L4HUR		0.11700	-0.00391	-0.21	0.12150	-0.00034	-0.02	CT
BNH49H	*	0.06231	-0.05860	-3.20	0.07253	-0.04932	-2.86	MU
DUEUHY		0.14847	0.02755	1.50	0.13937	0.01752	1.02	MT
EEKCG8	X	0.12167	0.00075	0.04	0.09600	-0.02584	-1.50	BA
ERPT33		0.14790	0.02699	1.47	0.14867	0.02682	1.56	AZ
ERPTZG		0.11633	-0.00458	-0.25	0.11133	-0.01051	-0.61	MJ
GTQPCV		0.12457	0.00365	0.20	0.12203	0.00019	0.01	AZ
GZZP4E		0.11890	-0.00201	-0.11	0.11640	-0.00544	-0.32	ML
HHX8TA		0.12100	0.00009	0.00	0.13550	0.01366	0.79	ML
J8N7QL		0.11933	-0.00158	-0.09	0.11483	-0.00701	-0.41	AZ
L3K9ZR		0.10567	-0.01525	-0.83	0.11367	-0.00818	-0.47	XX
LDKYJE		0.11600	-0.00491	-0.27	0.11900	-0.00284	-0.16	MB
M9K8NM		0.11190	-0.00901	-0.49	0.11500	-0.00684	-0.40	ML
MQPFY9		0.10933	-0.01158	-0.63	0.11433	-0.00751	-0.44	MD
NDHP28		0.11923	-0.00168	-0.09	0.11900	-0.00284	-0.16	MK
PUC3DC		0.11100	-0.00991	-0.54	0.11900	-0.00284	-0.16	MU
QTMZDH		0.12600	0.00509	0.28	0.12977	0.00792	0.46	CS
R3QHLZ		0.11967	-0.00125	-0.07	0.12967	0.00782	0.45	AZ
RXWFL8		0.11333	-0.00758	-0.41	0.10367	-0.01818	-1.05	MU
T3WDDH		0.15367	0.03275	1.79	0.14700	0.02516	1.46	CT
TGX6YM		0.11707	-0.00385	-0.21	0.11743	-0.00441	-0.26	AZ
TY3KCZ		0.12267	0.00175	0.10	0.12467	0.00282	0.16	AZ
U27D6D		0.12000	-0.00091	-0.05	0.11333	-0.00851	-0.49	MU
UPRF2V		0.12267	0.00175	0.10	0.12567	0.00382	0.22	MI
YNG8WQ		0.10727	-0.01365	-0.74	0.09993	-0.02191	-1.27	MK
YRXN2N		0.12463	0.00372	0.20	0.13363	0.01179	0.68	AZ



Plastics Interlaboratory Testing Program

Report #113

Analysis 755

1st Qtr 2020

Moisture Content of Plastics

WebCode	Data Flag	Sample Y65			Sample Y66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
ZLFJ22		0.15000	0.02909	1.59	0.15000	0.02816	1.63	AZ

Summary Statistics		Sample Y65		Sample Y66	
Grand Means		0.120914	Percent	0.121844	Percent
Stnd Dev Btwn Labs		0.018333	Percent	0.017245	Percent
Statistics based on 35 of 36 reporting participants					

Sample Y65: ABS/PC & Sample Y66: ABS/PC

Comments on Assigned Data Flags for Test #755

EEKCG8 (X) - Inconsistent in testing between samples.

Results by Methodology (as reported by laboratory)

Test Methodology	Sample Y65 <i>ABS/PC</i>			Sample Y66 <i>ABS/PC</i>			Labs Incl / Rpt
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM	
ASTM D6869	0.113357	0.021000	-0.0076	0.114000	0.020000	-0.0082	13/13
ISO 15512 Method B	0.125960	0.013000	0.0050	0.126000	0.011000	0.0043	5/5
ASTM D6980	0.121463	0.017000	0.0005	0.125000	0.016000	0.0029	10/10
ASTM D7191	0.130557	0.014000	0.0096	0.130000	0.014000	0.0081	7/8

Key to Instrument Codes Reported by Participants

AQ Aquastar	AZ Arizona Instruments Moisture Analyzer
BA Brabender Aquatrac	CS Cosa Instruments
CT Computrac Moisture Analyzer	MB Omnimark Mark 3
MD Mettler Toledo DL37	MI Mitsubishi MCI Series
MJ Mitsubishi KF Analyzer Series	MK Mitsubishi KF Analyzer CA
ML Metrohm Coulometer	MR Metrohm Coulineter 756 KF
MT Mettler Toledo DL39	MU Mettler Toledo
SA Sartorius MA30	XX Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

Report #113

Analysis 757

1st Qtr 2020

Ash Content in Thermoplastics - Percent

WebCode	Data Flag	Sample L65			Sample L66		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2M2HUQ		19.795	0.043	0.65	19.780	0.016	0.30
3UFV49		19.800	0.048	0.72	19.800	0.036	0.67
42RDYR		19.745	-0.007	-0.11	19.735	-0.029	-0.54
48YZQV		19.655	-0.097	-1.48	19.780	0.016	0.30
4JEU3N		19.785	0.033	0.49	19.785	0.021	0.39
4QXXAQ	*	19.680	-0.072	-1.10	19.615	-0.149	-2.77
6EFRFZ	X	18.890	-0.862	-13.07	18.740	-1.024	-19.04
6Y3JGH		19.780	0.028	0.42	19.795	0.031	0.57
7PUCAG		19.750	-0.002	-0.04	19.750	-0.014	-0.26
88KTNA		19.764	0.012	0.18	19.778	0.013	0.25
8WA8UG		19.805	0.053	0.80	19.800	0.036	0.67
8YE3AE	X	19.386	-0.366	-5.55	19.347	-0.417	-7.76
8ZAEDU	*	19.950	0.198	3.00	19.815	0.051	0.95
9P4XY9	*	19.590	-0.162	-2.46	19.625	-0.139	-2.59
C6FUHX		19.785	0.033	0.49	19.725	-0.039	-0.73
CREA6Z		19.600	-0.152	-2.31	19.700	-0.064	-1.19
D7CLCJ		19.745	-0.007	-0.11	19.840	0.076	1.41
DUEUHY	X	19.525	-0.227	-3.45	19.780	0.016	0.30
EXXAHH		19.810	0.058	0.87	19.800	0.036	0.67
FMX792		19.785	0.033	0.49	19.795	0.031	0.57
HHVGPD		19.753	0.001	0.01	19.780	0.016	0.30
HHX8TA		19.735	-0.017	-0.26	19.830	0.066	1.23
HZQ9AK	X	20.205	0.453	6.86	20.000	0.236	4.39
J22CWA		19.710	-0.042	-0.64	19.700	-0.064	-1.19
J7W8B3		19.775	0.023	0.34	19.780	0.016	0.30
JVCZCD		19.805	0.053	0.80	19.740	-0.024	-0.45
LDKYJE		19.820	0.068	1.02	19.795	0.031	0.57
MPEEEV		19.725	-0.027	-0.42	19.725	-0.039	-0.73
MPVU83		19.812	0.059	0.90	19.731	-0.034	-0.62
MY8PRB	X	19.665	-0.087	-1.33	20.295	0.531	9.87
NDHP28		19.790	0.038	0.57	19.805	0.041	0.76
PUC3DC		19.801	0.049	0.74	19.788	0.023	0.44
Q4GG2J		19.787	0.034	0.52	19.775	0.011	0.21
T3WDDH		19.625	-0.127	-1.93	19.755	-0.009	-0.17
TGX6YM		19.710	-0.042	-0.64	19.810	0.046	0.85



Plastics Interlaboratory Testing Program

Report #113

Analysis 757

1st Qtr 2020

Ash Content in Thermoplastics - Percent

WebCode	Data Flag	<u>Sample L65</u>			<u>Sample L66</u>		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
TWHBLN		19.640	-0.112	-1.70	19.710	-0.054	-1.01
TY3KCZ		19.775	0.023	0.34	19.775	0.011	0.20
U27D6D		19.680	-0.072	-1.10	19.795	0.031	0.57
UGXDXY		19.740	-0.012	-0.19	19.675	-0.089	-1.66
URJED9		19.745	-0.007	-0.11	19.690	-0.074	-1.38
V246D6		19.800	0.048	0.72	19.815	0.051	0.95
W43324		19.795	0.042	0.64	19.805	0.041	0.76
XK63PW		19.745	-0.007	-0.11	19.850	0.086	1.60
XMU6YR		19.740	-0.012	-0.19	19.695	-0.069	-1.28
YRXN2N		19.720	-0.032	-0.49	19.755	-0.009	-0.17
YWQRR8		19.723	-0.029	-0.45	19.730	-0.034	-0.63
ZC6GFZ		19.800	0.048	0.72	19.815	0.051	0.95
ZNWQGN		19.780	0.028	0.42	19.815	0.051	0.95

Summary Statistics

	<u>Sample L65</u>	<u>Sample L66</u>
Grand Means	19.7524 Percent	19.7641 Percent
Stnd Dev Btwn Labs	0.0660 Percent	0.0538 Percent

Statistics based on 43 of 48 reporting participants

Sample L65: PP & Sample L66: PP

Comments on Assigned Data Flags for Test #757

- MY8PRB (X) - Data for sample L66 are high. Inconsistent within the determinations of sample L66.
- 8YE3AE (X) - Data for both samples are low. Inconsistent within the determinations of sample L66.
- 6EFRFZ (X) - Data for both samples are low. Inconsistent within the determinations of both samples.
- HZQ9AK (X) - Data for both samples are high. Inconsistent within the determinations of sample L65.
- DUEUHY (X) - Data for sample L65 are low. Inconsistent within the determinations of sample L65.



Plastics Interlaboratory Testing Program

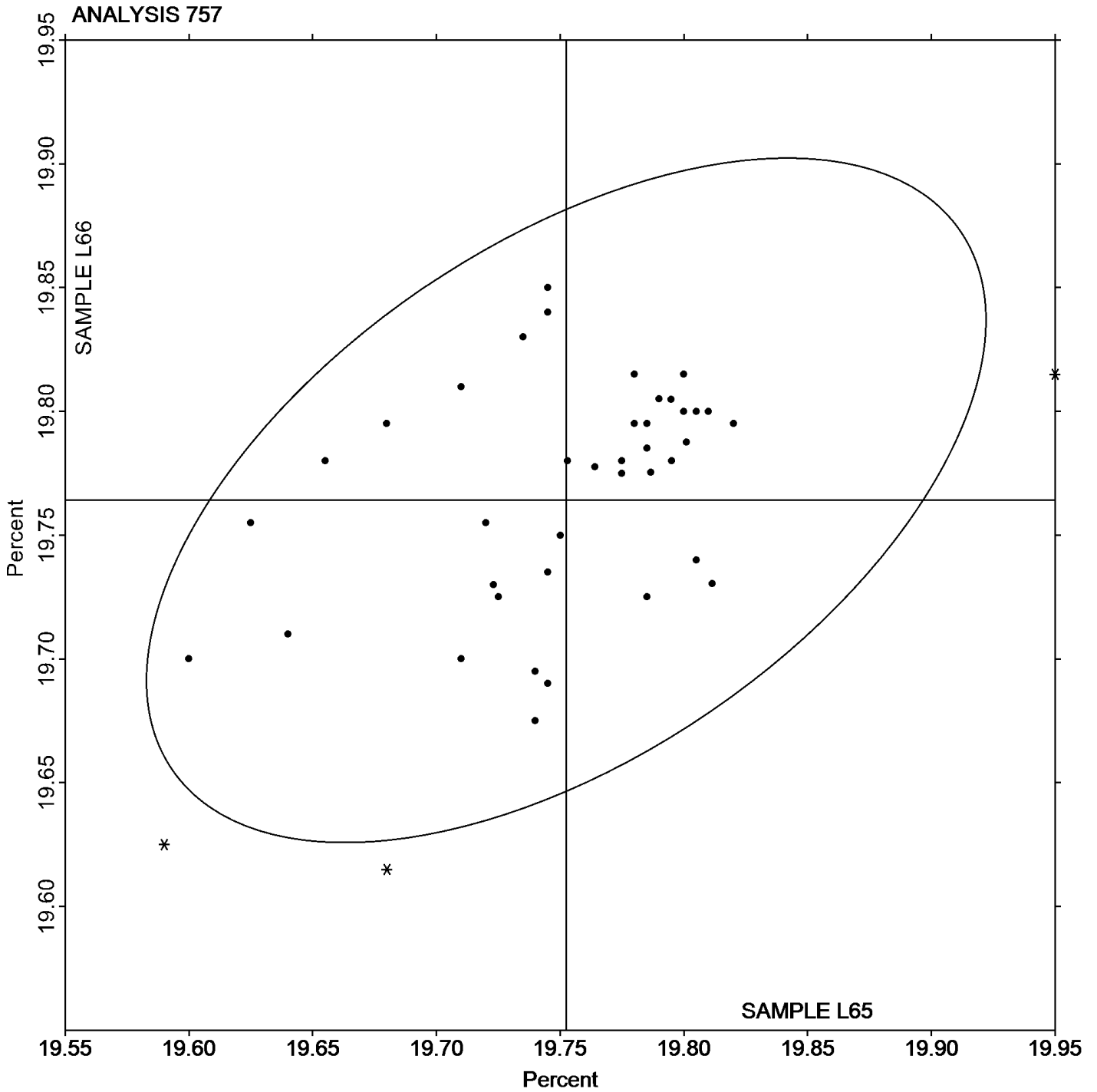
Report #113

Analysis 757

1st Qtr 2020

Ash Content in Thermoplastics - Percent

Grand Mean Sample L65: 19.752 Percent Grand Mean Sample L66: 19.764 Percent





Plastics Interlaboratory Testing Program

Report #113

Analysis 760

1st Qtr 2020

DSC Crystallization Temperature

WebCode	Data Flag	Sample W65			Sample W66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2KQ2ZY		115.00	-2.59	-0.61	113.00	-4.52	-0.99	NZ
2XKWXT		110.16	-7.43	-1.76	109.00	-8.52	-1.86	TA
4QXXAQ		117.39	-0.20	-0.05	118.39	0.87	0.19	TA
4YMUMD		120.00	2.41	0.57	120.00	2.48	0.54	TA
7HMRY6		120.28	2.69	0.64	123.17	5.66	1.23	TA
9HH6KN		119.20	1.61	0.38	119.30	1.78	0.39	TA
A7M873		110.63	-6.96	-1.65	110.74	-6.77	-1.48	TA
D7CLCJ		120.53	2.94	0.70	120.63	3.12	0.68	TA
DUEUHY		114.67	-2.92	-0.69	116.66	-0.86	-0.19	TA
J8N7QL	X	80.00	-37.59	-8.91	85.11	-32.40	-7.07	MT
L3K9ZR		115.10	-2.49	-0.59	114.33	-3.18	-0.69	NZ
MPVU83		119.04	1.45	0.34	118.22	0.70	0.15	TA
MQPFY9		119.30	1.71	0.41	119.83	2.32	0.51	TA
MXPZ24		116.43	-1.16	-0.27	116.80	-0.72	-0.16	PE
TWHBLN		110.09	-7.50	-1.78	109.64	-7.88	-1.72	TA
UPRF2V		118.90	1.31	0.31	118.03	0.52	0.11	TA
URJED9		120.67	3.08	0.73	120.40	2.88	0.63	TA
WMY9U4		120.13	2.54	0.60	117.38	-0.13	-0.03	XX
WZPV46		126.84	9.25	2.19	127.14	9.62	2.10	SH
ZLFJ22		119.87	2.28	0.54	120.13	2.62	0.57	XX

Summary Statistics		
	Sample W65	Sample W66
Grand Means	117.591 Degrees Celsius	117.516 Degrees Celsius
Stnd Dev Btwn Labs	4.218 Degrees Celsius	4.582 Degrees Celsius
Statistics based on 19 of 20 reporting participants		

Sample W65: PP & Sample W66: PP

Comments on Assigned Data Flags for Test #760

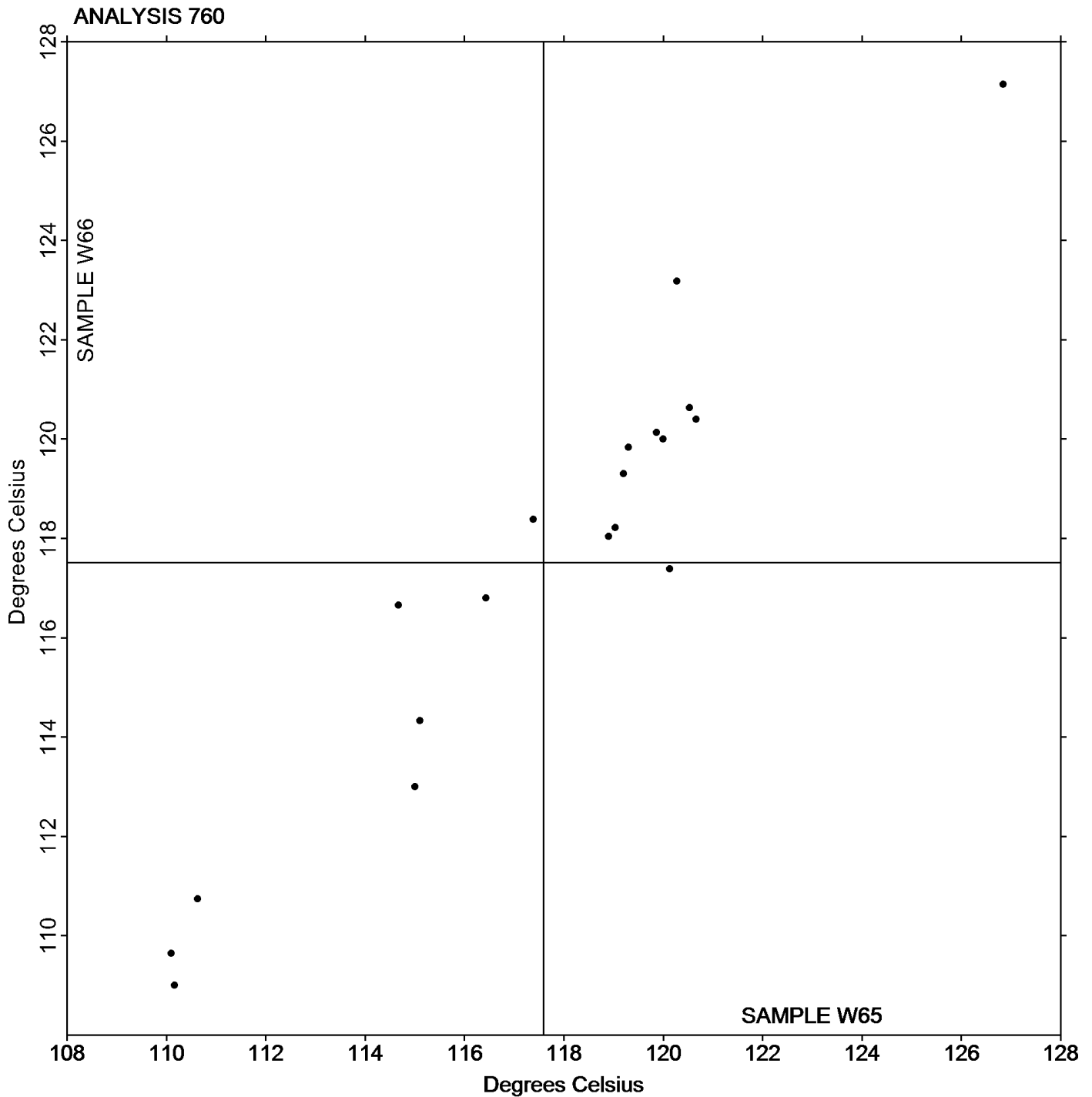
J8N7QL (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of both samples.

Key to Instrument Codes Reported by Participants

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



Grand Mean Sample W65: 117.59 Degrees Celsius Grand Mean Sample W66: 117.52 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 #113

Analysis 761

1st Qtr 2020

DSC Melt Temperature

WebCode	Data Flag	Sample W65			Sample W66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2KQ2ZY	*	164.00	-0.71	-0.39	167.50	2.49	1.52	NZ
2XKWXT		167.25	2.54	1.42	167.17	2.16	1.32	TA
4QXXAQ		165.49	0.78	0.44	165.54	0.53	0.33	XX
4YMUMD		162.33	-2.37	-1.32	163.33	-1.68	-1.02	TA
7HMR6		167.71	3.01	1.68	165.65	0.64	0.39	TA
9HH6KN		162.90	-1.81	-1.01	163.10	-1.91	-1.17	TA
A7M873		164.08	-0.63	-0.35	163.80	-1.21	-0.74	TA
D7CLCJ		163.00	-1.71	-0.95	163.17	-1.84	-1.13	TA
DUEUHY		161.27	-3.44	-1.92	161.25	-3.76	-2.30	TA
EEKCG8		162.71	-2.00	-1.11	163.74	-1.27	-0.77	TA
HHVGPD		165.14	0.43	0.24	164.71	-0.30	-0.18	TA
J8N7QL	X	302.22	137.51	76.78	298.00	132.99	81.21	MT
L3K9ZR		165.97	1.26	0.70	165.50	0.49	0.30	NZ
MPVU83		164.87	0.16	0.09	167.44	2.43	1.49	XX
MQPFY9		164.67	-0.04	-0.02	164.50	-0.51	-0.31	TA
MPZ24		166.47	1.76	0.98	166.03	1.02	0.63	PE
TWHBLN		163.63	-1.08	-0.60	164.58	-0.43	-0.26	TA
UPRF2V		165.47	0.76	0.43	165.93	0.92	0.56	TA
URJED9		163.70	-1.01	-0.56	164.50	-0.51	-0.31	TA
WMY9U4		168.68	3.97	2.22	168.00	2.99	1.82	XX
WZPV46		164.03	-0.67	-0.38	164.56	-0.45	-0.28	SH
YNG8WQ		164.28	-0.42	-0.24	164.55	-0.46	-0.28	MT
YRXN2N		166.06	1.35	0.75	166.32	1.31	0.80	SH
ZLFJ22		164.53	-0.17	-0.10	164.33	-0.68	-0.41	XX

Summary Statistics

Grand Means

Sample W65
164.706 Degrees Celsius

Sample W66
165.009 Degrees Celsius

Std Dev Btwn Labs

1.791 Degrees Celsius

1.638 Degrees Celsius

Statistics based on 23 of 24 reporting participants

Sample W65: PP & Sample W66: PP

Comments on Assigned Data Flags for Test #761

J8N7QL (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.



Plastics Interlaboratory Testing Program

Report #113

Analysis 761

1st Qtr 2020

DSC Melt Temperature

Key to Instrument Codes Reported by Participants

MT Mettler Toledo Instruments

NZ Netzsch Instruments

PE Perkins Elmer Instruments

SH Shimadzu

TA TA Instruments

XX Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

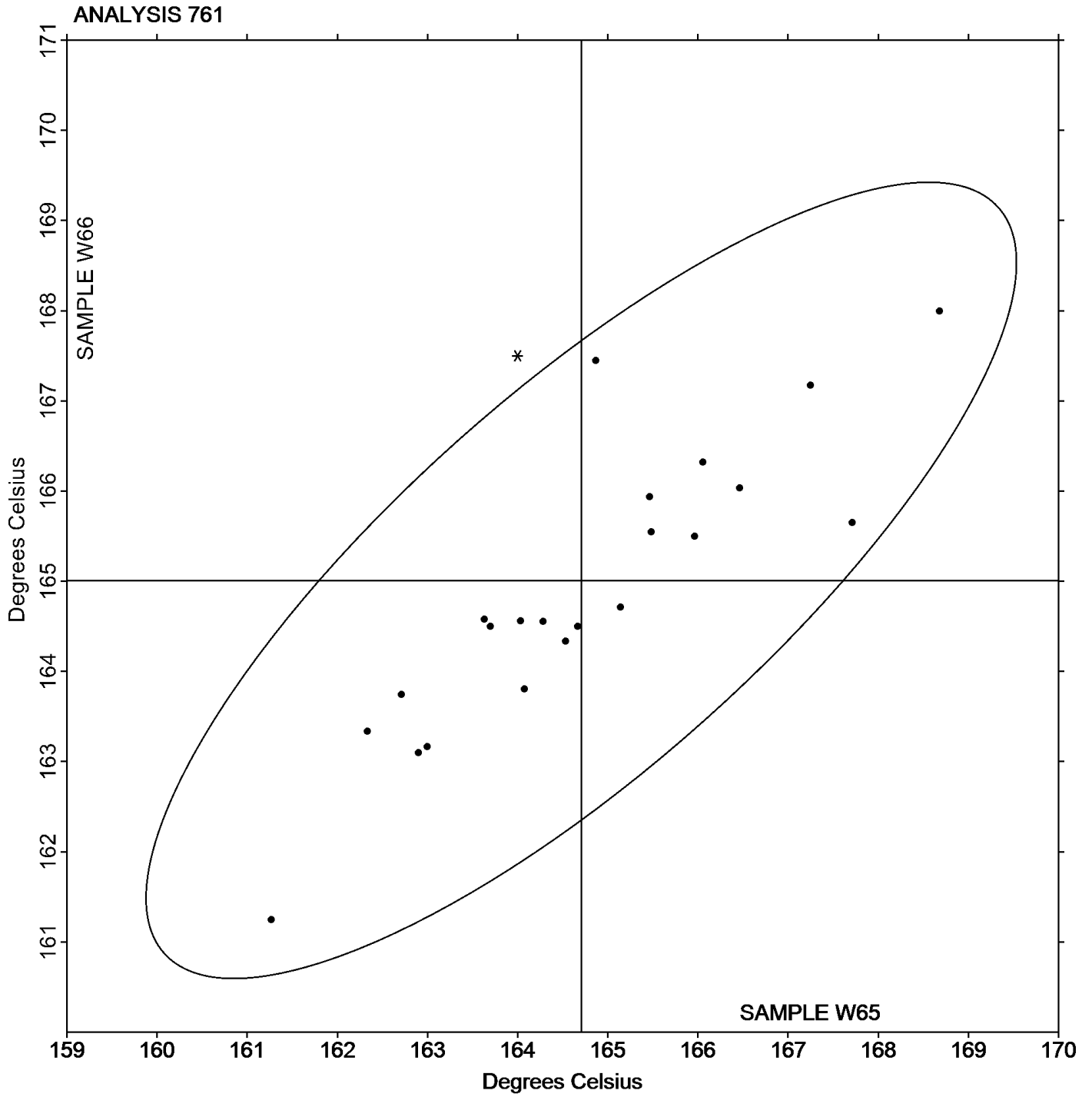
Report #113

Analysis 761

1st Qtr 2020

DSC Melt Temperature

Grand Mean Sample W65: 164.71 Degrees Celsius Grand Mean Sample W66: 165.01 Degrees Celsius





Plastics Interlaboratory Testing Program

Report #113

Analysis 762

1st Qtr 2020

DSC Enthalpy of Crystallization

WebCode	Data Flag	Sample W65			Sample W66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2KQ2ZY	*	105.00	3.52	0.52	119.70	18.74	2.03	NZ
2XKWXT		99.67	-1.81	-0.27	94.87	-6.09	-0.66	TA
4YMUMD		99.67	-1.81	-0.27	99.13	-1.83	-0.20	TA
9HH6KN		104.40	2.92	0.43	102.83	1.87	0.20	TA
A7M873		97.21	-4.27	-0.63	97.32	-3.65	-0.40	TA
D7CLCJ		105.77	4.29	0.63	103.03	2.07	0.22	TA
DUEUHY		103.65	2.17	0.32	96.29	-4.67	-0.51	TA
L3K9ZR		97.10	-4.37	-0.65	98.89	-2.07	-0.22	NZ
MQPFY9		100.83	-0.64	-0.09	107.13	6.17	0.67	TA
MXPZ24		95.57	-5.91	-0.87	94.11	-6.86	-0.74	PE
TWHBLN		104.17	2.69	0.40	102.93	1.97	0.21	TA
UPRF2V		105.41	3.93	0.58	105.83	4.87	0.53	TA
URJED9		104.93	3.45	0.51	103.87	2.91	0.31	TA
WMY9U4		105.97	4.49	0.66	103.50	2.54	0.27	XX
WZPV46	*	81.77	-19.70	-2.91	75.89	-25.08	-2.72	SH
ZLFJ22		112.50	11.02	1.63	110.10	9.14	0.99	XX

Summary Statistics

	Sample W65	Sample W66
Grand Means	101.475 Joules Per Gram	100.964 Joules Per Gram
Stnd Dev Btwn Labs	6.771 Joules Per Gram	9.233 Joules Per Gram

Statistics based on 16 of 16 reporting participants

Sample W65: PP & Sample W66: PP

Key to Instrument Codes Reported by Participants

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



Plastics Interlaboratory Testing Program

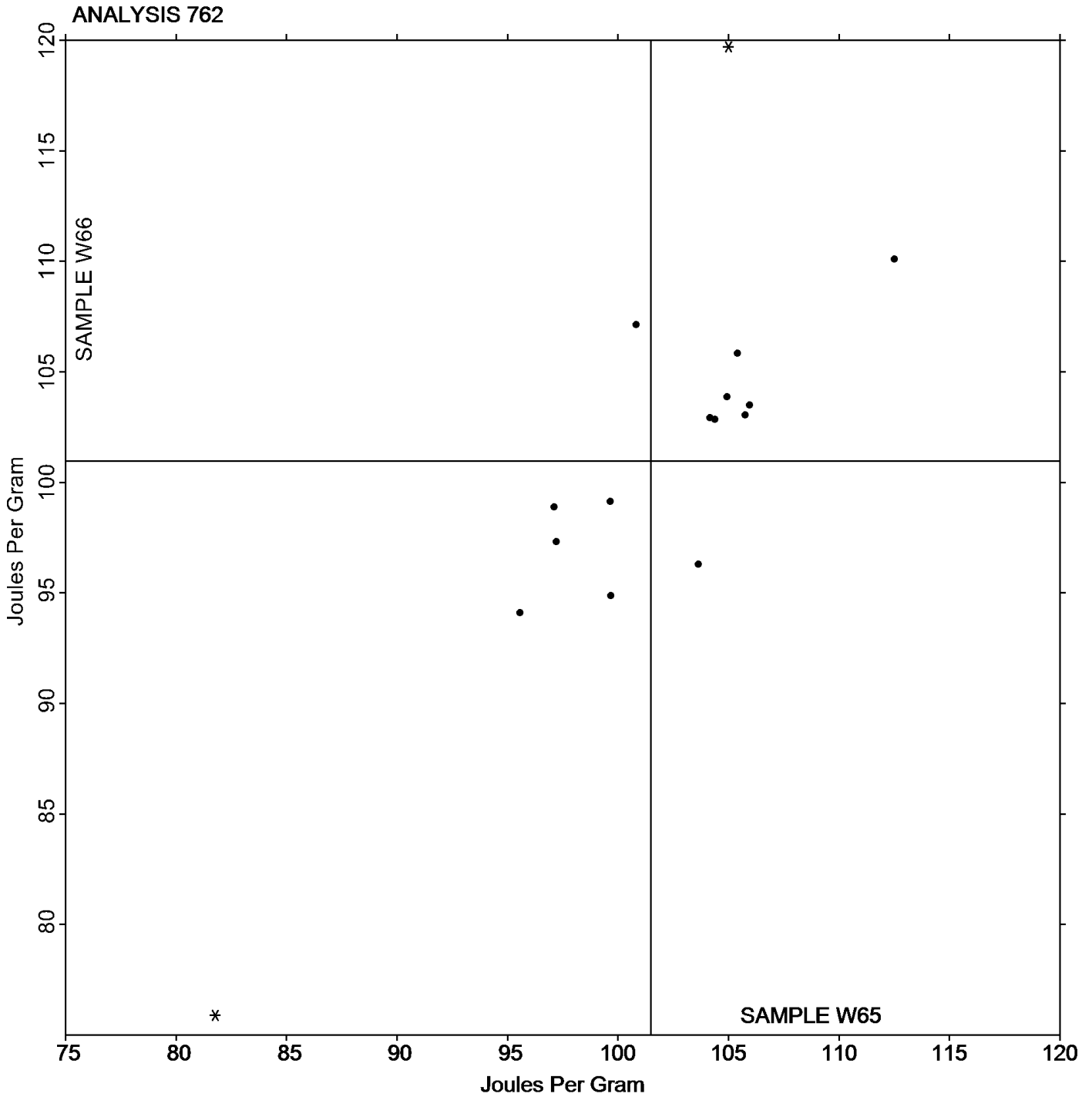
Report #113

Analysis 762

1st Qtr 2020

DSC Enthalpy of Crystallization

Grand Mean Sample W65: 101.48 Joules Per Gram Grand Mean Sample W66: 100.96 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 #113

Analysis 763

1st Qtr 2020

DSC Enthalpy of Fusion

WebCode	Data Flag	<u>Sample W65</u>			<u>Sample W66</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2KQ2ZY		114.70	16.39	1.48	99.83	4.20	0.44	NZ
2XKWXT		91.81	-6.50	-0.59	89.62	-6.01	-0.63	TA
4YMUMD		104.87	6.55	0.59	100.93	5.31	0.55	TA
9HH6KN		103.60	5.29	0.48	99.90	4.27	0.45	TA
A7M873		99.88	1.57	0.14	100.47	4.84	0.50	TA
D7CLCJ		106.40	8.09	0.73	103.60	7.97	0.83	TA
DUEUHY		95.10	-3.21	-0.29	95.73	0.10	0.01	TA
L3K9ZR		97.86	-0.45	-0.04	91.42	-4.21	-0.44	NZ
MQPFY9		80.97	-17.35	-1.57	88.40	-7.23	-0.75	TA
MXPZ24		89.84	-8.47	-0.77	87.40	-8.23	-0.86	PE
TWHBLN		95.49	-2.83	-0.26	93.45	-2.17	-0.23	TA
UPRF2V		106.48	8.17	0.74	107.38	11.75	1.22	TA
URJED9		111.51	13.20	1.19	109.84	14.21	1.48	TA
WAQM3X		89.23	-9.09	-0.82	82.02	-13.61	-1.42	NZ
WMY9U4		100.17	1.86	0.17	97.08	1.46	0.15	XX
WZPV46		73.01	-25.31	-2.29	72.91	-22.71	-2.37	SH
ZLFJ22		110.43	12.12	1.10	105.67	10.04	1.05	XX

Summary Statistics

	<u>Sample W65</u>	<u>Sample W66</u>
Grand Means	98.315 Joules Per Gram	95.626 Joules Per Gram
Std Dev Btwn Labs	11.054 Joules Per Gram	9.597 Joules Per Gram

Statistics based on 17 of 17 reporting participants

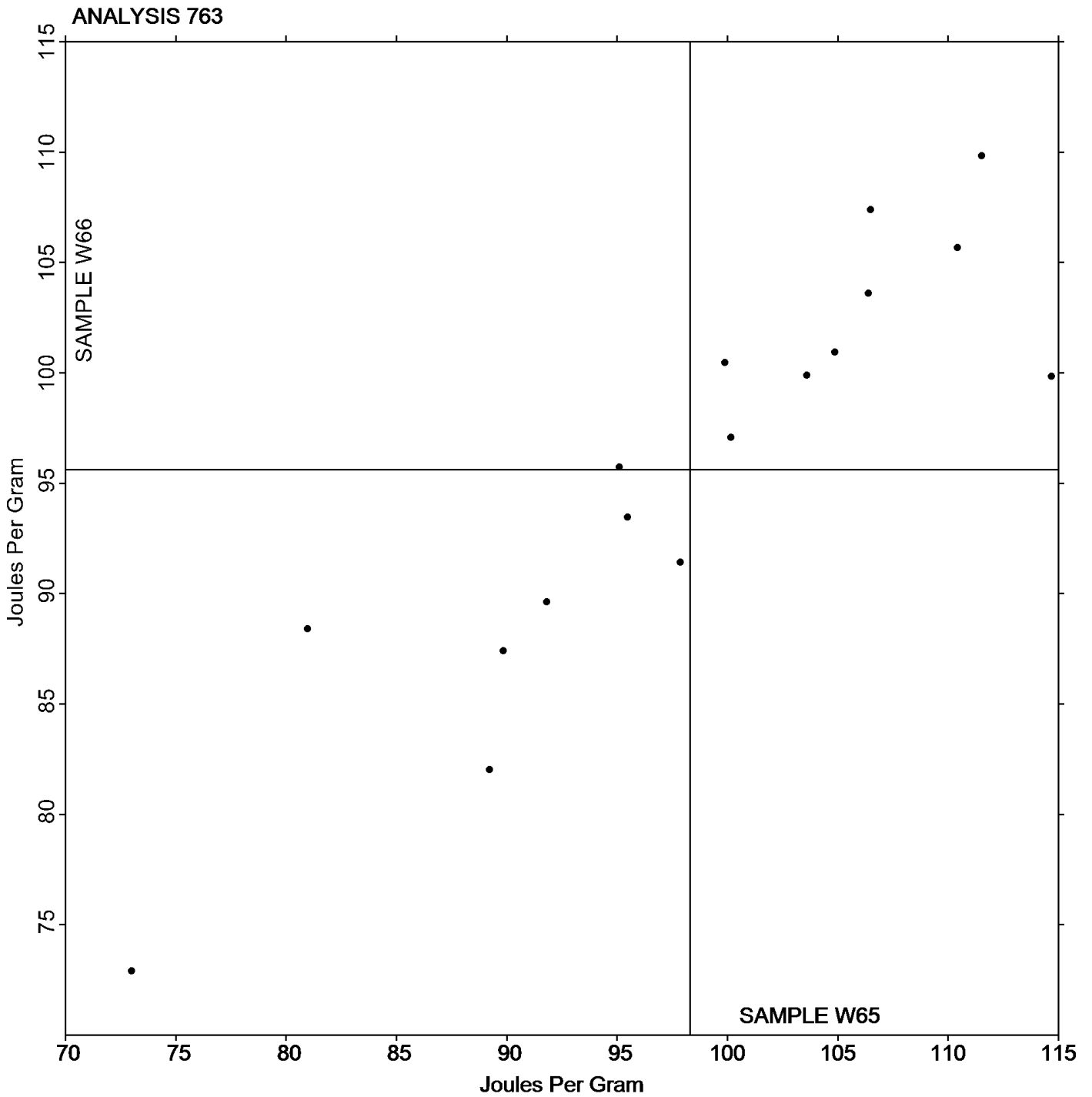
Sample W65: PP & Sample W66: PP

Key to Instrument Codes Reported by Participants

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



Grand Mean Sample W65: 98.315 Joules Per Gram Grand Mean Sample W66: 95.626 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 #113

Analysis 764

1st Qtr 2020

DSC Glass Transition Temperature

WebCode	Data Flag	Sample V65			Sample V66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2KQ2ZY		86.00	-1.05	-0.54	85.40	-1.79	-1.21	NZ
4YMUMD	*	83.33	-3.72	-1.92	86.00	-1.19	-0.81	TA
7HMRY6		89.68	2.63	1.35	88.86	1.67	1.13	TA
9HH6KN		86.50	-0.55	-0.28	86.47	-0.72	-0.49	TA
A7M873		87.71	0.66	0.34	87.96	0.77	0.52	TA
D7CLCJ		86.29	-0.76	-0.39	87.37	0.18	0.12	TA
DUEUHY	X	86.06	-0.99	-0.51	74.90	-12.29	-8.33	TA
J8N7QL		87.08	0.03	0.02	87.62	0.43	0.29	MT
L3K9ZR		87.57	0.52	0.27	87.37	0.18	0.12	NZ
MQPFY9		86.27	-0.78	-0.40	86.57	-0.62	-0.42	TA
MXPZ24		87.33	0.28	0.15	86.97	-0.22	-0.15	PE
TWHBLN		87.62	0.57	0.29	87.52	0.33	0.22	TA
UPRF2V		85.40	-1.65	-0.85	85.50	-1.69	-1.15	TA
URJED9		85.57	-1.48	-0.76	85.77	-1.42	-0.96	TA
WAQM3X		86.80	-0.25	-0.13	86.37	-0.82	-0.56	NZ
WMY9U4	*	92.59	5.54	2.86	91.54	4.35	2.95	XX
WZPV46		86.81	-0.24	-0.12	86.82	-0.37	-0.25	SH
ZLFJ22		87.30	0.25	0.13	88.13	0.94	0.64	XX

Summary Statistics

	Sample V65	Sample V66
Grand Means	87.050 Degrees Celsius	87.190 Degrees Celsius
Stnd Dev Btwn Labs	1.941 Degrees Celsius	1.476 Degrees Celsius

Statistics based on 17 of 18 reporting participants

Sample V65: PET & Sample V66: PET

Comments on Assigned Data Flags for Test #764

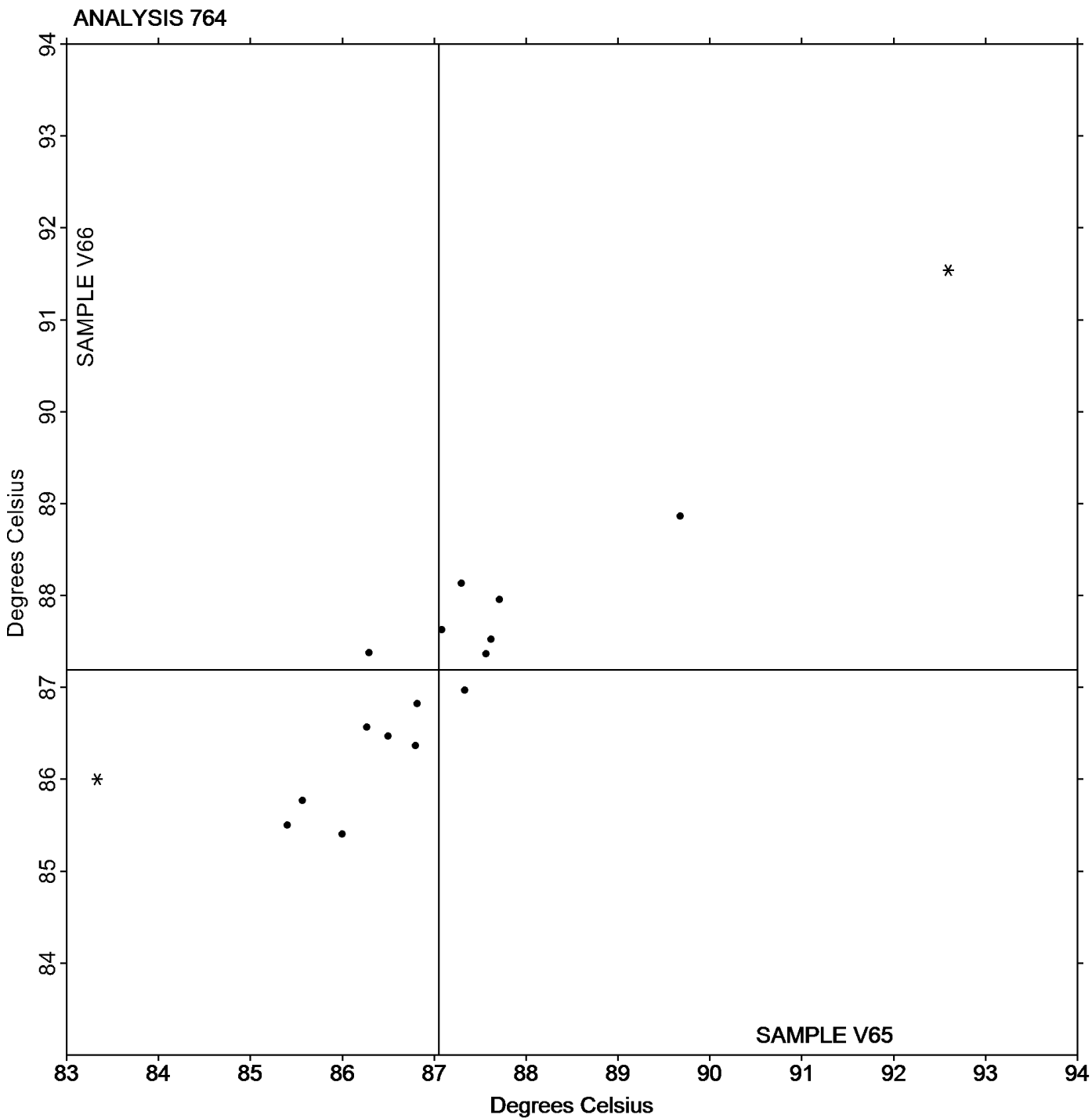
DUEUHY (X) - Data for sample V66 are low. Inconsistent within the determinations of sample V66.

Key to Instrument Codes Reported by Participants

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



Grand Mean Sample V65: 87.050 Degrees Celsius Grand Mean Sample V66: 87.190 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 #113

Analysis 770

1st Qtr 2020

Tensile Stress at Yield, Film Samples - psi

WebCode	Data Flag	Sample B65			Sample B66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2KQ2ZY		1,690	55	0.29	1,694	74	0.33	IN
2M2HUQ		1,719	84	0.44	1,730	110	0.49	IN
4V7CY3	X	6	-1,629	-8.58	6	-1,615	-7.28	IN
64DCRG	X	11	-1,624	-8.55	11	-1,609	-7.25	XX
7J8EQZ	X	6	-1,629	-8.58	6	-1,615	-7.28	IN
83TL72		1,598	-37	-0.20	1,553	-68	-0.31	IN
8EUW9H		1,666	30	0.16	1,664	44	0.20	IN
9DEWPT		1,877	242	1.27	1,879	258	1.16	LI
F78XVG	X	5	-1,630	-8.59	6	-1,615	-7.28	IN
FDYCVJ		1,573	-62	-0.33	1,552	-68	-0.31	SH
KL7D4D		1,802	167	0.88	1,804	183	0.83	SH
MJPW2J	X	5	-1,630	-8.59	6	-1,615	-7.28	IN
MYGXDG		1,691	56	0.30	1,679	58	0.26	OA
NYGD68		1,670	35	0.18	1,742	121	0.55	IN
Q4GG2J		1,564	-71	-0.38	1,479	-142	-0.64	WZ
W43324		1,137	-498	-2.63	1,050	-570	-2.57	IN
Y82WEY	X	6	-1,629	-8.58	6	-1,614	-7.27	IN

Summary Statistics		Sample B65	Sample B66
Grand Means		1,635.2 psi	1,620.5 psi
Std Dev Btwn Labs		189.8 psi	221.9 psi
Statistics based on 11 of 17 reporting participants			

Sample B65: LDPE & Sample B66: LDPE

Comments on Assigned Data Flags for Test #770

- F78XVG (X) - Extreme data.
- 7J8EQZ (X) - Extreme data.
- 4V7CY3 (X) - Extreme data.
- MJPW2J (X) - Extreme data.
- 64DCRG (X) - Extreme data.
- Y82WEY (X) - Extreme data.



Plastics Interlaboratory Testing Program

Report #113

Analysis 770

1st Qtr 2020

Tensile Stress at Yield, Film Samples - psi

Key to Instrument Codes Reported by Participants

IN	Instron	LI	Lloyd Instruments
OA	Oakland Testing	SH	Shimadzu
WZ	Zwick	XX	Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

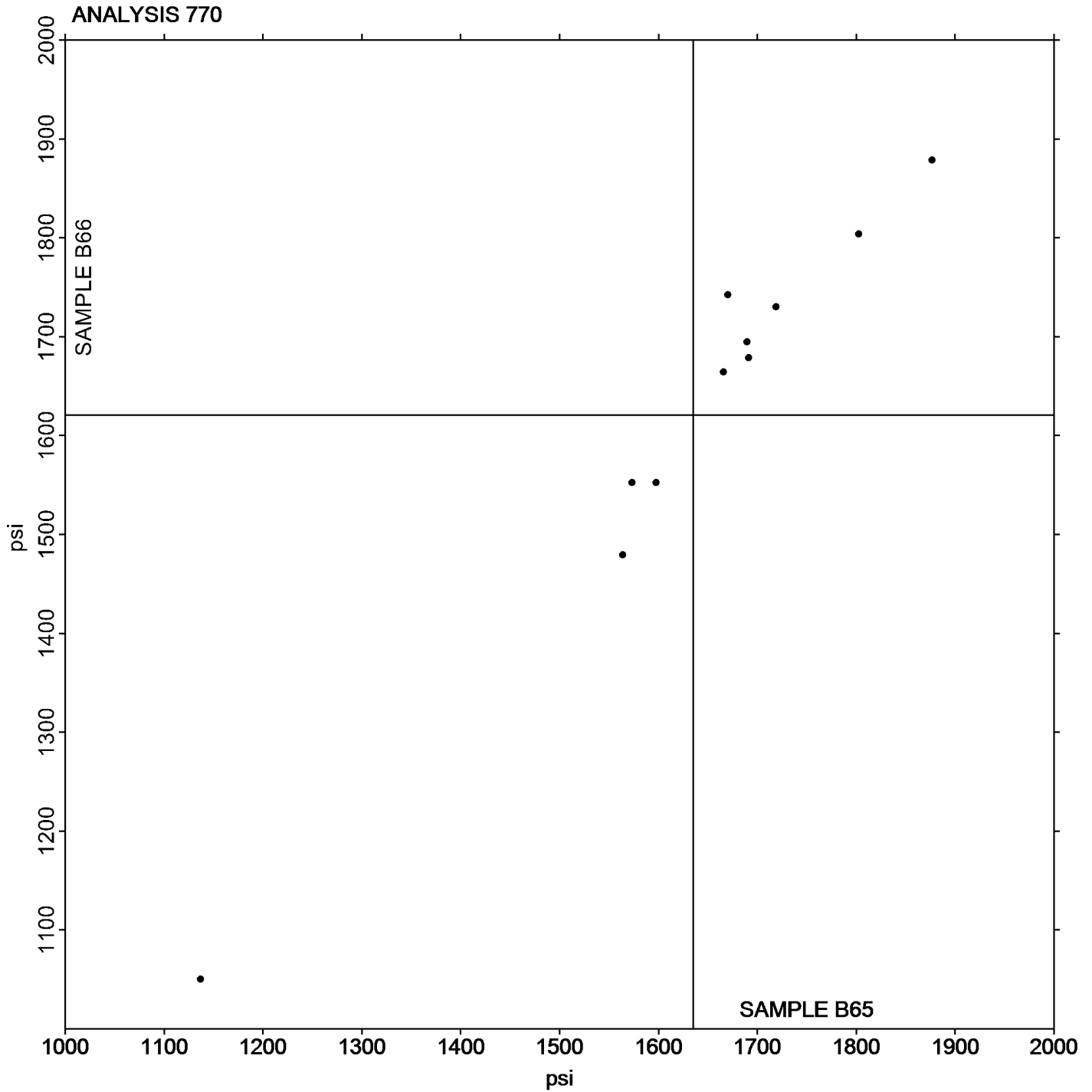
Report #113

Analysis 770

1st Qtr 2020

Tensile Stress at Yield, Film Samples - psi

Grand Mean Sample B65: 1,635.18 psi Grand Mean Sample B66: 1,620.54 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 #113

Analysis 771

1st Qtr 2020

Tensile Stress at Break, Film Samples - psi

WebCode	Data Flag	Sample B65			Sample B66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2KQ2ZY		3,243	356	0.80	3,088	146	0.29	IN
2M2HUQ		3,370	484	1.08	3,420	478	0.94	IN
64DCRG		2,621	-266	-0.59	2,304	-637	-1.26	XX
83TL72		2,870	-17	-0.04	2,892	-49	-0.10	IN
8EUW9H		3,037	151	0.34	3,214	273	0.54	IN
9DEWPT		2,864	-23	-0.05	3,148	206	0.41	LI
FDYCJV		2,795	-92	-0.20	2,780	-162	-0.32	SH
KL7D4D		2,952	66	0.15	3,102	161	0.32	SH
LBX488		2,627	-260	-0.58	2,793	-148	-0.29	IN
MYGXDG		3,282	395	0.88	3,239	297	0.59	OA
NYGD68		3,091	205	0.46	3,276	335	0.66	IN
Q4GG2J		3,191	304	0.68	3,200	258	0.51	WZ
W43324	*	1,558	-1,329	-2.98	1,484	-1,457	-2.88	IN
WZPV46		2,911	25	0.06	3,241	300	0.59	SH

Summary Statistics		
	Sample B65	Sample B66
Grand Means	2,886.4 psi	2,941.5 psi
Stnd Dev Btwn Labs	446.5 psi	506.1 psi
Statistics based on 14 of 14 reporting participants		

Sample B65: LDPE & Sample B66: LDPE

Key to Instrument Codes Reported by Participants

- IN Instron
- LI Lloyd Instruments
- OA Oakland Testing
- SH Shimadzu
- WZ Zwick
- XX Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

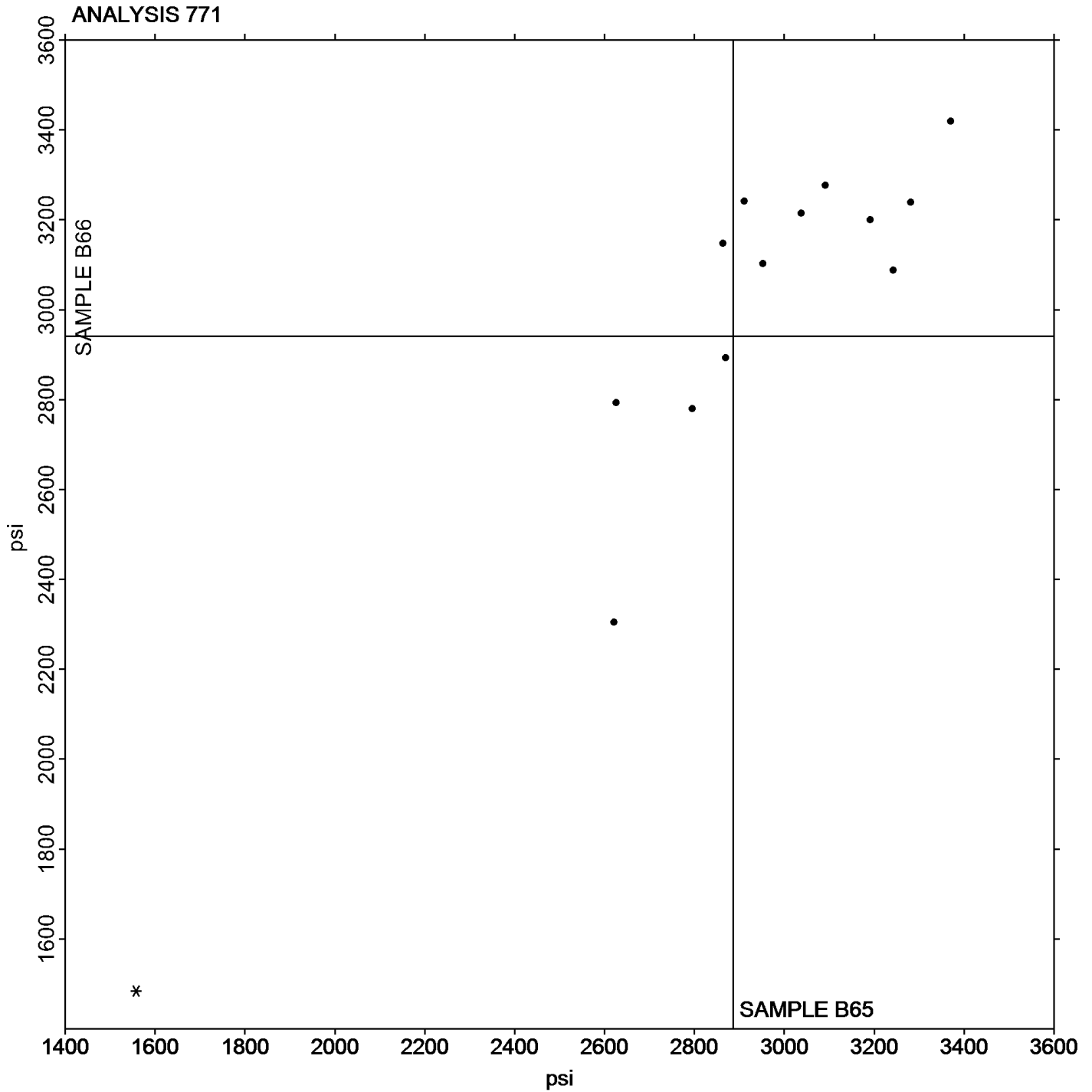
Report #113

Analysis 771

1st Qtr 2020

Tensile Stress at Break, Film Samples - psi

Grand Mean Sample B65: 2,886.45 psi Grand Mean Sample B66: 2,941.49 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 #113

Analysis 772

1st Qtr 2020

Percent Elongation at Yield, Films

WebCode	Data Flag	Sample B65			Sample B66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2KQ2ZY		51.56	1.69	0.18	51.33	6.87	0.44	IN
2M2HUQ		47.70	-2.17	-0.23	27.60	-16.86	-1.07	IN
64DCRG		46.15	-3.72	-0.39	45.08	0.62	0.04	XX
83TL72		36.74	-13.13	-1.37	45.30	0.84	0.05	IN
8EUW9H		51.41	1.53	0.16	34.90	-9.56	-0.61	IN
9DEWPT	X	15.45	-34.42	-3.58	14.24	-30.22	-1.91	LI
FDYCJV		56.38	6.51	0.68	55.93	11.46	0.73	SH
KL7D4D		69.41	19.54	2.03	72.12	27.66	1.75	SH
NYGD68		50.48	0.61	0.06	48.99	4.53	0.29	IN
Q4GG2J		39.01	-10.86	-1.13	18.91	-25.55	-1.62	WZ
W43324	X	7.01	-42.86	-4.46	6.80	-37.66	-2.39	IN

Summary Statistics		
	Sample B65	Sample B66
Grand Means	49.870 Percent	44.462 Percent
Stnd Dev Btwn Labs	9.607 Percent	15.788 Percent
Statistics based on 9 of 11 reporting participants		

Sample B65: LDPE & Sample B66: 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

9DEWPT (X) - Extreme data.

W43324 (X) - Extreme data.

Key to Instrument Codes Reported by Participants

- IN Instron
- SH Shimadzu
- XX Instrument manufacturer not specified by lab
- LI Lloyd Instruments
- WZ Zwick



Plastics Interlaboratory Testing Program

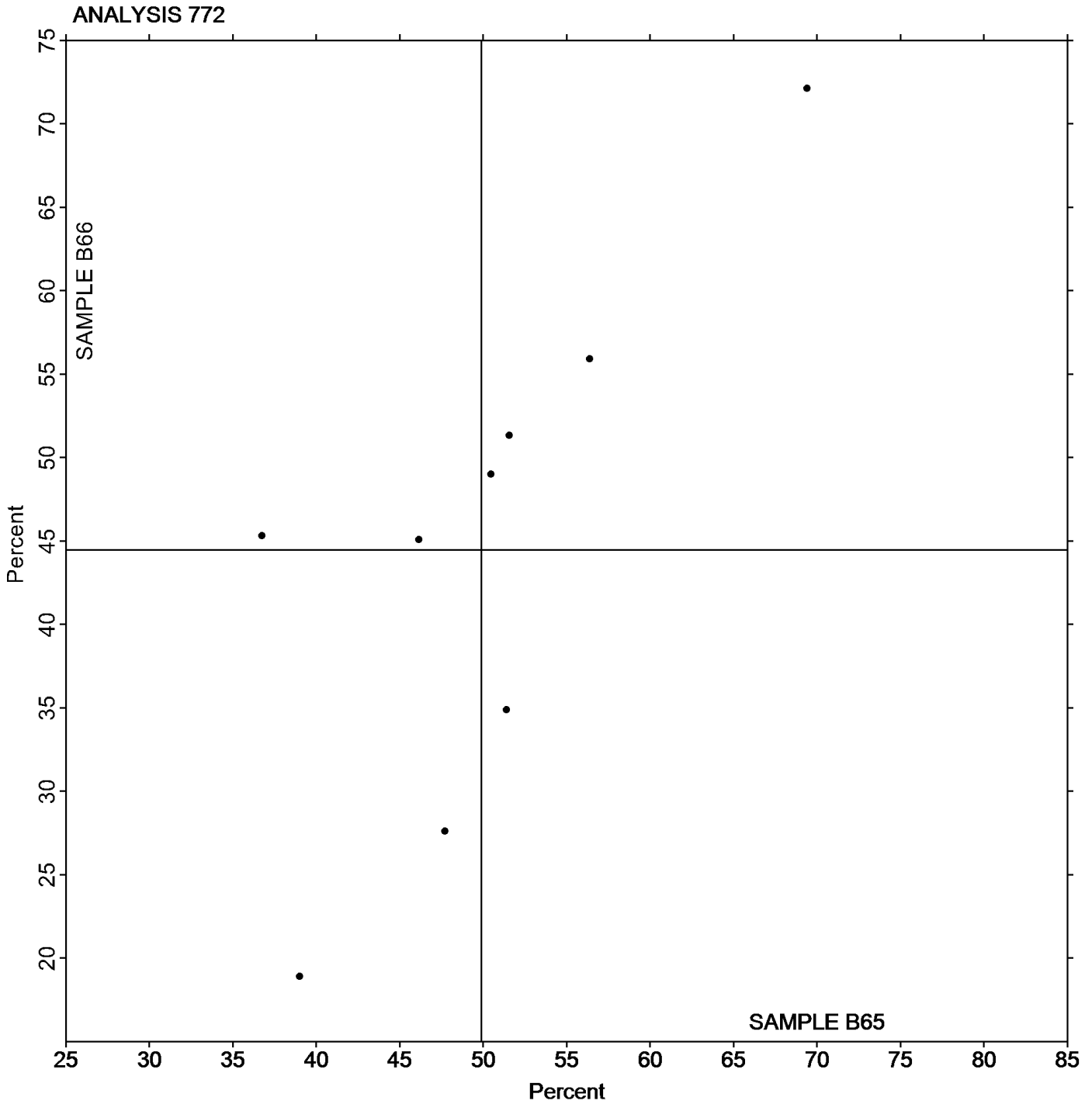
Report #113

Analysis 772

1st Qtr 2020

Percent Elongation at Yield, Films

Grand Mean Sample B65: 49.870 Percent Grand Mean Sample B66: 44.462 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 #113

Analysis 773

1st Qtr 2020

Percent Elongation at Break, Film Samples

WebCode	Data Flag	Sample B65			Sample B66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2KQ2ZY		723.5	-67.8	-0.46	707.5	-112.2	-0.53	IN
2M2HUQ		708.6	-82.7	-0.56	720.8	-98.9	-0.46	IN
64DCRG		598.4	-192.9	-1.31	544.2	-275.4	-1.29	XX
83TL72		941.0	149.7	1.02	995.1	175.4	0.82	IN
8EUW9H		689.3	-102.0	-0.69	743.2	-76.5	-0.36	IN
9DEWPT		772.1	-19.2	-0.13	861.6	41.9	0.20	LI
FDYCJV		877.3	85.9	0.58	902.6	83.0	0.39	SH
KL7D4D		1,025.1	233.7	1.59	1,056.7	237.1	1.11	SH
LBX488		965.5	174.2	1.18	1,133.0	313.3	1.47	IN
MYGXDG		877.8	86.5	0.59	886.8	67.2	0.32	OA
NYGD68		889.0	97.7	0.66	922.5	102.8	0.48	IN
Q4GG2J		668.0	-123.3	-0.84	709.0	-110.7	-0.52	WZ
W43324		517.6	-273.7	-1.86	326.2	-493.5	-2.32	IN
WZPV46		825.3	34.0	0.23	966.1	146.4	0.69	SH

Summary Statistics		
	Sample B65	Sample B66
Grand Means	791.32 Percent	819.66 Percent
Stnd Dev Btwn Labs	147.41 Percent	213.07 Percent
Statistics based on 14 of 14 reporting participants		

Sample B65: LDPE & Sample B66: LDPE

Key to Instrument Codes Reported by Participants

- | | |
|--------------------|---|
| IN Instron | LI Lloyd Instruments |
| OA Oakland Testing | SH Shimadzu |
| WZ Zwick | XX Instrument manufacturer not specified by lab |



Plastics Interlaboratory Testing Program

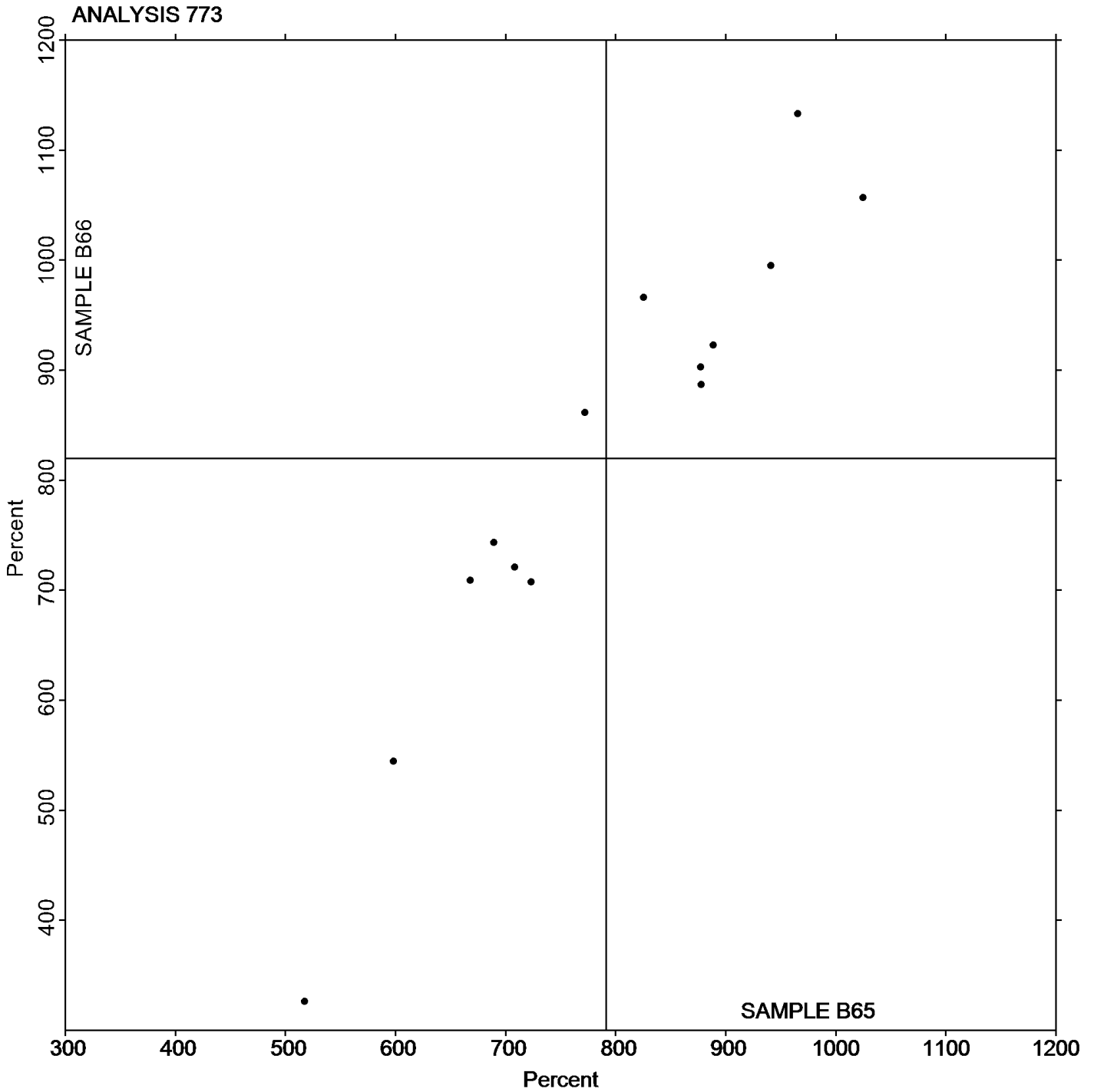
Report #113

Analysis 773

1st Qtr 2020

Percent Elongation at Break, Film Samples

Grand Mean Sample B65: 791.32 Percent Grand Mean Sample B66: 819.66 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 #113

Analysis 774

1st Qtr 2020

Thickness of Film Tensile Samples - mils

WebCode	Data Flag	<u>Sample B65</u>			<u>Sample B66</u>		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2KQ2ZY		3.5350	-0.0427	-0.43	3.6320	-0.0330	-0.27
2M2HUQ		3.5740	-0.0037	-0.04	3.7010	0.0360	0.30
64DCRG	X	91.7000	88.1223	881.71	96.2000	92.5350	762.09
83TL72		3.6520	0.0743	0.74	3.8430	0.1780	1.47
8EUW9H		3.5433	-0.0344	-0.34	3.5276	-0.1374	-1.13
9DEWPT		3.4686	-0.1091	-1.09	3.5091	-0.1559	-1.28
ERU8F4		3.3680	-0.2097	-2.10	3.5400	-0.1250	-1.03
FDP96B		3.6320	0.0543	0.54	3.9200	0.2550	2.10
FDYCVJ		3.5091	-0.0685	-0.69	3.7835	0.1185	0.98
KL7D4D		3.6220	0.0444	0.44	3.6614	-0.0036	-0.03
LBX488		3.5000	-0.0777	-0.78	3.5630	-0.1020	-0.84
MYGXDG		3.6400	0.0623	0.62	3.6700	0.0050	0.04
NYGD68		3.5400	-0.0377	-0.38	3.6400	-0.0250	-0.21
Q4GG2J		3.5985	0.0208	0.21	3.6753	0.0103	0.08
W43324		3.7580	0.1803	1.80	3.7620	0.0970	0.80
WZPV46		3.7244	0.1467	1.47	3.5472	-0.1178	-0.97

Summary Statistics		
	<u>Sample B65</u>	<u>Sample B66</u>
Grand Means	3.57766 mils	3.66501 mils
Stnd Dev Btwn Labs	0.09995 mils	0.12142 mils
Statistics based on 15 of 16 reporting participants		

Sample B65: LDPE & Sample B66: LDPE

Comments on Assigned Data Flags for Test #774

64DCRG (X) - Extreme data.



Plastics Interlaboratory Testing Program

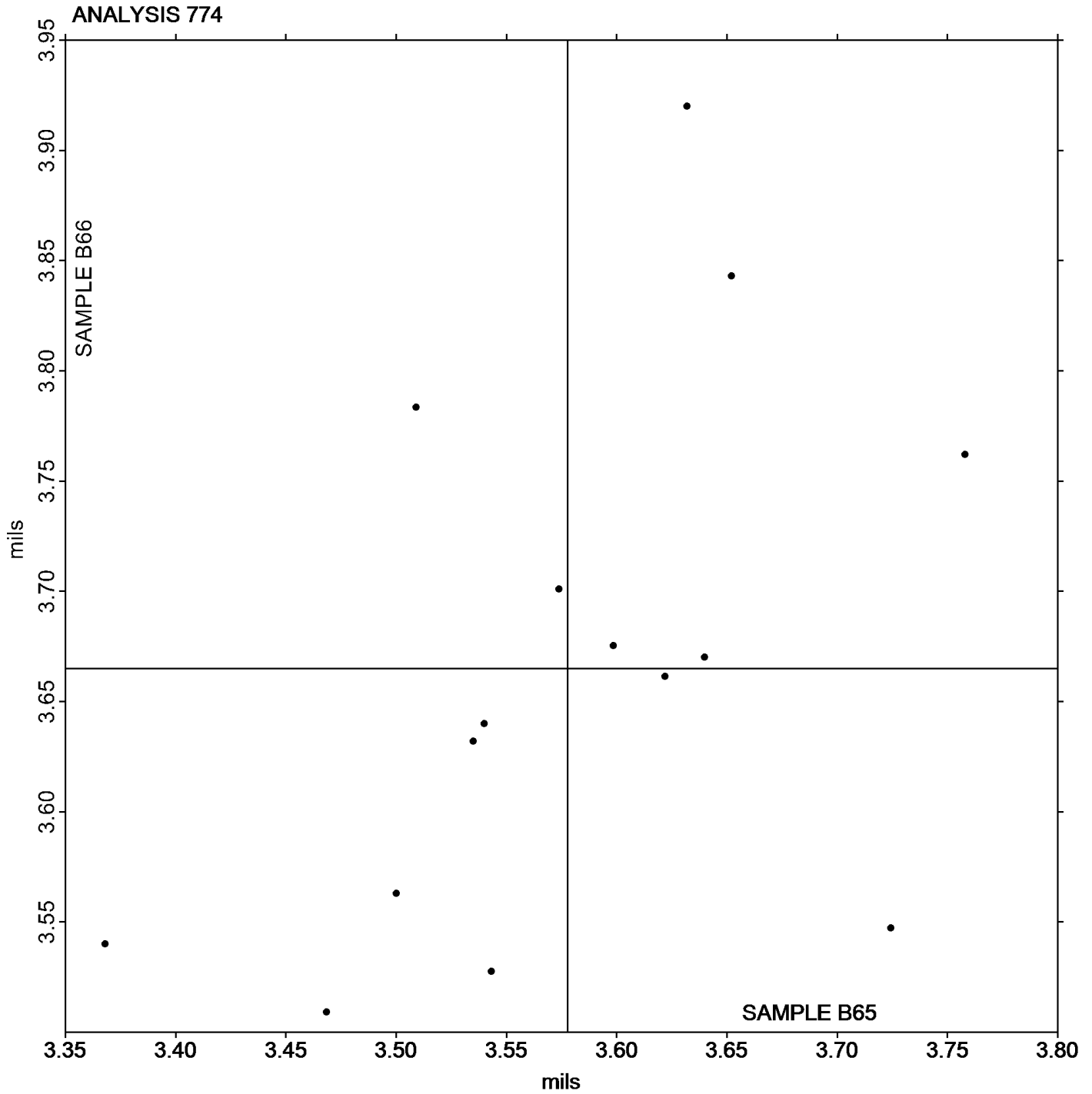
Report #113

Analysis 774

1st Qtr 2020

Thickness of Film Tensile Samples - mils

Grand Mean Sample B65: 3.5777 mils Grand Mean Sample B66: 3.6650 mils



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 #113

Analysis 775

1st Qtr 2020

Secant Modulus at 1% Strain - psi

WebCode	Data Flag	Sample B65			Sample B66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2KQ2ZY		32,946	1,404	0.42	31,913	152	0.04	IN
2M2HUQ		33,205	1,663	0.49	33,749	1,987	0.59	IN
83TL72	X	65,977	34,435	10.18	62,966	31,204	9.24	IN
9DEWPT		36,473	4,931	1.46	37,633	5,872	1.74	LI
FDYCJV		32,314	772	0.23	32,641	879	0.26	SH
KL7D4D		26,258	-5,284	-1.56	27,359	-4,403	-1.30	SH
LBX488		25,062	-6,480	-1.92	25,425	-6,336	-1.88	IN
MYGXDG		31,388	-154	-0.05	31,764	3	0.00	OA
NYGD68		32,391	849	0.25	32,622	861	0.25	IN
Q4GG2J		32,866	1,324	0.39	33,431	1,670	0.49	WZ
W43324		32,518	976	0.29	31,077	-684	-0.20	IN

Summary Statistics		Sample B65	Sample B66
Grand Means		31,542.1 psi	31,761.4 psi
Std Dev Btwn Labs		3,383.0 psi	3,378.8 psi
Statistics based on 10 of 11 reporting participants			

Sample B65: LDPE & Sample B66: LDPE

Comments on Assigned Data Flags for Test #775

83TL72 (X) - Extreme data.

Key to Instrument Codes Reported by Participants

- IN Instron
- LI Lloyd Instruments
- OA Oakland Testing
- SH Shimadzu
- WZ Zwick



Plastics Interlaboratory Testing Program

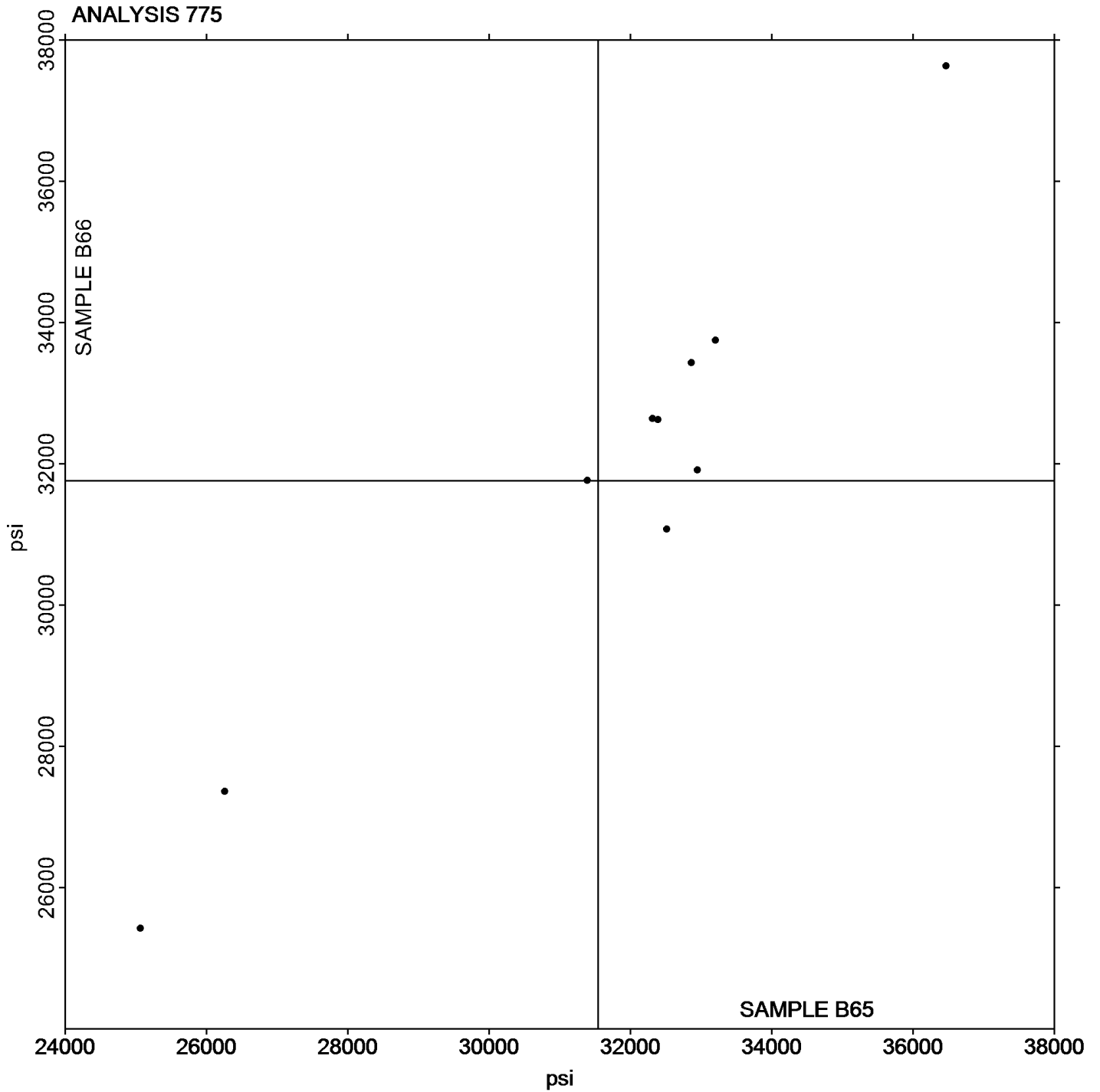
Report #113

Analysis 775

1st Qtr 2020

Secant Modulus at 1% Strain - psi

Grand Mean Sample B65: 31,542.07 psi Grand Mean Sample B66: 31,761.42 psi



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



Plastics Interlaboratory Testing Program

Report #113

Analysis 776

1st Qtr 2020

Secant Modulus at 2% Strain - psi

WebCode	Data Flag	Sample B65			Sample B66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2KQ2ZY		27,658	-352	-0.11	26,790	-1,089	-0.37	IN
83TL72		34,598	6,588	2.03	33,068	5,189	1.75	IN
9DEWPT		30,652	2,643	0.82	31,710	3,831	1.29	LI
FDYCJV		25,429	-2,581	-0.80	25,694	-2,185	-0.74	SH
KL7D4D		26,258	-1,752	-0.54	26,560	-1,319	-0.44	SH
LBX488		24,422	-3,588	-1.11	24,493	-3,386	-1.14	IN
NYGD68		27,484	-526	-0.16	27,735	-144	-0.05	IN
W43324		27,577	-433	-0.13	26,982	-897	-0.30	MT

Summary Statistics

	Sample B65	Sample B66
Grand Means	28,009.5 psi	27,878.9 psi
Std Dev Btwn Labs	3,242.0 psi	2,966.3 psi
Statistics based on 8 of 8 reporting participants		

Sample B65: LDPE & Sample B66: LDPE

Key to Instrument Codes Reported by Participants

IN	Instron	LI	Lloyd Instruments
MT	MTS/Sintech	SH	Shimadzu



Plastics Interlaboratory Testing Program

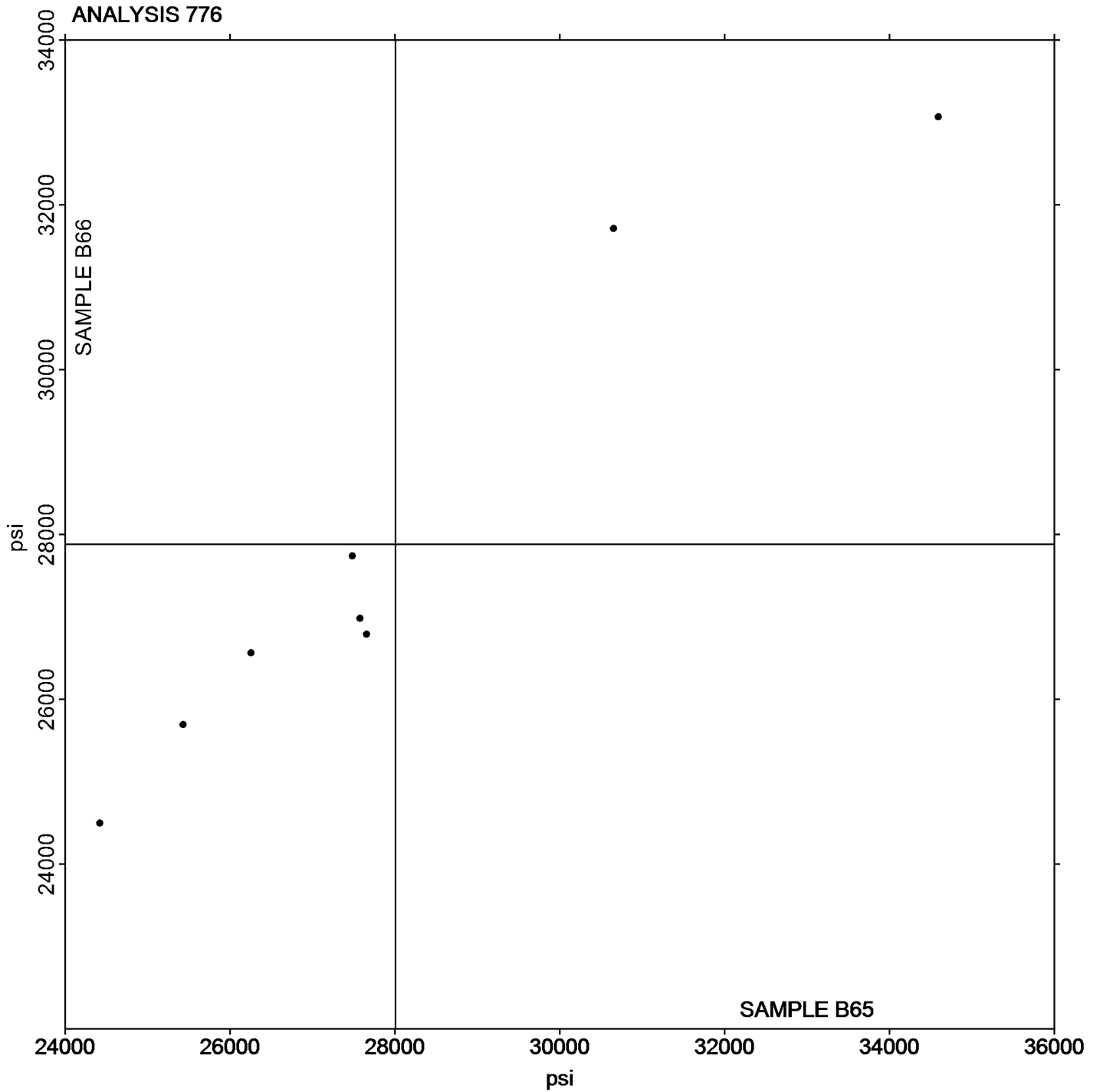
Report #113

Analysis 776

1st Qtr 2020

Secant Modulus at 2% Strain - psi

Grand Mean Sample B65: 28,009.50 psi Grand Mean Sample B66: 27,878.93 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 #113

Analysis 780

1st Qtr 2020

Coefficient of Static Friction

WebCode	Data Flag	Sample P65			Sample P66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2KQ2ZY		0.0820	-0.0488	-0.99	0.0920	-0.0346	-0.75	TH
2M2HUQ		0.1504	0.0196	0.40	0.1660	0.0394	0.85	TH
7J8EQZ		0.1540	0.0232	0.47	0.1340	0.0074	0.16	DY
DWMPEN		0.0281	-0.1027	-2.09	0.0287	-0.0979	-2.11	IG
FDYCJV		0.1786	0.0479	0.97	0.1519	0.0254	0.55	SA
M8XBWA		0.2034	0.0726	1.48	0.2014	0.0748	1.62	TH
MYGXDG		0.1674	0.0366	0.75	0.1296	0.0030	0.07	DY
NYGD68		0.1314	0.0006	0.01	0.1494	0.0228	0.49	TM
Q4GG2J		0.0664	-0.0644	-1.31	0.0772	-0.0494	-1.07	TH
W43324		0.1008	-0.0300	-0.61	0.0976	-0.0290	-0.63	MI
WZPV46		0.1380	0.0072	0.15	0.1740	0.0474	1.02	SA
X7MEBT		0.1636	0.0329	0.67	0.1443	0.0177	0.38	IG
ZLFJ22		0.1358	0.0050	0.10	0.0992	-0.0274	-0.59	IS

Summary Statistics		
	Sample P65	Sample P66
Grand Means	0.13076 COF	0.12656 COF
Std Dev Btwn Labs	0.04912 COF	0.04632 COF
Statistics based on 13 of 13 reporting participants		

Sample P65: LDPE & Sample P66: LDPE

Key to Instrument Codes Reported by Participants

- | | | | |
|----|------------------------------|----|--|
| DY | Dynisco Model D1055 | IG | Instron |
| IS | Instron 5000 Series | MI | MTS Insight |
| SA | Shimadzu Autograph | TH | Thwing Albert Friction/Peel Tester Model 225-1 |
| TM | TMI Slip and Friction Tester | | |



Plastics Interlaboratory Testing Program

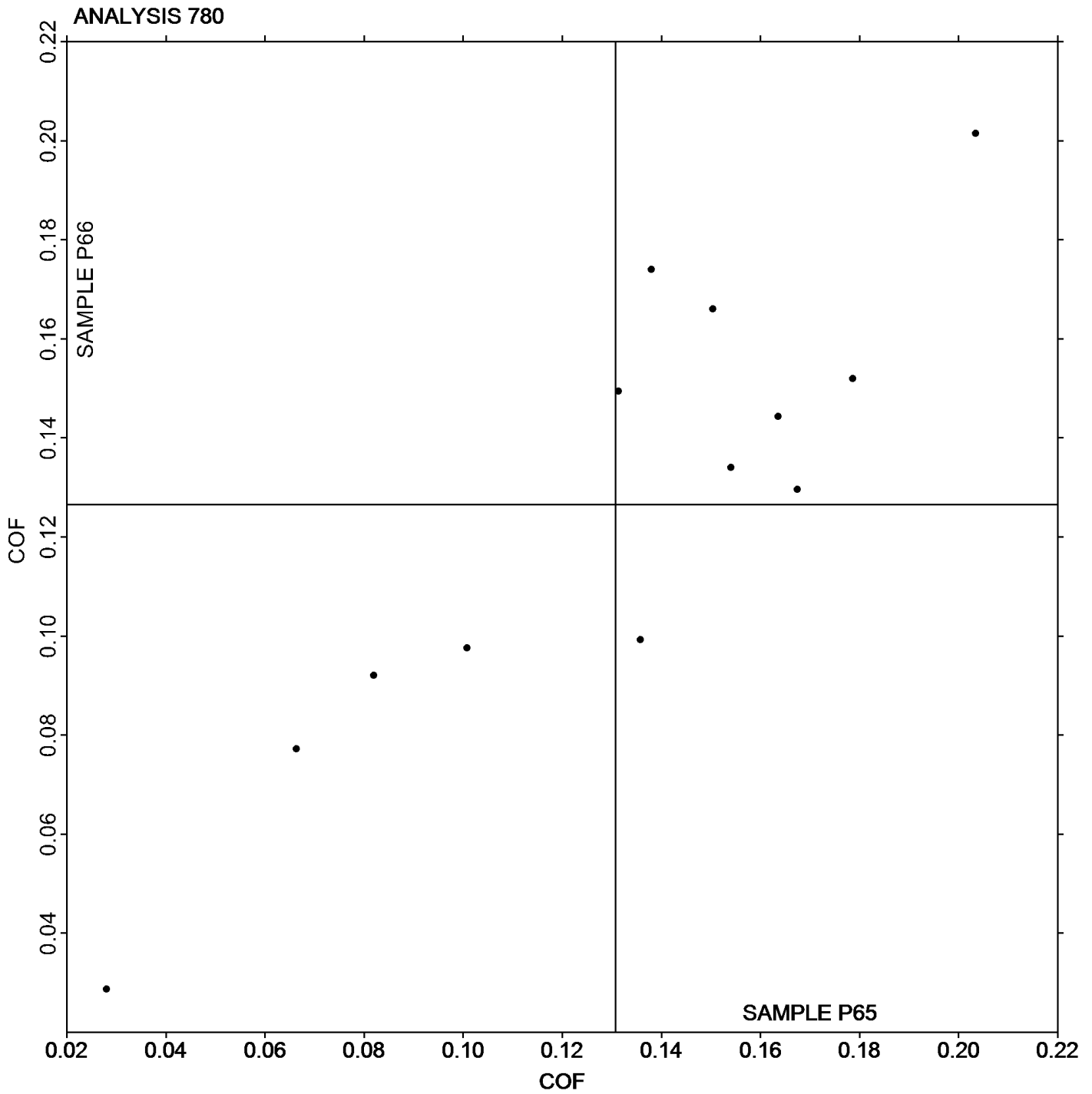
Report #113

Analysis 780

1st Qtr 2020

Coefficient of Static Friction

Grand Mean Sample P65: 0.13076 COF Grand Mean Sample P66: 0.12656 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 #113

Analysis 781

1st Qtr 2020

Coefficient of Kinetic Friction

WebCode	Data Flag	Sample P65			Sample P66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2KQ2ZY		0.0800	-0.0282	-0.65	0.0860	-0.0181	-0.43	TH
2M2HUQ		0.1402	0.0320	0.73	0.1618	0.0577	1.38	TH
4V7CY3		0.1360	0.0278	0.64	0.1400	0.0359	0.86	DY
DWMPEN		0.0267	-0.0816	-1.87	0.0269	-0.0771	-1.84	IG
F78XVG		0.1620	0.0538	1.23	0.1460	0.0419	1.00	DY
FDYCJV		0.0763	-0.0319	-0.73	0.0656	-0.0385	-0.92	SA
M8XBWA		0.1366	0.0284	0.65	0.1324	0.0283	0.68	TH
MJPW2J		0.1100	0.0018	0.04	0.1100	0.0059	0.14	DY
MYGXDG		0.1368	0.0286	0.65	0.1098	0.0057	0.14	DY
NYGD68		0.1080	-0.0002	-0.01	0.0972	-0.0069	-0.16	TM
Q4GG2J		0.0152	-0.0930	-2.13	0.0172	-0.0869	-2.08	TH
W43324		0.0846	-0.0236	-0.54	0.0872	-0.0169	-0.40	MI
WZPV46		0.1060	-0.0022	-0.05	0.1360	0.0319	0.76	SA
X7MEBT		0.1636	0.0554	1.27	0.1247	0.0207	0.49	IG
Y82WEY		0.1480	0.0398	0.91	0.1420	0.0379	0.91	DY
ZLFJ22		0.1016	-0.0066	-0.15	0.0820	-0.0221	-0.53	IS

Summary Statistics		
	Sample P65	Sample P66
Grand Means	0.10823 COF	0.10405 COF
Stnd Dev Btwn Labs	0.04373 COF	0.04185 COF
Statistics based on 16 of 16 reporting participants		

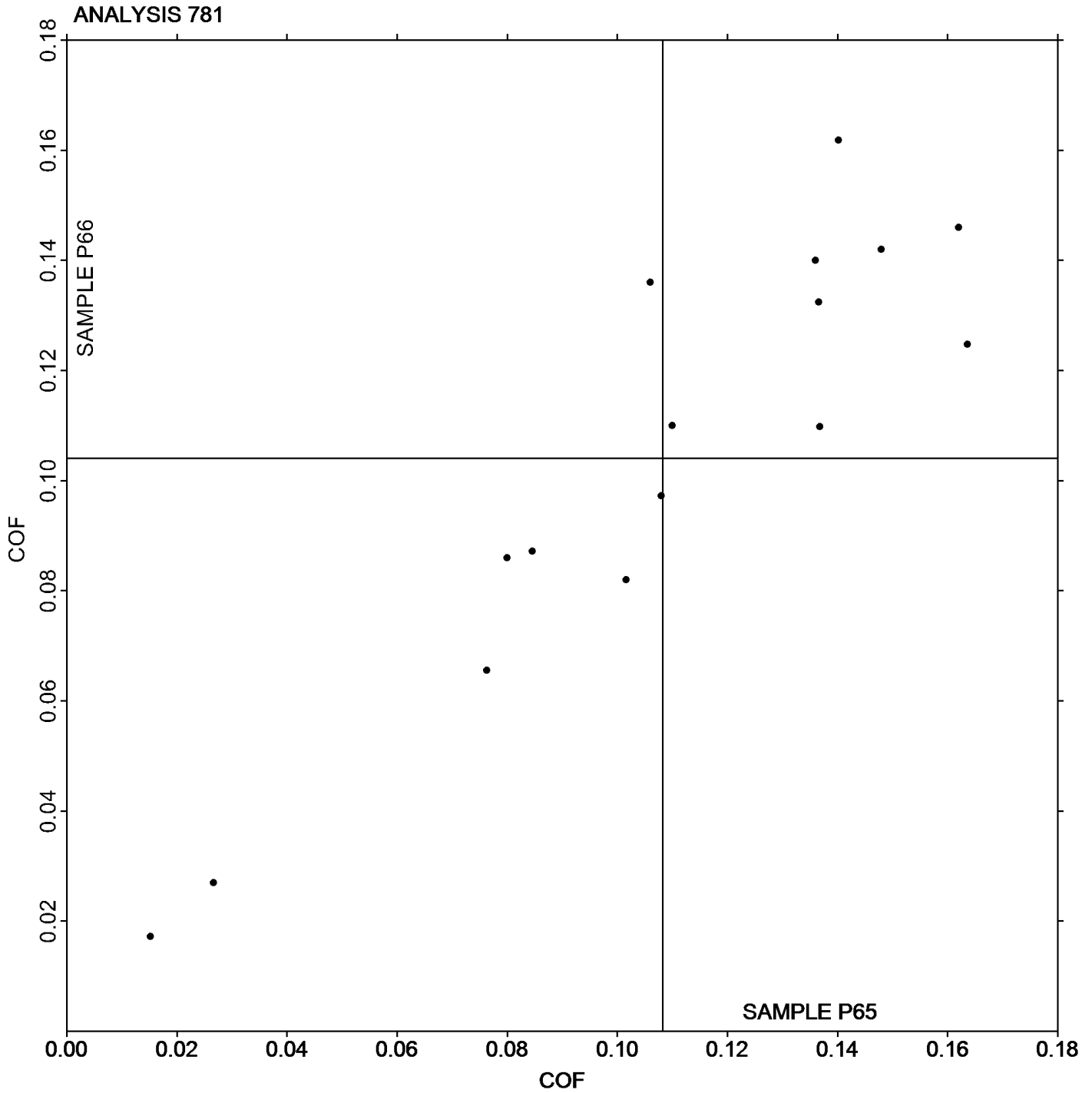
Sample P65: LDPE & Sample P66: LDPE

Key to Instrument Codes Reported by Participants

- | | | | |
|----|------------------------------|----|--|
| DY | Dynisco Model D1055 | IG | Instron |
| IS | Instron 5000 Series | MI | MTS Insight |
| SA | Shimadzu Autograph | TH | Thwing Albert Friction/Peel Tester Model 225-1 |
| TM | TMI Slip and Friction Tester | | |



Grand Mean Sample P65: 0.10823 COF Grand Mean Sample P66: 0.10405 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 #113

Analysis 782

1st Qtr 2020

Tear Resistance of Films

WebCode	Data Flag	Sample Q65			Sample Q66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2KQ2ZY		239.0	-6.0	-0.27	237.9	-9.7	-0.43	TE
2M2HUQ		256.6	11.6	0.52	257.1	9.4	0.42	TE
64DCRG		192.1	-52.9	-2.35	221.4	-26.3	-1.16	XX
FDYCVJ		255.0	10.1	0.45	244.0	-3.7	-0.16	TE
MYGXDG		236.2	-8.8	-0.39	250.6	2.9	0.13	TA
NYGD68		254.7	9.7	0.43	221.0	-26.7	-1.17	TM
Q4GG2J		245.7	0.8	0.03	261.8	14.1	0.62	TA
W43324		253.1	8.1	0.36	239.9	-7.7	-0.34	TE
WZPV46		272.5	27.5	1.22	295.3	47.6	2.10	LO

Summary Statistics

	Sample Q65	Sample Q66
Grand Means	244.99 grams-force	247.66 grams-force
Stnd Dev Btwn Labs	22.54 grams-force	22.74 grams-force

Statistics based on 9 of 9 reporting participants

Sample Q65: LDPE & Sample Q66: LDPE

Key to Instrument Codes Reported by Participants

- LO Lorentzen & Wettre Model II
- TA Thwing-Albert
- TE Thwing-Albert Pro Tear
- TM TMI No. 83-1100
- XX Instrument make/model not specified by lab



Plastics Interlaboratory Testing Program

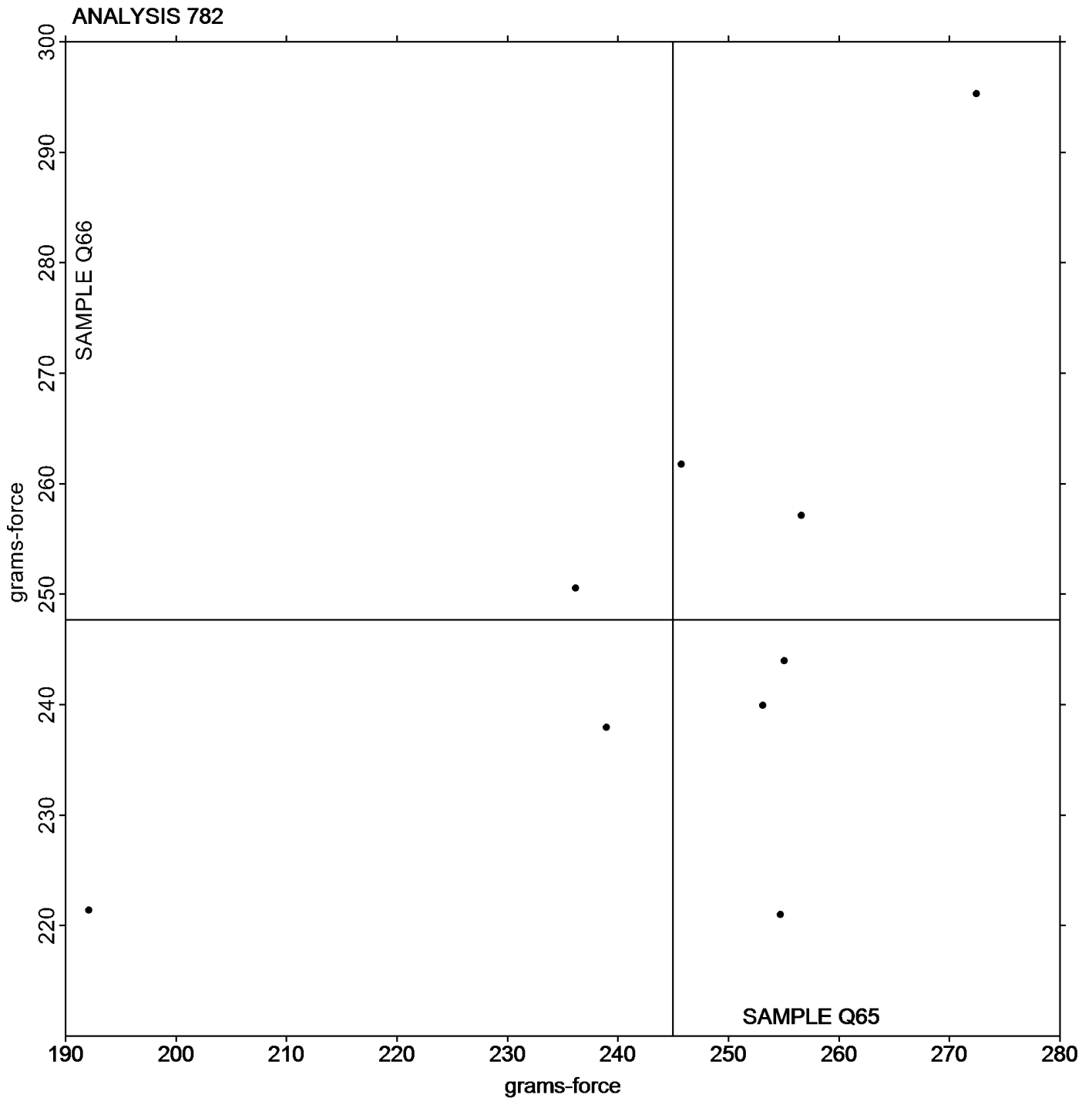
Report #113

Analysis 782

1st Qtr 2020

Tear Resistance of Films

Grand Mean Sample Q65: 244.99 grams-force Grand Mean Sample Q66: 247.66 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 #113

Analysis 785

1st Qtr 2020

Percent Haze of Film

WebCode	Data Flag	Sample D65			Sample D66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2B94N2		11.113	-0.498	-0.90	11.188	-0.375	-0.72	BJ
2KQ2ZY		11.875	0.264	0.48	11.813	0.250	0.48	BJ
2M2HUQ		11.850	0.239	0.43	11.663	0.100	0.19	BJ
2T4TRH		11.290	-0.321	-0.58	11.248	-0.315	-0.61	XR
3YBH4N		10.689	-0.922	-1.67	10.845	-0.718	-1.38	XR
64DCRG		11.788	0.177	0.32	11.325	-0.238	-0.46	XX
6EFRFZ		12.225	0.614	1.11	12.363	0.800	1.54	BJ
7HUKCK		10.750	-0.861	-1.56	10.790	-0.773	-1.49	XR
8EUW9H	X	13.501	1.890	3.42	13.964	2.401	4.62	XR
B7MBNK		11.813	0.202	0.36	11.563	0.000	0.00	BJ
DTJ9ML		12.651	1.040	1.88	12.156	0.594	1.14	XR
E4MN64		12.179	0.568	1.03	12.044	0.481	0.93	XR
ERU8F4		12.025	0.414	0.75	12.200	0.637	1.23	BJ
EXXAHH		12.275	0.664	1.20	12.100	0.537	1.03	BJ
FDYCVJ		11.813	0.202	0.36	11.638	0.075	0.14	BJ
H68L67		11.786	0.175	0.32	11.389	-0.174	-0.33	XX
J7W8B3		11.638	0.027	0.05	11.038	-0.525	-1.01	BJ
KELCQG		12.025	0.414	0.75	11.925	0.362	0.70	BJ
KW2PAY	*	10.288	-1.323	-2.39	11.125	-0.438	-0.84	HL
M8XBWA		10.538	-1.073	-1.94	10.263	-1.300	-2.50	BH
MYGXDG		11.074	-0.537	-0.97	11.628	0.065	0.12	XR
NYGD68		11.963	0.352	0.64	12.413	0.850	1.64	BJ
Q4GG2J		11.825	0.214	0.39	11.713	0.150	0.29	BJ
TKMF8T		11.950	0.339	0.61	11.988	0.425	0.82	BT
UJ7L6X		11.225	-0.386	-0.70	11.400	-0.163	-0.31	BJ
UPRF2V		12.088	0.477	0.86	12.000	0.437	0.84	BJ
V23992		11.150	-0.461	-0.83	11.100	-0.463	-0.89	HL
W3A4WD		11.375	-0.236	-0.43	11.375	-0.188	-0.36	BJ
W43324		11.988	0.377	0.68	11.650	0.087	0.17	BJ
WLWR6J		11.290	-0.321	-0.58	10.733	-0.830	-1.60	XX
YLULYA		11.600	-0.011	-0.02	11.688	0.125	0.24	BJ
YXAH98		11.805	0.194	0.35	12.083	0.520	1.00	BJ



Plastics Interlaboratory Testing Program

Report #113

Analysis 785

1st Qtr 2020

Percent Haze of Film

Summary Statistics		
	<u>Sample D65</u>	<u>Sample D66</u>
Grand Means	11.6109 Percent	11.5625 Percent
Stnd Dev Btwn Labs	0.5533 Percent	0.5197 Percent
Statistics based on 31 of 32 reporting participants		

Sample D65: LDPE & Sample D66: LDPE

Comments on Assigned Data Flags for Test #785

8EUW9H (X) - Data for both samples are high. Possible Systematic Error.

Key to Instrument Codes Reported by Participants

- | | | | |
|-----------|---|-----------|--|
| BH | BYK-Gardner/Pacific Scientific Model XL-211 | BJ | BYK-Gardner Haze-Gard Plus/i |
| BT | BYK Gardner TCS Series | HL | Hunterlab Ultrascan |
| XR | X-Rite Spectrocolorimeter (any model) | XX | Instrument make/model not specified by lab |



Plastics Interlaboratory Testing Program

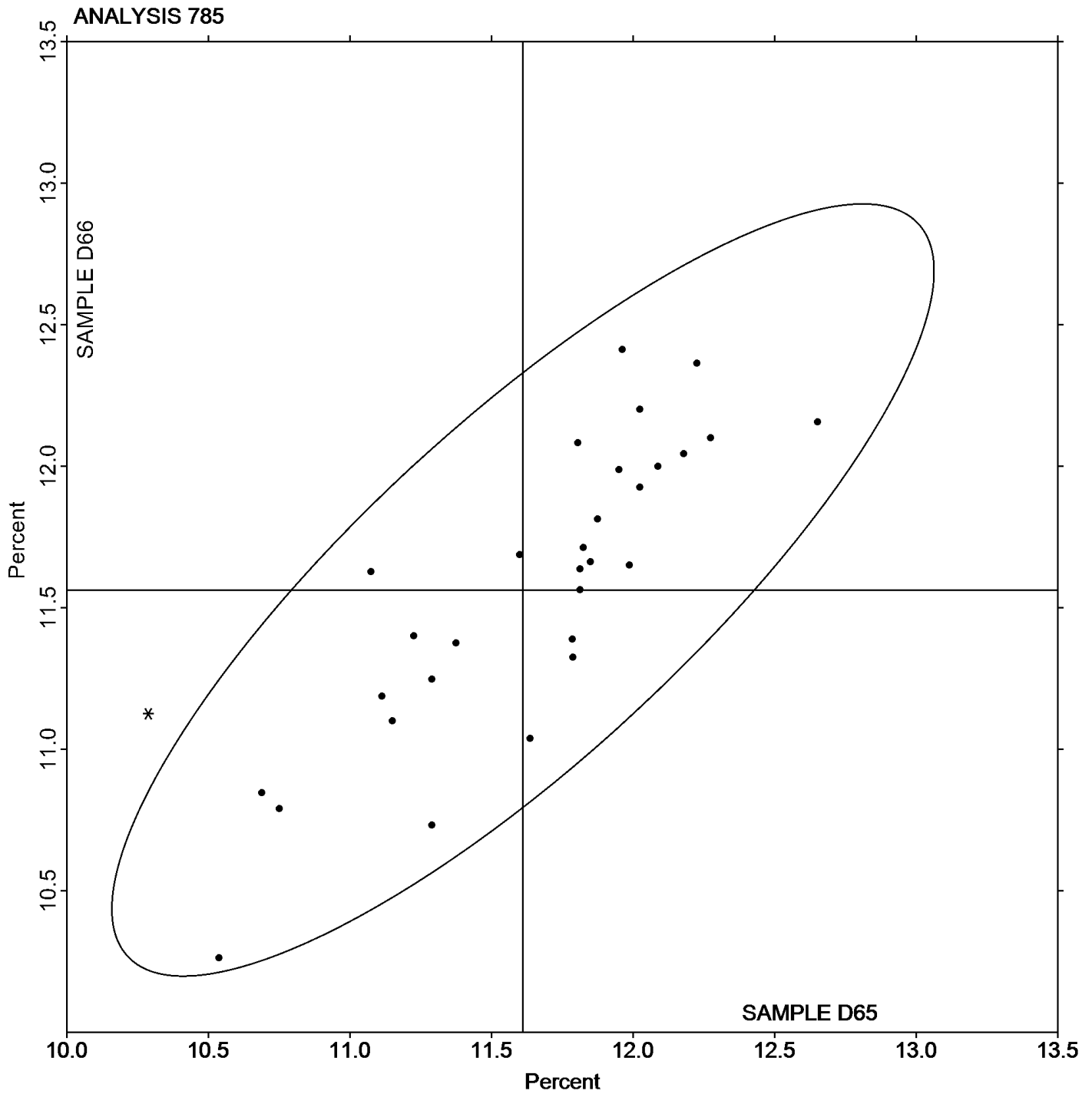
Report #113

Analysis 785

1st Qtr 2020

Percent Haze of Film

Grand Mean Sample D65: 11.611 Percent Grand Mean Sample D66: 11.563 Percent





Plastics Interlaboratory Testing Program

Report #113

Analysis 786

1st Qtr 2020

Total Luminous transmittance of film

WebCode	Data Flag	Sample D65			Sample D66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2B94N2		90.51	-1.32	-1.31	90.45	-1.38	-1.34	BJ
2KQ2ZY		91.40	-0.43	-0.43	91.40	-0.43	-0.42	BJ
2M2HUQ		91.03	-0.81	-0.80	91.03	-0.81	-0.79	BJ
2T4TRH		90.63	-1.20	-1.19	90.62	-1.21	-1.18	XR
3YBH4N		90.64	-1.20	-1.19	90.58	-1.26	-1.22	XR
64DCRG		90.13	-1.71	-1.70	90.18	-1.66	-1.61	XX
6EFRFZ		93.03	1.19	1.19	93.13	1.29	1.25	BJ
7HUKCK	X	90.58	-1.26	-1.25	90.05	-1.78	-1.73	XR
8EUW9H		91.36	-0.47	-0.47	91.33	-0.51	-0.49	XR
B7MBNK		92.95	1.12	1.11	92.88	1.04	1.01	BJ
DTJ9ML		91.07	-0.76	-0.76	91.12	-0.72	-0.70	XR
E4MN64		91.52	-0.31	-0.31	91.51	-0.32	-0.31	XR
ERU8F4		93.19	1.35	1.35	93.26	1.43	1.39	BJ
EXXAHH		92.45	0.62	0.61	92.39	0.55	0.54	BJ
FDYCVJ		92.40	0.57	0.56	92.33	0.49	0.48	BJ
H68L67		91.63	-0.21	-0.21	91.60	-0.23	-0.23	XX
J7W8B3		92.00	0.17	0.17	92.11	0.28	0.27	BJ
KELCQG		92.31	0.48	0.48	92.29	0.45	0.44	BJ
KW2PAY		90.31	-1.52	-1.51	90.26	-1.57	-1.53	HL
M8XBWA		91.41	-0.42	-0.42	91.28	-0.56	-0.54	BH
NYGD68		92.98	1.14	1.14	92.95	1.12	1.08	BJ
Q4GG2J		92.11	0.28	0.28	92.10	0.27	0.26	BJ
TKMF8T		91.94	0.10	0.10	91.95	0.12	0.11	BT
UJ7L6X		92.78	0.94	0.94	92.74	0.90	0.88	BJ
UPRF2V		93.76	1.93	1.92	93.86	2.03	1.97	BJ
V23992		90.59	-1.25	-1.24	90.58	-1.26	-1.22	HL
W3A4WD		92.99	1.15	1.15	92.98	1.14	1.11	BJ
W43324		91.56	-0.27	-0.27	91.63	-0.21	-0.20	BJ
WLWR6J		90.81	-1.03	-1.02	90.82	-1.01	-0.99	XX
YLULYA		92.40	0.57	0.56	92.36	0.53	0.51	BJ
YXAH98	*	93.14	1.30	1.30	93.36	1.52	1.48	BJ



Plastics Interlaboratory Testing Program

Report #113

Analysis 786

1st Qtr 2020

Total Luminous transmittance of film

Summary Statistics		
	<u>Sample D65</u>	<u>Sample D66</u>
Grand Means	91.834 Percent	91.834 Percent
Stnd Dev Btwn Labs	1.005 Percent	1.029 Percent
Statistics based on 30 of 31 reporting participants		

Sample D65: LDPE & Sample D66: LDPE

Comments on Assigned Data Flags for Test #786

7HUKCK (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample D66.

Key to Instrument Codes Reported by Participants

- | | |
|---|--|
| BH BYK-Gardner/Pacific Scientific Model XL-211 | BJ BYK-Gardner Haze-Gard Plus/i |
| BT BYK Gardner TCS Plus Spectrophotometer | HL Hunterlab Ultrascan XE |
| XR X-Rite Spectrocolorimeter (any model) | XX Instrument make/model not specified by lab |



Plastics Interlaboratory Testing Program

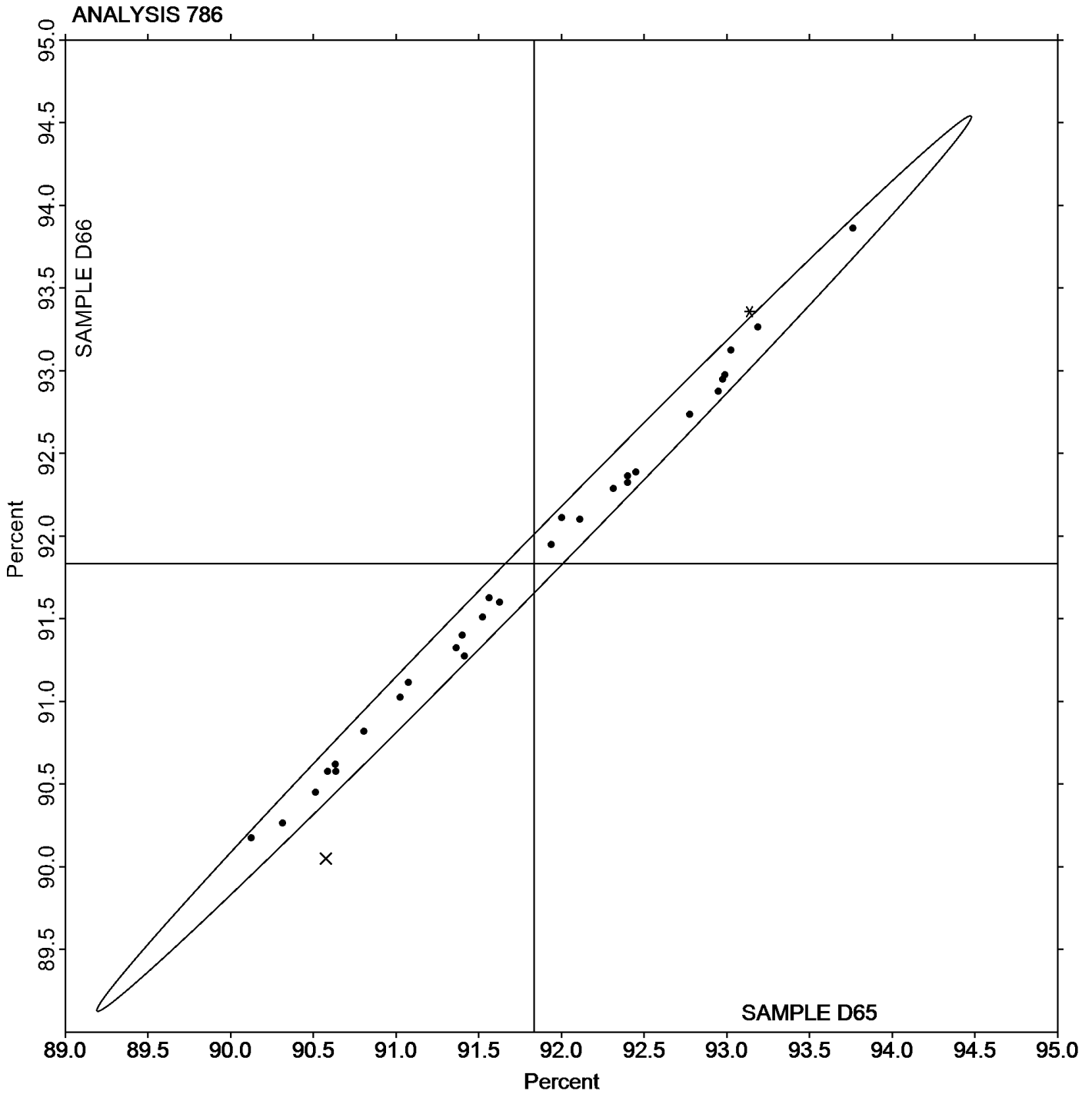
Report #113

Analysis 786

1st Qtr 2020

Total Luminous transmittance of film

Grand Mean Sample D65: 91.834 Percent Grand Mean Sample D66: 91.834 Percent





Plastics Interlaboratory Testing Program

Report #113

Analysis 790

1st Qtr 2020

Notched Izod Impact - ft.lbf/in

WebCode	Data Flag	Sample S65			Sample S66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2M2HUQ		9.56	-0.07	-0.10	9.89	0.25	0.36	CE
3JJRZE		9.17	-0.46	-0.66	9.20	-0.44	-0.63	TO
3UFV49		9.72	0.08	0.12	9.63	-0.02	-0.03	TO
3YBH4N		9.73	0.10	0.14	10.19	0.54	0.78	TO
4CR2QP		9.85	0.22	0.31	9.74	0.09	0.13	CS
4QXXAQ		9.44	-0.19	-0.27	9.36	-0.29	-0.41	XX
6Y3D8B		8.84	-0.79	-1.13	8.76	-0.89	-1.28	TM
7HUKCK		9.78	0.14	0.20	10.17	0.52	0.75	TO
7PUCAG		10.23	0.60	0.86	10.12	0.47	0.68	TO
8WA8UG		9.36	-0.27	-0.39	9.29	-0.36	-0.51	TO
8YE3AE		9.33	-0.30	-0.43	9.36	-0.28	-0.40	TO
9HH6KN		8.62	-1.02	-1.45	8.82	-0.83	-1.19	CE
9P4XY9	*	10.92	1.29	1.83	11.34	1.69	2.43	TO
9YRRDQ		8.14	-1.50	-2.13	8.13	-1.51	-2.17	CE
BLVGQ4		8.00	-1.63	-2.32	7.90	-1.74	-2.50	TO
CREA6Z		9.89	0.26	0.36	9.97	0.32	0.46	WZ
DH7PQB		11.11	1.48	2.11	10.84	1.19	1.71	TO
DUNEKA		9.68	0.04	0.06	9.75	0.11	0.16	TO
EDARAH		9.14	-0.49	-0.70	9.30	-0.35	-0.50	TO
EEKCG8		9.67	0.04	0.05	9.56	-0.09	-0.12	TO
ERPTZG		9.90	0.27	0.39	9.57	-0.07	-0.11	TO
EXXAHH		10.36	0.72	1.03	10.23	0.58	0.84	TM
F9UBW8		9.89	0.25	0.36	9.88	0.23	0.34	TO
FMX792	X	9.10	-0.53	-0.76	10.03	0.38	0.55	TO
FUBWBZ		8.86	-0.77	-1.09	8.95	-0.69	-0.99	BA
GTQPCV		10.26	0.63	0.89	10.03	0.39	0.56	TO
H27GRL		10.52	0.89	1.26	10.36	0.71	1.02	TM
HE77G7	X	13.45	3.82	5.44	12.80	3.16	4.53	TM
HPRGXD	*	9.53	-0.10	-0.15	8.90	-0.74	-1.06	CE
HZQ9AK		9.74	0.10	0.15	9.77	0.12	0.18	XX
J8N7QL		10.53	0.90	1.27	10.33	0.68	0.98	RR
K2CWHQ		9.85	0.22	0.31	9.90	0.26	0.37	WZ
KELCQG		10.08	0.45	0.64	10.16	0.51	0.74	CE
MMPC6Z		10.74	1.11	1.58	10.78	1.13	1.63	TM
MPVU83		8.70	-0.94	-1.33	8.71	-0.94	-1.34	XX



Plastics Interlaboratory Testing Program

Report #113

Analysis 790

1st Qtr 2020

Notched Izod Impact - ft.lbf/in

WebCode	Data Flag	Sample S65			Sample S66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
MQPFY9	*	8.75	-0.88	-1.25	9.39	-0.26	-0.37	IN
Q4GG2J		9.34	-0.30	-0.42	9.23	-0.42	-0.60	WZ
TK2LQP		9.55	-0.09	-0.12	9.60	-0.04	-0.06	CE
TWHBLN		9.70	0.06	0.09	9.45	-0.20	-0.28	WZ
URJED9		10.03	0.40	0.56	9.72	0.07	0.10	TM
VDWNUW		10.58	0.95	1.35	10.77	1.13	1.62	TO
VZKFYQ	X	11.90	2.27	3.23	12.36	2.71	3.90	TM
W43324		9.65	0.02	0.02	9.86	0.21	0.30	TO
WMY9U4		8.48	-1.15	-1.64	8.66	-0.99	-1.41	TO
XK63PW		9.16	-0.47	-0.67	9.40	-0.24	-0.35	DS
Y8FFYV		9.85	0.22	0.31	9.77	0.13	0.18	TO

Summary Statistics

	Sample S65	Sample S66
Grand Means	9.633 ft.lbf/in	9.645 ft.lbf/in
Std Dev Btwn Labs	0.703 ft.lbf/in	0.697 ft.lbf/in

Statistics based on 43 of 46 reporting participants

Sample S65: ABS/PC & Sample S66: ABS/PC

Comments on Assigned Data Flags for Test #790

FMX792 (X) - Inconsistent in testing between samples.

HE77G7 (X) - Data for both samples are high. Possible Systematic Error.

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

Key to Instrument Codes Reported by Participants

BA Baldwin	CE Ceast
CS CSI	DS Dynisco
IN Instron	RR Ray-Ran Polymer Testing Equipment
TM TMI	TO Tinius Olsen
WZ Zwick	XX Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

Report #113

Analysis 791

1st Qtr 2020

Notched Izod Impact - kJ/m²

WebCode	Data Flag	Sample Z65			Sample Z66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2M2HUQ		9.30800	0.94684	1.62	9.08400	0.74170	1.33	CE
2XKWXT		8.31960	-0.04156	-0.07	8.35780	0.01550	0.03	CE
3UFV49		8.18700	-0.17416	-0.30	8.09580	-0.24650	-0.44	TO
6BFJBQ		9.27000	0.90884	1.55	9.09600	0.75370	1.35	XX
6Y3JGH		8.71000	0.34884	0.60	8.91600	0.57370	1.03	CE
766QVK		8.55400	0.19284	0.33	8.56800	0.22570	0.40	CE
88KTNA		9.22000	0.85884	1.47	9.10000	0.75770	1.36	WZ
8YE3AE		8.28186	-0.07930	-0.14	8.23442	-0.10788	-0.19	TO
A7M873	*	6.71600	-1.64516	-2.81	6.69800	-1.64430	-2.95	CE
C6FUHX	X	18.66440	10.30324	17.61	22.66960	14.32730	25.69	CE
CREA6Z		8.55200	0.19084	0.33	8.43000	0.08770	0.16	WZ
D7CLCJ		8.60000	0.23884	0.41	8.30000	-0.04230	-0.08	WZ
GZZP4E		8.12400	-0.23716	-0.41	8.31200	-0.03030	-0.05	TO
HCQPC9		8.30800	-0.05316	-0.09	8.38200	0.03970	0.07	CE
TK2LQP		8.34800	-0.01316	-0.02	8.39250	0.05020	0.09	CE
TWHBLN	X	9.01800	0.65684	1.12	8.11000	-0.23230	-0.42	WZ
UGXDXY		8.24000	-0.12116	-0.21	8.31400	-0.02830	-0.05	WZ
UPRF2V		8.04200	-0.31916	-0.55	8.10600	-0.23630	-0.42	TO
W43324		8.03420	-0.32696	-0.56	8.03260	-0.30970	-0.56	XX
XMU6YR		8.64760	0.28644	0.49	8.70720	0.36490	0.65	CE
YM6NK9		8.54500	0.18384	0.31	8.46240	0.12010	0.22	CE
Z7YQ9N		8.19720	-0.16396	-0.28	8.28360	-0.05870	-0.11	XX
ZLFJ22		7.38000	-0.98116	-1.68	7.31600	-1.02630	-1.84	CE

Summary Statistics		
	Sample Z65	Sample Z66
Grand Means	8.361165 kJ/m ²	8.342301 kJ/m ²
Std Dev Btwn Labs	0.585040 kJ/m ²	0.557678 kJ/m ²
Statistics based on 21 of 23 reporting participants		

Sample Z65: HIPS & Sample Z66: HIPS

Comments on Assigned Data Flags for Test #791

TWHBLN (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample Z65.

C6FUHX (X) - Extreme data.



Plastics Interlaboratory Testing Program

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Analysis 791

1st Qtr 2020

Notched Izod Impact - kJ/m^2

Key to Instrument Codes Reported by Participants

CE Ceast

TO Tinius Olsen

WZ Zwick

XX Instrument manufacturer not specified by lab



Plastics Interlaboratory Testing Program

Report #113

Analysis 792

1st Qtr 2020

Notched Charpy Impact - kJ/m²

WebCode	Data Flag	Sample M65			Sample M66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2M2HUQ		8.46	0.31	0.85	8.48	0.33	0.92	CE
2XKWXT		8.14	0.00	0.00	8.22	0.07	0.19	CE
3JJRZE		8.47	0.32	0.88	8.50	0.35	0.97	TO
42RDYR		8.26	0.12	0.31	8.23	0.09	0.25	CE
48YZQV		8.10	-0.05	-0.12	7.96	-0.18	-0.51	WZ
4QXXAQ		7.56	-0.59	-1.59	7.76	-0.38	-1.05	XX
6EFRFZ		8.32	0.17	0.47	8.37	0.22	0.61	TO
6Y3JGH		7.98	-0.17	-0.45	8.02	-0.12	-0.34	CE
88KTNA	*	7.68	-0.47	-1.26	7.36	-0.78	-2.15	WZ
8YE3AE		8.08	-0.06	-0.17	8.07	-0.08	-0.22	TO
8ZAEDU		8.36	0.21	0.57	8.53	0.39	1.06	TO
9HH6KN		8.11	-0.04	-0.10	7.98	-0.17	-0.46	WZ
A7M873		7.40	-0.75	-2.02	7.44	-0.70	-1.93	CE
C6FUHX		8.32	0.17	0.47	8.45	0.30	0.83	CE
CREA6Z		8.14	0.00	0.00	8.07	-0.07	-0.20	WZ
D7CLCJ	*	9.22	1.07	2.90	9.12	0.98	2.68	WZ
DTUNGF		8.68	0.54	1.45	8.70	0.56	1.54	TO
EXXAHH	X	9.42	1.27	3.44	8.99	0.85	2.33	TM
F9UBW8		8.21	0.07	0.18	8.16	0.02	0.05	TO
FTTYR9		8.39	0.25	0.67	8.37	0.23	0.63	WZ
GF8QXF		7.56	-0.58	-1.57	7.47	-0.68	-1.86	XX
HCQPC9		8.53	0.39	1.04	8.57	0.42	1.16	CE
HHX8TA		8.28	0.14	0.37	8.09	-0.05	-0.15	TO
HZQ9AK	X	11.88	3.73	10.08	11.94	3.79	10.42	XX
J22CWA		8.21	0.06	0.17	8.47	0.32	0.89	TO
MPVU83		7.60	-0.54	-1.47	7.74	-0.41	-1.12	XX
MQPFY9		7.84	-0.30	-0.82	8.03	-0.11	-0.31	IN
PH8L33	X	9.87	1.72	4.65	10.13	1.99	5.45	TO
Q4GG2J		7.70	-0.44	-1.20	7.69	-0.45	-1.24	WZ
TK2LQP		8.06	-0.08	-0.22	8.20	0.05	0.15	IN
TWHBLN		8.46	0.31	0.85	8.28	0.14	0.38	WZ
UGXDXY		8.25	0.10	0.28	8.03	-0.12	-0.32	WZ
V23992		8.01	-0.13	-0.36	7.98	-0.17	-0.46	TM
V246D6		8.67	0.53	1.42	8.44	0.30	0.82	WZ
W43324		7.84	-0.31	-0.84	7.86	-0.28	-0.78	XX



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Notched Charpy Impact - kJ/m²

WebCode	Data Flag	Sample M65			Sample M66			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
WJFBZL		8.01	-0.13	-0.36	8.01	-0.13	-0.36	WZ
XMU6YR		8.30	0.16	0.42	8.23	0.08	0.23	IN
YRXN2N		7.76	-0.39	-1.05	8.00	-0.14	-0.38	IN
ZLFJ22		8.25	0.11	0.29	8.32	0.18	0.49	CE

Summary Statistics		
	Sample M65	Sample M66
Grand Means	8.146 kJ/m ²	8.144 kJ/m ²
Std Dev Btwn Labs	0.370 kJ/m ²	0.364 kJ/m ²
Statistics based on 36 of 39 reporting participants		

Sample M65: HIPS & Sample M66: HIPS

Comments on Assigned Data Flags for Test #792

PH8L33 (X) - Data for both samples are high. Possible Systematic Error.

EXXAHH (X) - Data for sample M65 are high. Inconsistent within the determinations of sample M66.

HZQ9AK (X) - Data for both samples are high. Possible Systematic Error.

Key to Instrument Codes Reported by Participants

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



Plastics Interlaboratory Testing Program

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1st Qtr 2020

Notched Charpy Impact - kJ/m^2

Grand Mean Sample M65: 8.1457 kJ/m^2 Grand Mean Sample M66: 8.1444 kJ/m^2

