Fasteners & Metals Testing Program

Summary Report Cycle 111, 3rd Quarter - 2015

Collaborative Testing Services, Inc.

About the Metals Program About CTS Key to Tables and Graphs Instrument and Method Code List

Analysis	Test Group
	Dimensional Test
101	Dimensional: OD of Plain Plug Gage
	Tensile Tests
105	Tensile Strength (Flat Aluminum)
106	Yield Strength (Flat Aluminum)
107	Elongation (Flat Aluminum)
110	Tensile Strength (Pre-Machined Round Steel)
111	Yield Strength (Pre-Machined Round Steel)
112	Elongation (Pre-Machined Round Steel)
113	Reduction of Area (Pre-Machined Round Steel)
140	Tensile Strength (Lab-Machined Round Steel)
141	Yield Strength (Lab-Machined Round Steel)
142	Elongation (Lab-Machined Round Steel)
143	Reduction of Area (Lab-Machined Round Steel)
	Hardness / Metallography Tests
118	Rockwell Hardness: C & B Scales (HRC)
119	Rockwell Hardness (B Scale)
121	Microhardness (Knoop -- 500 gf)
122	Microhardness (Knoop -- 200 gf)
123	Microhardness (Vickers -- 500 gf)
135	Brinell Hardness
	Chemical Analyses
170 - 179	Chemical Analysis: Carbon & Low Alloy Steel

ABOUT THE FASTENERS & METALS PROGRAM

Collaborative Testing Services operates and maintains the program for Fasteners and Metals as part of a series of Proficiency and Interlaboratory Testing Programs offered by CTS in cooperation with various associations for a wide range of industries. Personnel from the National Institute of Standards and Technology (formerly the National Bureau of Standards), Industrial Fasteners Institute (IFI), and the Naval Shipyard Laboratories provide technical guidance and advice to this program.

The purpose of the program is to give participating laboratories a means to compare periodically the level and uniformity of their testing with that of other laboratories in the industry. It also provides a realistic assessment of the state of fasteners and metals testing proficiency.

In each report, there is a summary of the statistics for the analysis and a graphical representation of the data for each test. 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 TO TABLES AND GRAPHS for an explanation of terms and guidelines to interpreting the results.

ABOUT CTS

Founded in 1971, CTS is a privately-owned company that specializes in interlaboratory tests for a wide variety of 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 50 countries, currently participate in the CTS programs.
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Key for Fasteners & Metals Program Web Summary Report

WebCode - Assigned laboratory identification number(temporary)used to ensure lab confidentiality while permitting a lab to locate its data in the report published on the CTS website.

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.

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 (CPV) - 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. CPV = (LAB MEAN - GRAND MEAN)/ BETWEEN-LAB STANDARD DEVIATION. 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).

Instr. Code - A code indicating the manufacturer of the instrument used to perform the test (see separate INSTRUMENT CODE LIST for each test section).

Data Flag - DATA FLAGS are assigned based on the simultaneous analysis of both samples tested. Refer to the following chart for an explanation of each symbol:

Data Flags

Data Flag Type	Statistically Included/Excluded	ACTION REQUIRED
*	INCLUDED	CAUTION - review testing procedure and monitor future results. Results fall outside the drawn 95% ellipse but within a 99% ellipse that is calculated but not drawn. Labs flagged with an * do not typically receive a specific note regarding the flag. If this error is repeated in future rounds, however, a lab may need to stop and review its testing procedures. The initial data flag is not cause for alarm.
X	EXCLUDED	STOP - immediate review of data and/or testing procedure is required (all tests exept Chemical Analyses). Results fall outside the 99% ellipse. See the specific note following the data for more information on why the data are excluded. For Chemical Analyses see an additional Memo.
M	EXCLUDED	PROCEED - lab was unable to report data for at least one sample. However, a lab receiving two or more M flags for a test may need to stop and review its testing procedures.

Graph - For each laboratory, the Lab Mean for the second sample (y-axis) is plotted against the Lab Mean for the first sample (x-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 included 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. Labs not receiving a data flag appear as points on the plot.

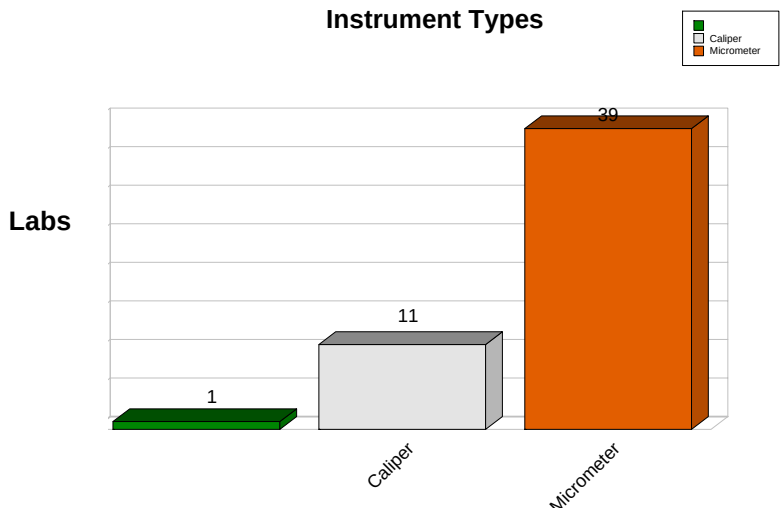
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 101

Dimensional: Outside Diameter of Plain Plug Gage
ISO GUM

During Cycle 111, CTS conducted the Analysis #101 - Round Dimensional. For this test all participants received two samples I29 and I30 with nominal diameters; 0.3127 in. and 0.3129 in. Each sample is an English Class X gage pin with 0.00002 in roundness limit made from 52100 bearing steel, hardened to 60-62 Rockwell C. Laboratories were asked to determine the outside diameter of the pins. 51 laboratories that subscribed for this test reported testing results. The graph below shows a breakdown of the types of instruments used.



Analysis of the Results

The most convenient and common method of judging the quality of measurement results is by calculating the performance statistic, En, calculated as:

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Where the assigned value, Xref, is determined in a reference laboratory, Uref is the expanded uncertainty of Xref, and Ulab is the **Expanded Uncertainty** of a participant's result, Xlab. En is not calculated for Labs who did not report their Expanded Uncertainty.

Absolute values of En less than **1.00** should be obtained for the measurements to be acceptable.

The following graph and the table represent the results reported by participants. All tests were conducted at room temperature (20-23C or 68-77F).

Xref and Uref were determined by the gage pin manufacturer. The manufacturer is ISO 9001:2000 Certified and an ISO 17025 Accredited company. All master gages used in checking the plug gages are calibrated with standards traceable to NIST.

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 101

Dimensional: Outside Diameter of Plain Plug Gage
ISO GUM

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xref1 = 0.3127 in.

Xref2 = 0.3129 in.

WebCode	Data Flag (if assigned)	Reference Uncertainty (Uref)	Expanded Uncertainty (Ulab)	Sample I29 Lab Mean (Xlab)	Sample I29 Performance Statistic (En1)	Sample I30 Lab Mean (Xlab)	Sample I30 Performance Statistic (En2)	Instrument
23KBLH		0.00004	0.00015	0.31266	-0.26	0.31288	-0.13	Micrometer
2BZU7H		0.00004	0.00023	0.31268	-0.10	0.31287	-0.11	Micrometer
2EX9T8		0.00004	0.00176	0.31264	-0.03	0.31290	0.00	Caliper
2WUXMF		0.00004	0.00011	0.31264	-0.51	0.31282	-0.68	Micrometer
3928LP		0.00004	0.00016	0.31260	-0.61	0.31280	-0.61	Micrometer
3HXWUE		0.00004	0.00040	0.31267	-0.07	0.31277	-0.32	Micrometer
3XKJTC		0.00004	0.00130	0.31200	-0.54	0.31250	-0.31	Caliper
4KFHV2		0.00004	0.00104	0.31250	-0.19	0.31300	0.10	Caliper
6R8FZF		0.00004	0.00030	0.31261	-0.30	0.31282	-0.26	Micrometer
6V8N4P		0.00004	0.00012	0.31265	-0.37	0.31287	-0.27	Micrometer
7EHTAE	X	0.00004	0.00006	0.31261	-1.28	0.31282	-1.14	Micrometer
7MXEHH		0.00004	0.00030	0.31262	-0.26	0.31272	-0.59	Micrometer
7NMPAB	X	0.00004	0.00150	0.31100	-1.13	0.31100	-1.27	Caliper
966DPJ	N/A	0.00004	Not Reported	0.31281	0.00	0.31301	0.00	Micrometer
9EV434		0.00004	0.00050	0.31250	-0.40	0.31270	-0.40	Micrometer
9VUB4H	X	0.00004	0.00004	0.31264	-1.16	0.31283	-1.22	Micrometer
AVUGB6		0.00004	0.00020	0.31270	0.00	0.31296	0.30	Micrometer
BAUMY9		0.00004	0.00106	0.31263	-0.07	0.31287	-0.03	Micrometer
BAURAB	X	0.00004	0.00005	0.31250	-3.12	0.31250	-6.25	Caliper
CBVCC2	X	0.00004	0.00004	0.31260	-1.68	0.31280	-1.68	Micrometer
CFGRB9		0.00004	0.00019	0.31265	-0.26	0.31284	-0.31	Micrometer
CKKXHY		0.00004	0.00039	0.31260	-0.26	0.31260	-0.76	Caliper
D3KAQZ		0.00004	0.00040	0.31270	0.00	0.31289	-0.02	Micrometer
DWEGW6		0.00004	0.00012	0.31267	-0.24	0.31288	-0.16	Micrometer
E8BYNJ	N/A	0.00004	Not Reported	0.31258	0.00	0.31282	0.00	Other
EJ4KUE		0.00004	0.00020	0.31260	-0.50	0.31280	-0.50	Micrometer
EU6Q7Z		0.00004	0.00083	0.31250	-0.24	0.31290	0.00	Caliper
EY2ABK		0.00004	0.00100	0.31258	-0.12	0.31282	-0.08	Micrometer
FGUWRT	X	0.00004	0.00011	0.31258	-1.02	0.31276	-1.19	Micrometer
HDNTFW		0.00004	0.00094	0.31254	-0.17	0.31278	-0.13	Caliper
HG6GT3	X	0.00004	0.00010	0.31250	-1.86	0.31312	2.04	Micrometer
HZXFZZ		0.00004	0.00002	0.31267	-0.69	0.31288	-0.40	Micrometer

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 101

Dimensional: Outside Diameter of Plain Plug Gage
ISO GUM

$$E_n = \frac{\left(X_{lab} - X_{ref}\right)}{\sqrt{U_{lab}^2 + U_{ref}^2}}$$

Xref1 = 0.3127 in.

Xref2 = 0.3129 in.

WebCode	Data Flag (if assigned)	Reference Uncertainty (Uref)	Expanded Uncertainty (Ulab)	Sample I29 Lab Mean (Xlab)	Sample I29 Performance Statistic (En1)	Sample I30 Lab Mean (Xlab)	Sample I30 Performance Statistic (En2)	Instrument
JFTUYU		0.00004	0.00013	0.31258	-0.84	0.31278	-0.86	Micrometer
JKL3YU		0.00004	0.00160	0.31250	-0.12	0.31300	0.06	Caliper
KGKCE2	N/A	0.00004	Not Reported	0.31269	0.00	0.31287	0.00	Micrometer
KHAM6U		0.00004	0.00059	0.31250	-0.34	0.31300	0.17	Micrometer
KKEDC9		0.00004	0.00004	0.31267	-0.52	0.31285	-0.84	Micrometer
KTCYKW	X	0.00004	0.00020	0.31235	-1.72	0.31255	-1.72	Micrometer
KXKBEN	N/A	0.00004	Not Reported	0.31259	0.00	0.31279	0.00	Micrometer
LAE8TU		0.00004	0.00069	0.31230	-0.58	0.31280	-0.14	Caliper
LHNGE3		0.00004	0.00016	0.31257	-0.77	0.31280	-0.64	Micrometer
M39XXL		0.00004	0.00091	0.31257	-0.14	0.31281	-0.10	Micrometer
P34ZZV	X	0.00004	0.00008	0.31250	-2.21	0.31268	-2.44	Micrometer
PDFHDK		0.00004	0.00019	0.31268	-0.10	0.31286	-0.21	Micrometer
QPVM9M		0.00004	0.00020	0.31250	-0.98	0.31270	-0.98	Micrometer
QRC2LV		0.00004	0.00013	0.31259	-0.83	0.31279	-0.85	Micrometer
R63Z3P		0.00004	0.00026	0.31266	-0.15	0.31284	-0.23	Micrometer
TE8EHW		0.00004	0.00024	0.31261	-0.39	0.31284	-0.24	Micrometer
TGEPGL		0.00004	0.00260	0.31250	-0.08	0.31290	0.00	Caliper
VQNDXN		0.00004	0.00040	0.31259	-0.27	0.31283	-0.17	Micrometer
Z37FRC		0.00004	0.00030	0.31260	-0.33	0.31280	-0.33	Micrometer

Summary Statistics

		Sample I29		Sample I30	
Reference Uncertainty = 0.00004 in.	Reference Diameters:	0.3127	inch	0.3129	inch

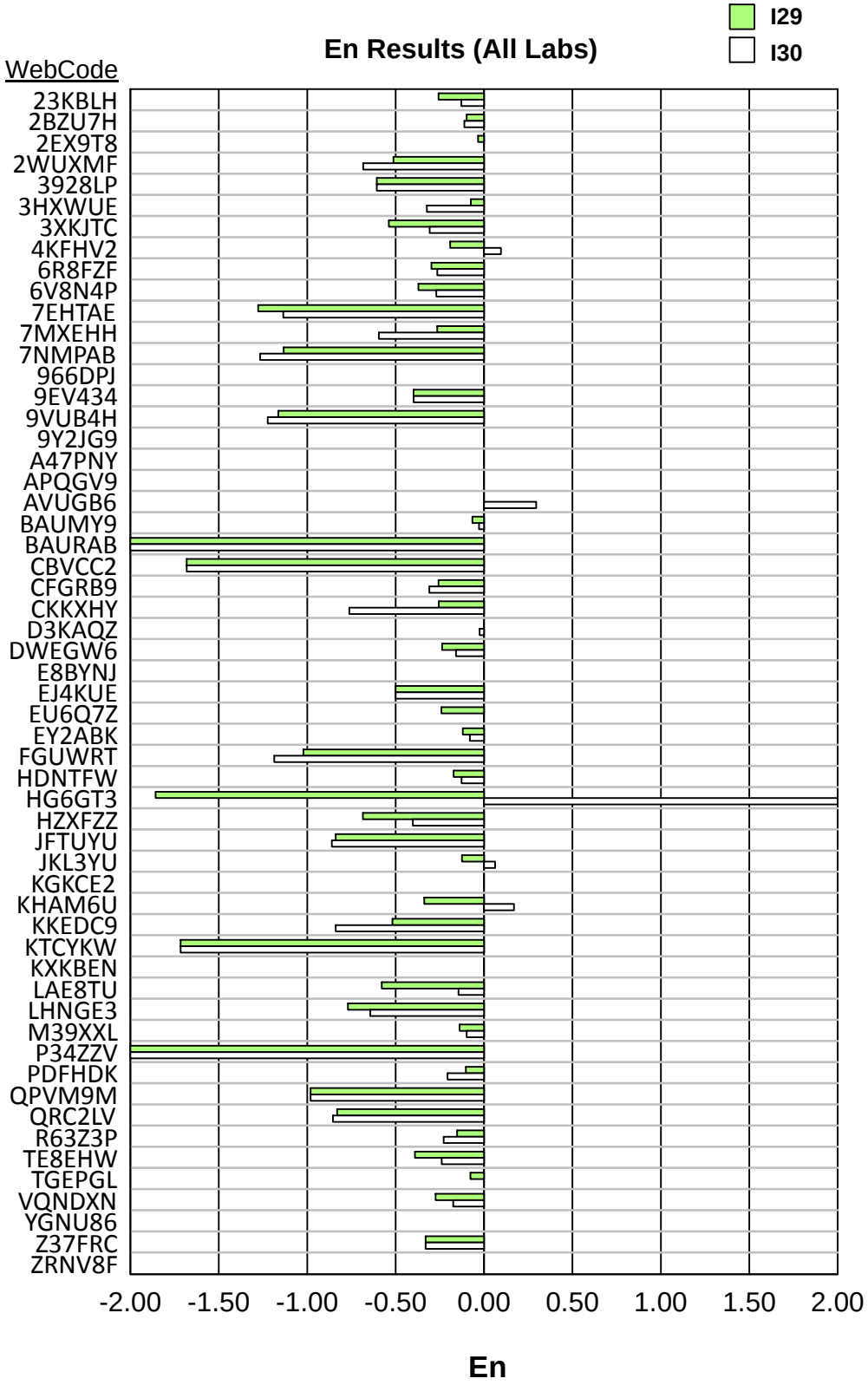
Samples I29 , I30 : 52100 steel

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 101

Dimensional: Outside Diameter of Plain Plug Gage
ISO GUM



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 105

Tensile Strength (Flat Aluminum) - ksi
ASTM B557

		Sample R29			Sample R30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
2J7XR8	X	49.50	2.87	5.33	53.90	3.79	9.68	ZZ
2NJMFA		46.40	-0.23	-0.42	50.10	-0.01	-0.03	ZZ
6TZ76U		46.56	-0.07	-0.13	50.02	-0.09	-0.22	ZZ
6V8N4P		46.56	-0.07	-0.13	50.11	0.00	0.00	ZZ
7YLMT4		46.37	-0.26	-0.48	49.90	-0.21	-0.54	ZZ
8DXN3Y	*	46.70	0.07	0.14	51.00	0.89	2.27	ZZ
96QWM4	*	45.23	-1.40	-2.60	49.50	-0.61	-1.55	ZZ
9FKETW	*	47.70	1.07	1.99	51.30	1.19	3.04	ZZ
AU3PWD		47.40	0.77	1.44	50.50	0.39	1.00	ZZ
AXHZAG		46.90	0.27	0.51	50.30	0.19	0.49	ZZ
BJD7AR		47.00	0.37	0.69	50.80	0.69	1.76	ZZ
BZNRUG		47.20	0.57	1.06	50.30	0.19	0.49	ZZ
CM9GGB		46.90	0.27	0.51	50.20	0.09	0.23	ZZ
CZ6DTB		46.62	-0.01	-0.01	50.25	0.14	0.36	ZZ
CZX7M9	X	47.50	0.87	1.62	52.50	2.39	6.10	ZZ
DG3X3J		46.70	0.08	0.14	50.02	-0.09	-0.22	ZZ
EAH78B		47.30	0.67	1.25	50.60	0.49	1.25	ZZ
EJ4KUE		45.60	-1.03	-1.90	49.90	-0.21	-0.54	ZZ
F8KDMC		46.85	0.22	0.41	50.01	-0.10	-0.26	ZZ
GKBFVW		46.41	-0.21	-0.40	49.99	-0.11	-0.29	ZZ
HTHJBU		46.01	-0.62	-1.15	49.79	-0.32	-0.82	ZZ
HTK9FQ		46.60	-0.03	-0.05	50.10	-0.01	-0.03	ZZ
HV63A7		45.70	-0.93	-1.72	49.50	-0.61	-1.56	ZZ
J36U78		47.00	0.37	0.69	50.40	0.29	0.74	ZZ
K96TU2		46.40	-0.23	-0.42	49.90	-0.21	-0.54	ZZ
KBU8DJ	X	48.10	1.47	2.73	50.00	-0.11	-0.28	ZZ
KTCYKW		46.50	-0.13	-0.23	49.90	-0.21	-0.54	ZZ
L66PY9		46.40	-0.23	-0.42	49.80	-0.31	-0.79	ZZ
LPNV3P		47.20	0.57	1.06	50.40	0.29	0.74	ZZ
M8MLLP		47.40	0.77	1.44	50.20	0.09	0.23	ZZ
MAQ7LH		47.47	0.85	1.57	50.17	0.06	0.16	ZZ
QD2BR3		46.40	-0.23	-0.42	49.80	-0.31	-0.79	ZZ
QYL9EK		46.90	0.27	0.51	50.10	-0.01	-0.03	ZZ
RBPVX3		46.80	0.17	0.32	50.00	-0.11	-0.28	ZZ
RPB7TK		46.49	-0.14	-0.25	50.49	0.38	0.97	ZZ
RRCB2Y		46.30	-0.33	-0.60	49.60	-0.51	-1.30	ZZ
TH29FX		46.60	-0.03	-0.05	49.90	-0.21	-0.54	ZZ
V74C6A		46.70	0.07	0.14	49.80	-0.31	-0.79	ZZ
YQZU2F		45.80	-0.83	-1.53	49.80	-0.31	-0.79	ZZ
Z37FRC		46.10	-0.53	-0.98	49.60	-0.51	-1.30	ZZ

Summary Statistics

	Sample R29		Sample R30	
Grand Means	46.63	ksi	50.11	ksi
Stnd Dev Btwn Labs	0.54	ksi	0.39	ksi

Samples R29 , R30 : 6061-T6

Statistics based on 37 of 40 reporting participants

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 105

Tensile Strength (Flat Aluminum) - ksi
ASTM B557

Comments on assigned Data Flags for Analysis #105

WebCode	Flag	Analyst Comment
2J7XR8	X	Data for both samples are high.
CZX7M9	X	Data for sample R30 are high.
KBU8DJ	X	Data for sample R29 are high.

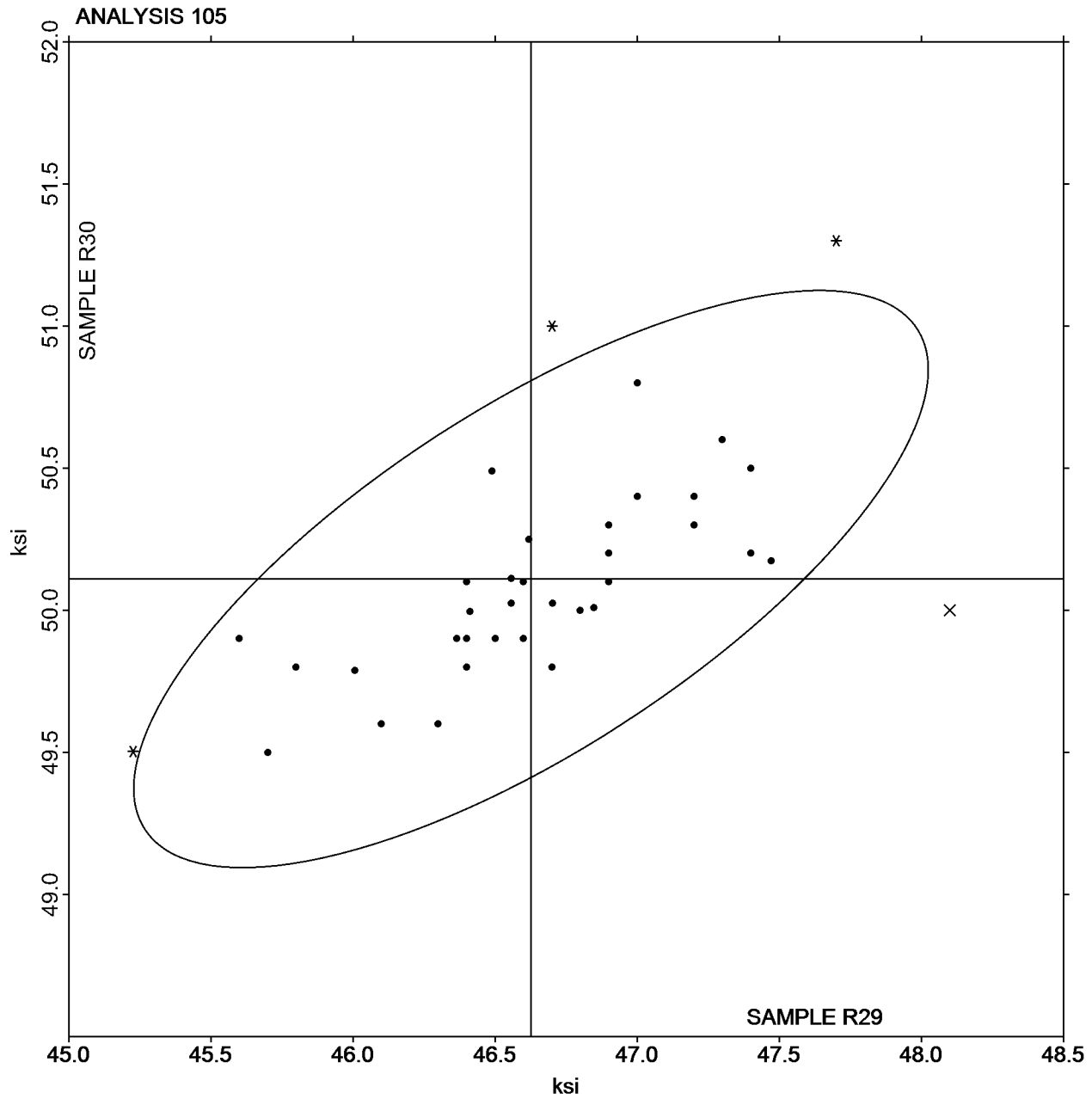
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 105

Tensile Strength (Flat Aluminum) - ksi
ASTM B557

SAMPLE R29	SAMPLE R30
46.63 ksi	50.11 ksi



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 106

Yield Strength (Flat Aluminum) - ksi
ASTM B557

		Sample R29			Sample R30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
2J7XR8	X	42.80	2.27	3.65	45.00	2.69	4.70	ZZ
2NJMFA		40.20	-0.33	-0.53	42.00	-0.31	-0.53	ZZ
6TZ76U		40.57	0.04	0.06	42.19	-0.11	-0.20	ZZ
6V8N4P		40.49	-0.03	-0.06	42.41	0.10	0.18	ZZ
7YLMT4		39.57	-0.96	-1.55	41.29	-1.02	-1.78	ZZ
8DXN3Y		40.50	-0.03	-0.05	43.20	0.89	1.56	ZZ
96QWM4		39.25	-1.28	-2.06	41.67	-0.64	-1.11	ZZ
9FKETW		41.50	0.97	1.56	43.70	1.39	2.43	ZZ
AU3PWD		41.20	0.67	1.08	42.70	0.39	0.69	ZZ
AXHZAG		40.80	0.27	0.43	42.60	0.29	0.51	ZZ
BJD7AR		40.90	0.37	0.60	43.00	0.69	1.21	ZZ
BZNRUG		41.17	0.64	1.03	42.60	0.29	0.51	ZZ
CM9GGB		40.90	0.37	0.60	42.40	0.09	0.16	ZZ
CZ6DTB		40.56	0.03	0.05	42.33	0.03	0.05	ZZ
CZX7M9	X	41.20	0.67	1.08	45.60	3.29	5.75	ZZ
DG3X3J		40.81	0.28	0.46	42.45	0.15	0.26	ZZ
EAH78B	*	41.70	1.17	1.88	43.80	1.49	2.61	ZZ
EJ4KUE		39.40	-1.13	-1.82	41.90	-0.41	-0.71	ZZ
F8KDMC		40.36	-0.17	-0.27	41.22	-1.09	-1.89	ZZ
GKBFVW		40.32	-0.21	-0.34	42.24	-0.07	-0.12	ZZ
HTK9FQ		40.10	-0.43	-0.69	42.00	-0.31	-0.53	ZZ
HV63A7		39.50	-1.03	-1.66	41.70	-0.61	-1.06	ZZ
J36U78		40.70	0.17	0.27	42.80	0.49	0.86	ZZ
K96TU2		39.70	-0.83	-1.33	41.30	-1.01	-1.75	ZZ
KBU8DJ	*	41.80	1.27	2.04	42.30	-0.01	-0.01	ZZ
KTCYKW		40.80	0.27	0.43	42.40	0.09	0.16	ZZ
L66PY9		40.40	-0.13	-0.21	42.10	-0.21	-0.36	ZZ
LPNV3P	X	43.00	2.47	3.97	45.90	3.59	6.27	ZZ
M8MLLP		41.30	0.77	1.24	42.20	-0.11	-0.19	ZZ
MAQ7LH	X	44.87	4.34	6.98	47.32	5.02	8.75	ZZ
QD2BR3		40.80	0.27	0.43	42.20	-0.11	-0.19	ZZ
QYL9EK		41.00	0.47	0.76	42.70	0.39	0.69	ZZ
RBPVX3		40.60	0.07	0.11	42.20	-0.11	-0.19	ZZ
RPB7TK		40.47	-0.06	-0.10	42.41	0.10	0.18	ZZ
RRCB2Y		40.60	0.07	0.11	42.10	-0.21	-0.36	ZZ
T7CE2J		40.19	-0.34	-0.54	42.21	-0.09	-0.16	ZZ
TH29FX		40.10	-0.43	-0.69	41.80	-0.51	-0.88	ZZ
V74C6A		41.00	0.47	0.76	42.80	0.49	0.86	ZZ
YQZU2F		40.00	-0.53	-0.85	42.30	-0.01	-0.01	ZZ
Z37FRC		39.80	-0.73	-1.17	41.80	-0.51	-0.88	ZZ

Summary Statistics

	Sample R29		Sample R30	
Grand Means	40.53	ksi	42.31	ksi
Stnd Dev Btwn Labs	0.62	ksi	0.57	ksi

Samples R29 , R30 : 6061-T6

Statistics based on 36 of 40 reporting participants

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 106

Yield Strength (Flat Aluminum) - ksi
ASTM B557

Comments on assigned Data Flags for Analysis #106

WebCode	Flag	Analyst Comment
2J7XR8	X	Data for both samples are high. Possible Systematic error.
CZX7M9	X	Data for sample R30 are high. Inconsistent in testing between samples.
LPNV3P	X	Data for both samples are high. Possible Systematic error.
MAQ7LH	X	Data for both samples are high. Possible Systematic error.

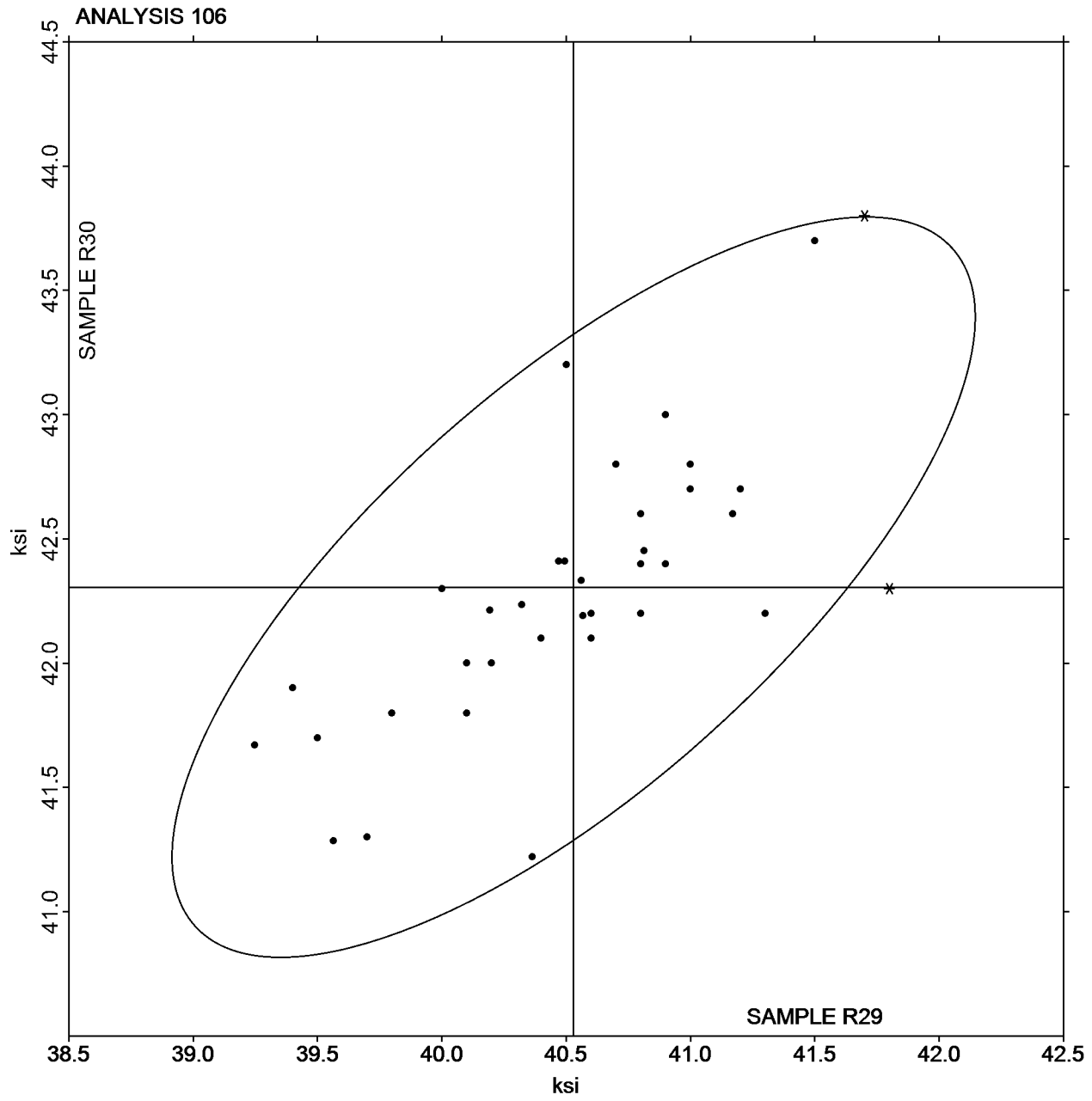
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 106

Yield Strength (Flat Aluminum) - ksi
ASTM B557

SAMPLE R29	SAMPLE R30
40.53 ksi	42.31 ksi



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 107

Elongation (Flat Aluminum) - Percent
ASTM B557

		Sample R29			Sample R30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
2J7XR8		12.00	-0.21	-0.24	15.10	0.46	0.46	ZZ
2NJMFA		11.00	-1.21	-1.41	13.50	-1.14	-1.14	ZZ
6TZ76U		11.60	-0.61	-0.71	13.10	-1.54	-1.54	ZZ
6V8N4P		12.50	0.29	0.34	15.10	0.46	0.46	ZZ
7YLMT4		13.07	0.86	1.01	13.63	-1.01	-1.01	ZZ
8DXN3Y		14.10	1.89	2.21	16.60	1.96	1.97	ZZ
96QWM4		13.00	0.79	0.92	14.00	-0.64	-0.64	ZZ
9FKETW		11.50	-0.71	-0.83	14.00	-0.64	-0.64	ZZ
AU3PWD		11.90	-0.31	-0.36	15.10	0.46	0.46	ZZ
AXHZAG		12.20	-0.01	-0.01	14.30	-0.34	-0.34	ZZ
BJD7AR		12.80	0.59	0.69	14.60	-0.04	-0.04	ZZ
BZNRUG		11.66	-0.55	-0.64	13.48	-1.16	-1.16	ZZ
CM9GGB		11.40	-0.81	-0.94	14.10	-0.54	-0.54	ZZ
CZ6DTB		11.50	-0.71	-0.83	14.25	-0.39	-0.39	ZZ
CZX7M9		12.50	0.29	0.34	14.50	-0.14	-0.14	ZZ
DG3X3J		12.30	0.09	0.11	14.60	-0.04	-0.04	ZZ
EAH78B	X	15.80	3.59	4.20	17.90	3.26	3.27	ZZ
EJ4KUE		12.00	-0.21	-0.24	14.00	-0.64	-0.64	ZZ
F8KDMC		13.70	1.49	1.74	16.00	1.36	1.36	ZZ
GKBFVW		13.00	0.79	0.92	16.50	1.86	1.86	ZZ
HTK9FQ		12.00	-0.21	-0.24	14.00	-0.64	-0.64	ZZ
HV63A7		12.50	0.29	0.34	14.00	-0.64	-0.64	ZZ
J36U78		11.50	-0.71	-0.83	13.00	-1.64	-1.64	ZZ
K96TU2		13.00	0.79	0.92	15.60	0.96	0.96	ZZ
KBU8DJ		11.00	-1.21	-1.41	15.00	0.36	0.36	ZZ
KTCYKW		11.40	-0.81	-0.94	14.80	0.16	0.16	ZZ
L66PY9		12.10	-0.11	-0.13	14.60	-0.04	-0.04	ZZ
LPNV3P		13.00	0.79	0.92	16.00	1.36	1.36	ZZ
M8MLLP		13.00	0.79	0.92	15.50	0.86	0.86	ZZ
MAQ7LH	*	12.50	0.29	0.34	17.20	2.56	2.57	ZZ
QD2BR3		10.50	-1.71	-2.00	14.50	-0.14	-0.14	ZZ
QYL9EK		13.70	1.49	1.74	15.80	1.16	1.16	ZZ
RBPVX3		13.00	0.79	0.92	14.70	0.06	0.06	ZZ
RPB7TK		12.00	-0.21	-0.24	15.40	0.76	0.76	ZZ
RRCB2Y		12.60	0.39	0.46	14.00	-0.64	-0.64	ZZ
T7CE2J	*	10.10	-2.11	-2.46	14.88	0.24	0.24	ZZ
TH29FX		11.70	-0.51	-0.59	13.50	-1.14	-1.14	ZZ
V74C6A		12.00	-0.21	-0.24	14.40	-0.24	-0.24	ZZ
YQZU2F		12.30	0.09	0.11	14.60	-0.04	-0.04	ZZ
Z37FRC		12.50	0.29	0.34	13.00	-1.64	-1.64	ZZ

Summary Statistics

	Sample R29		Sample R30	
Grand Means	12.21	Percent	14.64	Percent
Stnd Dev Btwn Labs	0.86	Percent	1.00	Percent

Samples R29 , R30 : 6061-T6

Statistics based on 39 of 40 reporting participants

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 107

Elongation (Flat Aluminum) - Percent
ASTM B557

Comments on assigned Data Flags for Analysis #107

WebCode	Flag	Analyst Comment
EAH78B	X	Data for both samples are high.

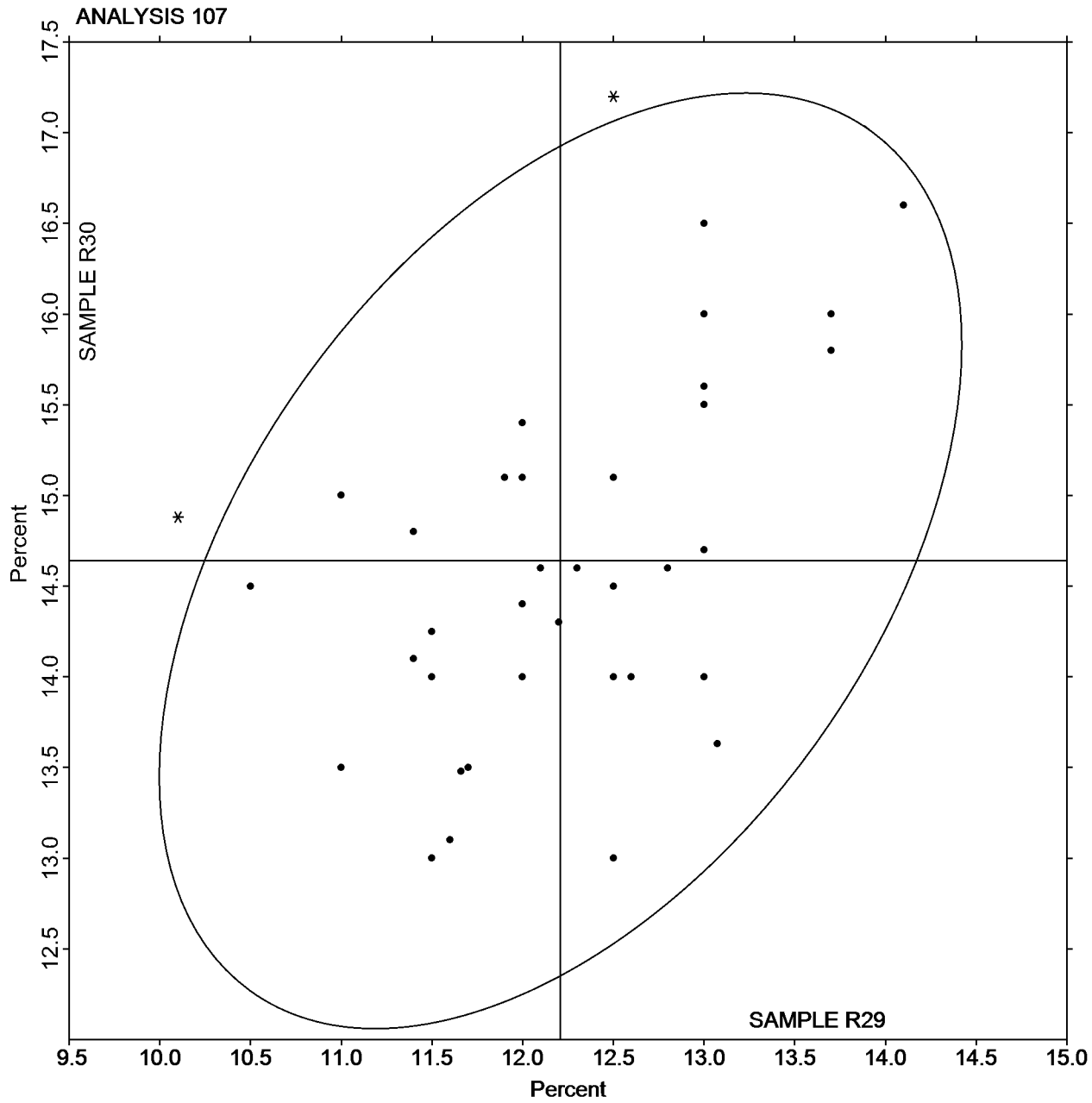
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 107

Elongation (Flat Aluminum) - Percent
ASTM B557

SAMPLE R29	SAMPLE R30
12.21 Percent	14.64 Percent



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 110

Tensile Strength (Pre-Machined Round Steel) - ksi
ASTM E8

		Sample A29			Sample A30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
29TPEE		146.95	2.13	2.10	141.25	0.53	0.47	ZZ
2EX9T8		145.45	0.63	0.62	143.09	2.38	2.10	ZZ
2FA63H		145.76	0.94	0.93	141.99	1.28	1.13	ZZ
2NZNGQ		145.00	0.18	0.18	140.00	-0.72	-0.63	ZZ
3HXWUE	X	144.60	-0.22	-0.22	122.80	-17.92	-15.86	ZZ
3LAQJK		145.18	0.36	0.36	140.40	-0.32	-0.28	ZZ
3MLL7C		143.60	-1.22	-1.21	139.40	-1.32	-1.17	ZZ
4DVEQJ		143.50	-1.32	-1.31	141.10	0.38	0.34	ZZ
4JXDEN		145.39	0.56	0.56	140.59	-0.13	-0.12	ZZ
4YY3GF		144.78	-0.04	-0.04	141.08	0.36	0.32	ZZ
7BE6NW		145.00	0.17	0.17	140.05	-0.67	-0.59	ZZ
9H9XR9		144.84	0.02	0.02	139.56	-1.16	-1.02	ZZ
9PQ8G6		144.00	-0.82	-0.81	140.00	-0.72	-0.63	ZZ
BAURAB		146.00	1.18	1.16	141.00	0.28	0.25	ZZ
BJEZRC		144.64	-0.18	-0.18	139.32	-1.40	-1.24	ZZ
BVMZ83		143.05	-1.78	-1.76	139.22	-1.50	-1.33	ZZ
CBGPXT	X	143.90	-0.92	-0.91	144.30	3.58	3.17	ZZ
CZ6DTB	*	144.20	-0.62	-0.62	143.40	2.68	2.38	ZZ
DPEYF8		145.00	0.18	0.18	139.60	-1.12	-0.99	ZZ
EA4ND7		144.50	-0.32	-0.32	140.00	-0.72	-0.63	ZZ
EF2N3X		144.80	-0.02	-0.02	141.00	0.28	0.25	ZZ
EFJH49		145.33	0.51	0.50	140.83	0.12	0.10	ZZ
ERGJFC		144.46	-0.36	-0.36	141.43	0.71	0.63	ZZ
FE772W		143.30	-1.52	-1.51	139.70	-1.02	-0.90	ZZ
FFKQT8		143.60	-1.22	-1.21	140.80	0.08	0.07	ZZ
GZZMM3		143.15	-1.67	-1.65	139.38	-1.33	-1.18	ZZ
H2TVCX		144.30	-0.52	-0.52	139.80	-0.92	-0.81	ZZ
H69E9L	*	147.15	2.33	2.30	143.21	2.49	2.21	ZZ
HCU4C4		143.01	-1.81	-1.79	139.96	-0.75	-0.67	ZZ
JFTUYU	*	143.11	-1.71	-1.69	142.38	1.67	1.48	ZZ
JG44LZ		144.75	-0.07	-0.07	138.80	-1.91	-1.69	ZZ
JX8H3U		143.60	-1.22	-1.21	139.40	-1.32	-1.17	ZZ
KCGQCW	X	118.44	-26.39	-26.09	141.31	0.59	0.52	ZZ
KKEDC9	X	144.46	-0.36	-0.36	145.43	4.71	4.17	ZZ
LF2XFP		145.91	1.09	1.07	141.85	1.13	1.00	ZZ
MJW4AL		144.10	-0.72	-0.71	140.60	-0.12	-0.10	ZZ
MT6MQW		145.65	0.83	0.82	140.79	0.07	0.06	ZZ
MUDQK9		145.76	0.94	0.93	142.14	1.42	1.26	ZZ
NAM2NL		145.60	0.78	0.77	141.70	0.98	0.87	ZZ
NYZ6GT	X	142.00	-2.82	-2.79	136.70	-4.02	-3.56	ZZ
P4EYWP	X	141.00	-3.82	-3.78	146.00	5.28	4.68	ZZ
QEVWPZ		146.00	1.18	1.16	141.00	0.28	0.25	ZZ
QQMPV3		144.20	-0.62	-0.62	139.70	-1.02	-0.90	ZZ
RPB7TK		144.09	-0.73	-0.72	141.55	0.83	0.74	ZZ
TVUXAC		146.23	1.41	1.39	141.30	0.58	0.52	ZZ
V4C9HU		145.10	0.28	0.27	140.60	-0.12	-0.10	ZZ
VEEBZ7		144.05	-0.77	-0.76	140.09	-0.62	-0.55	ZZ
VY289J		144.62	-0.20	-0.20	139.76	-0.96	-0.85	ZZ
WBT4XN		144.80	-0.02	-0.02	139.80	-0.92	-0.81	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 110

Tensile Strength (Pre-Machined Round Steel) - ksi
ASTM E8

		Sample A29			Sample A30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
X3XNLP		146.00	1.18	1.16	142.80	2.08	1.84	ZZ
X7AK4K		146.00	1.18	1.16	141.00	0.28	0.25	ZZ
XVVCQT		145.40	0.58	0.57	140.50	-0.22	-0.19	ZZ
XYVMLT		145.40	0.58	0.57	140.00	-0.72	-0.63	ZZ
Y7CH3M		144.30	-0.52	-0.52	140.00	-0.72	-0.63	ZZ
ZWF3QN		145.70	0.88	0.87	142.20	1.48	1.31	ZZ

Summary Statistics

	Sample A29		Sample A30	
Grand Means	144.82	ksi	140.72	ksi
Stnd Dev Btwn Labs	1.01	ksi	1.13	ksi

Samples A29 , A30 : AISI 4340

Statistics based on 49 of 55 reporting participants

Comments on assigned Data Flags for Analysis #110

WebCode	Flag	Analyst Comment
3HXWUE	X	Data for sample A30 are low.
CBGPXT	X	Data for sample A30 are high.
KCGQCW	X	Data for sample A29 are low.
KKEDC9	X	Data for sample A30 are high.
NYZ6GT	X	Data for both samples are low.
P4EYWP	X	Data for sample A29 are low and data for sample A30 are high.

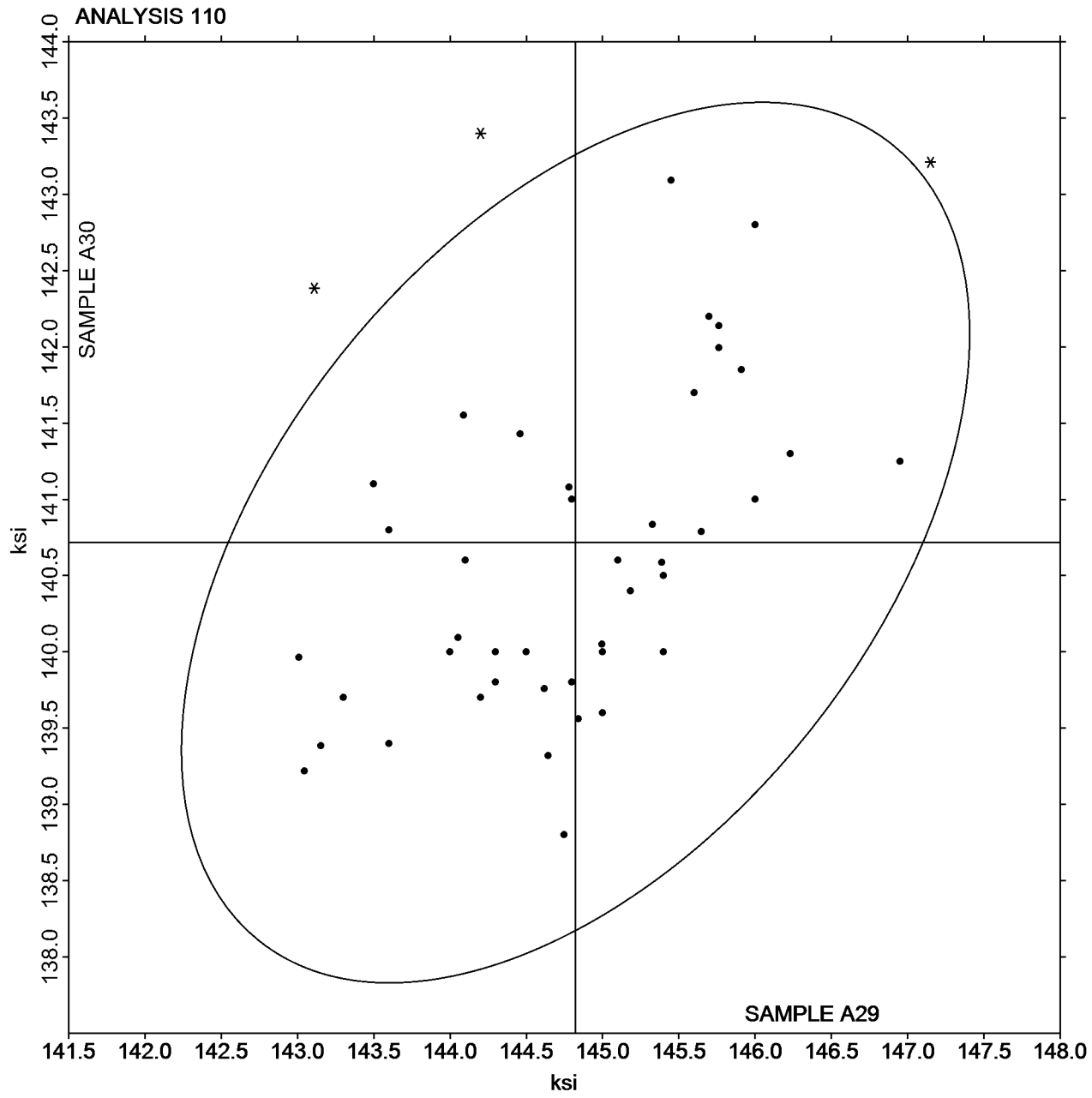
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 110

Tensile Strength (Pre-Machined Round Steel) - ksi
ASTM E8

SAMPLE A29	SAMPLE A30
144.82 ksi	140.72 ksi



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 111

Yield Strength (Pre-Machined Round Steel) - ksi
ASTM E8

		Sample A29			Sample A30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
29TPEE		117.86	1.03	0.58	111.23	-1.13	-0.84	ZZ
2EX9T8		117.46	0.63	0.35	114.16	1.80	1.33	ZZ
2FA63H	*	111.39	-5.44	-3.07	110.08	-2.28	-1.68	ZZ
2NZNGQ		118.00	1.17	0.66	113.00	0.64	0.47	ZZ
3HXWUE		112.40	-4.43	-2.50	110.10	-2.26	-1.67	ZZ
3LAQJK		116.90	0.07	0.04	112.12	-0.25	-0.18	ZZ
3MLL7C		116.40	-0.43	-0.24	111.40	-0.96	-0.71	ZZ
4DVEQJ		115.70	-1.13	-0.64	111.90	-0.46	-0.34	ZZ
4JXDEN		116.35	-0.48	-0.27	110.40	-1.96	-1.45	ZZ
4YY3GF		116.23	-0.60	-0.34	112.25	-0.11	-0.08	ZZ
7BE6NW		117.31	0.47	0.27	111.59	-0.77	-0.57	ZZ
9H9XR9		118.01	1.18	0.66	112.03	-0.33	-0.24	ZZ
9PQ8G6		116.00	-0.83	-0.47	111.60	-0.76	-0.56	ZZ
BAURAB	X	122.00	5.17	2.92	126.00	13.64	10.07	ZZ
BVMZ83		116.83	0.00	0.00	111.95	-0.41	-0.30	ZZ
CBGPXT	X	103.60	-13.23	-7.47	107.00	-5.36	-3.96	ZZ
CZ6DTB		116.10	-0.73	-0.41	114.40	2.04	1.50	ZZ
DPEYF8		117.82	0.99	0.56	112.30	-0.06	-0.05	ZZ
EA4ND7		120.00	3.17	1.79	112.50	0.14	0.10	ZZ
EF2N3X		116.70	-0.13	-0.08	113.30	0.94	0.69	ZZ
EFJH49	X	0.8060	-116.03	-65.50	0.7780	-111.58	-82.36	ZZ
ERGJFC		116.48	-0.35	-0.20	112.64	0.28	0.20	ZZ
FE772W		116.20	-0.63	-0.36	112.30	-0.06	-0.05	ZZ
FFKQT8		114.70	-2.13	-1.20	111.40	-0.96	-0.71	ZZ
GZZMM3		115.16	-1.67	-0.94	110.23	-2.13	-1.57	ZZ
H2TVCX		116.10	-0.73	-0.41	110.90	-1.46	-1.08	ZZ
H69E9L	X	124.37	7.54	4.25	118.78	6.42	4.74	ZZ
JFTUYU	X	116.97	0.14	0.08	116.36	4.00	2.95	ZZ
JG44LZ		115.45	-1.38	-0.78	111.97	-0.39	-0.29	ZZ
JX8H3U		115.50	-1.33	-0.75	110.30	-2.06	-1.52	ZZ
KCGQCW	X	93.24	-23.59	-13.32	113.79	1.43	1.05	ZZ
KKEDC9	X	118.02	1.18	0.67	118.41	6.05	4.46	ZZ
LF2XFP	*	119.22	2.39	1.35	116.32	3.96	2.92	ZZ
MJW4AL		117.30	0.47	0.26	113.10	0.74	0.54	ZZ
MT6MQW		118.09	1.26	0.71	112.93	0.57	0.42	ZZ
MUDQK9		119.08	2.24	1.27	112.70	0.33	0.25	ZZ
NAM2NL		119.00	2.17	1.22	113.80	1.44	1.06	ZZ
NYZ6GT	*	121.40	4.57	2.58	115.60	3.24	2.39	ZZ
P4EYWP	X	112.00	-4.83	-2.73	118.00	5.64	4.16	ZZ
QEVWPZ		118.20	1.37	0.77	112.80	0.44	0.32	ZZ
QQMPV3		116.90	0.07	0.04	112.00	-0.36	-0.27	ZZ
RPB7TK		115.23	-1.60	-0.91	112.57	0.21	0.15	ZZ
TVUXAC		117.70	0.87	0.49	112.30	-0.06	-0.05	ZZ
V4C9HU		117.90	1.07	0.60	112.10	-0.26	-0.19	ZZ
VEEBZ7		114.74	-2.09	-1.18	110.58	-1.78	-1.32	ZZ
VY289J		116.20	-0.63	-0.36	112.13	-0.23	-0.17	ZZ
WBT4XN		117.30	0.47	0.26	112.80	0.44	0.32	ZZ
X3XNLP		118.20	1.37	0.77	114.20	1.84	1.36	ZZ
X7AK4K		116.00	-0.83	-0.47	113.00	0.64	0.47	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 111

Yield Strength (Pre-Machined Round Steel) - ksi
ASTM E8

		Sample A29			Sample A30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
XVVCQT		117.80	0.97	0.55	112.50	0.14	0.10	ZZ
XYVMLT		117.10	0.27	0.15	111.40	-0.96	-0.71	ZZ
Y7CH3M		115.00	-1.83	-1.04	113.20	0.84	0.62	ZZ
ZWF3QN		118.10	1.27	0.71	114.20	1.84	1.36	ZZ

Summary Statistics

	Sample A29		Sample A30	
Grand Means	116.83	ksi	112.36	ksi
Stnd Dev Btwn Labs	1.77	ksi	1.35	ksi

Samples A29 , A30 : AISI 4340

Statistics based on 45 of 53 reporting participants

Comments on assigned Data Flags for Analysis #111

WebCode	Flag	Analyst Comment
BAURAB	X	Data for both samples are high.
CBGPXT	X	Data for both samples are low.
EFJH49	X	Data for both samples are low.
H69E9L	X	Data for both samples are high.
JFTUYU	X	Data for sample A30 are high.
KCGQCW	X	Data for sample A29 are low.
KKEDC9	X	Data for sample A30 are high.
P4EYWP	X	Data for sample A29 are low and data for sample A30 are high.

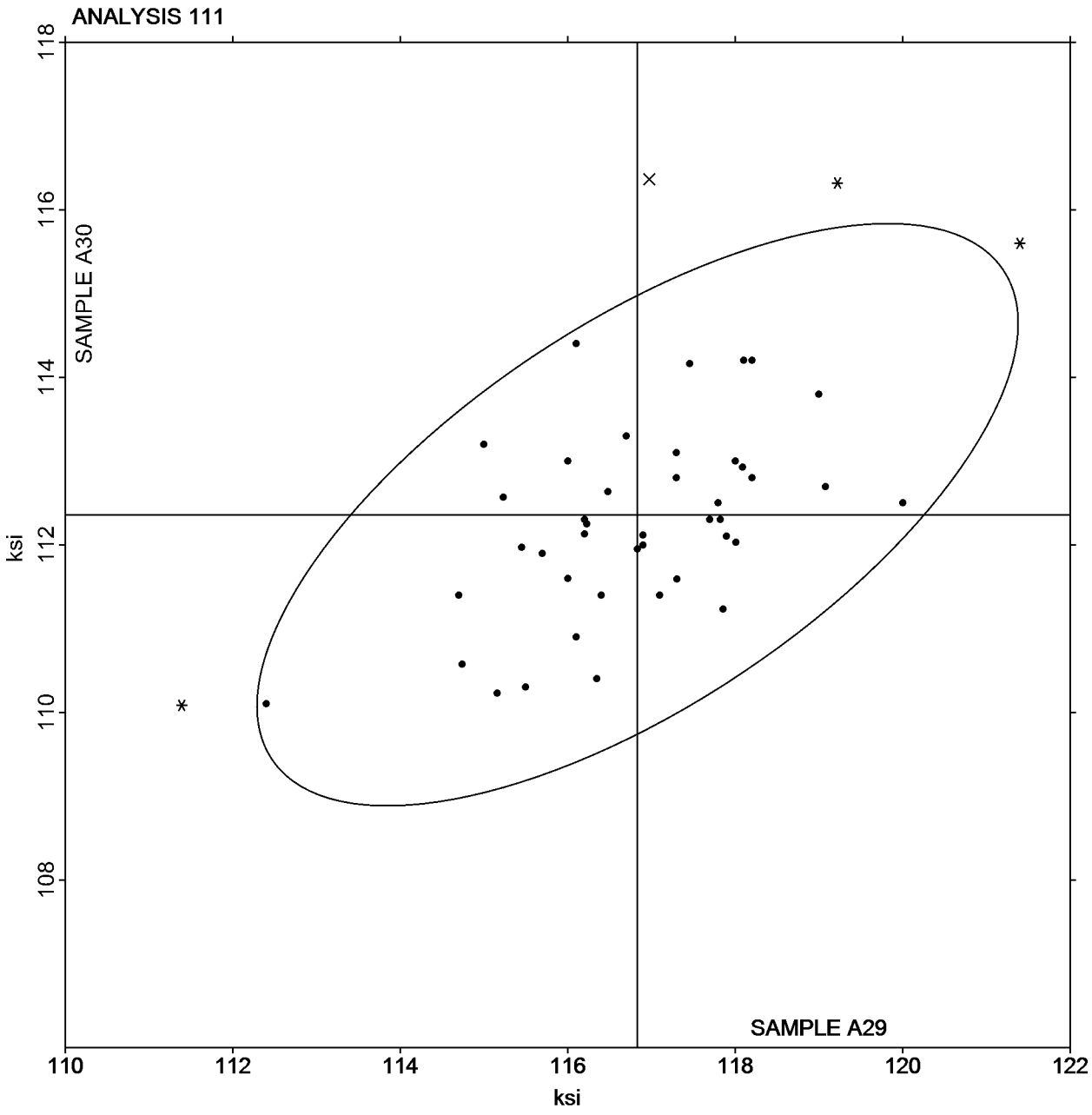
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 111

Yield Strength (Pre-Machined Round Steel) - ksi
ASTM E8

SAMPLE A29	SAMPLE A30
116.83 ksi	112.36 ksi



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 112

Elongation - (Pre-Machined Round Steel) - Percent Increase
ASTM E8

		Sample A29			Sample A30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
29TPEE		16.00	-0.77	-1.15	17.20	0.27	0.35	ZZ
2EX9T8	*	18.10	1.33	2.00	16.71	-0.22	-0.29	ZZ
2FA63H		16.30	-0.47	-0.70	15.50	-1.43	-1.86	ZZ
2NZNGQ		16.00	-0.77	-1.15	17.00	0.07	0.09	ZZ
3HXWUE		16.50	-0.27	-0.40	16.70	-0.23	-0.30	ZZ
3LAQJK	X	14.90	-1.87	-2.80	17.80	0.87	1.12	ZZ
3MLL7C		15.90	-0.87	-1.30	16.20	-0.73	-0.95	ZZ
4DVEQJ		17.00	0.23	0.35	16.50	-0.43	-0.56	ZZ
4JXDEN		17.20	0.43	0.65	18.40	1.47	1.90	ZZ
4YY3GF		17.00	0.23	0.35	17.00	0.07	0.09	ZZ
7BE6NW		16.30	-0.47	-0.70	16.90	-0.03	-0.04	ZZ
9H9XR9		15.50	-1.27	-1.90	16.00	-0.93	-1.21	ZZ
9PQ8G6		16.44	-0.33	-0.49	16.09	-0.84	-1.09	ZZ
BAURAB		18.00	1.23	1.85	18.00	1.07	1.38	ZZ
BJEZRC		16.92	0.15	0.23	17.20	0.27	0.35	ZZ
BVMZ83		17.13	0.36	0.54	17.17	0.24	0.31	ZZ
CBGPXT		17.50	0.73	1.10	18.50	1.57	2.03	ZZ
CZ6DTB	*	18.00	1.23	1.85	19.00	2.07	2.68	ZZ
DPEYF8		16.80	0.03	0.05	16.90	-0.03	-0.04	ZZ
EA4ND7		16.00	-0.77	-1.15	17.00	0.07	0.09	ZZ
EF2N3X		16.39	-0.38	-0.57	16.59	-0.34	-0.44	ZZ
EFJH49		17.60	0.83	1.25	17.00	0.07	0.09	ZZ
ERGJFC		16.80	0.03	0.05	17.50	0.57	0.73	ZZ
FE772W		17.00	0.23	0.35	17.00	0.07	0.09	ZZ
FFKQT8		17.00	0.23	0.35	16.00	-0.93	-1.21	ZZ
GZZMM3		16.60	-0.17	-0.25	16.50	-0.43	-0.56	ZZ
H2TVCX		17.50	0.73	1.10	16.80	-0.13	-0.17	ZZ
H69E9L	X	22.70	5.93	8.90	17.32	0.39	0.50	ZZ
JFTUYU		17.15	0.38	0.57	17.00	0.07	0.09	ZZ
JG44LZ		16.00	-0.77	-1.15	15.30	-1.63	-2.11	ZZ
JX8H3U		16.30	-0.47	-0.70	17.00	0.07	0.09	ZZ
KCGQCW		16.20	-0.57	-0.85	16.46	-0.47	-0.61	ZZ
KKEDC9		17.28	0.51	0.77	17.15	0.22	0.28	ZZ
LF2XFP		15.90	-0.87	-1.30	16.40	-0.53	-0.69	ZZ
MJW4AL		16.50	-0.27	-0.40	16.15	-0.78	-1.01	ZZ
MT6MQW		16.25	-0.52	-0.78	17.44	0.51	0.66	ZZ
MUDQK9		16.90	0.13	0.20	17.20	0.27	0.35	ZZ
NAM2NL		16.70	-0.07	-0.10	17.50	0.57	0.73	ZZ
NYZ6GT		15.30	-1.47	-2.20	16.50	-0.43	-0.56	ZZ
P4EYWP		16.00	-0.77	-1.15	15.00	-1.93	-2.50	ZZ
QEVWPZ		16.60	-0.17	-0.25	17.00	0.07	0.09	ZZ
QQMPV3		17.20	0.43	0.65	17.80	0.87	1.12	ZZ
RPB7TK		17.00	0.23	0.35	15.60	-1.33	-1.73	ZZ
TVUXAC		16.80	0.03	0.05	17.50	0.57	0.73	ZZ
V4C9HU		15.90	-0.87	-1.30	16.60	-0.33	-0.43	ZZ
VEEBZ7		17.00	0.23	0.35	17.20	0.27	0.35	ZZ
VY289J		16.98	0.21	0.32	17.65	0.72	0.93	ZZ
WBT4XN		17.60	0.83	1.25	17.60	0.67	0.86	ZZ
X3XNLP		17.80	1.03	1.55	17.40	0.47	0.60	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 112

Elongation - (Pre-Machined Round Steel) - Percent Increase
ASTM E8

		Sample A29			Sample A30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
X7AK4K		17.00	0.23	0.35	17.00	0.07	0.09	ZZ
XVVCQT		16.00	-0.77	-1.15	16.40	-0.53	-0.69	ZZ
XYVMLT		18.00	1.23	1.85	18.00	1.07	1.38	ZZ
Y7CH3M		17.00	0.23	0.35	17.00	0.07	0.09	ZZ
ZWF3QN		17.10	0.33	0.50	17.30	0.37	0.48	ZZ

Summary Statistics

	Sample A29		Sample A30	
Grand Means	16.77	Percent	16.93	Percent
Stnd Dev Btwn Labs	0.67	Percent	0.77	Percent

Samples A29 , A30 : AISI 4340

Statistics based on 52 of 54 reporting participants

Comments on assigned Data Flags for Analysis #112

WebCode	Flag	Analyst Comment
3LAQJK	X	Data for sample A29 are low.
H69E9L	X	Data for sample A29 are high.

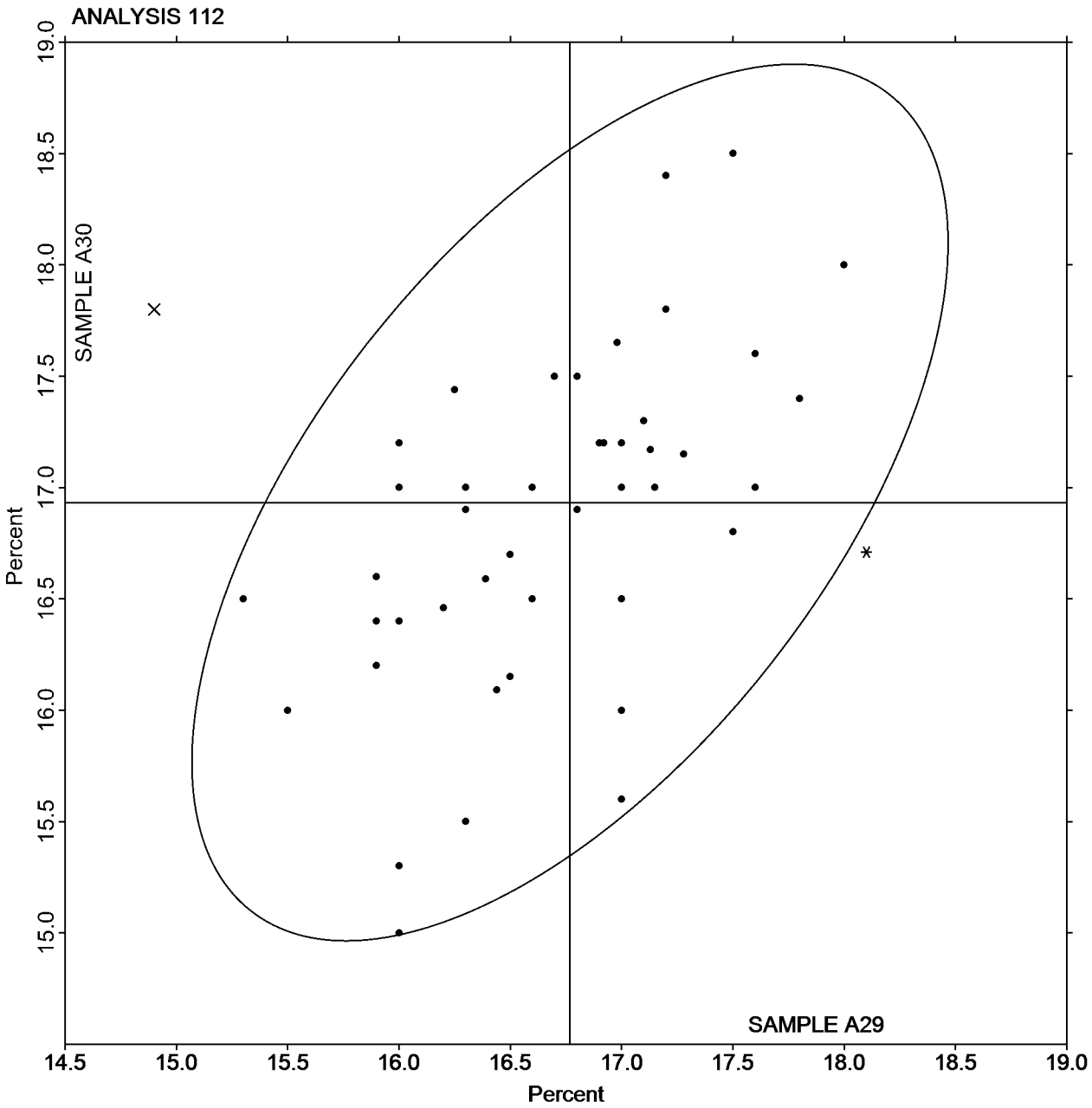
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 112

Elongation - (Pre-Machined Round Steel) - Percent Increase
ASTM E8

SAMPLE A29	SAMPLE A30
16.77 Percent	16.93 Percent



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 113

Reduction of Area (Pre-Machined Round Steel) - Percent
ASTM E8

		Sample A29			Sample A30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
29TPEE		50.90	-1.47	-0.81	53.50	1.72	1.12	ZZ
2EX9T8		54.19	1.82	1.00	50.13	-1.65	-1.08	ZZ
2FA63H		52.00	-0.37	-0.20	50.00	-1.78	-1.16	ZZ
2NZNGQ		52.00	-0.37	-0.20	54.00	2.22	1.45	ZZ
3HXWUE		49.50	-2.87	-1.58	50.50	-1.28	-0.84	ZZ
3LAQJK		49.70	-2.67	-1.47	52.70	0.92	0.60	ZZ
3MLL7C		53.20	0.83	0.46	52.90	1.12	0.73	ZZ
4DVEQJ		54.00	1.63	0.90	51.10	-0.68	-0.45	ZZ
4YY3GF		52.00	-0.37	-0.20	52.00	0.22	0.14	ZZ
7BE6NW		50.90	-1.47	-0.81	51.00	-0.78	-0.51	ZZ
9H9XR9		50.90	-1.47	-0.81	51.10	-0.68	-0.45	ZZ
9PQ8G6		52.46	0.09	0.05	49.54	-2.24	-1.46	ZZ
BAURAB		55.00	2.63	1.45	53.00	1.22	0.79	ZZ
BJEZRC		52.58	0.21	0.12	53.28	1.50	0.98	ZZ
BVMZ83		54.19	1.82	1.00	50.59	-1.19	-0.78	ZZ
CBGPXT		50.50	-1.87	-1.03	52.20	0.42	0.27	ZZ
CZ6DTB		54.70	2.33	1.28	51.90	0.12	0.08	ZZ
DPEYF8		52.00	-0.37	-0.20	53.20	1.42	0.92	ZZ
EA4ND7		50.50	-1.87	-1.03	52.00	0.22	0.14	ZZ
EF2N3X		51.86	-0.51	-0.28	51.03	-0.75	-0.49	ZZ
EFJH49		52.90	0.53	0.29	52.90	1.12	0.73	ZZ
FE772W		52.30	-0.07	-0.04	49.20	-2.58	-1.69	ZZ
FFKQT8		53.00	0.63	0.35	49.00	-2.78	-1.82	ZZ
GZZMM3		52.70	0.33	0.18	49.90	-1.88	-1.23	ZZ
H2TVCX		54.70	2.33	1.28	51.70	-0.08	-0.05	ZZ
H69E9L		50.92	-1.45	-0.80	52.97	1.19	0.77	ZZ
JFTUYU		53.84	1.47	0.81	52.78	1.00	0.65	ZZ
JG44LZ		50.00	-2.37	-1.30	50.20	-1.58	-1.03	ZZ
JX8H3U		50.10	-2.27	-1.25	50.60	-1.18	-0.77	ZZ
KCGQCW	X	60.04	7.67	4.22	44.08	-7.70	-5.03	ZZ
KKEDC9		54.18	1.81	1.00	53.58	1.80	1.17	ZZ
LF2XFP		53.00	0.63	0.35	52.00	0.22	0.14	ZZ
MJW4AL		54.80	2.43	1.34	53.40	1.62	1.06	ZZ
MT6MQW		48.90	-3.47	-1.91	51.40	-0.38	-0.25	ZZ
MUDQK9		51.00	-1.37	-0.75	52.00	0.22	0.14	ZZ
NAM2NL		55.20	2.83	1.56	54.40	2.62	1.71	ZZ
NYZ6GT		49.60	-2.77	-1.52	52.90	1.12	0.73	ZZ
P4EYWP	*	48.00	-4.37	-2.40	54.00	2.22	1.45	ZZ
QEVWPZ		53.10	0.73	0.40	53.60	1.82	1.19	ZZ
QQMPV3		52.90	0.53	0.29	54.20	2.42	1.58	ZZ
RPB7TK	*	52.60	0.23	0.13	47.90	-3.88	-2.54	ZZ
TVUXAC		53.80	1.43	0.79	50.20	-1.58	-1.03	ZZ
V4C9HU		50.20	-2.17	-1.19	50.20	-1.58	-1.03	ZZ
VEEBZ7		52.00	-0.37	-0.20	51.00	-0.78	-0.51	ZZ
VY289J		51.08	-1.29	-0.71	51.55	-0.23	-0.15	ZZ
WBT4XN		54.30	1.93	1.06	51.00	-0.78	-0.51	ZZ
X3XNLP		55.10	2.73	1.50	51.80	0.02	0.01	ZZ
X7AK4K		55.00	2.63	1.45	52.00	0.22	0.14	ZZ
XVVCQT		51.50	-0.87	-0.48	50.40	-1.38	-0.90	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 113

Reduction of Area (Pre-Machined Round Steel) - Percent
ASTM E8

		Sample A29			Sample A30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
XYVMLT		53.70	1.33	0.73	51.10	-0.68	-0.45	ZZ
Y7CH3M		53.90	1.53	0.84	53.30	1.52	0.99	ZZ
ZWF3QN		53.50	1.13	0.62	54.10	2.32	1.51	ZZ

Summary Statistics

	Sample A29		Sample A30	
Grand Means	52.37	Percent	51.78	Percent
Stnd Dev Btwn Labs	1.82	Percent	1.53	Percent

Samples A29 , A30 : AISI 4340

Statistics based on 51 of 52 reporting participants

Comments on assigned Data Flags for Analysis #113

WebCode	Flag	Analyst Comment
KCGQCW	X	Data for sample A29 are high and data for sample A30 are low.

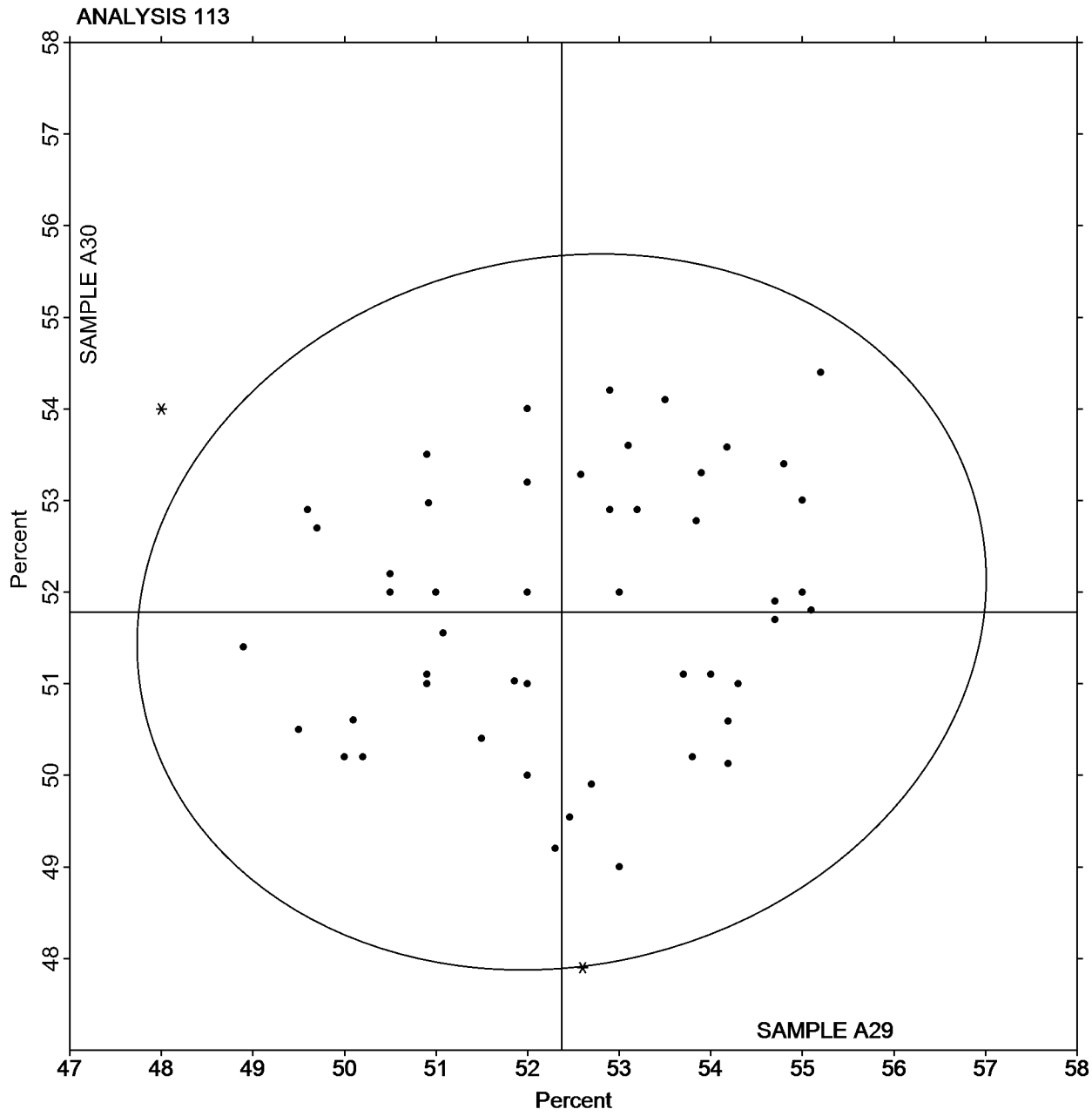
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 113

Reduction of Area (Pre-Machined Round Steel) - Percent
ASTM E8

SAMPLE A29	SAMPLE A30
52.37 Percent	51.78 Percent



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 118

Rockwell Hardness: C & B Scales
ASTM E18

		Sample N29			Sample N30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
2EDRBJ		86.64	-0.48	-0.41	95.76	0.05	0.08	ZZ
2MTBVJ		86.80	-0.32	-0.27	96.15	0.44	0.61	ZZ
2NZNGQ		89.00	1.88	1.62	96.78	1.07	1.49	ZZ
2UNBCW		87.10	-0.02	-0.02	95.30	-0.41	-0.56	ZZ
33DH88		87.54	0.42	0.36	95.96	0.25	0.35	ZZ
3F686R		87.34	0.22	0.19	94.96	-0.75	-1.03	ZZ
3JM8K8		87.28	0.16	0.14	96.16	0.45	0.63	ZZ
3L9W3Z		88.20	1.08	0.93	96.96	1.25	1.74	ZZ
3LAQJK		88.18	1.06	0.91	95.32	-0.39	-0.53	ZZ
4U2JDW		87.22	0.10	0.08	95.28	-0.42	-0.59	ZZ
6V8N4P		88.35	1.23	1.06	96.26	0.55	0.77	ZZ
783WPD		88.87	1.76	1.51	96.51	0.80	1.12	ZZ
7NMPAB		87.80	0.68	0.59	97.00	1.29	1.79	ZZ
84TFKE		86.32	-0.80	-0.69	95.52	-0.19	-0.26	ZZ
86QL4U		88.76	1.64	1.41	96.08	0.37	0.52	ZZ
99LZ23		85.30	-1.82	-1.57	96.10	0.39	0.55	ZZ
9FKETW		88.40	1.28	1.10	95.98	0.27	0.38	ZZ
9H9XR9		88.80	1.68	1.45	95.78	0.07	0.10	ZZ
9NFFAA		87.44	0.32	0.28	95.88	0.17	0.24	ZZ
9PQ8G6		87.96	0.84	0.72	96.58	0.87	1.21	ZZ
9VUB4H		87.48	0.36	0.31	94.32	-1.39	-1.92	ZZ
AZ7DTY		88.44	1.32	1.14	95.06	-0.65	-0.89	ZZ
B38WCD		88.26	1.14	0.98	96.32	0.61	0.85	ZZ
B7AW94		87.52	0.40	0.35	95.46	-0.25	-0.34	ZZ
BAURAB		86.62	-0.50	-0.43	95.72	0.01	0.02	ZZ
BDVN3B		85.46	-1.66	-1.43	96.14	0.43	0.60	ZZ
BFH83N		87.42	0.30	0.26	95.20	-0.51	-0.70	ZZ
BJW9HR	X	89.18	2.06	1.77	98.67	2.96	4.11	ZZ
C2RWTN		86.56	-0.56	-0.48	96.28	0.57	0.80	ZZ
C7MQQP		87.76	0.64	0.55	95.30	-0.41	-0.56	ZZ
CG9R9K		86.14	-0.98	-0.84	94.62	-1.09	-1.50	ZZ
CKKXHY		88.60	1.48	1.28	96.70	0.99	1.38	ZZ
D3KAQZ		87.02	-0.10	-0.08	95.80	0.09	0.13	ZZ
D6D237		88.48	1.36	1.17	96.30	0.59	0.82	ZZ
DEB7NR		88.83	1.71	1.47	95.77	0.06	0.08	ZZ
DNNVTR		87.56	0.44	0.38	95.42	-0.29	-0.40	ZZ
E3KK74		85.02	-2.10	-1.81	95.00	-0.71	-0.98	ZZ
EA4ND7		86.28	-0.84	-0.72	95.40	-0.31	-0.42	ZZ
EF2N3X		87.90	0.78	0.67	96.20	0.49	0.69	ZZ
EVGKQ8		87.66	0.54	0.47	96.18	0.47	0.66	ZZ
EWEQC8		85.54	-1.58	-1.36	94.60	-1.11	-1.53	ZZ
FFKPRL		88.16	1.04	0.90	96.98	1.27	1.77	ZZ
FWNFP4		85.58	-1.54	-1.33	95.12	-0.59	-0.81	ZZ
GKBFVW		85.00	-2.12	-1.82	95.00	-0.71	-0.98	ZZ
GZZMM3		88.08	0.96	0.83	96.14	0.43	0.60	ZZ
H2TVCX		85.32	-1.80	-1.55	94.62	-1.09	-1.50	ZZ
H69E9L		88.50	1.38	1.19	95.00	-0.71	-0.98	ZZ
HG6GT3		86.92	-0.20	-0.17	95.62	-0.09	-0.12	ZZ
HTK9FQ		87.80	0.68	0.59	96.56	0.85	1.18	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 118

Rockwell Hardness: C & B Scales
ASTM E18

		Sample N29			Sample N30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
J4BJ6A		88.20	1.08	0.93	96.00	0.29	0.41	ZZ
J7YZEG	*	85.32	-1.80	-1.55	93.92	-1.79	-2.47	ZZ
K2QRT7		87.04	-0.08	-0.07	95.56	-0.15	-0.20	ZZ
K96TU2	*	84.80	-2.32	-2.00	96.12	0.41	0.57	ZZ
KERMPD		88.18	1.06	0.91	96.12	0.41	0.57	ZZ
KHAM6U		86.50	-0.62	-0.53	94.80	-0.91	-1.26	ZZ
KTCYKW		85.12	-2.00	-1.72	96.08	0.37	0.52	ZZ
LAE8TU		89.12	2.00	1.72	97.36	1.65	2.29	ZZ
LF4MKM		86.04	-1.08	-0.93	95.40	-0.31	-0.42	ZZ
LPNV3P		87.60	0.48	0.41	95.50	-0.21	-0.28	ZZ
LXH4MF		89.22	2.10	1.81	97.36	1.65	2.29	ZZ
LZJ9ZZ		87.60	0.48	0.41	95.68	-0.03	-0.04	ZZ
M6V8DE		87.34	0.22	0.19	95.60	-0.11	-0.15	ZZ
M8MLLP		86.68	-0.44	-0.38	95.54	-0.17	-0.23	ZZ
MT6MQW		88.66	1.54	1.33	94.92	-0.79	-1.09	ZZ
NAM2NL		86.60	-0.52	-0.45	95.00	-0.71	-0.98	ZZ
P29GXU		87.58	0.46	0.40	94.58	-1.13	-1.56	ZZ
PDFHDK		86.96	-0.16	-0.14	94.56	-1.15	-1.59	ZZ
PY33EV		86.36	-0.76	-0.65	95.46	-0.25	-0.34	ZZ
Q89FLP		87.90	0.78	0.67	95.80	0.09	0.13	ZZ
QPVM9M		86.32	-0.80	-0.69	95.80	0.09	0.13	ZZ
QQMPV3		86.80	-0.32	-0.27	94.30	-1.41	-1.95	ZZ
QXNY2V		86.46	-0.66	-0.57	95.46	-0.25	-0.34	ZZ
RL8FHY		88.10	0.98	0.85	96.54	0.83	1.16	ZZ
RPB7TK		87.18	0.06	0.05	97.02	1.31	1.82	ZZ
RPPR3L		87.20	0.08	0.07	95.20	-0.51	-0.70	ZZ
T3UEL3		86.66	-0.46	-0.39	95.36	-0.35	-0.48	ZZ
TGEPGL		85.64	-1.48	-1.27	94.78	-0.93	-1.28	ZZ
TJDBXQ		86.78	-0.34	-0.29	96.22	0.51	0.71	ZZ
TXGG9N		87.98	0.86	0.74	96.16	0.45	0.63	ZZ
U7MY3R		88.00	0.88	0.76	95.82	0.11	0.16	ZZ
UMR84R		86.12	-1.00	-0.86	96.10	0.39	0.55	ZZ
UY4HPW		87.62	0.50	0.43	95.14	-0.57	-0.78	ZZ
UZHVJK		85.74	-1.38	-1.19	95.26	-0.45	-0.62	ZZ
V4C9HU		84.64	-2.48	-2.13	95.70	-0.01	-0.01	ZZ
VBWCKQ		86.94	-0.18	-0.15	95.66	-0.05	-0.06	ZZ
VFTVTG		85.98	-1.14	-0.98	96.00	0.29	0.41	ZZ
VLD48E		86.72	-0.40	-0.34	95.72	0.01	0.02	ZZ
VR3F93		86.68	-0.44	-0.38	95.38	-0.33	-0.45	ZZ
VY289J		88.22	1.10	0.95	96.00	0.29	0.41	ZZ
WP7N8G		87.40	0.28	0.24	96.96	1.25	1.74	ZZ
WVZANJ		86.90	-0.22	-0.19	94.76	-0.95	-1.31	ZZ
XVVCQT	*	84.20	-2.92	-2.51	94.48	-1.23	-1.70	ZZ
XYVMLT		85.00	-2.12	-1.82	95.42	-0.29	-0.40	ZZ
Y7CH3M		86.06	-1.06	-0.91	95.02	-0.69	-0.95	ZZ
Y89YEJ		85.40	-1.72	-1.48	95.58	-0.13	-0.17	ZZ
YKQQYK		87.92	0.80	0.69	95.98	0.27	0.38	ZZ
YYAGV2		87.70	0.58	0.50	97.02	1.31	1.82	ZZ
Z37FRC		86.53	-0.59	-0.51	95.13	-0.57	-0.79	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 118

Rockwell Hardness: C & B Scales
ASTM E18

		Sample N29			Sample N30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
ZR2E47		88.70	1.58	1.36	96.66	0.95	1.32	ZZ

Summary Statistics

	Sample N29		Sample N30	
Grand Means	87.12	HRC	95.71	HRC
Stnd Dev Btwn Labs	1.16	HRC	0.72	HRC

Samples N29 , N30 : Steel

Statistics based on 98 of 99 reporting participants

Comments on assigned Data Flags for Analysis #118

WebCode	Flag	Analyst Comment
BJW9HR	X	Data for sample N30 are high. Inconsistent within the determinations of both samples.

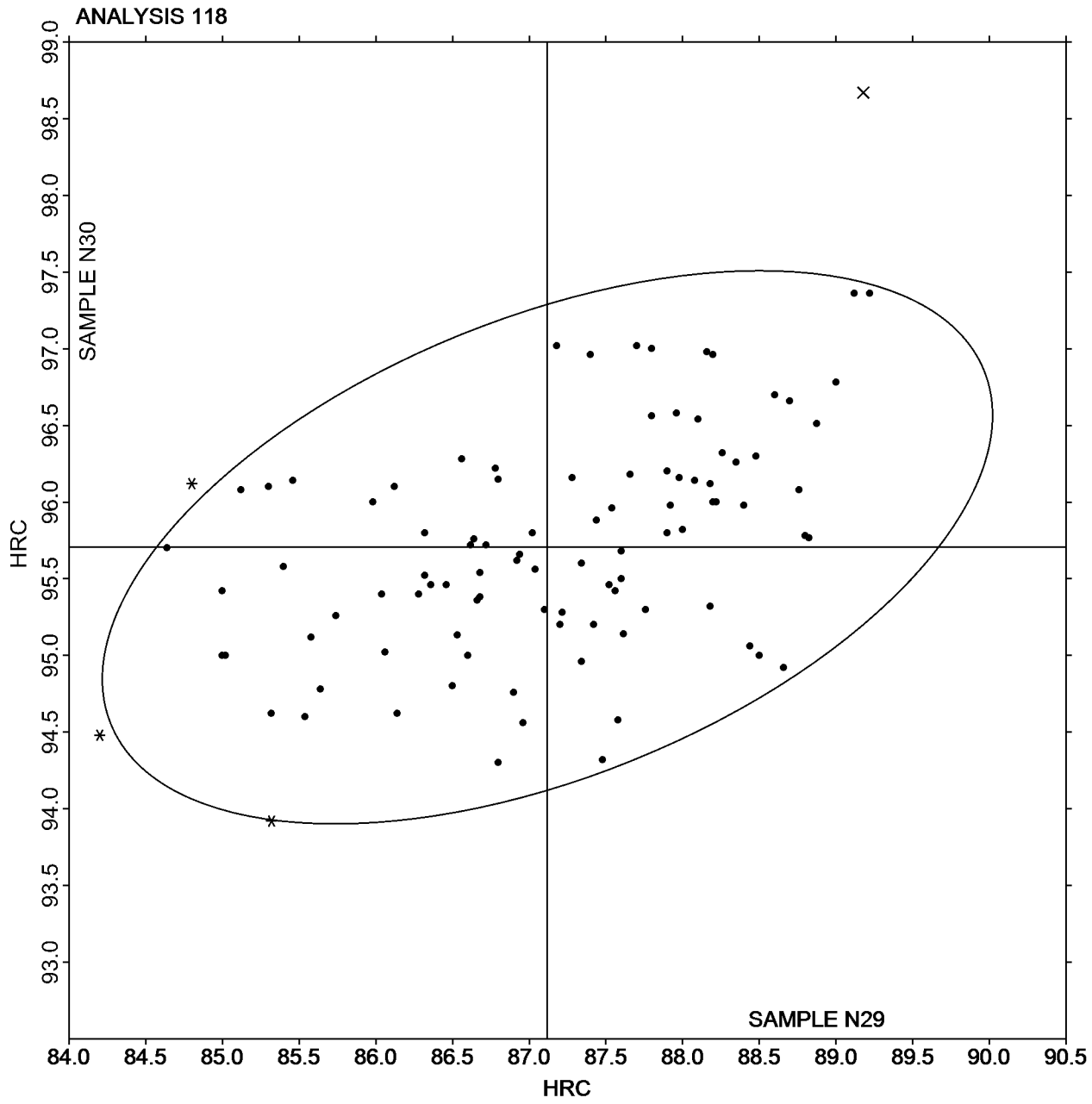
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 118

Rockwell Hardness: C & B Scales
ASTM E18

SAMPLE N29	SAMPLE N30
87.12 HRC	95.71 HRC



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 119

Rockwell Hardness (B Scale) - HRB
ASTM E18

		Sample N29			Sample N30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
23KBLH		86.30	-1.05	-0.96	95.72	-0.01	-0.01	ZZ
29TPEE		85.68	-1.67	-1.52	95.46	-0.27	-0.38	ZZ
2C6LVA		87.60	0.25	0.23	95.74	0.01	0.02	ZZ
2D237L		88.28	0.93	0.85	95.64	-0.09	-0.12	ZZ
3D2AWK		88.16	0.81	0.75	95.16	-0.57	-0.81	ZZ
3GZNGP		88.72	1.37	1.26	96.58	0.85	1.23	ZZ
3MLL7C		86.86	-0.49	-0.44	94.80	-0.93	-1.33	ZZ
46YKQZ		87.10	-0.25	-0.22	96.08	0.35	0.51	ZZ
48RC7D		86.78	-0.57	-0.52	95.72	-0.01	-0.01	ZZ
4DUPJ2		87.84	0.49	0.45	95.72	-0.01	-0.01	ZZ
4DVEQJ		87.94	0.59	0.54	95.68	-0.05	-0.07	ZZ
4J32K9		86.94	-0.41	-0.37	96.32	0.59	0.85	ZZ
4KFHV2		86.92	-0.43	-0.39	95.78	0.05	0.08	ZZ
6D9F47		87.64	0.29	0.27	95.18	-0.55	-0.78	ZZ
7K6PUV		87.56	0.21	0.20	96.18	0.45	0.65	ZZ
83433W		87.38	0.03	0.03	96.10	0.37	0.54	ZZ
8AYAEA		87.98	0.63	0.58	95.52	-0.21	-0.29	ZZ
8RHYUW		88.44	1.09	1.00	96.98	1.25	1.80	ZZ
8UAQBA		85.80	-1.55	-1.41	95.00	-0.73	-1.04	ZZ
AFXBUU		88.28	0.93	0.85	96.50	0.77	1.11	ZZ
ANC8M8		86.26	-1.09	-0.99	96.50	0.77	1.11	ZZ
AQZQLK		86.78	-0.57	-0.52	95.76	0.03	0.05	ZZ
BDVN3B		85.76	-1.59	-1.45	95.04	-0.69	-0.98	ZZ
BEQ76D	*	84.74	-2.61	-2.38	94.18	-1.55	-2.22	ZZ
BJEZRC		89.14	1.79	1.64	96.70	0.97	1.40	ZZ
BKRRJT		86.94	-0.41	-0.37	95.90	0.17	0.25	ZZ
BWKB36	X	80.84	-6.51	-5.95	95.24	-0.49	-0.70	ZZ
C4Y8QC		85.10	-2.25	-2.05	95.08	-0.65	-0.93	ZZ
CHX4YD		88.00	0.65	0.60	95.82	0.09	0.14	ZZ
CZX7M9		89.00	1.65	1.51	97.00	1.27	1.83	ZZ
D2A8ZV		88.28	0.93	0.85	96.90	1.17	1.69	ZZ
D8CCWK		87.62	0.27	0.25	95.68	-0.05	-0.07	ZZ
DKM67C		87.02	-0.33	-0.30	94.60	-1.13	-1.61	ZZ
DPEYF8		87.58	0.23	0.21	95.34	-0.39	-0.55	ZZ
E7KV24		87.60	0.25	0.23	95.20	-0.53	-0.75	ZZ
E7WGMX		88.60	1.25	1.15	95.96	0.23	0.34	ZZ
EBAF2D		87.30	-0.05	-0.04	96.86	1.13	1.63	ZZ
EHUFGP		88.06	0.71	0.65	96.86	1.13	1.63	ZZ
F2XHRZ		86.02	-1.33	-1.21	95.86	0.13	0.19	ZZ
F7U6N9	X	94.84	7.49	6.86	100.84	5.11	7.34	ZZ
FENAGA		88.34	0.99	0.91	96.28	0.55	0.80	ZZ
FFKQT8		87.56	0.21	0.20	96.02	0.29	0.42	ZZ
G2GJE3		88.10	0.75	0.69	95.74	0.01	0.02	ZZ
GN96PN	*	87.08	-0.27	-0.24	94.16	-1.57	-2.25	ZZ
HCU4C4		87.37	0.03	0.03	94.85	-0.87	-1.25	ZZ
HFRTA3		88.34	0.99	0.91	96.29	0.56	0.81	ZZ
HR9GKN		87.80	0.45	0.42	95.24	-0.49	-0.70	ZZ
J2MZ7W		85.44	-1.91	-1.74	94.94	-0.79	-1.13	ZZ
J4WXTL		87.34	-0.01	0.00	95.86	0.13	0.19	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 119

Rockwell Hardness (B Scale) - HRB
ASTM E18

		Sample N29			Sample N30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
J9TJKP	X	83.14	-4.21	-3.85	93.58	-2.15	-3.08	ZZ
JG2A7Z		87.40	0.05	0.05	96.80	1.07	1.54	ZZ
JQAN93		88.08	0.73	0.67	96.50	0.77	1.11	ZZ
JTXFZY	*	88.36	1.01	0.93	94.50	-1.23	-1.76	ZZ
KR2WXX		86.48	-0.87	-0.79	94.82	-0.91	-1.30	ZZ
KWNV2Q		89.50	2.15	1.97	97.10	1.37	1.97	ZZ
LZAV28		88.20	0.85	0.78	95.60	-0.13	-0.18	ZZ
MAQ7LH		85.56	-1.79	-1.63	95.90	0.17	0.25	ZZ
MJW4AL		86.52	-0.83	-0.76	94.74	-0.99	-1.41	ZZ
MQFA9E		88.32	0.97	0.89	95.98	0.25	0.37	ZZ
MTLMXT		85.48	-1.87	-1.71	94.34	-1.39	-1.99	ZZ
NJVNKR		86.72	-0.63	-0.57	95.78	0.05	0.08	ZZ
P4EYWP		88.40	1.05	0.96	96.80	1.07	1.54	ZZ
PEY4C3		88.50	1.16	1.06	96.13	0.40	0.58	ZZ
Q7ZYW7		87.98	0.63	0.58	95.52	-0.21	-0.29	ZZ
QEVWPZ		85.04	-2.31	-2.11	94.72	-1.01	-1.44	ZZ
QKE9D2		87.08	-0.27	-0.24	96.02	0.29	0.42	ZZ
QVGP6R		87.22	-0.13	-0.11	95.58	-0.15	-0.21	ZZ
QYL9EK		86.24	-1.11	-1.01	95.84	0.11	0.16	ZZ
U6URYU		86.40	-0.95	-0.86	95.28	-0.45	-0.64	ZZ
UZ2M8C		88.72	1.37	1.26	95.96	0.23	0.34	ZZ
VMPZCJ		87.32	-0.03	-0.02	96.94	1.21	1.74	ZZ
VN2GPX		87.86	0.51	0.47	95.72	-0.01	-0.01	ZZ
VQNDXN		89.00	1.65	1.51	95.90	0.17	0.25	ZZ
VRLE8L		85.62	-1.73	-1.58	94.88	-0.85	-1.21	ZZ
X3XNLP		86.14	-1.21	-1.10	94.88	-0.85	-1.21	ZZ
XM6TCK		85.64	-1.71	-1.56	95.28	-0.45	-0.64	ZZ
XPRCBW		87.78	0.43	0.40	95.14	-0.59	-0.84	ZZ
Y2D9ME		87.42	0.07	0.07	95.80	0.07	0.11	ZZ
Y3AMA8		88.50	1.15	1.06	95.54	-0.19	-0.27	ZZ
YRAYE4		89.34	1.99	1.82	96.10	0.37	0.54	ZZ
YRQAWA		86.08	-1.27	-1.16	95.74	0.01	0.02	ZZ
ZBYRKJ		88.04	0.69	0.64	95.62	-0.11	-0.15	ZZ
ZN8HK7		87.32	-0.03	-0.02	96.10	0.37	0.54	ZZ

Summary Statistics

	Sample N29		Sample N30	
Grand Means	87.35	HRB	95.73	HRB
Stnd Dev Btwn Labs	1.09	HRB	0.70	HRB

Samples N29 , N30 : Steel

Statistics based on 80 of 83 reporting participants

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 119

Rockwell Hardness (B Scale) - HRB
ASTM E18

Comments on assigned Data Flags for Analysis #119

WebCode	Flag	Analyst Comment
BWKB36	X	Data for sample N29 are low. Inconsistent within the determinations of sample N29.
F7U6N9	X	Data for both samples are high.
J9TJKP	X	Data for both samples are low.

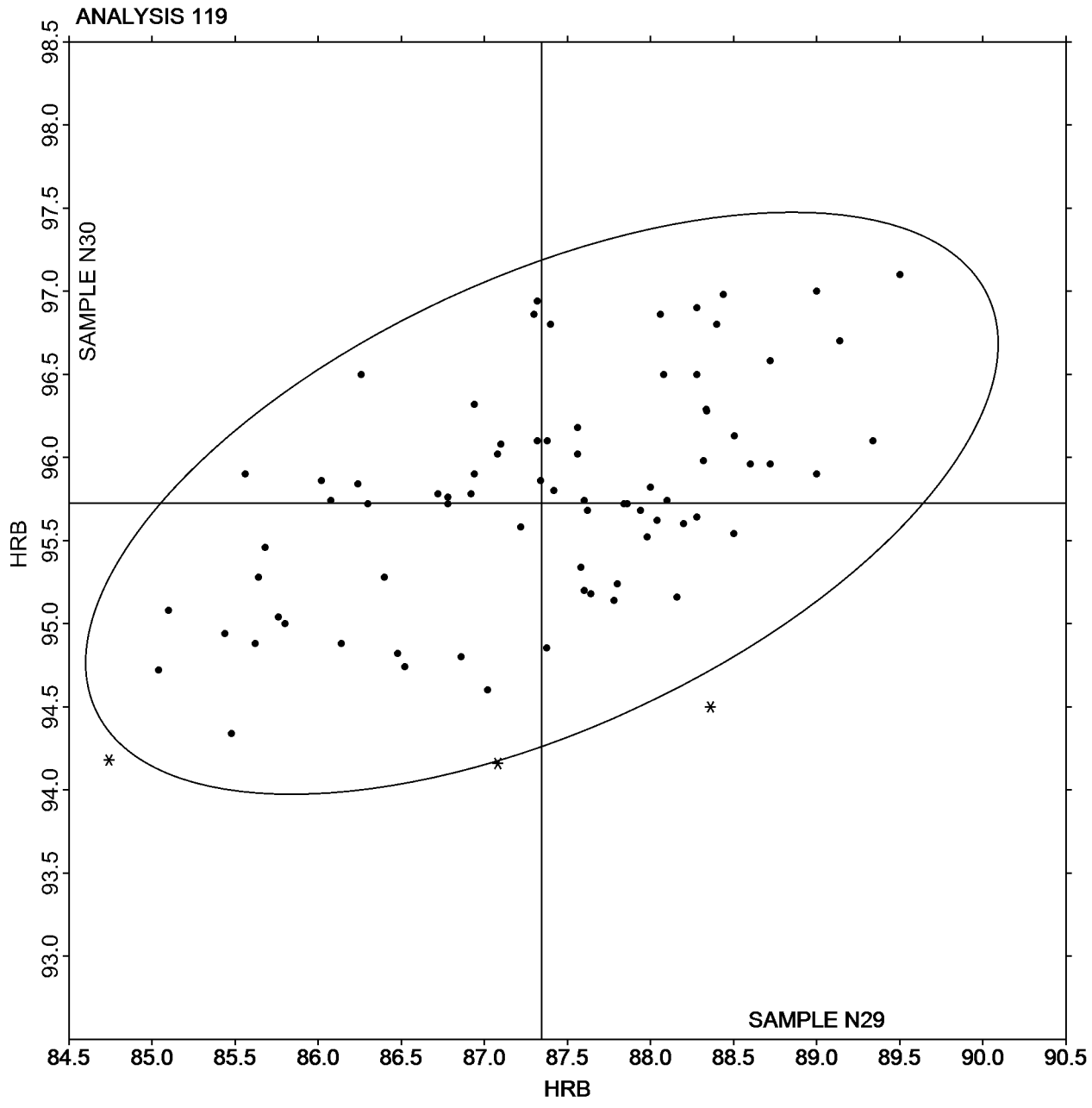
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 119

Rockwell Hardness (B Scale) - HRB
ASTM E18

SAMPLE N29	SAMPLE N30
87.35 HRB	95.73 HRB



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 121

Microhardness - Knoop Hardness Number (500 gf)
ASTM E384

		Sample S29			Sample S30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
2C6LVA		419.40	4.07	0.35	477.00	-0.68	-0.05	ZZ
2D237L		397.60	-17.73	-1.51	466.78	-10.90	-0.84	ZZ
2EDRBJ		413.80	-1.53	-0.13	475.80	-1.88	-0.14	ZZ
2QTC7E		407.60	-7.73	-0.66	458.00	-19.68	-1.52	ZZ
2TWJX6		405.40	-9.93	-0.84	467.20	-10.48	-0.81	ZZ
2WUXMF		407.56	-7.77	-0.66	470.28	-7.40	-0.57	ZZ
389GFB		420.40	5.07	0.43	483.80	6.12	0.47	ZZ
3D2AWK		410.24	-5.09	-0.43	469.86	-7.82	-0.60	ZZ
3F686R		398.74	-16.59	-1.41	459.52	-18.16	-1.40	ZZ
3JM8K8		404.00	-11.33	-0.96	450.20	-27.48	-2.12	ZZ
4REZEJ		413.72	-1.61	-0.14	478.20	0.52	0.04	ZZ
7JX4MH		430.00	14.67	1.25	487.20	9.52	0.73	ZZ
7NMPAB		424.60	9.27	0.79	486.00	8.32	0.64	ZZ
7XCGV3		423.20	7.87	0.67	469.80	-7.88	-0.61	ZZ
7Y8YX4		403.06	-12.27	-1.04	476.80	-0.88	-0.07	ZZ
8MBD6E		433.16	17.83	1.52	502.56	24.88	1.92	ZZ
8QND26		439.02	23.69	2.01	491.46	13.78	1.06	ZZ
9FKETW		417.40	2.07	0.18	478.00	0.32	0.02	ZZ
9NFFAA		411.98	-3.35	-0.28	472.20	-5.48	-0.42	ZZ
9PQ8G6		403.40	-11.93	-1.01	460.20	-17.48	-1.35	ZZ
AGDP4P		423.40	8.07	0.69	488.20	10.52	0.81	ZZ
AU3PWD		406.40	-8.93	-0.76	470.40	-7.28	-0.56	ZZ
AVUGB6		404.66	-10.67	-0.91	473.48	-4.20	-0.32	ZZ
BFH83N		421.40	6.07	0.52	474.40	-3.28	-0.25	ZZ
BVT433		409.60	-5.73	-0.49	470.00	-7.68	-0.59	ZZ
C8XQMJ		418.00	2.67	0.23	466.80	-10.88	-0.84	ZZ
D9Q4KV		415.20	-0.13	-0.01	479.40	1.72	0.13	ZZ
DC846H		415.00	-0.33	-0.03	494.00	16.32	1.26	ZZ
DEB7NR	*	445.60	30.27	2.57	510.80	33.12	2.55	ZZ
DF98W6		395.86	-19.47	-1.66	462.14	-15.54	-1.20	ZZ
EA4ND7		406.00	-9.33	-0.79	473.60	-4.08	-0.31	ZZ
EWEQC8	X	442.08	26.75	2.27	477.12	-0.56	-0.04	ZZ
FFKPRL	*	404.04	-11.29	-0.96	488.12	10.44	0.80	ZZ
FFKQT8		415.60	0.27	0.02	471.80	-5.88	-0.45	ZZ
FWNFP4		410.40	-4.93	-0.42	481.20	3.52	0.27	ZZ
GKBFVW		410.80	-4.53	-0.39	469.60	-8.08	-0.62	ZZ
HG6GT3		433.60	18.27	1.55	503.80	26.12	2.01	ZZ
J36U78	X	407.80	-7.53	-0.64	444.80	-32.88	-2.53	ZZ
JDKQ3X	X	456.40	41.07	3.49	509.20	31.52	2.43	ZZ
K2QRT7		404.80	-10.53	-0.90	465.20	-12.48	-0.96	ZZ
KCGQCW		424.80	9.47	0.81	488.60	10.92	0.84	ZZ
KGKCE2		417.34	2.01	0.17	481.64	3.96	0.31	ZZ
KTCYKW		429.20	13.87	1.18	481.20	3.52	0.27	ZZ
L7TDZZ		402.60	-12.73	-1.08	470.20	-7.48	-0.58	ZZ
L8NW32		425.00	9.67	0.82	502.80	25.12	1.94	ZZ
LAE8TU		426.50	11.17	0.95	490.36	12.68	0.98	ZZ
LPNV3P		409.20	-6.13	-0.52	483.00	5.32	0.41	ZZ
LUWE6N		423.60	8.27	0.70	485.00	7.32	0.56	ZZ
M3RG8Y		406.86	-8.47	-0.72	462.24	-15.44	-1.19	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 121

Microhardness - Knoop Hardness Number (500 gf)
ASTM E384

		Sample S29			Sample S30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
M8MLLP		428.60	13.27	1.13	484.00	6.32	0.49	ZZ
MJW4AL		418.38	3.05	0.26	476.84	-0.84	-0.06	ZZ
NCP2HQ		408.00	-7.33	-0.62	475.20	-2.48	-0.19	ZZ
PA76VL		405.28	-10.05	-0.85	471.82	-5.86	-0.45	ZZ
QQMPV3		422.40	7.07	0.60	475.00	-2.68	-0.21	ZZ
R9X4JB		417.46	2.13	0.18	478.84	1.16	0.09	ZZ
RBPVX3		411.54	-3.79	-0.32	476.94	-0.74	-0.06	ZZ
RENDU9		388.42	-26.91	-2.29	448.70	-28.98	-2.23	ZZ
RJGHKR		415.40	0.07	0.01	465.60	-12.08	-0.93	ZZ
RL8FHY		416.40	1.07	0.09	474.96	-2.72	-0.21	ZZ
RPB7TK	*	420.80	5.47	0.47	501.80	24.12	1.86	ZZ
T7CE2J		402.08	-13.25	-1.13	452.80	-24.87	-1.92	ZZ
T9YX2V		403.22	-12.11	-1.03	481.20	3.52	0.27	ZZ
TMXZNU		431.54	16.21	1.38	488.62	10.94	0.84	ZZ
TNTJQW		402.00	-13.33	-1.13	474.80	-2.88	-0.22	ZZ
TXGG9N		414.60	-0.73	-0.06	478.20	0.52	0.04	ZZ
UMR84R		423.80	8.47	0.72	481.40	3.72	0.29	ZZ
UMUXAA		423.20	7.87	0.67	477.80	0.12	0.01	ZZ
UUV6XP		433.00	17.67	1.50	502.60	24.92	1.92	ZZ
UZ2M8C		417.86	2.53	0.22	477.80	0.12	0.01	ZZ
V4C9HU		417.20	1.87	0.16	472.20	-5.48	-0.42	ZZ
VBWCKQ		406.60	-8.73	-0.74	465.80	-11.88	-0.92	ZZ
VF7EML		412.00	-3.33	-0.28	485.80	8.12	0.63	ZZ
VLD48E		419.60	4.27	0.36	472.00	-5.68	-0.44	ZZ
VR3F93		409.20	-6.13	-0.52	470.80	-6.88	-0.53	ZZ
VRLE8L		427.46	12.13	1.03	478.74	1.06	0.08	ZZ
VY289J		396.34	-18.99	-1.61	465.08	-12.60	-0.97	ZZ
W8WFGG		415.40	0.07	0.01	477.60	-0.08	-0.01	ZZ
WRZ8DN		400.90	-14.43	-1.23	461.78	-15.90	-1.22	ZZ
WTBCQC		410.80	-4.53	-0.39	472.20	-5.48	-0.42	ZZ
X229CE		443.78	28.45	2.42	504.12	26.44	2.04	ZZ
X3XNLP		423.68	8.35	0.71	484.46	6.78	0.52	ZZ
X7AK4K	*	447.18	31.85	2.71	514.52	36.84	2.84	ZZ
YGQPNP		417.99	2.66	0.23	477.10	-0.58	-0.04	ZZ
Z37FRC		401.20	-14.13	-1.20	480.80	3.12	0.24	ZZ
ZBYRKJ		425.60	10.27	0.87	487.00	9.32	0.72	ZZ
ZT6RZE	X	369.40	-45.93	-3.91	451.60	-26.08	-2.01	ZZ
ZXCH3K		403.84	-11.49	-0.98	463.48	-14.20	-1.09	ZZ

Summary Statistics

	Sample S29		Sample S30	
Grand Means	415.33	HK 500 gf	477.68	HK 500 gf
Stnd Dev Btwn Labs	11.76	HK 500 gf	12.98	HK 500 gf

Samples S29 , S30 : Steel

Statistics based on 83 of 87 reporting participants

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 121

Microhardness - Knoop Hardness Number (500 gf)
ASTM E384

Comments on assigned Data Flags for Analysis #121

WebCode	Flag	Analyst Comment
EWEQC8	X	Inconsistent in testing between samples. Inconsistent within the determinations of sample S30.
J36U78	X	Inconsistent in testing between samples. Inconsistent within the determinations of sample S30.
JDKQ3X	X	Data for sample S29 are high. Inconsistent in testing between samples.
ZT6RZE	X	Data for sample S29 are low. Inconsistent in testing between samples. Inconsistent within the determinations of sample S30.

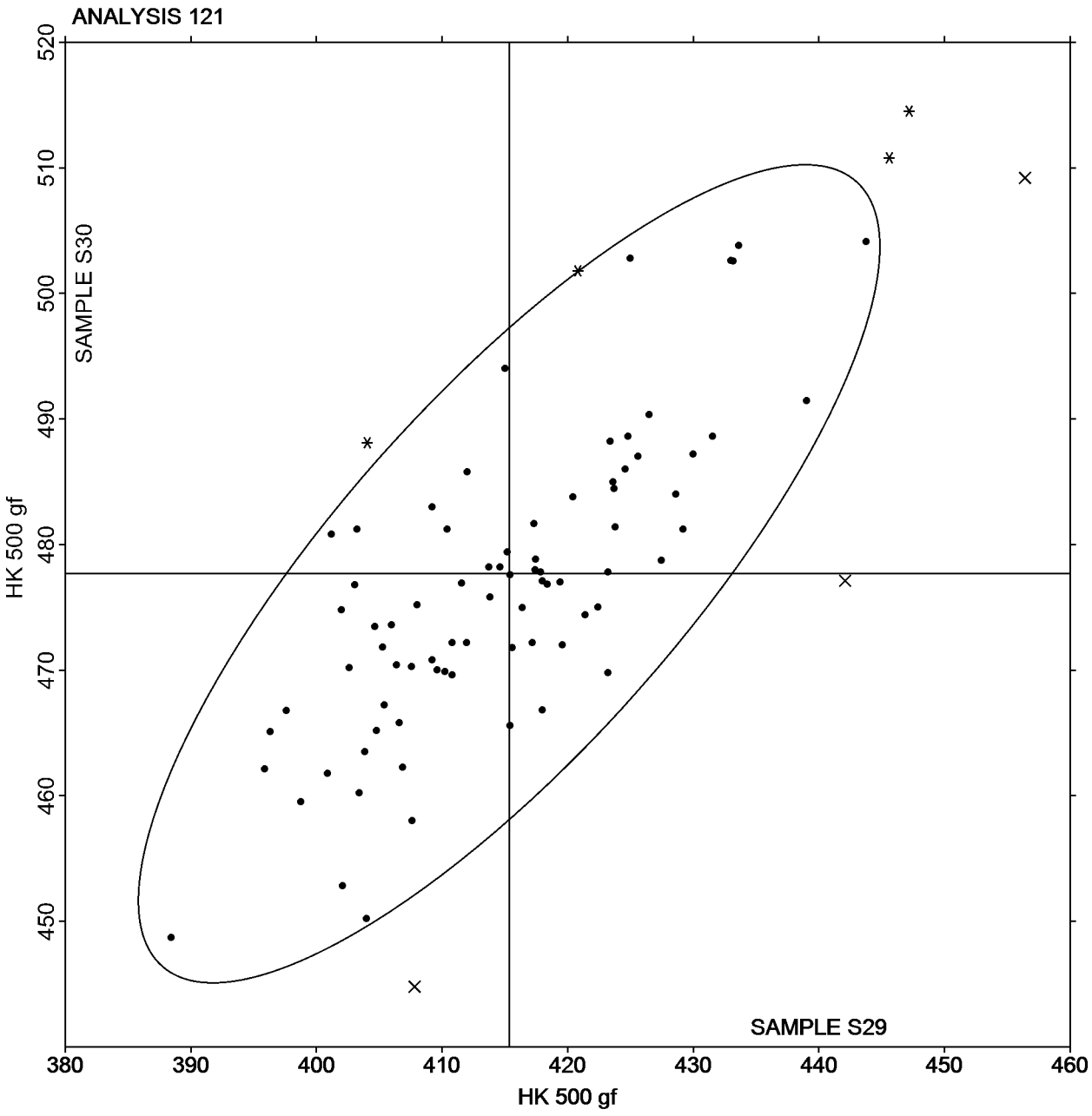
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 121

Microhardness - Knoop Hardness Number (500 gf)
ASTM E384

SAMPLE S29	SAMPLE S30
415.33 HK 500 gf	477.68 HK 500 gf



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 122

Microhardness - Knoop Hardness Number (200 gf)
ASTM E384

		Sample S29			Sample S30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
2C6LVA		420.40	-4.25	-0.31	478.60	-9.52	-0.73	ZZ
2D237L		431.26	6.61	0.48	493.98	5.86	0.45	ZZ
2EDRBJ		441.20	16.55	1.19	495.00	6.88	0.53	ZZ
2QTC7E		426.40	1.75	0.13	478.60	-9.52	-0.73	ZZ
2WUXMF		429.96	5.31	0.38	485.00	-3.12	-0.24	ZZ
389GFB		424.00	-0.65	-0.05	483.40	-4.72	-0.36	ZZ
3D2AWK		417.52	-7.13	-0.51	474.20	-13.92	-1.07	ZZ
3JM8K8		416.00	-8.65	-0.62	468.00	-20.12	-1.55	ZZ
7JX4MH		433.80	9.15	0.66	505.40	17.28	1.33	ZZ
7NMPAB		427.60	2.95	0.21	493.00	4.88	0.38	ZZ
7XCGV3		433.20	8.55	0.62	476.60	-11.52	-0.89	ZZ
7Y8YX4		402.98	-21.67	-1.56	472.36	-15.76	-1.21	ZZ
8QND26		448.36	23.71	1.71	503.00	14.88	1.14	ZZ
9FKETW		434.40	9.75	0.70	490.60	2.48	0.19	ZZ
9NFFAA		420.98	-3.67	-0.26	465.14	-22.98	-1.77	ZZ
9PQ8G6		408.60	-16.05	-1.16	465.60	-22.52	-1.73	ZZ
AGDP4P		426.40	1.75	0.13	498.40	10.28	0.79	ZZ
AU3PWD		415.60	-9.05	-0.65	478.20	-9.92	-0.76	ZZ
AVUGB6		406.10	-18.55	-1.34	479.44	-8.68	-0.67	ZZ
BFH83N		431.20	6.55	0.47	482.80	-5.32	-0.41	ZZ
C8XQMJ		427.00	2.35	0.17	476.80	-11.32	-0.87	ZZ
DEB7NR	*	465.00	40.35	2.91	525.00	36.88	2.83	ZZ
DF98W6		405.20	-19.45	-1.40	476.46	-11.66	-0.90	ZZ
EA4ND7		408.40	-16.25	-1.17	475.60	-12.52	-0.96	ZZ
EWEQC8	*	455.48	30.83	2.22	491.32	3.20	0.25	ZZ
FFKPRL		405.46	-19.19	-1.38	489.36	1.24	0.10	ZZ
FWNFP4		419.60	-5.05	-0.36	491.40	3.28	0.25	ZZ
GKBFVW		426.60	1.95	0.14	480.40	-7.72	-0.59	ZZ
H3KYYD	X	433.60	8.95	0.65	525.60	37.48	2.88	ZZ
HG6GT3		446.00	21.35	1.54	508.20	20.08	1.54	ZZ
JDKQ3X	X	465.00	40.35	2.91	541.80	53.68	4.12	ZZ
K2QRT7		407.20	-17.45	-1.26	475.60	-12.52	-0.96	ZZ
KCGQCW		448.00	23.35	1.68	502.00	13.88	1.07	ZZ
KGKCE2		420.34	-4.31	-0.31	483.38	-4.74	-0.36	ZZ
KTCYKW		439.00	14.35	1.03	502.20	14.08	1.08	ZZ
L7TDZZ		414.80	-9.85	-0.71	484.20	-3.92	-0.30	ZZ
LAE8TU		433.18	8.53	0.61	500.58	12.46	0.96	ZZ
MJW4AL		429.70	5.05	0.36	487.26	-0.86	-0.07	ZZ
NCP2HQ		412.80	-11.85	-0.85	488.80	0.68	0.05	ZZ
PA76VL		412.74	-11.91	-0.86	490.32	2.20	0.17	ZZ
QQMPV3		421.00	-3.65	-0.26	482.80	-5.32	-0.41	ZZ
R9X4JB		424.68	0.03	0.00	502.92	14.80	1.14	ZZ
RBPVX3		417.22	-7.43	-0.54	488.78	0.66	0.05	ZZ
RENDU9		426.46	1.81	0.13	495.22	7.10	0.55	ZZ
RPB7TK		417.00	-7.65	-0.55	500.40	12.28	0.94	ZZ
T7CE2J		417.85	-6.80	-0.49	474.09	-14.03	-1.08	ZZ
T9YX2V		408.48	-16.17	-1.17	485.52	-2.60	-0.20	ZZ
TXGG9N		432.60	7.95	0.57	503.60	15.48	1.19	ZZ
UZ2M8C		420.70	-3.95	-0.28	482.94	-5.18	-0.40	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 122

Microhardness - Knoop Hardness Number (200 gf)
ASTM E384

		Sample S29			Sample S30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
V4C9HU		420.60	-4.05	-0.29	492.40	4.28	0.33	ZZ
VBWCKQ		422.60	-2.05	-0.15	484.20	-3.92	-0.30	ZZ
VF7EML		441.60	16.95	1.22	511.60	23.48	1.80	ZZ
VLD48E		423.40	-1.25	-0.09	477.20	-10.92	-0.84	ZZ
VY289J		395.24	-29.41	-2.12	462.52	-25.60	-1.97	ZZ
W8WFGG		422.40	-2.25	-0.16	492.40	4.28	0.33	ZZ
X3XNLP		431.78	7.13	0.51	499.20	11.08	0.85	ZZ
X7AK4K		451.94	27.29	1.97	517.68	29.56	2.27	ZZ
YGQPNP		423.75	-0.90	-0.06	484.87	-3.24	-0.25	ZZ
Z37FRC		413.20	-11.45	-0.82	488.20	0.08	0.01	ZZ

Summary Statistics

	Sample S29		Sample S30	
Grand Means	424.65	HK 200 gf	488.12	HK 200 gf
Stnd Dev Btwn Labs	13.88	HK 200 gf	13.01	HK 200 gf

Samples S29 , S30 : Steel

Statistics based on 57 of 59 reporting participants

Comments on assigned Data Flags for Analysis #122

WebCode	Flag	Analyst Comment
H3KYYD	X	Data for sample S30 are high. Inconsistent in testing between samples.
JDKQ3X	X	Data for both samples are high. Possible Systematic error. Inconsistent within the determinations of sample S29.

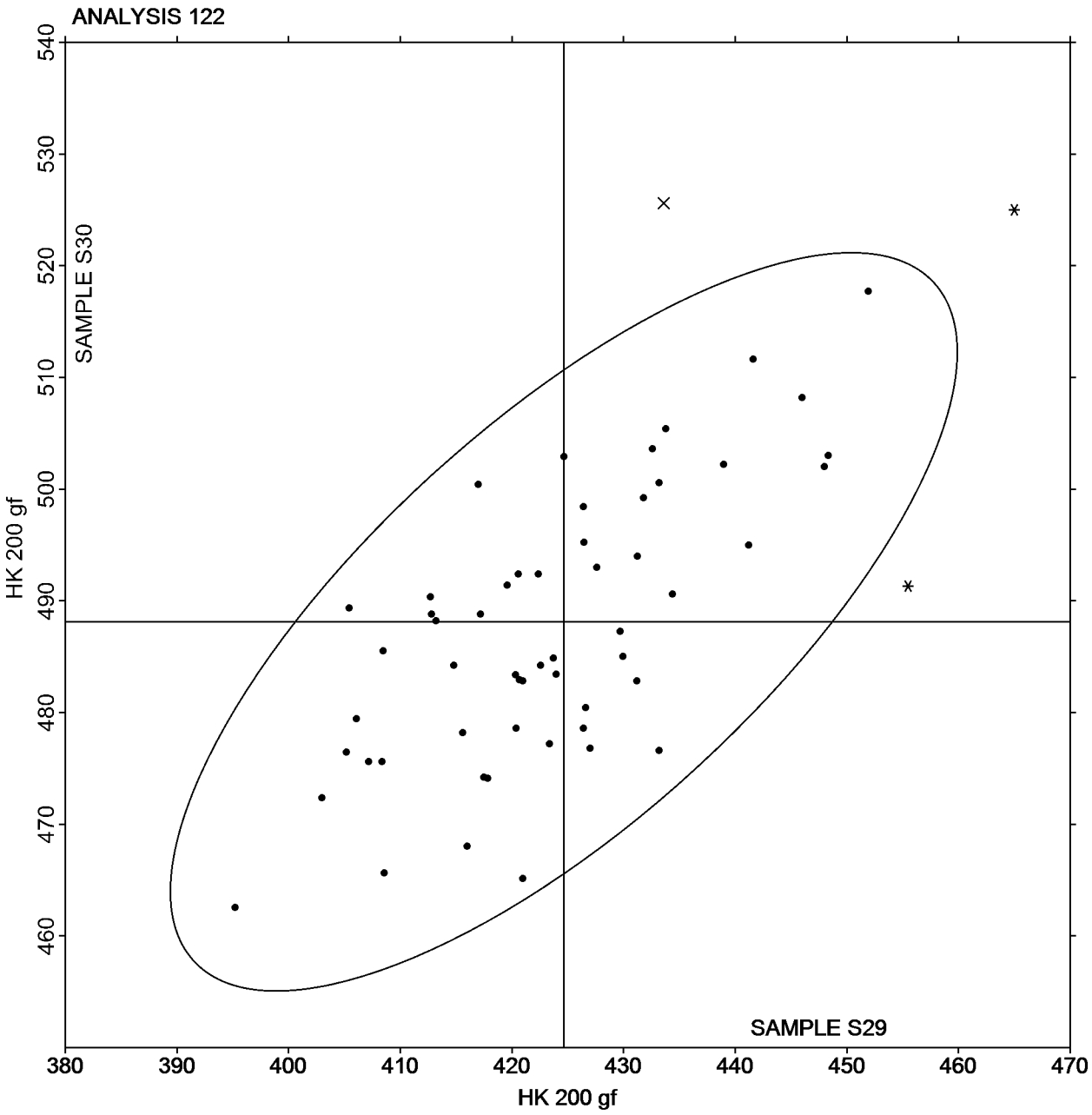
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 122

Microhardness - Knoop Hardness Number (200 gf)
ASTM E384

SAMPLE S29	SAMPLE S30
424.65 HK 200 gf	488.12 HK 200 gf



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 123

Microhardness - Vickers Hardness Number (500 gf)
ASTM E384

		Sample S29			Sample S30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
2BZU7H		410.80	14.39	1.36	475.60	15.27	1.50	ZZ
2C6LVA		387.00	-9.41	-0.89	451.40	-8.93	-0.88	ZZ
2EDRBJ		391.60	-4.81	-0.46	450.00	-10.33	-1.02	ZZ
2EX9T8		385.60	-10.81	-1.02	445.20	-15.13	-1.49	ZZ
2MTBVJ		400.00	3.59	0.34	465.20	4.87	0.48	ZZ
2QTC7E	X	366.20	-30.21	-2.86	410.60	-49.73	-4.90	ZZ
2TWJX6		395.40	-1.01	-0.10	456.20	-4.13	-0.41	ZZ
2WUXMF		380.86	-15.55	-1.47	463.20	2.87	0.28	ZZ
33DH88		382.20	-14.21	-1.35	449.20	-11.13	-1.10	ZZ
389GFB		394.20	-2.21	-0.21	459.20	-1.13	-0.11	ZZ
3D2AWK		393.16	-3.25	-0.31	443.16	-17.17	-1.69	ZZ
4KFHV2		398.86	2.45	0.23	459.08	-1.25	-0.12	ZZ
4REZEJ		403.10	6.69	0.63	459.60	-0.73	-0.07	ZZ
638TC9	X	254.60	-141.81	-13.43	261.16	-199.17	-19.60	ZZ
6ACPZF		403.92	7.51	0.71	473.20	12.87	1.27	ZZ
6KBKZV		392.80	-3.61	-0.34	461.40	1.07	0.11	ZZ
6TZ76U		377.70	-18.71	-1.77	454.82	-5.51	-0.54	ZZ
7NMPAB		399.40	2.99	0.28	469.80	9.47	0.93	ZZ
7XCGV3		398.80	2.39	0.23	450.60	-9.73	-0.96	ZZ
7Y8YX4	*	373.40	-23.01	-2.18	458.94	-1.39	-0.14	ZZ
8QND26		398.88	2.47	0.23	454.86	-5.47	-0.54	ZZ
8RHYUW		400.06	3.65	0.35	464.82	4.49	0.44	ZZ
8X8JXC		403.06	6.65	0.63	465.46	5.13	0.50	ZZ
9FKETW		404.80	8.39	0.79	463.40	3.07	0.30	ZZ
9NFFAA		395.52	-0.89	-0.08	447.44	-12.89	-1.27	ZZ
9PQ8G6		387.20	-9.21	-0.87	458.40	-1.93	-0.19	ZZ
AGDP4P		395.40	-1.01	-0.10	452.00	-8.33	-0.82	ZZ
APRCEE	*	413.26	16.85	1.60	489.38	29.05	2.86	ZZ
AU3PWD		405.20	8.79	0.83	465.80	5.47	0.54	ZZ
BEQ76D		395.20	-1.21	-0.11	462.40	2.07	0.20	ZZ
BFH83N		400.00	3.59	0.34	457.60	-2.73	-0.27	ZZ
C6B8N8		390.20	-6.21	-0.59	451.80	-8.53	-0.84	ZZ
DC846H		402.00	5.59	0.53	470.00	9.67	0.95	ZZ
DEB7NR		421.80	25.39	2.40	480.40	20.07	1.98	ZZ
DYYK7M		417.80	21.39	2.03	471.40	11.07	1.09	ZZ
E4BR67		399.80	3.39	0.32	460.00	-0.33	-0.03	ZZ
E8BYNJ	*	416.02	19.61	1.86	489.34	29.01	2.86	ZZ
EA4ND7		378.60	-17.81	-1.69	454.20	-6.13	-0.60	ZZ
EGGNLM		387.40	-9.01	-0.85	456.40	-3.93	-0.39	ZZ
EWEQC8		409.70	13.29	1.26	459.64	-0.69	-0.07	ZZ
FFKPRL		387.60	-8.81	-0.83	453.08	-7.25	-0.71	ZZ
FFKQT8		396.20	-0.21	-0.02	462.80	2.47	0.24	ZZ
FWNFP4		394.00	-2.41	-0.23	456.40	-3.93	-0.39	ZZ
GKBFVW		401.20	4.79	0.45	462.80	2.47	0.24	ZZ
H3KYYD		406.20	9.79	0.93	455.00	-5.33	-0.52	ZZ
HDNTFW		396.44	0.03	0.00	447.04	-13.29	-1.31	ZZ
HG6GT3	*	404.80	8.39	0.79	484.40	24.07	2.37	ZZ
HTK9FQ		400.20	3.79	0.36	467.20	6.87	0.68	ZZ
HY69V4		406.40	9.99	0.95	471.40	11.07	1.09	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 123

Microhardness - Vickers Hardness Number (500 gf)
ASTM E384

		Sample S29			Sample S30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
HZXFZZ		415.00	18.59	1.76	474.40	14.07	1.38	ZZ
K2QRT7		393.20	-3.21	-0.30	459.40	-0.93	-0.09	ZZ
KCGQCW		405.60	9.19	0.87	455.20	-5.13	-0.51	ZZ
KGKCE2		371.32	-25.09	-2.38	442.78	-17.55	-1.73	ZZ
KTCYKW		384.80	-11.61	-1.10	444.80	-15.53	-1.53	ZZ
L4A7W8		416.20	19.79	1.87	482.40	22.07	2.17	ZZ
L7TDZZ		379.60	-16.81	-1.59	450.60	-9.73	-0.96	ZZ
LCZWBM		376.80	-19.61	-1.86	447.46	-12.87	-1.27	ZZ
LHNGE3		394.38	-2.03	-0.19	449.32	-11.01	-1.08	ZZ
LPNV3P		407.00	10.59	1.00	476.80	16.47	1.62	ZZ
LUWE6N		381.60	-14.81	-1.40	445.60	-14.73	-1.45	ZZ
LYHRER		403.20	6.79	0.64	455.20	-5.13	-0.51	ZZ
LYVPZN		390.20	-6.21	-0.59	461.80	1.47	0.14	ZZ
M39XXL		405.60	9.19	0.87	468.20	7.87	0.77	ZZ
M8MLLP		400.00	3.59	0.34	456.20	-4.13	-0.41	ZZ
MHK873		410.30	13.89	1.32	479.86	19.53	1.92	ZZ
MJW4AL		401.22	4.81	0.46	462.76	2.43	0.24	ZZ
MPMC3T		388.00	-8.41	-0.80	456.80	-3.53	-0.35	ZZ
MTLMXT		397.20	0.79	0.07	464.60	4.27	0.42	ZZ
PHXF93		396.60	0.19	0.02	456.80	-3.53	-0.35	ZZ
PY33EV		402.80	6.39	0.61	480.40	20.07	1.98	ZZ
QPVM9M		392.40	-4.01	-0.38	454.60	-5.73	-0.56	ZZ
QQMPV3		398.40	1.99	0.19	462.00	1.67	0.16	ZZ
QVGP6R		392.24	-4.17	-0.40	455.34	-4.99	-0.49	ZZ
QWC6HN		394.88	-1.53	-0.15	459.80	-0.53	-0.05	ZZ
R9X4JB		394.54	-1.87	-0.18	455.64	-4.69	-0.46	ZZ
RBPVX3		386.06	-10.35	-0.98	448.28	-12.05	-1.19	ZZ
RENDU9		412.36	15.95	1.51	471.00	10.67	1.05	ZZ
RPB7TK		397.80	1.39	0.13	467.00	6.67	0.66	ZZ
RT3LRR	X	331.38	-65.03	-6.16	438.46	-21.87	-2.15	ZZ
RW4HK8		376.00	-20.41	-1.93	447.80	-12.53	-1.23	ZZ
T7CE2J		381.60	-14.81	-1.40	436.40	-23.93	-2.36	ZZ
T9YX2V		404.18	7.77	0.74	462.40	2.07	0.20	ZZ
TE8EHW		388.00	-8.41	-0.80	460.46	0.13	0.01	ZZ
TXGG9N		393.60	-2.81	-0.27	458.80	-1.53	-0.15	ZZ
U7MY3R		399.64	3.23	0.31	470.22	9.89	0.97	ZZ
U7Q8BR		389.20	-7.21	-0.68	452.60	-7.73	-0.76	ZZ
UMR84R		394.60	-1.81	-0.17	459.60	-0.73	-0.07	ZZ
UMUXAA		398.20	1.79	0.17	457.60	-2.73	-0.27	ZZ
UZ2M8C		402.20	5.79	0.55	454.40	-5.93	-0.58	ZZ
V4C9HU		392.40	-4.01	-0.38	454.00	-6.33	-0.62	ZZ
VBWCKQ		378.20	-18.21	-1.72	459.60	-0.73	-0.07	ZZ
VEH264		406.12	9.71	0.92	455.80	-4.53	-0.45	ZZ
VF7EML		402.40	5.99	0.57	462.00	1.67	0.16	ZZ
VLD48E		394.80	-1.61	-0.15	451.60	-8.73	-0.86	ZZ
VQNDXN		415.80	19.39	1.84	469.20	8.87	0.87	ZZ
VR3F93		391.00	-5.41	-0.51	455.20	-5.13	-0.51	ZZ
VRLE8L		401.04	4.63	0.44	457.44	-2.89	-0.28	ZZ
W8WFGG		389.20	-7.21	-0.68	467.40	7.07	0.70	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 123

Microhardness - Vickers Hardness Number (500 gf)
ASTM E384

		Sample S29			Sample S30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
WBAA8M		402.00	5.59	0.53	475.00	14.67	1.44	ZZ
WP7N8G		399.30	2.89	0.27	454.62	-5.71	-0.56	ZZ
WRZ8DN		388.24	-8.17	-0.77	455.46	-4.87	-0.48	ZZ
WVZANJ		397.20	0.79	0.07	465.00	4.67	0.46	ZZ
X3XNLP		393.20	-3.21	-0.30	466.80	6.47	0.64	ZZ
X7AK4K	*	423.68	27.27	2.58	477.62	17.29	1.70	ZZ
Y7CH3M		399.60	3.19	0.30	460.80	0.47	0.05	ZZ
YGQPNP		398.63	2.22	0.21	455.95	-4.38	-0.43	ZZ
YZKBJE		376.00	-20.41	-1.93	444.00	-16.33	-1.61	ZZ
Z37FRC		386.60	-9.81	-0.93	460.60	0.27	0.03	ZZ
ZBKBLK		399.14	2.73	0.26	466.68	6.35	0.62	ZZ
ZT6RZE		386.20	-10.21	-0.97	453.40	-6.93	-0.68	ZZ
ZXCH3K		391.44	-4.97	-0.47	461.78	1.45	0.14	ZZ

Summary Statistics

	Sample S29		Sample S30	
Grand Means	396.41	HV 500 gf	460.33	HV 500 gf
Stnd Dev Btwn Labs	10.56	HV 500 gf	10.16	HV 500 gf

Samples S29 , S30 : Steel

Statistics based on 108 of 111 reporting participants

Comments on assigned Data Flags for Analysis #123

WebCode	Flag	Analyst Comment
2QTC7E	X	Data for both samples are low. Inconsistent within the determinations of sample S30.
638TC9	X	Data for both samples are low. Inconsistent within the determinations of both samples.
RT3LRR	X	Data for sample S29 are low. Inconsistent within the determinations of sample S30.

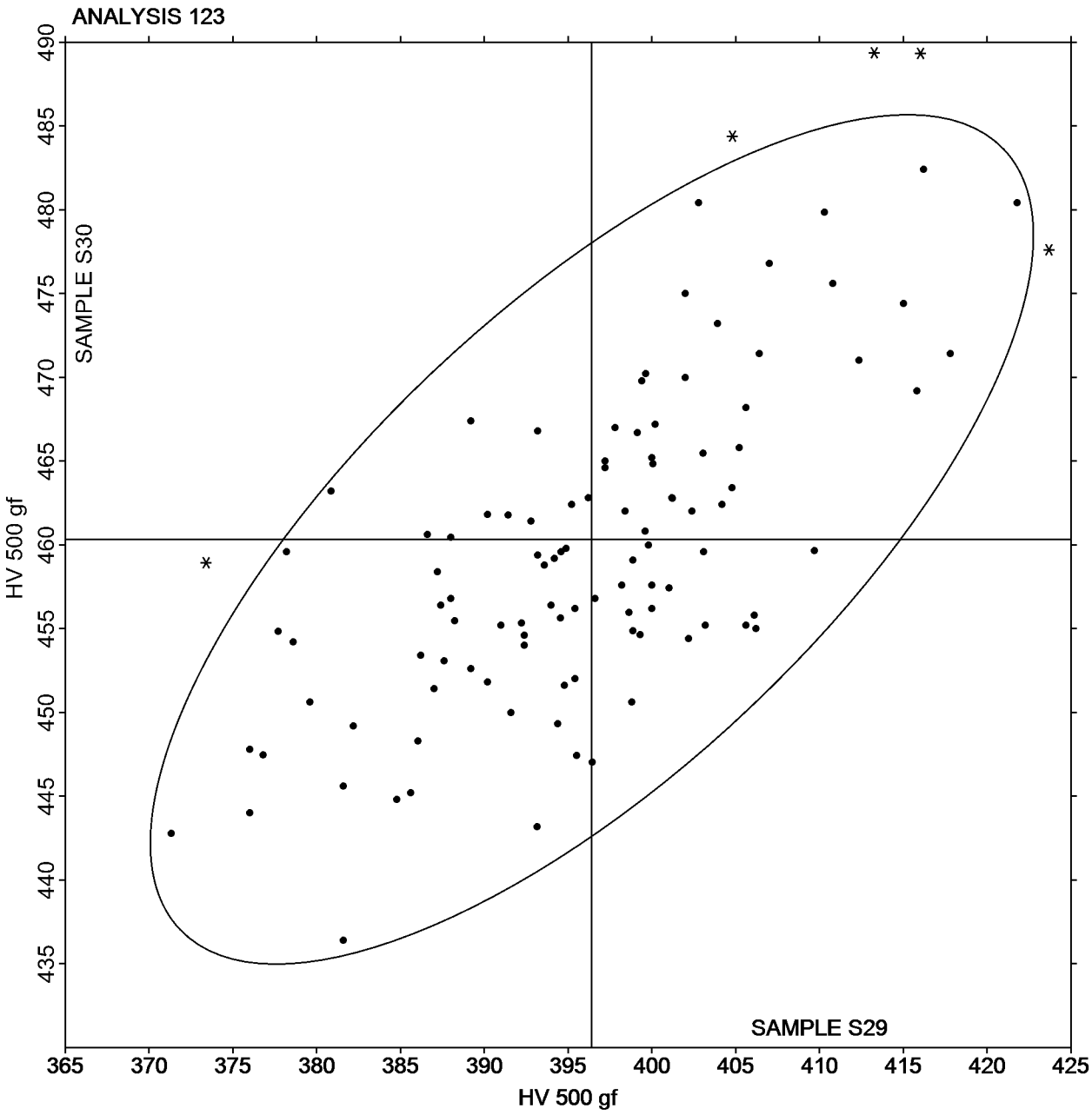
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 123

Microhardness - Vickers Hardness Number (500 gf)
ASTM E384

SAMPLE S29	SAMPLE S30
396.41 HV 500 gf	460.33 HV 500 gf



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 135

Brinell Hardness - HBW
ASTM E10

		Sample D29			Sample D30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
29TPEE		319.40	-2.81	-0.61	355.00	-5.44	-1.14	ZZ
2C6LVA		327.00	4.79	1.04	365.40	4.96	1.04	ZZ
2EDRBJ		322.20	-0.01	0.00	363.60	3.16	0.66	ZZ
2NJMFA		321.00	-1.21	-0.26	357.80	-2.64	-0.56	ZZ
3L9W3Z		333.20	10.99	2.38	368.60	8.16	1.72	ZZ
3LAQJK		323.00	0.79	0.17	360.00	-0.44	-0.09	ZZ
3RFHV3		321.00	-1.21	-0.26	354.20	-6.24	-1.31	ZZ
48RC7D		321.00	-1.21	-0.26	363.00	2.56	0.54	ZZ
4DVEQJ		325.40	3.19	0.69	360.00	-0.44	-0.09	ZZ
4WPZM4		329.64	7.43	1.61	366.80	6.36	1.34	ZZ
69G9LW		327.50	5.29	1.15	361.68	1.24	0.26	ZZ
6MY2A4	X	322.60	0.39	0.08	349.60	-10.84	-2.28	ZZ
6V8N4P		317.40	-4.81	-1.04	358.40	-2.04	-0.43	ZZ
7DNWWD		321.00	-1.21	-0.26	363.00	2.56	0.54	ZZ
7NMPAB		321.20	-1.01	-0.22	359.20	-1.24	-0.26	ZZ
7TFWPX	X	338.00	15.79	3.42	378.00	17.56	3.69	ZZ
83433W		320.75	-1.46	-0.32	360.20	-0.24	-0.05	ZZ
84TFKE		322.20	-0.01	0.00	358.00	-2.44	-0.51	ZZ
87YYKV	M	332.20	9.99	2.16	No Data Reported			ZZ
8MB8RQ	X	311.80	-10.41	-2.26	343.00	-17.44	-3.67	ZZ
8RHYUW		327.60	5.39	1.17	362.40	1.96	0.41	ZZ
9FKETW		318.20	-4.01	-0.87	352.40	-8.04	-1.69	ZZ
9H9XR9		322.60	0.39	0.08	363.60	3.16	0.66	ZZ
9PQ8G6		325.00	2.79	0.60	363.40	2.96	0.62	ZZ
A8KEUU	X	321.00	-1.21	-0.26	341.00	-19.44	-4.09	ZZ
AQZQLK		331.00	8.79	1.90	363.00	2.56	0.54	ZZ
BFH83N		323.00	0.79	0.17	360.60	0.16	0.03	ZZ
C2RWTN		321.00	-1.21	-0.26	363.00	2.56	0.54	ZZ
C7MQQP		323.00	0.79	0.17	366.60	6.16	1.30	ZZ
CAM462		319.00	-3.21	-0.70	357.00	-3.44	-0.72	ZZ
CG9R9K		318.60	-3.61	-0.78	356.80	-3.64	-0.77	ZZ
D6PTX9		321.40	-0.81	-0.18	362.20	1.76	0.37	ZZ
D8CCWK		316.20	-6.01	-1.30	352.00	-8.44	-1.78	ZZ
DC846H		324.80	2.59	0.56	357.00	-3.44	-0.72	ZZ
DNX6EW		322.00	-0.21	-0.05	362.00	1.56	0.33	ZZ
DPEYF8		320.60	-1.61	-0.35	354.00	-6.44	-1.36	ZZ
EHCH8Y		319.00	-3.21	-0.70	357.60	-2.84	-0.60	ZZ
EHUFGP		325.80	3.59	0.78	362.00	1.56	0.33	ZZ
EQJ9MU		327.20	4.99	1.08	366.20	5.76	1.21	ZZ
F7U6N9		321.00	-1.21	-0.26	363.00	2.56	0.54	ZZ
F8KDMC		325.80	3.59	0.78	360.40	-0.04	-0.01	ZZ
FFKQT8		325.60	3.39	0.73	361.80	1.36	0.29	ZZ
FWNFP4		319.00	-3.21	-0.70	352.00	-8.44	-1.78	ZZ
FZ9828		327.00	4.79	1.04	367.80	7.36	1.55	ZZ
GKBFVW		311.07	-11.14	-2.42	351.81	-8.63	-1.82	ZZ
H69E9L		333.00	10.79	2.34	366.40	5.96	1.25	ZZ
HPZJVD	X	321.00	-1.21	-0.26	347.60	-12.84	-2.70	ZZ
HR9GKN		321.00	-1.21	-0.26	363.00	2.56	0.54	ZZ
HTK9FQ		316.20	-6.01	-1.30	357.20	-3.24	-0.68	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 135

Brinell Hardness - HBW
ASTM E10

		Sample D29			Sample D30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
HZXFZZ	*	310.64	-11.58	-2.51	353.38	-7.06	-1.49	ZZ
J36U78		321.00	-1.21	-0.26	352.00	-8.44	-1.78	ZZ
J8GRN2	X	305.00	-17.21	-3.73	342.40	-18.04	-3.80	ZZ
J9TJKP		319.80	-2.41	-0.52	354.80	-5.64	-1.19	ZZ
K2QRT7		317.46	-4.75	-1.03	357.70	-2.74	-0.58	ZZ
K96TU2		321.00	-1.21	-0.26	363.00	2.56	0.54	ZZ
KTCYKW		318.80	-3.41	-0.74	356.60	-3.84	-0.81	ZZ
KYHGYN		323.20	0.99	0.21	359.60	-0.84	-0.18	ZZ
L7TDZZ		321.00	-1.21	-0.26	363.00	2.56	0.54	ZZ
LPNV3P		321.00	-1.21	-0.26	359.40	-1.04	-0.22	ZZ
LZAV28		314.20	-8.01	-1.74	352.00	-8.44	-1.78	ZZ
LZJ9ZZ		321.00	-1.21	-0.26	359.70	-0.74	-0.16	ZZ
M8MLLP		332.60	10.39	2.25	368.80	8.36	1.76	ZZ
MT6MQW		328.80	6.59	1.43	368.40	7.96	1.67	ZZ
QQMPV3		319.00	-3.21	-0.70	363.00	2.56	0.54	ZZ
QT9GYR		327.60	5.39	1.17	365.40	4.96	1.04	ZZ
RPPR3L		321.00	-1.21	-0.26	355.00	-5.44	-1.14	ZZ
RT3LRR		321.00	-1.21	-0.26	363.00	2.56	0.54	ZZ
T7CE2J		320.20	-2.01	-0.44	361.80	1.36	0.29	ZZ
TXGG9N		314.20	-8.01	-1.74	355.00	-5.44	-1.14	ZZ
U6UR2F		325.60	3.39	0.73	361.40	0.96	0.20	ZZ
U7MY3R	X	3.436	-318.78	-69.10	3.280	-357.16	-75.15	ZZ
V4C9HU		326.50	4.29	0.93	362.62	2.18	0.46	ZZ
VBWCKQ		320.50	-1.71	-0.37	358.64	-1.80	-0.38	ZZ
VK29KM		319.60	-2.61	-0.57	359.80	-0.64	-0.13	ZZ
VPBNUB	X	337.40	15.19	3.29	382.40	21.96	4.62	ZZ
VR3F93	*	320.38	-1.83	-0.40	349.58	-10.86	-2.29	ZZ
VRLE8L		321.00	-1.21	-0.26	363.00	2.56	0.54	ZZ
VVHBLE		332.40	10.19	2.21	367.40	6.96	1.46	ZZ
VWXCPG		326.00	3.79	0.82	363.80	3.36	0.71	ZZ
W7Z86R		321.00	-1.21	-0.26	363.00	2.56	0.54	ZZ
WBT4XN		321.00	-1.21	-0.26	352.00	-8.44	-1.78	ZZ
WRZ8DN		320.40	-1.81	-0.39	363.00	2.56	0.54	ZZ
WZRTEF		318.20	-4.01	-0.87	361.40	0.96	0.20	ZZ
X3XNLP		321.80	-0.41	-0.09	357.20	-3.24	-0.68	ZZ
XPRCBW		317.60	-4.61	-1.00	362.80	2.36	0.50	ZZ
XYVMLT		321.00	-1.21	-0.26	360.60	0.16	0.03	ZZ
Y6X7AJ		318.20	-4.01	-0.87	359.20	-1.24	-0.26	ZZ
Y89YEJ	*	333.20	10.99	2.38	373.40	12.96	2.73	ZZ
Y9VHBB		326.80	4.59	0.99	363.80	3.36	0.71	ZZ
YKQQYK		326.00	3.79	0.82	363.00	2.56	0.54	ZZ
YRAYE4		321.00	-1.21	-0.26	363.00	2.56	0.54	ZZ
YRQAWA		321.00	-1.21	-0.26	363.00	2.56	0.54	ZZ
YYAGV2		319.80	-2.41	-0.52	361.80	1.36	0.29	ZZ
Z37FRC		317.20	-5.01	-1.09	352.40	-8.04	-1.69	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 135

Brinell Hardness - HBW
ASTM E10

Summary Statistics

	Sample D29		Sample D30	
Grand Means	322.21	HBW	360.44	HBW
Stnd Dev Btwn Labs	4.61	HBW	4.75	HBW

Samples D29 , D30 : Steel

Statistics based on 85 of 94 reporting participants

Samples D29 , D30 are hardness test blocks made from steel. The blocks are heat treated to hardness levels specified by CTS.

Comments on assigned Data Flags for Analysis #135

WebCode	Flag	Analyst Comment
6MY2A4	X	Inconsistent in testing between samples. Inconsistent within the determinations of sample D30.
7TFWPX	X	Data for both samples are high. Possible Systematic error.
87YYKV	M	Laboratory did not submit data for sample D30.
8MB8RQ	X	Data for sample D30 are low. Inconsistent in testing between samples.
A8KEUU	X	Data for sample D30 are low. Inconsistent in testing between samples.
HPZJVD	X	Inconsistent in testing between samples. Inconsistent within the determinations of sample D30.
J8GRN2	X	Data for both samples are low. Possible Systematic error. Inconsistent within the determinations of sample D29.
U7MY3R	X	Data for both samples are low. Possible Systematic error.
VPBNUB	X	Data for both samples are high. Possible Systematic error. Inconsistent within the determinations of both samples.

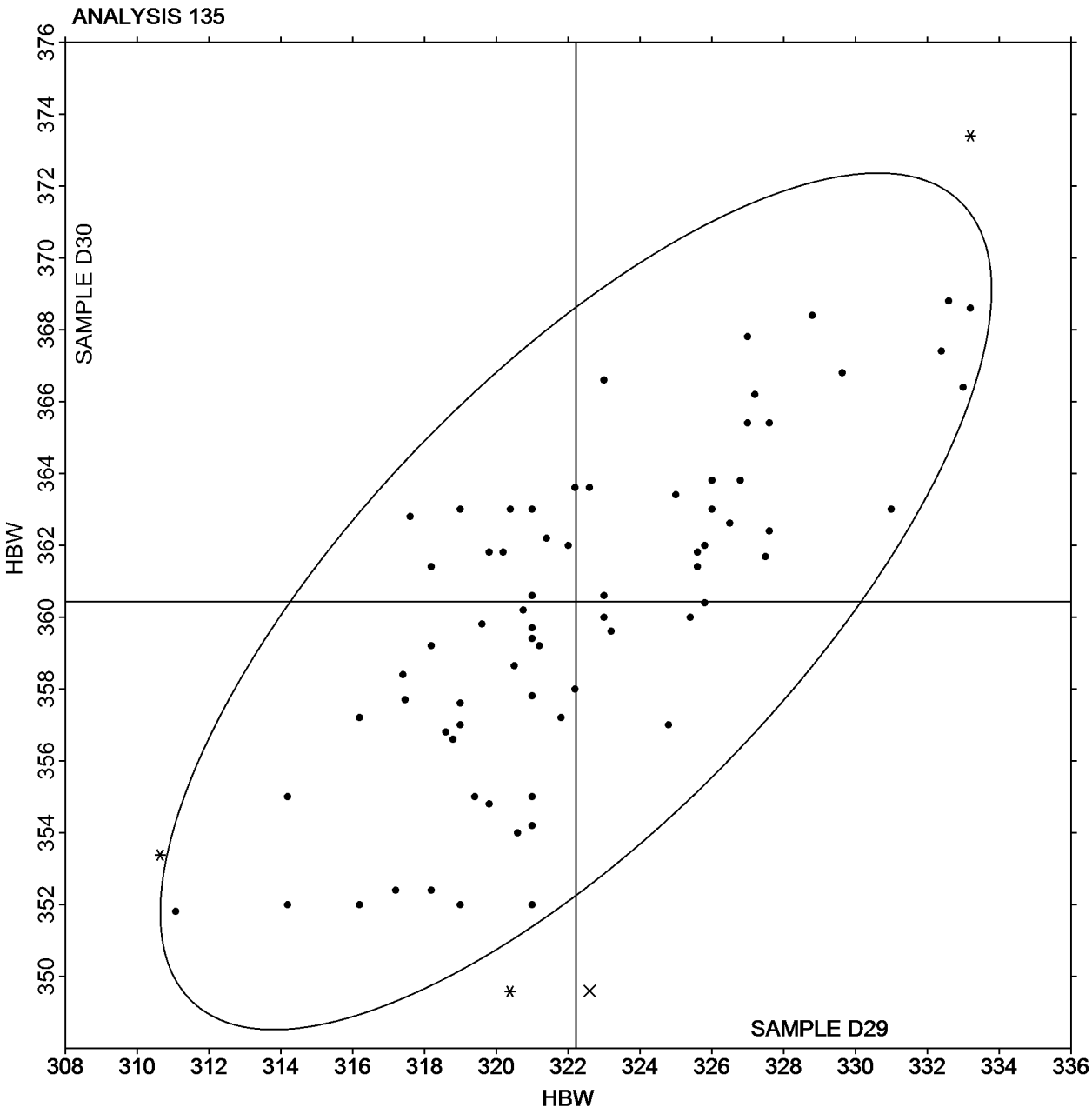
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 135

Brinell Hardness - HBW
ASTM E10

SAMPLE D29	SAMPLE D30
322.21 HBW	360.44 HBW



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 140

Tensile Strength (Lab-Machined Round Steel) - ksi
ASTM E8

		Sample P29			Sample P30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
29TPEE		145.96	1.79	1.52	143.21	2.73	2.16	ZZ
2EDRBJ		142.90	-1.27	-1.08	140.00	-0.48	-0.38	ZZ
2GYFTB		144.90	0.73	0.62	140.30	-0.18	-0.14	ZZ
2ZDNDK	*	146.69	2.52	2.14	140.14	-0.34	-0.27	ZZ
3L9W3Z		144.11	-0.06	-0.05	140.73	0.25	0.20	ZZ
3MLL7C		143.60	-0.57	-0.49	139.10	-1.38	-1.09	ZZ
48RC7D		143.60	-0.57	-0.49	139.30	-1.18	-0.93	ZZ
4J32K9		144.20	0.03	0.02	140.50	0.02	0.02	ZZ
4U2JDW		144.00	-0.17	-0.15	140.80	0.32	0.26	ZZ
6PN3GD		142.70	-1.47	-1.25	139.47	-1.01	-0.80	ZZ
6V8N4P		144.34	0.17	0.14	140.80	0.33	0.26	ZZ
778EMC	X	141.27	-2.91	-2.47	135.61	-4.86	-3.85	ZZ
7JTVCA		145.31	1.14	0.97	142.40	1.92	1.52	ZZ
7NMPAB		143.30	-0.87	-0.74	139.90	-0.58	-0.46	ZZ
7TFWPX		142.40	-1.77	-1.51	139.86	-0.62	-0.49	ZZ
83433W	X	143.59	-0.59	-0.50	129.08	-11.39	-9.00	ZZ
8DXN3Y		145.00	0.83	0.70	141.40	0.92	0.73	ZZ
8RHYUW		145.04	0.87	0.74	140.69	0.21	0.17	ZZ
8V2TXN		143.02	-1.16	-0.99	139.92	-0.56	-0.44	ZZ
9FKETW		144.00	-0.17	-0.15	139.10	-1.38	-1.09	ZZ
9H9XR9		144.04	-0.13	-0.11	139.51	-0.97	-0.76	ZZ
9NVLME		144.40	0.23	0.19	141.10	0.62	0.49	ZZ
9PQ8G6		144.50	0.33	0.28	141.40	0.92	0.73	ZZ
9QYG7G		145.00	0.83	0.70	142.50	2.02	1.60	ZZ
AQZQLK		144.12	-0.06	-0.05	142.25	1.77	1.40	ZZ
ARP3DD	X	148.06	3.89	3.31	144.41	3.93	3.11	ZZ
AU3PWD		143.80	-0.37	-0.32	140.40	-0.08	-0.06	ZZ
B38WCD		145.10	0.93	0.79	141.60	1.12	0.89	ZZ
BKRRJT		145.00	0.83	0.70	140.00	-0.48	-0.38	ZZ
C2RWTN		143.00	-1.17	-1.00	139.60	-0.88	-0.69	ZZ
CAJJFD		145.40	1.23	1.04	139.80	-0.68	-0.53	ZZ
CBGPXT		143.30	-0.87	-0.74	138.90	-1.58	-1.25	ZZ
CEL9A8		143.00	-1.17	-1.00	140.00	-0.48	-0.38	ZZ
CG9R9K		145.60	1.43	1.21	141.50	1.02	0.81	ZZ
CJUL2E		145.10	0.93	0.79	139.30	-1.18	-0.93	ZZ
D8CCWK	X	145.04	0.87	0.74	144.60	4.13	3.26	ZZ
DAZT7T		142.00	-2.17	-1.85	139.00	-1.48	-1.17	ZZ
DZENYU		143.44	-0.73	-0.62	140.83	0.36	0.28	ZZ
DZQNT3		146.00	1.83	1.55	143.00	2.52	2.00	ZZ
E7WGMX		143.15	-1.02	-0.87	139.24	-1.24	-0.98	ZZ
EECZ6C		143.60	-0.57	-0.49	140.30	-0.18	-0.14	ZZ
EF2N3X		144.60	0.43	0.36	140.90	0.42	0.34	ZZ
EJ4KUE		143.70	-0.47	-0.40	139.90	-0.58	-0.46	ZZ
FFKPRL		144.54	0.37	0.31	139.84	-0.63	-0.50	ZZ
FWNFP4		145.59	1.42	1.20	143.05	2.57	2.03	ZZ
GKBFVW	*	142.10	-2.07	-1.76	141.50	1.02	0.81	ZZ
GN96PN		142.70	-1.47	-1.25	139.70	-0.78	-0.61	ZZ
H69E9L		145.64	1.47	1.25	143.31	2.83	2.24	ZZ
H6AAP7	X	140.69	-3.49	-2.96	141.41	0.94	0.74	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 140

Tensile Strength (Lab-Machined Round Steel) - ksi
ASTM E8

		Sample P29			Sample P30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
H9BDLY		144.05	-0.12	-0.10	140.85	0.37	0.29	ZZ
HTK9FQ		143.30	-0.87	-0.74	141.80	1.32	1.05	ZZ
J36U78		144.40	0.23	0.19	141.10	0.62	0.49	ZZ
J4BJ6A		145.99	1.82	1.54	142.47	1.99	1.58	ZZ
J9TJKP	*	141.70	-2.47	-2.10	137.10	-3.38	-2.67	ZZ
JDKQ3X		144.00	-0.17	-0.15	138.50	-1.98	-1.56	ZZ
JDMF8V	*	147.10	2.93	2.49	141.20	0.72	0.57	ZZ
JM8RGL		142.52	-1.65	-1.41	140.21	-0.27	-0.21	ZZ
K3UPVM		144.98	0.81	0.69	140.57	0.09	0.07	ZZ
KBU8DJ		144.20	0.03	0.02	139.70	-0.78	-0.61	ZZ
KPUNPD		143.60	-0.57	-0.49	140.47	-0.01	0.00	ZZ
KVZHJ9		144.82	0.65	0.55	141.09	0.61	0.49	ZZ
KWNV2Q		144.54	0.37	0.31	140.13	-0.35	-0.27	ZZ
KYHGYN		142.90	-1.27	-1.08	138.60	-1.88	-1.48	ZZ
L7TDZZ		145.00	0.83	0.70	142.00	1.52	1.20	ZZ
M6ZNCD		144.50	0.33	0.28	139.80	-0.68	-0.53	ZZ
M8MLLP		144.60	0.43	0.36	140.80	0.32	0.26	ZZ
M9VKTR		142.20	-1.97	-1.68	138.40	-2.08	-1.64	ZZ
MJW4AL		144.00	-0.17	-0.15	139.00	-1.48	-1.17	ZZ
N4LHQW	*	141.12	-3.05	-2.59	138.37	-2.11	-1.67	ZZ
Q3X34Q	X	146.00	1.83	1.55	145.00	4.52	3.58	ZZ
QEVWPZ		144.40	0.23	0.19	141.10	0.62	0.49	ZZ
QT9GYR		144.10	-0.07	-0.06	141.10	0.62	0.49	ZZ
RAEXKK		143.86	-0.32	-0.27	138.34	-2.13	-1.69	ZZ
RJGHKR		144.00	-0.17	-0.15	138.00	-2.48	-1.96	ZZ
RPPR3L		143.57	-0.60	-0.51	141.13	0.65	0.52	ZZ
T3UEL3		143.60	-0.57	-0.49	142.60	2.12	1.68	ZZ
TKQXHP		145.60	1.43	1.21	141.90	1.42	1.13	ZZ
TMXZNU	X	139.00	-5.17	-4.40	143.00	2.52	2.00	ZZ
TPYBAW		144.60	0.43	0.36	140.30	-0.18	-0.14	ZZ
TQWFTC		143.00	-1.17	-1.00	139.80	-0.68	-0.53	ZZ
TRULDC		145.33	1.16	0.98	139.37	-1.11	-0.88	ZZ
TXGG9N		143.00	-1.17	-1.00	139.00	-1.48	-1.17	ZZ
VBWCKQ	X	140.64	-3.53	-3.00	144.78	4.30	3.40	ZZ
VF7EML		143.00	-1.17	-1.00	139.00	-1.48	-1.17	ZZ
VR3F93	M	No Data Reported			139.96	-0.51	-0.41	ZZ
VWXCPG		145.29	1.12	0.95	140.58	0.10	0.08	ZZ
WF62FJ		145.72	1.55	1.32	141.80	1.32	1.04	ZZ
WX4C68		143.80	-0.37	-0.32	139.90	-0.58	-0.46	ZZ
X66N3Q		144.30	0.13	0.11	140.97	0.49	0.39	ZZ
XPRCBW		144.60	0.43	0.37	142.57	2.10	1.66	ZZ
XVVCQT		144.30	0.13	0.11	141.70	1.22	0.97	ZZ
XYVMLT		144.70	0.53	0.45	142.50	2.02	1.60	ZZ
Y2D9ME		146.30	2.13	1.81	141.00	0.52	0.41	ZZ
Y6X7AJ		144.00	-0.17	-0.15	141.00	0.52	0.41	ZZ
Y7CH3M		144.00	-0.17	-0.15	140.80	0.32	0.26	ZZ
Y9VHBB		143.59	-0.59	-0.50	139.82	-0.66	-0.52	ZZ
YRAYE4	*	147.00	2.83	2.40	141.00	0.52	0.41	ZZ
YRQAWA		143.83	-0.35	-0.30	139.89	-0.58	-0.46	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 140

Tensile Strength (Lab-Machined Round Steel) - ksi
ASTM E8

		Sample P29			Sample P30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
Z37FRC		142.70	-1.47	-1.25	140.20	-0.28	-0.22	ZZ
ZBKBLK		142.86	-1.31	-1.11	139.24	-1.24	-0.98	ZZ
ZLWHHK		145.91	1.74	1.48	140.98	0.50	0.40	ZZ

Summary Statistics

	Sample P29		Sample P30	
Grand Means	144.17	ksi	140.48	ksi
Stnd Dev Btwn Labs	1.18	ksi	1.27	ksi

Samples P29 , P30 : AISI 4340

Statistics based on 92 of 101 reporting participants

Comments on assigned Data Flags for Analysis #140

WebCode	Flag	Analyst Comment
778EMC	X	Data for sample P30 are low.
83433W	X	Data for sample P30 are low.
ARP3DD	X	Data for both samples are high.
D8CCWK	X	Data for sample P30 are high.
H6AAP7	X	Data for sample P29 are low.
Q3X34Q	X	Data for sample P30 are high.
TMXZNU	X	Data for sample P29 are low.
VBWCKQ	X	Data for sample P29 are low and data for sample P30 are high.
VR3F93	M	Laboratory did not submit data for sample P29.

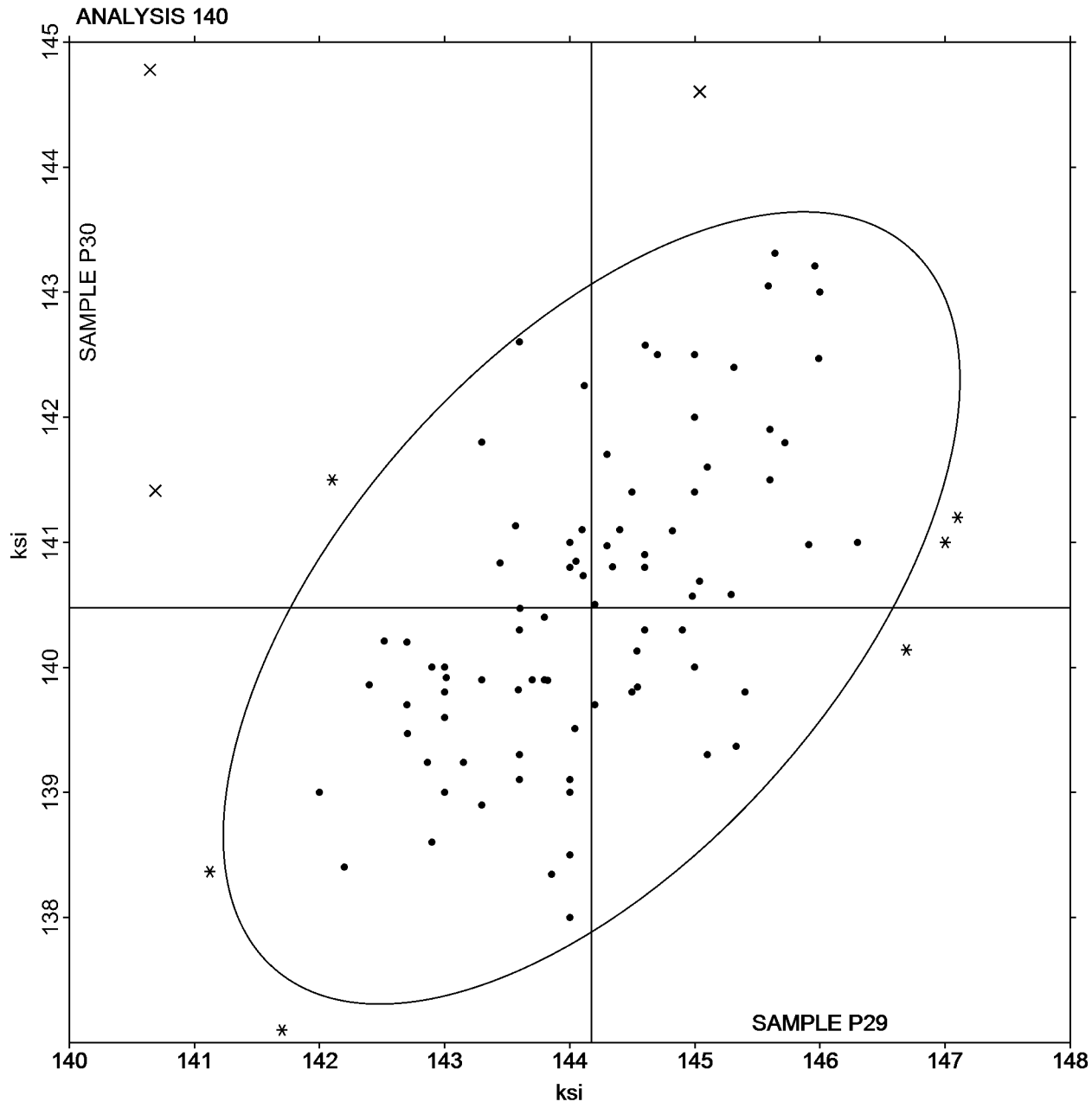
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 140

Tensile Strength (Lab-Machined Round Steel) - ksi
ASTM E8

SAMPLE P29	SAMPLE P30
144.17 ksi	140.48 ksi



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 141

Yield Strength (Lab-Machined Round Steel) - ksi
ASTM E8

		Sample P29			Sample P30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
29TPEE		117.89	1.86	1.55	114.07	2.18	1.90	ZZ
2EDRBJ		114.70	-1.33	-1.11	112.00	0.11	0.10	ZZ
2GYFTB		117.40	1.37	1.14	113.10	1.21	1.05	ZZ
2ZDNDK		116.60	0.57	0.47	111.35	-0.54	-0.47	ZZ
3L9W3Z		116.23	0.20	0.16	112.05	0.16	0.14	ZZ
3MLL7C		115.70	-0.33	-0.28	111.00	-0.89	-0.77	ZZ
48RC7D		115.40	-0.63	-0.53	111.20	-0.69	-0.60	ZZ
4J32K9		115.10	-0.93	-0.78	111.60	-0.29	-0.25	ZZ
4U2JDW		116.40	0.37	0.31	112.80	0.91	0.79	ZZ
6PN3GD		114.78	-1.25	-1.04	110.80	-1.09	-0.95	ZZ
6V8N4P		116.21	0.17	0.15	112.00	0.11	0.10	ZZ
778EMC	X	67.88	-48.15	-40.11	69.18	-42.71	-37.12	ZZ
7JTVCA		117.79	1.76	1.46	111.30	-0.59	-0.51	ZZ
7NMPAB		115.30	-0.73	-0.61	113.50	1.61	1.40	ZZ
7TFWPX		114.38	-1.66	-1.38	111.80	-0.09	-0.08	ZZ
83433W		117.48	1.45	1.21	112.41	0.52	0.45	ZZ
8DXN3Y		114.20	-1.83	-1.52	111.50	-0.39	-0.34	ZZ
8RHYUW	X	115.74	-0.29	-0.24	106.02	-5.87	-5.10	ZZ
8V2TXN		116.23	0.19	0.16	112.43	0.54	0.47	ZZ
9FKETW		116.20	0.17	0.14	111.10	-0.79	-0.69	ZZ
9H9XR9		116.27	0.24	0.20	111.54	-0.35	-0.30	ZZ
9NVLME		116.80	0.77	0.64	112.80	0.91	0.79	ZZ
9PQ8G6		116.40	0.37	0.31	112.90	1.01	0.88	ZZ
9QYG7G		117.40	1.37	1.14	114.00	2.11	1.83	ZZ
AQZQLK		116.58	0.54	0.45	113.50	1.62	1.40	ZZ
ARP3DD		117.63	1.60	1.33	112.74	0.85	0.74	ZZ
AU3PWD		116.60	0.57	0.47	112.40	0.51	0.44	ZZ
B38WCD		115.60	-0.43	-0.36	111.70	-0.19	-0.16	ZZ
BKRRJT		115.00	-1.03	-0.86	110.00	-1.89	-1.64	ZZ
C2RWTN		115.60	-0.43	-0.36	111.30	-0.59	-0.51	ZZ
CAJJFD		117.90	1.87	1.56	111.50	-0.39	-0.34	ZZ
CBGPXT		115.60	-0.43	-0.36	111.20	-0.69	-0.60	ZZ
CEL9A8		118.00	1.97	1.64	112.00	0.11	0.10	ZZ
CG9R9K	X	112.30	-3.73	-3.11	112.00	0.11	0.10	ZZ
CJUL2E		117.30	1.27	1.06	111.00	-0.89	-0.77	ZZ
D8CCWK		115.45	-0.58	-0.48	111.97	0.08	0.07	ZZ
DAZT7T		118.00	1.97	1.64	114.00	2.11	1.83	ZZ
DZENYU		114.73	-1.30	-1.09	111.39	-0.50	-0.43	ZZ
DZQNT3		117.00	0.97	0.81	114.00	2.11	1.83	ZZ
E7WGMX		114.73	-1.30	-1.09	110.37	-1.51	-1.32	ZZ
EECZ6C		115.90	-0.13	-0.11	111.90	0.01	0.01	ZZ
EF2N3X		117.30	1.27	1.06	112.40	0.51	0.44	ZZ
EJ4KUE		116.40	0.37	0.31	111.60	-0.29	-0.25	ZZ
FFKPRL		117.18	1.15	0.96	111.90	0.01	0.01	ZZ
FWNFP4		116.16	0.13	0.11	113.31	1.42	1.24	ZZ
GKBFVW		114.30	-1.73	-1.44	113.10	1.21	1.05	ZZ
GN96PN		114.50	-1.53	-1.28	110.60	-1.29	-1.12	ZZ
H69E9L	X	122.15	6.12	5.10	118.58	6.69	5.82	ZZ
H6AAP7	X	118.93	2.90	2.42	117.48	5.59	4.86	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 141

Yield Strength (Lab-Machined Round Steel) - ksi
ASTM E8

		Sample P29			Sample P30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
H9BDLY		115.44	-0.59	-0.49	112.33	0.44	0.39	ZZ
HTK9FQ		115.00	-1.03	-0.86	113.30	1.41	1.23	ZZ
J36U78		117.10	1.07	0.89	113.30	1.41	1.23	ZZ
J4BJ6A	*	118.92	2.89	2.41	112.42	0.53	0.46	ZZ
J9TJKP	*	113.90	-2.13	-1.77	108.80	-3.09	-2.68	ZZ
JDMF8V	X	131.60	15.57	12.97	113.80	1.91	1.66	ZZ
JM8RGL		113.58	-2.45	-2.04	111.11	-0.78	-0.68	ZZ
JMALX8		113.49	-2.54	-2.11	110.27	-1.62	-1.40	ZZ
K3UPVM		115.91	-0.12	-0.10	112.06	0.17	0.15	ZZ
KBU8DJ		117.30	1.27	1.06	110.90	-0.99	-0.86	ZZ
KPUNPD		114.15	-1.89	-1.57	111.75	-0.14	-0.12	ZZ
KVZHJ9		115.21	-0.82	-0.68	110.51	-1.38	-1.20	ZZ
KWNV2Q		115.37	-0.66	-0.55	111.32	-0.57	-0.49	ZZ
KYHGYN		115.40	-0.63	-0.53	110.50	-1.39	-1.21	ZZ
L7TDZZ		118.00	1.97	1.64	113.00	1.11	0.97	ZZ
M6ZNCD		116.70	0.67	0.56	111.90	0.01	0.01	ZZ
M8MLLP		116.80	0.77	0.64	113.50	1.61	1.40	ZZ
M9VKTR		115.40	-0.63	-0.53	111.10	-0.79	-0.69	ZZ
MJW4AL		117.10	1.07	0.89	111.50	-0.39	-0.34	ZZ
N4LHQW	X	69.18	-46.85	-39.02	70.05	-41.84	-36.36	ZZ
Q3X34Q	X	119.00	2.97	2.47	116.00	4.11	3.57	ZZ
QEVWPZ		116.00	-0.03	-0.03	112.80	0.91	0.79	ZZ
QT9GYR		115.20	-0.83	-0.69	111.40	-0.49	-0.43	ZZ
RAEXKK	X	120.44	4.41	3.67	112.92	1.03	0.89	ZZ
RJGHKR	*	115.00	-1.03	-0.86	109.00	-2.89	-2.51	ZZ
RPPR3L		114.84	-1.19	-0.99	111.70	-0.19	-0.16	ZZ
T3UEL3	X	117.30	1.27	1.06	118.10	6.21	5.40	ZZ
TKQXHP		116.70	0.67	0.56	112.90	1.01	0.88	ZZ
TMXZNU	X	112.00	-4.03	-3.36	116.00	4.11	3.57	ZZ
TPYBAW		116.70	0.67	0.56	111.80	-0.09	-0.08	ZZ
TQWFTC		114.80	-1.23	-1.03	110.40	-1.49	-1.29	ZZ
TRULDC		115.44	-0.59	-0.49	109.46	-2.43	-2.11	ZZ
TXGG9N		116.00	-0.03	-0.03	112.00	0.11	0.10	ZZ
VBWCKQ		115.97	-0.06	-0.05	110.97	-0.92	-0.80	ZZ
VF7EML		116.00	-0.03	-0.03	111.00	-0.89	-0.77	ZZ
VR3F93	M	No Data Reported			112.41	0.52	0.45	ZZ
VWXCPG		117.19	1.16	0.97	111.63	-0.26	-0.23	ZZ
WF62FJ	X	120.31	4.28	3.57	115.14	3.25	2.82	ZZ
WX4C68		116.80	0.77	0.64	112.00	0.11	0.10	ZZ
X66N3Q		116.40	0.37	0.31	112.42	0.53	0.46	ZZ
XPRCBW	*	116.47	0.44	0.36	114.58	2.69	2.34	ZZ
XVVCQT		116.70	0.67	0.56	112.70	0.81	0.70	ZZ
XYVMLT		116.30	0.27	0.22	114.10	2.21	1.92	ZZ
Y2D9ME		117.80	1.77	1.47	112.40	0.51	0.44	ZZ
Y6X7AJ		114.00	-2.03	-1.69	111.00	-0.89	-0.77	ZZ
Y7CH3M		114.00	-2.03	-1.69	110.20	-1.69	-1.47	ZZ
Y9VHBB		115.89	-0.14	-0.12	111.24	-0.64	-0.56	ZZ
YRAYE4		118.00	1.97	1.64	112.00	0.11	0.10	ZZ
YRQAWA		115.62	-0.41	-0.34	110.90	-0.99	-0.86	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 141

Yield Strength (Lab-Machined Round Steel) - ksi
ASTM E8

		Sample P29			Sample P30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
Z37FRC		114.50	-1.53	-1.28	111.90	0.01	0.01	ZZ
ZBKBLK		115.31	-0.72	-0.60	113.13	1.24	1.08	ZZ

Summary Statistics

	Sample P29		Sample P30	
Grand Means	116.03	ksi	111.89	ksi
Stnd Dev Btwn Labs	1.20	ksi	1.15	ksi

Samples P29 , P30 : AISI 4340

Statistics based on 87 of 100 reporting participants

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 141

Yield Strength (Lab-Machined Round Steel) - ksi
ASTM E8

Comments on assigned Data Flags for Analysis #141

WebCode	Flag	Analyst Comment
778EMC	X	Data for both samples are low.
8RHYUW	X	Data for sample P30 are low.
CG9R9K	X	Data for sample P29 are low.
H69E9L	X	Data for both samples are high.
H6AAP7	X	Data for sample P30 are high.
JDMF8V	X	Data for sample P29 are high.
N4LHQW	X	Data for both samples are low.
Q3X34Q	X	Data for sample P30 are high.
RAEXKK	X	Data for sample P29 are high.
T3UEL3	X	Data for sample P30 are high.
TMXZNU	X	Data for sample P29 are low and data for sample P30 are high.
VR3F93	M	Laboratory did not submit data for sample P29.
WF62FJ	X	Data for both samples are high.

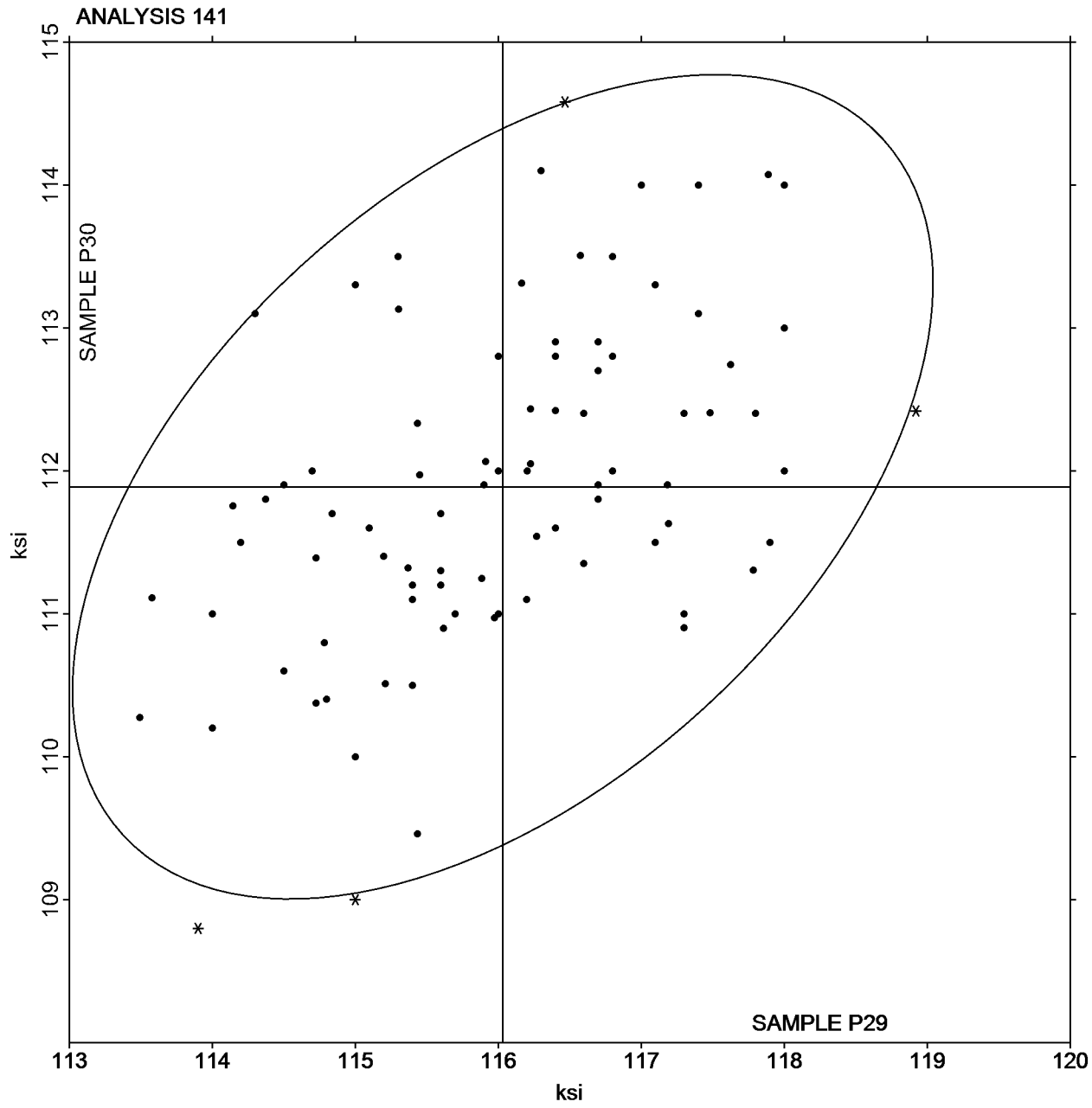
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 141

Yield Strength (Lab-Machined Round Steel) - ksi
ASTM E8

SAMPLE P29	SAMPLE P30
116.03 ksi	111.89 ksi



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 142

Elongation - (Lab-Machined Round Steel) - Percent Increase
ASTM E8

		Sample P29			Sample P30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
29TPEE		17.30	-0.48	-0.49	17.10	-0.63	-0.59	ZZ
2EDRBJ		16.70	-1.08	-1.09	18.60	0.87	0.83	ZZ
2GYFTB		19.00	1.22	1.23	20.00	2.27	2.16	ZZ
2ZDNDK		19.50	1.72	1.74	19.10	1.37	1.31	ZZ
3L9W3Z		15.70	-2.08	-2.10	15.80	-1.93	-1.83	ZZ
3MLL7C		16.10	-1.68	-1.70	15.80	-1.93	-1.83	ZZ
48RC7D		17.60	-0.18	-0.18	17.70	-0.03	-0.02	ZZ
4J32K9		17.00	-0.78	-0.79	18.00	0.27	0.26	ZZ
4U2JDW		16.80	-0.98	-0.99	17.80	0.07	0.07	ZZ
6PN3GD		17.80	0.02	0.02	17.50	-0.23	-0.21	ZZ
6V8N4P		17.80	0.02	0.02	17.80	0.07	0.07	ZZ
778EMC		16.80	-0.98	-0.99	17.60	-0.13	-0.12	ZZ
7JTVCA		18.50	0.72	0.73	18.10	0.37	0.36	ZZ
7NMPAB		19.80	2.02	2.04	19.80	2.07	1.97	ZZ
7TFWPX	X	20.00	2.22	2.24	17.00	-0.73	-0.69	ZZ
83433W		16.00	-1.78	-1.80	17.00	-0.73	-0.69	ZZ
8DXN3Y		18.70	0.92	0.93	17.10	-0.63	-0.59	ZZ
8RHYUW		18.40	0.62	0.63	18.30	0.57	0.55	ZZ
8V2TXN		18.00	0.22	0.22	17.80	0.07	0.07	ZZ
9FKETW		18.50	0.72	0.73	18.50	0.77	0.74	ZZ
9H9XR9		18.00	0.22	0.22	17.00	-0.73	-0.69	ZZ
9NVLME		18.30	0.52	0.52	17.50	-0.23	-0.21	ZZ
9PQ8G6		16.69	-1.09	-1.10	16.44	-1.29	-1.22	ZZ
9QYG7G		17.90	0.12	0.12	16.70	-1.03	-0.98	ZZ
AQZQLK		18.50	0.72	0.73	19.00	1.27	1.21	ZZ
ARP3DD		17.25	-0.53	-0.54	17.75	0.02	0.02	ZZ
AU3PWD	X	14.40	-3.38	-3.42	13.90	-3.83	-3.64	ZZ
B38WCD		18.50	0.72	0.73	18.00	0.27	0.26	ZZ
BKRRJT		19.00	1.22	1.23	20.00	2.27	2.16	ZZ
C2RWTN		18.80	1.02	1.03	18.50	0.77	0.74	ZZ
CAJJFD		17.70	-0.08	-0.08	17.30	-0.43	-0.40	ZZ
CBGPXT		17.50	-0.28	-0.28	18.50	0.77	0.74	ZZ
CEL9A8		17.00	-0.78	-0.79	18.00	0.27	0.26	ZZ
CG9R9K		19.00	1.22	1.23	18.90	1.17	1.12	ZZ
CJUL2E		18.10	0.32	0.32	18.50	0.77	0.74	ZZ
D8CCWK		20.00	2.22	2.24	19.50	1.77	1.69	ZZ
DAZT7T		16.00	-1.78	-1.80	17.00	-0.73	-0.69	ZZ
DZENYU		17.00	-0.78	-0.79	17.40	-0.33	-0.31	ZZ
DZQNT3		17.20	-0.58	-0.59	17.00	-0.73	-0.69	ZZ
E7WGMX		18.00	0.22	0.22	18.00	0.27	0.26	ZZ
EECZ6C		18.20	0.42	0.42	18.30	0.57	0.55	ZZ
EF2N3X		17.39	-0.39	-0.40	16.49	-1.24	-1.18	ZZ
EJ4KUE		18.30	0.52	0.52	18.40	0.67	0.64	ZZ
FFKPRL		18.20	0.42	0.42	17.20	-0.53	-0.50	ZZ
FWNFP4		17.60	-0.18	-0.18	18.00	0.27	0.26	ZZ
GKBFVW	*	18.80	1.02	1.03	20.70	2.97	2.83	ZZ
GN96PN		18.60	0.82	0.83	18.18	0.45	0.43	ZZ
H69E9L		18.02	0.24	0.24	19.52	1.79	1.71	ZZ
H6AAP7	X	11.00	-6.78	-6.85	15.00	-2.73	-2.59	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 142

Elongation - (Lab-Machined Round Steel) - Percent Increase
ASTM E8

		Sample P29			Sample P30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
H9BDLY		17.60	-0.18	-0.18	17.60	-0.13	-0.12	ZZ
HTK9FQ		17.30	-0.48	-0.49	16.00	-1.73	-1.64	ZZ
J36U78		18.50	0.72	0.73	17.00	-0.73	-0.69	ZZ
J4BJ6A	X	13.20	-4.58	-4.63	15.05	-2.68	-2.54	ZZ
J9TJKP		17.10	-0.68	-0.69	16.80	-0.93	-0.88	ZZ
JDKQ3X		17.40	-0.38	-0.39	17.10	-0.63	-0.59	ZZ
JDMF8V	*	15.70	-2.08	-2.10	17.30	-0.43	-0.40	ZZ
JM8RGL		19.00	1.22	1.23	18.00	0.27	0.26	ZZ
K3UPVM		16.60	-1.18	-1.19	17.80	0.07	0.07	ZZ
KBU8DJ		17.00	-0.78	-0.79	16.00	-1.73	-1.64	ZZ
KPUNPD		17.10	-0.68	-0.69	17.20	-0.53	-0.50	ZZ
KVZHJ9		16.52	-1.26	-1.27	16.13	-1.60	-1.52	ZZ
KWNV2Q		19.00	1.22	1.23	19.00	1.27	1.21	ZZ
KYHGYN		17.40	-0.38	-0.39	17.30	-0.43	-0.40	ZZ
L7TDZZ		18.00	0.22	0.22	18.00	0.27	0.26	ZZ
M6ZNCD		17.00	-0.78	-0.79	17.50	-0.23	-0.21	ZZ
M8MLLP		20.00	2.22	2.24	19.00	1.27	1.21	ZZ
M9VKTR		17.00	-0.78	-0.79	16.00	-1.73	-1.64	ZZ
MJW4AL		16.50	-1.28	-1.29	16.50	-1.23	-1.17	ZZ
N4LHQW		18.40	0.62	0.63	17.30	-0.43	-0.40	ZZ
Q3X34Q		16.60	-1.18	-1.19	16.70	-1.03	-0.98	ZZ
QEVWPZ		19.30	1.52	1.53	18.40	0.67	0.64	ZZ
QT9GYR		17.90	0.12	0.12	16.40	-1.33	-1.26	ZZ
RAEXKK	X	22.00	4.22	4.26	11.59	-6.14	-5.84	ZZ
RJGHKR		19.00	1.22	1.23	19.00	1.27	1.21	ZZ
RPPR3L		17.50	-0.28	-0.28	17.12	-0.61	-0.58	ZZ
T3UEL3		18.20	0.42	0.42	18.20	0.47	0.45	ZZ
TKQXHP		17.50	-0.28	-0.28	17.50	-0.23	-0.21	ZZ
TMXZNU		17.10	-0.68	-0.69	16.60	-1.13	-1.07	ZZ
TPYBAW		17.50	-0.28	-0.28	18.00	0.27	0.26	ZZ
TQWFTC	X	19.80	2.02	2.04	21.90	4.17	3.97	ZZ
TRULDC	*	18.20	0.42	0.42	20.20	2.47	2.35	ZZ
TXGG9N		16.90	-0.88	-0.89	16.39	-1.34	-1.27	ZZ
VBWCKQ		19.40	1.62	1.64	19.00	1.27	1.21	ZZ
VF7EML		17.47	-0.31	-0.31	16.29	-1.44	-1.37	ZZ
VR3F93	M	No Data Reported			16.10	-1.63	-1.55	ZZ
VWXCPG		17.20	-0.58	-0.59	17.60	-0.13	-0.12	ZZ
WF62FJ		16.85	-0.93	-0.94	17.10	-0.63	-0.59	ZZ
WX4C68		19.30	1.52	1.53	18.30	0.57	0.55	ZZ
X66N3Q		18.00	0.22	0.22	18.30	0.57	0.55	ZZ
XPRCBW		15.50	-2.28	-2.30	16.00	-1.73	-1.64	ZZ
XVVCQT		17.70	-0.08	-0.08	17.80	0.07	0.07	ZZ
XYVMLT	*	18.00	0.22	0.22	16.00	-1.73	-1.64	ZZ
Y2D9ME		17.00	-0.78	-0.79	17.25	-0.48	-0.45	ZZ
Y6X7AJ		19.00	1.22	1.23	19.00	1.27	1.21	ZZ
Y7CH3M		18.00	0.22	0.22	18.00	0.27	0.26	ZZ
Y9VHBB		17.60	-0.18	-0.18	17.40	-0.33	-0.31	ZZ
YRAYE4		18.00	0.22	0.22	18.00	0.27	0.26	ZZ
YRQAWA		17.50	-0.28	-0.28	17.50	-0.23	-0.21	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 142

Elongation - (Lab-Machined Round Steel) - Percent Increase
ASTM E8

WebCode	Data Flag	Sample P29 Lab Mean	Sample P29 Diff. from Grand Mean	Sample P29 CPV	Sample P30 Lab Mean	Sample P30 Diff. from Grand Mean	Sample P30 CPV	Instr Code
Z37FRC		16.50	-1.28	-1.29	17.00	-0.73	-0.69	ZZ
ZBKBLK		19.00	1.22	1.23	18.00	0.27	0.26	ZZ
ZLWHHK		19.04	1.26	1.27	18.44	0.71	0.68	ZZ

Summary Statistics

	Sample P29		Sample P30	
Grand Means	17.78	Percent	17.73	Percent
Stnd Dev Btwn Labs	0.99	Percent	1.05	Percent

Samples P29 , P30 : AISI 4340

Statistics based on 94 of 101 reporting participants

Comments on assigned Data Flags for Analysis #142

WebCode	Flag	Analyst Comment
7TFWPX	X	Inconsistent in testing between samples.
AU3PWD	X	Data for both samples are low.
H6AAP7	X	Data for sample P29 are low.
J4BJ6A	X	Data for sample P29 are low.
RAEXKK	X	Data for sample P29 are high and data for sample P30 are low.
TQWFTC	X	Data for sample P30 are high.
VR3F93	M	Laboratory did not submit data for sample P29.

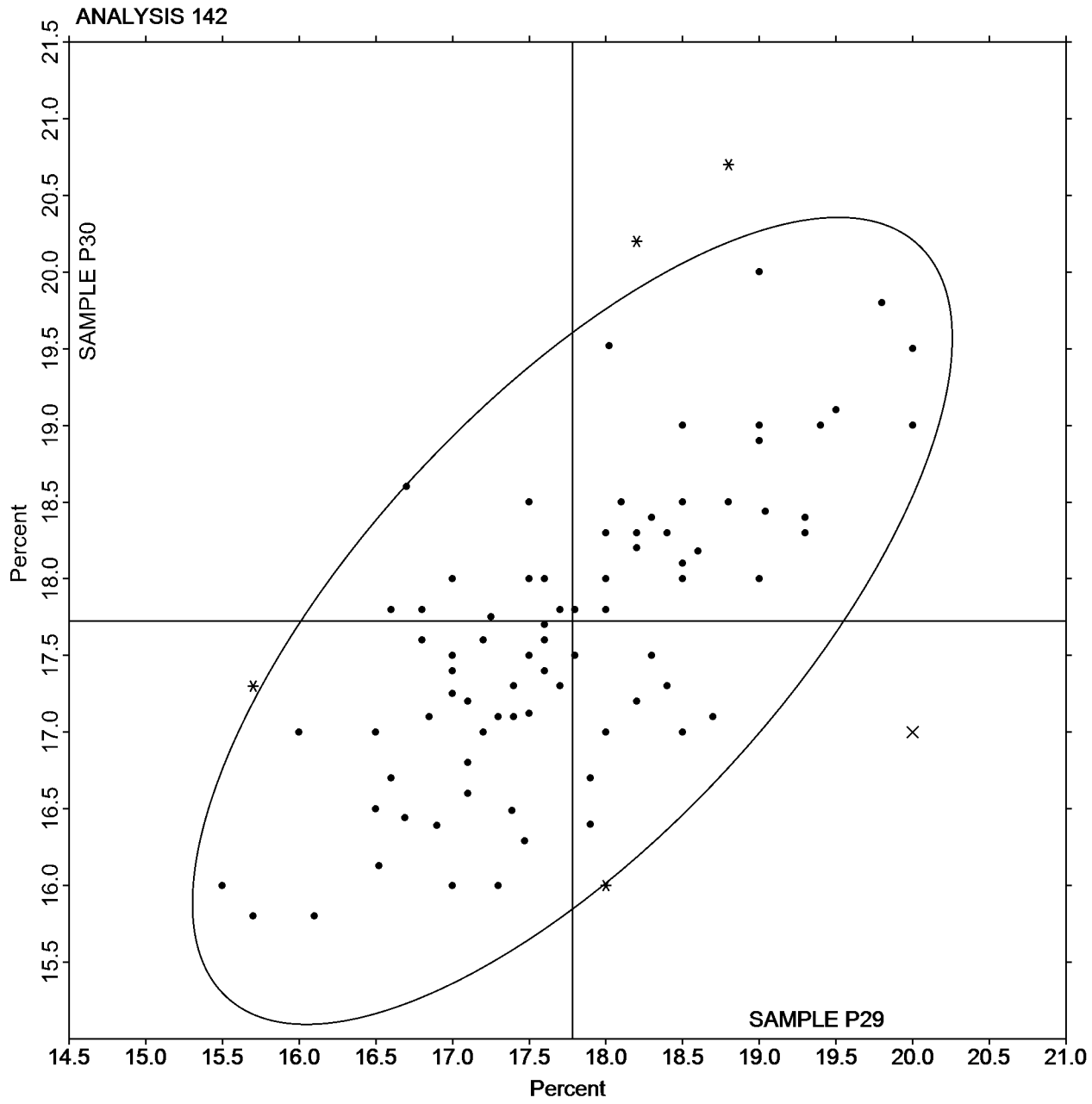
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 142

Elongation - (Lab-Machined Round Steel) - Percent Increase
ASTM E8

SAMPLE P29	SAMPLE P30
17.78 Percent	17.73 Percent



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 143

Reduction of Area (Lab-Machined Round Steel) - Percent
ASTM E8

		Sample P29			Sample P30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
29TPEE		54.60	0.78	0.49	54.30	1.77	1.12	ZZ
2EDRBJ		53.80	-0.02	-0.01	52.70	0.17	0.11	ZZ
2GYFTB		54.00	0.18	0.11	54.00	1.47	0.93	ZZ
2ZDNDK		54.00	0.18	0.11	53.00	0.47	0.30	ZZ
3L9W3Z		52.62	-1.20	-0.75	51.52	-1.01	-0.64	ZZ
3MLL7C		54.00	0.18	0.11	50.40	-2.13	-1.35	ZZ
48RC7D		55.00	1.18	0.74	54.00	1.47	0.93	ZZ
4J32K9		51.80	-2.02	-1.26	52.50	-0.03	-0.02	ZZ
4U2JDW		51.51	-2.31	-1.45	52.35	-0.18	-0.11	ZZ
6PN3GD		54.80	0.98	0.61	53.60	1.07	0.68	ZZ
6V8N4P		54.90	1.08	0.68	54.90	2.37	1.50	ZZ
778EMC		56.30	2.48	1.55	54.10	1.57	1.00	ZZ
7JTVCA		55.90	2.08	1.30	54.30	1.77	1.12	ZZ
7NMPAB		54.20	0.38	0.24	54.40	1.87	1.19	ZZ
83433W		53.00	-0.82	-0.51	55.00	2.47	1.57	ZZ
8DXN3Y		53.56	-0.26	-0.16	50.77	-1.75	-1.11	ZZ
8RHYUW		53.43	-0.39	-0.24	52.98	0.45	0.29	ZZ
8V2TXN		54.31	0.49	0.31	52.41	-0.12	-0.07	ZZ
9FKETW		53.80	-0.02	-0.01	51.00	-1.53	-0.97	ZZ
9H9XR9		55.00	1.18	0.74	52.30	-0.23	-0.14	ZZ
9NVLME		54.60	0.78	0.49	52.50	-0.03	-0.02	ZZ
9PQ8G6		54.40	0.58	0.36	49.69	-2.84	-1.80	ZZ
9QYG7G	*	54.90	1.08	0.68	48.50	-4.03	-2.55	ZZ
AQZQLK		54.00	0.18	0.11	51.00	-1.53	-0.97	ZZ
ARP3DD		54.20	0.38	0.24	52.40	-0.13	-0.08	ZZ
AU3PWD		55.20	1.38	0.86	52.40	-0.13	-0.08	ZZ
B38WCD		55.64	1.82	1.14	52.11	-0.42	-0.26	ZZ
BKRRJT		52.00	-1.82	-1.14	53.00	0.47	0.30	ZZ
C2RWTN		54.50	0.68	0.43	52.90	0.37	0.24	ZZ
CAJJFD		54.10	0.28	0.18	52.90	0.37	0.24	ZZ
CBGPXT	*	49.80	-4.02	-2.52	52.20	-0.33	-0.21	ZZ
CEL9A8		55.00	1.18	0.74	54.00	1.47	0.93	ZZ
CG9R9K		54.60	0.78	0.49	52.10	-0.43	-0.27	ZZ
CJUL2E		54.70	0.88	0.55	54.60	2.07	1.31	ZZ
D8CCWK	*	49.00	-4.82	-3.02	50.00	-2.53	-1.60	ZZ
DAZT7T		53.00	-0.82	-0.51	54.00	1.47	0.93	ZZ
DZENYU	X	50.50	-3.32	-2.08	45.30	-7.23	-4.58	ZZ
DZQNT3		50.30	-3.52	-2.20	50.60	-1.93	-1.22	ZZ
E7WGMX		54.00	0.18	0.11	53.00	0.47	0.30	ZZ
EECZ6C		54.80	0.98	0.61	52.40	-0.13	-0.08	ZZ
EF2N3X		53.87	0.05	0.03	51.22	-1.31	-0.83	ZZ
EJ4KUE		54.80	0.98	0.61	52.60	0.07	0.05	ZZ
FFKPRL		53.70	-0.12	-0.07	50.30	-2.23	-1.41	ZZ
FWNFP4		53.20	-0.62	-0.39	51.60	-0.93	-0.59	ZZ
GKBFVW		56.80	2.98	1.87	54.80	2.27	1.44	ZZ
GN96PN		54.94	1.12	0.70	54.06	1.53	0.97	ZZ
H69E9L		52.34	-1.48	-0.93	52.56	0.03	0.02	ZZ
H6AAP7		51.15	-2.67	-1.67	51.79	-0.74	-0.47	ZZ
H9BDLY		53.20	-0.62	-0.39	54.30	1.77	1.12	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 143

Reduction of Area (Lab-Machined Round Steel) - Percent
ASTM E8

		Sample P29			Sample P30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
HTK9FQ	X	54.10	0.28	0.18	47.10	-5.43	-3.44	ZZ
J36U78		55.70	1.88	1.18	53.60	1.07	0.68	ZZ
J4BJ6A		51.68	-2.14	-1.34	51.70	-0.83	-0.52	ZZ
J9TJKP		52.80	-1.02	-0.64	50.90	-1.63	-1.03	ZZ
JDKQ3X		53.00	-0.82	-0.51	53.00	0.47	0.30	ZZ
JDMF8V		52.50	-1.32	-0.83	54.10	1.57	1.00	ZZ
JM8RGL	*	52.00	-1.82	-1.14	48.00	-4.53	-2.87	ZZ
K3UPVM	X	48.37	-5.45	-3.41	53.49	0.96	0.61	ZZ
KBU8DJ		52.00	-1.82	-1.14	49.60	-2.93	-1.86	ZZ
KPUNPD		54.20	0.38	0.24	53.10	0.57	0.36	ZZ
KVZHJ9		56.57	2.75	1.72	53.91	1.38	0.88	ZZ
KWNV2Q		55.02	1.20	0.75	54.29	1.76	1.12	ZZ
KYHGYN		51.90	-1.92	-1.20	50.60	-1.93	-1.22	ZZ
L7TDZZ		54.00	0.18	0.11	51.00	-1.53	-0.97	ZZ
M6ZNCD		54.50	0.68	0.43	53.00	0.47	0.30	ZZ
M8MLLP		54.00	0.18	0.11	52.30	-0.23	-0.14	ZZ
M9VKTR		54.00	0.18	0.11	53.00	0.47	0.30	ZZ
MJW4AL		54.20	0.38	0.24	49.80	-2.73	-1.73	ZZ
N4LHQW		55.80	1.98	1.24	51.50	-1.03	-0.65	ZZ
Q3X34Q		51.20	-2.62	-1.64	51.40	-1.13	-0.71	ZZ
QEVWPZ	*	58.10	4.28	2.68	53.70	1.17	0.74	ZZ
RAEXKK		56.40	2.58	1.62	54.10	1.57	1.00	ZZ
RJGHKR		55.20	1.38	0.86	53.10	0.57	0.36	ZZ
RPPR3L		55.20	1.38	0.86	53.87	1.34	0.85	ZZ
T3UEL3	X	48.10	-5.72	-3.58	52.60	0.07	0.05	ZZ
TKQXHP		53.70	-0.12	-0.07	53.10	0.57	0.36	ZZ
TMXZNU		55.70	1.88	1.18	52.90	0.37	0.24	ZZ
TPYBAW		54.40	0.58	0.36	53.60	1.07	0.68	ZZ
TQWFTC		53.20	-0.62	-0.39	55.00	2.47	1.57	ZZ
TRULDC		50.70	-3.12	-1.95	52.30	-0.23	-0.14	ZZ
TXGG9N		55.00	1.18	0.74	50.00	-2.53	-1.60	ZZ
VBWCKQ		54.20	0.38	0.24	54.70	2.17	1.38	ZZ
VF7EML		55.00	1.18	0.74	50.00	-2.53	-1.60	ZZ
VR3F93	M	No Data Reported			51.60	-0.93	-0.59	ZZ
VWXCPG		54.00	0.18	0.11	53.00	0.47	0.30	ZZ
WF62FJ		53.21	-0.61	-0.38	52.84	0.31	0.20	ZZ
WX4C68		55.40	1.58	0.99	54.30	1.77	1.12	ZZ
X66N3Q		54.50	0.68	0.43	52.60	0.07	0.05	ZZ
XPRCBW		53.00	-0.82	-0.51	52.00	-0.53	-0.33	ZZ
XVVCQT		53.60	-0.22	-0.14	52.90	0.37	0.24	ZZ
XYVMLT		53.80	-0.02	-0.01	50.90	-1.63	-1.03	ZZ
Y2D9ME		53.50	-0.32	-0.20	54.80	2.27	1.44	ZZ
Y6X7AJ	*	54.00	0.18	0.11	48.00	-4.53	-2.87	ZZ
Y7CH3M		54.70	0.88	0.55	53.10	0.57	0.36	ZZ
Y9VHBB		51.90	-1.92	-1.20	52.80	0.27	0.17	ZZ
YRAYE4		52.60	-1.22	-0.76	53.10	0.57	0.36	ZZ
YRQAWA		51.80	-2.02	-1.26	52.30	-0.23	-0.14	ZZ
Z37FRC		54.20	0.38	0.24	54.20	1.67	1.06	ZZ
ZBKBLK		54.00	0.18	0.11	53.00	0.47	0.30	ZZ

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 143

Reduction of Area (Lab-Machined Round Steel) - Percent
ASTM E8

		Sample P29			Sample P30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
ZLWHHK	*	49.63	-4.19	-2.62	52.53	0.00	0.00	ZZ

Summary Statistics

	Sample P29		Sample P30	
Grand Means	53.82	Percent	52.53	Percent
Stnd Dev Btwn Labs	1.60	Percent	1.58	Percent

Samples P29 , P30 : AISI 4340

Statistics based on 94 of 99 reporting participants

Comments on assigned Data Flags for Analysis #143

WebCode	Flag	Analyst Comment
DZENYU	X	Data for sample P30 are low.
HTK9FQ	X	Data for sample P30 are low.
K3UPVM	X	Data for sample P29 are low.
T3UEL3	X	Data for sample P29 are low.
VR3F93	M	Laboratory did not submit data for sample P29.

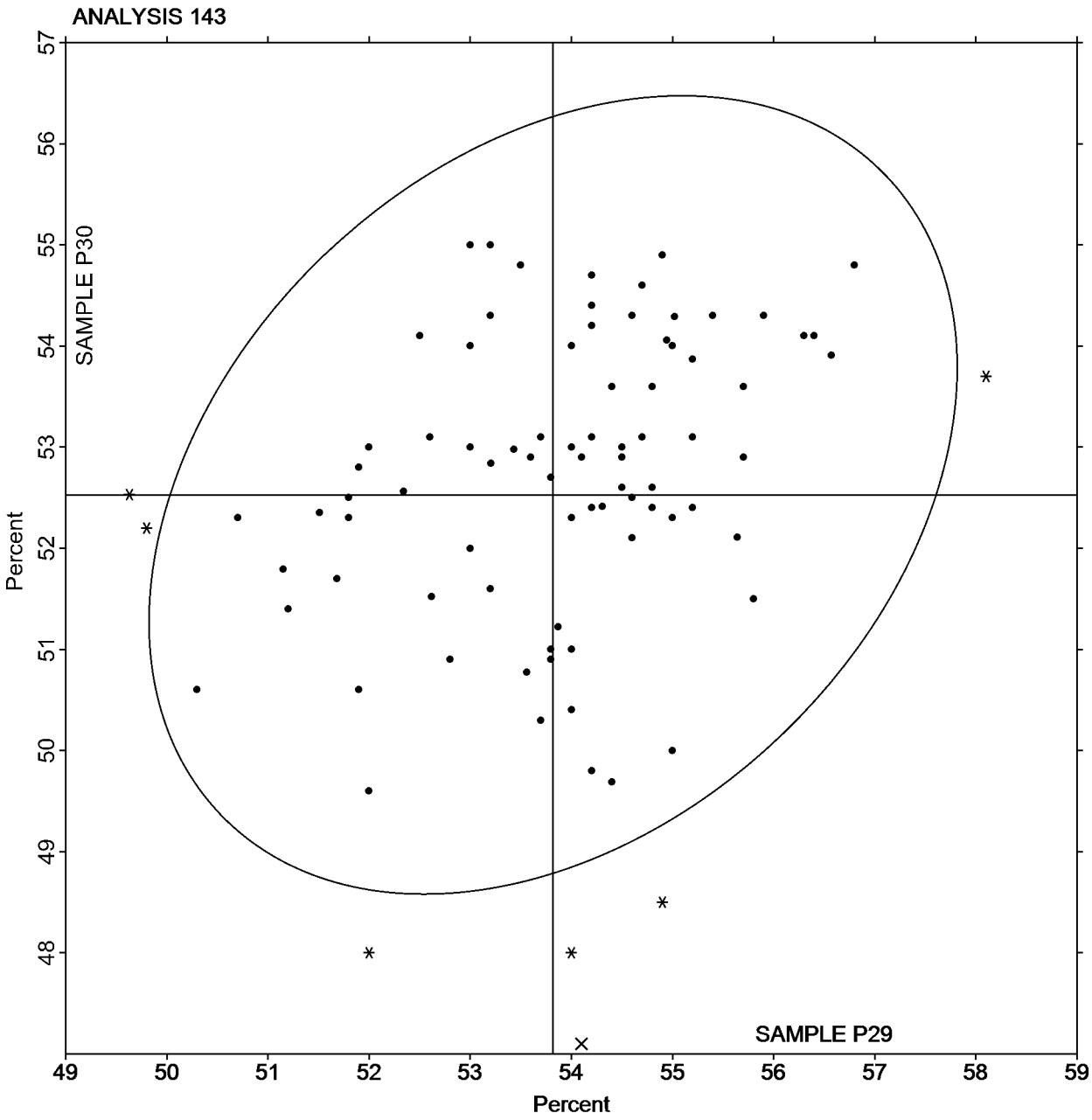
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 143

Reduction of Area (Lab-Machined Round Steel) - Percent
ASTM E8

SAMPLE P29	SAMPLE P30
53.82 Percent	52.53 Percent



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 170

Chemical Analysis Element #1 - Carbon & Low Alloy Steel - Percent CARBON (C)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2BCNN4		0.4030	-0.0148	-1.47	0.4017	-0.0088	-0.85	CO
2BZU7H		0.4330	0.0152	1.50	0.4187	0.0082	0.79	OE
2FA63H		0.4087	-0.0092	-0.91	0.3977	-0.0128	-1.24	OE
2PW4TN		0.4121	-0.0057	-0.56	0.4073	-0.0032	-0.31	OE
2UNBCW		0.4340	0.0161	1.60	0.4256	0.0151	1.45	OE
3LAQJK		0.4193	0.0015	0.15	0.4063	-0.0042	-0.40	OE
3QNE9N		0.4367	0.0188	1.87	0.4307	0.0202	1.94	GD
4C3LWL		0.4253	0.0075	0.74	0.4210	0.0105	1.01	DR
4DVEQJ		0.4087	-0.0092	-0.91	0.4080	-0.0025	-0.24	CI
4J32K9	*	0.3870	-0.0308	-3.06	0.3860	-0.0245	-2.36	OE
4JXDEN		0.4137	-0.0042	-0.41	0.4000	-0.0105	-1.01	OE
4MEX24		0.3958	-0.0220	-2.18	0.3919	-0.0186	-1.79	CI
6D9F47		0.3980	-0.0198	-1.97	0.3870	-0.0235	-2.26	OE
6MUKB6		0.4271	0.0093	0.92	0.4123	0.0018	0.18	OE
6N87PD		0.4170	-0.0008	-0.08	0.4173	0.0068	0.66	CO
7D3LX6		0.4217	0.0038	0.38	0.4080	-0.0025	-0.24	OE
7JTVCA		0.4190	0.0012	0.12	0.4097	-0.0008	-0.08	CI
7TFWPX	X	0.3054	-0.1124	-11.14	0.3066	-0.1039	-10.01	OE
83433W		0.4167	-0.0012	-0.12	0.4123	0.0018	0.18	OE
88AVWR		0.4208	0.0030	0.29	0.4056	-0.0049	-0.47	OE
8RHYUW		0.4230	0.0052	0.52	0.4095	-0.0010	-0.10	CI
8V2TXN		0.4172	-0.0006	-0.06	0.4077	-0.0028	-0.27	OE
9JJTEZ		0.4137	-0.0041	-0.41	0.4107	0.0002	0.02	IR
9NFFAA		0.4200	0.0022	0.22	0.4133	0.0028	0.27	OE
9PA7FN		0.4103	-0.0075	-0.74	0.4063	-0.0042	-0.40	CI
9PUR7T	*	0.4418	0.0240	2.38	0.4386	0.0281	2.71	OE
9RXMPW		0.4110	-0.0068	-0.68	0.4043	-0.0062	-0.59	CI
A9JPMC		0.4195	0.0016	0.16	0.4067	-0.0038	-0.37	OE
AACHGA		0.4233	0.0055	0.54	0.4104	-0.0001	-0.01	OE
ADYVPD		0.4163	-0.0015	-0.15	0.4110	0.0005	0.05	CO
AKWPJ6		0.4195	0.0017	0.17	0.4097	-0.0008	-0.08	OE
ARP3DD		0.4047	-0.0132	-1.30	0.3920	-0.0185	-1.78	OE
BWKB36		0.4000	-0.0178	-1.77	0.3900	-0.0205	-1.97	GD
CBGPXT	*	0.4117	-0.0062	-0.61	0.4220	0.0115	1.11	OE
CKKXHY		0.4257	0.0078	0.78	0.4260	0.0155	1.49	GD
CYM7L9		0.4177	-0.0002	-0.02	0.4113	0.0008	0.08	OE
CZ6DTB		0.4270	0.0092	0.91	0.4140	0.0035	0.34	OE
D6PTX9	X	0.3891	-0.0287	-2.84	0.3972	-0.0133	-1.29	OE
D8CCWK		0.4127	-0.0052	-0.51	0.4193	0.0088	0.85	CI
DC846H		0.4253	0.0075	0.74	0.4053	-0.0052	-0.50	CI
DJAFZE		0.4106	-0.0072	-0.71	0.4152	0.0047	0.45	OE
DKM67C		0.4263	0.0085	0.84	0.4050	-0.0055	-0.53	OE
DPEYF8		0.4003	-0.0176	-1.74	0.4017	-0.0088	-0.85	OE
DYYK7M		0.4153	-0.0025	-0.25	0.4020	-0.0085	-0.82	OE
E3KK74	*	0.4207	0.0028	0.28	0.3970	-0.0135	-1.30	OE
E7KV24	X	0.4170	-0.0008	-0.08	0.0125	-0.3980	-38.34	CI
EA4ND7		0.4300	0.0122	1.21	0.4167	0.0062	0.59	OE
EDVY4V		0.4250	0.0072	0.71	0.4193	0.0088	0.85	OE
EJ4KUE		0.4133	-0.0045	-0.45	0.4053	-0.0052	-0.50	CI

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 170

Chemical Analysis Element #1 - Carbon & Low Alloy Steel - Percent CARBON (C)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
ERGJFC		0.4126	-0.0052	-0.52	0.4033	-0.0072	-0.70	IC
EWEQC8		0.4200	0.0022	0.22	0.4167	0.0062	0.59	OE
FFKQT8		0.4147	-0.0032	-0.31	0.4050	-0.0055	-0.53	OE
FWNFP4		0.4303	0.0125	1.24	0.4107	0.0002	0.02	CI
G7BPPX		0.4133	-0.0045	-0.45	0.4137	0.0032	0.31	CI
G84FVC		0.4140	-0.0038	-0.38	0.4049	-0.0056	-0.54	OE
GB6KQ6		0.4207	0.0028	0.28	0.4088	-0.0017	-0.16	OE
GCXDJ4		0.4231	0.0053	0.53	0.4107	0.0002	0.02	OE
GKBFVW		0.3973	-0.0205	-2.03	0.3903	-0.0202	-1.94	OE
GMYV2X		0.4073	-0.0105	-1.04	0.4010	-0.0095	-0.91	CO
GZZMM3		0.4223	0.0045	0.45	0.4143	0.0038	0.37	OE
H6AAP7		0.4198	0.0020	0.20	0.4180	0.0075	0.72	OE
HTK9FQ	*	0.4148	-0.0030	-0.30	0.4256	0.0151	1.45	CO
HV48TL		0.4337	0.0158	1.57	0.4247	0.0142	1.36	OE
HZXFZZ		0.4371	0.0192	1.91	0.4311	0.0206	1.99	OE
J9N3MQ	*	0.4334	0.0156	1.55	0.4389	0.0284	2.73	OE
JFTUYU		0.4094	-0.0084	-0.84	0.3981	-0.0124	-1.19	DR
JG2A7Z		0.4143	-0.0035	-0.35	0.4017	-0.0088	-0.85	OE
JG44LZ		0.4143	-0.0035	-0.35	0.4117	0.0012	0.11	OE
JGMR4U		0.4100	-0.0078	-0.78	0.4140	0.0035	0.34	XX
JU4RR9		0.4351	0.0173	1.71	0.4287	0.0182	1.75	OE
K6NBRY		0.4137	-0.0042	-0.41	0.4130	0.0025	0.24	CO
KKEDC9		0.4038	-0.0140	-1.39	0.3986	-0.0119	-1.14	DR
L2GEHF		0.4240	0.0062	0.61	0.4140	0.0035	0.34	OE
LCZWBM		0.4287	0.0108	1.07	0.4173	0.0068	0.66	AE
LF4MKM		0.4164	-0.0015	-0.14	0.4146	0.0041	0.39	OE
LYHRER		0.4337	0.0158	1.57	0.4260	0.0155	1.49	OE
LYVPZN		0.4220	0.0042	0.41	0.4203	0.0098	0.95	OE
LZAV28		0.4397	0.0219	2.17	0.4322	0.0217	2.09	OE
LZJ9ZZ		0.4273	0.0095	0.94	0.4180	0.0075	0.72	OE
M8MLLP		0.4177	-0.0002	-0.02	0.4093	-0.0012	-0.11	OE
MNLRN4		0.4161	-0.0018	-0.17	0.4166	0.0061	0.59	CI
MUY9JM		0.4278	0.0100	0.99	0.4211	0.0106	1.02	OE
NHJTWE		0.4185	0.0007	0.07	0.4139	0.0034	0.33	OE
NJ98EX		0.4273	0.0095	0.94	0.4203	0.0098	0.95	OE
PHXF93		0.4300	0.0122	1.21	0.4340	0.0235	2.26	CI
PY33EV		0.4210	0.0032	0.31	0.4040	-0.0065	-0.63	OE
Q28YHB		0.4173	-0.0005	-0.05	0.4213	0.0108	1.04	CO
Q679QR		0.4245	0.0066	0.66	0.4164	0.0059	0.57	OE
Q89FLP		0.4137	-0.0042	-0.41	0.4067	-0.0038	-0.37	OE
QPVM9M		0.4233	0.0055	0.55	0.4100	-0.0005	-0.05	OE
QQMPV3		0.4263	0.0085	0.84	0.3960	-0.0145	-1.40	GD
QYL9EK		0.4087	-0.0092	-0.91	0.4020	-0.0085	-0.82	OE
T4M4BQ		0.4193	0.0015	0.15	0.4086	-0.0019	-0.18	OE
TKQXHP		0.4123	-0.0055	-0.54	0.4063	-0.0042	-0.40	GD
TRULDC		0.3987	-0.0192	-1.90	0.4007	-0.0098	-0.95	GD
TZJG9L		0.4197	0.0018	0.18	0.4120	0.0015	0.14	CI
U69AZF		0.4116	-0.0062	-0.61	0.4087	-0.0018	-0.17	CI
U7MY3R		0.4152	-0.0026	-0.26	0.3956	-0.0149	-1.43	OE

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 170

Chemical Analysis Element #1 - Carbon & Low Alloy Steel - Percent CARBON (C)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
U7Q8BR		0.4197	0.0018	0.18	0.4147	0.0042	0.40	CI
UMR84R		0.4243	0.0065	0.64	0.4113	0.0008	0.08	GD
V4C9HU		0.4287	0.0108	1.07	0.4137	0.0032	0.31	OE
VFTVTG		0.4173	-0.0005	-0.05	0.4033	-0.0072	-0.69	CI
VPBNUB		0.4175	-0.0004	-0.04	0.4138	0.0033	0.31	CO
VR3F93		0.4103	-0.0075	-0.74	0.3993	-0.0112	-1.08	OE
VRLE8L		0.4187	0.0008	0.08	0.4067	-0.0038	-0.37	OE
VY289J		0.4150	-0.0028	-0.28	0.4047	-0.0058	-0.56	OE
WF62FJ		0.3987	-0.0192	-1.90	0.4040	-0.0065	-0.63	OE
WZRTEF		0.4247	0.0068	0.68	0.4130	0.0025	0.24	XX
X3XNLP		0.3987	-0.0192	-1.90	0.3933	-0.0172	-1.65	OE
X7AK4K		0.3977	-0.0202	-2.00	0.3943	-0.0162	-1.56	CI
XVVCQT		0.4220	0.0042	0.41	0.4223	0.0118	1.14	CI
XYVMLT		0.4263	0.0085	0.84	0.4053	-0.0052	-0.50	OE
XZKXCL		0.4177	-0.0002	-0.02	0.4090	-0.0015	-0.14	CI
Y9VHBB		0.4087	-0.0092	-0.91	0.3990	-0.0115	-1.11	CI
Z2A7EL		0.4140	-0.0038	-0.38	0.4120	0.0015	0.14	CO
Z3NFJF		0.4115	-0.0064	-0.63	0.4043	-0.0062	-0.59	OE
ZLWHHK		0.4187	0.0008	0.08	0.4020	-0.0085	-0.82	XX
ZV2PXK		0.4293	0.0115	1.14	0.4190	0.0085	0.82	OE
ZWF3QN		0.4220	0.0042	0.41	0.4110	0.0005	0.05	OE

Summary Statistics

	Sample L29		Sample L30	
Grand Means	0.4178	Percent	0.4105	Percent
Stnd Dev Btwn Labs	0.0101	Percent	0.0104	Percent

Samples L29 , L30 : AISI 8740

Statistics based on 115 of 119 reporting participants

Comments on assigned Data Flags for Analysis #170

WebCode	Flag	Analyst Comment
7TFWPX	X	Data for both samples are low. Possible Systematic error.
D6PTX9	X	Data for sample L29 are low. Inconsistent in testing between samples.
E7KV24	X	Data for sample L30 are low. Inconsistent in testing between samples.

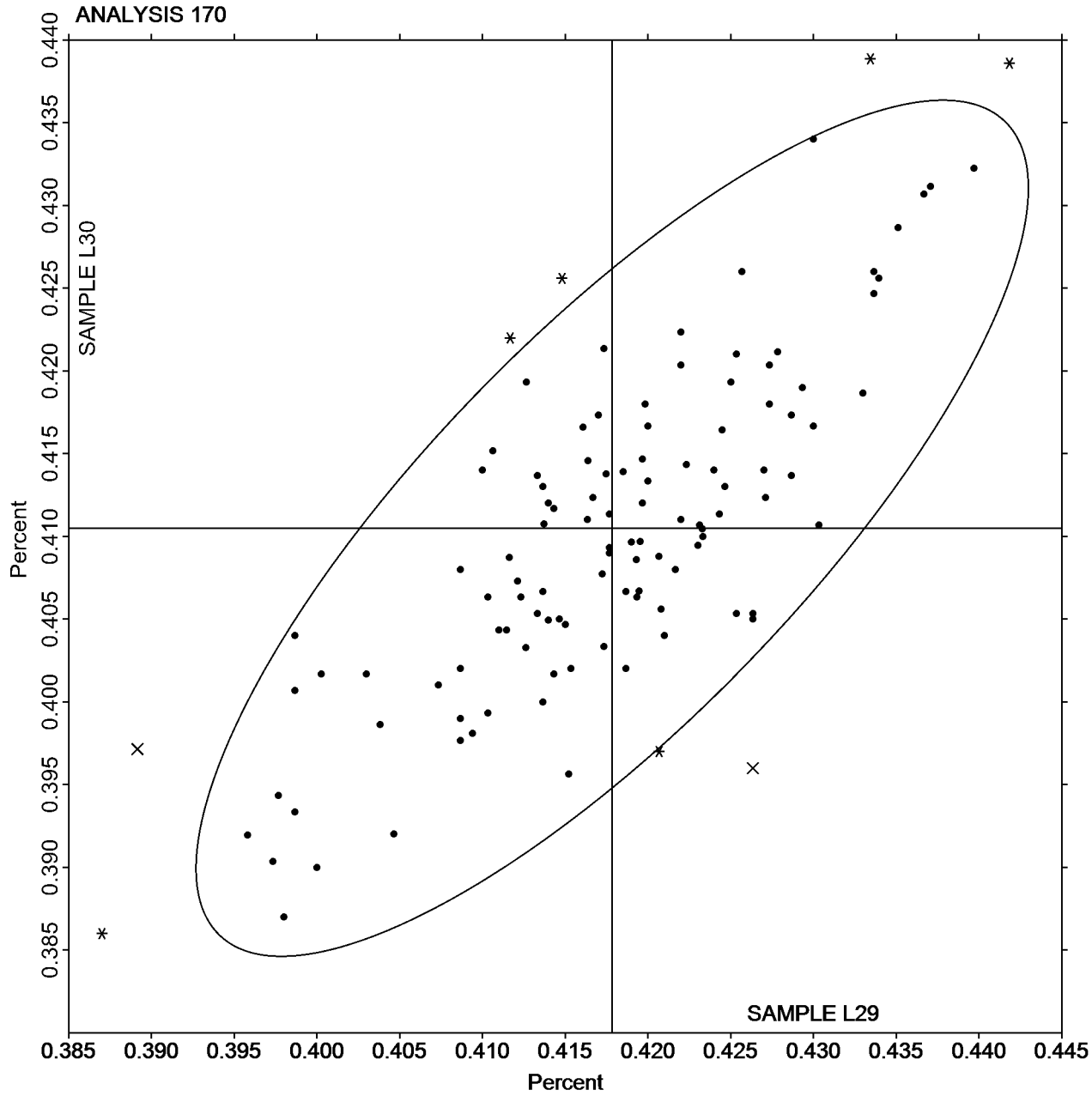
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 170

Chemical Analysis Element #1 - Carbon & Low Alloy Steel - Percent
CARBON (C)

SAMPLE L29	SAMPLE L30
0.4178 Percent	0.4105 Percent



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 171

Chemical Analysis Element #2 - Carbon & Low Alloy Steel - Percent
MANGANESE (Mn)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2BCNN4		0.8725	-0.0012	-0.12	0.8742	0.0001	0.01	OE
2BZU7H		0.8750	0.0012	0.12	0.8737	-0.0004	-0.04	OE
2FA63H		0.8740	0.0002	0.02	0.8707	-0.0034	-0.30	OE
2PW4TN		0.8660	-0.0077	-0.76	0.8690	-0.0051	-0.44	OE
2UNBCW	*	0.8473	-0.0265	-2.59	0.8507	-0.0234	-2.03	OE
3LAQJK		0.8747	0.0009	0.09	0.8703	-0.0038	-0.33	OE
3QNE9N	*	0.8990	0.0252	2.47	0.9067	0.0326	2.83	GD
4C3LWL		0.8673	-0.0064	-0.63	0.8697	-0.0044	-0.38	DR
4DVEQJ		0.8747	0.0009	0.09	0.8743	0.0002	0.02	WD
4J32K9	*	0.8480	-0.0258	-2.52	0.8563	-0.0178	-1.54	OE
4JXDEN		0.8827	0.0089	0.87	0.8820	0.0079	0.69	OE
4MEX24	X	0.8840	0.0102	1.00	0.9060	0.0319	2.77	AA
6D9F47		0.8563	-0.0174	-1.70	0.8600	-0.0141	-1.22	OE
6MUKB6		0.8705	-0.0032	-0.32	0.8706	-0.0035	-0.30	OE
6N87PD		0.8677	-0.0061	-0.60	0.8687	-0.0054	-0.47	OE
7D3LX6	*	0.8467	-0.0271	-2.65	0.8400	-0.0341	-2.96	OE
7JTVCA		0.8737	-0.0001	-0.01	0.8760	0.0019	0.17	WD
7TFWPX		0.8690	-0.0048	-0.47	0.8693	-0.0048	-0.41	OE
83433W		0.8587	-0.0151	-1.48	0.8600	-0.0141	-1.22	OE
88AVWR		0.8714	-0.0023	-0.23	0.8682	-0.0059	-0.51	OE
8RHYUW		0.8783	0.0045	0.44	0.8775	0.0034	0.30	OE
8V2TXN		0.8660	-0.0078	-0.76	0.8629	-0.0112	-0.97	OE
9JJTEZ		0.8744	0.0006	0.06	0.8784	0.0043	0.37	OE
9NFFAA		0.8767	0.0029	0.28	0.8867	0.0126	1.09	OE
9PA7FN		0.8790	0.0052	0.51	0.8810	0.0069	0.60	OE
9PUR7T		0.8931	0.0193	1.89	0.8946	0.0205	1.78	OE
9RXMPW		0.8766	0.0029	0.28	0.8827	0.0086	0.75	IC
A9JPMC		0.8742	0.0004	0.04	0.8739	-0.0002	-0.02	OE
AACHGA		0.8679	-0.0059	-0.58	0.8666	-0.0075	-0.65	IC
ADYVPD		0.8733	-0.0004	-0.04	0.8717	-0.0024	-0.21	IC
AKWPJ6		0.8832	0.0095	0.92	0.8836	0.0095	0.82	OE
ARP3DD		0.8853	0.0116	1.13	0.8820	0.0079	0.69	OE
B2XRYN	X	0.8133	-0.0604	-5.91	0.8067	-0.0674	-5.85	OE
BWKB36		0.8867	0.0129	1.26	0.8900	0.0159	1.38	GD
CBGPXT		0.8500	-0.0238	-2.32	0.8533	-0.0208	-1.80	OE
CKKXHY	X	0.8537	-0.0201	-1.97	0.8907	0.0166	1.44	GD
CYM7L9		0.8680	-0.0058	-0.56	0.8650	-0.0091	-0.79	OE
CZ6DTB		0.8767	0.0029	0.28	0.8733	-0.0008	-0.07	OE
D6PTX9		0.8829	0.0091	0.89	0.8706	-0.0035	-0.30	OE
D8CCWK		0.8680	-0.0058	-0.56	0.8673	-0.0068	-0.59	DR
DJAFZE		0.8746	0.0009	0.08	0.8694	-0.0047	-0.40	OE
DKM67C		0.8767	0.0029	0.28	0.8697	-0.0044	-0.38	OE
DPEYF8		0.8837	0.0099	0.97	0.8744	0.0003	0.02	OE
DYYK7M		0.8870	0.0132	1.29	0.8860	0.0119	1.03	XX
E3KK74	*	0.8867	0.0129	1.26	0.8733	-0.0008	-0.07	OE
E7KV24		0.8563	-0.0174	-1.70	0.8636	-0.0105	-0.92	OE
EA4ND7		0.8800	0.0062	0.61	0.8800	0.0059	0.51	OE
EDVY4V		0.8740	0.0002	0.02	0.8703	-0.0038	-0.33	OE
EJ4KUE		0.8783	0.0046	0.45	0.8977	0.0236	2.05	OE

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 171

Chemical Analysis Element #2 - Carbon & Low Alloy Steel - Percent
MANGANESE (Mn)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
ERGJFC		0.8767	0.0030	0.29	0.8776	0.0035	0.31	IC
EWEQC8		0.8700	-0.0038	-0.37	0.8833	0.0092	0.80	OE
FFKQT8		0.8753	0.0016	0.15	0.8717	-0.0024	-0.21	OE
FWNFP4		0.8567	-0.0171	-1.67	0.8533	-0.0208	-1.80	IC
FZ4WWM		0.8813	0.0076	0.74	0.8833	0.0092	0.80	OE
G7BPPX		0.8663	-0.0074	-0.73	0.8707	-0.0034	-0.30	OE
G84FVC		0.8772	0.0034	0.33	0.8790	0.0049	0.42	OE
GB6KQ6		0.8771	0.0033	0.32	0.8751	0.0010	0.09	OE
GCXDJ4		0.8673	-0.0064	-0.63	0.8655	-0.0086	-0.75	IC
GKBFVW		0.8553	-0.0184	-1.80	0.8627	-0.0114	-0.99	OE
GMYV2X		0.8750	0.0012	0.12	0.8780	0.0039	0.34	OE
GZZMM3		0.8763	0.0026	0.25	0.8820	0.0079	0.69	OE
H6AAP7	X	0.8049	-0.0689	-6.73	0.8094	-0.0647	-5.62	OE
HTK9FQ		0.8739	0.0001	0.01	0.8669	-0.0072	-0.62	DR
HV48TL	*	0.8427	-0.0311	-3.04	0.8457	-0.0284	-2.47	OE
HZXFZZ		0.8780	0.0042	0.41	0.8832	0.0091	0.79	OE
J9N3MQ		0.8620	-0.0118	-1.15	0.8800	0.0059	0.51	OE
JFTUYU		0.8870	0.0132	1.29	0.8919	0.0178	1.55	DR
JG2A7Z		0.8877	0.0139	1.36	0.8943	0.0202	1.76	OE
JG44LZ		0.8747	0.0009	0.09	0.8983	0.0242	2.10	OE
JGMR4U		0.8750	0.0012	0.12	0.8780	0.0039	0.34	XX
JU4RR9	*	0.8911	0.0174	1.70	0.9022	0.0281	2.44	OE
K6NBRY		0.8647	-0.0091	-0.89	0.8672	-0.0069	-0.60	OE
KBB8DZ	X	0.9100	0.0362	3.54	0.9160	0.0419	3.64	OE
KKEDC9		0.8772	0.0035	0.34	0.8824	0.0083	0.72	DR
L2GEHF		0.8650	-0.0088	-0.86	0.8627	-0.0114	-0.99	OE
LCZWBM		0.8777	0.0039	0.38	0.8773	0.0032	0.28	AE
LF4MKM		0.8759	0.0021	0.20	0.8768	0.0027	0.24	OE
LYHRER		0.8950	0.0212	2.07	0.8967	0.0226	1.96	OE
LYVPZN		0.8680	-0.0058	-0.56	0.8723	-0.0018	-0.15	OE
LZAV28		0.8730	-0.0007	-0.07	0.8754	0.0013	0.12	OE
LZJ9ZZ		0.8727	-0.0011	-0.11	0.8703	-0.0038	-0.33	OE
M8MLLP		0.8693	-0.0044	-0.43	0.8643	-0.0098	-0.85	IC
MNLRN4		0.8830	0.0092	0.90	0.8790	0.0049	0.43	OE
MUY9JM	X	0.9215	0.0477	4.66	0.9260	0.0519	4.51	OE
NHJTWE		0.8743	0.0005	0.05	0.8766	0.0025	0.22	OE
NJ98EX		0.8787	0.0049	0.48	0.8787	0.0046	0.40	OE
PHXF93		0.8903	0.0166	1.62	0.8823	0.0082	0.72	IC
PJ8T8V		0.8860	0.0122	1.20	0.8953	0.0212	1.84	OE
PY33EV		0.8643	-0.0094	-0.92	0.8613	-0.0128	-1.11	OE
Q28YHB		0.8817	0.0079	0.77	0.8923	0.0182	1.58	OE
Q679QR		0.8744	0.0006	0.06	0.8800	0.0059	0.52	OE
Q89FLP		0.8727	-0.0011	-0.11	0.8800	0.0059	0.51	OE
QPVM9M		0.8700	-0.0038	-0.37	0.8767	0.0026	0.22	OE
QQMPV3		0.8830	0.0092	0.90	0.8717	-0.0024	-0.21	GD
QYL9EK	X	0.9133	0.0396	3.87	0.9170	0.0429	3.72	OE
T4M4BQ		0.8861	0.0123	1.20	0.8855	0.0114	0.99	OE
TKQXHP		0.8730	-0.0008	-0.08	0.8763	0.0022	0.19	GD
TRULDC		0.8703	-0.0034	-0.34	0.8610	-0.0131	-1.14	GD

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 171

Chemical Analysis Element #2 - Carbon & Low Alloy Steel - Percent
MANGANESE (Mn)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
TZJG9L		0.8763	0.0026	0.25	0.8780	0.0039	0.34	OE
U69AZF		0.8763	0.0025	0.24	0.8744	0.0003	0.02	OE
U7MY3R	*	0.8693	-0.0045	-0.44	0.8563	-0.0178	-1.54	OE
U7Q8BR		0.8900	0.0162	1.59	0.8950	0.0209	1.82	OE
UMR84R		0.8833	0.0096	0.93	0.8843	0.0102	0.89	GD
V4C9HU		0.8800	0.0062	0.61	0.8720	-0.0021	-0.18	OE
VFTVTG		0.8797	0.0059	0.58	0.8823	0.0082	0.72	IC
VPBNUB		0.8600	-0.0138	-1.35	0.8567	-0.0174	-1.51	OE
VRLE8L		0.8703	-0.0034	-0.34	0.8680	-0.0061	-0.53	OE
VY289J		0.8813	0.0076	0.74	0.8780	0.0039	0.34	OE
WF62FJ		0.8770	0.0032	0.32	0.8767	0.0026	0.22	OE
WZRTEF		0.8780	0.0042	0.41	0.8833	0.0092	0.80	XX
X3XNLP		0.8650	-0.0088	-0.86	0.8727	-0.0014	-0.12	OE
X7AK4K		0.8867	0.0129	1.26	0.8897	0.0156	1.35	DR
XVVCQT		0.8710	-0.0028	-0.27	0.8637	-0.0104	-0.90	OE
XYVMLT	*	0.8633	-0.0104	-1.02	0.8493	-0.0248	-2.15	OE
XZKXCL		0.8773	0.0036	0.35	0.8820	0.0079	0.69	IC
Y9VHBB		0.8733	-0.0004	-0.04	0.8797	0.0056	0.48	OE
Z2A7EL		0.8643	-0.0094	-0.92	0.8593	-0.0148	-1.28	OE
Z3NFJF		0.8772	0.0034	0.33	0.8777	0.0036	0.32	OE
ZLWHHK		0.8643	-0.0094	-0.92	0.8667	-0.0074	-0.64	XX
ZV2PXK		0.8680	-0.0058	-0.56	0.8633	-0.0108	-0.93	OE
ZWF3QN		0.8660	-0.0078	-0.76	0.8700	-0.0041	-0.36	OE

Summary Statistics

	Sample L29		Sample L30	
Grand Means	0.8738	Percent	0.8741	Percent
Stnd Dev Btwn Labs	0.0102	Percent	0.0115	Percent

Samples L29 , L30 : AISI 8740

Statistics based on 111 of 121 reporting participants

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 171

Chemical Analysis Element #2 - Carbon & Low Alloy Steel - Percent MANGANESE (Mn)

Comments on assigned Data Flags for Analysis #171

WebCode	Flag	Analyst Comment
4MEX24	X	Data for sample L30 are high. Inconsistent in testing between samples.
B2XRYN	X	Data for both samples are low. Possible Systematic error.
CKKXHY	X	Inconsistent in testing between samples. Inconsistent within the determinations of sample L29.
H6AAP7	X	Data for both samples are low. Possible Systematic error.
KBB8DZ	X	Data for both samples are high. Possible Systematic error.
MUY9JM	X	Data for both samples are high. Possible Systematic error.
QYL9EK	X	Data for both samples are high. Possible Systematic error.

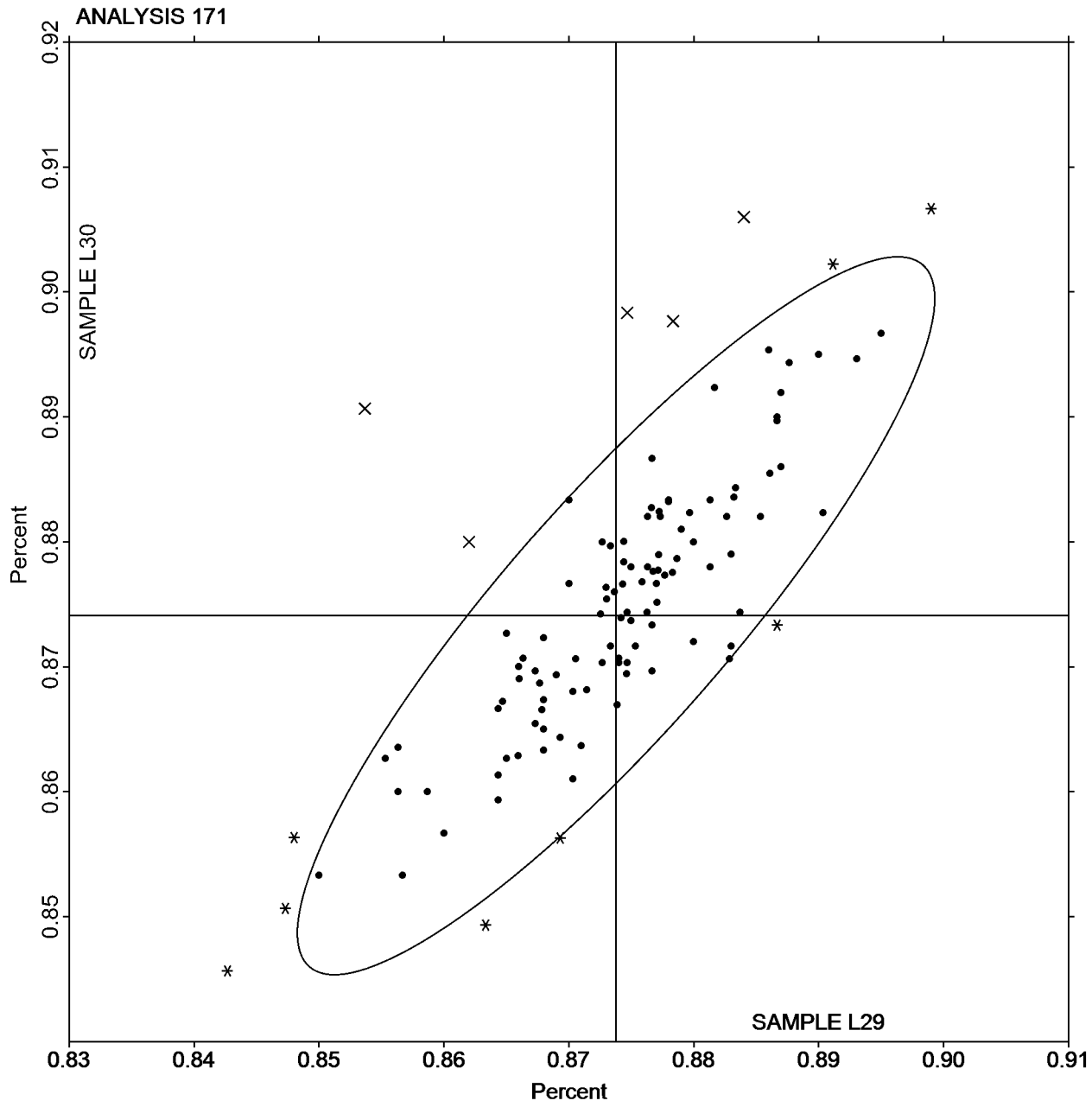
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 171

Chemical Analysis Element #2 - Carbon & Low Alloy Steel - Percent
MANGANESE (Mn)

SAMPLE L29	SAMPLE L30
0.8738 Percent	0.8741 Percent



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 172

Chemical Analysis Element #3 - Carbon & Low Alloy Steel - Percent
PHOSPHORUS (P)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2BCNN4		0.00791	-0.00029	-0.30	0.00968	-0.00011	-0.12	OE
2BZU7H		0.0103	0.00214	2.20	0.0117	0.00191	1.94	OE
2FA63H		0.00790	-0.00030	-0.31	0.00940	-0.00039	-0.40	OE
2PW4TN		0.00827	0.00007	0.07	0.00977	-0.00003	-0.03	OE
2UNBCW	*	0.00576	-0.00243	-2.50	0.00752	-0.00227	-2.31	OE
3LAQJK		0.00700	-0.00120	-1.23	0.00867	-0.00113	-1.15	OE
3QNE9N		0.00977	0.00157	1.62	0.0115	0.00167	1.70	GD
4C3LWL	X	0.0117	0.00347	3.57	0.0129	0.00311	3.16	DR
4DVEQJ		0.00963	0.00144	1.48	0.0112	0.00144	1.46	WD
4J32K9	*	0.00683	-0.00136	-1.40	0.00920	-0.00059	-0.61	OE
4JXDEN		0.00730	-0.00090	-0.92	0.00903	-0.00076	-0.78	OE
4MEX24		0.0100	0.00180	1.86	0.0100	0.00021	0.21	CL
6D9F47		0.00810	-0.00010	-0.10	0.00970	-0.00009	-0.10	OE
6MUKB6		0.00790	-0.00030	-0.31	0.00983	0.00004	0.04	OE
6N87PD		0.00867	0.00047	0.48	0.0100	0.00021	0.21	OE
7D3LX6	*	0.0110	0.00280	2.88	0.0123	0.00254	2.58	OE
7JTVCA		0.00747	-0.00073	-0.75	0.00880	-0.00099	-1.01	WD
7TFWPX	X	0.0130	0.00477	4.91	0.0150	0.00521	5.30	OE
83433W		0.00800	-0.00020	-0.20	0.00960	-0.00019	-0.20	OE
88AVWR		0.00827	0.00007	0.07	0.00977	-0.00003	-0.03	OE
8RHYUW		0.00713	-0.00106	-1.09	0.00880	-0.00099	-1.01	OE
8V2TXN		0.00890	0.00070	0.72	0.0106	0.00077	0.79	OE
9JJTEZ		0.00863	0.00044	0.45	0.0106	0.00084	0.85	OE
9NFFAA		0.00800	-0.00020	-0.20	0.00900	-0.00079	-0.81	OE
9PA7FN		0.00887	0.00067	0.69	0.0108	0.00101	1.02	OE
9PUR7T	X	0.0123	0.00410	4.22	0.0123	0.00254	2.58	OE
9RXMPW		0.00700	-0.00120	-1.23	0.00933	-0.00046	-0.47	IC
A9JPMC		0.00767	-0.00053	-0.55	0.00937	-0.00043	-0.44	OE
AACHGA		0.00790	-0.00030	-0.31	0.00937	-0.00043	-0.44	OE
AKWPJ6		0.00772	-0.00047	-0.49	0.00940	-0.00039	-0.40	OE
ARP3DD		0.00787	-0.00033	-0.34	0.00917	-0.00063	-0.64	OE
B2XRYN		0.0100	0.00180	1.86	0.0113	0.00154	1.57	OE
BWKB36		0.00800	-0.00020	-0.20	0.0100	0.00021	0.21	GD
CBGPXT	*	0.0103	0.00210	2.16	0.0123	0.00254	2.58	OE
CKKXHY		0.0100	0.00180	1.86	0.0117	0.00187	1.91	GD
CYM7L9		0.00800	-0.00020	-0.20	0.00943	-0.00036	-0.37	OE
CZ6DTB		0.00927	0.00107	1.10	0.0108	0.00097	0.99	OE
D6PTX9		0.00809	-0.00011	-0.11	0.00962	-0.00017	-0.18	OE
D8CCWK		0.00900	0.00080	0.83	0.0100	0.00021	0.21	DR
DJAFZE		0.00750	-0.00070	-0.72	0.00920	-0.00059	-0.61	OE
DKM67C		0.0102	0.00197	2.03	0.0113	0.00151	1.53	OE
DPEYF8	*	0.00780	-0.00040	-0.41	0.00850	-0.00129	-1.32	OE
DYYK7M		0.00900	0.00080	0.83	0.0103	0.00054	0.55	XX
E3KK74		0.00700	-0.00120	-1.23	0.00800	-0.00179	-1.83	OE
E7KV24		0.00771	-0.00048	-0.50	0.0101	0.00032	0.33	OE
EA4ND7	X	0.0117	0.00347	3.57	0.0140	0.00421	4.28	OE
EDVY4V		0.00900	0.00080	0.83	0.0110	0.00121	1.23	OE
EJ4KUE	X	0.0146	0.00644	6.62	0.0156	0.00581	5.91	OE
ERGJFC		0.00720	-0.00100	-1.03	0.00920	-0.00059	-0.61	IC

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 172

Chemical Analysis Element #3 - Carbon & Low Alloy Steel - Percent
PHOSPHORUS (P)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
EWEQC8		0.00757	-0.00063	-0.65	0.00910	-0.00069	-0.71	OE
FFKQT8		0.00833	0.00014	0.14	0.00990	0.00011	0.11	OE
FWNFP4		0.00933	0.00114	1.17	0.0113	0.00154	1.57	IC
FZ4WWM		0.00800	-0.00020	-0.20	0.0103	0.00054	0.55	OE
G7BPPX		0.00733	-0.00086	-0.89	0.00900	-0.00079	-0.81	OE
G84FVC		0.00757	-0.00063	-0.65	0.00943	-0.00036	-0.37	OE
GB6KQ6		0.00773	-0.00046	-0.48	0.00933	-0.00046	-0.47	OE
GCXDJ4		0.00800	-0.00020	-0.20	0.00920	-0.00059	-0.61	OE
GKBFVW		0.00753	-0.00066	-0.68	0.00987	0.00007	0.07	OE
GMYV2X	X	0.0122	0.00397	4.09	0.0138	0.00401	4.08	OE
GZZMM3		0.00767	-0.00053	-0.55	0.00970	-0.00009	-0.10	OE
H6AAP7		0.00673	-0.00146	-1.51	0.00823	-0.00156	-1.59	XX
HV48TL		0.00767	-0.00053	-0.55	0.00967	-0.00013	-0.13	OE
HZXFZZ		0.00903	0.00084	0.86	0.0103	0.00054	0.55	OE
J9N3MQ	X	0.00957	0.00137	1.41	0.0123	0.00247	2.52	OE
JG2A7Z		0.00867	0.00047	0.48	0.0103	0.00054	0.55	OE
JG44LZ		0.00743	-0.00076	-0.79	0.00903	-0.00076	-0.78	OE
JGMR4U		0.00880	0.00060	0.62	0.0107	0.00091	0.92	XX
JU4RR9	X	0.0227	0.01447	14.89	0.0250	0.01521	15.48	OE
K6NBRY		0.00840	0.00020	0.21	0.0102	0.00037	0.38	OE
KBB8DZ		0.00800	-0.00020	-0.20	0.00933	-0.00046	-0.47	OE
KKEDC9		0.00820	0.00000	0.00	0.00923	-0.00056	-0.57	DR
L2GEHF		0.00807	-0.00013	-0.13	0.00923	-0.00056	-0.57	OE
LCZWBM		0.00687	-0.00133	-1.37	0.00807	-0.00173	-1.76	AE
LF4MKM		0.00820	0.00000	0.00	0.00977	-0.00003	-0.03	OE
LYHRER		0.0106	0.00237	2.44	0.0121	0.00234	2.38	OE
LYVPZN		0.00833	0.00014	0.14	0.0100	0.00021	0.21	OE
LZAV28		0.00963	0.00143	1.47	0.0113	0.00150	1.53	OE
LZJ9ZZ		0.00767	-0.00053	-0.55	0.00933	-0.00046	-0.47	OE
M8MLLP		0.00789	-0.00030	-0.31	0.00920	-0.00059	-0.61	IC
MNLRN4		0.00870	0.00050	0.52	0.0101	0.00027	0.28	OE
MUY9JM		0.00737	-0.00083	-0.85	0.00873	-0.00106	-1.08	OE
NHJTWE		0.00820	0.00000	0.00	0.00970	-0.00009	-0.10	OE
NJ98EX		0.00800	-0.00020	-0.20	0.00967	-0.00013	-0.13	OE
PHXF93		0.00797	-0.00023	-0.24	0.00967	-0.00013	-0.13	IC
PJ8T8V		0.00733	-0.00086	-0.89	0.00900	-0.00079	-0.81	OE
PY33EV		0.00957	0.00137	1.41	0.0117	0.00187	1.91	OE
Q679QR		0.00789	-0.00031	-0.32	0.00966	-0.00014	-0.14	OE
Q89FLP	X	0.00333	-0.00486	-5.01	0.00567	-0.00413	-4.20	OE
QPVM9M	X	0.1233	0.11514	118.49	0.1467	0.13687	139.34	OE
QQMPV3		0.00900	0.00080	0.83	0.00933	-0.00046	-0.47	GD
QYL9EK	X	0.0137	0.00547	5.63	0.0150	0.00521	5.30	OE
T4M4BQ		0.00803	-0.00016	-0.17	0.00960	-0.00019	-0.20	OE
TKQXHP		0.00830	0.00010	0.11	0.0103	0.00051	0.51	GD
TRULDC		0.00867	0.00047	0.48	0.00967	-0.00013	-0.13	GD
TZJG9L		0.00767	-0.00053	-0.55	0.00933	-0.00046	-0.47	OE
U69AZF		0.00723	-0.00096	-0.99	0.00893	-0.00086	-0.88	OE
U7MY3R	*	0.00960	0.00140	1.44	0.0102	0.00044	0.45	OE
U7Q8BR		0.00803	-0.00016	-0.17	0.00980	0.00001	0.01	OE

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 172

Chemical Analysis Element #3 - Carbon & Low Alloy Steel - Percent
PHOSPHORUS (P)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
UMR84R		0.00860	0.00040	0.41	0.0104	0.00057	0.58	GD
V4C9HU		0.00873	0.00054	0.55	0.0102	0.00041	0.41	OE
VFTVTG	X	0.0116	0.00340	3.50	0.0110	0.00124	1.26	IC
VPBNUB	X	0.0677	0.05947	61.20	0.0690	0.05921	60.28	OE
VR3F93		0.00753	-0.00066	-0.68	0.00927	-0.00053	-0.54	OE
VRLE8L		0.00813	-0.00006	-0.07	0.00990	0.00011	0.11	OE
VY289J		0.00917	0.00097	1.00	0.0105	0.00074	0.75	OE
WF62FJ		0.00923	0.00104	1.07	0.00967	-0.00013	-0.13	OE
WZRTEF		0.00647	-0.00173	-1.78	0.00830	-0.00149	-1.52	XX
X3XNLP		0.00740	-0.00080	-0.82	0.00917	-0.00063	-0.64	OE
X7AK4K		0.00920	0.00100	1.03	0.0107	0.00091	0.92	DR
XVVCQT	X	0.0111	0.00290	2.99	0.0108	0.00101	1.02	OE
XYVMLT		0.00950	0.00130	1.34	0.00983	0.00004	0.04	OE
XZKXCL		0.00770	-0.00050	-0.51	0.00927	-0.00053	-0.54	IC
Y9VHBB		0.00813	-0.00006	-0.07	0.00993	0.00014	0.14	OE
Z2A7EL		0.0107	0.00247	2.54	0.0110	0.00121	1.23	OE
Z3NFJF		0.00649	-0.00171	-1.76	0.00768	-0.00211	-2.15	OE
ZLWHHK		0.00700	-0.00120	-1.23	0.00800	-0.00179	-1.83	XX
ZV2PXK		0.00770	-0.00050	-0.51	0.00913	-0.00066	-0.67	OE
ZWF3QN		0.00967	0.00147	1.51	0.0110	0.00121	1.23	OE

Summary Statistics

	Sample L29		Sample L30	
Grand Means	0.00820	Percent	0.00979	Percent
Stnd Dev Btwn Labs	0.00097	Percent	0.00098	Percent

Samples L29 , L30 : AISI 8740

Statistics based on 99 of 118 reporting participants

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 172

Chemical Analysis Element #3 - Carbon & Low Alloy Steel - Percent PHOSPHORUS (P)

Comments on assigned Data Flags for Analysis #172

WebCode	Flag	Analyst Comment
4C3LWL	X	Data for both samples are high. Possible Systematic error. Inconsistent within the determinations of both samples.
7TFWPX	X	Data for both samples are high. Possible Systematic error.
9PUR7T	X	Data for sample L29 are high. Inconsistent in testing between samples.
EA4ND7	X	Data for both samples are high. Possible Systematic error.
EJ4KUE	X	Data for both samples are high. Possible Systematic error.
GMYV2X	X	Data for both samples are high. Possible Systematic error.
J9N3MQ	X	Inconsistent in testing between samples. Inconsistent within the determinations of sample L30.
JU4RR9	X	Data for both samples are high. Possible Systematic error. Inconsistent within the determinations of both samples.
Q89FLP	X	Data for both samples are low. Possible Systematic error. Inconsistent within the determinations of both samples.
QPVM9M	X	Data for both samples are high. Possible Systematic error. Inconsistent within the determinations of both samples.
QYL9EK	X	Data for both samples are high. Possible Systematic error.
VFTVTG	X	Data for sample L29 are high. Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
VPBNUB	X	Data for both samples are high. Possible Systematic error.
XVVCQT	X	Data for sample L29 are high. Inconsistent in testing between samples.

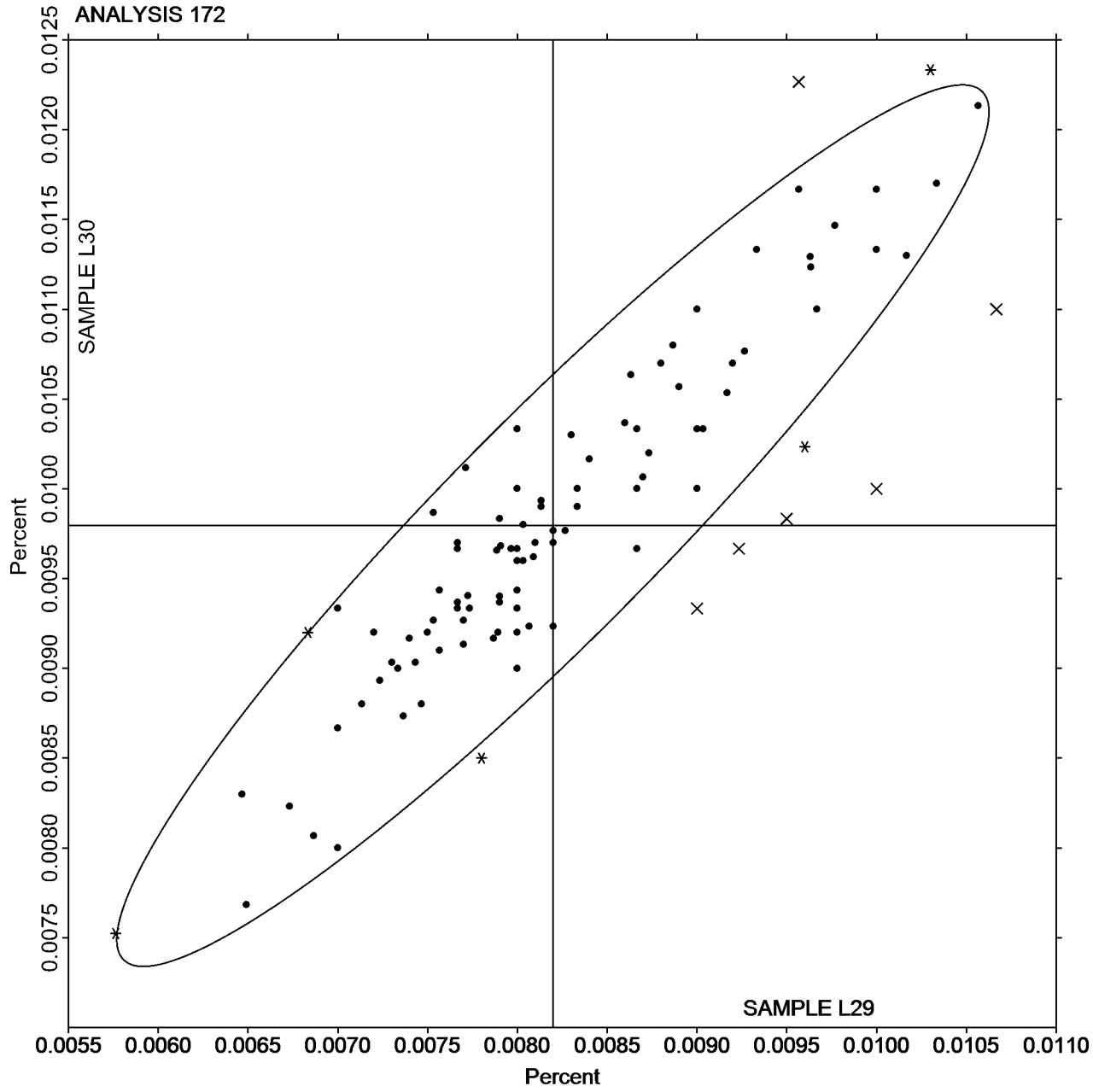
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 172

Chemical Analysis Element #3 - Carbon & Low Alloy Steel - Percent
PHOSPHORUS (P)

SAMPLE L29	SAMPLE L30
0.00820 Percent	0.00979 Percent



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 173

Chemical Analysis Element #4 - Carbon & Low Alloy Steel - Percent SULFUR (S)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2BCNN4		0.00906	-0.0032	-2.68	0.0100	-0.0010	-0.88	CO
2BZU7H		0.0141	0.0018	1.54	0.0127	0.0016	1.35	OE
2FA63H		0.0120	-0.0003	-0.25	0.0110	-0.0001	-0.08	OE
2PW4TN		0.0119	-0.0004	-0.31	0.0106	-0.0005	-0.39	OE
2UNBCW		0.0138	0.0016	1.31	0.0131	0.0021	1.75	OE
3LAQJK		0.0120	-0.0003	-0.22	0.0103	-0.0007	-0.62	OE
3QNE9N		0.0116	-0.0007	-0.59	0.0112	0.0002	0.14	GD
4C3LWL		0.0143	0.0021	1.73	0.0125	0.0015	1.24	DR
4DVEQJ		0.0106	-0.0017	-1.40	0.00990	-0.0012	-0.98	CI
4J32K9		0.0112	-0.0010	-0.87	0.00980	-0.0013	-1.07	OE
4JXDEN		0.0131	0.0009	0.73	0.0110	0.0000	-0.03	OE
4MEX24		0.0142	0.0019	1.62	0.0131	0.0020	1.69	CI
6D9F47		0.0120	-0.0003	-0.22	0.0113	0.0003	0.23	OE
6MUKB6		0.0125	0.0003	0.22	0.0105	-0.0006	-0.48	XX
6N87PD		0.0120	-0.0003	-0.22	0.0107	-0.0004	-0.34	CO
7D3LX6	*	0.0153	0.0031	2.57	0.0140	0.0029	2.48	OE
7JTVCA		0.0118	-0.0005	-0.42	0.0107	-0.0004	-0.34	CI
7TFWPX		0.0109	-0.0014	-1.15	0.0117	0.0006	0.54	OE
83433W		0.0118	-0.0005	-0.39	0.0111	0.0001	0.06	OE
88AVWR		0.0127	0.0004	0.33	0.0119	0.0009	0.73	OE
8RHYUW		0.0114	-0.0009	-0.76	0.0102	-0.0009	-0.76	CI
8V2TXN		0.0127	0.0004	0.36	0.0121	0.0010	0.85	OE
9JJTEZ		0.0126	0.0003	0.28	0.0118	0.0008	0.65	IR
9NFFAA		0.0120	-0.0003	-0.22	0.0110	-0.0001	-0.05	OE
9PA7FN		0.0115	-0.0008	-0.64	0.0101	-0.0010	-0.82	CI
9PUR7T	*	0.0153	0.0030	2.54	0.0141	0.0030	2.57	OE
9RXMPW		0.0107	-0.0016	-1.34	0.00933	-0.0017	-1.46	CI
A9JPMC		0.0119	-0.0004	-0.31	0.0107	-0.0004	-0.31	OE
AACHGA		0.0115	-0.0008	-0.64	0.0102	-0.0008	-0.70	CI
ADYVPD		0.0122	-0.0001	-0.06	0.0110	-0.0001	-0.05	CO
AKWPJ6		0.0127	0.0004	0.36	0.0115	0.0004	0.34	OE
ARP3DD		0.0136	0.0014	1.14	0.0123	0.0012	1.04	OE
B2XRYN		0.0150	0.0027	2.29	0.0137	0.0026	2.20	OE
BWKB36		0.0117	-0.0006	-0.50	0.00967	-0.0014	-1.18	GD
CBGPXT		0.0120	-0.0002	-0.20	0.0108	-0.0003	-0.22	OE
CKKXHY	X	0.0140	0.0017	1.45	0.0147	0.0036	3.04	GD
CYM7L9		0.0112	-0.0010	-0.87	0.00950	-0.0016	-1.32	OE
CZ6DTB		0.0135	0.0012	1.03	0.0127	0.0016	1.35	OE
D6PTX9		0.0135	0.0012	1.01	0.0117	0.0007	0.56	OE
D8CCWK		0.0143	0.0021	1.73	0.0130	0.0019	1.64	CI
DC846H		0.0106	-0.0017	-1.40	0.00906	-0.0020	-1.69	CI
DJAFZE		0.0124	0.0001	0.11	0.0105	-0.0005	-0.45	OE
DKM67C		0.0139	0.0016	1.34	0.0114	0.0003	0.25	OE
DPEYF8		0.0119	-0.0003	-0.28	0.0101	-0.0010	-0.84	OE
DYYK7M		0.0120	-0.0003	-0.22	0.0110	-0.0001	-0.05	XX
E3KK74		0.0120	-0.0003	-0.22	0.0107	-0.0004	-0.34	OE
E7KV24	X	0.3917	0.3794	317.89	0.0111	0.0000	0.00	CI
EA4ND7		0.0127	0.0004	0.33	0.0113	0.0003	0.23	OE
EDVY4V		0.0120	-0.0003	-0.22	0.0110	-0.0001	-0.05	OE

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 173

Chemical Analysis Element #4 - Carbon & Low Alloy Steel - Percent SULFUR (S)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
EJ4KUE		0.00967	-0.0026	-2.18	0.00867	-0.0024	-2.03	CI
ERGJFC		0.0122	-0.0001	-0.08	0.0105	-0.0005	-0.45	IC
EWEQC8		0.0113	-0.0010	-0.84	0.0105	-0.0005	-0.45	OE
FFKQT8		0.0120	-0.0003	-0.25	0.0102	-0.0009	-0.73	OE
FWNFP4		0.0117	-0.0006	-0.50	0.0103	-0.0007	-0.62	CI
FZ4WWM		0.0116	-0.0007	-0.59	0.0110	0.0000	-0.03	OE
G7BPPX		0.0110	-0.0013	-1.06	0.0107	-0.0004	-0.34	CI
G84FVC		0.0120	-0.0002	-0.20	0.0109	-0.0002	-0.17	OE
GB6KQ6		0.0119	-0.0004	-0.31	0.0105	-0.0006	-0.51	OE
GCXDJ4		0.0115	-0.0008	-0.67	0.0103	-0.0008	-0.65	CI
GKBFVW	X	0.00753	-0.0047	-3.97	0.00723	-0.0038	-3.24	OE
GMYV2X		0.0116	-0.0006	-0.53	0.0104	-0.0007	-0.59	CO
GZZMM3		0.0130	0.0008	0.64	0.0129	0.0018	1.55	OE
H6AAP7		0.0102	-0.0021	-1.73	0.0100	-0.0011	-0.90	OE
HV48TL		0.0117	-0.0006	-0.50	0.0110	-0.0001	-0.05	OE
HZXFZZ		0.0137	0.0014	1.20	0.0120	0.0010	0.82	OE
J9N3MQ		0.0138	0.0015	1.26	0.0141	0.0030	2.57	OE
JFTUYU		0.0127	0.0004	0.33	0.0124	0.0014	1.16	DR
JG2A7Z		0.0122	0.0000	-0.03	0.0106	-0.0005	-0.39	OE
JG44LZ	*	0.0116	-0.0007	-0.59	0.0118	0.0008	0.65	OE
JGMR4U		0.0140	0.0017	1.45	0.0130	0.0019	1.64	XX
JU4RR9	*	0.0143	0.0021	1.73	0.0140	0.0029	2.48	OE
K6NBRY		0.0111	-0.0012	-1.01	0.0103	-0.0008	-0.65	CO
KBB8DZ		0.0147	0.0024	2.01	0.0127	0.0016	1.35	OE
KKEDC9		0.0127	0.0004	0.33	0.0123	0.0012	1.02	DR
L2GEHF		0.0123	0.0001	0.05	0.0113	0.0003	0.23	OE
LCZWBM	*	0.0132	0.0009	0.75	0.0103	-0.0008	-0.65	AE
LF4MKM		0.0113	-0.0010	-0.81	0.0103	-0.0008	-0.67	OE
LYHRER		0.0151	0.0028	2.37	0.0135	0.0025	2.09	OE
LYVPZN		0.0123	0.0001	0.05	0.0113	0.0003	0.23	OE
LZAV28		0.0133	0.0010	0.87	0.0124	0.0013	1.13	OE
LZJ9ZZ		0.0130	0.0007	0.61	0.0107	-0.0004	-0.34	OE
M8MLLP		0.0125	0.0003	0.22	0.0112	0.0001	0.11	OE
MNLRN4	*	0.0111	-0.0012	-1.01	0.0113	0.0002	0.18	CI
MUY9JM		0.0121	-0.0002	-0.17	0.0113	0.0003	0.23	OE
NHJTWE		0.0115	-0.0008	-0.64	0.0103	-0.0008	-0.65	OE
NJ98EX		0.0130	0.0007	0.61	0.0110	-0.0001	-0.05	OE
PHXF93		0.0120	-0.0003	-0.25	0.0114	0.0003	0.28	CI
PJ8T8V		0.0123	0.0001	0.05	0.0113	0.0003	0.23	OE
PY33EV	*	0.0150	0.0027	2.29	0.0141	0.0030	2.57	OE
Q28YHB		0.0105	-0.0017	-1.45	0.00963	-0.0014	-1.21	CO
Q679QR		0.0129	0.0006	0.50	0.0110	-0.0001	-0.07	OE
Q89FLP		0.0110	-0.0013	-1.06	0.00933	-0.0017	-1.46	OE
QPVM9M	X	0.1233	0.1111	93.06	0.1200	0.1089	92.08	OE
QQMPV3		0.0127	0.0004	0.33	0.0107	-0.0004	-0.34	GD
QYL9EK		0.0110	-0.0013	-1.06	0.00967	-0.0014	-1.18	OE
T4M4BQ		0.0124	0.0001	0.11	0.0112	0.0001	0.11	OE
TKQXHP		0.0110	-0.0013	-1.09	0.00980	-0.0013	-1.07	GD
TRULDC		0.0113	-0.0009	-0.78	0.0107	-0.0004	-0.34	GD

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 173

Chemical Analysis Element #4 - Carbon & Low Alloy Steel - Percent
SULFUR (S)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
TZJG9L		0.0110	-0.0013	-1.06	0.0100	-0.0011	-0.90	OE
U69AZF		0.0115	-0.0007	-0.62	0.0106	-0.0005	-0.39	CI
U7MY3R		0.0122	-0.0001	-0.08	0.0104	-0.0007	-0.59	OE
U7Q8BR		0.0107	-0.0016	-1.34	0.00923	-0.0018	-1.55	CI
UMR84R		0.0122	-0.0001	-0.06	0.0111	0.0000	0.00	GD
V4C9HU		0.0135	0.0012	1.00	0.0114	0.0004	0.31	OE
VFTVTG		0.0117	-0.0006	-0.48	0.0101	-0.0010	-0.84	CI
VPBNUB		0.0122	0.0000	-0.03	0.0105	-0.0006	-0.48	CO
VR3F93		0.0107	-0.0015	-1.29	0.0107	-0.0004	-0.31	OE
VRLE8L		0.0117	-0.0006	-0.48	0.0114	0.0003	0.28	OE
VY289J		0.0115	-0.0008	-0.64	0.0107	-0.0004	-0.34	OE
WF62FJ		0.0116	-0.0006	-0.53	0.0108	-0.0002	-0.20	OE
WZRTEF		0.0128	0.0005	0.42	0.0113	0.0003	0.23	XX
X3XNLP		0.0131	0.0009	0.73	0.0116	0.0005	0.42	OE
X7AK4K		0.0121	-0.0002	-0.17	0.0118	0.0007	0.62	DR
XVVCQT		0.0111	-0.0012	-1.01	0.0100	-0.0011	-0.90	CI
XYVMLT		0.0133	0.0010	0.86	0.0113	0.0002	0.20	OE
XZKXCL		0.0118	-0.0005	-0.39	0.0107	-0.0003	-0.28	CI
Y9VHBB		0.0108	-0.0015	-1.23	0.00970	-0.0014	-1.15	CI
Z2A7EL		0.0137	0.0014	1.17	0.0123	0.0013	1.07	CO
Z3NFJF		0.0141	0.0019	1.55	0.0126	0.0016	1.32	OE
ZLWHHK		0.0123	0.0001	0.05	0.0103	-0.0007	-0.62	XX
ZV2PXK		0.0106	-0.0017	-1.43	0.00930	-0.0018	-1.49	OE
ZWF3QN	*	0.0100	-0.0023	-1.90	0.00800	-0.0031	-2.59	OE

Summary Statistics

	Sample L29		Sample L30	
Grand Means	0.0123	Percent	0.0111	Percent
Stnd Dev Btwn Labs	0.0012	Percent	0.0012	Percent

Samples L29 , L30 : AISI 8740

Statistics based on 115 of 122 reporting participants

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 173

Chemical Analysis Element #4 - Carbon & Low Alloy Steel - Percent SULFUR (S)

Comments on assigned Data Flags for Analysis #173

WebCode	Flag	Analyst Comment
CKKXHY	X	Data for sample L30 are high. Inconsistent in testing between samples. Inconsistent within the determinations of sample L30.
E7KV24	X	Data for sample L29 are high. Inconsistent in testing between samples. Inconsistent within the determinations of sample L29.
GKBFVW	X	Data for both samples are low. Possible Systematic error.
QPVM9M	X	Data for both samples are high. Possible Systematic error. Inconsistent within the determinations of sample L29.

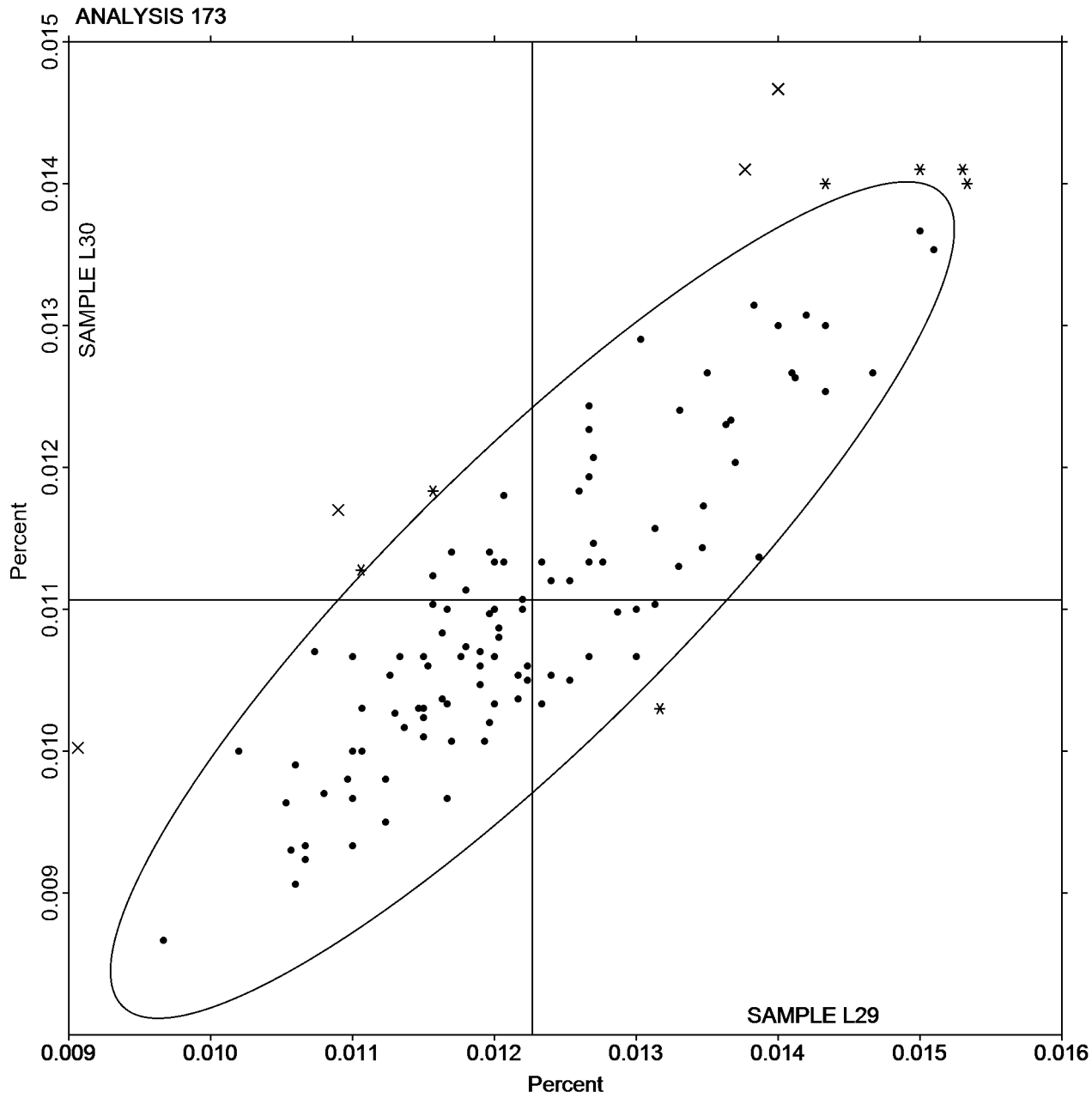
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 173

Chemical Analysis Element #4 - Carbon & Low Alloy Steel - Percent
SULFUR (S)

SAMPLE L29	SAMPLE L30
0.0123 Percent	0.0111 Percent



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 174

Chemical Analysis Element #5 - Carbon & Low Alloy Steel - Percent SILICON (Si)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2BCNN4		0.2583	-0.0007	-0.13	0.2481	-0.0007	-0.13	OE
2BZU7H		0.2577	-0.0013	-0.26	0.2450	-0.0038	-0.71	OE
2FA63H		0.2600	0.0010	0.19	0.2470	-0.0018	-0.33	OE
2PW4TN		0.2570	-0.0020	-0.39	0.2462	-0.0026	-0.49	OE
2UNBCW		0.2495	-0.0095	-1.87	0.2378	-0.0110	-2.07	OE
3LAQJK		0.2570	-0.0020	-0.40	0.2453	-0.0034	-0.65	OE
3QNE9N		0.2493	-0.0097	-1.90	0.2510	0.0022	0.42	GD
4C3LWL		0.2570	-0.0020	-0.40	0.2463	-0.0024	-0.46	DR
4DVEQJ		0.2553	-0.0037	-0.72	0.2457	-0.0031	-0.58	WD
4J32K9		0.2667	0.0077	1.50	0.2597	0.0109	2.05	OE
4JXDEN		0.2630	0.0040	0.78	0.2543	0.0056	1.05	OE
4MEX24		0.2610	0.0020	0.39	0.2400	-0.0088	-1.65	CL
6D9F47		0.2600	0.0010	0.19	0.2470	-0.0018	-0.33	OE
6MUKB6		0.2555	-0.0035	-0.70	0.2431	-0.0057	-1.07	OE
6N87PD		0.2573	-0.0017	-0.33	0.2470	-0.0018	-0.33	OE
7D3LX6		0.2557	-0.0033	-0.66	0.2380	-0.0108	-2.03	OE
7JTVCA		0.2557	-0.0033	-0.66	0.2460	-0.0028	-0.52	WD
7TFWPX	*	0.2499	-0.0091	-1.79	0.2439	-0.0048	-0.91	OE
83433W		0.2533	-0.0057	-1.12	0.2430	-0.0058	-1.09	OE
88AVWR		0.2540	-0.0050	-0.98	0.2439	-0.0049	-0.92	OE
8RHYUW		0.2606	0.0016	0.32	0.2500	0.0013	0.24	OE
8V2TXN		0.2534	-0.0056	-1.10	0.2522	0.0034	0.64	OE
9JJTEZ		0.2596	0.0006	0.12	0.2516	0.0028	0.53	OE
9NFFAA		0.2600	0.0010	0.19	0.2500	0.0012	0.23	OE
9PA7FN		0.2560	-0.0030	-0.59	0.2500	0.0012	0.23	OE
9PUR7T		0.2548	-0.0042	-0.83	0.2447	-0.0041	-0.77	OE
9RXMPW	*	0.2700	0.0110	2.15	0.2626	0.0138	2.60	IC
A9JPMC		0.2532	-0.0058	-1.15	0.2445	-0.0043	-0.80	OE
AACHGA		0.2587	-0.0003	-0.07	0.2484	-0.0003	-0.06	OE
ADYVPD		0.2593	0.0003	0.06	0.2493	0.0006	0.11	IC
AKWPJ6		0.2582	-0.0008	-0.16	0.2485	-0.0002	-0.04	OE
ARP3DD		0.2657	0.0067	1.31	0.2520	0.0032	0.61	OE
B2XRYN		0.2500	-0.0090	-1.77	0.2400	-0.0088	-1.65	OE
BWKB36		0.2633	0.0043	0.85	0.2533	0.0046	0.86	GD
CBGPXT		0.2510	-0.0080	-1.57	0.2443	-0.0044	-0.84	OE
CKKXHY		0.2700	0.0110	2.16	0.2587	0.0099	1.86	GD
CYM7L9		0.2583	-0.0007	-0.13	0.2477	-0.0011	-0.21	OE
CZ6DTB		0.2530	-0.0060	-1.18	0.2423	-0.0064	-1.21	OE
D6PTX9		0.2534	-0.0056	-1.09	0.2432	-0.0056	-1.05	OE
D8CCWK		0.2620	0.0030	0.59	0.2503	0.0016	0.29	DR
DJAFZE		0.2606	0.0016	0.30	0.2541	0.0053	1.00	OE
DKM67C		0.2660	0.0070	1.37	0.2547	0.0059	1.11	OE
DPEYF8		0.2531	-0.0059	-1.17	0.2456	-0.0032	-0.60	OE
DYYK7M		0.2597	0.0007	0.13	0.2480	-0.0008	-0.15	XX
E3KK74		0.2600	0.0010	0.19	0.2500	0.0012	0.23	OE
E7KV24		0.2535	-0.0055	-1.08	0.2444	-0.0044	-0.83	OE
EA4ND7		0.2600	0.0010	0.19	0.2500	0.0012	0.23	OE
EDVY4V		0.2710	0.0120	2.35	0.2620	0.0132	2.49	OE
EJ4KUE		0.2583	-0.0007	-0.13	0.2550	0.0062	1.17	OE

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 174

Chemical Analysis Element #5 - Carbon & Low Alloy Steel - Percent SILICON (Si)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
ERGJFC	X	0.2581	-0.0009	-0.18	0.2547	0.0060	1.12	IC
EWEQC8		0.2633	0.0043	0.85	0.2533	0.0046	0.86	OE
FFKQT8		0.2623	0.0033	0.65	0.2503	0.0016	0.29	OE
FWNFP4		0.2657	0.0067	1.31	0.2477	-0.0011	-0.21	IC
FZ4WWM	X	0.2377	-0.0213	-4.19	0.2283	-0.0204	-3.85	OE
G7BPPX		0.2593	0.0003	0.06	0.2490	0.0002	0.04	OE
G84FVC		0.2587	-0.0003	-0.07	0.2521	0.0033	0.63	OE
GB6KQ6		0.2560	-0.0030	-0.59	0.2471	-0.0017	-0.32	OE
GCXDJ4		0.2580	-0.0010	-0.20	0.2471	-0.0016	-0.31	OE
GKBFVW	X	0.2490	-0.0100	-1.97	0.2323	-0.0164	-3.09	OE
GMYV2X		0.2570	-0.0020	-0.40	0.2473	-0.0014	-0.27	OE
GZZMM3		0.2633	0.0043	0.85	0.2543	0.0056	1.05	OE
H6AAP7		0.2476	-0.0114	-2.25	0.2383	-0.0105	-1.98	OE
HTK9FQ		0.2556	-0.0034	-0.66	0.2429	-0.0059	-1.11	DR
HV48TL		0.2587	-0.0003	-0.07	0.2477	-0.0011	-0.21	OE
HZXFZZ		0.2583	-0.0007	-0.14	0.2486	-0.0002	-0.03	OE
J9N3MQ		0.2585	-0.0005	-0.11	0.2493	0.0005	0.10	OE
JFTUYU		0.2562	-0.0028	-0.56	0.2458	-0.0030	-0.56	DR
JG2A7Z		0.2553	-0.0037	-0.72	0.2460	-0.0028	-0.52	OE
JG44LZ		0.2700	0.0110	2.16	0.2607	0.0119	2.24	OE
JGMR4U		0.2600	0.0010	0.19	0.2500	0.0012	0.23	XX
JU4RR9		0.2626	0.0036	0.70	0.2546	0.0058	1.10	OE
K6NBRY		0.2576	-0.0014	-0.27	0.2452	-0.0036	-0.67	OE
KBB8DZ		0.2657	0.0067	1.31	0.2553	0.0066	1.23	OE
L2GEHF		0.2590	0.0000	0.00	0.2480	-0.0008	-0.15	OE
LCZWBM		0.2590	0.0000	0.00	0.2480	-0.0008	-0.15	AE
LF4MKM		0.2586	-0.0004	-0.07	0.2484	-0.0004	-0.08	OE
LYHRER		0.2667	0.0077	1.50	0.2543	0.0056	1.05	OE
LYVPZN		0.2623	0.0033	0.65	0.2520	0.0032	0.61	OE
LZAV28		0.2566	-0.0024	-0.47	0.2467	-0.0021	-0.39	OE
LZJ9ZZ		0.2513	-0.0077	-1.51	0.2417	-0.0071	-1.34	OE
M8MLLP		0.2537	-0.0053	-1.05	0.2410	-0.0078	-1.46	OE
MNLRN4	*	0.2473	-0.0117	-2.29	0.2340	-0.0148	-2.78	OE
MUY9JM		0.2539	-0.0051	-1.00	0.2457	-0.0030	-0.57	OE
NHJTWE		0.2578	-0.0012	-0.23	0.2475	-0.0012	-0.23	OE
NJ98EX		0.2597	0.0007	0.13	0.2477	-0.0011	-0.21	OE
PHXF93		0.2587	-0.0003	-0.07	0.2490	0.0002	0.04	GR
PJ8T8V	*	0.2713	0.0123	2.42	0.2630	0.0142	2.68	OE
PY33EV		0.2643	0.0053	1.04	0.2550	0.0062	1.17	OE
Q28YHB	X	0.2407	-0.0183	-3.60	0.2327	-0.0161	-3.03	OE
Q679QR		0.2650	0.0060	1.17	0.2555	0.0068	1.27	OE
Q89FLP		0.2623	0.0033	0.65	0.2533	0.0046	0.86	OE
QPVM9M		0.2600	0.0010	0.19	0.2500	0.0012	0.23	OE
QQMPV3	*	0.2487	-0.0103	-2.03	0.2343	-0.0144	-2.72	GD
QYL9EK		0.2627	0.0037	0.72	0.2510	0.0022	0.42	OE
T4M4BQ		0.2578	-0.0012	-0.24	0.2472	-0.0016	-0.30	OE
TKQXHP		0.2540	-0.0050	-0.98	0.2440	-0.0048	-0.90	GD
TRULDC		0.2567	-0.0023	-0.46	0.2503	0.0016	0.29	GD
TZJG9L		0.2617	0.0027	0.52	0.2507	0.0019	0.36	OE

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 174

Chemical Analysis Element #5 - Carbon & Low Alloy Steel - Percent SILICON (Si)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
U69AZF		0.2595	0.0005	0.10	0.2491	0.0003	0.06	OE
U7MY3R	*	0.2654	0.0064	1.25	0.2499	0.0012	0.22	OE
U7Q8BR		0.2570	-0.0020	-0.40	0.2483	-0.0004	-0.08	OE
V4C9HU		0.2627	0.0037	0.72	0.2533	0.0046	0.86	OE
VFTVTG		0.2613	0.0023	0.46	0.2487	-0.0001	-0.02	IC
VPBNUB	*	0.2703	0.0113	2.22	0.2563	0.0076	1.42	OE
VR3F93		0.2637	0.0047	0.91	0.2543	0.0056	1.05	OE
VRLE8L		0.2543	-0.0047	-0.92	0.2430	-0.0058	-1.09	OE
VY289J		0.2637	0.0047	0.91	0.2530	0.0042	0.80	OE
WF62FJ		0.2693	0.0103	2.03	0.2577	0.0089	1.67	OE
WZRTEF		0.2590	0.0000	0.00	0.2500	0.0012	0.23	XX
X3XNLP		0.2573	-0.0017	-0.33	0.2467	-0.0021	-0.40	OE
X7AK4K		0.2553	-0.0037	-0.72	0.2450	-0.0038	-0.71	DR
XVVCQT		0.2567	-0.0023	-0.46	0.2497	0.0009	0.17	OE
XYVMLT		0.2527	-0.0063	-1.25	0.2387	-0.0101	-1.90	OE
XZKXCL		0.2577	-0.0013	-0.26	0.2483	-0.0004	-0.08	IC
Y9VHBB		0.2573	-0.0017	-0.33	0.2507	0.0019	0.36	OE
Z2A7EL		0.2580	-0.0010	-0.20	0.2460	-0.0028	-0.52	OE
Z3NFJF		0.2603	0.0013	0.26	0.2504	0.0016	0.31	OE
ZLWHHK		0.2647	0.0057	1.11	0.2527	0.0039	0.73	XX
ZV2PXK		0.2637	0.0047	0.91	0.2523	0.0036	0.67	OE
ZWF3QN		0.2603	0.0013	0.26	0.2483	-0.0004	-0.08	OE

Summary Statistics

	Sample L29		Sample L30	
Grand Means	0.2590	Percent	0.2488	Percent
Stnd Dev Btwn Labs	0.0051	Percent	0.0053	Percent

Samples L29 , L30 : AISI 8740

Statistics based on 110 of 120 reporting participants

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 174

Chemical Analysis Element #5 - Carbon & Low Alloy Steel - Percent SILICON (Si)

Comments on assigned Data Flags for Analysis #174

WebCode	Flag	Analyst Comment
ERGJFC	X	Inconsistent in testing between samples. Inconsistent within the determinations of sample L30.
FZ4WWM	X	Data for both samples are low. Possible Systematic error.
GKBFVW	X	Data for sample L30 are low. Inconsistent in testing between samples.
Q28YHB	X	Data for both samples are low. Possible Systematic error.

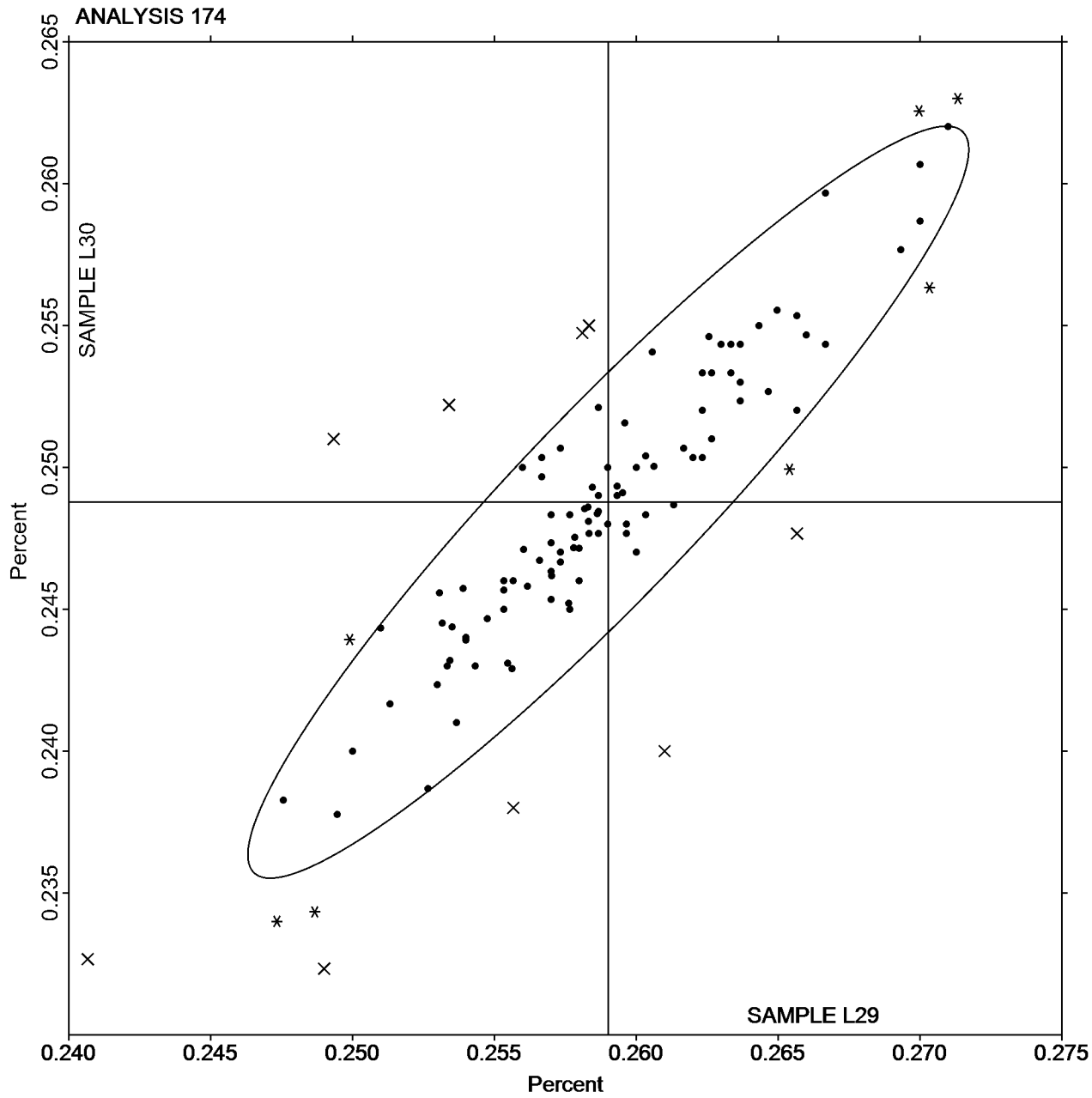
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 174

Chemical Analysis Element #5 - Carbon & Low Alloy Steel - Percent
SILICON (Si)

SAMPLE L29	SAMPLE L30
0.2590 Percent	0.2488 Percent



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 175

Chemical Analysis Element #6 - Carbon & Low Alloy Steel - Percent
COPPER (Cu)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2BCNN4		0.1631	-0.0028	-0.70	0.1823	-0.0027	-0.56	OE
2BZU7H		0.1633	-0.0025	-0.64	0.1790	-0.0059	-1.24	OE
2FA63H		0.1627	-0.0032	-0.81	0.1783	-0.0066	-1.37	OE
2PW4TN		0.1634	-0.0025	-0.64	0.1838	-0.0012	-0.25	OE
2UNBCW		0.1613	-0.0045	-1.16	0.1820	-0.0030	-0.62	OE
3LAQJK		0.1660	0.0002	0.04	0.1837	-0.0013	-0.27	OE
3QNE9N		0.1680	0.0022	0.55	0.1867	0.0017	0.36	GD
4C3LWL		0.1673	0.0015	0.38	0.1853	0.0004	0.08	DR
4DVEQJ		0.1640	-0.0018	-0.47	0.1823	-0.0026	-0.54	WD
4J32K9		0.1653	-0.0005	-0.13	0.1857	0.0007	0.15	OE
4JXDEN		0.1620	-0.0038	-0.98	0.1817	-0.0033	-0.68	OE
4MEX24		0.1600	-0.0058	-1.50	0.1780	-0.0069	-1.44	AA
6D9F47		0.1600	-0.0058	-1.50	0.1780	-0.0069	-1.44	OE
6MUKB6		0.1674	0.0016	0.41	0.1851	0.0002	0.03	XX
6N87PD		0.1690	0.0032	0.81	0.1890	0.0041	0.84	OE
7D3LX6	*	0.1713	0.0055	1.40	0.1873	0.0024	0.50	OE
7JTVCA		0.1637	-0.0022	-0.56	0.1813	-0.0036	-0.75	WD
7TFWPX	*	0.1761	0.0102	2.61	0.1986	0.0137	2.84	OE
83433W		0.1660	0.0002	0.04	0.1857	0.0007	0.15	OE
88AVWR		0.1616	-0.0042	-1.09	0.1777	-0.0072	-1.51	OE
8RHYUW		0.1636	-0.0022	-0.58	0.1840	-0.0009	-0.20	OE
8V2TXN	*	0.1640	-0.0019	-0.48	0.1875	0.0025	0.52	OE
9JJTEZ		0.1644	-0.0015	-0.38	0.1839	-0.0011	-0.22	OE
9NFFAA		0.1700	0.0042	1.06	0.1900	0.0051	1.05	OE
9PA7FN		0.1643	-0.0015	-0.39	0.1837	-0.0013	-0.27	OE
9PUR7T	X	0.2076	0.0418	10.69	0.1381	-0.0469	-9.73	OE
9RXMPW		0.1677	0.0019	0.48	0.1881	0.0032	0.65	IC
A9JPMC		0.1672	0.0013	0.34	0.1846	-0.0004	-0.08	OE
AACHGA		0.1688	0.0030	0.75	0.1893	0.0044	0.91	IC
ADYVPD		0.1680	0.0022	0.55	0.1853	0.0004	0.08	IC
AKWPJ6	X	0.1634	-0.0025	-0.63	0.1729	-0.0120	-2.50	OE
ARP3DD		0.1667	0.0008	0.21	0.1830	-0.0019	-0.40	OE
B2XRYN		0.1600	-0.0058	-1.50	0.1800	-0.0049	-1.03	OE
BWKB36		0.1700	0.0042	1.06	0.1900	0.0051	1.05	GD
CBGPXT		0.1623	-0.0035	-0.90	0.1793	-0.0056	-1.17	OE
CKKXHY	*	0.1713	0.0055	1.40	0.1953	0.0104	2.16	GD
CYM7L9		0.1650	-0.0008	-0.22	0.1840	-0.0009	-0.20	OE
CZ6DTB		0.1613	-0.0045	-1.16	0.1770	-0.0079	-1.65	OE
D6PTX9		0.1717	0.0059	1.50	0.1814	-0.0035	-0.74	OE
D8CCWK		0.1663	0.0005	0.12	0.1840	-0.0009	-0.20	DR
DJAFZE		0.1695	0.0036	0.93	0.1908	0.0059	1.22	OE
DKM67C		0.1650	-0.0008	-0.22	0.1830	-0.0019	-0.40	OE
DPEYF8		0.1690	0.0031	0.80	0.1848	-0.0002	-0.04	OE
DYYK7M		0.1673	0.0015	0.38	0.1857	0.0007	0.15	XX
E3KK74		0.1600	-0.0058	-1.50	0.1800	-0.0049	-1.03	OE
E7KV24		0.1639	-0.0019	-0.49	0.1871	0.0021	0.45	OE
EA4ND7		0.1700	0.0042	1.06	0.1900	0.0051	1.05	OE
EDVY4V		0.1710	0.0052	1.32	0.1920	0.0071	1.46	OE
EJ4KUE	*	0.1707	0.0048	1.23	0.1950	0.0101	2.09	OE

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 175

Chemical Analysis Element #6 - Carbon & Low Alloy Steel - Percent COPPER (Cu)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
ERGJFC		0.1652	-0.0006	-0.16	0.1835	-0.0014	-0.29	IC
EWEQC8	X	0.1400	-0.0258	-6.61	0.1800	-0.0049	-1.03	OE
FFKQT8		0.1670	0.0012	0.29	0.1860	0.0011	0.22	OE
FWNFP4		0.1717	0.0058	1.49	0.1900	0.0051	1.05	IC
FZ4WWM		0.1633	-0.0025	-0.64	0.1823	-0.0026	-0.54	OE
G7BPPX		0.1680	0.0022	0.55	0.1867	0.0017	0.36	OE
G84FVC		0.1674	0.0015	0.39	0.1841	-0.0009	-0.18	OE
GB6KQ6		0.1662	0.0003	0.08	0.1840	-0.0010	-0.20	OE
GCXDJ4		0.1704	0.0045	1.16	0.1905	0.0055	1.15	IC
GKBFVW	*	0.1547	-0.0112	-2.86	0.1710	-0.0139	-2.90	OE
GMYV2X		0.1703	0.0045	1.15	0.1897	0.0047	0.98	OE
GZZMM3		0.1700	0.0042	1.06	0.1927	0.0077	1.60	OE
H6AAP7	X	0.1434	-0.0224	-5.73	0.1587	-0.0262	-5.45	OE
HTK9FQ		0.1648	-0.0010	-0.26	0.1841	-0.0008	-0.18	DR
HV48TL		0.1710	0.0052	1.32	0.1913	0.0064	1.33	OE
HZXFZZ		0.1696	0.0038	0.97	0.1902	0.0053	1.09	OE
J9N3MQ		0.1653	-0.0005	-0.13	0.1856	0.0006	0.13	OE
JFTUYU		0.1642	-0.0016	-0.42	0.1838	-0.0011	-0.23	DR
JG2A7Z		0.1657	-0.0002	-0.05	0.1853	0.0004	0.08	OE
JG44LZ	X	0.1807	0.0148	3.79	0.1903	0.0054	1.12	OE
JGMR4U		0.1650	-0.0008	-0.22	0.1830	-0.0019	-0.40	XX
JU4RR9		0.1583	-0.0075	-1.92	0.1770	-0.0079	-1.65	OE
K6NBRY		0.1654	-0.0004	-0.11	0.1837	-0.0013	-0.27	OE
KBB8DZ		0.1733	0.0075	1.91	0.1937	0.0087	1.81	OE
KKEDC9		0.1685	0.0026	0.67	0.1854	0.0004	0.09	DR
L2GEHF		0.1663	0.0005	0.12	0.1847	-0.0003	-0.06	OE
LCZWBM		0.1707	0.0048	1.23	0.1887	0.0037	0.77	AE
LF4MKM		0.1624	-0.0034	-0.87	0.1811	-0.0039	-0.81	OE
LYHRER	*	0.1777	0.0118	3.02	0.1973	0.0124	2.57	OE
LYVPZN		0.1680	0.0022	0.55	0.1873	0.0024	0.50	OE
LZAV28		0.1645	-0.0014	-0.35	0.1842	-0.0008	-0.16	OE
LZJ9ZZ		0.1643	-0.0015	-0.39	0.1847	-0.0003	-0.06	OE
M8MLLP		0.1647	-0.0012	-0.30	0.1847	-0.0003	-0.06	OE
MNLRN4		0.1613	-0.0045	-1.16	0.1800	-0.0049	-1.03	OE
MUY9JM	X	0.1783	0.0125	3.19	0.1973	0.0124	2.56	OE
NHJTWE		0.1650	-0.0008	-0.22	0.1846	-0.0003	-0.07	OE
NJ98EX		0.1647	-0.0012	-0.30	0.1827	-0.0023	-0.47	OE
PHXF93		0.1663	0.0005	0.12	0.1860	0.0011	0.22	IC
PJ8T8V		0.1573	-0.0085	-2.18	0.1767	-0.0083	-1.72	OE
PY33EV	X	0.1627	-0.0032	-0.81	0.2023	0.0174	3.61	OE
Q28YHB		0.1737	0.0078	2.00	0.1953	0.0104	2.16	OE
Q679QR		0.1649	-0.0010	-0.24	0.1840	-0.0009	-0.19	OE
Q89FLP	*	0.1610	-0.0048	-1.24	0.1840	-0.0009	-0.20	OE
QQMPV3		0.1670	0.0012	0.29	0.1860	0.0011	0.22	GD
QYL9EK		0.1587	-0.0072	-1.84	0.1780	-0.0069	-1.44	OE
T4M4BQ		0.1655	-0.0003	-0.08	0.1844	-0.0006	-0.12	OE
TKQXHP		0.1640	-0.0018	-0.47	0.1830	-0.0019	-0.40	GD
TRULDC		0.1683	0.0025	0.64	0.1860	0.0011	0.22	GD
TZJG9L		0.1690	0.0032	0.81	0.1870	0.0021	0.43	OE

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 175

Chemical Analysis Element #6 - Carbon & Low Alloy Steel - Percent
COPPER (Cu)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
U69AZF		0.1703	0.0045	1.14	0.1903	0.0054	1.12	OE
U7MY3R		0.1608	-0.0050	-1.29	0.1766	-0.0083	-1.73	OE
U7Q8BR	X	0.1407	-0.0252	-6.44	0.1943	0.0094	1.95	OE
V4C9HU		0.1703	0.0045	1.15	0.1900	0.0051	1.05	OE
VFTVTG		0.1623	-0.0035	-0.90	0.1820	-0.0029	-0.61	IC
VPBNUB	X	0.1863	0.0205	5.24	0.2087	0.0237	4.92	OE
VR3F93		0.1673	0.0015	0.38	0.1890	0.0041	0.84	OE
VRLE8L		0.1673	0.0015	0.38	0.1860	0.0011	0.22	OE
VY289J		0.1650	-0.0008	-0.22	0.1827	-0.0023	-0.47	OE
WF62FJ		0.1650	-0.0008	-0.22	0.1830	-0.0019	-0.40	OE
WZRTEF		0.1677	0.0018	0.47	0.1850	0.0001	0.01	XX
X3XNLP		0.1667	0.0008	0.21	0.1863	0.0014	0.29	OE
X7AK4K		0.1693	0.0035	0.89	0.1917	0.0067	1.39	DR
XVVCQT		0.1703	0.0045	1.15	0.1803	-0.0046	-0.96	OE
XYVMLT	*	0.1623	-0.0035	-0.90	0.1760	-0.0089	-1.86	OE
XZKXCL		0.1660	0.0002	0.04	0.1857	0.0007	0.15	IC
Y9VHBB		0.1653	-0.0005	-0.13	0.1873	0.0024	0.50	OE
Z2A7EL		0.1620	-0.0038	-0.98	0.1797	-0.0053	-1.10	OE
Z3NFJF		0.1668	0.0010	0.25	0.1869	0.0020	0.41	OE
ZLWHHK		0.1600	-0.0058	-1.50	0.1777	-0.0073	-1.51	XX
ZV2PXK		0.1637	-0.0022	-0.56	0.1827	-0.0023	-0.47	OE
ZWF3QN		0.1597	-0.0062	-1.58	0.1783	-0.0066	-1.37	OE

Summary Statistics

	Sample L29		Sample L30	
Grand Means	0.1658	Percent	0.1849	Percent
Stnd Dev Btwn Labs	0.0039	Percent	0.0048	Percent

Samples L29 , L30 : AISI 8740

Statistics based on 109 of 120 reporting participants

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 175

Chemical Analysis Element #6 - Carbon & Low Alloy Steel - Percent COPPER (Cu)

Comments on assigned Data Flags for Analysis #175

WebCode	Flag	Analyst Comment
9PUR7T	X	Data for sample L29 are high and data for sample L30 are low. Inconsistent within the determinations of sample L29.
AKWPJ6	X	Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
EWEQC8	X	Data for sample L29 are low.
H6AAP7	X	Data for both samples are low.
JG44LZ	X	Data for sample L29 are high.
MUY9JM	X	Data for sample L29 are high.
PY33EV	X	Data for sample L30 are high.
U7Q8BR	X	Data for sample L29 are low.
VPBNUB	X	Data for both samples are high. Inconsistent within the determinations of sample L29.

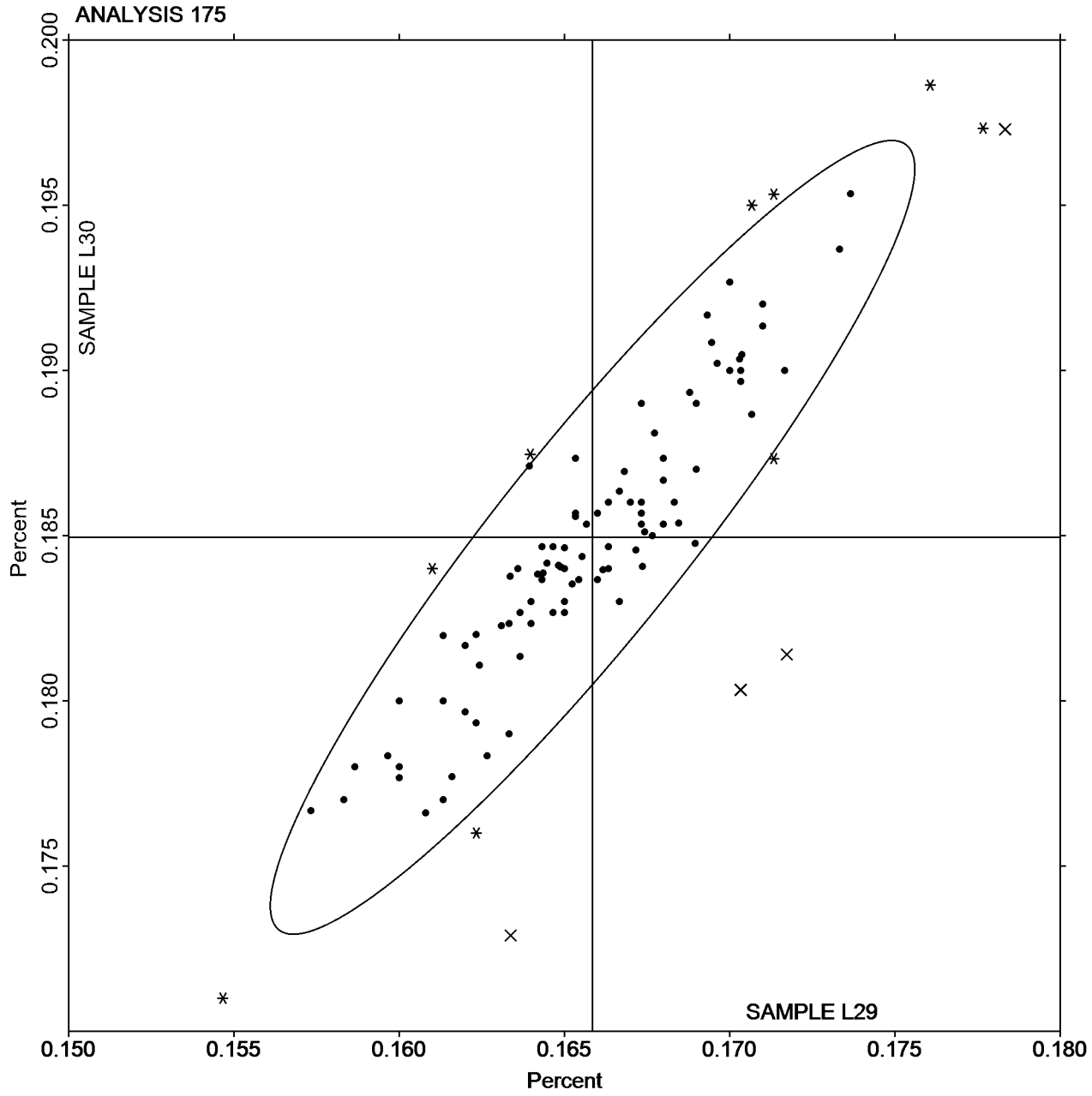
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 175

Chemical Analysis Element #6 - Carbon & Low Alloy Steel - Percent
COPPER (Cu)

SAMPLE L29	SAMPLE L30
0.1658 Percent	0.1849 Percent



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 176

Chemical Analysis Element #7 - Carbon & Low Alloy Steel - Percent NICKEL (Ni)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2BCNN4		0.4045	-0.0023	-0.35	0.4112	-0.0012	-0.18	OE
2BZU7H		0.4147	0.0079	1.19	0.4217	0.0093	1.34	OE
2FA63H		0.4007	-0.0061	-0.93	0.4020	-0.0104	-1.50	OE
2PW4TN		0.4045	-0.0023	-0.35	0.4096	-0.0028	-0.41	OE
2UNBCW		0.3972	-0.0096	-1.45	0.4073	-0.0050	-0.73	OE
3LAQJK		0.4097	0.0029	0.44	0.4133	0.0010	0.14	OE
3QNE9N		0.4143	0.0075	1.14	0.4203	0.0080	1.15	GD
4C3LWL		0.3967	-0.0101	-1.54	0.4053	-0.0070	-1.02	DR
4DVEQJ		0.4020	-0.0048	-0.73	0.4060	-0.0064	-0.92	WD
4J32K9	*	0.4007	-0.0061	-0.93	0.4120	-0.0004	-0.06	OE
4JXDEN		0.4047	-0.0021	-0.32	0.4083	-0.0040	-0.59	OE
4MEX24	X	0.3960	-0.0108	-1.64	0.3710	-0.0414	-5.98	AA
6D9F47	X	0.3853	-0.0215	-3.25	0.3923	-0.0200	-2.90	OE
6MUKB6		0.4029	-0.0039	-0.58	0.4087	-0.0036	-0.53	OE
6N87PD		0.4003	-0.0065	-0.98	0.4037	-0.0087	-1.26	OE
7D3LX6		0.4123	0.0055	0.84	0.4043	-0.0080	-1.16	OE
7JTVCA		0.4033	-0.0035	-0.52	0.4097	-0.0027	-0.39	WD
7TFWPX	X	0.3325	-0.0743	-11.26	0.3395	-0.0728	-10.54	OE
83433W		0.4040	-0.0028	-0.42	0.4083	-0.0040	-0.59	OE
88AVWR	*	0.3925	-0.0143	-2.17	0.3945	-0.0179	-2.59	OE
8RHYUW		0.4057	-0.0011	-0.17	0.4110	-0.0014	-0.20	OE
8V2TXN		0.3995	-0.0073	-1.11	0.4183	0.0059	0.85	OE
9JJTEZ		0.4071	0.0003	0.05	0.4164	0.0041	0.59	OE
9NFFAA		0.4033	-0.0035	-0.52	0.4067	-0.0057	-0.83	OE
9PA7FN		0.4077	0.0009	0.13	0.4120	-0.0004	-0.06	OE
9PUR7T		0.4172	0.0104	1.58	0.4257	0.0133	1.93	OE
9RXMPW		0.3993	-0.0075	-1.13	0.4080	-0.0043	-0.63	IC
A9JPMC		0.4103	0.0035	0.53	0.4141	0.0017	0.25	OE
AACHGA		0.4140	0.0072	1.09	0.4168	0.0045	0.64	OE
ADYVPD		0.4040	-0.0028	-0.42	0.4103	-0.0020	-0.30	IC
AKWPJ6		0.4002	-0.0066	-1.00	0.4070	-0.0054	-0.78	OE
BWKB36		0.4067	-0.0001	-0.02	0.4167	0.0043	0.62	GD
CBGPXT		0.4147	0.0079	1.19	0.4227	0.0103	1.49	OE
CKKXHY		0.4080	0.0012	0.18	0.4150	0.0026	0.38	GD
CYM7L9		0.4057	-0.0011	-0.17	0.4100	-0.0024	-0.34	OE
CZ6DTB		0.4003	-0.0065	-0.98	0.4043	-0.0080	-1.16	OE
D6PTX9		0.3923	-0.0145	-2.20	0.4184	0.0061	0.88	OE
D8CCWK		0.4057	-0.0011	-0.17	0.4110	-0.0014	-0.20	DR
DJAFZE		0.4124	0.0056	0.86	0.4181	0.0057	0.82	OE
DKM67C		0.4107	0.0039	0.59	0.4163	0.0040	0.57	OE
DPEYF8		0.4067	-0.0001	-0.01	0.4034	-0.0089	-1.29	OE
DYYK7M		0.4027	-0.0041	-0.63	0.4063	-0.0060	-0.87	XX
E3KK74		0.4100	0.0032	0.49	0.4100	-0.0024	-0.34	OE
E7KV24		0.4035	-0.0033	-0.51	0.4063	-0.0061	-0.88	OE
EA4ND7		0.4100	0.0032	0.49	0.4200	0.0076	1.10	OE
EDVY4V		0.4010	-0.0058	-0.88	0.4063	-0.0060	-0.87	OE
EJ4KUE		0.4137	0.0069	1.04	0.4313	0.0190	2.74	OE
ERGJFC		0.4043	-0.0025	-0.38	0.4080	-0.0043	-0.63	IC
EWEQC8	*	0.4200	0.0132	2.00	0.4200	0.0076	1.10	OE

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 176

Chemical Analysis Element #7 - Carbon & Low Alloy Steel - Percent NICKEL (Ni)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
FFKQT8		0.4067	-0.0001	-0.02	0.4090	-0.0034	-0.49	OE
FWNFP4		0.4063	-0.0005	-0.07	0.4020	-0.0104	-1.50	IC
G7BPPX		0.4103	0.0035	0.54	0.4150	0.0026	0.38	OE
G84FVC		0.4040	-0.0028	-0.43	0.4083	-0.0041	-0.59	OE
GB6KQ6		0.4073	0.0005	0.07	0.4112	-0.0012	-0.17	OE
GCXDJ4		0.4139	0.0071	1.08	0.4186	0.0062	0.90	OE
GKBFVW		0.4203	0.0135	2.05	0.4263	0.0140	2.02	OE
GMYV2X		0.4150	0.0082	1.25	0.4230	0.0106	1.54	OE
GZZMM3		0.3997	-0.0071	-1.08	0.4060	-0.0064	-0.92	OE
H6AAP7		0.4150	0.0082	1.25	0.4197	0.0073	1.06	OE
HTK9FQ		0.4039	-0.0029	-0.44	0.4074	-0.0049	-0.72	DR
HV48TL		0.4107	0.0039	0.59	0.4147	0.0023	0.33	OE
HZXFZZ		0.4114	0.0046	0.70	0.4184	0.0060	0.87	OE
J9N3MQ		0.4049	-0.0019	-0.29	0.4095	-0.0028	-0.41	OE
JFTUYU		0.4045	-0.0023	-0.35	0.4110	-0.0014	-0.20	DR
JG2A7Z		0.4143	0.0075	1.14	0.4187	0.0063	0.91	OE
JG44LZ	X	0.4067	-0.0001	-0.02	0.4203	0.0080	1.15	OE
JGMR4U		0.4020	-0.0048	-0.73	0.4100	-0.0024	-0.34	XX
JU4RR9	*	0.4030	-0.0038	-0.57	0.4147	0.0023	0.33	OE
K6NBRY		0.4112	0.0044	0.67	0.4168	0.0044	0.64	OE
L2GEHF		0.4080	0.0012	0.18	0.4140	0.0016	0.23	OE
LCZWBM		0.3990	-0.0078	-1.18	0.4023	-0.0100	-1.45	AE
LF4MKM		0.4044	-0.0024	-0.36	0.4112	-0.0012	-0.18	OE
LYHRER		0.4123	0.0055	0.84	0.4160	0.0036	0.52	OE
LYVPZN		0.4143	0.0075	1.14	0.4190	0.0066	0.96	OE
LZAV28		0.4136	0.0068	1.03	0.4199	0.0075	1.08	OE
LZJ9ZZ		0.4100	0.0032	0.49	0.4173	0.0050	0.72	OE
M8MLLP		0.3987	-0.0081	-1.23	0.3993	-0.0130	-1.89	OE
MNLRN4		0.4013	-0.0055	-0.83	0.4053	-0.0070	-1.02	OE
MUY9JM		0.4205	0.0137	2.07	0.4266	0.0142	2.05	OE
NHJTWE		0.4069	0.0001	0.01	0.4130	0.0006	0.09	OE
NJ98EX	*	0.4193	0.0125	1.90	0.4203	0.0080	1.15	OE
PHXF93		0.4083	0.0015	0.23	0.4140	0.0016	0.23	IC
PY33EV		0.4023	-0.0045	-0.68	0.4087	-0.0037	-0.54	OE
Q28YHB		0.4077	0.0009	0.13	0.4153	0.0030	0.43	OE
Q679QR		0.3967	-0.0101	-1.53	0.4043	-0.0081	-1.16	OE
Q89FLP	X	0.3550	-0.0518	-7.86	0.3670	-0.0454	-6.56	OE
QPVM9M		0.4100	0.0032	0.49	0.4200	0.0076	1.10	OE
QQMPV3		0.4063	-0.0005	-0.07	0.4073	-0.0050	-0.73	GD
QYL9EK		0.4197	0.0129	1.95	0.4270	0.0146	2.11	OE
T4M4BQ	*	0.4240	0.0172	2.62	0.4299	0.0175	2.53	OE
TKQXHP		0.4003	-0.0065	-0.98	0.4087	-0.0037	-0.54	GD
TRULDC		0.4007	-0.0061	-0.93	0.4097	-0.0027	-0.39	GD
TZJG9L		0.4107	0.0039	0.59	0.4167	0.0043	0.62	OE
U69AZF		0.4028	-0.0040	-0.60	0.4097	-0.0027	-0.39	OE
U7MY3R	X	0.3770	-0.0298	-4.52	0.3778	-0.0345	-5.00	OE
U7Q8BR		0.4047	-0.0021	-0.32	0.4103	-0.0020	-0.30	OE
V4C9HU		0.4000	-0.0068	-1.03	0.4030	-0.0094	-1.36	OE
VFTVTG		0.4087	0.0019	0.28	0.4150	0.0026	0.38	IC

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 176

Chemical Analysis Element #7 - Carbon & Low Alloy Steel - Percent NICKEL (Ni)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
VPBNUB		0.4060	-0.0008	-0.12	0.4127	0.0003	0.04	OE
VR3F93		0.4020	-0.0048	-0.73	0.4100	-0.0024	-0.34	OE
VRLE8L		0.4090	0.0022	0.34	0.4143	0.0020	0.28	OE
VY289J		0.3980	-0.0088	-1.33	0.4033	-0.0090	-1.31	OE
WF62FJ		0.3933	-0.0135	-2.04	0.3990	-0.0134	-1.94	OE
WZRTEF		0.4097	0.0029	0.44	0.4177	0.0053	0.76	XX
X3XNLP		0.4143	0.0075	1.14	0.4230	0.0106	1.54	OE
X7AK4K		0.4003	-0.0065	-0.98	0.4083	-0.0040	-0.59	DR
XVVCQT		0.4093	0.0025	0.39	0.4123	0.0000	-0.01	OE
XYVMLT		0.4020	-0.0048	-0.73	0.4027	-0.0097	-1.40	OE
XZKXCL		0.4083	0.0015	0.23	0.4150	0.0026	0.38	IC
Y9VHBB		0.4050	-0.0018	-0.27	0.4127	0.0003	0.04	OE
Z2A7EL	X	0.3603	-0.0465	-7.05	0.3623	-0.0500	-7.24	OE
Z3NFJF		0.3928	-0.0140	-2.12	0.3985	-0.0139	-2.01	OE
ZLWHHK		0.4007	-0.0061	-0.93	0.4053	-0.0070	-1.02	XX
ZV2PXK		0.4220	0.0152	2.31	0.4260	0.0136	1.97	OE
ZWF3QN		0.4137	0.0069	1.04	0.4190	0.0066	0.96	OE

Summary Statistics

	Sample L29		Sample L30	
Grand Means	0.4068	Percent	0.4124	Percent
Stnd Dev Btwn Labs	0.0066	Percent	0.0069	Percent

Samples L29 , L30 : AISI 8740

Statistics based on 102 of 115 reporting participants

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 176

Chemical Analysis Element #7 - Carbon & Low Alloy Steel - Percent NICKEL (Ni)

Comments on assigned Data Flags for Analysis #176

WebCode	Flag	Analyst Comment
4MEX24	X	Data for sample L30 are low. Inconsistent in testing between samples.
6D9F47	X	Data for both samples are low. Possible Systematic error.
7TFWPX	X	Data for both samples are low. Possible Systematic error.
JG44LZ	X	Inconsistent in testing between samples. Inconsistent within the determinations of sample L29.
Q89FLP	X	Data for both samples are low. Possible Systematic error.
U7MY3R	X	Data for both samples are low. Possible Systematic error.
Z2A7EL	X	Data for both samples are low. Possible Systematic error.

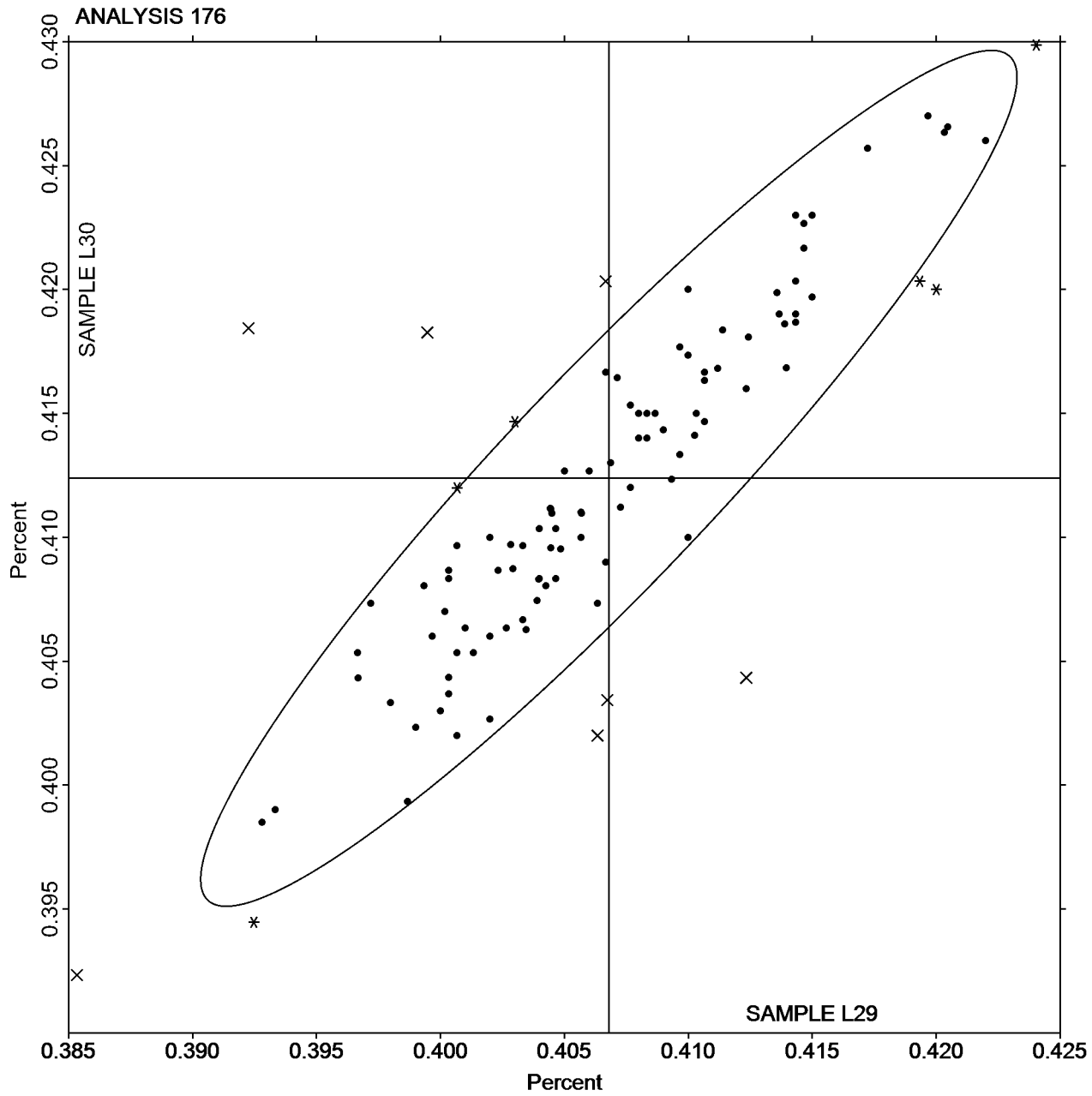
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 176

Chemical Analysis Element #7 - Carbon & Low Alloy Steel - Percent
NICKEL (Ni)

SAMPLE L29	SAMPLE L30
0.4068 Percent	0.4124 Percent



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 177

Chemical Analysis Element #8 - Carbon & Low Alloy Steel - Percent CHROMIUM (Cr)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2BCNN4		0.4824	-0.0012	-0.15	0.4558	-0.0010	-0.13	OE
2BZU7H		0.4870	0.0034	0.44	0.4610	0.0042	0.53	OE
2FA63H		0.4900	0.0064	0.83	0.4640	0.0072	0.91	OE
2PW4TN		0.4825	-0.0011	-0.15	0.4553	-0.0015	-0.19	OE
2UNBCW		0.4816	-0.0020	-0.26	0.4561	-0.0007	-0.09	OE
3LAQJK		0.4867	0.0030	0.39	0.4573	0.0005	0.07	OE
3QNE9N	X	0.4990	0.0154	1.99	0.4790	0.0222	2.82	GD
4C3LWL		0.4903	0.0067	0.87	0.4630	0.0062	0.79	DR
4DVEQJ		0.4787	-0.0050	-0.64	0.4550	-0.0018	-0.23	WD
4J32K9		0.4770	-0.0066	-0.86	0.4553	-0.0015	-0.19	OE
4JXDEN		0.4930	0.0094	1.21	0.4670	0.0102	1.29	OE
4MEX24	X	0.5130	0.0294	3.80	0.4510	-0.0058	-0.74	AA
6D9F47		0.4780	-0.0056	-0.73	0.4520	-0.0048	-0.61	OE
6MUKB6		0.4747	-0.0089	-1.16	0.4470	-0.0098	-1.24	OE
6N87PD		0.4883	0.0047	0.61	0.4610	0.0042	0.53	OE
7D3LX6		0.4783	-0.0053	-0.69	0.4537	-0.0031	-0.40	OE
7JTVCA		0.4817	-0.0020	-0.25	0.4567	-0.0001	-0.02	WD
7TFWPX		0.4889	0.0053	0.68	0.4602	0.0034	0.43	OE
83433W		0.4777	-0.0060	-0.77	0.4507	-0.0061	-0.78	OE
88AVWR		0.4734	-0.0103	-1.33	0.4499	-0.0069	-0.87	OE
8RHYUW		0.4865	0.0028	0.37	0.4590	0.0022	0.28	OE
8V2TXN		0.4849	0.0013	0.17	0.4622	0.0054	0.68	OE
9JJTEZ		0.4868	0.0031	0.41	0.4613	0.0045	0.57	OE
9NFFAA		0.4800	-0.0036	-0.47	0.4567	-0.0001	-0.02	OE
9PA7FN		0.4843	0.0007	0.09	0.4607	0.0039	0.49	OE
9PUR7T		0.4665	-0.0171	-2.21	0.4392	-0.0176	-2.24	OE
9RXMPW		0.4907	0.0071	0.92	0.4657	0.0089	1.13	IC
A9JPMC		0.4845	0.0008	0.11	0.4567	-0.0001	-0.01	OE
AACHGA		0.4724	-0.0113	-1.46	0.4423	-0.0145	-1.84	OE
ADYVPD		0.4833	-0.0003	-0.04	0.4527	-0.0041	-0.53	IC
AKWPJ6		0.4874	0.0037	0.48	0.4609	0.0041	0.52	OE
ARP3DD	*	0.4810	-0.0026	-0.34	0.4623	0.0055	0.70	OE
BWKB36		0.5000	0.0164	2.12	0.4733	0.0165	2.10	GD
CBGPXT		0.4707	-0.0130	-1.68	0.4470	-0.0098	-1.25	OE
CKKXHY	X	0.5133	0.0297	3.85	0.4867	0.0299	3.79	GD
CYM7L9		0.4943	0.0107	1.39	0.4650	0.0082	1.04	OE
CZ6DTB		0.4760	-0.0076	-0.99	0.4460	-0.0108	-1.37	OE
D6PTX9	*	0.4746	-0.0090	-1.17	0.4549	-0.0019	-0.24	OE
D8CCWK		0.4883	0.0047	0.61	0.4587	0.0019	0.24	DR
DJAFZE		0.4831	-0.0005	-0.06	0.4542	-0.0026	-0.33	OE
DKM67C		0.4877	0.0040	0.52	0.4583	0.0015	0.19	OE
DPEYF8		0.4884	0.0048	0.62	0.4582	0.0014	0.18	OE
DYYK7M		0.4880	0.0044	0.57	0.4600	0.0032	0.41	XX
E3KK74		0.4860	0.0024	0.31	0.4543	-0.0025	-0.31	OE
E7KV24		0.4934	0.0097	1.26	0.4662	0.0094	1.19	OE
EA4ND7		0.4900	0.0064	0.83	0.4667	0.0099	1.25	OE
EDVY4V		0.4680	-0.0156	-2.02	0.4410	-0.0158	-2.01	OE
EJ4KUE		0.4827	-0.0010	-0.12	0.4713	0.0145	1.85	OE
ERGJFC		0.4919	0.0082	1.07	0.4628	0.0060	0.76	IC

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 177

Chemical Analysis Element #8 - Carbon & Low Alloy Steel - Percent CHROMIUM (Cr)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
EWEQC8		0.4833	-0.0003	-0.04	0.4600	0.0032	0.41	OE
FFKQT8		0.4880	0.0044	0.57	0.4593	0.0025	0.32	OE
FWNFP4		0.4927	0.0090	1.17	0.4547	-0.0021	-0.27	IC
G7BPPX		0.4913	0.0077	1.00	0.4667	0.0099	1.25	OE
G84FVC		0.4916	0.0079	1.03	0.4632	0.0064	0.82	OE
GB6KQ6		0.4850	0.0014	0.18	0.4558	-0.0010	-0.12	OE
GCXDJ4	*	0.4729	-0.0108	-1.39	0.4408	-0.0160	-2.04	OE
GKBFVW	X	0.4600	-0.0236	-3.06	0.4280	-0.0288	-3.66	OE
GMYV2X		0.4767	-0.0070	-0.90	0.4503	-0.0065	-0.82	OE
GZZMM3		0.4787	-0.0050	-0.64	0.4547	-0.0021	-0.27	OE
H6AAP7	*	0.4604	-0.0232	-3.00	0.4353	-0.0215	-2.73	OE
HTK9FQ		0.4886	0.0050	0.65	0.4620	0.0052	0.66	DR
HV48TL		0.4750	-0.0086	-1.12	0.4440	-0.0128	-1.63	OE
HZXFZZ		0.4777	-0.0059	-0.76	0.4532	-0.0036	-0.45	OE
J9N3MQ	X	0.4621	-0.0215	-2.79	0.4432	-0.0136	-1.73	OE
JFTUYU		0.4817	-0.0019	-0.25	0.4525	-0.0043	-0.55	DR
JG2A7Z		0.4750	-0.0086	-1.12	0.4473	-0.0095	-1.20	OE
JG44LZ	*	0.4930	0.0094	1.21	0.4583	0.0015	0.19	OE
JGMR4U		0.4840	0.0004	0.05	0.4630	0.0062	0.79	XX
JU4RR9	*	0.5073	0.0237	3.07	0.4807	0.0239	3.03	OE
K6NBRY		0.4844	0.0007	0.10	0.4577	0.0009	0.11	OE
KKEDC9		0.4828	-0.0008	-0.11	0.4563	-0.0005	-0.06	DR
L2GEHF		0.4900	0.0064	0.83	0.4627	0.0059	0.74	OE
LCZWBM		0.4833	-0.0003	-0.04	0.4590	0.0022	0.28	AE
LF4MKM		0.4802	-0.0034	-0.44	0.4568	0.0000	0.00	OE
LYHRER		0.4913	0.0077	1.00	0.4630	0.0062	0.79	OE
LYVPZN		0.4947	0.0110	1.43	0.4683	0.0115	1.46	OE
LZAV28		0.5001	0.0165	2.14	0.4719	0.0151	1.91	OE
LZJ9ZZ		0.4820	-0.0016	-0.21	0.4533	-0.0035	-0.44	OE
M8MLLP		0.4803	-0.0033	-0.43	0.4537	-0.0031	-0.40	OE
MNLRN4		0.4677	-0.0160	-2.07	0.4417	-0.0151	-1.92	OE
MUY9JM		0.4779	-0.0057	-0.74	0.4539	-0.0029	-0.37	OE
NHJTWE		0.4829	-0.0007	-0.09	0.4560	-0.0008	-0.10	OE
NJ98EX		0.4820	-0.0016	-0.21	0.4547	-0.0021	-0.27	OE
PHXF93		0.4893	0.0057	0.74	0.4617	0.0049	0.62	IC
PY33EV		0.4687	-0.0150	-1.94	0.4407	-0.0161	-2.05	OE
Q28YHB		0.4867	0.0030	0.39	0.4593	0.0025	0.32	OE
Q679QR		0.4793	-0.0044	-0.56	0.4502	-0.0066	-0.84	OE
Q89FLP		0.4830	-0.0006	-0.08	0.4580	0.0012	0.15	OE
QPVM9M	*	0.4800	-0.0036	-0.47	0.4600	0.0032	0.41	OE
QQMPV3	X	0.5050	0.0214	2.77	0.4723	0.0155	1.97	GD
QYL9EK		0.4883	0.0047	0.61	0.4620	0.0052	0.66	OE
T4M4BQ		0.4865	0.0029	0.38	0.4591	0.0023	0.30	OE
TKQXHP		0.4887	0.0050	0.65	0.4640	0.0072	0.91	GD
TRULDC		0.4887	0.0050	0.65	0.4633	0.0065	0.83	GD
TZJG9L		0.4977	0.0140	1.82	0.4687	0.0119	1.51	OE
U69AZF		0.4675	-0.0161	-2.08	0.4407	-0.0161	-2.05	OE
U7MY3R		0.4747	-0.0089	-1.16	0.4432	-0.0136	-1.73	OE
U7Q8BR		0.4820	-0.0016	-0.21	0.4537	-0.0031	-0.40	OE

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 177

Chemical Analysis Element #8 - Carbon & Low Alloy Steel - Percent
CHROMIUM (Cr)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
V4C9HU		0.4837	0.0000	0.01	0.4520	-0.0048	-0.61	OE
VFTVTG		0.4893	0.0057	0.74	0.4617	0.0049	0.62	IC
VPBNUB		0.4920	0.0084	1.08	0.4667	0.0099	1.25	OE
VR3F93		0.4830	-0.0006	-0.08	0.4583	0.0015	0.19	OE
VRLE8L		0.4860	0.0024	0.31	0.4597	0.0029	0.36	OE
VY289J		0.4840	0.0004	0.05	0.4577	0.0009	0.11	OE
WF62FJ		0.4967	0.0130	1.69	0.4683	0.0115	1.46	OE
WMJ694	X	0.4900	0.0064	0.83	0.4733	0.0165	2.10	AA
WZRTEF		0.4860	0.0024	0.31	0.4573	0.0005	0.07	XX
X3XNLP		0.4940	0.0104	1.34	0.4690	0.0122	1.55	OE
X7AK4K		0.4817	-0.0020	-0.25	0.4503	-0.0065	-0.82	DR
XVVCQT		0.4750	-0.0086	-1.12	0.4500	-0.0068	-0.87	OE
XYVMLT		0.4793	-0.0043	-0.56	0.4463	-0.0105	-1.33	OE
XZKXCL		0.4820	-0.0016	-0.21	0.4563	-0.0005	-0.06	IC
Y9VHBB		0.4853	0.0017	0.22	0.4597	0.0029	0.36	OE
Z2A7EL	X	0.4580	-0.0256	-3.32	0.4397	-0.0171	-2.18	OE
Z3NFJF		0.4840	0.0004	0.05	0.4568	0.0000	0.00	OE
ZLWHHK		0.4780	-0.0056	-0.73	0.4507	-0.0061	-0.78	XX
ZV2PXK		0.4773	-0.0063	-0.81	0.4483	-0.0085	-1.08	OE
ZWF3QN		0.4843	0.0007	0.09	0.4583	0.0015	0.19	OE

Summary Statistics

	Sample L29		Sample L30	
Grand Means	0.4836	Percent	0.4568	Percent
Stnd Dev Btwn Labs	0.0077	Percent	0.0079	Percent

Samples L29 , L30 : AISI 8740

Statistics based on 108 of 118 reporting participants

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 177

Chemical Analysis Element #8 - Carbon & Low Alloy Steel - Percent CHROMIUM (Cr)

Comments on assigned Data Flags for Analysis #177

WebCode	Flag	Analyst Comment
3QNE9N	X	Data for sample L30 are high. Inconsistent in testing between samples.
4MEX24	X	Data for sample L29 are high. Inconsistent in testing between samples.
CKKXHY	X	Data for both samples are high. Possible Systematic error.
GKBFVW	X	Data for both samples are low. Possible Systematic error.
J9N3MQ	X	Data for sample L29 are low. Inconsistent in testing between samples.
QQMPV3	X	Data for sample L29 are high. Inconsistent in testing between samples.
WMJ694	X	Inconsistent in testing between samples. Inconsistent within the determinations of sample L29.
Z2A7EL	X	Data for sample L29 are low. Inconsistent in testing between samples.

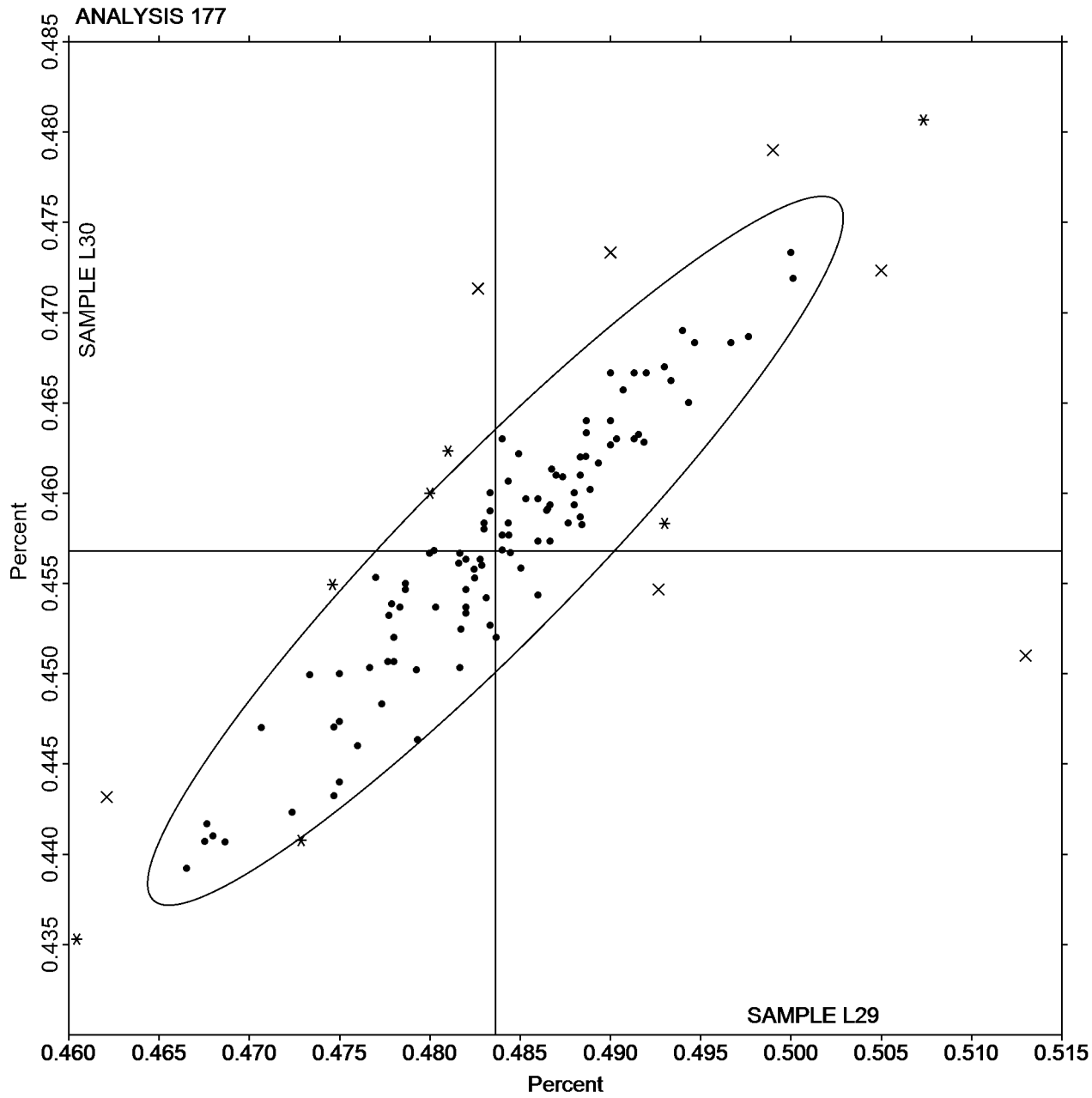
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 177

Chemical Analysis Element #8 - Carbon & Low Alloy Steel - Percent
CHROMIUM (Cr)

SAMPLE L29	SAMPLE L30
0.4836 Percent	0.4568 Percent



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 178

Chemical Analysis Element #9 - Carbon & Low Alloy Steel - Percent
ALUMINUM (Al)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2BCNN4		0.0287	0.0023	1.36	0.0274	0.0026	1.59	OE
2BZU7H		0.0279	0.0015	0.86	0.0267	0.0019	1.16	OE
2FA63H		0.0267	0.0003	0.20	0.0252	0.0003	0.21	OE
2PW4TN		0.0263	-0.0001	-0.06	0.0245	-0.0003	-0.20	OE
2UNBCW	X	0.0210	-0.0054	-3.19	0.0195	-0.0054	-3.33	OE
3LAQJK		0.0247	-0.0017	-1.02	0.0237	-0.0012	-0.74	OE
3QNE9N		0.0244	-0.0020	-1.16	0.0236	-0.0013	-0.80	GD
4C3LWL		0.0249	-0.0015	-0.87	0.0230	-0.0019	-1.15	DR
4DVEQJ		0.0243	-0.0021	-1.22	0.0224	-0.0025	-1.52	WD
4J32K9		0.0273	0.0009	0.53	0.0263	0.0015	0.91	OE
4JXDEN		0.0270	0.0006	0.35	0.0263	0.0015	0.91	OE
4MEX24		0.0270	0.0006	0.35	0.0250	0.0001	0.09	AA
6D9F47		0.0273	0.0009	0.55	0.0253	0.0005	0.29	OE
6MUKB6		0.0258	-0.0006	-0.37	0.0240	-0.0009	-0.55	OE
6N87PD	*	0.0220	-0.0044	-2.60	0.0213	-0.0035	-2.18	OE
7D3LX6		0.0233	-0.0031	-1.81	0.0213	-0.0035	-2.18	OE
7JTVCA		0.0258	-0.0006	-0.34	0.0241	-0.0008	-0.47	IC
7TFWPX		0.0260	-0.0004	-0.26	0.0243	-0.0006	-0.35	OE
83433W		0.0266	0.0002	0.12	0.0250	0.0001	0.09	OE
88AVWR		0.0267	0.0003	0.18	0.0248	-0.0001	-0.04	OE
8RHYUW	*	0.0272	0.0008	0.45	0.0244	-0.0005	-0.30	OE
8V2TXN		0.0255	-0.0009	-0.51	0.0246	-0.0003	-0.18	OE
9JJTEZ		0.0269	0.0005	0.31	0.0253	0.0005	0.29	OE
9NFFAA		0.0243	-0.0021	-1.22	0.0233	-0.0015	-0.94	OE
9PA7FN		0.0267	0.0003	0.16	0.0254	0.0005	0.33	OE
9PUR7T		0.0286	0.0022	1.32	0.0274	0.0025	1.57	OE
9RXMPW		0.0272	0.0008	0.45	0.0260	0.0011	0.68	IC
A9JPMC		0.0272	0.0008	0.45	0.0258	0.0009	0.58	OE
ADYVPD		0.0280	0.0016	0.92	0.0255	0.0006	0.40	IC
ARP3DD		0.0278	0.0014	0.83	0.0257	0.0008	0.52	OE
B2XRYN		0.0300	0.0036	2.12	0.0280	0.0031	1.94	XX
BWKB36		0.0270	0.0006	0.35	0.0250	0.0001	0.09	GD
CBGPXT		0.0293	0.0029	1.73	0.0270	0.0021	1.32	OE
CKKXHY		0.0250	-0.0014	-0.83	0.0240	-0.0009	-0.53	GD
CYM7L9		0.0275	0.0011	0.65	0.0260	0.0011	0.70	OE
CZ6DTB		0.0297	0.0033	1.93	0.0273	0.0025	1.53	OE
D6PTX9		0.0296	0.0032	1.87	0.0241	-0.0007	-0.46	OE
D8CCWK		0.0280	0.0016	0.94	0.0270	0.0021	1.32	DR
DJAFZE		0.0254	-0.0010	-0.59	0.0255	0.0006	0.40	OE
DKM67C		0.0294	0.0030	1.77	0.0278	0.0030	1.84	OE
DPEYF8		0.0226	-0.0038	-2.27	0.0215	-0.0033	-2.05	OE
DYYK7M		0.0270	0.0006	0.35	0.0250	0.0001	0.09	XX
E3KK74	X	0.0280	0.0016	0.94	0.2027	0.1778	109.71	OE
E7KV24		0.0249	-0.0015	-0.89	0.0235	-0.0014	-0.87	OE
EA4ND7		0.0257	-0.0007	-0.43	0.0247	-0.0002	-0.12	OE
EDVY4V		0.0290	0.0026	1.53	0.0277	0.0028	1.73	OE
EJ4KUE		0.0297	0.0033	1.93	0.0280	0.0031	1.94	OE
ERGJFC		0.0260	-0.0004	-0.26	0.0249	0.0000	0.00	IC
EWEQC8		0.0253	-0.0011	-0.63	0.0240	-0.0009	-0.53	OE

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 178

Chemical Analysis Element #9 - Carbon & Low Alloy Steel - Percent
ALUMINUM (Al)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
FFKQT8		0.0261	-0.0003	-0.20	0.0242	-0.0007	-0.43	OE
FWNFP4		0.0243	-0.0021	-1.22	0.0233	-0.0015	-0.94	IC
FZ4WWM		0.0261	-0.0003	-0.16	0.0247	-0.0002	-0.10	OE
G7BPPX		0.0247	-0.0017	-1.02	0.0230	-0.0019	-1.15	OE
G84FVC		0.0269	0.0005	0.27	0.0250	0.0001	0.09	OE
GB6KQ6		0.0277	0.0013	0.77	0.0261	0.0012	0.75	OE
GKBFVW		0.0251	-0.0013	-0.75	0.0232	-0.0016	-1.00	OE
GMYV2X		0.0262	-0.0002	-0.10	0.0246	-0.0003	-0.18	OE
GZZMM3		0.0249	-0.0015	-0.87	0.0235	-0.0013	-0.82	OE
H6AAP7	X	0.0183	-0.0081	-4.76	0.0468	0.0220	13.56	OE
HV48TL		0.0270	0.0006	0.35	0.0250	0.0001	0.09	OE
HZXFZZ		0.0280	0.0016	0.92	0.0267	0.0018	1.14	OE
J9N3MQ		0.0269	0.0005	0.29	0.0246	-0.0002	-0.14	OE
JFTUYU		0.0262	-0.0002	-0.14	0.0243	-0.0006	-0.37	DR
JG2A7Z		0.0243	-0.0021	-1.22	0.0233	-0.0015	-0.94	OE
JG44LZ		0.0260	-0.0004	-0.22	0.0244	-0.0005	-0.30	OE
JGMR4U	*	0.0300	0.0036	2.12	0.0290	0.0041	2.56	XX
JU4RR9	*	0.0287	0.0023	1.34	0.0280	0.0031	1.94	OE
K6NBRY		0.0261	-0.0003	-0.20	0.0245	-0.0004	-0.24	OE
KBB8DZ	*	0.0317	0.0053	3.11	0.0297	0.0048	2.97	XX
KKEDC9		0.0266	0.0002	0.14	0.0244	-0.0005	-0.28	DR
L2GEHF		0.0246	-0.0018	-1.04	0.0225	-0.0023	-1.44	OE
LCZWBM		0.0286	0.0022	1.32	0.0255	0.0006	0.40	AE
LF4MKM		0.0258	-0.0006	-0.34	0.0237	-0.0012	-0.72	OE
LYVPZN		0.0250	-0.0014	-0.83	0.0237	-0.0012	-0.74	OE
LZAV28		0.0263	-0.0001	-0.04	0.0247	-0.0001	-0.09	OE
LZJ9ZZ		0.0250	-0.0014	-0.83	0.0237	-0.0012	-0.74	OE
M8MLLP		0.0236	-0.0028	-1.63	0.0228	-0.0021	-1.27	IC
MNLRN4		0.0259	-0.0005	-0.28	0.0246	-0.0003	-0.16	OE
MUY9JM		0.0268	0.0004	0.24	0.0256	0.0007	0.46	OE
NHJTWE		0.0258	-0.0006	-0.36	0.0240	-0.0009	-0.55	OE
NJ98EX		0.0250	-0.0014	-0.83	0.0237	-0.0012	-0.74	OE
PHXF93		0.0260	-0.0004	-0.24	0.0243	-0.0005	-0.32	IC
PJ8T8V		0.0267	0.0003	0.16	0.0253	0.0005	0.29	OE
PY33EV		0.0249	-0.0015	-0.89	0.0236	-0.0013	-0.78	OE
Q28YHB		0.0260	-0.0004	-0.24	0.0250	0.0001	0.09	OE
Q679QR		0.0280	0.0015	0.91	0.0268	0.0019	1.17	OE
Q89FLP		0.0260	-0.0004	-0.24	0.0240	-0.0009	-0.53	OE
QQMPV3		0.0267	0.0003	0.16	0.0253	0.0005	0.29	GD
QYL9EK		0.0273	0.0009	0.55	0.0253	0.0005	0.29	OE
T4M4BQ		0.0289	0.0025	1.45	0.0270	0.0021	1.30	OE
TKQXHP		0.0247	-0.0017	-1.02	0.0229	-0.0020	-1.21	GD
TRULDC		0.0270	0.0006	0.35	0.0257	0.0008	0.50	GD
TZJG9L		0.0247	-0.0017	-1.02	0.0233	-0.0015	-0.94	OE
U69AZF		0.0273	0.0009	0.55	0.0255	0.0007	0.42	OE
U7MY3R		0.0267	0.0003	0.16	0.0252	0.0004	0.23	OE
U7Q8BR		0.0230	-0.0034	-2.01	0.0220	-0.0029	-1.76	OE
V4C9HU		0.0242	-0.0022	-1.32	0.0227	-0.0022	-1.33	OE
VFTVTG	X	0.0269	0.0005	0.29	0.0236	-0.0013	-0.80	IC

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 178

Chemical Analysis Element #9 - Carbon & Low Alloy Steel - Percent
ALUMINUM (Al)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
VPBNUB		0.0260	-0.0004	-0.24	0.0240	-0.0009	-0.53	OE
VR3F93		0.0243	-0.0021	-1.22	0.0232	-0.0017	-1.04	OE
VRLE8L		0.0247	-0.0017	-1.00	0.0231	-0.0017	-1.06	OE
VY289J		0.0260	-0.0004	-0.26	0.0244	-0.0005	-0.30	OE
WF62FJ		0.0292	0.0028	1.65	0.0254	0.0006	0.35	OE
WZRTEF	X	0.0314	0.0050	2.97	0.0306	0.0057	3.54	XX
X3XNLP	X	0.0259	-0.0005	-0.30	0.0260	0.0011	0.68	OE
X7AK4K		0.0273	0.0009	0.55	0.0260	0.0011	0.70	DR
XVVCQT		0.0251	-0.0013	-0.77	0.0239	-0.0010	-0.61	OE
XYVMLT		0.0295	0.0031	1.81	0.0264	0.0015	0.93	OE
XZKXCL		0.0267	0.0003	0.18	0.0250	0.0001	0.07	IC
Y9VHBB		0.0272	0.0008	0.49	0.0254	0.0006	0.35	OE
Z2A7EL		0.0243	-0.0021	-1.22	0.0250	0.0001	0.09	OE
Z3NFJF		0.0275	0.0011	0.63	0.0258	0.0009	0.56	OE
ZLWHHK		0.0253	-0.0011	-0.63	0.0240	-0.0009	-0.53	XX
ZV2PXK		0.0270	0.0006	0.35	0.0253	0.0005	0.29	OE
ZWF3QN		0.0287	0.0023	1.34	0.0270	0.0021	1.32	OE

Summary Statistics

	Sample L29		Sample L30	
Grand Means	0.0264	Percent	0.0249	Percent
Stnd Dev Btwn Labs	0.0017	Percent	0.0016	Percent

Samples L29 , L30 : AISI 8740

Statistics based on 103 of 115 reporting participants

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 178

Chemical Analysis Element #9 - Carbon & Low Alloy Steel - Percent ALUMINUM (Al)

Comments on assigned Data Flags for Analysis #178

WebCode	Flag	Analyst Comment
2UNBCW	X	Data for both samples are low. Possible Systematic error.
E3KK74	X	Data for sample L30 are high. Inconsistent in testing between samples.
H6AAP7	X	Data for sample L29 are low and data for sample L30 are high. Inconsistent within the determinations of sample L30.
VFTVTG	X	Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
WZRTEF	X	Data for both samples are high. Possible Systematic error. Inconsistent within the determinations of sample L30.
X3XNLP	X	Inconsistent in testing between samples. Inconsistent within the determinations of sample L30.

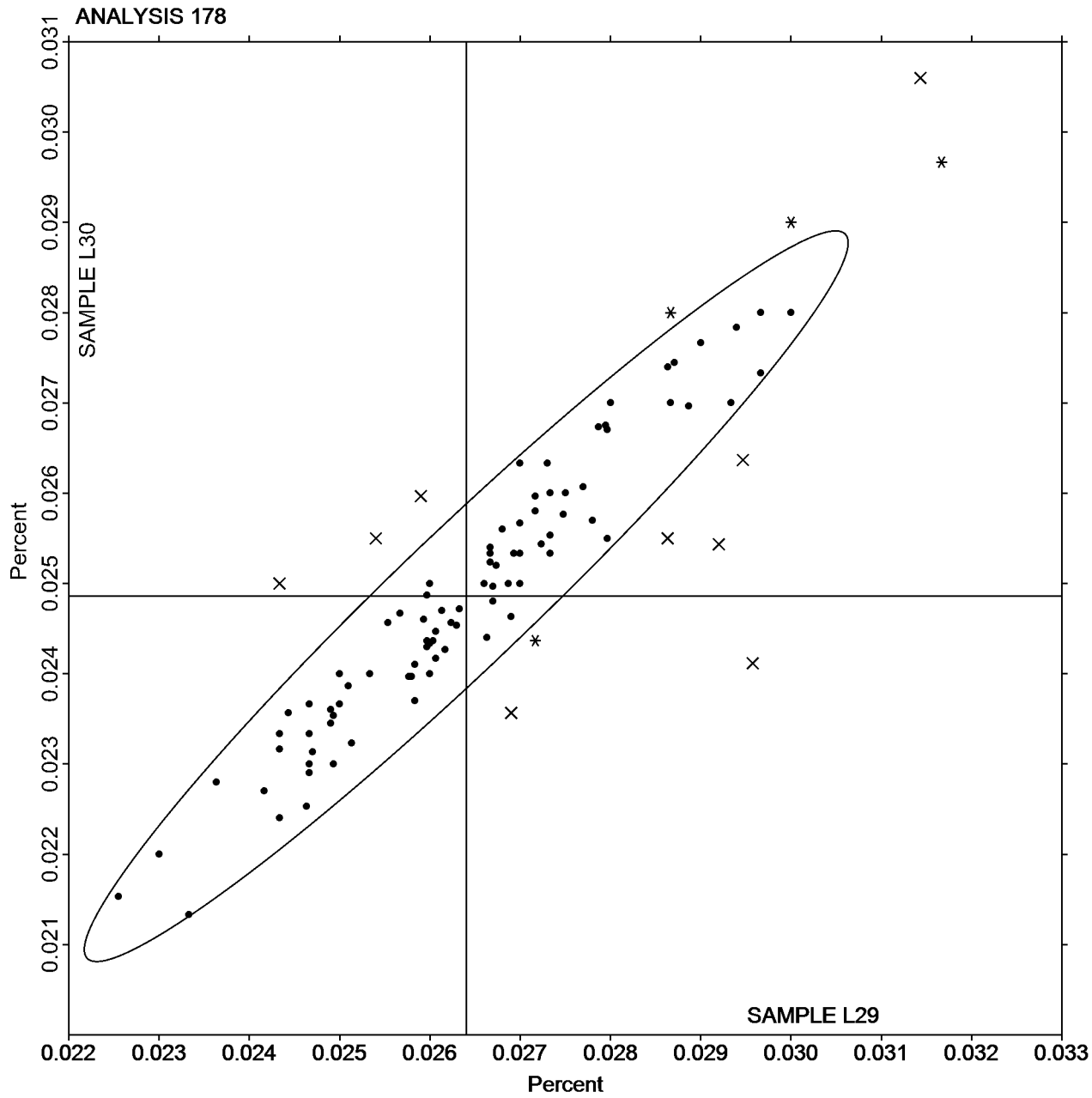
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 178

Chemical Analysis Element #9 - Carbon & Low Alloy Steel - Percent
ALUMINUM (Al)

SAMPLE L29	SAMPLE L30
0.0264 Percent	0.0249 Percent



Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 179

Chemical Analysis Element #10 - Carbon & Low Alloy Steel - Percent MOLYBDENUM (Mo)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2BCNN4		0.2057	-0.0002	-0.03	0.2127	0.0019	0.34	OE
2BZU7H		0.2077	0.0018	0.37	0.2127	0.0019	0.34	OE
2FA63H		0.2050	-0.0009	-0.19	0.2073	-0.0035	-0.62	OE
2PW4TN		0.2044	-0.0015	-0.31	0.2092	-0.0016	-0.29	OE
2UNBCW		0.2049	-0.0010	-0.22	0.2119	0.0011	0.19	OE
3LAQJK		0.2080	0.0021	0.44	0.2110	0.0002	0.04	OE
3QNE9N		0.2020	-0.0039	-0.81	0.2093	-0.0015	-0.26	GD
4C3LWL		0.2127	0.0068	1.41	0.2187	0.0079	1.41	DR
4DVEQJ		0.2047	-0.0012	-0.26	0.2107	-0.0001	-0.02	WD
4J32K9		0.2057	-0.0002	-0.05	0.2133	0.0025	0.46	OE
4JXDEN		0.2033	-0.0026	-0.53	0.2077	-0.0031	-0.56	OE
4MEX24		0.2010	-0.0049	-1.02	0.2010	-0.0098	-1.76	AA
6D9F47	*	0.2193	0.0134	2.79	0.2277	0.0169	3.03	OE
6MUKB6		0.1976	-0.0083	-1.73	0.2013	-0.0095	-1.71	OE
6N87PD		0.1977	-0.0082	-1.71	0.2020	-0.0088	-1.58	OE
7D3LX6	*	0.1923	-0.0136	-2.82	0.1983	-0.0125	-2.23	OE
7JTVCA		0.2017	-0.0042	-0.88	0.2080	-0.0028	-0.50	WD
7TFWPX		0.2147	0.0088	1.83	0.2191	0.0083	1.49	OE
83433W		0.1997	-0.0062	-1.30	0.2070	-0.0038	-0.68	OE
88AVWR		0.2040	-0.0019	-0.40	0.2106	-0.0002	-0.03	OE
8RHYUW		0.2067	0.0008	0.16	0.2116	0.0008	0.15	OE
8V2TXN		0.2023	-0.0036	-0.74	0.2049	-0.0059	-1.06	OE
9JJTEZ		0.2060	0.0001	0.01	0.2115	0.0007	0.13	OE
9NFFAA		0.2067	0.0008	0.16	0.2100	-0.0008	-0.14	OE
9PA7FN		0.2060	0.0001	0.02	0.2110	0.0002	0.04	OE
9PUR7T		0.2063	0.0004	0.09	0.2095	-0.0013	-0.24	OE
9RXMPW	X	0.2038	-0.0021	-0.44	0.2180	0.0072	1.29	IC
A9JPMC		0.2115	0.0056	1.16	0.2151	0.0043	0.77	OE
AACHGA		0.2080	0.0021	0.44	0.2132	0.0024	0.43	OE
ADYVPD		0.2037	-0.0022	-0.47	0.2083	-0.0025	-0.44	IC
AKWPJ6		0.2055	-0.0004	-0.08	0.2109	0.0001	0.02	OE
ARP3DD		0.2017	-0.0042	-0.88	0.2060	-0.0048	-0.86	OE
B2XRYN		0.2000	-0.0059	-1.23	0.2000	-0.0108	-1.93	OE
BWKB36		0.2100	0.0041	0.85	0.2200	0.0092	1.65	GD
CBGPXT		0.2010	-0.0049	-1.02	0.2040	-0.0068	-1.22	XX
CKKXHY		0.2053	-0.0006	-0.12	0.2143	0.0035	0.64	GD
CYM7L9		0.2047	-0.0012	-0.26	0.2100	-0.0008	-0.14	OE
CZ6DTB	*	0.2047	-0.0012	-0.26	0.2147	0.0039	0.70	OE
D6PTX9		0.1960	-0.0099	-2.07	0.2159	0.0051	0.92	OE
D8CCWK		0.2100	0.0041	0.85	0.2137	0.0029	0.52	DR
DJAFZE		0.2012	-0.0047	-0.97	0.2056	-0.0052	-0.94	OE
DKM67C		0.2067	0.0008	0.16	0.2103	-0.0005	-0.08	OE
DPEYF8		0.2069	0.0010	0.21	0.2111	0.0003	0.06	OE
DYYK7M		0.2080	0.0021	0.44	0.2133	0.0025	0.46	XX
E3KK74	*	0.2033	-0.0026	-0.53	0.2027	-0.0081	-1.46	OE
E7KV24		0.2104	0.0045	0.93	0.2140	0.0032	0.58	OE
EA4ND7		0.2067	0.0008	0.16	0.2100	-0.0008	-0.14	OE
EDVY4V		0.2060	0.0001	0.02	0.2120	0.0012	0.22	OE
EJ4KUE		0.2043	-0.0016	-0.33	0.2117	0.0009	0.16	OE

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 179

Chemical Analysis Element #10 - Carbon & Low Alloy Steel - Percent MOLYBDENUM (Mo)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
ERGJFC		0.2049	-0.0010	-0.21	0.2100	-0.0008	-0.15	IC
EWEQC8		0.2100	0.0041	0.85	0.2133	0.0025	0.46	OE
FFKQT8		0.2053	-0.0006	-0.12	0.2107	-0.0001	-0.02	OE
FWNFP4	*	0.1977	-0.0082	-1.71	0.1973	-0.0135	-2.41	IC
FZ4WWM		0.1993	-0.0066	-1.37	0.2040	-0.0068	-1.22	OE
G7BPPX		0.2110	0.0051	1.06	0.2153	0.0045	0.82	OE
G84FVC		0.2063	0.0004	0.08	0.2103	-0.0005	-0.09	OE
GB6KQ6		0.2105	0.0046	0.96	0.2147	0.0039	0.70	OE
GCXDJ4		0.2080	0.0021	0.44	0.2116	0.0008	0.15	OE
GKBFVW		0.1997	-0.0062	-1.30	0.2073	-0.0035	-0.62	OE
GMYV2X		0.2037	-0.0022	-0.47	0.2093	-0.0015	-0.26	OE
GZZMM3		0.2007	-0.0052	-1.09	0.2087	-0.0021	-0.38	OE
H6AAP7	X	0.1829	-0.0230	-4.78	0.1883	-0.0225	-4.03	OE
HTK9FQ		0.2036	-0.0023	-0.49	0.2059	-0.0049	-0.88	DR
HV48TL		0.2133	0.0074	1.55	0.2170	0.0062	1.11	OE
HZXFZZ		0.2015	-0.0044	-0.92	0.2074	-0.0034	-0.61	OE
J9N3MQ		0.2071	0.0012	0.25	0.2211	0.0103	1.86	OE
JFTUYU		0.2070	0.0011	0.24	0.2127	0.0019	0.34	DR
JG2A7Z		0.2043	-0.0016	-0.33	0.2103	-0.0005	-0.08	OE
JG44LZ		0.2063	0.0004	0.09	0.2207	0.0099	1.77	OE
JGMR4U		0.2050	-0.0009	-0.19	0.2100	-0.0008	-0.14	XX
JU4RR9		0.1973	-0.0086	-1.78	0.2047	-0.0061	-1.10	OE
K6NBRY		0.2047	-0.0012	-0.26	0.2083	-0.0025	-0.45	OE
KBB8DZ		0.2140	0.0081	1.68	0.2193	0.0085	1.53	OE
KKEDC9		0.2095	0.0036	0.75	0.2130	0.0022	0.40	DR
L2GEHF	*	0.2200	0.0141	2.93	0.2253	0.0145	2.61	OE
LCZWBM	X	0.1810	-0.0249	-5.18	0.1863	-0.0245	-4.39	AE
LF4MKM		0.2032	-0.0027	-0.56	0.2085	-0.0023	-0.40	OE
LYHRER		0.2150	0.0091	1.89	0.2200	0.0092	1.65	XX
LYVPZN		0.2017	-0.0042	-0.88	0.2080	-0.0028	-0.50	OE
LZAV28		0.2074	0.0015	0.32	0.2132	0.0024	0.43	OE
LZJ9ZZ		0.2000	-0.0059	-1.23	0.2040	-0.0068	-1.22	OE
M8MLLP		0.2060	0.0001	0.02	0.2093	-0.0015	-0.26	OE
MNLRN4		0.2014	-0.0045	-0.94	0.2035	-0.0073	-1.31	OE
MUY9JM	X	0.1920	-0.0139	-2.89	0.1995	-0.0113	-2.03	OE
NHJTWE		0.2085	0.0026	0.54	0.2146	0.0038	0.68	OE
NJ98EX		0.2053	-0.0006	-0.12	0.2080	-0.0028	-0.50	OE
PHXF93		0.2083	0.0024	0.51	0.2137	0.0029	0.52	IC
PJ8T8V	X	0.1883	-0.0176	-3.66	0.1950	-0.0158	-2.83	OE
PY33EV		0.2167	0.0108	2.24	0.2220	0.0112	2.01	OE
Q28YHB		0.2057	-0.0002	-0.05	0.2123	0.0015	0.28	OE
Q679QR		0.2080	0.0021	0.44	0.2121	0.0013	0.24	OE
Q89FLP		0.1990	-0.0069	-1.44	0.2120	0.0012	0.22	OE
QPVM9M		0.2100	0.0041	0.85	0.2167	0.0059	1.05	XX
QQMPV3		0.2070	0.0011	0.23	0.2090	-0.0018	-0.32	GD
QYL9EK		0.2120	0.0061	1.27	0.2163	0.0055	0.99	OE
T4M4BQ		0.2041	-0.0018	-0.37	0.2093	-0.0015	-0.27	OE
TKQXHP		0.2013	-0.0046	-0.95	0.2067	-0.0041	-0.74	GD
TRULDC		0.2030	-0.0029	-0.60	0.2090	-0.0018	-0.32	GD

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 179

Chemical Analysis Element #10 - Carbon & Low Alloy Steel - Percent
MOLYBDENUM (Mo)

		Sample L29			Sample L30			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
TZJG9L		0.2120	0.0061	1.27	0.2183	0.0075	1.35	OE
U69AZF		0.2034	-0.0025	-0.51	0.2094	-0.0014	-0.25	OE
U7MY3R	*	0.2070	0.0011	0.24	0.2068	-0.0040	-0.72	OE
U7Q8BR		0.2033	-0.0026	-0.53	0.2087	-0.0021	-0.38	OE
V4C9HU		0.2077	0.0018	0.37	0.2113	0.0005	0.10	OE
VFTVTG		0.2050	-0.0009	-0.19	0.2107	-0.0001	-0.02	IC
VPBNUB	X	0.1830	-0.0229	-4.76	0.1883	-0.0225	-4.03	OE
VR3F93		0.2090	0.0031	0.64	0.2150	0.0042	0.76	OE
VRLE8L		0.2035	-0.0024	-0.50	0.2082	-0.0026	-0.46	OE
VY289J		0.2047	-0.0012	-0.26	0.2107	-0.0001	-0.02	OE
WF62FJ		0.2047	-0.0012	-0.26	0.2097	-0.0011	-0.20	OE
WMJ694	*	0.2133	0.0074	1.55	0.2233	0.0125	2.25	AA
WZRTEF		0.2000	-0.0059	-1.23	0.2057	-0.0051	-0.92	XX
X3XNLP		0.2083	0.0024	0.51	0.2153	0.0045	0.82	OE
X7AK4K	*	0.2157	0.0098	2.03	0.2250	0.0142	2.55	DR
XVVCQT		0.2033	-0.0026	-0.53	0.2067	-0.0041	-0.74	OE
XYVMLT		0.2003	-0.0056	-1.16	0.2007	-0.0101	-1.81	OE
XZKXCL		0.2077	0.0018	0.37	0.2120	0.0012	0.22	IC
Y9VHBB		0.2073	0.0014	0.30	0.2133	0.0025	0.46	OE
Z2A7EL		0.2113	0.0054	1.13	0.2057	-0.0051	-0.92	OE
Z3NFJF		0.2097	0.0038	0.80	0.2148	0.0040	0.71	OE
ZLWHHK	*	0.2177	0.0118	2.45	0.2217	0.0109	1.95	XX
ZV2PXK		0.2007	-0.0052	-1.09	0.2013	-0.0095	-1.70	OE
ZWF3QN		0.2033	-0.0026	-0.53	0.2073	-0.0035	-0.62	OE

Summary Statistics

	Sample L29		Sample L30	
Grand Means	0.2059	Percent	0.2108	Percent
Stnd Dev Btwn Labs	0.0048	Percent	0.0056	Percent

Samples L29 , L30 : AISI 8740

Statistics based on 111 of 122 reporting participants

Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 179

Chemical Analysis Element #10 - Carbon & Low Alloy Steel - Percent MOLYBDENUM (Mo)

Comments on assigned Data Flags for Analysis #179

WebCode	Flag	Analyst Comment
9RXMPW	X	Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
H6AAP7	X	Data for both samples are low. Possible Systematic error.
LCZWBM	X	Data for both samples are low. Possible Systematic error.
MUY9JM	X	Data for sample L29 are low. Inconsistent in testing between samples.
PJ8T8V	X	Data for both samples are low. Possible Systematic error.
VPBNUB	X	Data for both samples are low. Possible Systematic error.

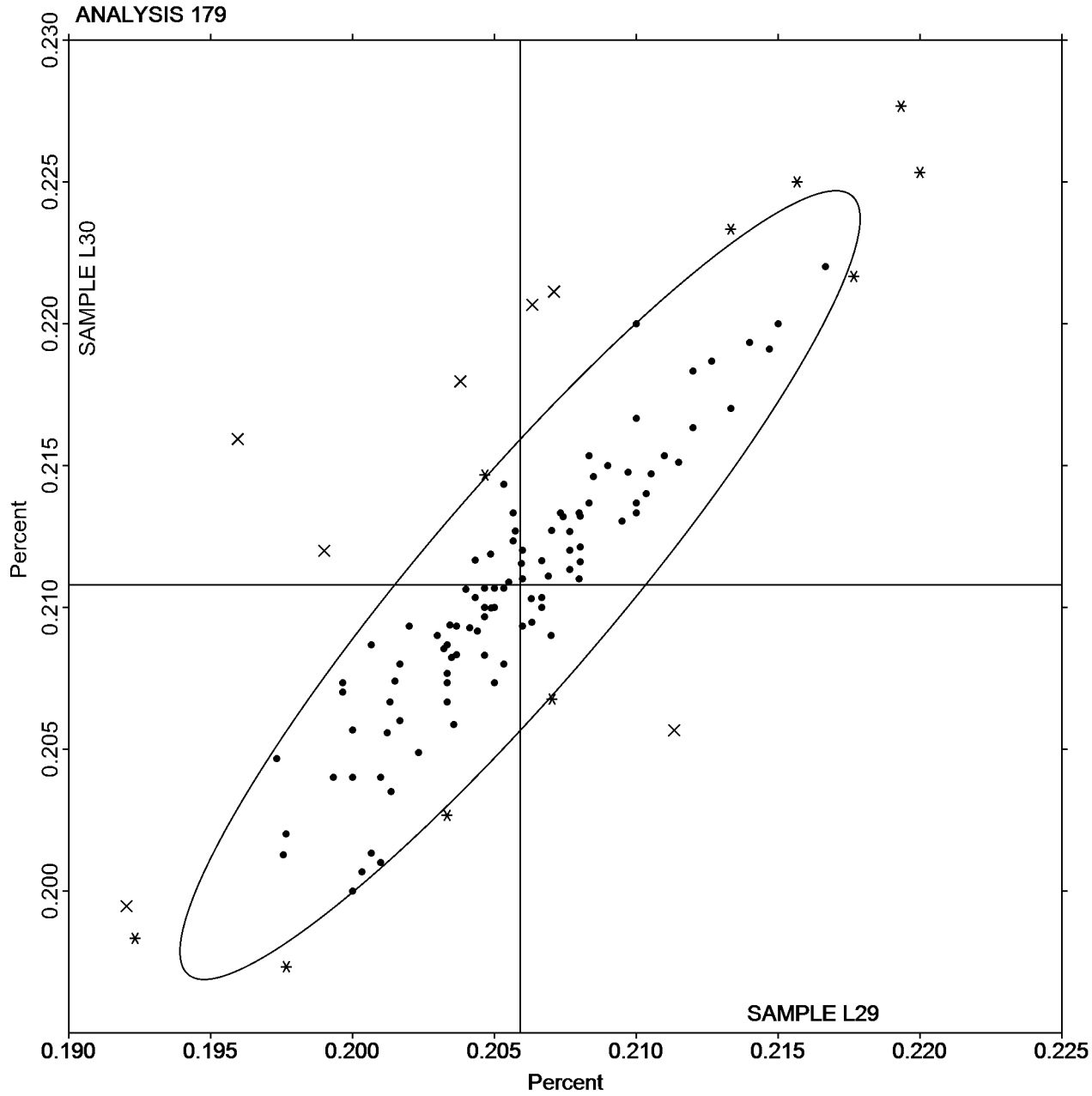
Cycle 111
3rd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 179

Chemical Analysis Element #10 - Carbon & Low Alloy Steel - Percent
MOLYBDENUM (Mo)

SAMPLE L29	SAMPLE L30
0.2059 Percent	0.2108 Percent



Instrument and Method Code List - Cycle 111

Instrument and Method information as provided by laboratories

Instruments are no longer tracked for analyses 105-148

170: Carbon & Low Alloy Steel, Element #1 - CARBON (C)

Method Code	Description
AE	Spectrometry - Atomic Emission (AES)
CI	Combustion / IR
CO	Combustion
DR	Spectrometry - Direct Reading OE (DROES)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
IR	IR (Absorbstion / Detection)
OE	Spectrometry - Optical Emission (OES)
XX	Please Indicate Method Used for Current Element

171: Carbon & Low Alloy Steel, Element #2 - MANGANESE (Mn)

Method Code	Description
AA	Spectrometry - Atomic Absorption (AAS)
AE	Spectrometry - Atomic Emission (AES)
DR	Spectrometry - Direct Reading OE (DROES)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XX	Please Indicate Method Used for Current Element

172: Carbon & Low Alloy Steel, Element #3 - PHOSPHORUS (P)

Method Code	Description
AE	Spectrometry - Atomic Emission (AES)
CL	Colorimetry
DR	Spectrometry - Direct Reading OE (DROES)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XX	Please Indicate Method Used for Current Element

173: Carbon & Low Alloy Steel, Element #4 - SULFUR (S)

Method Code	Description
AE	Spectrometry - Atomic Emission (AES)
CI	Combustion / IR
CO	Combustion
DR	Spectrometry - Direct Reading OE (DROES)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
IR	IR (Absorbstion / Detection)
OE	Spectrometry - Optical Emission (OES)
XX	Please Indicate Method Used for Current Element

174: Carbon & Low Alloy Steel, Element #5 - SILICON (Si)

Method Code	Description
AE	Spectrometry - Atomic Emission (AES)
CL	Colorimetry
DR	Spectrometry - Direct Reading OE (DROES)
GD	Spectrometry - Glow Discharge (GDS)
GR	Gravimetry
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XX	Please Indicate Method Used for Current Element

175: Carbon & Low Alloy Steel, Element #6 - COPPER (Cu)

Method Code	Description
AA	Spectrometry - Atomic Absorption (AAS)
AE	Spectrometry - Atomic Emission (AES)
DR	Spectrometry - Direct Reading OE (DROES)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XX	Please Indicate Method Used for Current Element

176: Carbon & Low Alloy Steel, Element #7 - NICKEL (Ni)

Method Code	Description
AA	Spectrometry - Atomic Absorption (AAS)
AE	Spectrometry - Atomic Emission (AES)
DR	Spectrometry - Direct Reading OE (DROES)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XX	Please Indicate Method Used for Current Element

177: Carbon & Low Alloy Steel, Element #8 - CHROMIUM (Cr)

Method Code	Description
AA	Spectrometry - Atomic Absorption (AAS)
AE	Spectrometry - Atomic Emission (AES)
DR	Spectrometry - Direct Reading OE (DROES)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XX	Please Indicate Method Used for Current Element

178: Carbon & Low Alloy Steel, Element #9 - ALUMINUM (Al)

Method Code	Description
AA	Spectrometry - Atomic Absorption (AAS)
AE	Spectrometry - Atomic Emission (AES)
DR	Spectrometry - Direct Reading OE (DROES)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XX	Please Indicate Method Used for Current Element

179: Carbon & Low Alloy Steel, Element #10 - MOLYBDENUM (Mo)

Method Code	Description
AA	Spectrometry - Atomic Absorption (AAS)
AE	Spectrometry - Atomic Emission (AES)
DR	Spectrometry - Direct Reading OE (DROES)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XX	Please Indicate Method Used for Current Element