Fasteners & Metals Testing Program

Summary Report Cycle 110, 2nd Quarter - 2015

Collaborative Testing Services, Inc.

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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.
For further information contact:

COLLABORATIVE TESTING SERVICES, INC.
21331 Gentry Drive
Sterling, VA 20166

Phone: (571) 434-1925
FAX: (571)434-1937
e-mail: metals@cts-interlab.com
www.collaborativetesting.com
Office Hours: 8:00 a.m. - 4:30 p.m. ET

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 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 115

Fastener Wedge Tensile (10 deg) - ksi
ASTM F606

		Sample X27			Sample X28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
23QT2Z		170.32	0.73	0.43	168.17	0.50	0.32	ZZ
28XLUB		168.27	-1.32	-0.77	168.90	1.22	0.79	ZZ
2P2LV7	X	160.66	-8.93	-5.20	160.99	-6.68	-4.34	ZZ
3WEYBG		169.50	-0.09	-0.05	166.13	-1.54	-1.00	ZZ
48DRJ8		169.44	-0.15	-0.09	168.07	0.40	0.26	ZZ
684HWZ		169.59	0.00	0.00	166.61	-1.06	-0.69	ZZ
69ZF4R		169.70	0.11	0.07	169.11	1.43	0.93	ZZ
6C6GDJ		171.27	1.68	0.98	169.30	1.62	1.05	ZZ
6H8MU9		170.10	0.51	0.30	168.57	0.89	0.58	ZZ
6PQG2H		171.39	1.80	1.05	167.91	0.23	0.15	ZZ
7L47J6		168.58	-1.01	-0.59	167.19	-0.48	-0.31	ZZ
7T6E7K	*	165.20	-4.39	-2.56	166.60	-1.08	-0.70	ZZ
7ZPVMV		166.70	-2.89	-1.68	167.67	-0.01	-0.01	ZZ
88GQ37	X	176.51	6.92	4.03	176.43	8.76	5.68	ZZ
8R3MEP		171.69	2.10	1.22	168.59	0.91	0.59	ZZ
8TX6FQ		169.47	-0.12	-0.07	168.47	0.79	0.51	ZZ
92UQCX		171.27	1.68	0.98	166.56	-1.11	-0.72	ZZ
936RWB		171.00	1.41	0.82	168.63	0.96	0.62	ZZ
9FQ6B7		168.91	-0.68	-0.40	164.89	-2.79	-1.81	ZZ
9QAAQH		166.85	-2.74	-1.59	168.18	0.51	0.33	ZZ
AR6EKG		169.77	0.18	0.10	165.20	-2.48	-1.61	ZZ
AZBETJ		168.43	-1.16	-0.67	167.77	0.09	0.06	ZZ
B89PQU		169.40	-0.19	-0.11	166.02	-1.66	-1.08	ZZ
BQPBN6		170.96	1.37	0.80	169.54	1.86	1.21	ZZ
BUNN99		171.53	1.94	1.13	170.60	2.92	1.90	ZZ
BXM6L3		166.33	-3.26	-1.90	165.53	-2.14	-1.39	ZZ
C7BJFY		169.91	0.32	0.19	169.27	1.59	1.03	ZZ
CEQ7N3		170.83	1.24	0.72	168.27	0.60	0.39	ZZ
CZ6624		169.30	-0.29	-0.17	168.53	0.86	0.56	ZZ
D478GX		168.23	-1.36	-0.79	166.13	-1.54	-1.00	ZZ
DCVAQF		170.57	0.98	0.57	168.00	0.33	0.21	ZZ
DH44VQ		171.47	1.88	1.09	165.70	-1.98	-1.28	ZZ
E2AZQ7		172.00	2.41	1.40	168.33	0.66	0.43	ZZ
GJ3TAV		171.39	1.80	1.05	166.75	-0.93	-0.60	ZZ
HE69QQ		168.50	-1.09	-0.63	167.93	0.26	0.17	ZZ
HQ3CB6		172.17	2.58	1.50	170.43	2.76	1.79	ZZ
JCDGAD	X	8.596	-160.99	-93.72	8.482	-159.19	-103.33	ZZ
JP22R8		166.97	-2.62	-1.53	168.00	0.32	0.21	ZZ
KBFPFJ		170.57	0.98	0.57	167.20	-0.48	-0.31	ZZ
LD6GKE		166.54	-3.05	-1.78	166.15	-1.53	-0.99	ZZ
LKGXPU		166.99	-2.60	-1.51	167.52	-0.16	-0.10	ZZ
MAETJY		168.84	-0.75	-0.44	166.21	-1.46	-0.95	ZZ
N6EHP7		168.97	-0.62	-0.36	166.33	-1.34	-0.87	ZZ
NDA4R4		168.93	-0.66	-0.38	166.13	-1.54	-1.00	ZZ
NUYWVP		170.10	0.51	0.30	167.10	-0.58	-0.37	ZZ
QK48X8	X	120.89	-48.70	-28.35	121.50	-46.18	-29.97	ZZ
QWY4QD		167.42	-2.17	-1.26	167.62	-0.06	-0.04	ZZ
RD262Q		169.64	0.05	0.03	168.48	0.80	0.52	ZZ
RDF3JX		167.82	-1.77	-1.03	169.67	1.99	1.29	ZZ

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Interlaboratory Testing Program for Metals

Analysis 115

Fastener Wedge Tensile (10 deg) - ksi
ASTM F606

		Sample X27			Sample X28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
RGYMF7		168.10	-1.49	-0.87	169.94	2.26	1.47	ZZ
TQ7JY3		168.47	-1.12	-0.65	166.77	-0.91	-0.59	ZZ
TVYK43	*	167.90	-1.69	-0.98	163.33	-4.34	-2.82	ZZ
U8KK8B		171.93	2.34	1.36	166.33	-1.34	-0.87	ZZ
UZMK2V		170.77	1.18	0.68	167.07	-0.61	-0.40	ZZ
V9FDLU		168.03	-1.56	-0.91	166.60	-1.08	-0.70	ZZ
WFP9XE		172.19	2.60	1.52	169.53	1.85	1.20	ZZ
WTGAJA		170.98	1.39	0.81	168.36	0.69	0.45	ZZ
XFMT9K		173.00	3.41	1.98	168.80	1.12	0.73	ZZ
XTYYJM		169.07	-0.52	-0.30	169.61	1.93	1.26	ZZ
XWVUZZ		169.10	-0.49	-0.29	166.23	-1.44	-0.94	ZZ
Y6J6LF	*	172.34	2.75	1.60	171.59	3.92	2.54	ZZ
YCM2DT		171.11	1.52	0.88	166.32	-1.36	-0.88	ZZ
YKHJYB		169.85	0.26	0.15	166.58	-1.09	-0.71	ZZ
ZCZZ2A		168.33	-1.26	-0.73	169.43	1.76	1.14	ZZ
ZKEP34		169.83	0.24	0.14	166.77	-0.91	-0.59	ZZ
ZQJKL4		170.80	1.21	0.71	168.66	0.98	0.64	ZZ

Summary Statistics

	Sample X27		Sample X28	
Grand Means	169.59	ksi	167.68	ksi
Stnd Dev Btwn Labs	1.72	ksi	1.54	ksi

Samples X27 , X28 : Fastener sizes: 3/8-16 x 2, 3/8-16 x 2 3/4

Statistics based on 62 of 66 reporting participants

Comments on assigned Data Flags for Analysis #115

WebCode	Flag	Analyst Comment
2P2LV7	X	Data for both samples are low.
88GQ37	X	Data for both samples are high.
JCDGAD	X	Extreme Data.
QK48X8	X	Extreme Data.

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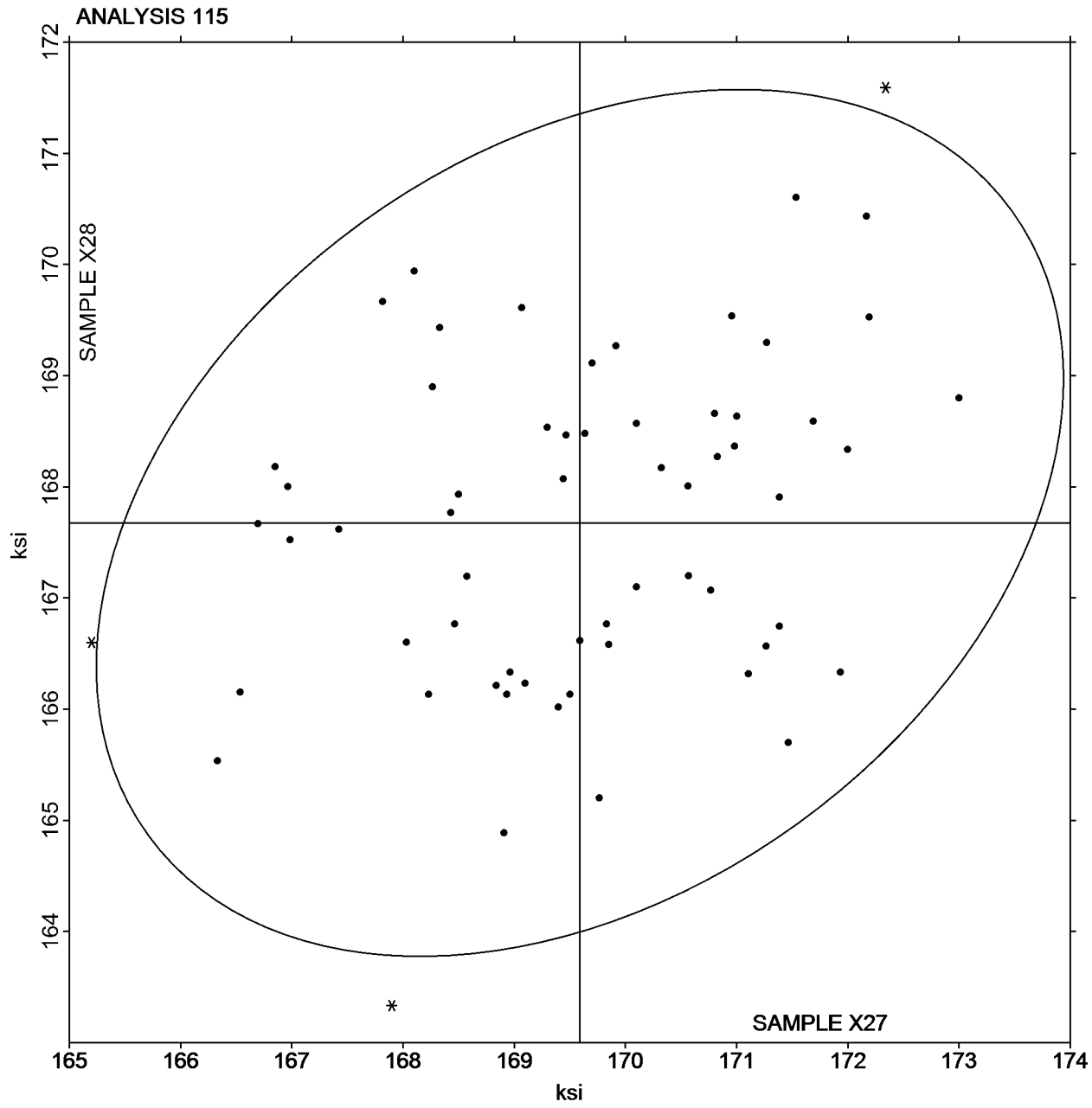
Interlaboratory Testing Program for Metals

Analysis 115

Fastener Wedge Tensile (10 deg) - ksi
ASTM F606

SAMPLE X27	SAMPLE X28
169.59 ksi	167.68 ksi



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2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 116

Fastener Axial Tensile - ksi
ASTM F606

		Sample Q27			Sample Q28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
28XLUB		171.57	0.24	0.13	167.00	-1.47	-0.88	ZZ
2P2LV7	X	161.00	-10.33	-5.70	161.52	-6.95	-4.14	ZZ
39A9W6		172.17	0.84	0.46	172.33	3.86	2.30	ZZ
3Q8DE7		169.80	-1.53	-0.84	166.43	-2.04	-1.22	ZZ
47GJ3B	X	180.07	8.74	4.83	175.53	7.06	4.21	ZZ
48DRJ8		169.71	-1.61	-0.89	169.50	1.03	0.61	ZZ
4EV846		170.45	-0.88	-0.49	167.94	-0.53	-0.32	ZZ
684HWZ		171.84	0.51	0.28	169.51	1.04	0.62	ZZ
6C6GDJ		172.45	1.12	0.62	170.32	1.85	1.10	ZZ
6H8MU9		170.87	-0.46	-0.26	167.00	-1.47	-0.88	ZZ
6PQG2H		172.45	1.12	0.62	169.26	0.79	0.47	ZZ
76FH22	X	177.84	6.51	3.59	173.33	4.86	2.90	ZZ
7L47J6		170.03	-1.30	-0.72	168.63	0.16	0.10	ZZ
7QFQA6		173.56	2.23	1.23	168.34	-0.13	-0.08	ZZ
7T6E7K	*	170.33	-1.00	-0.55	163.53	-4.94	-2.95	ZZ
88GQ37	X	176.86	5.53	3.05	176.04	7.57	4.51	ZZ
8R3MEP		173.23	1.90	1.05	169.06	0.59	0.35	ZZ
8TX6FQ		171.57	0.24	0.13	169.17	0.69	0.41	ZZ
8UU4MJ		169.03	-2.30	-1.27	167.47	-1.01	-0.60	ZZ
92UQCX		171.46	0.13	0.07	165.29	-3.19	-1.90	ZZ
936RWB		174.10	2.77	1.53	168.37	-0.11	-0.06	ZZ
9CBAEN	*	175.00	3.67	2.03	172.33	3.86	2.30	ZZ
9M96GP		174.36	3.03	1.67	167.66	-0.82	-0.49	ZZ
9U9TLP		170.45	-0.88	-0.49	168.31	-0.17	-0.10	ZZ
A288XX		172.43	1.10	0.61	171.90	3.43	2.04	ZZ
AGF6W3		171.57	0.24	0.13	168.70	0.23	0.14	ZZ
AMMTCP		172.21	0.88	0.49	169.69	1.21	0.72	ZZ
AWDXJA		169.81	-1.52	-0.84	166.33	-2.14	-1.28	ZZ
AX83ZJ		169.54	-1.79	-0.99	168.30	-0.17	-0.10	ZZ
AZBETJ		169.63	-1.70	-0.94	167.73	-0.74	-0.44	ZZ
B89PQU	*	174.21	2.88	1.59	166.26	-2.21	-1.32	ZZ
BQPBN6		172.71	1.38	0.76	170.21	1.74	1.04	ZZ
BXM6L3		167.63	-3.70	-2.04	167.50	-0.97	-0.58	ZZ
C7BJFY		172.93	1.60	0.88	169.27	0.80	0.48	ZZ
CEQ7N3		170.32	-1.01	-0.56	168.38	-0.09	-0.06	ZZ
CHZXL3	X	159.80	-11.53	-6.37	155.36	-13.12	-7.82	ZZ
CZ6624		170.80	-0.53	-0.29	166.53	-1.94	-1.16	ZZ
D478GX		169.33	-2.00	-1.10	166.77	-1.71	-1.02	ZZ
DH44VQ		169.63	-1.70	-0.94	167.07	-1.41	-0.84	ZZ
E2AZQ7		172.67	1.34	0.74	169.33	0.86	0.51	ZZ
EMT3PC		171.73	0.40	0.22	167.93	-0.54	-0.32	ZZ
G2H6ZZ		168.77	-2.56	-1.42	166.57	-1.91	-1.14	ZZ
G2HJCU		173.33	2.00	1.11	168.33	-0.14	-0.08	ZZ
GJ3TAV		170.76	-0.57	-0.32	167.67	-0.81	-0.48	ZZ
GNVVEU		174.94	3.61	1.99	169.57	1.09	0.65	ZZ
GZRQRP		172.57	1.24	0.69	169.57	1.10	0.66	ZZ
HE69QQ		172.17	0.84	0.46	169.53	1.06	0.63	ZZ
HQ3CB6		172.93	1.60	0.89	171.53	3.06	1.83	ZZ
JCDGAD	X	8.654	-162.68	-89.84	8.414	-160.06	-95.46	ZZ

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Interlaboratory Testing Program for Metals

Analysis 116

Fastener Axial Tensile - ksi
ASTM F606

		Sample Q27			Sample Q28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
KBFPFJ		174.10	2.77	1.53	168.20	-0.27	-0.16	ZZ
LD6GKE		167.83	-3.50	-1.93	164.77	-3.70	-2.21	ZZ
LKGXPU		170.47	-0.86	-0.48	167.47	-1.00	-0.60	ZZ
MAETJY		170.87	-0.46	-0.25	168.42	-0.05	-0.03	ZZ
MZ63H3		173.69	2.36	1.30	168.37	-0.10	-0.06	ZZ
N4MHRU	X	173.33	2.00	1.11	175.33	6.86	4.09	ZZ
N6EHP7		171.27	-0.06	-0.03	167.83	-0.64	-0.38	ZZ
NDA4R4		170.10	-1.23	-0.68	169.03	0.56	0.33	ZZ
NUYWVP		169.93	-1.40	-0.77	169.30	0.83	0.49	ZZ
P9BGKF		175.37	4.04	2.23	170.64	2.16	1.29	ZZ
PPHBYN	X	9.570	-161.76	-89.34	9.364	-159.11	-94.90	ZZ
QWY4QD		169.41	-1.92	-1.06	167.38	-1.10	-0.65	ZZ
R696WU	X	197.89	26.56	14.67	194.98	26.50	15.81	ZZ
RC7MYP		172.53	1.20	0.66	169.83	1.36	0.81	ZZ
RD262Q		171.09	-0.24	-0.13	169.26	0.79	0.47	ZZ
RDF3JX		167.46	-3.87	-2.14	167.66	-0.81	-0.48	ZZ
RM7MPV		167.97	-3.36	-1.86	168.03	-0.44	-0.26	ZZ
UKPE97	X	180.77	9.44	5.21	178.93	10.46	6.24	ZZ
UXF3ME		169.80	-1.53	-0.85	170.23	1.75	1.05	ZZ
V9FDLU		170.87	-0.46	-0.26	167.83	-0.64	-0.38	ZZ
VCBBTC		171.63	0.30	0.17	168.10	-0.37	-0.22	ZZ
VVT6PT		172.00	0.67	0.37	171.57	3.09	1.85	ZZ
WFP9XE		171.76	0.43	0.24	169.14	0.67	0.40	ZZ
XWVUZZ		172.10	0.77	0.43	167.83	-0.64	-0.38	ZZ
Y6J6LF		171.96	0.63	0.35	168.60	0.13	0.08	ZZ
YCM2DT		172.28	0.95	0.52	167.03	-1.44	-0.86	ZZ
YKHJYB		169.25	-2.08	-1.15	170.24	1.76	1.05	ZZ
Z4J2GQ		170.03	-1.30	-0.72	169.80	1.33	0.79	ZZ
ZCZZ2A		169.27	-2.06	-1.14	165.37	-3.11	-1.85	ZZ
ZKEP34		170.10	-1.23	-0.68	168.03	-0.44	-0.26	ZZ
ZQJKL4		171.57	0.24	0.13	169.11	0.63	0.38	ZZ
ZRE4PQ		172.69	1.36	0.75	170.32	1.85	1.10	ZZ
ZZKMT2	X	176.33	5.00	2.76	175.82	7.35	4.38	ZZ

Summary Statistics

	Sample Q27		Sample Q28	
Grand Means	171.33	ksi	168.47	ksi
Stnd Dev Btwn Labs	1.81	ksi	1.68	ksi

Samples Q27 , Q28 : Fastener sizes: 3/8-16 x 2, 3/8-16 x 2

Statistics based on 71 of 82 reporting participants

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 116

Fastener Axial Tensile - ksi
ASTM F606

Comments on assigned Data Flags for Analysis #116

WebCode	Flag	Analyst Comment
2P2LV7	X	Data for both samples are low.
47GJ3B	X	Data for both samples are high.
76FH22	X	Data for both samples are high.
88GQ37	X	Data for both samples are high.
CHZXL3	X	Data for both samples are low.
JCDGAD	X	Extreme Data.
N4MHRU	X	Data for sample Q28 are high.
PPHBYN	X	Extreme Data.
R696WU	X	Data for both samples are high.
UKPE97	X	Data for both samples are high.
ZZKMT2	X	Data for both samples are high.

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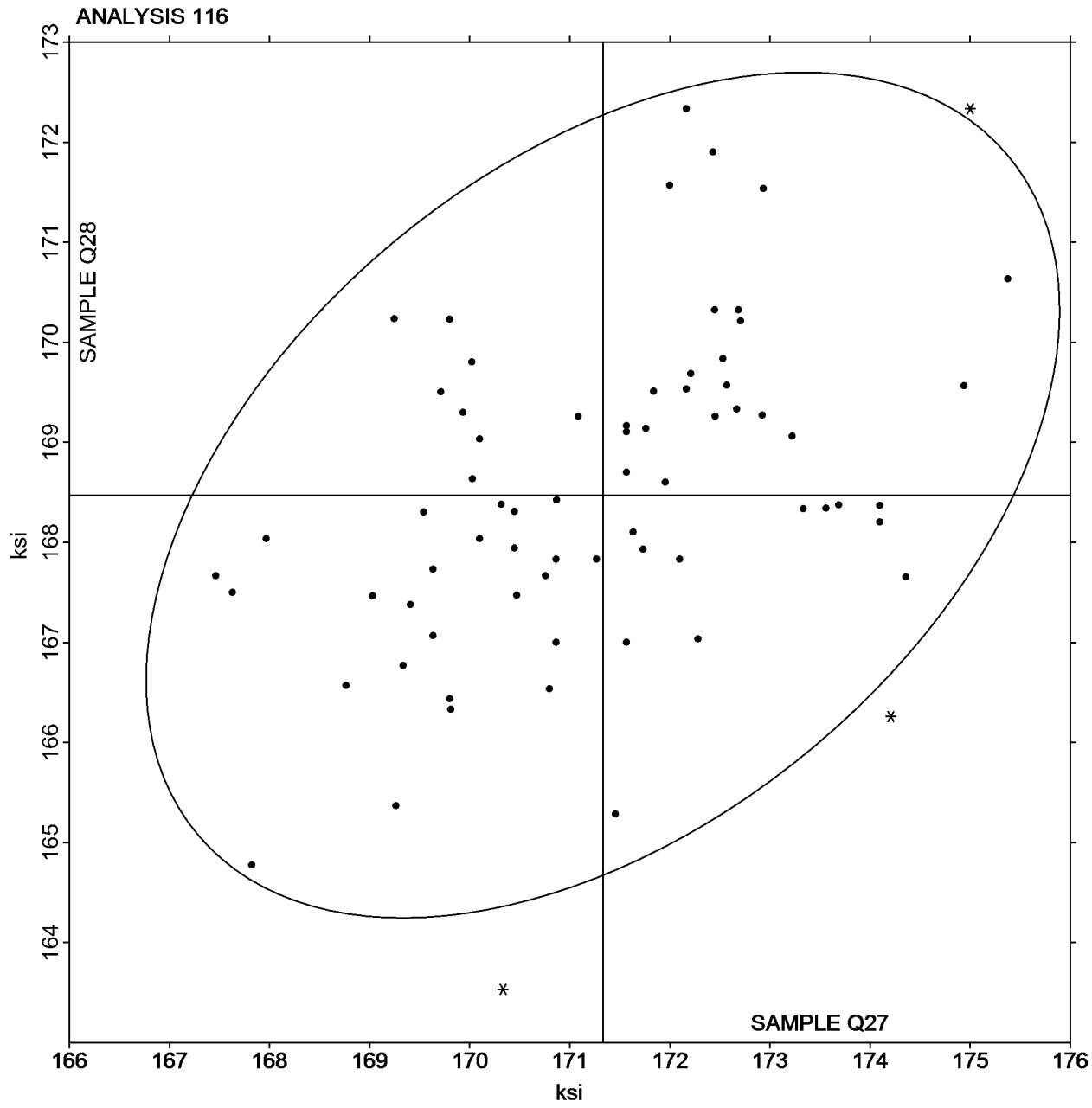
Interlaboratory Testing Program for Metals

Analysis 116

Fastener Axial Tensile - ksi
ASTM F606

SAMPLE Q27	SAMPLE Q28
171.33 ksi	168.47 ksi



Cycle 110
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Interlaboratory Testing Program for Metals

Analysis 118

Rockwell Hardness: C & B Scales
ASTM E18

		Sample E27			Sample E28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
23QT2Z		56.84	-0.05	-0.09	53.38	0.18	0.34	ZZ
2UGYVT		56.67	-0.22	-0.39	53.31	0.11	0.20	ZZ
2VP7Z8		57.10	0.21	0.37	53.74	0.54	1.02	ZZ
2Z2MJP		56.56	-0.33	-0.59	52.82	-0.38	-0.73	ZZ
3CBVRU		57.16	0.27	0.48	53.54	0.34	0.64	ZZ
3GNGCQ		55.90	-0.99	-1.77	52.18	-1.02	-1.94	ZZ
3JD2P6		57.40	0.51	0.91	53.70	0.50	0.95	ZZ
3WEYBG	X	56.14	-0.75	-1.34	53.52	0.32	0.60	ZZ
4D2GXP		57.10	0.21	0.37	53.50	0.30	0.57	ZZ
4Q3DVH		57.36	0.47	0.84	53.64	0.44	0.83	ZZ
4VGGVD		56.16	-0.73	-1.31	52.86	-0.34	-0.65	ZZ
62E368		57.06	0.17	0.30	53.36	0.16	0.30	ZZ
6VXJW7		56.62	-0.27	-0.48	52.84	-0.36	-0.69	ZZ
7QFQA6		56.74	-0.15	-0.27	52.82	-0.38	-0.73	ZZ
7WTNH8		56.38	-0.51	-0.91	52.42	-0.78	-1.49	ZZ
7Y9RWB		57.16	0.27	0.48	53.24	0.04	0.07	ZZ
8AN9YF		57.08	0.19	0.34	53.60	0.40	0.76	ZZ
8R3MEP		57.66	0.77	1.38	54.20	1.00	1.90	ZZ
8URTW2		56.24	-0.65	-1.17	53.04	-0.16	-0.30	ZZ
8UU4MJ		56.60	-0.29	-0.52	53.12	-0.08	-0.16	ZZ
92BJV2	X	56.82	-0.07	-0.13	53.88	0.68	1.29	ZZ
936RWB		56.98	0.09	0.16	53.26	0.06	0.11	ZZ
942YN3		56.44	-0.45	-0.81	52.78	-0.42	-0.80	ZZ
9FQ6B7		56.32	-0.57	-1.02	52.58	-0.62	-1.18	ZZ
9QAAQH		56.16	-0.73	-1.31	52.46	-0.74	-1.41	ZZ
9R4U34		56.32	-0.57	-1.02	53.08	-0.12	-0.23	ZZ
9WFBKK		57.32	0.43	0.77	53.74	0.54	1.02	ZZ
9ZHFB8		57.18	0.29	0.52	53.52	0.32	0.60	ZZ
A2KXM8		57.22	0.33	0.59	53.46	0.26	0.49	ZZ
A8BNFB		57.00	0.11	0.20	53.00	-0.20	-0.38	ZZ
A8VWE2		57.00	0.11	0.20	53.10	-0.10	-0.19	ZZ
AWCML2		57.73	0.84	1.50	54.06	0.86	1.63	ZZ
AZBETJ		55.90	-0.99	-1.77	52.12	-1.08	-2.06	ZZ
BGDXA2		57.96	1.07	1.91	54.24	1.04	1.97	ZZ
BHAY4C	*	55.48	-1.41	-2.53	52.12	-1.08	-2.06	ZZ
BMYFF3		56.20	-0.69	-1.24	52.68	-0.52	-0.99	ZZ
BTQKA7		56.52	-0.37	-0.66	52.78	-0.42	-0.80	ZZ
BUNN99		56.18	-0.71	-1.27	52.46	-0.74	-1.41	ZZ
BVAC8A		56.80	-0.09	-0.16	53.10	-0.10	-0.19	ZZ
BXM6L3		57.31	0.42	0.75	53.71	0.50	0.96	ZZ
CZ6624		56.44	-0.45	-0.81	52.98	-0.22	-0.42	ZZ
DCVAQF		56.26	-0.63	-1.13	52.76	-0.44	-0.84	ZZ
DHXQUU		56.96	0.07	0.12	53.12	-0.08	-0.16	ZZ
DWGBG9		58.12	1.23	2.20	54.32	1.12	2.13	ZZ
E2AZQ7	*	56.88	-0.01	-0.02	52.62	-0.58	-1.11	ZZ
EF9YHA		57.48	0.59	1.06	53.96	0.76	1.44	ZZ
EMQZNT		57.22	0.33	0.59	53.52	0.32	0.60	ZZ
F74QJH		57.40	0.51	0.91	54.00	0.80	1.52	ZZ
FF8KQU		56.86	-0.03	-0.06	53.04	-0.16	-0.31	ZZ

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 118

Rockwell Hardness: C & B Scales
ASTM E18

		Sample E27			Sample E28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
FLRYH2		56.80	-0.09	-0.16	52.98	-0.22	-0.42	ZZ
FZF4QX		57.88	0.99	1.77	53.90	0.70	1.33	ZZ
G63YXZ		57.78	0.89	1.59	54.14	0.94	1.78	ZZ
G8R86G		56.80	-0.09	-0.16	52.98	-0.22	-0.42	ZZ
GJ3TAV		56.54	-0.35	-0.63	52.94	-0.26	-0.50	ZZ
GYHBA6		57.52	0.63	1.13	53.62	0.42	0.79	ZZ
HE4BFV	*	57.14	0.25	0.45	52.83	-0.38	-0.72	ZZ
HJXAR6		57.38	0.49	0.88	53.30	0.10	0.19	ZZ
HUGVTT		57.02	0.13	0.23	53.66	0.46	0.87	ZZ
J2FWAR		57.36	0.47	0.84	53.56	0.36	0.68	ZZ
JG8YJ4		56.86	-0.03	-0.06	53.04	-0.16	-0.31	ZZ
JK4PNU		57.00	0.11	0.20	53.28	0.08	0.15	ZZ
JP22R8	*	55.52	-1.37	-2.45	52.18	-1.02	-1.94	ZZ
K39LXZ		56.96	0.07	0.12	53.12	-0.08	-0.16	ZZ
LAZ6KT		56.84	-0.05	-0.09	53.24	0.04	0.07	ZZ
LBWYA6		57.10	0.21	0.37	53.30	0.10	0.19	ZZ
LD6GKE		55.80	-1.09	-1.95	52.00	-1.20	-2.29	ZZ
LVZ8F9		57.00	0.11	0.20	53.00	-0.20	-0.38	ZZ
MAGPLH		57.14	0.25	0.45	53.36	0.16	0.30	ZZ
MDDBE7		56.60	-0.29	-0.52	52.92	-0.28	-0.54	ZZ
MPB8JT		56.18	-0.71	-1.27	52.62	-0.58	-1.11	ZZ
N6EHP7		56.64	-0.25	-0.45	53.28	0.08	0.15	ZZ
NTP3W6		55.98	-0.91	-1.63	52.56	-0.64	-1.22	ZZ
NXZ3CG		56.88	-0.01	-0.02	53.26	0.06	0.11	ZZ
P37KYV		56.88	-0.01	-0.02	53.28	0.08	0.15	ZZ
P6WQDZ		56.80	-0.09	-0.16	53.40	0.20	0.38	ZZ
P8LJM3		56.30	-0.59	-1.06	52.80	-0.40	-0.76	ZZ
PGPBUQ		56.48	-0.41	-0.74	52.76	-0.44	-0.84	ZZ
PHNBZH		57.38	0.49	0.88	53.68	0.48	0.91	ZZ
PUBM9L		57.85	0.96	1.72	54.13	0.93	1.76	ZZ
PZ4MN3		57.14	0.25	0.45	53.40	0.20	0.38	ZZ
R6RUUL		56.76	-0.13	-0.23	52.74	-0.46	-0.88	ZZ
RDF3JX	*	57.56	0.67	1.19	53.23	0.02	0.05	ZZ
RM7MPV		57.24	0.35	0.63	53.18	-0.02	-0.04	ZZ
T3X8WN		57.00	0.11	0.20	53.24	0.04	0.07	ZZ
T84KGM		57.88	0.99	1.77	54.14	0.94	1.78	ZZ
T8MKJQ		56.82	-0.07	-0.13	53.40	0.20	0.38	ZZ
U8KK8B		56.30	-0.59	-1.06	52.36	-0.84	-1.60	ZZ
U9ZDUK		57.60	0.71	1.27	53.64	0.44	0.83	ZZ
UXF3ME		57.20	0.31	0.55	53.66	0.46	0.87	ZZ
VPMJV4		57.07	0.18	0.32	53.72	0.52	0.99	ZZ
VVT6PT		56.58	-0.31	-0.56	52.68	-0.52	-0.99	ZZ
VY4Z8Q		57.24	0.35	0.63	53.74	0.54	1.02	ZZ
W347PG	*	57.66	0.77	1.38	53.36	0.16	0.30	ZZ
WPHQN3		56.64	-0.25	-0.45	52.98	-0.22	-0.42	ZZ
WVNM83		56.82	-0.07	-0.13	52.92	-0.28	-0.54	ZZ
XDGVY7		57.30	0.41	0.73	53.68	0.48	0.91	ZZ
XKHZUW		57.18	0.29	0.52	53.54	0.34	0.64	ZZ
XN4A2U		56.28	-0.61	-1.09	52.88	-0.32	-0.61	ZZ

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 118

Rockwell Hardness: C & B Scales
ASTM E18

WebCode	Data Flag	Sample E27 Lab Mean	Sample E27 Diff. from Grand Mean	Sample E27 CPV	Sample E28 Lab Mean	Sample E28 Diff. from Grand Mean	Sample E28 CPV	Instr Code
XUMECN		55.98	-0.91	-1.63	52.12	-1.08	-2.06	ZZ
Y6J6LF		55.75	-1.14	-2.04	52.51	-0.70	-1.32	ZZ
YEPP9H		56.72	-0.17	-0.31	53.02	-0.18	-0.35	ZZ
YKHJYB		57.72	0.83	1.48	53.90	0.70	1.33	ZZ
Z6DPVF		57.32	0.43	0.77	53.82	0.62	1.18	ZZ
ZCYYKH		56.14	-0.75	-1.34	52.76	-0.44	-0.84	ZZ
ZCZZ2A		57.00	0.11	0.20	53.36	0.16	0.30	ZZ
ZQZEAD		57.90	1.01	1.81	53.98	0.78	1.48	ZZ
ZZ6RKT		56.64	-0.25	-0.45	52.92	-0.28	-0.54	ZZ
ZZKMT2		57.14	0.25	0.45	53.54	0.34	0.64	ZZ

Summary Statistics

	Sample E27		Sample E28	
Grand Means	56.89	HRC	53.20	HRC
Stnd Dev Btwn Labs	0.56	HRC	0.53	HRC

Samples E27 , E28 : Steel

Statistics based on 106 of 108 reporting participants

Comments on assigned Data Flags for Analysis #118

WebCode	Flag	Analyst Comment
3WEYBG	X	Inconsistent in testing between samples.
92BJV2	X	Inconsistent in testing between samples.

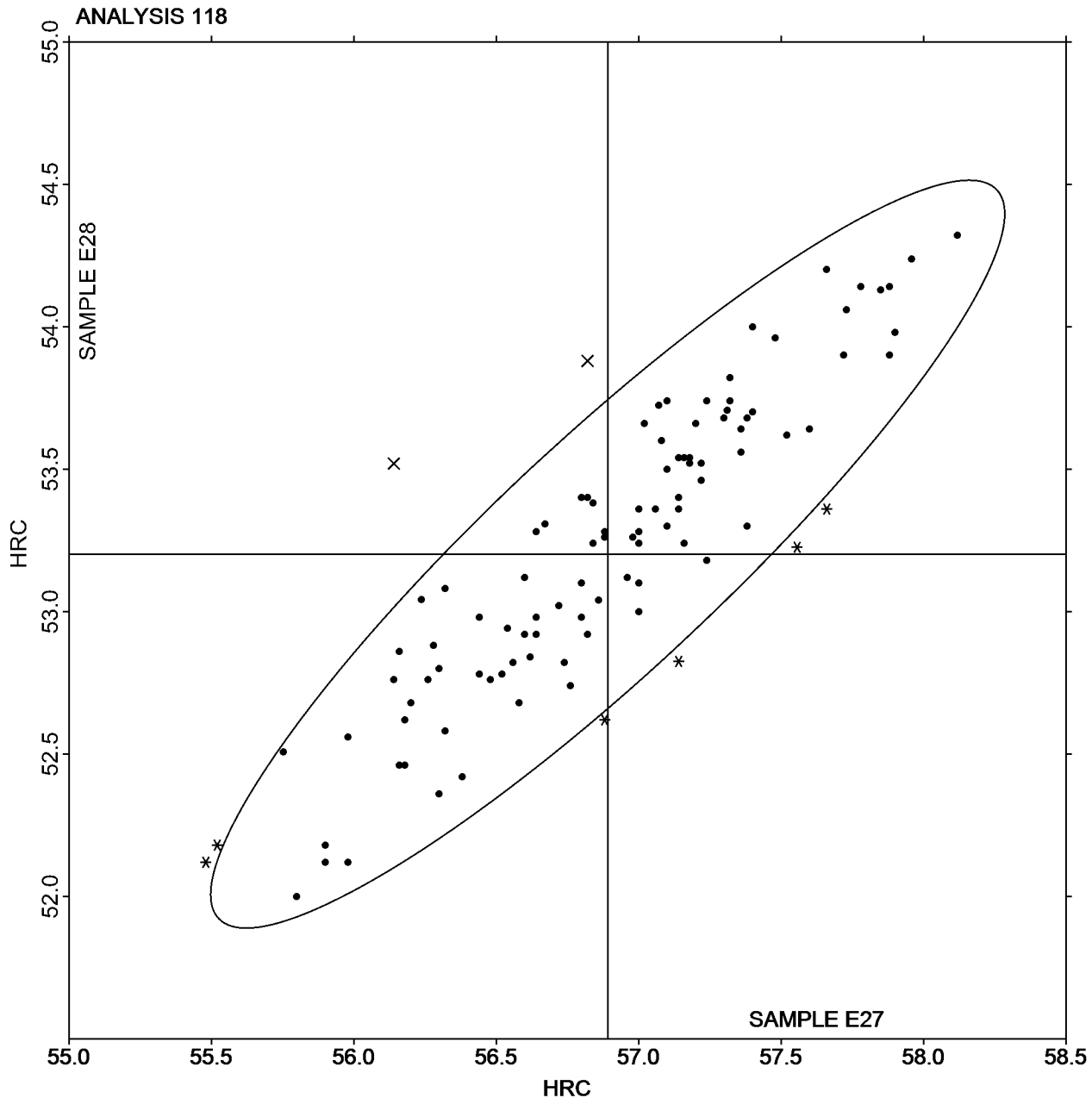
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 118

Rockwell Hardness: C & B Scales
ASTM E18

SAMPLE E27	SAMPLE E28
56.89 HRC	53.20 HRC



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 120

Rockwell Hardness (C Scale) - HRC
ASTM E18

		Sample E27			Sample E28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
269PCQ		57.44	0.42	0.88	53.86	0.49	1.04	ZZ
2P2WZ3		56.22	-0.80	-1.68	52.74	-0.63	-1.33	ZZ
2RQRDH		57.00	-0.02	-0.04	53.26	-0.11	-0.23	ZZ
39A9W6		57.62	0.60	1.26	54.06	0.69	1.46	ZZ
3HGKD9		57.14	0.12	0.25	53.40	0.03	0.07	ZZ
3ZE6QM		56.52	-0.50	-1.05	53.46	0.09	0.19	ZZ
43HZBB		57.04	0.02	0.04	53.42	0.05	0.11	ZZ
4GFE6D		57.06	0.04	0.09	53.84	0.47	1.00	ZZ
64C76A		57.30	0.28	0.59	53.52	0.15	0.32	ZZ
6C6GDJ		56.46	-0.56	-1.17	53.38	0.01	0.03	ZZ
6E6WJL		56.64	-0.38	-0.80	53.08	-0.29	-0.61	ZZ
6EQNUD		57.02	0.00	0.00	53.22	-0.15	-0.31	ZZ
6H8MU9		57.14	0.12	0.25	53.60	0.23	0.49	ZZ
7JJMPG		57.03	0.01	0.02	53.47	0.10	0.21	ZZ
7ZPVMV		56.80	-0.22	-0.46	53.10	-0.27	-0.57	ZZ
87Q67E	X	55.24	-1.78	-3.73	51.74	-1.63	-3.44	ZZ
8CWNMR		57.26	0.24	0.51	53.70	0.33	0.70	ZZ
8TX6FQ		57.56	0.54	1.14	54.14	0.77	1.63	ZZ
8ZXPF2		57.00	-0.02	-0.04	53.14	-0.23	-0.48	ZZ
9J9UPW	X	122.06	65.04	136.51	121.24	67.87	143.55	ZZ
9PHTF4		57.20	0.18	0.38	53.60	0.23	0.49	ZZ
A288XX		56.78	-0.24	-0.50	53.20	-0.17	-0.36	ZZ
AGF6W3		56.78	-0.24	-0.50	53.34	-0.03	-0.06	ZZ
AQQKPW		57.08	0.06	0.13	53.58	0.21	0.45	ZZ
AR6EKG		56.12	-0.90	-1.89	52.82	-0.55	-1.16	ZZ
AX83ZJ		57.16	0.14	0.30	53.66	0.29	0.62	ZZ
AYFCTF		58.02	1.00	2.10	54.22	0.85	1.80	ZZ
BBRHF9		56.20	-0.82	-1.72	52.56	-0.81	-1.71	ZZ
BQ2EQV		57.42	0.40	0.84	53.32	-0.05	-0.10	ZZ
CEQ7N3		56.60	-0.42	-0.88	53.04	-0.33	-0.69	ZZ
CVAC6N		57.50	0.48	1.01	54.04	0.67	1.42	ZZ
DZ2JX3		56.98	-0.04	-0.08	53.74	0.37	0.79	ZZ
EUAAUG		57.34	0.32	0.68	53.76	0.39	0.83	ZZ
F3GWB2		56.46	-0.56	-1.17	52.82	-0.55	-1.16	ZZ
FQL2KF		57.10	0.08	0.17	53.50	0.13	0.28	ZZ
FRFPZP		56.74	-0.28	-0.59	52.64	-0.73	-1.54	ZZ
FULU9P		56.60	-0.42	-0.88	52.70	-0.67	-1.41	ZZ
HAARMP		56.52	-0.50	-1.05	52.94	-0.43	-0.91	ZZ
HE69QQ		57.74	0.72	1.51	53.54	0.17	0.36	ZZ
HP9NUV		56.10	-0.92	-1.93	52.30	-1.07	-2.26	ZZ
HXYPFT		57.53	0.51	1.07	53.67	0.30	0.63	ZZ
JMWTQW	X	55.70	-1.32	-2.77	53.60	0.23	0.49	ZZ
LYFEKG		57.36	0.34	0.72	53.88	0.51	1.08	ZZ
LZTAJ9		57.60	0.58	1.22	53.72	0.35	0.74	ZZ
MAGMXY		57.70	0.68	1.43	53.74	0.37	0.79	ZZ
MCG8T6		57.68	0.66	1.39	53.94	0.57	1.21	ZZ
MQ2MXP		57.76	0.74	1.55	53.68	0.31	0.66	ZZ
NAYT2V		56.66	-0.36	-0.75	53.26	-0.11	-0.23	ZZ
NUYWVP		56.86	-0.16	-0.33	53.10	-0.27	-0.57	ZZ

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 120

Rockwell Hardness (C Scale) - HRC
ASTM E18

		Sample E27			Sample E28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
PGRVNL		57.62	0.60	1.26	54.26	0.89	1.89	ZZ
PJFXNK		56.42	-0.60	-1.26	52.38	-0.99	-2.09	ZZ
PYQALR		57.06	0.04	0.09	53.34	-0.03	-0.06	ZZ
Q4H8Y2		56.74	-0.28	-0.59	52.70	-0.67	-1.41	ZZ
Q6MYPU		56.70	-0.32	-0.67	52.72	-0.65	-1.37	ZZ
QK48X8		57.12	0.10	0.21	53.76	0.39	0.83	ZZ
R696WU		57.96	0.94	1.97	54.20	0.83	1.76	ZZ
T9KPZK		56.68	-0.34	-0.71	53.04	-0.33	-0.69	ZZ
TGTRA6		57.46	0.44	0.93	53.94	0.57	1.21	ZZ
TNHKVZ		57.26	0.24	0.51	53.82	0.45	0.96	ZZ
TW9T7V		57.24	0.22	0.46	53.52	0.15	0.32	ZZ
UCK67M		56.60	-0.42	-0.88	53.04	-0.33	-0.69	ZZ
V3RV9H		57.08	0.06	0.13	53.44	0.07	0.15	ZZ
V7M3D8		56.80	-0.22	-0.46	53.34	-0.03	-0.06	ZZ
V9FDLU	X	55.46	-1.56	-3.27	52.52	-0.85	-1.79	ZZ
VJUW6J	*	57.94	0.92	1.93	53.60	0.23	0.49	ZZ
WLX24Q		56.48	-0.54	-1.13	52.90	-0.47	-0.99	ZZ
WRKRLE		56.88	-0.14	-0.29	53.14	-0.23	-0.48	ZZ
WTE62X		56.96	-0.06	-0.12	53.24	-0.13	-0.27	ZZ
WWXPX9		56.84	-0.18	-0.38	53.30	-0.07	-0.14	ZZ
X678YJ		55.90	-1.12	-2.35	52.24	-1.13	-2.39	ZZ
Y48XCE		57.16	0.14	0.30	53.56	0.19	0.41	ZZ
YKXQEZ		57.32	0.30	0.63	53.64	0.27	0.58	ZZ
YP72DM		56.92	-0.10	-0.21	53.30	-0.07	-0.14	ZZ
ZAB9WD		56.36	-0.66	-1.38	52.64	-0.73	-1.54	ZZ

Summary Statistics

	Sample E27		Sample E28	
Grand Means	57.02	HRC	53.37	HRC
Stnd Dev Btwn Labs	0.48	HRC	0.47	HRC

Samples E27 , E28 : Steel

Statistics based on 70 of 74 reporting participants

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 120

Rockwell Hardness (C Scale) - HRC
ASTM E18

Comments on assigned Data Flags for Analysis #120

WebCode	Flag	Analyst Comment
87Q67E	X	Data for both samples are low. Possible Systematic error.
9J9UPW	X	Data for both samples are high. Possible Systematic error. Inconsistent within the determinations of sample E27.
JMWTQW	X	Data for sample E27 are low. Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
V9FDLU	X	Data for sample E27 are low. Inconsistent in testing between samples.

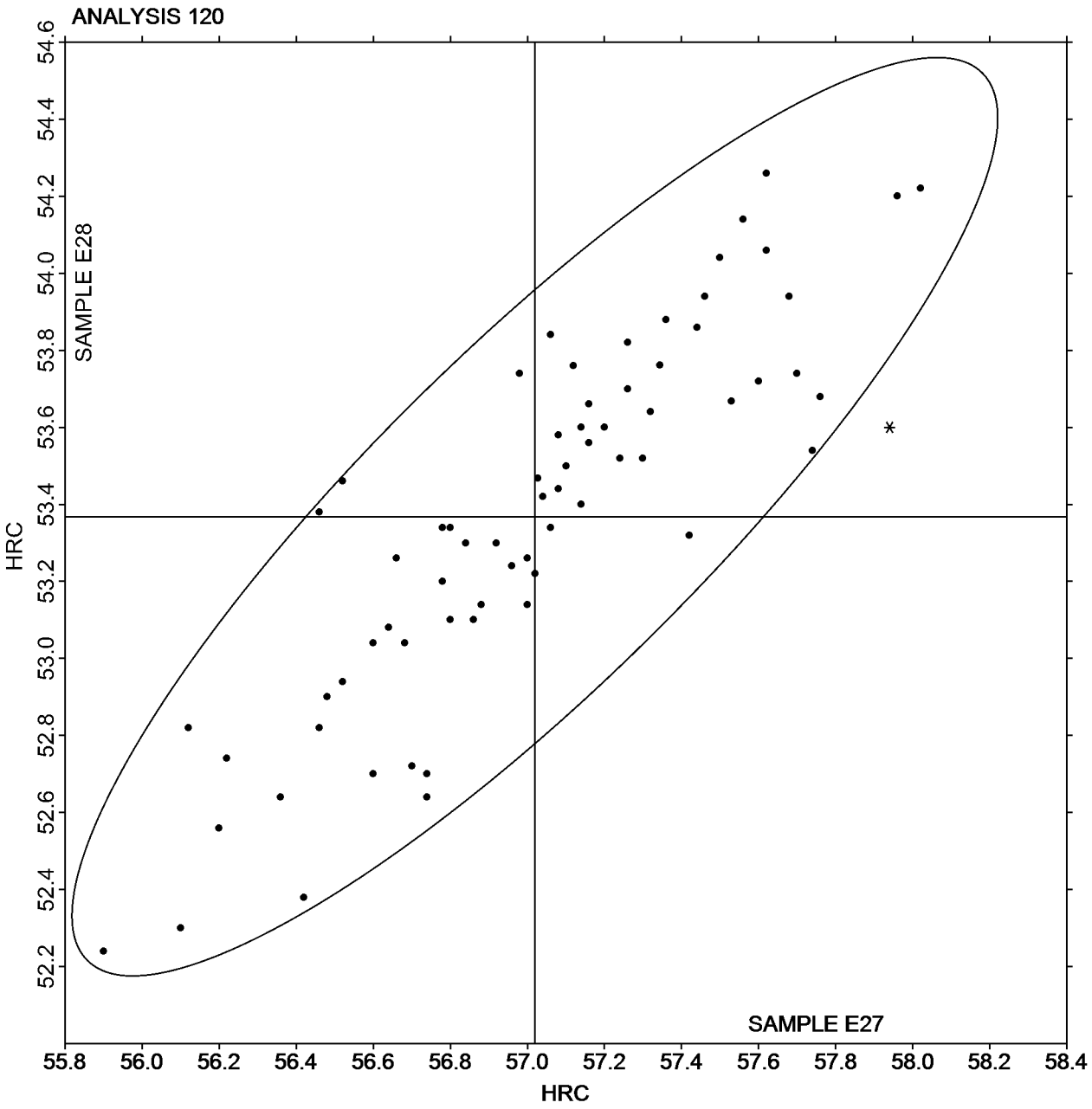
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 120

Rockwell Hardness (C Scale) - HRC
ASTM E18

SAMPLE E27	SAMPLE E28
57.02 HRC	53.37 HRC



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 125

Rockwell Hardness of Externally Threaded Fasteners - HRC
ASTM F606/F606M AND ASTM E18

		Sample G27			Sample G28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
28XLUB		37.34	0.56	0.98	36.99	0.35	0.56	ZZ
2GM8Y9		37.08	0.31	0.53	36.86	0.22	0.36	ZZ
3GNGCQ		36.52	-0.26	-0.44	35.84	-0.80	-1.27	ZZ
3JD2P6	*	38.42	1.64	2.85	38.14	1.51	2.39	ZZ
3X7Z9R		36.43	-0.35	-0.61	36.27	-0.37	-0.59	ZZ
48DRJ8		36.47	-0.31	-0.53	36.79	0.15	0.24	ZZ
4BVKJU		37.78	1.00	1.73	37.81	1.17	1.87	ZZ
684HWZ		36.94	0.16	0.28	36.90	0.26	0.42	ZZ
6C6GDJ	*	36.89	0.12	0.21	35.53	-1.11	-1.77	ZZ
6PQG2H		36.54	-0.24	-0.41	37.14	0.51	0.80	ZZ
6RC849		36.77	-0.01	-0.01	36.49	-0.14	-0.23	ZZ
76FH22	X	35.59	-1.19	-2.06	37.41	0.77	1.22	ZZ
7B4DAD		36.96	0.19	0.33	37.00	0.36	0.57	ZZ
7L47J6		37.45	0.67	1.16	37.36	0.72	1.14	ZZ
7T6E7K		36.47	-0.31	-0.53	36.53	-0.11	-0.17	ZZ
88GQ37	X	33.12	-3.66	-6.34	32.31	-4.33	-6.88	ZZ
8G967C		37.66	0.88	1.53	37.53	0.89	1.42	ZZ
8TMR7G		37.13	0.36	0.62	37.01	0.37	0.59	ZZ
8TX6FQ		36.97	0.19	0.34	36.55	-0.09	-0.14	ZZ
8WKB6U	X	34.63	-2.15	-3.73	35.06	-1.58	-2.51	ZZ
92UQCX		36.81	0.04	0.07	35.88	-0.76	-1.21	ZZ
936RWB		36.84	0.06	0.11	37.27	0.63	1.00	ZZ
9JDGDH		37.37	0.59	1.03	37.38	0.74	1.18	ZZ
9M96GP	X	35.79	-0.99	-1.71	33.53	-3.11	-4.95	ZZ
9U9TLP		37.42	0.64	1.12	37.00	0.36	0.58	ZZ
AFLGFT		35.98	-0.80	-1.39	36.06	-0.58	-0.92	ZZ
AZBETJ		36.78	0.00	0.00	35.96	-0.68	-1.07	ZZ
B89PQU		36.84	0.06	0.11	36.81	0.17	0.27	ZZ
BQPBN6		37.59	0.81	1.41	37.82	1.18	1.88	ZZ
BUNN99	*	35.67	-1.11	-1.92	36.57	-0.07	-0.11	ZZ
BWQPA7		37.15	0.38	0.65	37.13	0.49	0.77	ZZ
BXM6L3		36.77	-0.01	-0.01	36.81	0.17	0.27	ZZ
C7BJFY		36.43	-0.35	-0.60	36.54	-0.09	-0.15	ZZ
CGEFX4		36.83	0.05	0.09	36.83	0.19	0.31	ZZ
CW8ZM6		37.35	0.58	1.00	36.92	0.28	0.45	ZZ
D478GX		37.02	0.24	0.42	37.09	0.45	0.72	ZZ
D4LDV3	X	34.86	-1.91	-3.32	35.73	-0.91	-1.44	ZZ
DH44VQ		36.80	0.03	0.04	37.01	0.37	0.59	ZZ
E2AZQ7		35.81	-0.96	-1.67	35.73	-0.91	-1.44	ZZ
EG6HF4		37.09	0.31	0.54	37.11	0.47	0.75	ZZ
EV6XAQ		36.51	-0.26	-0.45	36.33	-0.31	-0.50	ZZ
FRLL4E		37.03	0.25	0.43	37.26	0.62	0.98	ZZ
G4TUJC		36.34	-0.44	-0.76	36.09	-0.55	-0.88	ZZ
GJ3TAV		36.63	-0.15	-0.26	36.52	-0.12	-0.19	ZZ
GNVVEU		36.50	-0.27	-0.48	35.85	-0.79	-1.25	ZZ
GZRQRP		36.70	-0.07	-0.13	36.06	-0.58	-0.93	ZZ
H8NGGR		37.03	0.26	0.45	36.75	0.11	0.18	ZZ
HDQNXF		36.14	-0.63	-1.09	36.26	-0.38	-0.60	ZZ
HQ3CB6		36.78	0.01	0.01	36.98	0.34	0.55	ZZ

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 125

Rockwell Hardness of Externally Threaded Fasteners - HRC
ASTM F606/F606M AND ASTM E18

		Sample G27			Sample G28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
J4KJMW	X	33.27	-3.51	-6.08	33.88	-2.76	-4.38	ZZ
JEGCRV		36.28	-0.50	-0.87	36.83	0.19	0.31	ZZ
JVBZGE		36.49	-0.29	-0.50	36.33	-0.31	-0.49	ZZ
JY9JLY	*	38.33	1.56	2.70	37.76	1.12	1.79	ZZ
KBFPFJ		36.28	-0.49	-0.86	37.14	0.50	0.79	ZZ
KZY7DT		36.30	-0.47	-0.82	36.34	-0.29	-0.47	ZZ
LD6GKE	X	33.06	-3.71	-6.44	30.69	-5.95	-9.46	ZZ
LKGXPU		36.23	-0.54	-0.94	36.10	-0.54	-0.86	ZZ
MAETJY		37.73	0.96	1.66	37.41	0.77	1.23	ZZ
MPB8JT		37.14	0.36	0.63	36.64	0.01	0.01	ZZ
N6EHP7		36.55	-0.22	-0.39	36.65	0.01	0.02	ZZ
NUYWVP		35.59	-1.18	-2.05	35.24	-1.39	-2.22	ZZ
P9BGKF		36.00	-0.77	-1.34	35.73	-0.91	-1.45	ZZ
PPHBYN		36.40	-0.37	-0.65	36.81	0.17	0.27	ZZ
QWY4QD		36.58	-0.19	-0.34	36.13	-0.51	-0.81	ZZ
RC7MYP		36.13	-0.64	-1.12	36.99	0.36	0.57	ZZ
RD262Q		36.56	-0.22	-0.38	36.83	0.19	0.31	ZZ
RGYMF7		37.39	0.62	1.07	37.29	0.65	1.03	ZZ
RM7MPV		36.94	0.16	0.28	36.56	-0.08	-0.13	ZZ
T2JFTT	X	34.08	-2.69	-4.67	34.38	-2.26	-3.59	ZZ
TQ7JY3		37.20	0.43	0.74	37.01	0.37	0.60	ZZ
TVYK43	*	36.57	-0.21	-0.36	35.20	-1.44	-2.29	ZZ
U8KK8B		36.16	-0.62	-1.07	35.49	-1.15	-1.83	ZZ
UHJF67		36.73	-0.04	-0.08	36.74	0.11	0.17	ZZ
UZMK2V	*	35.36	-1.42	-2.46	36.03	-0.61	-0.97	ZZ
VCBBTC		36.91	0.13	0.23	37.21	0.57	0.91	ZZ
VVT6PT		36.88	0.10	0.17	36.76	0.12	0.19	ZZ
WFP9XE		37.19	0.41	0.72	37.13	0.49	0.77	ZZ
WTE62X		35.86	-0.92	-1.59	35.82	-0.82	-1.30	ZZ
WTGAJA		37.14	0.36	0.63	36.19	-0.45	-0.72	ZZ
XFMT9K		36.11	-0.66	-1.15	35.49	-1.15	-1.83	ZZ
XTYYJM		36.83	0.06	0.10	37.00	0.36	0.58	ZZ
XWVUZZ		37.53	0.75	1.30	37.33	0.69	1.09	ZZ
Y6J6LF	X	33.85	-2.93	-5.07	34.65	-1.99	-3.16	ZZ
YCM2DT		35.97	-0.81	-1.40	35.34	-1.29	-2.06	ZZ
YKHJYB		37.75	0.98	1.69	36.96	0.32	0.51	ZZ
YWTRZH		36.49	-0.29	-0.50	36.79	0.16	0.25	ZZ
ZCZXEQ		36.76	-0.02	-0.03	36.54	-0.09	-0.15	ZZ
ZCZZ2A		37.28	0.50	0.87	37.03	0.39	0.63	ZZ
ZKEP34		36.06	-0.72	-1.25	35.84	-0.79	-1.26	ZZ
ZRE4PQ		36.72	-0.06	-0.10	36.06	-0.58	-0.92	ZZ
ZVUUVK		37.16	0.39	0.67	36.86	0.22	0.35	ZZ

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 125

Rockwell Hardness of Externally Threaded Fasteners - HRC
ASTM F606/F606M AND ASTM E18

Summary Statistics

	Sample G27		Sample G28	
Grand Means	36.77	HRC	36.64	HRC
Stnd Dev Btwn Labs	0.58	HRC	0.63	HRC

Samples G27 , G28 : Fastener sizes: 1/2-20 x 2 1/2 , 1/2-20 x 1/4

Statistics based on 82 of 91 reporting participants

Comments on assigned Data Flags for Analysis #125

WebCode	Flag	Analyst Comment
76FH22	X	Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
88GQ37	X	Data for both samples are low. Possible Systematic error. Inconsistent within the determinations of both samples.
8WKB6U	X	Data for sample G27 are low. Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
9M96GP	X	Data for sample G28 are low. Inconsistent in testing between samples.
D4LDV3	X	Data for sample G27 are low. Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
J4KJMW	X	Data for both samples are low. Possible Systematic error.
LD6GKE	X	Data for both samples are low. Possible Systematic error. Inconsistent within the determinations of both samples.
T2JFTT	X	Data for both samples are low. Possible Systematic error. Inconsistent within the determinations of both samples.
Y6J6LF	X	Data for both samples are low. Possible Systematic error. Inconsistent within the determinations of both samples.

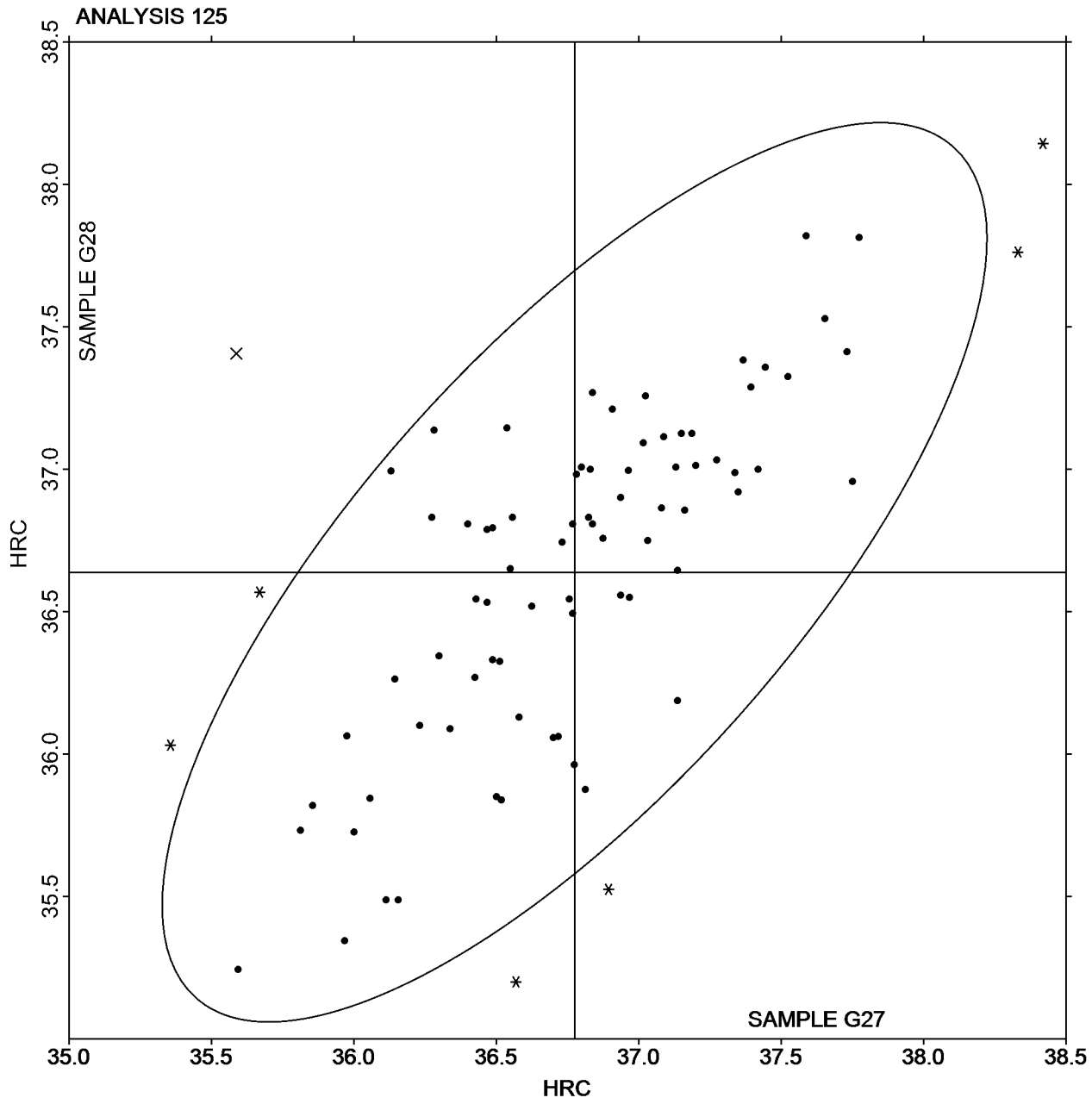
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 125

Rockwell Hardness of Externally Threaded Fasteners - HRC
ASTM F606/F606M AND ASTM E18

SAMPLE G27	SAMPLE G28
36.77 HRC	36.64 HRC



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 126

Vickers Hardness of Externally Threaded Fasteners - HV
ASTM E384

		Sample V27			Sample V28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
2JRAUY		352.73	-2.77	-0.58	360.07	-2.81	-0.52	ZZ
2RQRDH		355.69	0.19	0.04	357.25	-5.63	-1.03	ZZ
7L47J6		359.59	4.09	0.86	369.22	6.34	1.16	ZZ
82T8H3		355.76	0.26	0.05	362.46	-0.42	-0.08	ZZ
8AN9YF	*	368.64	13.14	2.75	373.71	10.83	1.99	ZZ
8FDJE7		356.00	0.50	0.10	362.56	-0.32	-0.06	ZZ
8YN6MC		361.13	5.62	1.18	371.06	8.18	1.50	ZZ
9U9TLP		355.06	-0.44	-0.09	364.25	1.37	0.25	ZZ
BDVZU4		351.44	-4.06	-0.85	356.19	-6.69	-1.23	ZZ
BQPBN6		353.38	-2.13	-0.45	361.31	-1.57	-0.29	ZZ
CAXXP3		354.97	-0.53	-0.11	355.70	-7.18	-1.32	ZZ
GZRQRP		362.28	6.77	1.42	372.71	9.83	1.80	ZZ
HDQNXF		354.90	-0.60	-0.13	359.61	-3.27	-0.60	ZZ
J4KJMW		352.15	-3.35	-0.70	358.63	-4.25	-0.78	ZZ
JK4PNU		355.03	-0.48	-0.10	360.43	-2.45	-0.45	ZZ
KWJ789		358.31	2.81	0.59	363.81	0.93	0.17	ZZ
PY8YYW		352.38	-3.13	-0.66	356.00	-6.88	-1.26	ZZ
RGYMF7		350.06	-5.44	-1.14	363.19	0.31	0.06	ZZ
V3RV9H		353.39	-2.11	-0.44	364.69	1.82	0.33	ZZ
WKLNTG		350.38	-5.13	-1.08	367.25	4.37	0.80	ZZ
WR7V8E		358.06	2.56	0.54	359.94	-2.94	-0.54	ZZ
XU7XL2		345.88	-9.63	-2.02	356.81	-6.07	-1.11	ZZ
XUMECN		359.36	3.85	0.81	369.36	6.48	1.19	ZZ

Summary Statistics

	Sample V27		Sample V28	
Grand Means	355.50	HV	362.88	HV
Stnd Dev Btwn Labs	4.77	HV	5.45	HV

Samples V27 , V28 : Fastener sizes: 1/2-20 x 2 3/4 , 1/2-20 x 1/4

Statistics based on 23 of 23 reporting participants

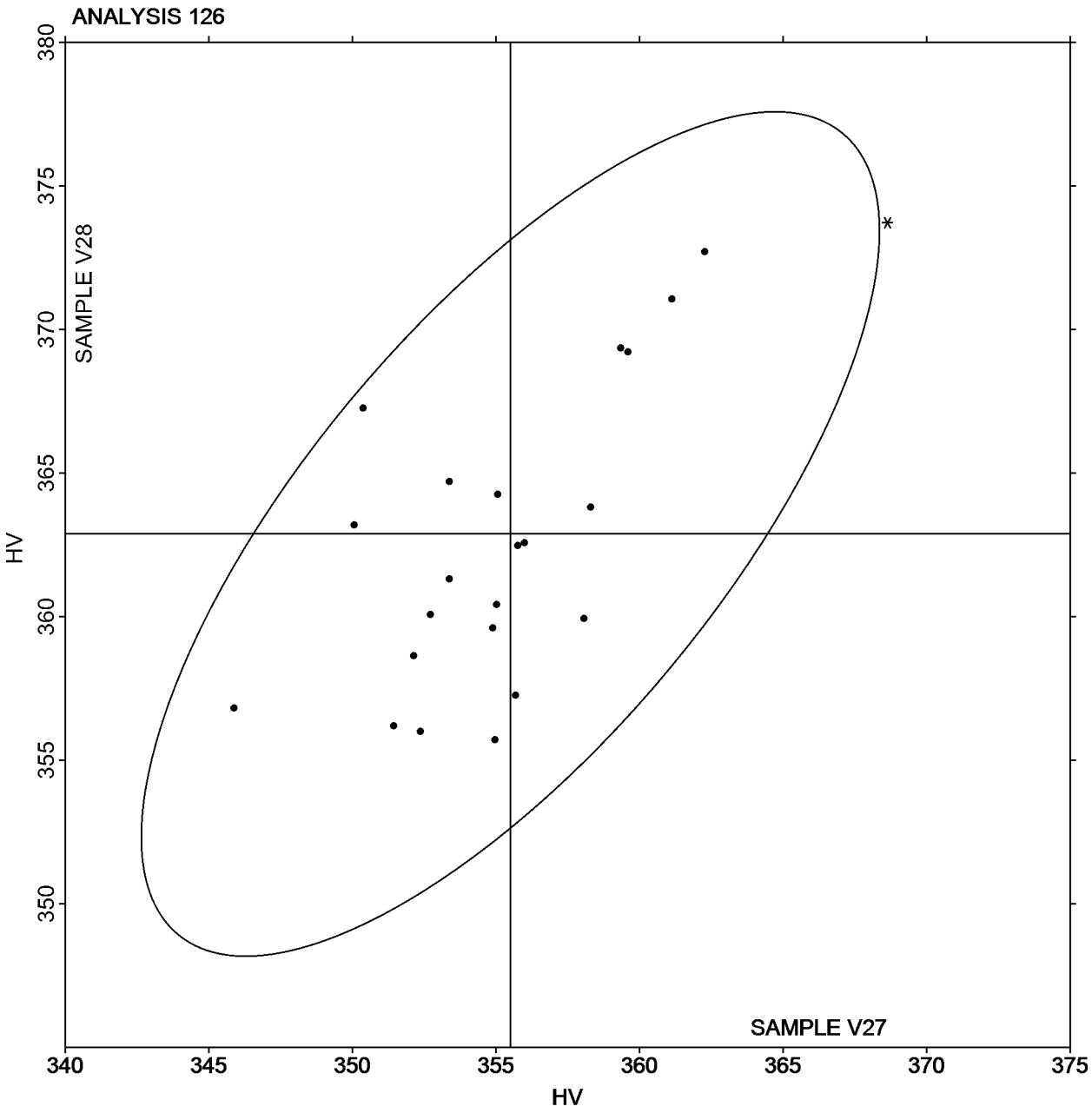
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 126

Vickers Hardness of Externally Threaded Fasteners - HV
ASTM E384

SAMPLE V27	SAMPLE V28
355.50 HV	362.88 HV



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 127

Fastener Wedge Tensile (10 deg) Metric - MPa
ASTM F606M

		Sample B27			Sample B28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
2BZPWD		1,119	-7	-0.55	1,105	-2	-0.11	ZZ
3GNGCQ		1,112	-14	-1.05	1,099	-8	-0.42	ZZ
3X7Z9R		1,105	-21	-1.57	1,086	-21	-1.18	ZZ
6RC849		1,134	8	0.56	1,107	0	-0.01	ZZ
8G967C		1,124	-2	-0.16	1,088	-19	-1.03	ZZ
8KQRQP		1,116	-10	-0.78	1,096	-11	-0.61	ZZ
8TMR7G		1,124	-2	-0.12	1,095	-12	-0.66	ZZ
9JDGDH		1,116	-11	-0.78	1,100	-7	-0.39	ZZ
AFLGFT		1,134	8	0.61	1,115	8	0.47	ZZ
BDVZU4	*	1,168	42	3.12	1,162	55	3.07	ZZ
BWQPA7		1,133	7	0.49	1,101	-6	-0.35	ZZ
CAXXP3		1,157	30	2.27	1,154	47	2.60	ZZ
D478GX		1,129	3	0.21	1,114	8	0.42	ZZ
D4LDV3		1,124	-2	-0.17	1,105	-2	-0.10	ZZ
EV6XAQ		1,127	1	0.06	1,109	2	0.14	ZZ
FRLL4E		1,126	0	0.01	1,112	5	0.29	ZZ
HDQNXF	X	1,231	105	7.81	1,243	137	7.57	ZZ
J4KJMW		1,120	-6	-0.46	1,095	-12	-0.64	ZZ
JEGCRV		1,133	7	0.54	1,121	14	0.80	ZZ
PVBKK3		1,118	-8	-0.63	1,095	-11	-0.64	ZZ
RGYMF7		1,123	-3	-0.23	1,091	-16	-0.86	ZZ
TNHKVZ		1,131	5	0.34	1,124	17	0.97	ZZ
U8KK8B		1,126	0	0.02	1,104	-3	-0.14	ZZ
WR7V8E		1,119	-7	-0.51	1,092	-15	-0.83	ZZ
XU7XL2		1,126	0	0.02	1,109	3	0.14	ZZ
YWTRZH		1,131	5	0.38	1,106	-1	-0.07	ZZ
ZCZZ2A		1,105	-21	-1.60	1,091	-16	-0.86	ZZ

Summary Statistics

	Sample B27		Sample B28	
Grand Means	1,126	MPa	1,107	MPa
Stnd Dev Btwn Labs	13	MPa	18	MPa

Samples B27 , B28 : Fastener sizes: M10 x 1.5 x 70, M10 x 1.5 x 80

Statistics based on 26 of 27 reporting participants

Comments on assigned Data Flags for Analysis #127

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

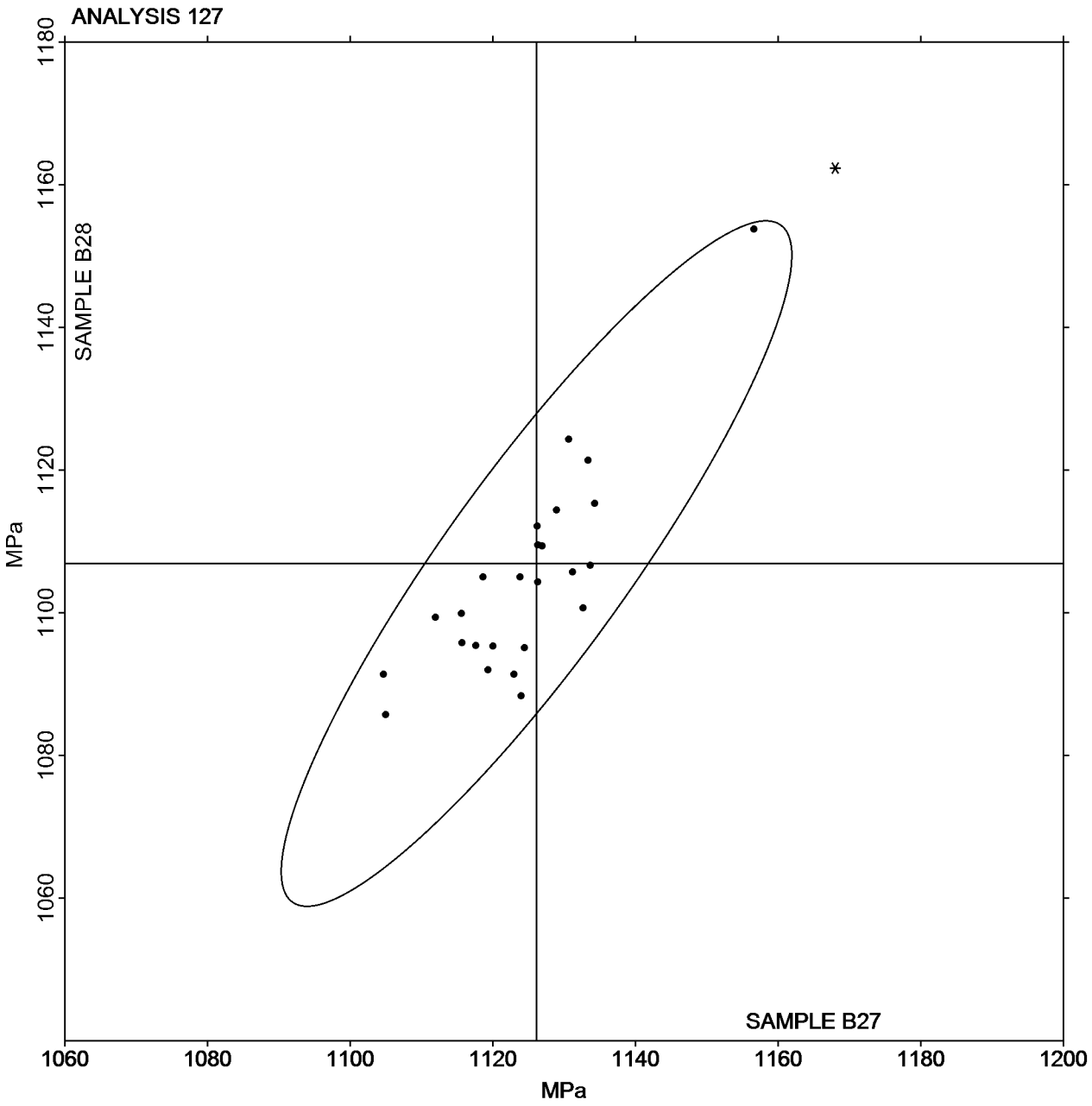
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 127

Fastener Wedge Tensile (10 deg) Metric - MPa
ASTM F606M

SAMPLE B27	SAMPLE B28
1,126 MPa	1,107 MPa



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 128

Fastener Axial Tensile Metric - MPa
ASTM F606M

WebCode	Data Flag	Sample T27 Lab Mean	Sample T27 Diff. from Grand Mean	Sample T27 CPV	Sample T28 Lab Mean	Sample T28 Diff. from Grand Mean	Sample T28 CPV	Instr Code
4BVKJU		1,117	-14	-0.76	1,102	-13	-0.68	ZZ
6RC849		1,133	2	0.08	1,113	-1	-0.08	ZZ
7B4DAD		1,133	2	0.10	1,116	2	0.10	ZZ
8KQRQP		1,127	-4	-0.23	1,120	5	0.29	ZZ
BDVZU4		1,143	12	0.61	1,133	19	1.02	ZZ
BW4XYF		1,125	-6	-0.30	1,098	-16	-0.89	ZZ
D4LDV3		1,121	-10	-0.52	1,114	0	-0.01	ZZ
EG6HF4		1,118	-13	-0.67	1,100	-14	-0.78	ZZ
HDQNXF		1,186	55	2.91	1,162	48	2.57	ZZ
PVBKK3		1,116	-15	-0.78	1,099	-15	-0.83	ZZ
RGYMF7		1,127	-4	-0.23	1,099	-15	-0.83	ZZ
XU7XL2		1,127	-4	-0.21	1,116	2	0.13	ZZ

Summary Statistics

	Sample T27		Sample T28	
Grand Means	1,131	MPa	1,114	MPa
Stnd Dev Btwn Labs	19	MPa	19	MPa

Samples T27 , T28 : Fastener sizes: M10 x 1.5 x 70, M10 x 1.5 x 80

Statistics based on 12 of 12 reporting participants

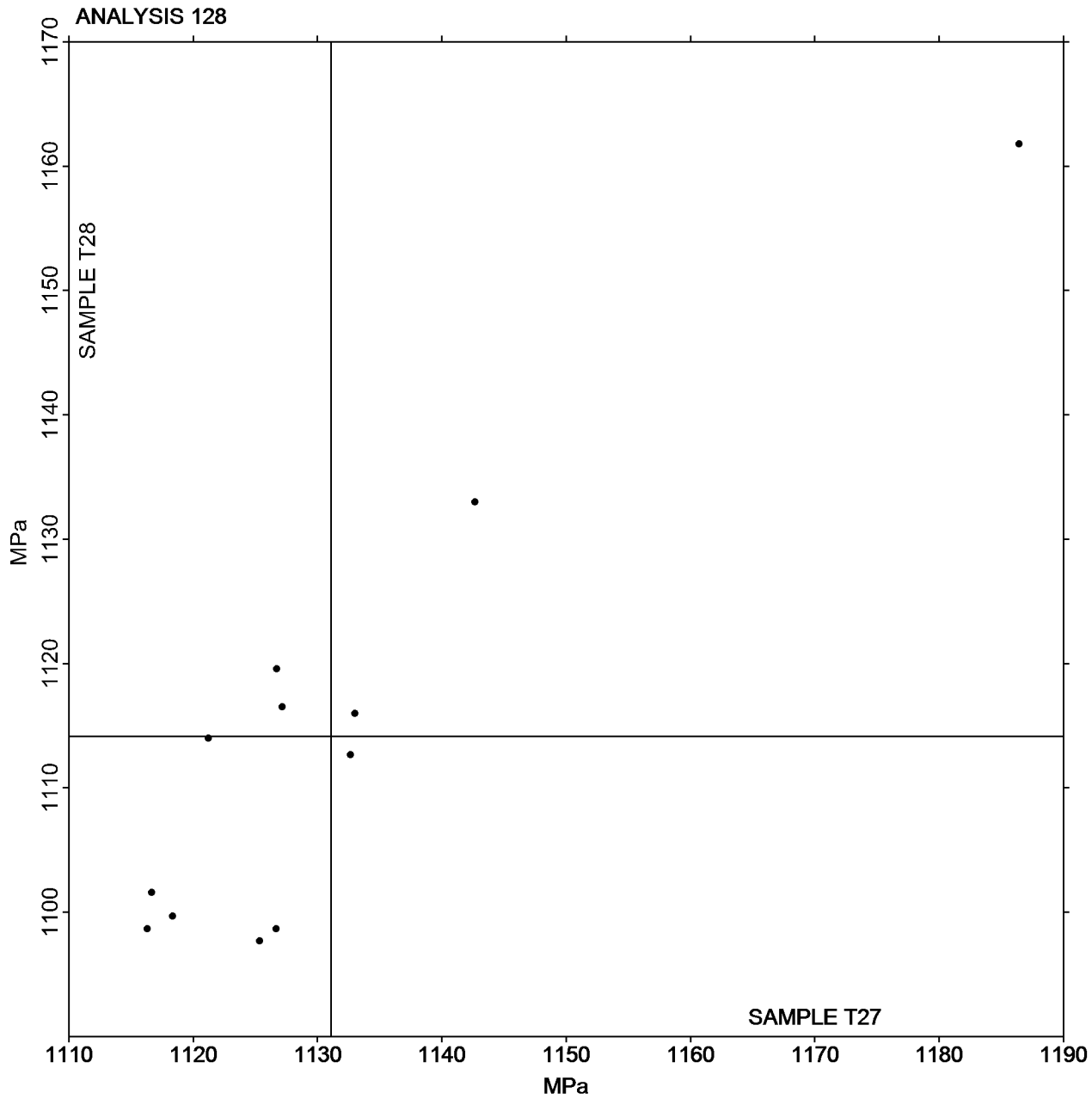
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 128

Fastener Axial Tensile Metric - MPa
ASTM F606M

SAMPLE T27	SAMPLE T28
1,131 MPa	1,114 MPa



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 129

Fastener Double Shear - lb
NASM 1312-13

		Sample Z27			Sample Z28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
23QT2Z		19,200	-87	-0.24	21,733	-61	-0.15	ZZ
3GNGCQ		19,233	-54	-0.15	21,862	67	0.17	ZZ
3Q8DE7		19,227	-60	-0.16	21,736	-58	-0.15	ZZ
43HZBB		19,302	15	0.04	21,905	110	0.28	ZZ
4EV846		19,292	5	0.01	21,602	-193	-0.49	ZZ
76FH22		19,404	117	0.32	21,841	47	0.12	ZZ
9M96GP		19,418	131	0.36	22,077	282	0.71	ZZ
9U9TLP		18,774	-513	-1.40	21,221	-574	-1.44	ZZ
A288XX		19,141	-146	-0.40	21,649	-145	-0.37	ZZ
AGF6W3		19,233	-54	-0.15	21,670	-124	-0.31	ZZ
BUNN99		19,235	-52	-0.14	21,808	13	0.03	ZZ
BXM6L3		18,601	-686	-1.87	20,877	-917	-2.31	ZZ
C7BJFY		19,400	113	0.31	21,817	22	0.06	ZZ
JP22R8		18,975	-312	-0.85	21,354	-440	-1.11	ZZ
LQM2M3		19,959	672	1.83	22,457	663	1.67	ZZ
P8LJM3		19,570	283	0.77	22,067	273	0.69	ZZ
R696WU	X	11,197	-8,090	-22.03	13,087	-8,707	-21.91	ZZ
RDF3JX		19,397	110	0.30	21,967	172	0.43	ZZ
VCBBTC	*	20,304	1,017	2.77	22,806	1,012	2.55	ZZ
VVT6PT	*	18,993	-294	-0.80	21,833	39	0.10	ZZ
XWVUZZ		19,405	118	0.32	21,818	24	0.06	ZZ
ZRE4PQ		18,967	-320	-0.87	21,583	-211	-0.53	ZZ

Summary Statistics

	Sample Z27		Sample Z28	
Grand Means	19,287	lb	21,794	lb
Stnd Dev Btwn Labs	367	lb	397	lb

Samples Z27 , Z28 : Fastener size 3/8-16 x 2 1/4, 3/8-16 x 2 3/4

Statistics based on 21 of 22 reporting participants

Comments on assigned Data Flags for Analysis #129

WebCode	Flag	Analyst Comment
R696WU	X	Data for both samples are low. Possible Systematic error.

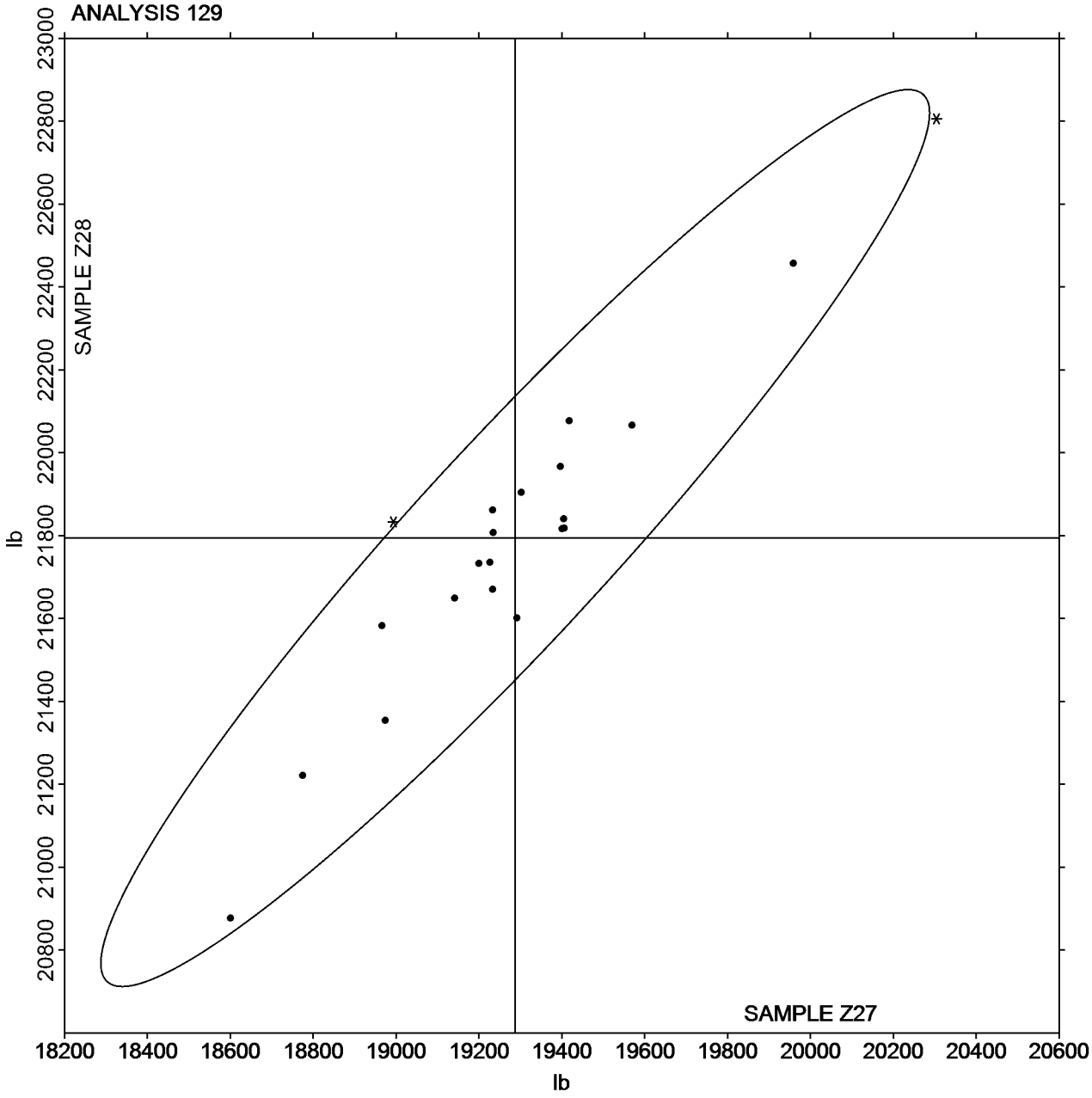
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 129

Fastener Double Shear - lb
NASM 1312-13

SAMPLE Z27	SAMPLE Z28
19,287 lb	21,794 lb



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 130

Tensile Strength (Flat Steel) - ksi
ASTM E8

		Sample F27			Sample F28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
2D6HPR		55.80	-0.70	-0.74	48.50	0.23	0.36	ZZ
2UUQNB		57.00	0.50	0.53	49.00	0.73	1.13	ZZ
3MARPP	*	53.78	-2.72	-2.86	47.76	-0.51	-0.79	ZZ
3N4HV4		57.78	1.28	1.34	47.89	-0.38	-0.58	ZZ
4BWE6K		56.13	-0.37	-0.39	48.59	0.32	0.49	ZZ
62E368		55.90	-0.60	-0.63	48.10	-0.17	-0.26	ZZ
6ZKCZT		55.80	-0.70	-0.74	47.90	-0.37	-0.57	ZZ
762U2B		56.90	0.40	0.42	49.00	0.73	1.13	ZZ
7APJGD		55.40	-1.10	-1.16	47.40	-0.87	-1.34	ZZ
7L8NLA		56.68	0.18	0.19	48.47	0.20	0.31	ZZ
7P9PPD		56.20	-0.30	-0.31	48.80	0.53	0.82	ZZ
7QFQA6		57.80	1.30	1.37	49.30	1.03	1.59	ZZ
7RB7M3		56.70	0.20	0.21	48.50	0.23	0.36	ZZ
7XE776	X	51.46	-5.04	-5.30	48.83	0.57	0.87	ZZ
8FFB7L		57.19	0.69	0.73	47.22	-1.05	-1.62	ZZ
8VBZDX		56.27	-0.23	-0.24	48.96	0.69	1.07	ZZ
8ZWR67		56.86	0.36	0.37	48.44	0.17	0.27	ZZ
936RWB		57.90	1.40	1.47	48.50	0.23	0.36	ZZ
99QHMC		55.20	-1.30	-1.37	48.20	-0.07	-0.11	ZZ
9CBAEN		57.49	0.99	1.04	48.33	0.06	0.10	ZZ
A2KXM8		55.60	-0.90	-0.95	48.90	0.63	0.98	ZZ
A8BNFB		55.40	-1.10	-1.16	48.50	0.23	0.36	ZZ
ADKYCC		56.60	0.10	0.11	47.50	-0.77	-1.19	ZZ
AFA9KR	*	58.00	1.50	1.58	47.00	-1.27	-1.96	ZZ
APDQ9W		56.50	0.00	0.00	47.10	-1.17	-1.80	ZZ
AWDXJA		55.35	-1.15	-1.21	47.57	-0.69	-1.07	ZZ
AZDHDG		55.69	-0.80	-0.85	48.73	0.46	0.72	ZZ
B3YPBH		56.01	-0.49	-0.51	48.09	-0.18	-0.28	ZZ
BAFT9P		58.10	1.60	1.69	49.10	0.83	1.28	ZZ
BHAY4C		56.79	0.29	0.30	49.11	0.85	1.31	ZZ
BHCJX8		57.53	1.03	1.08	48.85	0.58	0.89	ZZ
BL9Q3V		55.90	-0.60	-0.63	47.60	-0.67	-1.03	ZZ
BVAC8A		58.50	2.00	2.11	48.60	0.33	0.51	ZZ
C89NE2		56.19	-0.31	-0.33	48.08	-0.19	-0.29	ZZ
D6VDZA		55.50	-1.00	-1.05	47.80	-0.47	-0.72	ZZ
DJT78Q		56.59	0.09	0.10	47.99	-0.28	-0.44	ZZ
EEJ7RE		56.45	-0.05	-0.05	48.15	-0.12	-0.18	ZZ
EH2N8W		57.61	1.11	1.17	47.98	-0.29	-0.45	ZZ
ELXKLP		54.77	-1.73	-1.82	48.57	0.30	0.46	ZZ
EMQZNT		57.10	0.60	0.63	48.00	-0.27	-0.41	ZZ
EPCQRH		55.00	-1.50	-1.58	47.00	-1.27	-1.96	ZZ
EPZDLF		56.80	0.30	0.32	47.70	-0.57	-0.88	ZZ
F3GWB2		55.80	-0.70	-0.74	48.60	0.33	0.51	ZZ
FX96Q4		58.10	1.60	1.69	49.30	1.03	1.59	ZZ
FZF4QX	X	58.60	2.10	2.21	51.00	2.73	4.22	ZZ
G2H6ZZ		54.40	-2.10	-2.21	48.10	-0.17	-0.26	ZZ
GNTPXF		56.74	0.24	0.25	48.33	0.06	0.09	ZZ
HGTHZR		55.37	-1.13	-1.19	47.99	-0.28	-0.43	ZZ
HUGVTT		56.38	-0.12	-0.13	47.94	-0.33	-0.51	ZZ

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 130

Tensile Strength (Flat Steel) - ksi
ASTM E8

		Sample F27			Sample F28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
JDKTUZ	*	58.23	1.73	1.82	49.83	1.57	2.42	ZZ
JG8YJ4		55.55	-0.95	-1.00	48.30	0.03	0.05	ZZ
JY9JLY		56.00	-0.50	-0.53	47.90	-0.37	-0.57	ZZ
JZKD66		55.70	-0.80	-0.84	48.00	-0.27	-0.41	ZZ
KQPZE4		57.46	0.96	1.01	49.25	0.98	1.52	ZZ
KWJ789		58.02	1.52	1.60	49.60	1.33	2.06	ZZ
LBWYA6		54.40	-2.10	-2.21	47.90	-0.37	-0.57	ZZ
LZTAJ9		56.86	0.36	0.37	48.73	0.46	0.72	ZZ
MDDBE7		54.97	-1.53	-1.61	48.15	-0.12	-0.18	ZZ
N4MHRU		57.00	0.50	0.53	49.60	1.33	2.06	ZZ
NDA4R4		57.00	0.50	0.53	47.50	-0.77	-1.19	ZZ
NKTEWR		57.30	0.80	0.84	48.60	0.33	0.51	ZZ
NTP3W6		57.00	0.50	0.53	48.00	-0.27	-0.41	ZZ
NXZ3CG		56.30	-0.20	-0.21	49.00	0.73	1.13	ZZ
P6WQDZ		57.00	0.50	0.53	47.90	-0.37	-0.57	ZZ
PUZ4KN		56.50	0.00	0.00	48.70	0.43	0.67	ZZ
PYQALR		56.50	0.00	0.00	47.70	-0.57	-0.88	ZZ
Q4TNYF		56.90	0.40	0.42	48.60	0.33	0.51	ZZ
Q6MYPU		56.40	-0.10	-0.10	49.00	0.73	1.13	ZZ
QDMPJZ		57.07	0.57	0.60	49.24	0.97	1.50	ZZ
QEYLRP		56.90	0.40	0.42	49.44	1.18	1.82	ZZ
R6RUUL		56.70	0.20	0.21	48.50	0.23	0.36	ZZ
REXCRJ		57.05	0.56	0.58	47.63	-0.64	-0.98	ZZ
RF79ZN		57.55	1.05	1.11	47.72	-0.55	-0.85	ZZ
RKHGHX		57.11	0.61	0.64	48.91	0.64	0.99	ZZ
RM7MPV		55.80	-0.70	-0.74	47.80	-0.47	-0.72	ZZ
RTBUER		55.45	-1.05	-1.11	48.03	-0.24	-0.37	ZZ
THTPLL		57.48	0.98	1.03	48.83	0.56	0.86	ZZ
TNHARM		58.20	1.70	1.79	48.60	0.33	0.51	ZZ
TRDH2H		56.50	0.00	0.00	48.30	0.03	0.05	ZZ
TW9T7V		56.57	0.07	0.07	48.81	0.54	0.83	ZZ
TYDXQQ		56.60	0.10	0.11	48.80	0.53	0.82	ZZ
TYX44F		56.94	0.44	0.47	47.12	-1.15	-1.77	ZZ
UGAH6P		55.60	-0.90	-0.95	47.60	-0.67	-1.03	ZZ
VRRJZQ		56.27	-0.23	-0.25	46.82	-1.45	-2.23	ZZ
WGNCRP		56.50	0.00	0.00	47.20	-1.07	-1.65	ZZ
WPTZA9		55.45	-1.05	-1.10	47.08	-1.19	-1.84	ZZ
WVNM83		57.02	0.52	0.54	48.59	0.32	0.49	ZZ
X8RX39		57.15	0.65	0.68	48.62	0.35	0.54	ZZ
XEU8BM		57.30	0.80	0.84	47.50	-0.77	-1.19	ZZ
XPDR6E	X	58.90	2.40	2.53	50.70	2.43	3.76	ZZ
XV2H7F		56.30	-0.20	-0.21	48.60	0.33	0.51	ZZ
YDFCDG		56.01	-0.49	-0.51	47.89	-0.38	-0.58	ZZ
YP72DM		56.10	-0.40	-0.42	47.79	-0.48	-0.74	ZZ
ZCYYKH		57.12	0.62	0.65	48.03	-0.23	-0.36	ZZ
ZTPJ7R		54.40	-2.10	-2.21	48.10	-0.17	-0.26	ZZ
ZYQYDQ		56.13	-0.37	-0.39	48.22	-0.05	-0.08	ZZ
ZZ6RKT		56.20	-0.30	-0.31	48.40	0.13	0.20	ZZ
ZZKMT2		57.35	0.85	0.90	48.02	-0.25	-0.38	ZZ

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 130

Tensile Strength (Flat Steel) - ksi
ASTM E8

Summary Statistics

	Sample F27		Sample F28	
Grand Means	56.50	ksi	48.27	ksi
Stnd Dev Btwn Labs	0.95	ksi	0.65	ksi

Samples F27 , F28 : AISI 1010 - 16G , AISI 1010 - 14G

Statistics based on 95 of 98 reporting participants

Comments on assigned Data Flags for Analysis #130

WebCode	Flag	Analyst Comment
7XE776	X	Data for sample F27 are low.
FZF4QX	X	Data for sample F28 are high.
XPDR6E	X	Data for sample F28 are high.

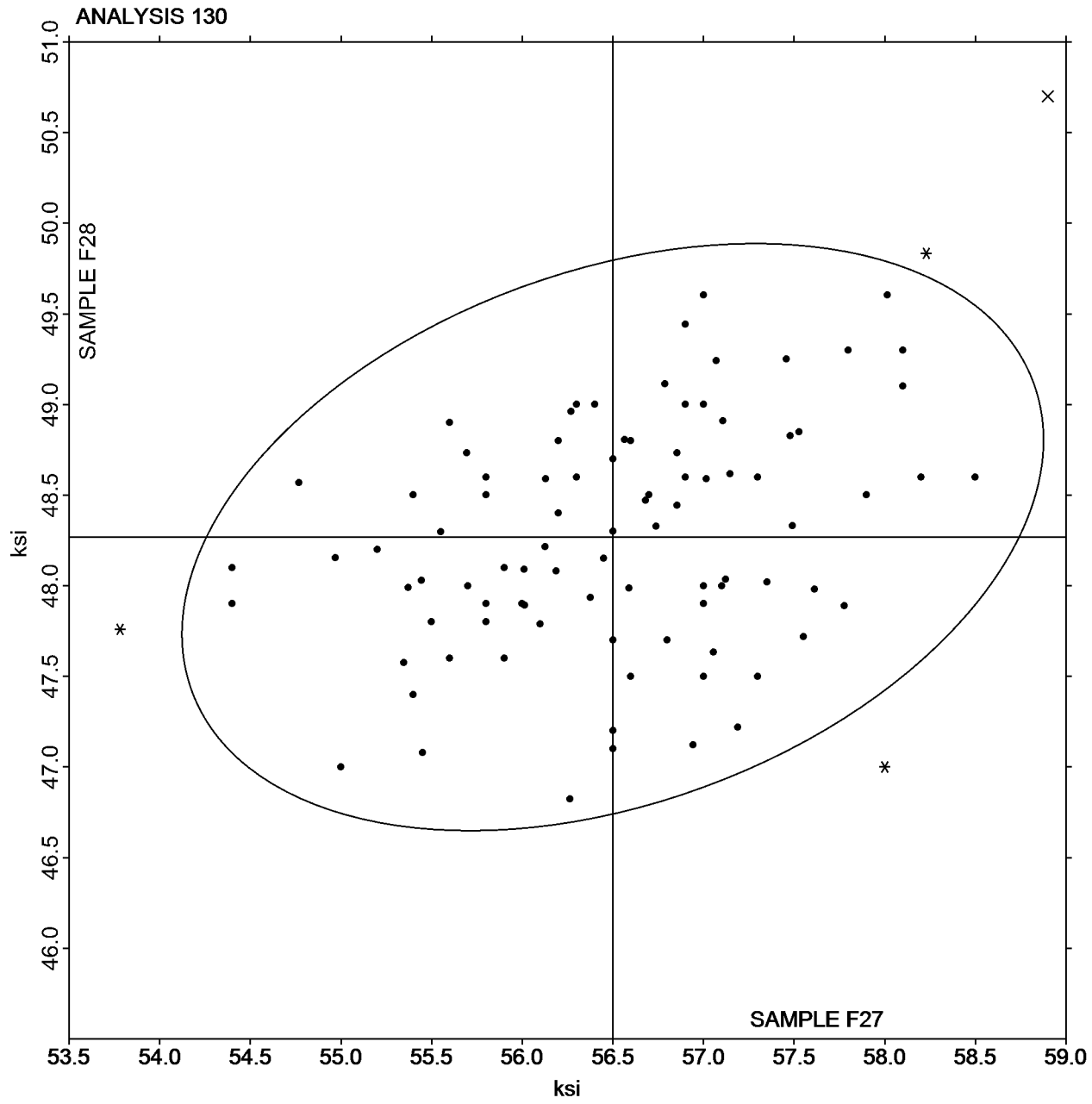
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 130

Tensile Strength (Flat Steel) - ksi
ASTM E8

SAMPLE F27	SAMPLE F28
56.50 ksi	48.27 ksi



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 131

Yield Strength (Flat Steel) - ksi
ASTM E8

		Sample F27			Sample F28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
2D6HPR		37.60	-0.93	-0.83	30.50	0.19	0.20	ZZ
2UUQNB		38.90	0.37	0.33	31.80	1.49	1.58	ZZ
3MARPP		38.53	0.01	0.01	31.30	0.99	1.05	ZZ
3N4HV4	X	42.70	4.18	3.75	31.57	1.27	1.34	ZZ
4BWE6K		38.29	-0.24	-0.21	30.02	-0.28	-0.30	ZZ
62E368		37.30	-1.23	-1.10	29.90	-0.41	-0.43	ZZ
6ZKCZT		37.10	-1.43	-1.28	29.90	-0.41	-0.43	ZZ
762U2B		38.40	-0.13	-0.11	30.50	0.19	0.20	ZZ
7APJGD		37.00	-1.53	-1.37	29.80	-0.51	-0.54	ZZ
7L8NLA		38.87	0.34	0.31	30.68	0.37	0.39	ZZ
7P9PPD		38.20	-0.33	-0.29	31.30	0.99	1.05	ZZ
7QFQA6		38.90	0.37	0.33	30.90	0.59	0.63	ZZ
7RB7M3		38.50	-0.03	-0.02	31.00	0.69	0.73	ZZ
7XE776		38.84	0.31	0.28	30.23	-0.08	-0.09	ZZ
8FFB7L		40.76	2.23	2.00	30.52	0.21	0.22	ZZ
8VBZDX		38.32	-0.21	-0.19	30.66	0.35	0.37	ZZ
8ZWR67		38.44	-0.09	-0.08	30.46	0.15	0.16	ZZ
936RWB		40.90	2.37	2.13	30.00	-0.31	-0.32	ZZ
99QHMC	X	34.20	-4.33	-3.88	31.10	0.79	0.84	ZZ
9CBAEN		39.57	1.05	0.94	30.37	0.07	0.07	ZZ
A2KXM8		37.60	-0.93	-0.83	31.60	1.29	1.36	ZZ
A8BNFB		37.70	-0.83	-0.74	30.80	0.49	0.52	ZZ
ADKYCC	*	36.90	-1.63	-1.46	27.60	-2.71	-2.86	ZZ
AFA9KR		38.50	-0.03	-0.02	28.80	-1.51	-1.59	ZZ
APDQ9W	*	39.50	0.97	0.87	28.40	-1.91	-2.01	ZZ
AWDXJA		37.80	-0.73	-0.65	29.73	-0.58	-0.61	ZZ
AZDHDG		37.28	-1.25	-1.12	30.31	0.01	0.01	ZZ
B3YPBH		39.17	0.64	0.58	31.89	1.58	1.67	ZZ
BAFT9P	X	41.60	3.07	2.76	36.10	5.79	6.11	ZZ
BHAY4C		40.14	1.61	1.45	32.40	2.09	2.21	ZZ
BHCJX8		39.55	1.02	0.91	30.79	0.48	0.51	ZZ
BL9Q3V		37.70	-0.83	-0.74	29.40	-0.91	-0.96	ZZ
BVAC8A	*	36.10	-2.43	-2.18	30.90	0.59	0.63	ZZ
C89NE2		37.58	-0.95	-0.85	29.75	-0.56	-0.59	ZZ
D6VDZA		37.20	-1.33	-1.19	29.90	-0.41	-0.43	ZZ
DJT78Q		38.22	-0.30	-0.27	29.13	-1.18	-1.25	ZZ
EEJ7RE		39.55	1.02	0.92	31.42	1.11	1.17	ZZ
EH2N8W		40.37	1.85	1.66	29.73	-0.58	-0.61	ZZ
ELXKLP	X	45.66	7.14	6.41	32.22	1.91	2.01	ZZ
EMQZNT		37.70	-0.83	-0.74	29.00	-1.31	-1.38	ZZ
EPCQRH		38.20	-0.33	-0.29	30.30	-0.01	-0.01	ZZ
EPZDLF		38.10	-0.43	-0.38	28.80	-1.51	-1.59	ZZ
F3GWB2		37.40	-1.13	-1.01	30.50	0.19	0.20	ZZ
FX96Q4	X	39.50	0.97	0.87	58.10	27.79	29.33	ZZ
FZF4QX	X	33.20	-5.33	-4.78	28.70	-1.61	-1.70	ZZ
G2H6ZZ		36.00	-2.53	-2.27	30.00	-0.31	-0.32	ZZ
GNTPXF		37.83	-0.70	-0.63	29.52	-0.79	-0.84	ZZ
HGTHZR		38.77	0.24	0.22	30.54	0.23	0.25	ZZ
HUGVTT		40.15	1.62	1.45	31.01	0.70	0.74	ZZ

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 131

Yield Strength (Flat Steel) - ksi
ASTM E8

		Sample F27			Sample F28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
JDKTUZ		40.45	1.92	1.73	32.47	2.16	2.28	ZZ
JG8YJ4		37.42	-1.11	-0.99	30.17	-0.14	-0.15	ZZ
JY9JLY		37.60	-0.93	-0.83	29.90	-0.41	-0.43	ZZ
JZKD66		37.50	-1.03	-0.92	30.20	-0.11	-0.11	ZZ
KQPZE4		39.17	0.64	0.58	31.01	0.70	0.74	ZZ
KWJ789		39.89	1.36	1.22	32.63	2.33	2.45	ZZ
LBWYA6		38.30	-0.23	-0.20	31.20	0.89	0.94	ZZ
LZTAJ9		38.73	0.20	0.18	30.60	0.30	0.31	ZZ
MDDBE7		38.29	-0.23	-0.21	31.21	0.90	0.95	ZZ
N4MHRU		39.89	1.36	1.22	31.62	1.31	1.38	ZZ
NDA4R4		39.30	0.77	0.69	29.50	-0.81	-0.85	ZZ
NKTEWR		39.60	1.07	0.96	30.10	-0.21	-0.22	ZZ
NTP3W6		38.50	-0.03	-0.02	29.80	-0.51	-0.54	ZZ
NXZ3CG		37.50	-1.03	-0.92	30.50	0.19	0.20	ZZ
P6WQDZ		37.30	-1.23	-1.10	30.10	-0.21	-0.22	ZZ
PUZ4KN		37.60	-0.93	-0.83	29.90	-0.41	-0.43	ZZ
PYQALR	X	43.80	5.27	4.73	29.80	-0.51	-0.54	ZZ
Q4TNYF		38.40	-0.13	-0.11	30.30	-0.01	-0.01	ZZ
Q6MYPU		38.40	-0.13	-0.11	30.20	-0.11	-0.11	ZZ
QDMPJZ		38.81	0.28	0.25	30.58	0.27	0.29	ZZ
QEYLRP		38.19	-0.34	-0.30	30.82	0.51	0.54	ZZ
R6RUUL		37.90	-0.63	-0.56	29.70	-0.61	-0.64	ZZ
REXCRJ		39.94	1.41	1.26	29.42	-0.89	-0.94	ZZ
RF79ZN		40.10	1.58	1.41	29.44	-0.86	-0.91	ZZ
RKHGHX		39.52	0.99	0.89	31.33	1.02	1.08	ZZ
RM7MPV		37.80	-0.73	-0.65	29.30	-1.01	-1.06	ZZ
RTBUER		37.59	-0.93	-0.84	30.57	0.26	0.27	ZZ
THTPLL		40.95	2.42	2.18	30.69	0.38	0.40	ZZ
TNHARM	*	41.20	2.67	2.40	30.40	0.09	0.10	ZZ
TRDH2H		38.20	-0.33	-0.29	31.10	0.79	0.84	ZZ
TW9T7V		39.02	0.49	0.44	30.53	0.22	0.24	ZZ
TYDXQQ		37.80	-0.73	-0.65	29.80	-0.51	-0.54	ZZ
TYX44F		36.54	-1.99	-1.79	28.73	-1.58	-1.66	ZZ
UGAH6P		37.60	-0.93	-0.83	29.90	-0.41	-0.43	ZZ
VRRJZQ		40.00	1.47	1.32	30.00	-0.31	-0.32	ZZ
WGNCRP		37.90	-0.63	-0.56	28.80	-1.51	-1.59	ZZ
WPTZA9		36.54	-1.99	-1.78	28.74	-1.57	-1.65	ZZ
WVNM83		38.85	0.33	0.29	30.39	0.08	0.09	ZZ
X8RX39		39.13	0.60	0.54	30.52	0.21	0.22	ZZ
XEU8BM		39.70	1.17	1.05	29.10	-1.21	-1.27	ZZ
XPDR6E		39.80	1.27	1.14	31.50	1.19	1.26	ZZ
XV2H7F		40.00	1.47	1.32	31.90	1.59	1.68	ZZ
YDFCDG		37.96	-0.57	-0.51	29.14	-1.17	-1.23	ZZ
YP72DM		38.39	-0.14	-0.12	29.56	-0.75	-0.79	ZZ
ZCYYKH		38.89	0.36	0.33	29.80	-0.50	-0.53	ZZ
ZTPJ7R		38.90	0.37	0.33	32.20	1.89	2.00	ZZ
ZYQYDQ		38.87	0.34	0.30	30.64	0.34	0.36	ZZ
ZZ6RKT		38.00	-0.53	-0.47	31.00	0.69	0.73	ZZ
ZZKMT2		38.65	0.12	0.11	28.91	-1.40	-1.47	ZZ

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 131

Yield Strength (Flat Steel) - ksi
ASTM E8

Summary Statistics

	Sample F27		Sample F28	
Grand Means	38.53	ksi	30.31	ksi
Stnd Dev Btwn Labs	1.11	ksi	0.95	ksi

Samples F27 , F28 : AISI 1010 - 16G , AISI 1010 - 14G

Statistics based on 91 of 98 reporting participants

Comments on assigned Data Flags for Analysis #131

WebCode	Flag	Analyst Comment
3N4HV4	X	Data for sample F27 are high.
99QHMC	X	Data for sample F27 are low.
BAFT9P	X	Data for both samples are high.
ELXKLP	X	Data for sample F27 are high.
FX96Q4	X	Data for sample F28 are high.
FZF4QX	X	Data for sample F27 are low.
PYQALR	X	Data for sample F27 are high.

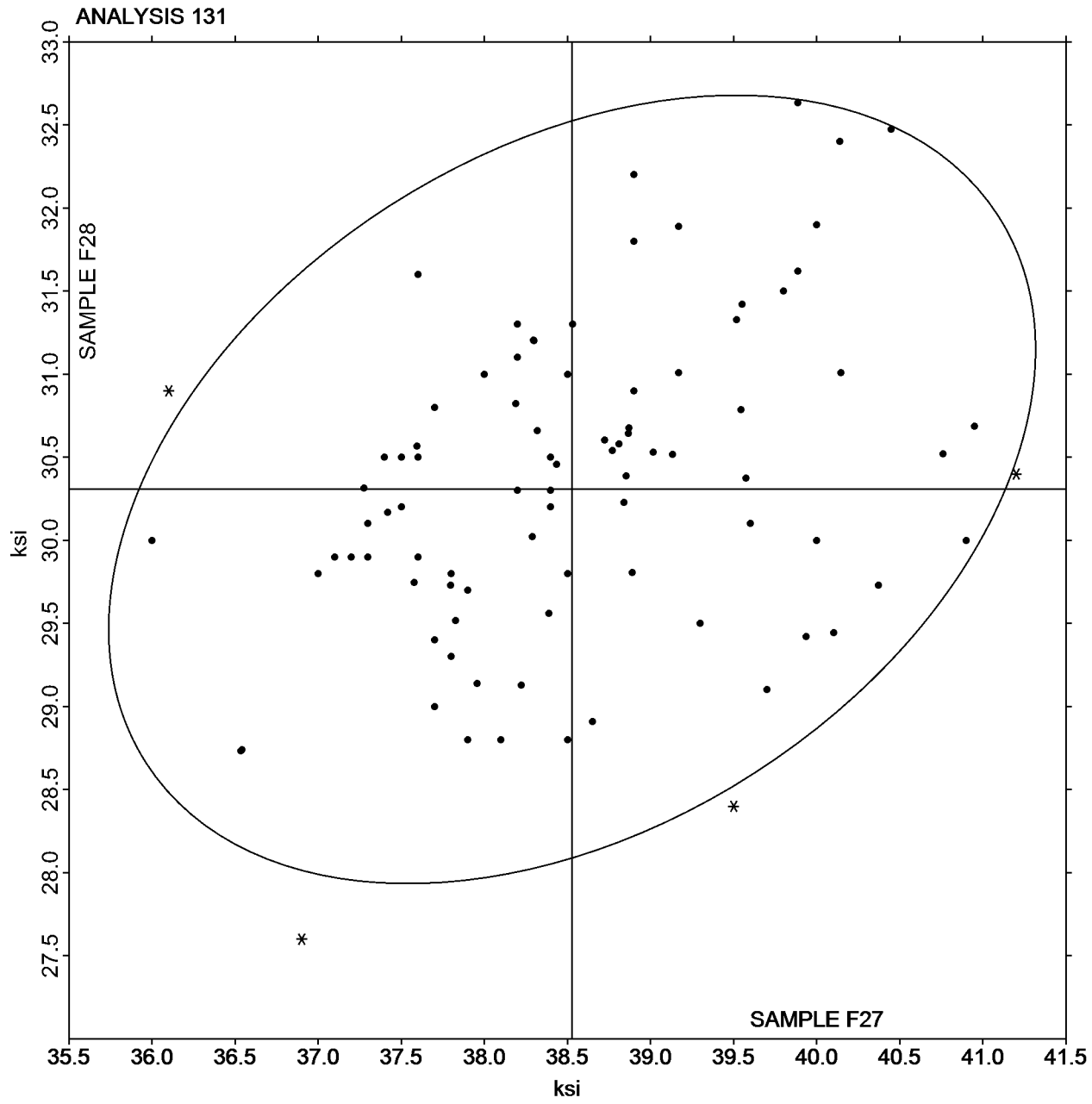
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 131

Yield Strength (Flat Steel) - ksi
ASTM E8

SAMPLE F27	SAMPLE F28
38.53 ksi	30.31 ksi



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 132

Elongation (Flat Steel) - Percent Increase
ASTM E8

		Sample F27			Sample F28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
2D6HPR		29.40	-1.31	-0.82	39.10	-2.15	-1.08	ZZ
2UUQNB	X	30.00	-0.71	-0.45	45.00	3.75	1.89	ZZ
3MARPP	X	28.00	-2.71	-1.71	43.00	1.75	0.88	ZZ
3N4HV4		28.47	-2.24	-1.41	39.93	-1.32	-0.67	ZZ
4BWE6K		32.00	1.29	0.82	41.00	-0.25	-0.13	ZZ
62E368		30.90	0.19	0.12	42.00	0.75	0.38	ZZ
6ZKCZT	X	29.00	-1.71	-1.08	43.10	1.85	0.93	ZZ
762U2B		33.50	2.79	1.76	44.10	2.85	1.44	ZZ
7APJGD	X	35.00	4.29	2.71	48.10	6.85	3.45	ZZ
7L8NLA		30.70	-0.01	0.00	42.20	0.95	0.48	ZZ
7P9PPD		33.90	3.19	2.01	44.00	2.75	1.39	ZZ
7QFQA6		30.00	-0.71	-0.45	42.00	0.75	0.38	ZZ
7RB7M3		31.40	0.69	0.44	41.30	0.05	0.02	ZZ
7XE776		31.30	0.59	0.37	41.60	0.35	0.18	ZZ
8FFB7L		32.00	1.29	0.82	45.00	3.75	1.89	ZZ
8VBZDX		30.35	-0.36	-0.22	40.70	-0.55	-0.28	ZZ
8ZWR67		28.80	-1.91	-1.20	39.20	-2.05	-1.03	ZZ
936RWB		29.50	-1.21	-0.76	39.00	-2.25	-1.13	ZZ
99QHMC		32.80	2.09	1.32	44.50	3.25	1.64	ZZ
9CBAEN		31.00	0.29	0.19	42.00	0.75	0.38	ZZ
A2KXM8		27.80	-2.91	-1.83	37.20	-4.05	-2.04	ZZ
A8BNFB		31.00	0.29	0.19	42.00	0.75	0.38	ZZ
ADKYCC		28.30	-2.41	-1.52	38.10	-3.15	-1.59	ZZ
AFA9KR	X	34.50	3.79	2.39	40.50	-0.75	-0.38	ZZ
APDQ9W		32.00	1.29	0.82	42.00	0.75	0.38	ZZ
AWDXJA		31.00	0.29	0.19	41.00	-0.25	-0.13	ZZ
AZDHDG		32.60	1.89	1.19	41.80	0.55	0.28	ZZ
B3YPBH		33.00	2.29	1.45	45.00	3.75	1.89	ZZ
BAFT9P		30.00	-0.71	-0.45	39.00	-2.25	-1.13	ZZ
BHAY4C		29.57	-1.14	-0.72	38.81	-2.44	-1.23	ZZ
BHCJX8		30.20	-0.51	-0.32	40.40	-0.85	-0.43	ZZ
BL9Q3V		31.00	0.29	0.19	42.40	1.15	0.58	ZZ
BVAC8A		28.70	-2.01	-1.26	40.20	-1.05	-0.53	ZZ
C89NE2		28.07	-2.64	-1.66	38.45	-2.80	-1.41	ZZ
D6VDZA		31.00	0.29	0.19	41.00	-0.25	-0.13	ZZ
DJT78Q		30.40	-0.31	-0.19	38.60	-2.65	-1.34	ZZ
EEJ7RE	*	35.00	4.29	2.71	46.00	4.75	2.39	ZZ
EH2N8W		32.10	1.39	0.88	43.40	2.15	1.08	ZZ
ELXKLP		32.50	1.79	1.13	42.10	0.85	0.43	ZZ
EMQZNT		30.90	0.19	0.12	40.90	-0.35	-0.18	ZZ
EPCQRH		32.00	1.29	0.82	42.20	0.95	0.48	ZZ
EPZDLF		29.80	-0.91	-0.57	41.40	0.15	0.08	ZZ
F3GWB2		32.20	1.49	0.94	41.20	-0.05	-0.03	ZZ
FX96Q4		29.03	-1.68	-1.06	38.70	-2.55	-1.29	ZZ
FZF4QX	X	37.90	7.19	4.53	46.00	4.75	2.39	ZZ
G2H6ZZ		30.20	-0.51	-0.32	40.50	-0.75	-0.38	ZZ
GNTPXF		31.03	0.32	0.20	41.32	0.07	0.04	ZZ
HGTHZR		30.20	-0.51	-0.32	42.00	0.75	0.38	ZZ
HUGVTT		30.60	-0.11	-0.07	41.30	0.05	0.02	ZZ

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 132

Elongation (Flat Steel) - Percent Increase
ASTM E8

		Sample F27			Sample F28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
JDKTUZ		32.50	1.79	1.13	42.50	1.25	0.63	ZZ
JG8YJ4		30.00	-0.71	-0.45	40.00	-1.25	-0.63	ZZ
JY9JLY		33.00	2.29	1.45	45.00	3.75	1.89	ZZ
JZKD66		31.00	0.29	0.19	42.00	0.75	0.38	ZZ
KQPZE4		27.95	-2.76	-1.74	38.07	-3.18	-1.60	ZZ
KWJ789		30.00	-0.71	-0.45	40.00	-1.25	-0.63	ZZ
LBWYA6		31.20	0.49	0.31	42.20	0.95	0.48	ZZ
LZTAJ9		28.00	-2.71	-1.71	38.70	-2.55	-1.29	ZZ
MDDBE7		30.34	-0.37	-0.23	40.38	-0.87	-0.44	ZZ
N4MHRU	X	23.03	-7.68	-4.84	31.45	-9.80	-4.94	ZZ
NDA4R4		29.00	-1.71	-1.08	39.00	-2.25	-1.13	ZZ
NKTEWR		29.50	-1.21	-0.76	40.00	-1.25	-0.63	ZZ
NTP3W6		33.00	2.29	1.45	43.20	1.95	0.98	ZZ
NXZ3CG		29.00	-1.71	-1.08	39.00	-2.25	-1.13	ZZ
P6WQDZ	X	32.30	1.59	1.00	47.40	6.15	3.10	ZZ
PUZ4KN		29.30	-1.41	-0.89	37.90	-3.35	-1.69	ZZ
PYQALR		31.40	0.69	0.44	41.80	0.55	0.28	ZZ
Q4TNYF		33.30	2.59	1.63	43.60	2.35	1.18	ZZ
Q6MYPU		33.30	2.59	1.63	43.00	1.75	0.88	ZZ
QDMPJZ		30.09	-0.62	-0.39	41.69	0.44	0.22	ZZ
QEYLRP		29.20	-1.51	-0.95	38.40	-2.85	-1.44	ZZ
R6RUUL		31.17	0.46	0.29	41.88	0.63	0.32	ZZ
REXCRJ		31.90	1.19	0.75	43.60	2.35	1.18	ZZ
RF79ZN		31.29	0.58	0.37	41.06	-0.19	-0.10	ZZ
RKHGHX		29.15	-1.56	-0.98	40.19	-1.06	-0.53	ZZ
RM7MPV		30.18	-0.53	-0.33	40.50	-0.75	-0.38	ZZ
RTBUER		33.00	2.29	1.45	45.00	3.75	1.89	ZZ
THTPLL	X	29.20	-1.51	-0.95	34.40	-6.85	-3.45	ZZ
TNHARM		29.20	-1.51	-0.95	40.20	-1.05	-0.53	ZZ
TRDH2H		29.40	-1.31	-0.82	41.50	0.25	0.13	ZZ
TW9T7V		31.00	0.29	0.19	40.10	-1.15	-0.58	ZZ
TYDXQQ	*	29.00	-1.71	-1.08	42.00	0.75	0.38	ZZ
TYX44F		31.80	1.09	0.69	42.80	1.55	0.78	ZZ
UGAH6P	X	33.70	2.99	1.89	47.80	6.55	3.30	ZZ
VRRJZQ		29.10	-1.61	-1.01	40.60	-0.65	-0.33	ZZ
WGNCRP		27.00	-3.71	-2.34	37.20	-4.05	-2.04	ZZ
WPTZA9		32.10	1.39	0.88	43.60	2.35	1.18	ZZ
WVNM83		29.50	-1.21	-0.76	39.60	-1.65	-0.83	ZZ
X8RX39		30.50	-0.21	-0.13	40.50	-0.75	-0.38	ZZ
XEU8BM	X	23.80	-6.91	-4.35	35.50	-5.75	-2.90	ZZ
XPDR6E		31.80	1.09	0.69	42.40	1.15	0.58	ZZ
XV2H7F		29.60	-1.11	-0.70	38.60	-2.65	-1.34	ZZ
YDFCDG		32.44	1.73	1.09	42.32	1.07	0.54	ZZ
YP72DM		29.00	-1.71	-1.08	39.00	-2.25	-1.13	ZZ
ZCYYKH		29.80	-0.91	-0.57	41.90	0.65	0.33	ZZ
ZTPJ7R		30.60	-0.11	-0.07	43.10	1.85	0.93	ZZ
ZYQYDQ		32.10	1.39	0.88	43.97	2.72	1.37	ZZ
ZZ6RKT		32.00	1.29	0.82	41.40	0.15	0.08	ZZ
ZZKMT2	*	31.53	0.82	0.52	44.73	3.47	1.75	ZZ

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 132

Elongation (Flat Steel) - Percent Increase
ASTM E8

Summary Statistics

	Sample F27		Sample F28	
Grand Means	30.71	Percent	41.25	Percent
Stnd Dev Btwn Labs	1.59	Percent	1.98	Percent

Samples F27 , F28 : AISI 1010 - 16G , AISI 1010 - 14G

Statistics based on 87 of 98 reporting participants

Comments on assigned Data Flags for Analysis #132

WebCode	Flag	Analyst Comment
2UUQNB	X	Inconsistent in testing between samples.
3MARPP	X	Inconsistent in testing between samples.
6ZKCZT	X	Inconsistent in testing between samples.
7APJGD	X	Data for sample F28 are high.
AFA9KR	X	Inconsistent in testing between samples.
FZF4QX	X	Data for sample F27 are high.
N4MHRU	X	Data for both samples are low.
P6WQDZ	X	Data for sample F28 are high.
THTPLL	X	Data for sample F28 are low.
UGAH6P	X	Data for sample F28 are high.
XEU8BM	X	Data for both samples are low.

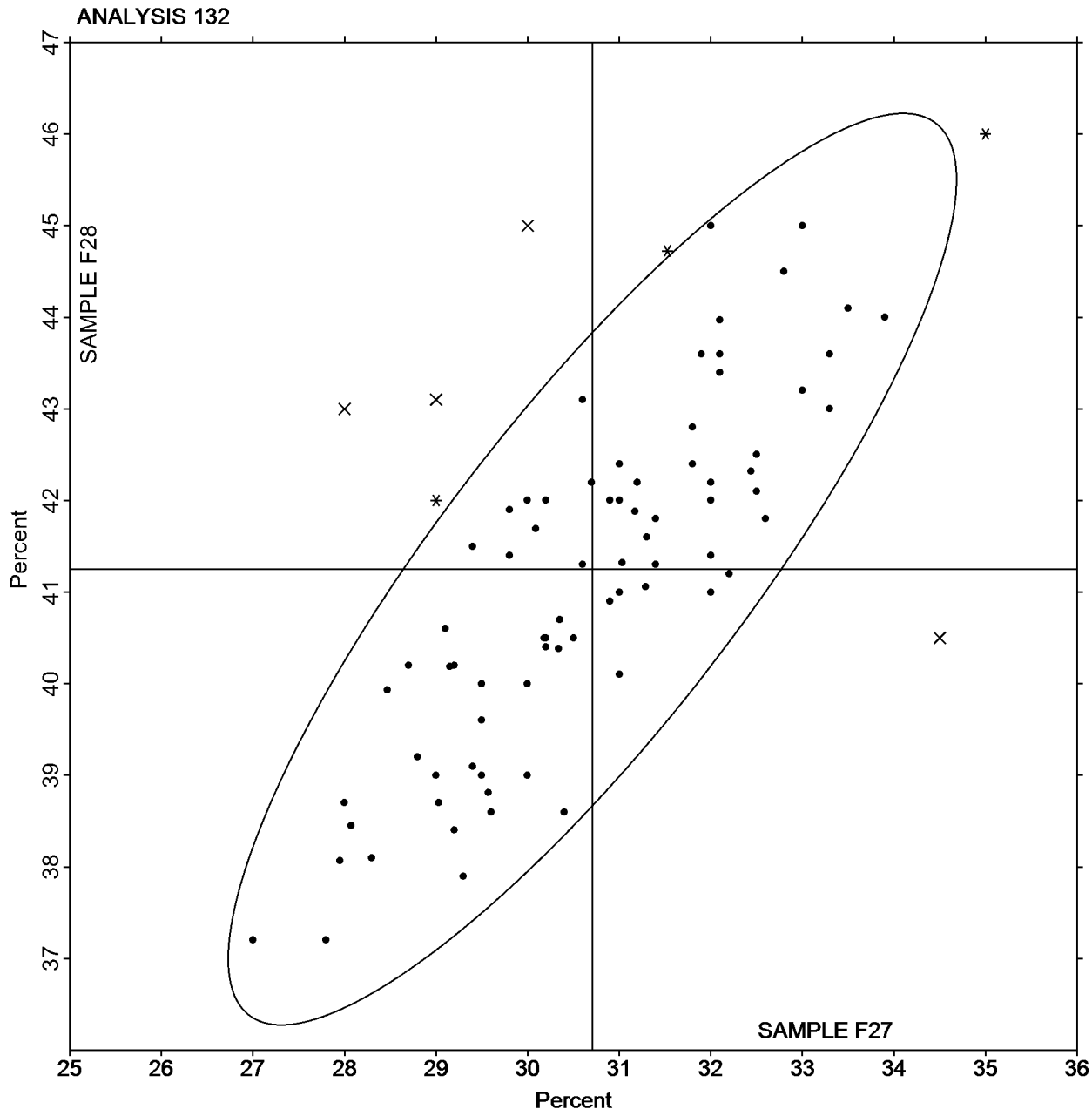
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 132

Elongation (Flat Steel) - Percent Increase
ASTM E8

SAMPLE F27	SAMPLE F28
30.71 Percent	41.25 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 136

Rockwell Superficial Hardness (30N Scale)
ASTM E18

		Sample E27			Sample E28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
28XLUB		74.96	0.24	0.37	71.50	0.04	0.06	ZZ
2VP7Z8		75.16	0.44	0.68	72.12	0.66	1.05	ZZ
39A9W6		74.46	-0.26	-0.40	71.18	-0.28	-0.45	ZZ
3GNGCQ		75.04	0.32	0.49	71.46	0.00	0.00	ZZ
3JD2P6		74.90	0.18	0.28	71.56	0.10	0.15	ZZ
3Q8DE7		75.10	0.38	0.58	71.50	0.04	0.06	ZZ
3X7Z9R		75.00	0.28	0.43	71.86	0.40	0.63	ZZ
62E368		74.26	-0.46	-0.71	71.06	-0.40	-0.64	ZZ
6H8MU9		75.28	0.56	0.86	71.96	0.50	0.79	ZZ
6PQG2H		75.00	0.28	0.43	71.20	-0.26	-0.42	ZZ
6VXJW7		74.40	-0.32	-0.49	71.12	-0.34	-0.55	ZZ
7ZPVMV		75.10	0.38	0.58	72.00	0.54	0.85	ZZ
87Q67E	*	73.60	-1.12	-1.73	69.80	-1.66	-2.65	ZZ
8TX6FQ	X	75.52	0.80	1.23	71.00	-0.46	-0.74	ZZ
9WFBKK		74.26	-0.46	-0.71	71.44	-0.02	-0.04	ZZ
A8BNFB		74.60	-0.12	-0.19	70.90	-0.56	-0.90	ZZ
AFLGFT		75.70	0.98	1.51	72.42	0.96	1.52	ZZ
AGF6W3		75.12	0.40	0.62	71.54	0.08	0.12	ZZ
ARKTP7		74.00	-0.72	-1.11	70.80	-0.66	-1.05	ZZ
ARKVEB		74.22	-0.50	-0.77	71.02	-0.44	-0.70	ZZ
BTQKA7		74.40	-0.32	-0.49	71.48	0.02	0.03	ZZ
BUNN99		73.70	-1.02	-1.57	70.22	-1.24	-1.98	ZZ
BVAC8A		75.02	0.30	0.46	71.66	0.20	0.31	ZZ
BWQPA7		75.08	0.36	0.55	71.80	0.34	0.54	ZZ
CHZXL3		75.57	0.85	1.30	71.80	0.33	0.53	ZZ
DCVAQF		73.50	-1.22	-1.88	70.76	-0.70	-1.12	ZZ
DH44VQ		74.00	-0.72	-1.11	70.40	-1.06	-1.69	ZZ
DHXQUU		75.60	0.88	1.36	72.76	1.30	2.06	ZZ
E2AZQ7		73.82	-0.90	-1.39	70.38	-1.08	-1.72	ZZ
EF9YHA		75.60	0.88	1.36	72.08	0.62	0.98	ZZ
EMQZNT		74.54	-0.18	-0.28	71.30	-0.16	-0.26	ZZ
EMT3PC		75.38	0.66	1.02	71.54	0.08	0.12	ZZ
EV6G88		74.80	0.08	0.12	71.60	0.14	0.22	ZZ
GTLQYU		75.50	0.78	1.20	72.20	0.74	1.17	ZZ
GYHBA6	*	73.60	-1.12	-1.73	71.24	-0.22	-0.35	ZZ
H236JV		74.84	0.12	0.18	71.14	-0.32	-0.51	ZZ
H4QETW		73.30	-1.42	-2.19	70.56	-0.90	-1.44	ZZ
HAARMP		75.58	0.86	1.33	72.04	0.58	0.92	ZZ
LYFEKG		75.72	1.00	1.54	72.42	0.96	1.52	ZZ
MAGPLH		74.68	-0.04	-0.06	71.82	0.36	0.57	ZZ
MQ2MXP		75.56	0.84	1.29	72.36	0.90	1.43	ZZ
N6EHP7		74.50	-0.22	-0.34	71.44	-0.02	-0.04	ZZ
NDA4R4		73.54	-1.18	-1.82	70.24	-1.22	-1.95	ZZ
P8LJM3		73.90	-0.82	-1.27	70.54	-0.92	-1.47	ZZ
PH43Z8		74.84	0.12	0.18	71.58	0.12	0.19	ZZ
PHNBZH		75.48	0.76	1.17	72.22	0.76	1.20	ZZ
PVBKK3		75.32	0.60	0.92	72.00	0.54	0.85	ZZ
PZ4MN3		74.68	-0.04	-0.06	71.54	0.08	0.12	ZZ
R696WU		74.20	-0.52	-0.80	71.34	-0.12	-0.20	ZZ

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 136

Rockwell Superficial Hardness (30N Scale)
ASTM E18

WebCode	Data Flag	Sample E27 Lab Mean	Sample E27 Diff. from Grand Mean	Sample E27 CPV	Sample E28 Lab Mean	Sample E28 Diff. from Grand Mean	Sample E28 CPV	Instr Code
RC7MYP		73.88	-0.84	-1.30	70.78	-0.68	-1.09	ZZ
RM7MPV		74.90	0.18	0.28	71.74	0.28	0.44	ZZ
U8KK8B		74.70	-0.02	-0.03	71.20	-0.26	-0.42	ZZ
U8MLZH		74.70	-0.02	-0.03	71.80	0.34	0.54	ZZ
V7M3D8		74.84	0.12	0.18	71.38	-0.08	-0.13	ZZ
VVT6PT		74.24	-0.48	-0.74	71.58	0.12	0.19	ZZ
Y6J6LF		73.87	-0.85	-1.31	70.82	-0.64	-1.02	ZZ
YKHJYB		75.48	0.76	1.17	71.84	0.38	0.60	ZZ
ZCZXEQ		75.28	0.56	0.86	71.50	0.04	0.06	ZZ
ZQJKL4		75.08	0.36	0.55	72.52	1.06	1.68	ZZ
ZZ6RKT		75.14	0.42	0.65	72.26	0.80	1.27	ZZ

Summary Statistics

	Sample E27		Sample E28	
Grand Means	74.72	HR30N	71.46	HR30N
Stnd Dev Btwn Labs	0.65	HR30N	0.63	HR30N

Samples E27 , E28 : Steel

Statistics based on 59 of 60 reporting participants

Comments on assigned Data Flags for Analysis #136

WebCode	Flag	Analyst Comment
8TX6FQ	X	Inconsistent in testing between samples. Inconsistent within the determinations of sample E28.

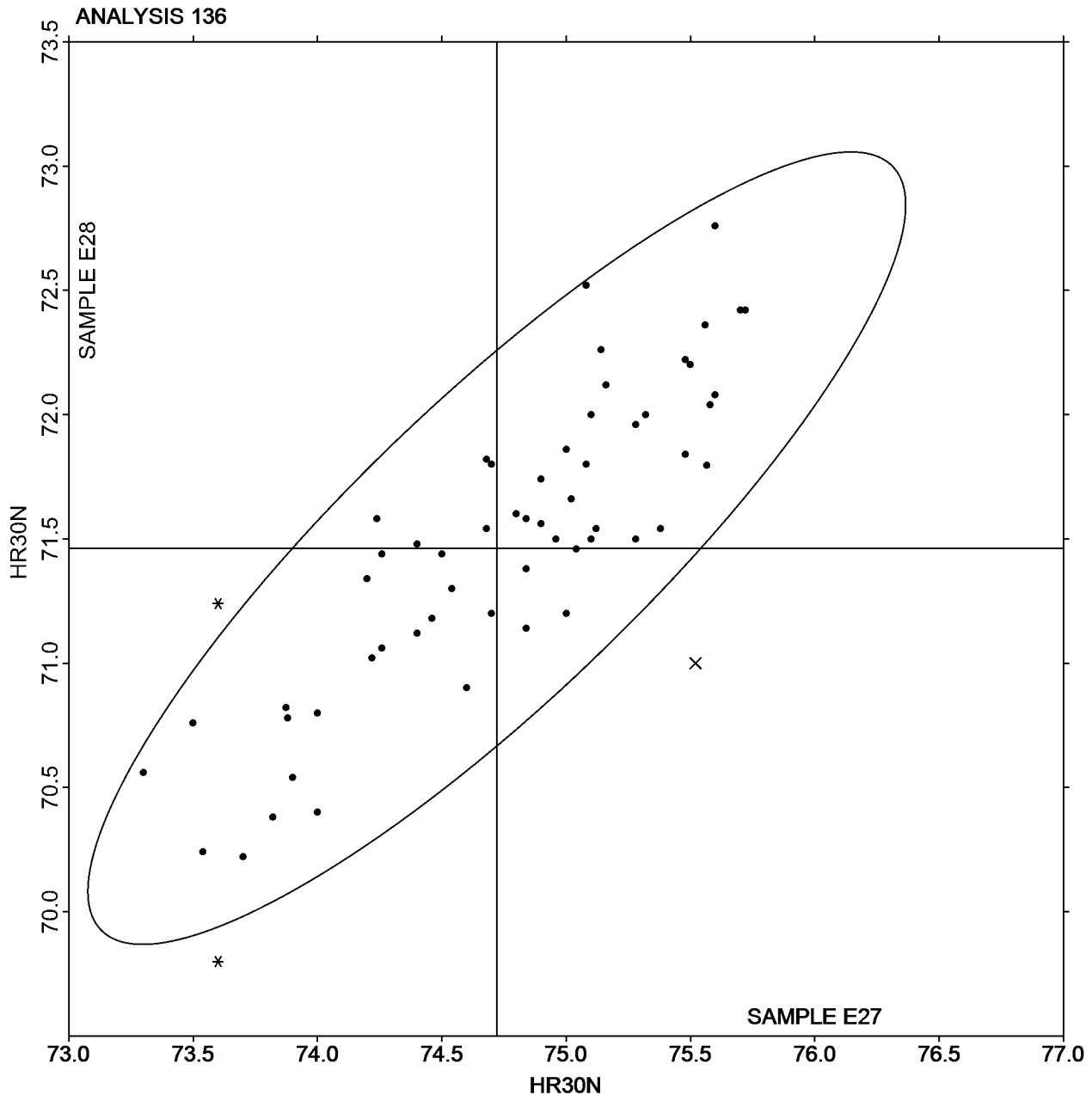
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 136

Rockwell Superficial Hardness (30N Scale)
ASTM E18

SAMPLE E27	SAMPLE E28
74.72 HR30N	71.46 HR30N



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 145

Total Case Depth - inches
SAE J423, SAE J78

		Sample C27			Sample C28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
2VP7Z8		0.0156	-0.0023	-0.73	0.0300	-0.0009	-0.22	ZZ
43HZBB		0.0135	-0.0045	-1.41	0.0255	-0.0055	-1.33	ZZ
62E368	X	0.00448	-0.0135	-4.21	0.0117	-0.0193	-4.66	ZZ
6C6GDJ		0.0117	-0.0062	-1.94	0.0277	-0.0033	-0.79	ZZ
6EQNUD		0.0180	0.0000	0.01	0.0330	0.0020	0.49	ZZ
6GVQP4		0.0114	-0.0066	-2.06	0.0239	-0.0071	-1.70	ZZ
6PQG2H	X	0.0166	-0.0014	-0.43	0.0540	0.0230	5.56	ZZ
6VXJW7		0.0217	0.0038	1.18	0.0321	0.0012	0.28	ZZ
7ZPVMV	X	0.0242	0.0062	1.95	0.0136	-0.0174	-4.19	ZZ
8KQRQP		0.0163	-0.0017	-0.52	0.0306	-0.0003	-0.08	ZZ
8UU4MJ		0.0208	0.0028	0.89	0.0288	-0.0022	-0.52	ZZ
936RWB		0.0202	0.0022	0.69	0.0331	0.0021	0.51	ZZ
9ZE4J6		0.0200	0.0020	0.64	0.0322	0.0012	0.30	ZZ
A288XX		0.0147	-0.0033	-1.02	0.0262	-0.0048	-1.15	ZZ
A2KXM8		0.0238	0.0058	1.82	0.0368	0.0058	1.40	ZZ
A8BNFB		0.0180	0.0001	0.03	0.0335	0.0025	0.60	ZZ
B4NNDZ		0.0156	-0.0024	-0.74	0.0264	-0.0046	-1.10	ZZ
BQPBN6		0.0169	-0.0010	-0.32	0.0303	-0.0007	-0.16	ZZ
BTQKA7		0.0168	-0.0012	-0.36	0.0294	-0.0016	-0.38	ZZ
BUNN99		0.0148	-0.0032	-1.00	0.0268	-0.0042	-1.00	ZZ
BWQPA7		0.0146	-0.0034	-1.06	0.0269	-0.0041	-0.99	ZZ
BXM6L3		0.0166	-0.0014	-0.44	0.0266	-0.0044	-1.07	ZZ
D478GX		0.0128	-0.0052	-1.61	0.0238	-0.0072	-1.73	ZZ
DFEWDE		0.0194	0.0014	0.44	0.0303	-0.0007	-0.16	ZZ
E3Y2EN		0.0136	-0.0044	-1.36	0.0276	-0.0034	-0.81	ZZ
EPCQRH		0.0210	0.0031	0.96	0.0385	0.0075	1.82	ZZ
F3GWB2	*	0.0115	-0.0065	-2.03	0.0199	-0.0111	-2.68	ZZ
FULU9P		0.0210	0.0031	0.96	0.0324	0.0015	0.35	ZZ
GJ3TAV		0.0200	0.0020	0.64	0.0332	0.0023	0.54	ZZ
GYHBA6		0.0226	0.0046	1.45	0.0370	0.0060	1.46	ZZ
HAARMP		0.0209	0.0029	0.92	0.0366	0.0056	1.36	ZZ
HE69QQ		0.0167	-0.0013	-0.41	0.0320	0.0010	0.25	ZZ
HJXAR6	X	0.0224	0.0044	1.37	0.0259	-0.0051	-1.23	ZZ
JK4PNU		0.0184	0.0005	0.14	0.0301	-0.0009	-0.22	ZZ
JP22R8		0.0202	0.0022	0.69	0.0356	0.0046	1.12	ZZ
JZ62JT		0.0190	0.0010	0.32	0.0353	0.0043	1.04	ZZ
LAZ6KT		0.0164	-0.0016	-0.50	0.0273	-0.0037	-0.88	ZZ
N6EHP7		0.0216	0.0036	1.14	0.0336	0.0026	0.63	ZZ
NDA4R4		0.0154	-0.0026	-0.81	0.0261	-0.0049	-1.19	ZZ
NUYWVP		0.0182	0.0002	0.07	0.0323	0.0013	0.32	ZZ
P6WQDZ		0.0185	0.0005	0.17	0.0332	0.0023	0.54	ZZ
PHNBZH		0.0176	-0.0003	-0.10	0.0311	0.0001	0.03	ZZ
Q3NYYR		0.0195	0.0015	0.48	0.0298	-0.0012	-0.28	ZZ
RTBUER		0.0180	0.0000	0.01	0.0310	0.0000	0.01	ZZ
RYVQPE		0.0190	0.0010	0.32	0.0322	0.0012	0.30	ZZ
T84KGM		0.0210	0.0031	0.96	0.0357	0.0047	1.14	ZZ
V7M3D8	X	0.0186	0.0006	0.19	0.0414	0.0104	2.52	ZZ
VH2NUZ		0.0224	0.0044	1.39	0.0378	0.0068	1.65	ZZ
WKLNTG		0.0203	0.0023	0.72	0.0284	-0.0026	-0.62	ZZ

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 145

Total Case Depth - inches
SAE J423, SAE J78

WebCode	Data Flag	Sample C27 Lab Mean	Sample C27 Diff. from Grand Mean	Sample C27 CPV	Sample C28 Lab Mean	Sample C28 Diff. from Grand Mean	Sample C28 CPV	Instr Code
WLX24Q		0.0242	0.0062	1.95	0.0352	0.0042	1.02	ZZ
ZAB9WD		0.0175	-0.0004	-0.14	0.0338	0.0028	0.68	ZZ
ZCZZ2A	X	0.0308	0.0128	4.01	0.0173	-0.0137	-3.31	ZZ
ZQKHYK	*	0.0166	-0.0014	-0.43	0.0360	0.0051	1.22	ZZ
ZVPQ9G	X	0.0274	0.0094	2.95	0.0496	0.0186	4.50	ZZ

Summary Statistics

	Sample C27		Sample C28	
Grand Means	0.0180	inches	0.0310	inches
Stnd Dev Btwn Labs	0.0032	inches	0.0041	inches

Samples C27 , C28 : Steel

Statistics based on 47 of 54 reporting participants

Comments on assigned Data Flags for Analysis #145

WebCode	Flag	Analyst Comment
62E368	X	Data for both samples are low.
6PQG2H	X	Data for sample C28 are high.
7ZPVMV	X	Data for sample C28 are low. Inconsistent within the determinations of sample C28.
HJXAR6	X	Inconsistent in testing between samples.
V7M3D8	X	Inconsistent in testing between samples.
ZCZZ2A	X	Data for sample C27 are high and data for sample C28 are low.
ZVPQ9G	X	Data for both samples are high.

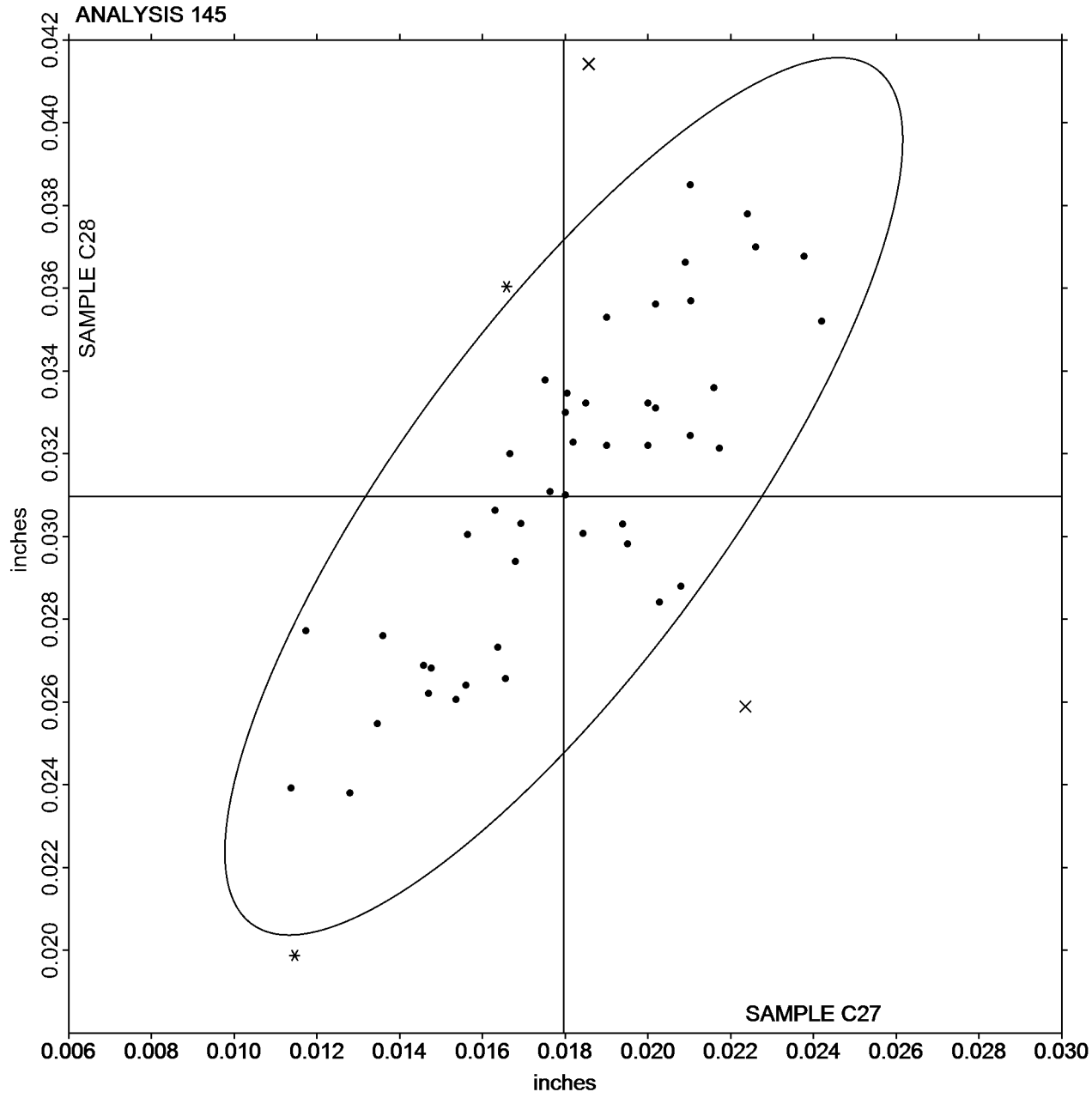
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 145

Total Case Depth - inches
SAE J423, SAE J78

SAMPLE C27	SAMPLE C28
0.0180 inches	0.0310 inches



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 146

Effective Case Depth - inches
SAE J423, SAE J78

		Sample C27			Sample C28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Instr Code
2VP7Z8		0.0161	-0.0002	-0.17	0.0298	0.0009	0.59	ZZ
43HZBB		0.0180	0.0017	1.39	0.0298	0.0009	0.62	ZZ
48DRJ8		0.0160	-0.0003	-0.27	0.0293	0.0004	0.26	ZZ
4D2GXP		0.0157	-0.0006	-0.52	0.0299	0.0010	0.67	ZZ
62E368		0.0170	0.0007	0.55	0.0308	0.0019	1.25	ZZ
6C6GDJ	X	59.22	59.2037	47738	67.54	67.5111	43807	ZZ
6EQNUD		0.0168	0.0005	0.37	0.0291	0.0002	0.16	ZZ
6GVQP4		0.0173	0.0010	0.81	0.0299	0.0010	0.67	ZZ
6VXJW7		0.0173	0.0010	0.81	0.0295	0.0006	0.42	ZZ
7ZPVMV	X	0.0250	0.0087	7.01	0.0170	-0.0119	-7.78	ZZ
8GPQQR		0.0176	0.0013	1.05	0.0300	0.0011	0.71	ZZ
8KQRQP		0.0166	0.0003	0.24	0.0299	0.0010	0.67	ZZ
8UU4MJ		0.0170	0.0007	0.55	0.0292	0.0003	0.20	ZZ
9ZE4J6		0.0148	-0.0015	-1.23	0.0278	-0.0011	-0.71	ZZ
A288XX		0.0143	-0.0020	-1.63	0.0268	-0.0021	-1.37	ZZ
A8BNFB		0.0163	0.0000	-0.01	0.0307	0.0018	1.18	ZZ
B4NNDZ		0.0158	-0.0005	-0.42	0.0262	-0.0027	-1.76	ZZ
BQ2EQV		0.0182	0.0019	1.55	0.0296	0.0007	0.44	ZZ
BQPBN6		0.0171	0.0008	0.65	0.0306	0.0017	1.09	ZZ
BTQKA7		0.0144	-0.0019	-1.55	0.0284	-0.0005	-0.32	ZZ
BUNN99		0.0166	0.0003	0.23	0.0308	0.0019	1.25	ZZ
BWQPA7		0.0146	-0.0017	-1.40	0.0278	-0.0011	-0.74	ZZ
BXM6L3		0.0158	-0.0005	-0.42	0.0299	0.0010	0.65	ZZ
D478GX		0.0152	-0.0011	-0.91	0.0278	-0.0011	-0.71	ZZ
DCVAQF		0.0172	0.0009	0.71	0.0289	0.0000	0.00	ZZ
DFEWDE		0.0167	0.0004	0.33	0.0284	-0.0005	-0.30	ZZ
E3Y2EN		0.0180	0.0017	1.36	0.0302	0.0013	0.86	ZZ
EPCQRH		0.0168	0.0005	0.40	0.0300	0.0011	0.71	ZZ
F3GWB2		0.0146	-0.0017	-1.39	0.0261	-0.0028	-1.85	ZZ
FULU9P		0.0191	0.0028	2.27	0.0308	0.0019	1.24	ZZ
G2H6ZZ		0.0147	-0.0017	-1.34	0.0277	-0.0012	-0.78	ZZ
GJ3TAV		0.0158	-0.0005	-0.40	0.0294	0.0006	0.37	ZZ
GYHBA6		0.0144	-0.0019	-1.55	0.0294	0.0005	0.33	ZZ
HAARMP		0.0140	-0.0023	-1.89	0.0278	-0.0011	-0.73	ZZ
HE69QQ		0.0146	-0.0017	-1.39	0.0268	-0.0021	-1.37	ZZ
HJXAR6		0.0168	0.0005	0.41	0.0294	0.0005	0.30	ZZ
JK4PNU		0.0171	0.0008	0.64	0.0265	-0.0024	-1.55	ZZ
JP22R8		0.0160	-0.0003	-0.26	0.0288	-0.0001	-0.06	ZZ
JZ62JT		0.0162	-0.0001	-0.10	0.0294	0.0005	0.33	ZZ
K3N3TT		0.0169	0.0006	0.46	0.0277	-0.0012	-0.78	ZZ
LAZ6KT		0.0150	-0.0013	-1.03	0.0272	-0.0017	-1.13	ZZ
MB84G2		0.0177	0.0013	1.08	0.0315	0.0026	1.72	ZZ
N6EHP7		0.0140	-0.0023	-1.87	0.0264	-0.0025	-1.63	ZZ
NDA4R4		0.0176	0.0013	1.05	0.0297	0.0008	0.54	ZZ
NUYWVP		0.0182	0.0019	1.55	0.0318	0.0029	1.90	ZZ
P6WQDZ		0.0157	-0.0007	-0.53	0.0305	0.0016	1.04	ZZ
P8LJM3		0.0165	0.0002	0.18	0.0268	-0.0021	-1.40	ZZ
PHNBZH		0.0177	0.0014	1.11	0.0306	0.0017	1.14	ZZ
PMUDFJ		0.0164	0.0000	0.03	0.0296	0.0007	0.44	ZZ

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 146

Effective Case Depth - inches
SAE J423, SAE J78

WebCode	Data Flag	Sample C27 Lab Mean	Sample C27 Diff. from Grand Mean	Sample C27 CPV	Sample C28 Lab Mean	Sample C28 Diff. from Grand Mean	Sample C28 CPV	Instr Code
Q3NYYR		0.0168	0.0004	0.36	0.0288	-0.0001	-0.06	ZZ
RD262Q		0.0161	-0.0002	-0.14	0.0295	0.0006	0.42	ZZ
RM7MPV		0.0164	0.0001	0.06	0.0268	-0.0021	-1.37	ZZ
RTBUER		0.0148	-0.0015	-1.23	0.0274	-0.0015	-0.98	ZZ
RTR9JF		0.0176	0.0013	1.06	0.0299	0.0010	0.67	ZZ
RYVQPE		0.0154	-0.0009	-0.74	0.0276	-0.0013	-0.84	ZZ
T84KGM		0.0184	0.0020	1.64	0.0312	0.0023	1.49	ZZ
TVYK43		0.0168	0.0005	0.39	0.0308	0.0019	1.25	ZZ
V7M3D8		0.0143	-0.0020	-1.64	0.0276	-0.0013	-0.83	ZZ
WKLNTG		0.0174	0.0011	0.87	0.0288	-0.0001	-0.06	ZZ
WLX24Q		0.0160	-0.0003	-0.26	0.0278	-0.0011	-0.71	ZZ
XKHZUW		0.0160	-0.0003	-0.26	0.0262	-0.0027	-1.76	ZZ
ZAB9WD		0.0169	0.0006	0.50	0.0301	0.0012	0.82	ZZ
ZCZZ2A	X	0.0270	0.0107	8.66	0.0146	-0.0143	-9.35	ZZ
ZQKHYK		0.0151	-0.0012	-0.95	0.0278	-0.0011	-0.74	ZZ
ZVPQ9G	*	0.0174	0.0011	0.87	0.0260	-0.0029	-1.89	ZZ

Summary Statistics

	Sample C27		Sample C28	
Grand Means	0.0163	inches	0.0289	inches
Stnd Dev Btwn Labs	0.0012	inches	0.0015	inches

Samples C27 , C28 : Steel

Statistics based on 62 of 65 reporting participants

Comments on assigned Data Flags for Analysis #146

WebCode	Flag	Analyst Comment
6C6GDJ	X	Extreme Data.
7ZPVMV	X	Data for sample C27 are high and data for sample C28 are low. Inconsistent within the determinations of sample C27.
ZCZZ2A	X	Data for sample C27 are high and data for sample C28 are low.

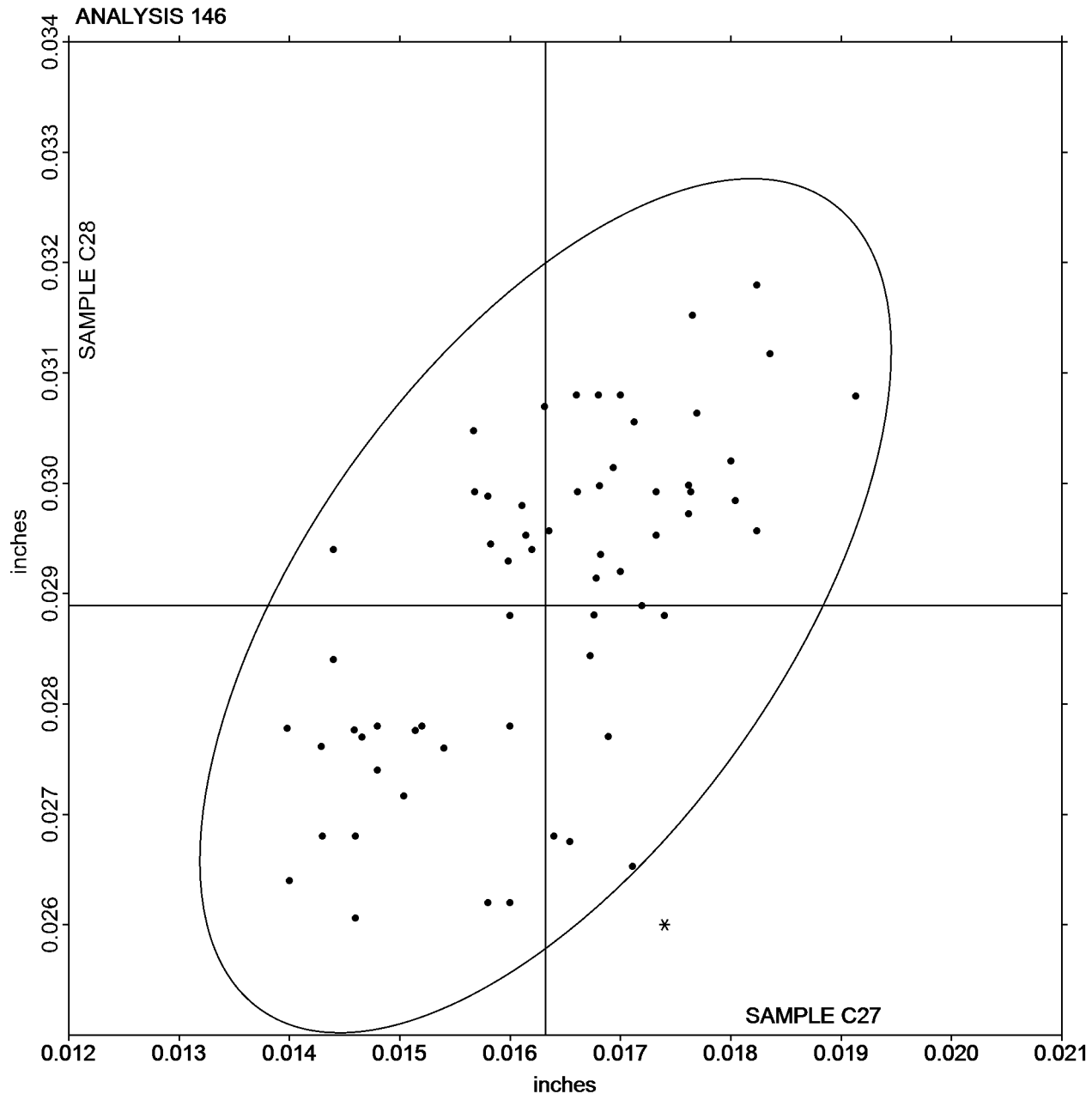
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 146

Effective Case Depth - inches
SAE J423, SAE J78

SAMPLE C27	SAMPLE C28
0.0163 inches	0.0289 inches



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 147

Grain Size (Stainless Steel) - ASTM Grain Size Number (G)
ASTM E112, ASTM E1382

		Sample Y27			Sample Y28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
3WWNWH		6.42	0.73	1.02	10.10	1.07	1.22	Comparison
4Q3DVH		5.80	0.11	0.15	9.20	0.17	0.19	Comparison
62E368	*	6.00	0.31	0.44	11.50	2.47	2.81	Comparison
6VXJW7		5.50	-0.19	-0.27	8.90	-0.13	-0.15	Comparison
7QFQA6		6.00	0.31	0.44	10.00	0.97	1.10	N/A
8CWNMR		7.00	1.31	1.84	8.80	-0.23	-0.26	Comparison
8UU4MJ		4.50	-1.19	-1.67	9.40	0.37	0.42	Comparison
936RWB		6.12	0.43	0.60	9.10	0.07	0.08	Abrams Three-Circle
9PHTF4		6.06	0.37	0.51	9.87	0.84	0.96	Automatic Image Analysis
9R4U34		5.00	-0.69	-0.97	7.90	-1.13	-1.28	Comparison
9U9TLP		5.40	-0.29	-0.41	7.60	-1.43	-1.62	Comparison
BHAY4C		5.70	0.01	0.01	8.90	-0.13	-0.15	Comparison
BMYFF3	X	8.80	3.11	4.36	6.02	-3.01	-3.42	Heyn Linear Intercept
BTQKA7		6.00	0.31	0.44	9.90	0.87	0.99	Comparison
BUNN99		6.60	0.91	1.28	8.00	-1.03	-1.17	Comparison
DZ2JX3		6.00	0.31	0.44	9.60	0.57	0.65	Comparison
ELXKLP		7.20	1.51	2.12	8.40	-0.63	-0.72	Comparison
F3GWB2		4.70	-0.99	-1.39	10.00	0.97	1.10	Comparison
F74QJH		5.10	-0.59	-0.83	7.90	-1.13	-1.28	Comparison
FQL2KF		5.61	-0.08	-0.11	8.62	-0.41	-0.47	Abrams Three-Circle
FTAMW4		6.00	0.31	0.44	9.40	0.37	0.42	Comparison
GNTL9B		5.41	-0.28	-0.39	9.08	0.05	0.06	Heyn Linear Intercept
GNTPXF		6.69	1.00	1.40	10.05	1.02	1.15	Automatic Image Analysis
HUGVTT		6.02	0.33	0.46	9.02	-0.01	-0.01	General Intercept
JP22R8		5.78	0.09	0.13	9.26	0.23	0.26	Automatic Image Analysis
LAZ6KT		5.00	-0.69	-0.97	8.00	-1.03	-1.17	Comparison
MKE3NH		5.90	0.21	0.30	9.32	0.29	0.33	Abrams Three-Circle
NH2RBB		5.00	-0.69	-0.97	9.50	0.47	0.53	Comparison
P6WQDZ		4.90	-0.79	-1.11	9.00	-0.03	-0.03	Comparison
PH43Z8		4.70	-0.99	-1.39	8.90	-0.13	-0.15	Comparison
PHNBZH		5.00	-0.69	-0.97	8.00	-1.03	-1.17	Comparison
RDF3JX		5.00	-0.69	-0.97	7.50	-1.53	-1.74	N/A
T9KPZK		6.16	0.47	0.66	9.48	0.45	0.51	Abrams Three-Circle
TP8DKU		6.30	0.61	0.86	8.80	-0.23	-0.26	Comparison
TW9T7V		6.76	1.07	1.51	9.89	0.86	0.97	Automatic Image Analysis
UZMK2V		4.70	-0.99	-1.39	8.80	-0.23	-0.26	Comparison
XWVUZZ		4.80	-0.89	-1.25	7.40	-1.63	-1.85	Comparison
XZA29F	X	7.78	2.09	2.94	5.37	-3.66	-4.16	Abrams Three-Circle

Summary Statistics

	Sample Y27		Sample Y28	
Grand Means	5.69	ASTM, G	9.03	ASTM, G
Stnd Dev Btwn Labs	0.71	ASTM, G	0.88	ASTM, G

Samples Y27 , Y28 : AISI 316LVM, AISI 304

Statistics based on 36 of 38 reporting participants

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 147

Grain Size (Stainless Steel) - ASTM Grain Size Number (G)
ASTM E112, ASTM E1382

Comments on assigned Data Flags for Analysis #147

WebCode	Flag	Analyst Comment
BMYFF3	X	Data for sample Y27 are high and data for sample Y28 are low.
XZA29F	X	Data for sample Y27 are high and data for sample Y28 are low.

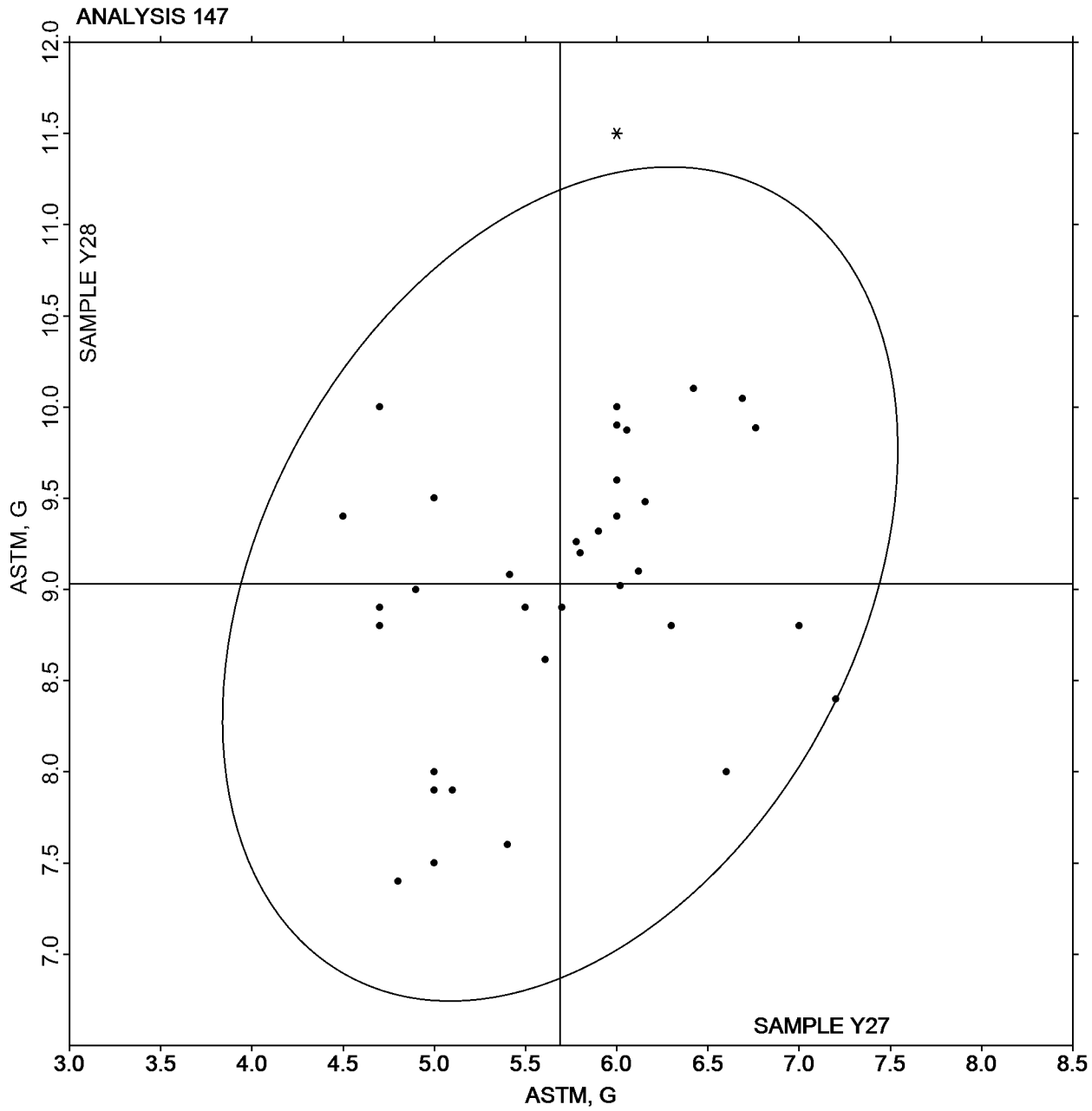
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 147

Grain Size (Stainless Steel) - ASTM Grain Size Number (G)
ASTM E112, ASTM E1382

SAMPLE Y27	SAMPLE Y28
5.69 ASTM, G	9.03 ASTM, G



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 150

Chemical Analysis Element #1: Nickel-based Alloy - Percent
CHROMIUM (Cr)

		Sample J27			Sample J28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2KAK8R		21.07	-0.11	-0.42	21.17	0.00	-0.01	GD
2LXTYM		21.27	0.09	0.31	21.10	-0.07	-0.29	IC
6H8MU9		21.08	-0.10	-0.36	21.05	-0.12	-0.52	WD
6ZKCZT		21.19	0.01	0.04	21.05	-0.12	-0.51	IC
7QFQA6	*	21.53	0.35	1.27	21.70	0.53	2.29	OE
88X3HP		21.46	0.28	1.02	21.40	0.23	1.00	WD
8H2K7R		21.13	-0.05	-0.19	21.11	-0.05	-0.24	XR
8UU4MJ		20.95	-0.24	-0.85	21.14	-0.03	-0.11	DR
936RWB		20.92	-0.26	-0.94	20.99	-0.18	-0.77	OE
9QAAQH		21.13	-0.05	-0.20	20.99	-0.18	-0.77	OE
AR6EKG		21.33	0.15	0.53	21.28	0.11	0.48	ED
BXM6L3		21.23	0.05	0.19	21.22	0.05	0.22	OE
C9FMAP		20.80	-0.38	-1.38	20.90	-0.27	-1.16	OE
DCVAQF		21.58	0.40	1.44	21.43	0.26	1.13	OE
FEAGTD		21.10	-0.08	-0.30	21.12	-0.05	-0.22	WD
FNGNKT		21.13	-0.05	-0.20	21.13	-0.03	-0.15	IC
FQL2KF		21.05	-0.13	-0.46	20.97	-0.20	-0.85	OE
FTAMW4		21.23	0.05	0.16	21.08	-0.09	-0.39	OE
HE69QQ		21.10	-0.08	-0.28	21.14	-0.02	-0.11	OE
HUGVTT	X	22.98	1.80	6.50	22.86	1.69	7.27	GD
JMWTQW	*	20.40	-0.78	-2.82	20.69	-0.48	-2.08	OE
JP22R8		20.96	-0.22	-0.79	20.99	-0.18	-0.77	OE
M3WWMJ	X	22.87	1.69	6.11	22.69	1.52	6.54	OE
RTBUER		21.16	-0.02	-0.07	21.04	-0.13	-0.54	DR
TGTRA6		21.18	0.00	-0.02	21.11	-0.05	-0.24	XR
V9FDLU		21.78	0.60	2.17	21.71	0.54	2.34	OE
VH2NUZ		21.00	-0.18	-0.64	21.10	-0.07	-0.29	OE
VVT6PT		21.19	0.01	0.02	21.09	-0.07	-0.32	OE
XN4A2U		21.60	0.42	1.50	21.52	0.35	1.52	WD
YZNDDJ		21.53	0.35	1.26	21.48	0.31	1.36	OE

Summary Statistics

	Sample J27		Sample J28	
Grand Means	21.18	Percent	21.17	Percent
Stnd Dev Btwn Labs	0.28	Percent	0.23	Percent

Samples J27 , J28 : Alloy X, two different heats

Statistics based on 28 of 30 reporting participants

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 150

Chemical Analysis Element #1: Nickel-based Alloy - Percent
CHROMIUM (Cr)

Comments on assigned Data Flags for Analysis #150

WebCode	Flag	Analyst Comment
HUGVTT	X	Data for both samples are high. Possible Systematic error.
M3WWMJ	X	Data for both samples are high. Possible Systematic error.

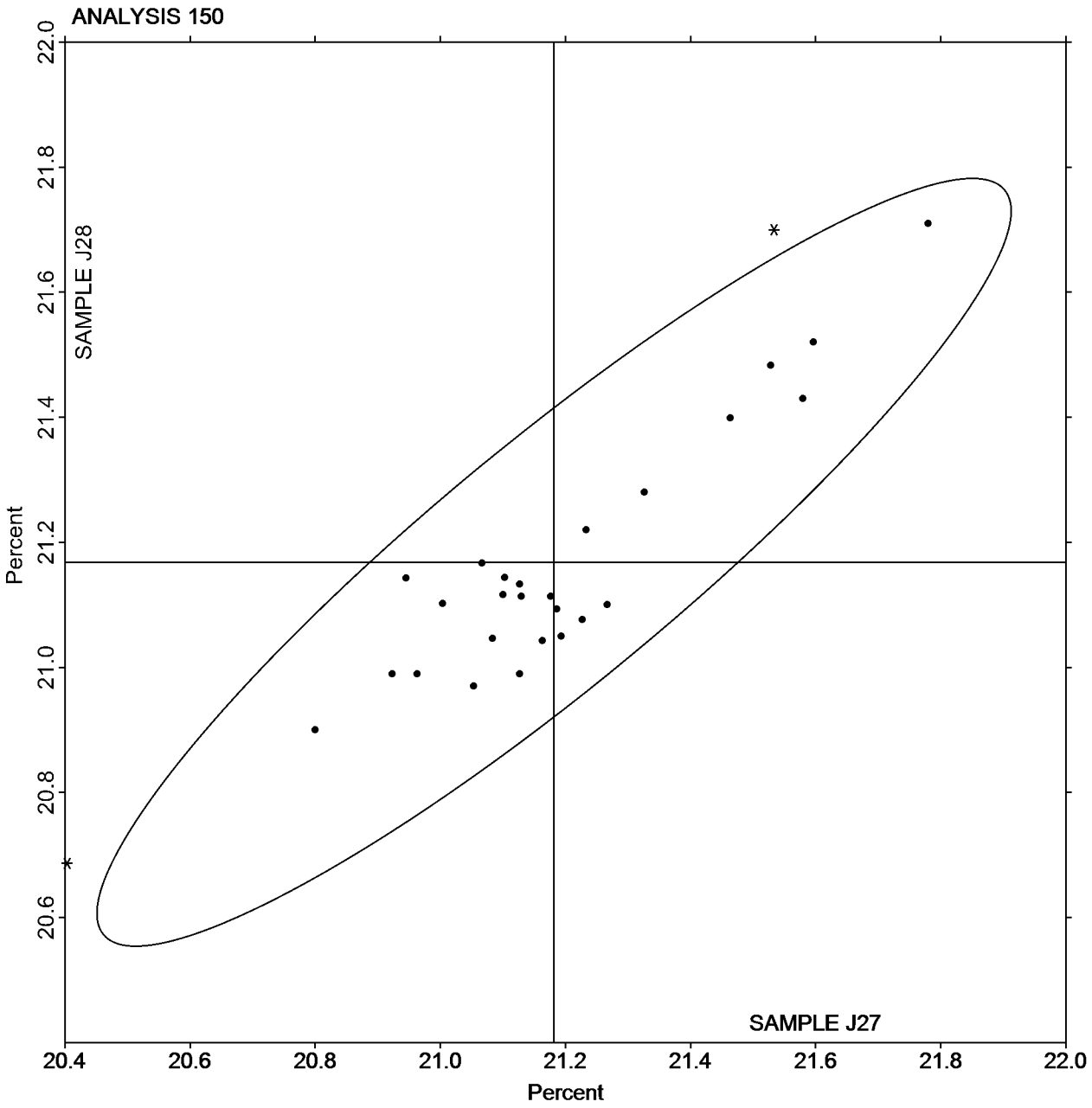
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 150

Chemical Analysis Element #1: Nickel-based Alloy - Percent
CHROMIUM (Cr)

SAMPLE J27	SAMPLE J28
21.18 Percent	21.17 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 151

Chemical Analysis Element #2: Nickel-based Alloy - Percent
MANGANESE (Mn)

		Sample J27			Sample J28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2KAK8R		0.7020	-0.0234	-0.97	0.7033	-0.0216	-0.93	GD
2LXTYM		0.7367	0.0112	0.46	0.7333	0.0084	0.36	IC
6H8MU9		0.6887	-0.0368	-1.52	0.6880	-0.0370	-1.59	WD
6ZKCZT		0.7467	0.0212	0.88	0.7387	0.0137	0.59	IC
7QFQA6		0.6900	-0.0354	-1.46	0.6900	-0.0350	-1.51	OE
88X3HP		0.7410	0.0156	0.64	0.7407	0.0157	0.68	OE
8H2K7R		0.7120	-0.0134	-0.55	0.7117	-0.0133	-0.57	XR
8UU4MJ		0.7494	0.0240	0.99	0.7476	0.0227	0.98	DR
936RWB		0.7077	-0.0178	-0.73	0.7053	-0.0196	-0.85	IC
9QAAQH		0.7233	-0.0021	-0.09	0.7200	-0.0050	-0.21	OE
BXM6L3		0.7080	-0.0174	-0.72	0.7110	-0.0140	-0.60	OE
C9FMAP	X	0.7620	0.0366	1.51	0.7150	-0.0100	-0.43	OE
DCVAQF	X	0.9433	0.2179	8.99	0.9440	0.2190	9.44	OE
FEAGTD		0.7310	0.0056	0.23	0.7317	0.0067	0.29	WD
FNGNKT		0.7183	-0.0071	-0.29	0.7170	-0.0080	-0.34	IC
FQL2KF		0.7373	0.0119	0.49	0.7093	-0.0156	-0.67	OE
FTAMW4		0.7250	-0.0004	-0.02	0.7313	0.0064	0.27	OE
HE69QQ		0.7187	-0.0068	-0.28	0.7170	-0.0080	-0.34	OE
HUGVTT		0.7210	-0.0044	-0.18	0.7277	0.0027	0.12	GD
JMWTQW	X	0.4537	-0.2718	-11.22	0.4550	-0.2700	-11.63	OE
JP22R8		0.7547	0.0292	1.21	0.7530	0.0280	1.21	OE
M3WWMJ	X	0.8830	0.1576	6.50	0.8917	0.1667	7.18	OE
RTBUER		0.7327	0.0072	0.30	0.7283	0.0034	0.15	DR
TGTRA6		0.7383	0.0129	0.53	0.7473	0.0224	0.96	DC
V9FDLU		0.6867	-0.0388	-1.60	0.6933	-0.0316	-1.36	OE
VH2NUZ		0.7132	-0.0122	-0.50	0.7102	-0.0147	-0.63	OE
VVT6PT		0.7300	0.0046	0.19	0.7233	-0.0016	-0.07	OE
XN4A2U		0.7387	0.0132	0.55	0.7357	0.0107	0.46	WD
YZNDDJ	*	0.7967	0.0712	2.94	0.7933	0.0684	2.95	OE

Summary Statistics

	Sample J27		Sample J28	
Grand Means	0.7254	Percent	0.7250	Percent
Stnd Dev Btwn Labs	0.0242	Percent	0.0232	Percent

Samples J27 , J28 : Alloy X, two different heats

Statistics based on 24 of 29 reporting participants

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 151

Chemical Analysis Element #2: Nickel-based Alloy - Percent
MANGANESE (Mn)

Comments on assigned Data Flags for Analysis #151

WebCode	Flag	Analyst Comment
C9FMAP	X	Inconsistent in testing between samples. Inconsistent within the determinations of sample J27.
DCVAQF	X	Data for both samples are high. Possible Systematic error.
JMWTQW	X	Data for both samples are low. Possible Systematic error.
M3WWMJ	X	Data for both samples are high. Possible Systematic error.

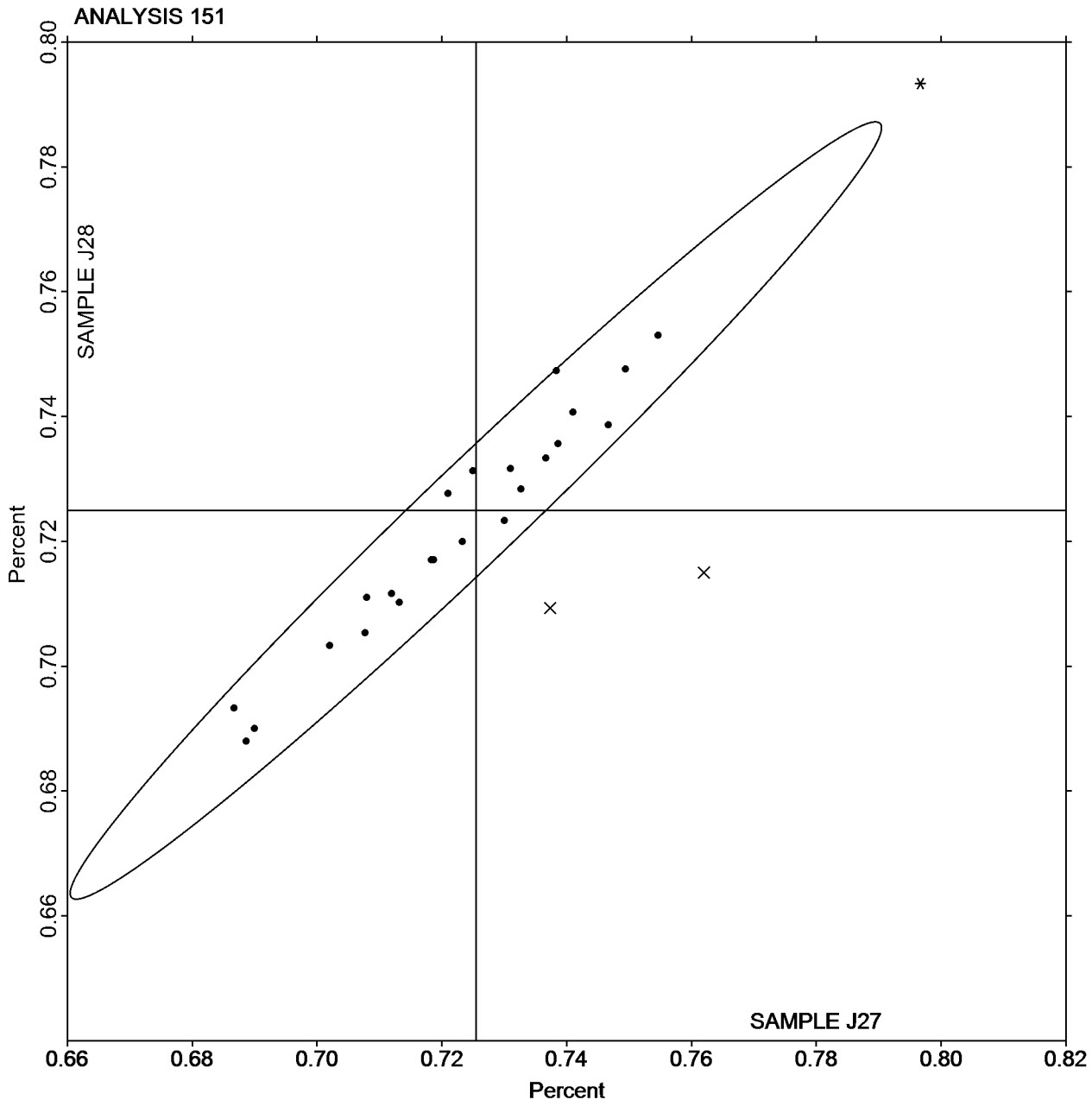
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 151

Chemical Analysis Element #2: Nickel-based Alloy - Percent
MANGANESE (Mn)

SAMPLE J27	SAMPLE J28
0.7254 Percent	0.7250 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 152

Chemical Analysis Element #3: Nickel-based Alloy - Percent
IRON (Fe)

		Sample J27			Sample J28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2KAK8R		17.43	-0.32	-0.69	17.53	-0.19	-0.43	GD
2LXTYM		17.67	-0.08	-0.18	17.53	-0.19	-0.43	IC
6H8MU9		17.58	-0.17	-0.37	17.56	-0.16	-0.36	WD
6ZKCZT		17.66	-0.09	-0.20	17.76	0.04	0.08	IC
7QFQA6		17.87	0.12	0.26	17.87	0.15	0.33	OE
88X3HP		18.15	0.40	0.88	18.12	0.40	0.91	WD
8H2K7R		17.81	0.06	0.14	17.78	0.06	0.14	XR
8UU4MJ		17.80	0.05	0.12	17.91	0.19	0.44	DR
936RWB		18.40	0.65	1.42	18.33	0.61	1.39	OE
9QAAQH		17.70	-0.05	-0.11	17.73	0.01	0.03	OE
AR6EKG		18.31	0.56	1.23	18.32	0.60	1.37	ED
BXM6L3		17.46	-0.29	-0.63	17.48	-0.24	-0.54	OE
C9FMAP		17.80	0.05	0.11	17.60	-0.12	-0.27	OE
DCVAQF		18.30	0.55	1.22	18.29	0.57	1.30	OE
FEAGTD		17.67	-0.08	-0.17	17.69	-0.03	-0.06	WD
FNGNKT		17.73	-0.02	-0.05	17.73	0.01	0.01	IC
FQL2KF		17.77	0.02	0.05	17.73	0.01	0.03	OE
FTAMW4		17.63	-0.12	-0.26	17.66	-0.06	-0.14	OE
HE69QQ		17.72	-0.03	-0.07	17.70	-0.02	-0.05	OE
HUGVTT	X	17.74	-0.01	-0.02	18.15	0.43	0.97	GD
JMWTQW	*	17.86	0.11	0.24	17.56	-0.16	-0.37	OE
JP22R8		17.05	-0.70	-1.52	17.02	-0.70	-1.60	OE
M3WWMJ		17.24	-0.51	-1.11	17.23	-0.49	-1.12	OE
RTBUER		17.77	0.03	0.06	17.70	-0.02	-0.06	DR
TGTRA6		18.09	0.34	0.76	18.06	0.34	0.77	XR
V9FDLU		17.94	0.19	0.42	17.91	0.19	0.44	OE
VH2NUZ		17.49	-0.26	-0.56	17.38	-0.34	-0.78	OE
VVT6PT		17.74	-0.01	-0.02	17.67	-0.05	-0.11	OE
XN4A2U		18.81	1.06	2.33	18.71	0.99	2.25	WD
YZNDDJ	*	16.25	-1.50	-3.29	16.33	-1.39	-3.16	OE

Summary Statistics

	Sample J27		Sample J28	
Grand Means	17.75	Percent	17.72	Percent
Stnd Dev Btwn Labs	0.46	Percent	0.44	Percent

Samples J27 , J28 : Alloy X, two different heats

Statistics based on 29 of 30 reporting participants

Comments on assigned Data Flags for Analysis #152

WebCode	Flag	Analyst Comment
HUGVTT	X	Inconsistent in testing between samples. Inconsistent within the determinations of sample J28.

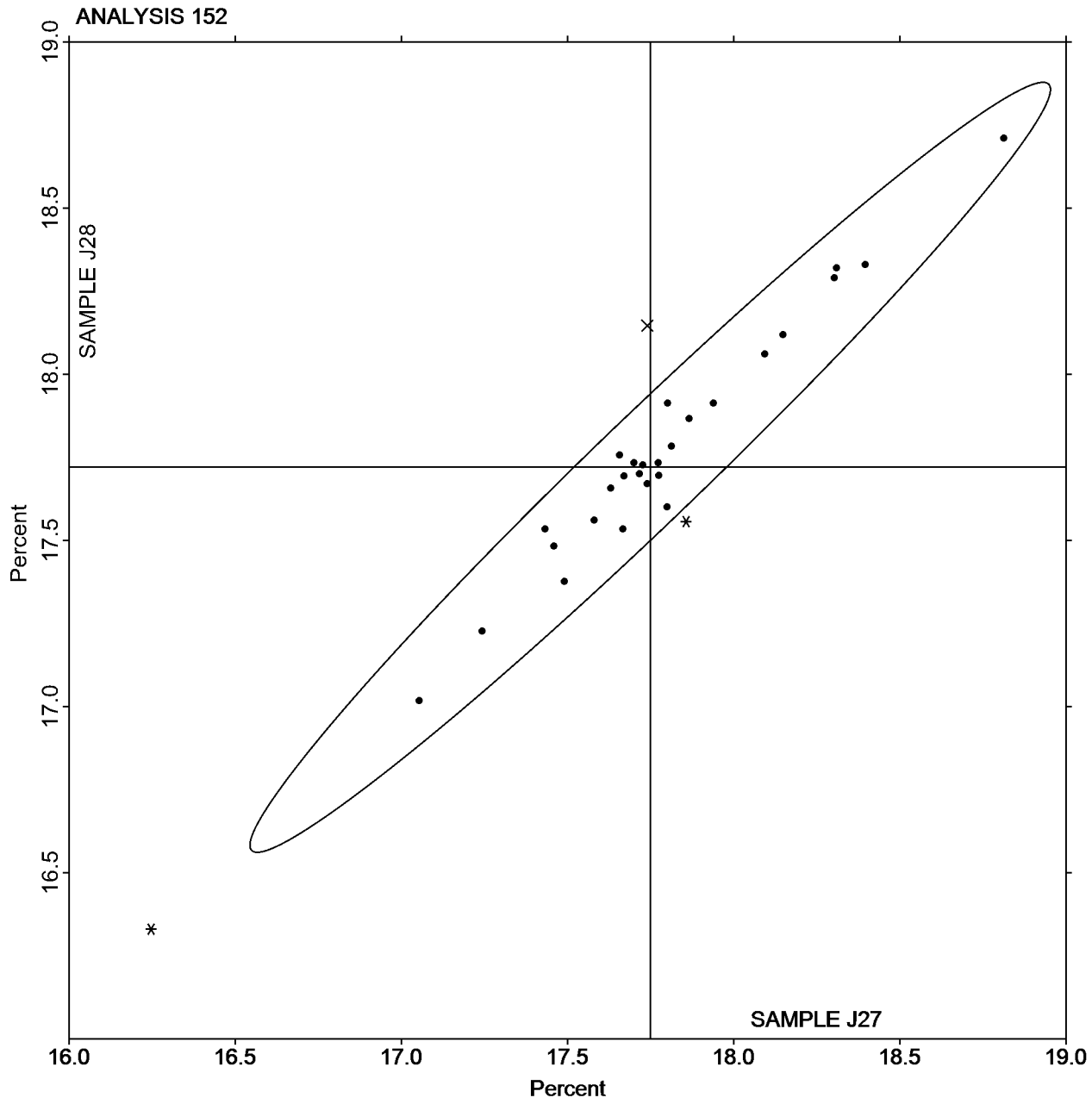
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 152

Chemical Analysis Element #3: Nickel-based Alloy - Percent
IRON (Fe)

SAMPLE J27	SAMPLE J28
17.75 Percent	17.72 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 153

Chemical Analysis Element #4: Nickel-based Alloy- Percent MOLYBDENUM (Mo)

		Sample J27			Sample J28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2KAK8R		8.687	-0.054	-0.36	8.720	-0.015	-0.10	GD
2LXTYM		8.667	-0.074	-0.49	8.643	-0.092	-0.60	IC
6H8MU9		8.635	-0.106	-0.69	8.634	-0.101	-0.66	WD
6ZKCZT		8.697	-0.044	-0.29	8.755	0.020	0.13	IC
7QFQA6		8.750	0.009	0.06	8.740	0.005	0.03	OE
88X3HP		8.758	0.017	0.11	8.749	0.014	0.09	WD
8H2K7R		8.663	-0.078	-0.51	8.670	-0.065	-0.43	XR
8UU4MJ		8.855	0.114	0.75	8.791	0.056	0.36	DR
936RWB		8.570	-0.171	-1.12	8.553	-0.182	-1.19	IC
9QAAQH	*	8.723	-0.018	-0.12	8.827	0.092	0.60	OE
AR6EKG		8.914	0.173	1.14	8.899	0.164	1.07	ED
BXM6L3		8.951	0.210	1.38	8.905	0.170	1.11	OE
C9FMAP	X	8.223	-0.518	-3.39	8.673	-0.062	-0.40	OE
DCVAQF	X	7.797	-0.944	-6.19	7.853	-0.882	-5.76	OE
FEAGTD		8.678	-0.063	-0.41	8.682	-0.053	-0.35	WD
FNGNKT		8.785	0.044	0.29	8.782	0.047	0.30	IC
FQL2KF		8.750	0.009	0.06	8.700	-0.035	-0.23	OE
FTAMW4		8.773	0.032	0.21	8.793	0.058	0.38	OE
HE69QQ		8.790	0.049	0.32	8.777	0.042	0.27	OE
HUGVTT	X	11.08	2.341	15.36	11.11	2.371	15.48	GD
JMWTQW		9.103	0.362	2.38	9.090	0.355	2.32	OE
JP22R8		8.918	0.177	1.16	8.896	0.161	1.05	OE
M3WWMJ	X	7.000	-1.741	-11.42	7.053	-1.682	-10.98	OE
RTBUER		8.595	-0.146	-0.95	8.581	-0.154	-1.01	DR
TGTRA6		8.869	0.128	0.84	8.855	0.120	0.78	XR
V9FDLU	*	8.323	-0.418	-2.74	8.270	-0.465	-3.04	OE
VH2NUZ		8.594	-0.147	-0.97	8.644	-0.092	-0.60	OE
VVT6PT		8.777	0.036	0.23	8.733	-0.002	-0.01	OE
XN4A2U		8.839	0.098	0.64	8.845	0.110	0.72	WD
YZNDDJ		8.600	-0.141	-0.92	8.580	-0.155	-1.01	OE

Summary Statistics

	Sample J27		Sample J28	
Grand Means	8.741	Percent	8.735	Percent
Stnd Dev Btwn Labs	0.152	Percent	0.153	Percent

Samples J27 , J28 : Alloy X, two different heats

Statistics based on 26 of 30 reporting participants

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 153

Chemical Analysis Element #4: Nickel-based Alloy- Percent MOLYBDENUM (Mo)

Comments on assigned Data Flags for Analysis #153

WebCode	Flag	Analyst Comment
C9FMAP	X	Data for sample J27 are low. Inconsistent in testing between samples.
DCVAQF	X	Data for both samples are low. Possible Systematic error.
HUGVTT	X	Data for both samples are high. Possible Systematic error.
M3WWMJ	X	Data for both samples are low. Possible Systematic error.

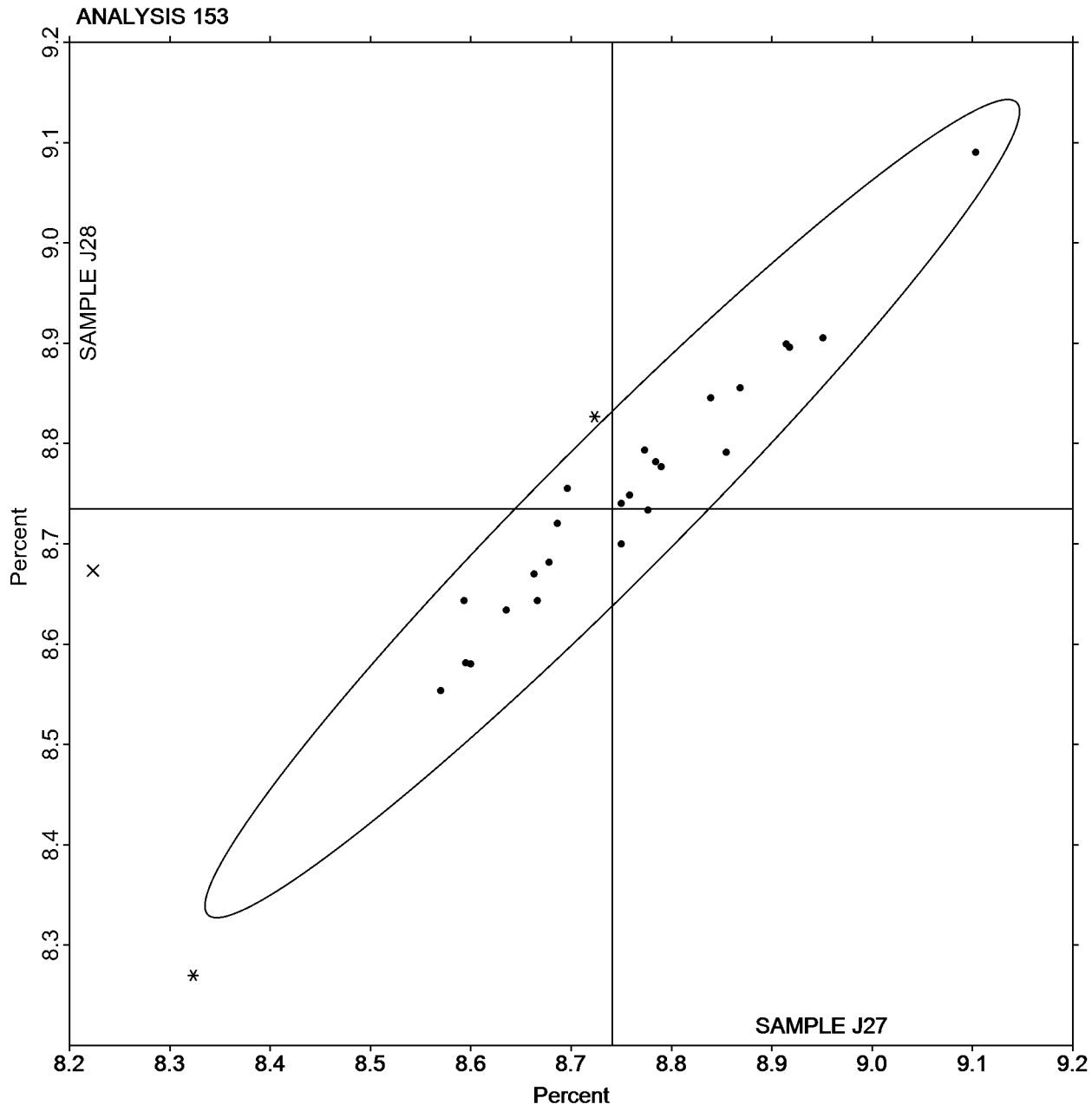
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 153

Chemical Analysis Element #4: Nickel-based Alloy- Percent
MOLYBDENUM (Mo)

SAMPLE J27	SAMPLE J28
8.741 Percent	8.735 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 154

Chemical Analysis Element #5: Nickel-based Alloy - Percent
ALUMINUM (Al)

		Sample J27			Sample J28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2KAK8R		0.2190	0.0042	0.27	0.2210	0.0065	0.40	GD
2LXTYM		0.2270	0.0122	0.79	0.2267	0.0121	0.75	IC
6H8MU9		0.2057	-0.0092	-0.60	0.2027	-0.0119	-0.73	WD
6ZKCZT		0.2177	0.0028	0.18	0.2170	0.0025	0.15	IC
7QFQA6		0.1833	-0.0315	-2.06	0.1800	-0.0345	-2.12	OE
88X3HP		0.2227	0.0078	0.51	0.2210	0.0065	0.40	OE
8H2K7R		0.2137	-0.0012	-0.08	0.2107	-0.0039	-0.24	DC
8UU4MJ		0.2200	0.0052	0.34	0.2173	0.0028	0.17	DR
936RWB		0.2120	-0.0028	-0.18	0.2124	-0.0022	-0.13	IC
9QAAQH		0.2100	-0.0048	-0.32	0.2100	-0.0045	-0.28	OE
BXM6L3		0.2067	-0.0082	-0.53	0.2073	-0.0072	-0.44	OE
C9FMAP	*	0.2190	0.0042	0.27	0.2107	-0.0039	-0.24	OE
DCVAQF		0.2389	0.0241	1.57	0.2394	0.0248	1.53	OE
FEAGTD		0.2230	0.0082	0.53	0.2240	0.0095	0.58	WD
FNGNKT		0.2143	-0.0005	-0.03	0.2077	-0.0069	-0.42	IC
FQL2KF		0.2180	0.0032	0.21	0.2213	0.0068	0.42	OE
FTAMW4		0.2110	-0.0038	-0.25	0.2120	-0.0025	-0.15	OE
HE69QQ		0.2107	-0.0042	-0.27	0.2107	-0.0039	-0.24	OE
JMWTQW		0.1900	-0.0248	-1.62	0.1900	-0.0245	-1.51	OE
JP22R8		0.2377	0.0228	1.49	0.2373	0.0228	1.40	XX
M3WWMJ		0.2117	-0.0032	-0.21	0.2127	-0.0019	-0.11	OE
RTBUER		0.2277	0.0128	0.84	0.2257	0.0111	0.68	DR
TGTRA6	*	0.2433	0.0285	1.86	0.2523	0.0378	2.32	AA
V9FDLU		0.2103	-0.0045	-0.29	0.2127	-0.0019	-0.11	OE
VH2NUZ		0.2004	-0.0144	-0.94	0.2009	-0.0137	-0.84	OE
VVT6PT		0.2400	0.0252	1.64	0.2400	0.0255	1.57	XX
XN4A2U		0.1973	-0.0175	-1.14	0.1980	-0.0165	-1.02	WD
YZNDDJ		0.1847	-0.0302	-1.97	0.1853	-0.0292	-1.79	OE

Summary Statistics

	Sample J27		Sample J28	
Grand Means	0.2148	Percent	0.2145	Percent
Stnd Dev Btwn Labs	0.0153	Percent	0.0163	Percent

Samples J27 , J28 : Alloy X, two different heats

Statistics based on 28 of 28 reporting participants

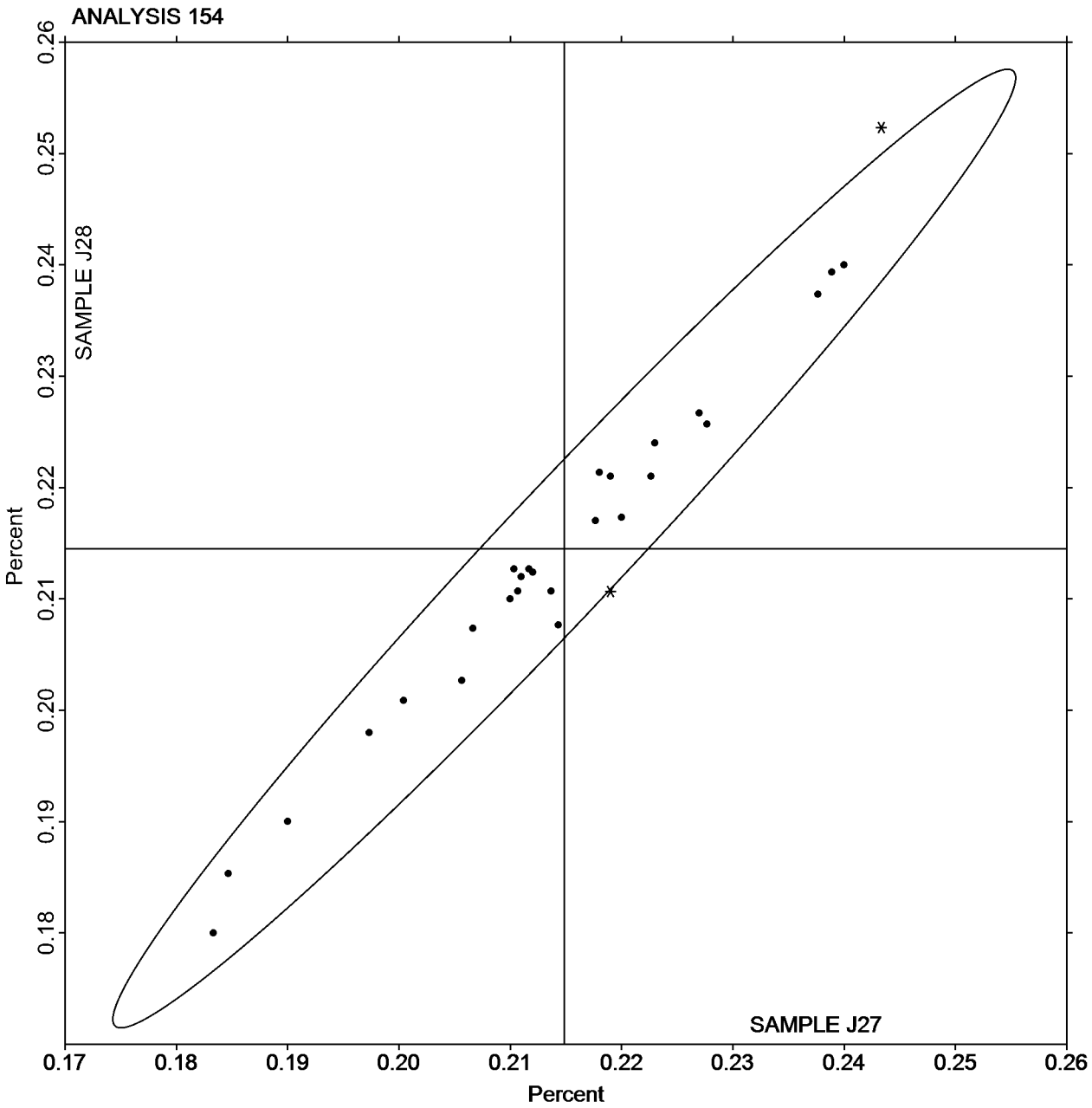
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 154

Chemical Analysis Element #5: Nickel-based Alloy - Percent
ALUMINUM (Al)

SAMPLE J27	SAMPLE J28
0.2148 Percent	0.2145 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 155

Chemical Analysis Element #6: Nickel-based Alloy - Percent
SILICON (Si)

WebCode	Data Flag	Sample J27 Lab Mean	Sample J27 Diff. from Grand Mean	Sample J27 CPV	Sample J28 Lab Mean	Sample J28 Diff. from Grand Mean	Sample J28 CPV	Method
2KAK8R		0.5997	-0.0288	-0.66	0.6070	-0.0224	-0.53	GD
2LXTYM		0.5873	-0.0412	-0.94	0.5860	-0.0434	-1.02	IC
6H8MU9		0.7197	0.0912	2.08	0.7183	0.0890	2.10	WD
6ZKCZT		0.6777	0.0492	1.12	0.6813	0.0520	1.22	IC
7QFQA6		0.6033	-0.0252	-0.58	0.5967	-0.0327	-0.77	OE
88X3HP		0.5643	-0.0642	-1.47	0.5550	-0.0744	-1.75	OE
8H2K7R		0.6063	-0.0222	-0.51	0.6180	-0.0114	-0.27	XR
8UU4MJ		0.6380	0.0095	0.22	0.6137	-0.0157	-0.37	DR
936RWB		0.6367	0.0082	0.19	0.6333	0.0040	0.09	IC
9QAAQH		0.6333	0.0048	0.11	0.6400	0.0106	0.25	OE
BXM6L3		0.6160	-0.0125	-0.29	0.6167	-0.0127	-0.30	OE
C9FMAP	*	0.5980	-0.0305	-0.70	0.6310	0.0016	0.04	OE
DCVAQF		0.6153	-0.0132	-0.30	0.6150	-0.0144	-0.34	OE
FEAGTD		0.6727	0.0442	1.01	0.6710	0.0416	0.98	OE
FNGNKT		0.6283	-0.0002	0.00	0.6290	-0.0004	-0.01	IC
FQL2KF		0.5270	-0.1015	-2.32	0.6803	0.0510	1.20	OE
FTAMW4		0.5963	-0.0322	-0.74	0.6013	-0.0280	-0.66	OE
HE69QQ		0.6320	0.0035	0.08	0.6337	0.0043	0.10	OE
HUGVTT		0.6370	0.0085	0.19	0.6377	0.0083	0.20	GD
JMWTQW	*	0.7000	0.0715	1.63	0.6733	0.0440	1.04	OE
JP22R8		0.6063	-0.0222	-0.51	0.6083	-0.0210	-0.50	XX
M3WWMJ		0.7397	0.1112	2.54	0.7393	0.1100	2.59	OE
RTBUER		0.6127	-0.0158	-0.36	0.6103	-0.0190	-0.45	DR
TGTRA6		0.6340	0.0055	0.13	0.6317	0.0023	0.05	OE
V9FDLU		0.6633	0.0348	0.80	0.6767	0.0473	1.11	OE
VH2NUZ		0.6157	-0.0128	-0.29	0.6132	-0.0162	-0.38	OE
VVT6PT		0.6400	0.0115	0.26	0.6467	0.0173	0.41	OE
XN4A2U		0.5543	-0.0742	-1.70	0.5513	-0.0780	-1.84	WD
YZNDDJ		0.5700	-0.0585	-1.34	0.5867	-0.0427	-1.01	OE

Summary Statistics

	Sample J27		Sample J28	
Grand Means	0.6285	Percent	0.6294	Percent
Stnd Dev Btwn Labs	0.0438	Percent	0.0424	Percent

Samples J27 , J28 : Alloy X, two different heats

Statistics based on 28 of 29 reporting participants

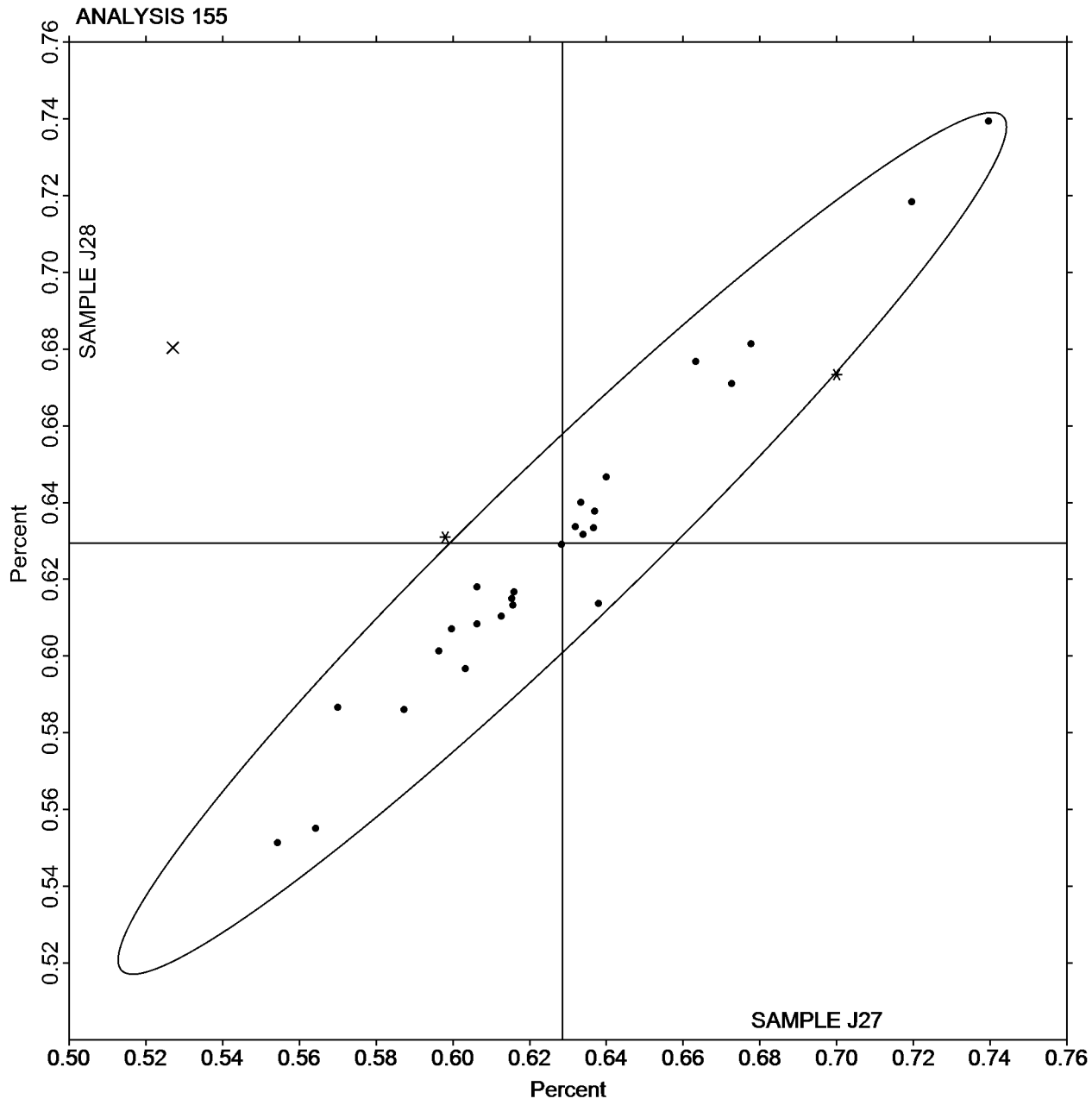
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 155

Chemical Analysis Element #6: Nickel-based Alloy - Percent
SILICON (Si)

SAMPLE J27	SAMPLE J28
0.6285 Percent	0.6294 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 156

Chemical Analysis Element #7: Nickel-based Alloy - Percent
CARBON (C)

		Sample J27			Sample J28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2KAK8R		0.0903	0.0017	0.28	0.0873	-0.0009	-0.16	GD
2LXTYM		0.0987	0.0101	1.63	0.0997	0.0115	2.13	CO
6H8MU9		0.0850	-0.0036	-0.57	0.0850	-0.0032	-0.59	CI
7QFQA6		0.0820	-0.0066	-1.06	0.0810	-0.0072	-1.33	OE
88X3HP		0.0873	-0.0012	-0.20	0.0880	-0.0002	-0.04	CO
8H2K7R		0.0823	-0.0062	-1.00	0.0840	-0.0042	-0.78	CO
8UU4MJ		0.0930	0.0044	0.72	0.0932	0.0050	0.93	DR
936RWB		0.0867	-0.0019	-0.30	0.0833	-0.0049	-0.90	CI
9QAAQH		0.0870	-0.0016	-0.25	0.0863	-0.0019	-0.34	CO
BXM6L3		0.0877	-0.0009	-0.14	0.0883	0.0001	0.03	CO
C9FMAP	*	0.0737	-0.0149	-2.39	0.0782	-0.0100	-1.84	OE
DCVAQF		0.0818	-0.0068	-1.09	0.0815	-0.0067	-1.25	OE
FEAGTD		0.0853	-0.0032	-0.52	0.0850	-0.0032	-0.59	CI
FNGNKT		0.0910	0.0024	0.39	0.0900	0.0018	0.33	CO
FQL2KF		0.0880	-0.0006	-0.09	0.0951	0.0069	1.27	OE
FTAMW4		0.0910	0.0024	0.39	0.0905	0.0023	0.43	CO
HE69QQ		0.0890	0.0004	0.07	0.0900	0.0018	0.33	OE
HUGVTT		0.0874	-0.0012	-0.19	0.0873	-0.0009	-0.17	CI
JMWTQW		0.0870	-0.0016	-0.26	0.0859	-0.0023	-0.42	CO
JP22R8		0.0973	0.0088	1.42	0.0967	0.0085	1.57	OE
RTBUER		0.0863	-0.0022	-0.36	0.0870	-0.0012	-0.22	DR
TGTRA6		0.0920	0.0034	0.56	0.0920	0.0038	0.70	CO
V9FDLU		0.0904	0.0018	0.29	0.0891	0.0009	0.17	OE
VH2NUZ		0.0830	-0.0056	-0.90	0.0826	-0.0056	-1.03	CO
VVT6PT		0.0963	0.0078	1.25	0.0950	0.0068	1.26	OE
XN4A2U	*	0.1043	0.0158	2.54	0.0993	0.0111	2.06	CI
YZNDDJ		0.0865	-0.0021	-0.33	0.0867	-0.0015	-0.28	CO

Summary Statistics

	Sample J27		Sample J28	
Grand Means	0.0886	Percent	0.0882	Percent
Stnd Dev Btwn Labs	0.0062	Percent	0.0054	Percent

Samples J27 , J28 : Alloy X, two different heats

Statistics based on 26 of 27 reporting participants

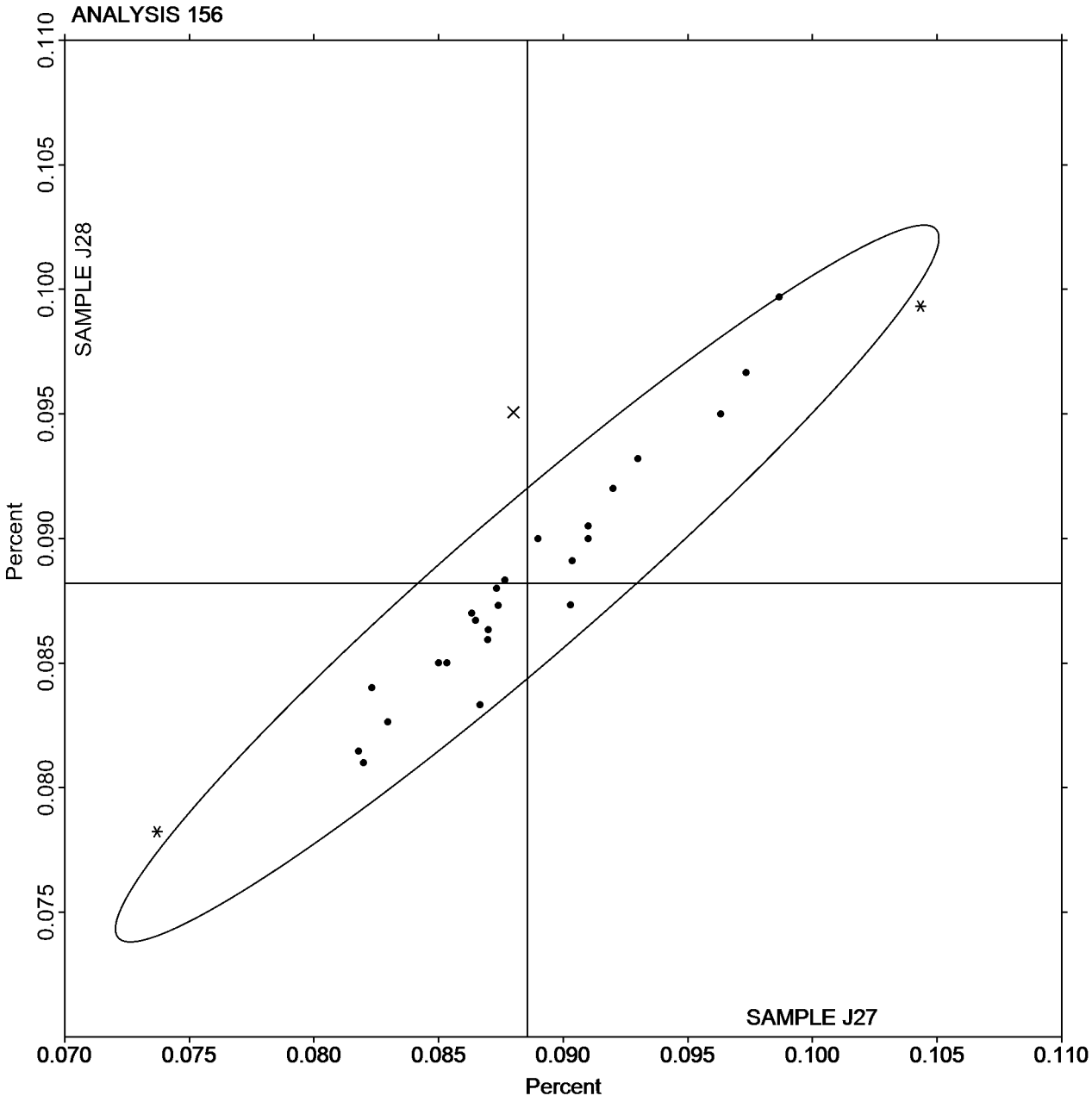
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 156

Chemical Analysis Element #7: Nickel-based Alloy - Percent
CARBON (C)

SAMPLE J27	SAMPLE J28
0.0886 Percent	0.0882 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 157

Chemical Analysis Element #8: Nickel-based Alloy - Percent
NICKEL (Ni)

		Sample J27			Sample J28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2KAK8R		48.47	0.19	0.39	48.67	0.35	0.78	GD
2LXTYM		48.33	0.06	0.12	48.23	-0.09	-0.19	IC
6H8MU9		48.36	0.08	0.16	48.40	0.08	0.19	WD
6ZKCZT		48.26	-0.02	-0.03	48.23	-0.09	-0.20	IC
7QFQA6		48.67	0.39	0.80	48.43	0.11	0.26	OE
936RWB		47.99	-0.28	-0.58	48.07	-0.25	-0.57	BD
9QAAQH		48.23	-0.04	-0.09	48.20	-0.12	-0.27	OE
AR6EKG		47.89	-0.38	-0.78	47.92	-0.40	-0.90	ED
BXM6L3		48.08	-0.20	-0.40	48.05	-0.27	-0.60	OE
C9FMAP		48.90	0.62	1.27	48.70	0.38	0.86	OE
DCVAQF		48.16	-0.12	-0.24	48.26	-0.06	-0.13	OE
FEAGTD		47.97	-0.31	-0.63	47.97	-0.35	-0.79	WD
FQL2KF		48.35	0.08	0.16	48.42	0.10	0.23	OE
FTAMW4	X	49.54	1.26	2.58	49.94	1.62	3.66	BD
HUGVTT	X	45.03	-3.24	-6.63	45.06	-3.26	-7.36	GD
JMWTQW		48.56	0.28	0.57	48.61	0.29	0.66	OE
JP22R8		49.04	0.76	1.56	49.08	0.76	1.72	OE
M3WWMJ		48.46	0.18	0.38	48.57	0.25	0.57	OE
RTBUER		48.28	0.00	0.00	48.48	0.16	0.36	BD
TGTRA6		47.91	-0.37	-0.76	48.11	-0.21	-0.47	XX
V9FDLU		47.83	-0.45	-0.91	47.95	-0.37	-0.83	OE
VH2NUZ		48.75	0.48	0.97	48.75	0.43	0.98	OE
VVT6PT		47.87	-0.41	-0.84	48.07	-0.25	-0.57	OE
XN4A2U	*	46.83	-1.44	-2.95	47.02	-1.30	-2.94	BD
YZNDDJ		49.17	0.89	1.82	49.15	0.83	1.87	OE

Summary Statistics

	Sample J27		Sample J28	
Grand Means	48.28	Percent	48.32	Percent
Stnd Dev Btwn Labs	0.49	Percent	0.44	Percent

Samples J27 , J28 : Alloy X, two different heats

Statistics based on 23 of 25 reporting participants

Comments on assigned Data Flags for Analysis #157

WebCode	Flag	Analyst Comment
FTAMW4	X	Data for sample J28 are high. Inconsistent in testing between samples. Inconsistent within the determinations of sample J27.
HUGVTT	X	Data for both samples are low. Possible Systematic error.

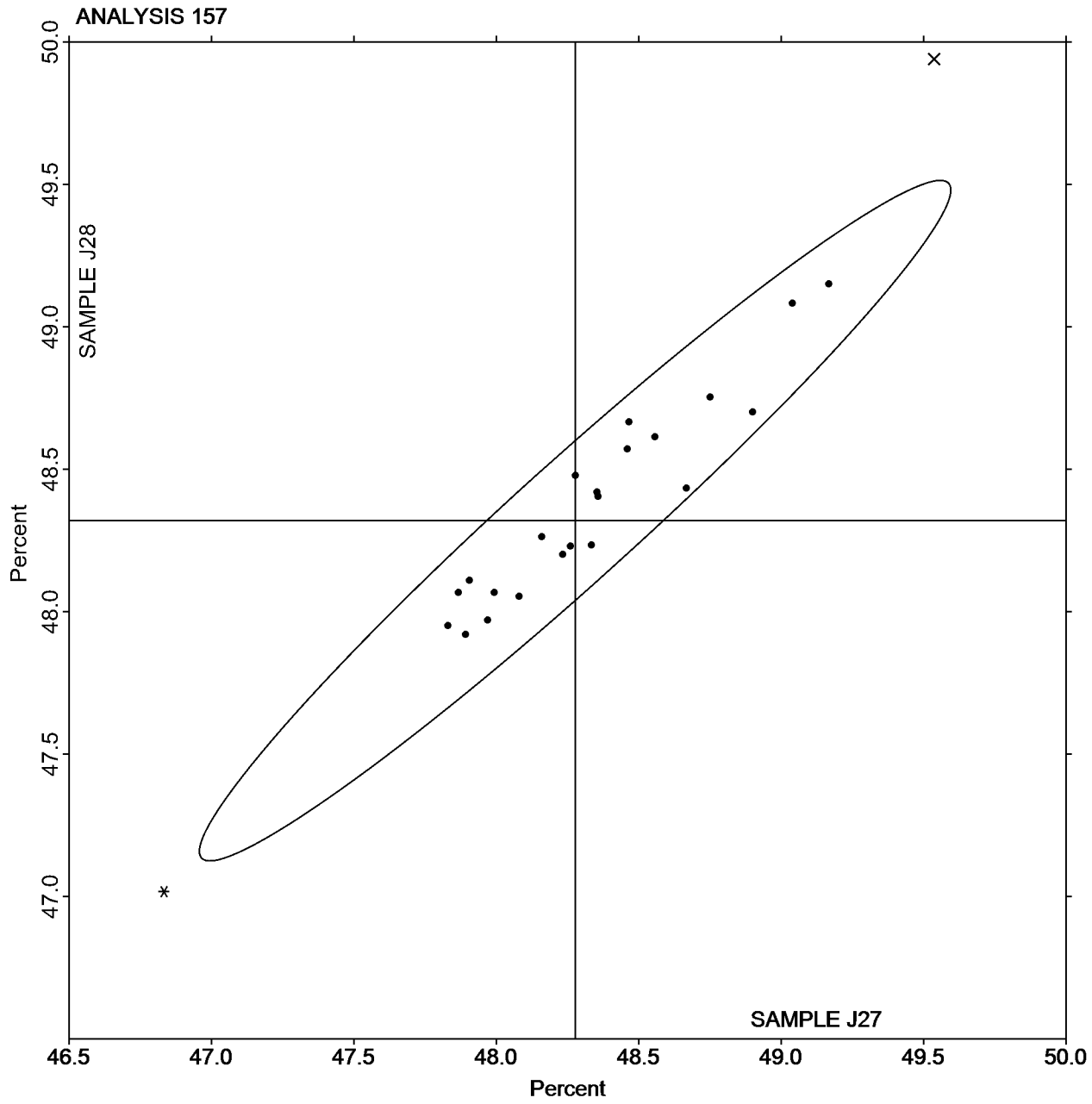
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 157

Chemical Analysis Element #8: Nickel-based Alloy - Percent
NICKEL (Ni)

SAMPLE J27	SAMPLE J28
48.28 Percent	48.32 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 180

Chemical Analysis Element #1 - Corrosion Resistant Steel - Percent CARBON (C)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2KAK8R		0.0583	0.0026	1.06	0.0744	0.0027	1.08	GD
4VGGVD		0.0600	0.0043	1.77	0.0700	-0.0017	-0.69	OE
6H8MU9		0.0547	-0.0010	-0.41	0.0697	-0.0021	-0.83	CI
88X3HP		0.0540	-0.0017	-0.68	0.0723	0.0006	0.24	CO
8GPQQR	*	0.0633	0.0077	3.12	0.0740	0.0023	0.91	OE
8H2K7R		0.0520	-0.0037	-1.50	0.0690	-0.0027	-1.09	CO
8KQRQP		0.0563	0.0007	0.27	0.0753	0.0036	1.44	OE
8UU4MJ	X	0.0590	0.0033	1.34	0.0649	-0.0068	-2.72	DR
8WKB6U		0.0573	0.0017	0.68	0.0760	0.0043	1.71	CI
9P2WTV		0.0549	-0.0008	-0.31	0.0726	0.0008	0.34	CI
9QAAQH		0.0567	0.0010	0.41	0.0703	-0.0014	-0.56	CI
A2LVX4	*	0.0591	0.0034	1.40	0.0683	-0.0034	-1.37	OE
A8BNFB		0.0567	0.0010	0.41	0.0713	-0.0004	-0.16	OE
ATBCXD		0.0549	-0.0007	-0.30	0.0697	-0.0020	-0.80	OE
AWCML2		0.0560	0.0003	0.13	0.0750	0.0033	1.31	OE
BXM6L3		0.0537	-0.0020	-0.82	0.0730	0.0013	0.51	CO
C89NE2		0.0553	-0.0003	-0.14	0.0711	-0.0006	-0.24	OE
CQZBQC		0.0517	-0.0040	-1.63	0.0727	0.0009	0.38	CI
DCVAQF	X	0.0459	-0.0097	-3.97	0.0625	-0.0093	-3.71	OE
EG6HF4		0.0557	0.0000	0.00	0.0687	-0.0031	-1.23	OE
EPZDLF		0.0600	0.0043	1.77	0.0700	-0.0017	-0.69	OE
F3GWB2		0.0527	-0.0030	-1.22	0.0663	-0.0054	-2.16	OE
FNGNKT		0.0560	0.0003	0.13	0.0740	0.0023	0.91	CO
FQL2KF		0.0570	0.0013	0.54	0.0708	-0.0010	-0.39	OE
GEBDZ3		0.0560	0.0003	0.13	0.0717	-0.0001	-0.02	OE
GJ3TAV		0.0570	0.0013	0.54	0.0750	0.0033	1.31	OE
HE69QQ		0.0553	-0.0003	-0.14	0.0730	0.0013	0.51	OE
HJXAR6		0.0537	-0.0020	-0.82	0.0697	-0.0021	-0.83	OE
HUGVTT		0.0559	0.0002	0.09	0.0723	0.0005	0.22	CI
J348P7		0.0563	0.0007	0.27	0.0747	0.0029	1.18	CI
JDKTUZ	X	0.0473	-0.0083	-3.40	0.0590	-0.0127	-5.10	OE
JEGCRV		0.0570	0.0013	0.54	0.0710	-0.0007	-0.29	OE
JP22R8		0.0540	-0.0017	-0.68	0.0710	-0.0007	-0.29	OE
L4UUEE		0.0543	-0.0013	-0.54	0.0720	0.0003	0.11	CO
LAZ6KT	X	0.0617	0.0060	2.44	0.0867	0.0149	5.98	CI
N6EHP7		0.0563	0.0007	0.27	0.0720	0.0003	0.11	OE
NLMX3Z		0.0591	0.0034	1.38	0.0747	0.0030	1.20	CO
PLXVHN		0.0510	-0.0047	-1.90	0.0680	-0.0037	-1.49	CI
Q6MYPU	X	0.0487	-0.0070	-2.85	0.0610	-0.0107	-4.30	OE
Q6P72G		0.0533	-0.0024	-0.98	0.0701	-0.0017	-0.67	CI
QEYLRP		0.0553	-0.0003	-0.14	0.0753	0.0036	1.44	OE
T2JFTT		0.0595	0.0039	1.58	0.0761	0.0044	1.76	OE
TYDXQQ		0.0563	0.0007	0.27	0.0727	0.0009	0.38	OE
TYX44F		0.0553	-0.0003	-0.14	0.0750	0.0033	1.31	CI
V9FDLU		0.0553	-0.0003	-0.14	0.0700	-0.0017	-0.69	OE
VH2NUZ		0.0513	-0.0044	-1.78	0.0666	-0.0051	-2.04	CO
VVT6PT		0.0547	-0.0010	-0.41	0.0733	0.0016	0.64	OE
WTE62X		0.0547	-0.0010	-0.41	0.0690	-0.0027	-1.09	OE
XN4A2U		0.0540	-0.0017	-0.68	0.0707	-0.0011	-0.43	OE

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 180

Chemical Analysis Element #1 - Corrosion Resistant Steel - Percent CARBON (C)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
XU7XL2		0.0527	-0.0030	-1.22	0.0693	-0.0024	-0.96	0E
YZNDDJ		0.0562	0.0005	0.20	0.0718	0.0000	0.02	C0

Summary Statistics

	Sample M27		Sample M28	
Grand Means	0.0557	Percent	0.0717	Percent
Stnd Dev Btwn Labs	0.0025	Percent	0.0025	Percent

Samples M27 , M28 : AISI 309, two different heats

Statistics based on 46 of 51 reporting participants

Comments on assigned Data Flags for Analysis #180

WebCode	Flag	Analyst Comment
8UU4MJ	X	Data for sample M28 are low.
DCVAQF	X	Data for both samples are low.
JDKTUZ	X	Data for both samples are low.
LAZ6KT	X	Data for sample M28 are high.
Q6MYPU	X	Data for both samples are low.

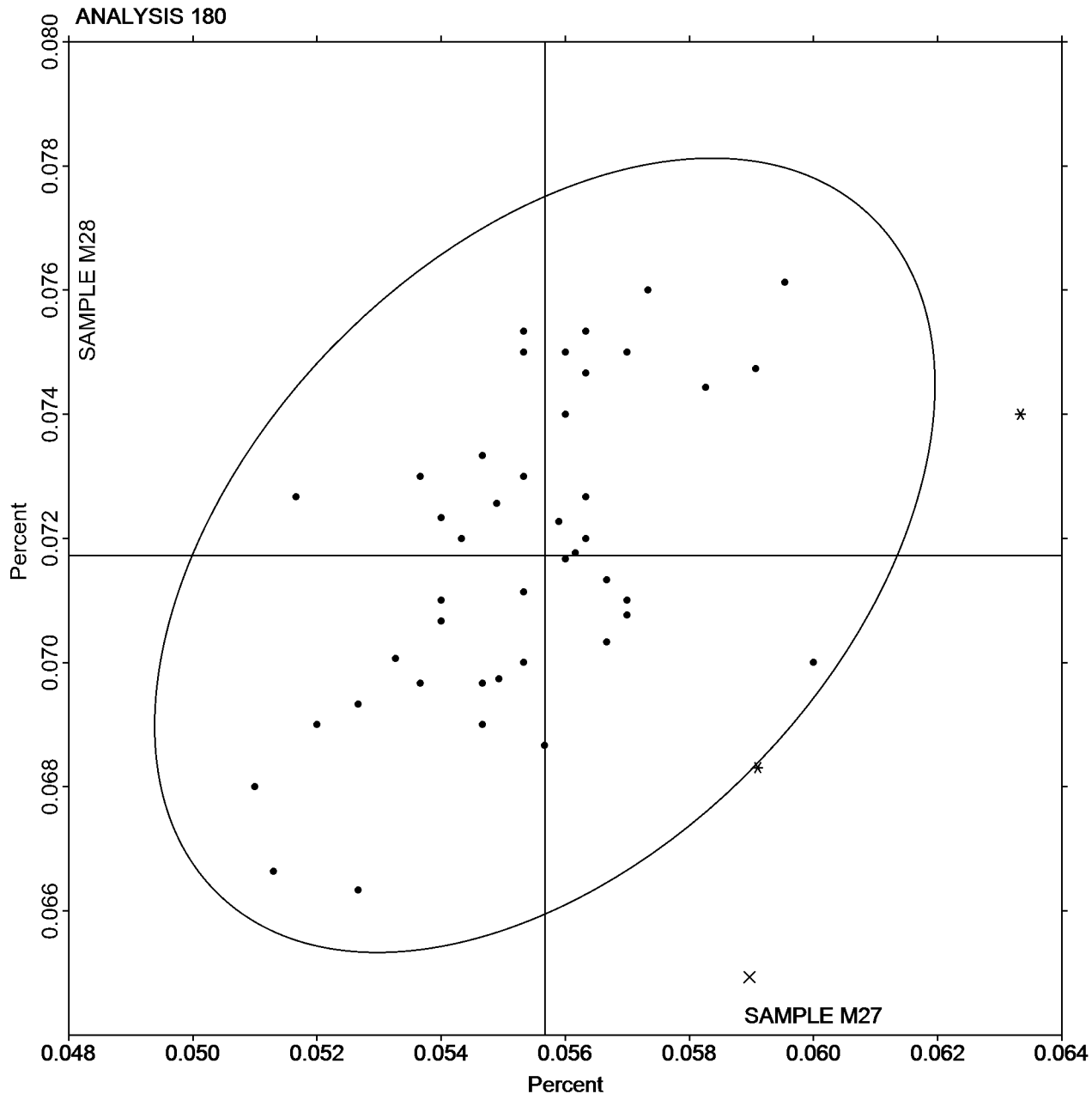
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 180

Chemical Analysis Element #1 - Corrosion Resistant Steel - Percent
CARBON (C)

SAMPLE M27	SAMPLE M28
0.0557 Percent	0.0717 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 181

Chemical Analysis Element #2 - Corrosion Resistant Steel - Percent
MANGANESE (Mn)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2KAK8R	*	1.563	-0.059	-2.57	1.717	-0.037	-1.71	GD
48DPU3		1.630	0.008	0.34	1.753	-0.001	-0.02	XX
4VGGVD	X	1.617	-0.006	-0.24	1.617	-0.137	-6.30	OE
6C6GDJ	X	1.673	0.051	2.23	1.583	-0.171	-7.83	XR
6H8MU9		1.612	-0.011	-0.46	1.746	-0.008	-0.38	WD
6ZKCZT		1.588	-0.034	-1.49	1.734	-0.020	-0.91	IC
88X3HP		1.619	-0.003	-0.14	1.744	-0.010	-0.44	WD
8GPQQR	*	1.607	-0.016	-0.68	1.777	0.023	1.05	OE
8H2K7R		1.620	-0.002	-0.10	1.750	-0.004	-0.18	XR
8KQRQP		1.627	0.004	0.19	1.767	0.013	0.59	OE
8UU4MJ		1.633	0.011	0.47	1.750	-0.004	-0.19	DR
8WKB6U	*	1.650	0.028	1.21	1.807	0.053	2.43	OE
9P2WTV		1.612	-0.010	-0.45	1.740	-0.014	-0.63	WD
9QAAQH		1.632	0.010	0.44	1.785	0.031	1.43	OE
A2LVX4		1.602	-0.020	-0.87	1.734	-0.020	-0.93	XR
A8BNFB		1.597	-0.026	-1.12	1.754	0.000	-0.01	OE
ATBCXD		1.620	-0.002	-0.09	1.748	-0.005	-0.25	OE
AWCML2		1.615	-0.008	-0.33	1.737	-0.017	-0.79	OE
BXM6L3		1.627	0.005	0.21	1.743	-0.011	-0.51	OE
C89NE2		1.610	-0.013	-0.55	1.712	-0.042	-1.92	OE
CQZBQC		1.617	-0.006	-0.24	1.750	-0.004	-0.18	OE
DCVAQF		1.620	-0.003	-0.11	1.725	-0.029	-1.31	OE
EG6HF4		1.586	-0.036	-1.58	1.712	-0.042	-1.92	OE
EPZDLF		1.660	0.038	1.65	1.787	0.033	1.51	XR
F3GWB2		1.647	0.024	1.07	1.777	0.023	1.06	OE
FNGNKT		1.622	0.000	-0.01	1.751	-0.003	-0.13	IC
FQL2KF		1.617	-0.006	-0.24	1.730	-0.024	-1.10	OE
GEBDZ3		1.631	0.008	0.37	1.755	0.001	0.05	OE
GJ3TAV		1.618	-0.004	-0.17	1.740	-0.014	-0.64	OE
HE69QQ		1.623	0.001	0.03	1.749	-0.005	-0.24	OE
HJXAR6		1.624	0.002	0.09	1.744	-0.010	-0.44	OE
HUGVTT		1.601	-0.021	-0.93	1.730	-0.024	-1.08	WD
J348P7		1.649	0.027	1.18	1.784	0.030	1.40	DR
JDKTUZ	X	1.726	0.103	4.52	1.852	0.098	4.52	OE
JEGCRV	*	1.584	-0.038	-1.67	1.755	0.001	0.05	OE
JP22R8		1.621	-0.001	-0.04	1.750	-0.004	-0.16	OE
KQMJAD		1.665	0.043	1.88	1.780	0.026	1.22	ED
L4UUEE		1.609	-0.013	-0.56	1.745	-0.009	-0.41	WD
LAZ6KT		1.573	-0.049	-2.14	1.723	-0.031	-1.40	IC
M3WWMJ		1.663	0.041	1.79	1.793	0.039	1.81	OE
N6EHP7		1.630	0.008	0.34	1.773	0.019	0.90	OE
NLMX3Z		1.629	0.007	0.29	1.759	0.005	0.23	OE
PLXVHN		1.646	0.024	1.03	1.779	0.025	1.13	IC
Q6MYPU		1.677	0.054	2.38	1.800	0.046	2.12	OE
Q6P72G		1.612	-0.010	-0.43	1.744	-0.010	-0.47	WD
QEYLRP		1.620	-0.002	-0.10	1.750	-0.004	-0.18	WD
T2JFTT		1.628	0.006	0.25	1.750	-0.004	-0.18	OE
TYDXQQ		1.624	0.001	0.06	1.749	-0.005	-0.24	OE
TYX44F		1.623	0.001	0.03	1.756	0.002	0.08	WD

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 181

Chemical Analysis Element #2 - Corrosion Resistant Steel - Percent MANGANESE (Mn)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
V9FDLU		1.641	0.018	0.80	1.742	-0.012	-0.54	0E
VH2NUZ		1.615	-0.008	-0.33	1.761	0.007	0.32	0E
VVT6PT		1.607	-0.016	-0.68	1.753	-0.001	-0.02	0E
WTE62X	X	0.3403	-1.282	-55.97	0.3873	-1.367	-62.77	0E
XN4A2U		1.668	0.046	2.00	1.784	0.030	1.37	0E
XU7XL2		1.622	-0.001	-0.02	1.770	0.016	0.74	XX
YZNDDJ	X	1.927	0.304	13.29	2.060	0.306	14.06	0E

Summary Statistics

	Sample M27		Sample M28	
Grand Means	1.622	Percent	1.754	Percent
Stnd Dev Btwn Labs	0.023	Percent	0.022	Percent

Samples M27 , M28 : AISI 309, two different heats

Statistics based on 51 of 56 reporting participants

Comments on assigned Data Flags for Analysis #181

WebCode	Flag	Analyst Comment
4VGGVD	X	Data for sample M28 are low. Inconsistent in testing between samples.
6C6GDJ	X	Data for sample M28 are low. Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
JDKTUZ	X	Data for both samples are high. Possible Systematic error.
WTE62X	X	Extreme Data.
YZNDDJ	X	Data for both samples are high. Possible Systematic error.

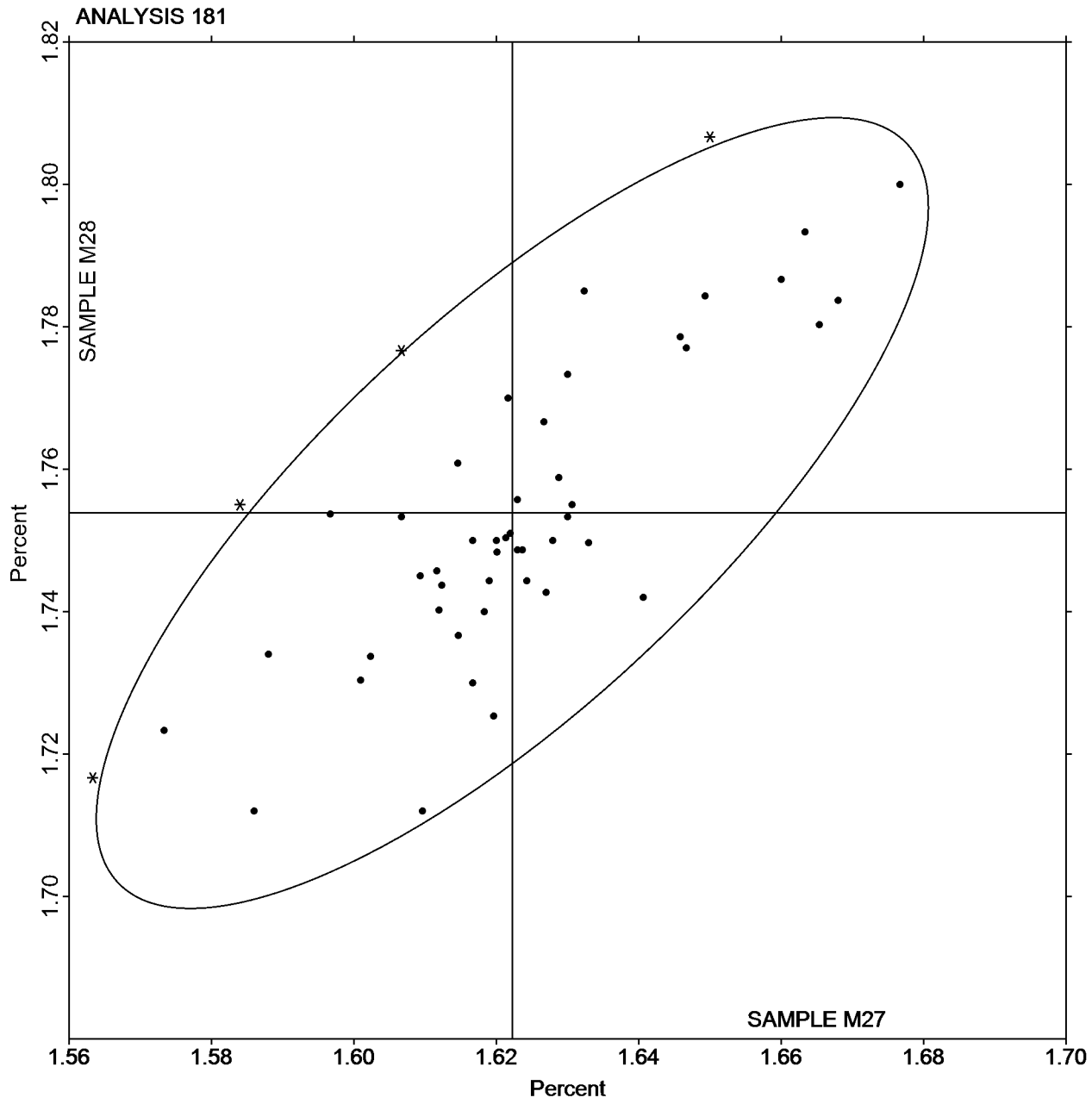
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 181

Chemical Analysis Element #2 - Corrosion Resistant Steel - Percent
MANGANESE (Mn)

SAMPLE M27	SAMPLE M28
1.622 Percent	1.754 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 182

Chemical Analysis Element #3 - Corrosion Resistant Steel - Percent
PHOSPHORUS (P)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2KAK8R		0.0270	0.0004	0.38	0.0273	0.0011	0.81	GD
48DPU3	X	0.3553	0.3287	280.05	0.3453	0.3191	231.14	XX
4VGGVD		0.0273	0.0007	0.64	0.0277	0.0014	1.05	OE
6H8MU9		0.0259	-0.0007	-0.58	0.0252	-0.0010	-0.74	WD
6ZKCZT	*	0.0274	0.0008	0.70	0.0293	0.0031	2.25	IC
8GPQQR		0.0263	-0.0003	-0.21	0.0270	0.0008	0.56	OE
8H2K7R		0.0263	-0.0003	-0.21	0.0257	-0.0006	-0.40	XR
8KQRQP		0.0277	0.0011	0.92	0.0277	0.0014	1.05	OE
8WKB6U	X	0.0340	0.0074	6.32	0.0350	0.0088	6.36	OE
9P2WTV		0.0258	-0.0008	-0.67	0.0254	-0.0008	-0.59	WD
9QAAQH		0.0270	0.0004	0.35	0.0277	0.0014	1.05	OE
A2LVX4		0.0274	0.0008	0.69	0.0263	0.0001	0.08	XR
A8BNFB		0.0283	0.0017	1.49	0.0236	-0.0027	-1.92	OE
ATBCXD		0.0262	-0.0004	-0.30	0.0258	-0.0005	-0.33	OE
AWCML2		0.0273	0.0007	0.64	0.0267	0.0004	0.32	OE
BXM6L3	*	0.0266	0.0000	0.04	0.0284	0.0022	1.60	OE
C89NE2		0.0263	-0.0003	-0.21	0.0267	0.0004	0.32	OE
CQZBQC		0.0242	-0.0024	-2.00	0.0234	-0.0029	-2.07	OE
DCVAQF		0.0292	0.0026	2.26	0.0284	0.0021	1.55	OE
EG6HF4		0.0239	-0.0027	-2.31	0.0235	-0.0027	-1.95	OE
EPZDLF		0.0287	0.0021	1.77	0.0280	0.0018	1.29	OE
F3GWB2		0.0250	-0.0016	-1.35	0.0247	-0.0016	-1.13	OE
FNGNKT		0.0254	-0.0012	-0.98	0.0249	-0.0014	-0.98	IC
FQL2KF		0.0264	-0.0002	-0.16	0.0257	-0.0006	-0.40	OE
GEBDZ3		0.0260	-0.0006	-0.50	0.0250	-0.0012	-0.88	OE
GJ3TAV		0.0265	-0.0001	-0.07	0.0255	-0.0007	-0.50	OE
HE69QQ		0.0255	-0.0011	-0.95	0.0250	-0.0012	-0.88	OE
HJXAR6		0.0293	0.0027	2.29	0.0282	0.0020	1.43	OE
HUGVTT		0.0268	0.0002	0.18	0.0264	0.0002	0.15	WD
J348P7		0.0270	0.0004	0.35	0.0250	-0.0012	-0.88	DR
JDKTUZ	X	0.0207	-0.0059	-5.04	0.0197	-0.0066	-4.75	OE
JEGCRV		0.0271	0.0005	0.41	0.0261	-0.0001	-0.09	OE
JP22R8		0.0264	-0.0002	-0.13	0.0259	-0.0003	-0.21	OE
KQMJAD	X	0.0180	-0.0086	-7.31	0.0220	-0.0042	-3.06	ED
L4UUEE		0.0276	0.0010	0.84	0.0264	0.0001	0.11	ED
LAZ6KT		0.0260	-0.0006	-0.50	0.0250	-0.0012	-0.88	IC
N6EHP7		0.0276	0.0010	0.84	0.0280	0.0018	1.29	OE
NLMX3Z	X	0.0272	0.0006	0.55	0.0387	0.0125	9.02	OE
PLXVHN		0.0267	0.0001	0.13	0.0260	-0.0002	-0.14	IC
Q6MYPU	X	0.0210	-0.0056	-4.76	0.0205	-0.0058	-4.17	OE
Q6P72G	X	0.0302	0.0036	3.05	0.0336	0.0074	5.34	WD
QEYLRP		0.0270	0.0004	0.35	0.0260	-0.0002	-0.16	WD
T2JFTT		0.0260	-0.0006	-0.53	0.0254	-0.0008	-0.59	OE
TYDXQQ		0.0254	-0.0012	-1.01	0.0248	-0.0015	-1.05	OE
TYX44F		0.0269	0.0003	0.24	0.0259	-0.0003	-0.21	WD
V9FDLU		0.0264	-0.0002	-0.13	0.0263	0.0000	0.03	OE
VH2NUZ		0.0255	-0.0011	-0.89	0.0261	-0.0001	-0.06	OE
VVT6PT		0.0243	-0.0023	-1.92	0.0240	-0.0022	-1.61	OE
XN4A2U		0.0284	0.0018	1.52	0.0279	0.0017	1.24	OE

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 182

Chemical Analysis Element #3 - Corrosion Resistant Steel - Percent
PHOSPHORUS (P)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
XU7XL2		0.0267	0.0001	0.07	0.0270	0.0008	0.56	XX
YZNDDJ	X	0.0427	0.0161	13.70	0.0373	0.0111	8.05	0E

Summary Statistics

	Sample M27		Sample M28	
Grand Means	0.0266	Percent	0.0262	Percent
Stnd Dev Btwn Labs	0.0012	Percent	0.0014	Percent

Samples M27 , M28 : AISI 309, two different heats

Statistics based on 42 of 51 reporting participants

Comments on assigned Data Flags for Analysis #182

WebCode	Flag	Analyst Comment
48DPU3	X	Data for both samples are high. Inconsistent within the determinations of sample M27.
8WKB6U	X	Data for both samples are high. Inconsistent within the determinations of both samples.
JDKTUZ	X	Data for both samples are low.
KQMJAD	X	Data for both samples are low.
NLMX3Z	X	Data for sample M28 are high. Inconsistent within the determinations of sample M28.
Q6MYPU	X	Data for both samples are low.
Q6P72G	X	Data for both samples are high.
YZNDDJ	X	Data for both samples are high. Inconsistent within the determinations of both samples.

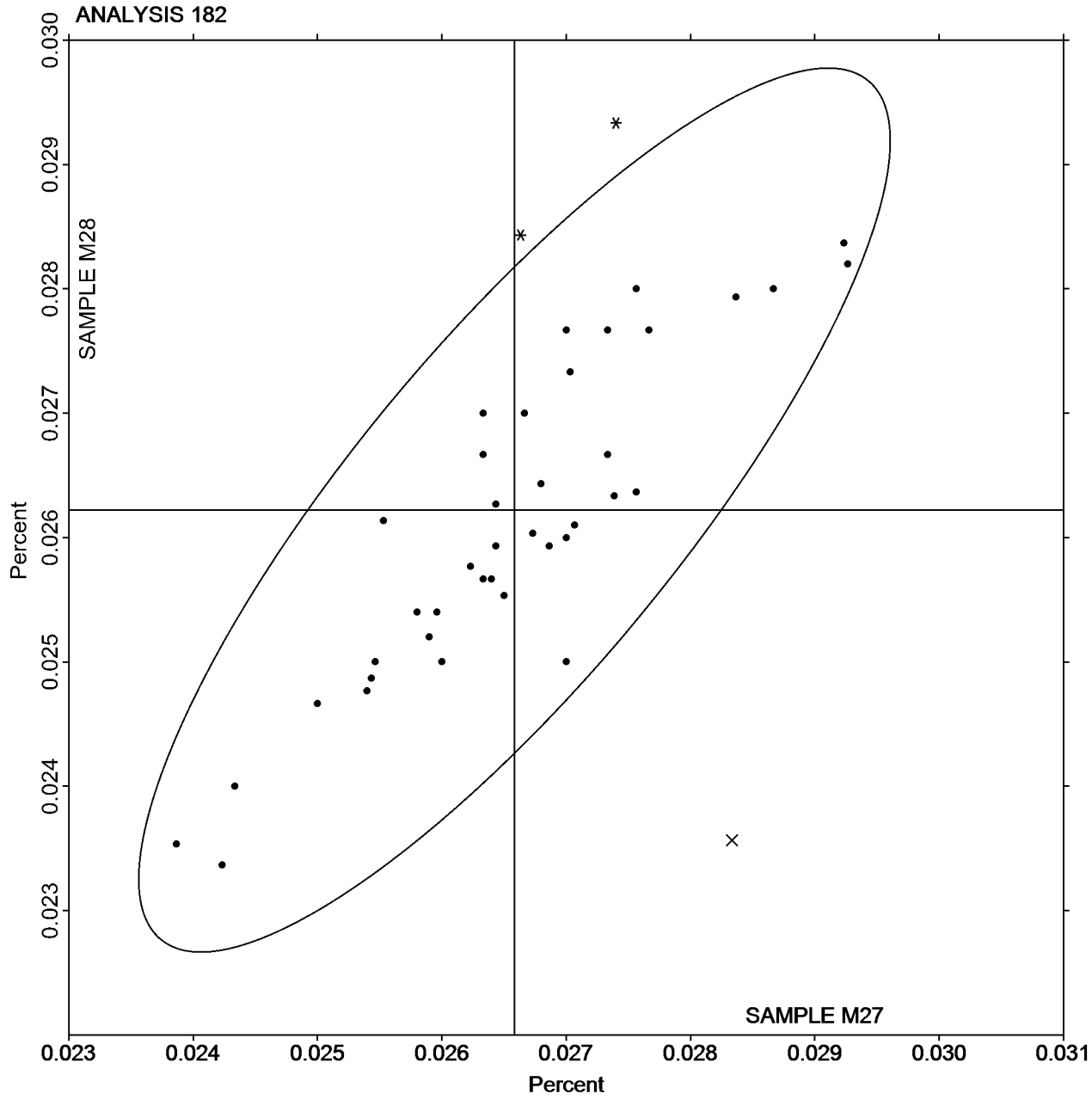
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 182

Chemical Analysis Element #3 - Corrosion Resistant Steel - Percent
PHOSPHORUS (P)

SAMPLE M27	SAMPLE M28
0.0266 Percent	0.0262 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 183

Chemical Analysis Element #4 - Corrosion Resistant Steel - Percent COBALT (Co)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2KAK8R	X	0.1273	0.0093	2.18	0.0982	0.0147	4.95	GD
48DPU3		0.1163	-0.0017	-0.39	0.0827	-0.0008	-0.28	XX
4VGGVD	X	0.0120	-0.1060	-24.75	0.0833	-0.0002	-0.08	OE
6H8MU9		0.1167	-0.0013	-0.31	0.0817	-0.0019	-0.64	WD
6ZKCZT		0.1247	0.0067	1.55	0.0867	0.0031	1.05	IC
88X3HP		0.1127	-0.0053	-1.25	0.0810	-0.0026	-0.87	OE
8H2K7R		0.1170	-0.0010	-0.24	0.0823	-0.0012	-0.42	XR
8KQRQP		0.1153	-0.0027	-0.63	0.0830	-0.0006	-0.19	OE
8UU4MJ		0.1229	0.0049	1.13	0.0845	0.0010	0.33	DR
8WKB6U		0.1177	-0.0003	-0.08	0.0810	-0.0026	-0.87	OE
9P2WTV	X	0.1106	-0.0074	-1.73	0.0717	-0.0119	-4.01	WD
9QAAQH		0.1160	-0.0020	-0.47	0.0833	-0.0002	-0.08	OE
A2LVX4		0.1186	0.0006	0.13	0.0831	-0.0004	-0.15	XR
A8BNFB		0.1200	0.0020	0.46	0.0820	-0.0016	-0.53	OE
ATBCXD	*	0.1110	-0.0070	-1.63	0.0845	0.0010	0.33	OE
AWCML2		0.1190	0.0010	0.23	0.0843	0.0008	0.26	OE
BXM6L3		0.1233	0.0053	1.24	0.0900	0.0064	2.17	OE
C89NE2		0.1210	0.0030	0.70	0.0863	0.0028	0.93	OE
CQZBQC		0.1193	0.0013	0.31	0.0794	-0.0042	-1.42	OE
DCVAQF		0.1127	-0.0053	-1.25	0.0803	-0.0032	-1.09	OE
EPZDLF		0.1200	0.0020	0.46	0.0800	-0.0036	-1.21	OE
FNGNKT		0.1253	0.0073	1.71	0.0880	0.0044	1.50	IC
FQL2KF		0.1180	0.0000	0.00	0.0828	-0.0008	-0.27	OE
GJ3TAV		0.1190	0.0010	0.23	0.0847	0.0011	0.37	OE
HE69QQ		0.1253	0.0073	1.71	0.0880	0.0044	1.50	OE
HJXAR6		0.1103	-0.0077	-1.79	0.0803	-0.0032	-1.09	OE
HUGVTT		0.1213	0.0033	0.78	0.0853	0.0018	0.60	WD
J348P7		0.1190	0.0010	0.23	0.0850	0.0014	0.48	DR
JDKTUZ		0.1247	0.0067	1.55	0.0853	0.0018	0.60	OE
JEGCRV		0.1160	-0.0020	-0.47	0.0800	-0.0036	-1.21	OE
JP22R8		0.1220	0.0040	0.93	0.0887	0.0051	1.72	OE
L4UUEE	X	0.1573	0.0393	9.18	0.1170	0.0334	11.29	OE
LAZ6KT		0.1160	-0.0020	-0.47	0.0853	0.0018	0.60	IC
M3WWMJ		0.1100	-0.0080	-1.87	0.0817	-0.0019	-0.64	OE
N6EHP7	X	0.0950	-0.0230	-5.37	0.0710	-0.0126	-4.25	OE
NLMX3Z		0.1189	0.0009	0.21	0.0848	0.0012	0.41	OE
PLXVHN		0.1198	0.0018	0.42	0.0866	0.0030	1.01	IC
Q6MYPU		0.1110	-0.0070	-1.64	0.0793	-0.0042	-1.43	OE
Q6P72G		0.1183	0.0003	0.07	0.0823	-0.0012	-0.42	WD
QEYLRP	*	0.1137	-0.0043	-1.01	0.0763	-0.0072	-2.44	WD
T2JFTT		0.1154	-0.0026	-0.62	0.0820	-0.0016	-0.53	OE
TYDXQQ		0.1243	0.0063	1.48	0.0873	0.0038	1.27	OE
TYX44F		0.1223	0.0043	1.01	0.0860	0.0024	0.82	WD
V9FDLU		0.1220	0.0040	0.93	0.0833	-0.0002	-0.08	OE
VH2NUZ		0.1200	0.0020	0.47	0.0862	0.0026	0.88	OE
VVT6PT		0.1133	-0.0047	-1.09	0.0810	-0.0026	-0.87	OE
WTE62X		0.1140	-0.0040	-0.94	0.0820	-0.0016	-0.53	XX
XN4A2U		0.1170	-0.0010	-0.24	0.0837	0.0001	0.03	OE
XU7XL2		0.1190	0.0010	0.23	0.0883	0.0048	1.61	XX

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 183

Chemical Analysis Element #4 - Corrosion Resistant Steel - Percent COBALT (Co)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
YZNDDJ		0.1103	-0.0077	-1.79	0.0800	-0.0036	-1.21	0E

Summary Statistics

	Sample M27		Sample M28	
Grand Means	0.1180	Percent	0.0836	Percent
Stnd Dev Btwn Labs	0.0043	Percent	0.0030	Percent

Samples M27 , M28 : AISI 309, two different heats

Statistics based on 45 of 50 reporting participants

Comments on assigned Data Flags for Analysis #183

WebCode	Flag	Analyst Comment
2KAK8R	X	Data for sample M28 are high. Inconsistent within the determinations of sample M27.
4VGGVD	X	Data for sample M27 are low. Inconsistent within the determinations of sample M28.
9P2WTV	X	Data for sample M28 are low. Inconsistent within the determinations of sample M27.
L4UUEE	X	Data for both samples are high.
N6EHP7	X	Data for both samples are low.

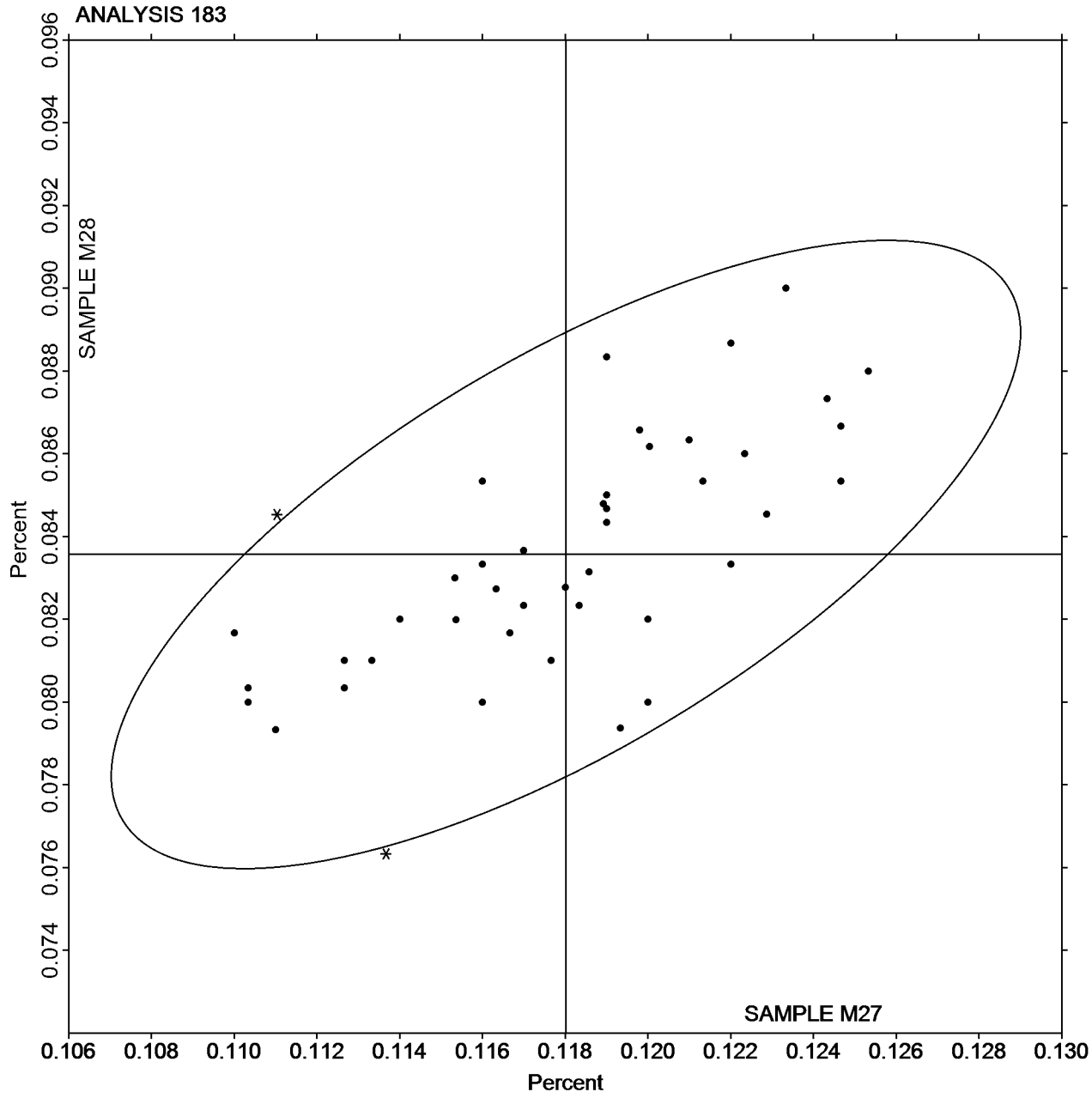
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 183

Chemical Analysis Element #4 - Corrosion Resistant Steel - Percent
COBALT (Co)

SAMPLE M27	SAMPLE M28
0.1180 Percent	0.0836 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 184

Chemical Analysis Element #5 - Corrosion Resistant Steel - Percent
SILICON (Si)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2KAK8R		0.3317	0.0145	1.35	0.3837	0.0170	1.61	GD
48DPU3		0.3120	-0.0052	-0.49	0.3597	-0.0070	-0.66	XX
4VGGVD		0.3200	0.0028	0.26	0.3700	0.0033	0.32	OE
6C6GDJ	X	0.3100	-0.0072	-0.67	0.2800	-0.0867	-8.22	XR
6H8MU9		0.3223	0.0051	0.48	0.3730	0.0063	0.60	WD
6ZKCZT		0.3190	0.0018	0.17	0.3733	0.0067	0.63	IC
8GPQQR		0.3100	-0.0072	-0.67	0.3540	-0.0127	-1.20	OE
8H2K7R		0.3130	-0.0042	-0.39	0.3643	-0.0023	-0.22	XR
8KQRQP	*	0.3337	0.0165	1.54	0.3913	0.0247	2.34	OE
8UU4MJ		0.3172	0.0000	0.00	0.3740	0.0074	0.70	DR
8WKB6U	*	0.3183	0.0011	0.11	0.3547	-0.0120	-1.14	OE
9P2WTV		0.3133	-0.0039	-0.36	0.3680	0.0013	0.13	WD
9QAAQH		0.3167	-0.0005	-0.05	0.3680	0.0013	0.13	OE
A2LVX4		0.3305	0.0133	1.24	0.3694	0.0027	0.26	OE
A8BNFB	X	0.3603	0.0431	4.03	0.3430	-0.0237	-2.24	OE
ATBCXD		0.3208	0.0036	0.34	0.3713	0.0047	0.44	OE
AWCML2		0.3053	-0.0119	-1.11	0.3533	-0.0133	-1.26	OE
BXM6L3		0.3300	0.0128	1.20	0.3717	0.0050	0.47	OE
C89NE2		0.3150	-0.0022	-0.21	0.3617	-0.0050	-0.47	OE
CQZBQC		0.3150	-0.0022	-0.21	0.3667	0.0000	0.00	OE
DCVAQF	*	0.2990	-0.0182	-1.70	0.3603	-0.0063	-0.60	OE
EG6HF4		0.3130	-0.0042	-0.39	0.3567	-0.0100	-0.95	OE
EPZDLF		0.3000	-0.0172	-1.61	0.3533	-0.0133	-1.26	OE
F3GWB2	*	0.2980	-0.0192	-1.80	0.3410	-0.0257	-2.43	OE
FNGNKT		0.3177	0.0005	0.04	0.3677	0.0010	0.10	IC
FQL2KF	X	0.3747	0.0575	5.37	0.4003	0.0337	3.19	OE
GEBDZ3		0.3170	-0.0002	-0.02	0.3667	0.0000	0.00	OE
GJ3TAV		0.3167	-0.0005	-0.05	0.3717	0.0050	0.47	OE
HE69QQ		0.3157	-0.0015	-0.14	0.3643	-0.0023	-0.22	OE
HJXAR6		0.3213	0.0041	0.39	0.3670	0.0003	0.03	OE
HUGVTT		0.2933	-0.0239	-2.23	0.3480	-0.0187	-1.77	WD
J348P7		0.3113	-0.0059	-0.55	0.3590	-0.0077	-0.73	DR
JDKTUZ	X	0.2920	-0.0252	-2.36	0.3303	-0.0363	-3.45	OE
JEGCRV	*	0.3467	0.0295	2.76	0.3920	0.0253	2.40	OE
JP22R8		0.3247	0.0075	0.70	0.3747	0.0080	0.76	OE
KQMJAD		0.2937	-0.0235	-2.20	0.3727	0.0060	0.57	ED
L4UUEE		0.3087	-0.0085	-0.80	0.3613	-0.0053	-0.51	WD
LAZ6KT		0.3123	-0.0049	-0.46	0.3580	-0.0087	-0.82	IC
M3WWMJ		0.3113	-0.0059	-0.55	0.3597	-0.0070	-0.66	OE
N6EHP7		0.3057	-0.0115	-1.08	0.3603	-0.0063	-0.60	OE
NLMX3Z		0.3149	-0.0024	-0.22	0.3606	-0.0061	-0.58	OE
PLXVHN		0.3072	-0.0100	-0.94	0.3587	-0.0079	-0.75	IC
Q6MYPU		0.3337	0.0165	1.54	0.3777	0.0110	1.04	OE
Q6P72G		0.3077	-0.0095	-0.89	0.3840	0.0173	1.64	WD
QEYLRP		0.3400	0.0228	2.13	0.3900	0.0233	2.21	WD
T2JFTT		0.3207	0.0035	0.33	0.3745	0.0079	0.75	OE
TYDXQQ		0.3190	0.0018	0.17	0.3673	0.0007	0.06	OE
TYX44F		0.3163	-0.0009	-0.08	0.3690	0.0023	0.22	WD
V9FDLU		0.3217	0.0045	0.42	0.3683	0.0017	0.16	OE

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 184

Chemical Analysis Element #5 - Corrosion Resistant Steel - Percent
SILICON (Si)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
VH2NUZ		0.3144	-0.0028	-0.26	0.3682	0.0015	0.14	0E
VVT6PT		0.3133	-0.0039	-0.36	0.3667	0.0000	0.00	0E
WTE62X		0.3403	0.0231	2.16	0.3873	0.0207	1.96	0E
XN4A2U		0.3160	-0.0012	-0.11	0.3590	-0.0077	-0.73	0E
XU7XL2		0.3113	-0.0059	-0.55	0.3613	-0.0053	-0.51	XX
YZNDDJ		0.3180	0.0008	0.07	0.3680	0.0013	0.13	0E

Summary Statistics

	Sample M27		Sample M28	
Grand Means	0.3172	Percent	0.3667	Percent
Stnd Dev Btwn Labs	0.0107	Percent	0.0105	Percent

Samples M27 , M28 : AISI 309, two different heats

Statistics based on 49 of 55 reporting participants

Comments on assigned Data Flags for Analysis #184

WebCode	Flag	Analyst Comment
6C6GDJ	X	Data for sample M28 are low. Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
A8BNFB	X	Data for sample M27 are high. Inconsistent in testing between samples.
FQL2KF	X	Data for both samples are high. Possible Systematic error.
JDKTUZ	X	Data for sample M28 are low. Inconsistent in testing between samples.

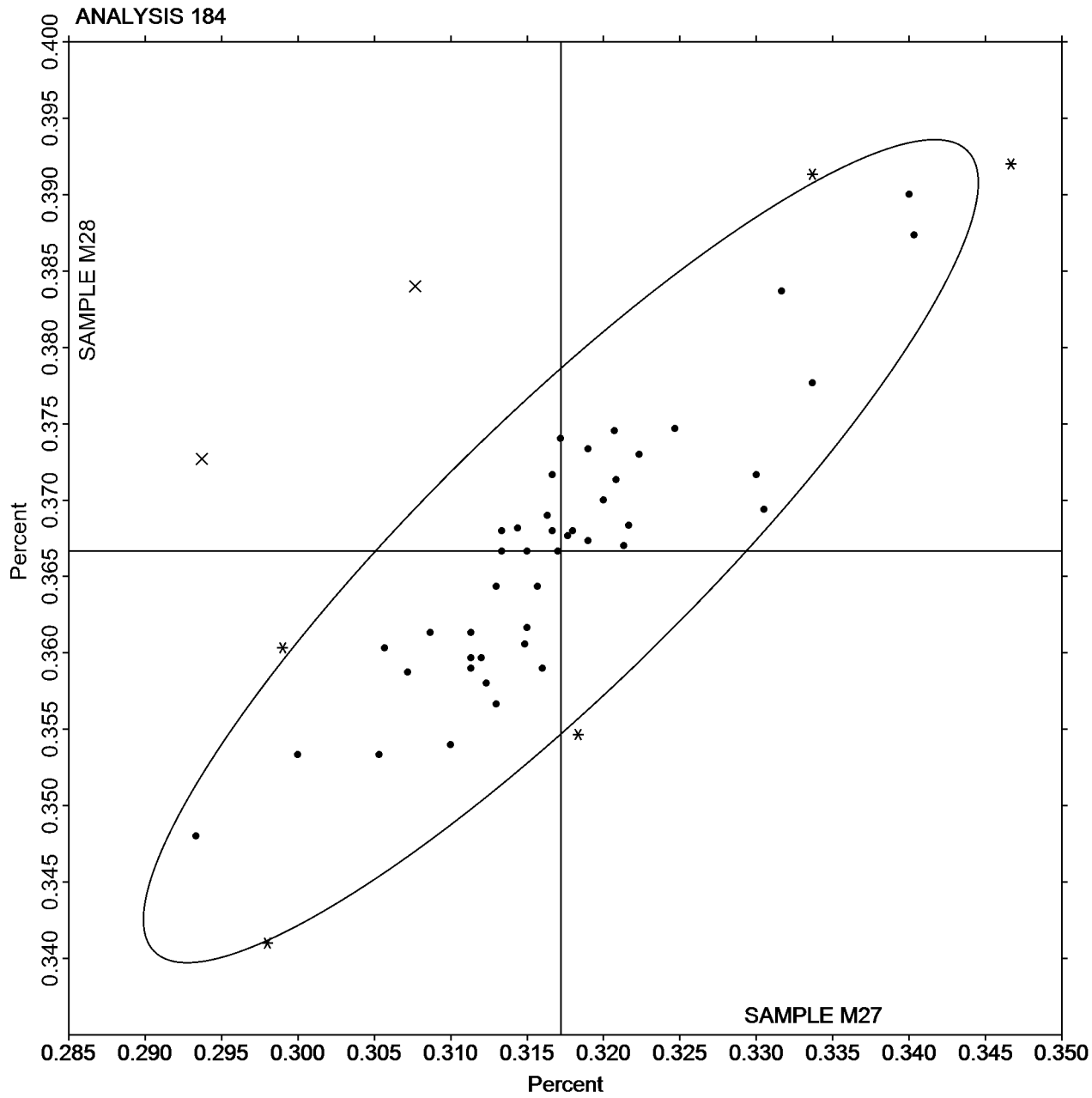
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 184

Chemical Analysis Element #5 - Corrosion Resistant Steel - Percent
SILICON (Si)

SAMPLE M27	SAMPLE M28
0.3172 Percent	0.3667 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 185

Chemical Analysis Element #6 - Corrosion Resistant Steel - Percent COPPER (Cu)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2KAK8R		0.2507	-0.0070	-0.93	0.3187	0.0025	0.24	GD
48DPU3		0.2540	-0.0037	-0.49	0.3067	-0.0095	-0.95	XX
4VGGVD		0.2533	-0.0044	-0.58	0.3100	-0.0062	-0.62	OE
6C6GDJ	X	0.2900	0.0323	4.27	0.3467	0.0305	3.02	XR
6H8MU9		0.2527	-0.0050	-0.66	0.3107	-0.0055	-0.55	WD
6ZKCZT		0.2493	-0.0084	-1.10	0.3120	-0.0042	-0.42	IC
88X3HP		0.2513	-0.0064	-0.84	0.3160	-0.0002	-0.02	OE
8H2K7R		0.2690	0.0113	1.49	0.3343	0.0181	1.80	XR
8KQRQP		0.2723	0.0146	1.93	0.3093	-0.0069	-0.68	OE
8UU4MJ		0.2630	0.0053	0.71	0.3134	-0.0028	-0.28	DR
8WKB6U	X	0.1957	-0.0620	-8.19	0.2940	-0.0222	-2.20	OE
9P2WTV		0.2583	0.0006	0.09	0.3150	-0.0012	-0.12	WD
9QAAQH		0.2530	-0.0047	-0.62	0.3120	-0.0042	-0.42	OE
A2LVX4		0.2609	0.0032	0.42	0.3209	0.0047	0.46	XR
A8BNFB	*	0.2507	-0.0070	-0.93	0.2903	-0.0259	-2.57	OE
ATBCXD		0.2558	-0.0019	-0.25	0.3133	-0.0029	-0.28	OE
AWCML2		0.2613	0.0036	0.48	0.3130	-0.0032	-0.32	OE
BXM6L3	*	0.2753	0.0176	2.33	0.3203	0.0041	0.41	OE
C89NE2		0.2520	-0.0057	-0.75	0.3233	0.0071	0.71	OE
CQZBQC		0.2630	0.0053	0.70	0.3227	0.0065	0.64	OE
DCVAQF		0.2497	-0.0080	-1.06	0.3160	-0.0002	-0.02	OE
EG6HF4		0.2443	-0.0134	-1.76	0.3383	0.0221	2.20	OE
EPZDLF	*	0.2733	0.0156	2.07	0.3467	0.0305	3.02	XR
F3GWB2	*	0.2717	0.0140	1.85	0.3130	-0.0032	-0.32	OE
FNGNKT		0.2630	0.0053	0.70	0.3283	0.0121	1.20	IC
FQL2KF	X	0.1620	-0.0957	-12.64	0.1877	-0.1285	-12.75	OE
GEBDZ3		0.2540	-0.0037	-0.49	0.3120	-0.0042	-0.42	OE
GJ3TAV		0.2567	-0.0010	-0.14	0.3120	-0.0042	-0.42	OE
HE69QQ		0.2660	0.0083	1.10	0.3273	0.0111	1.10	OE
HJXAR6		0.2497	-0.0080	-1.06	0.3103	-0.0059	-0.58	OE
HUGVTT		0.2560	-0.0017	-0.22	0.3153	-0.0009	-0.09	WD
J348P7		0.2530	-0.0047	-0.62	0.3060	-0.0102	-1.01	DR
JDKTUZ	*	0.2370	-0.0207	-2.73	0.2890	-0.0272	-2.70	OE
JEGCRV	X	0.2990	0.0413	5.46	0.3520	0.0358	3.55	OE
JP22R8		0.2647	0.0070	0.92	0.3240	0.0078	0.77	OE
KQMJAD	X	0.3433	0.0856	11.31	0.3970	0.0808	8.02	ED
L4UUEE		0.2557	-0.0020	-0.27	0.3170	0.0008	0.08	WD
LAZ6KT		0.2520	-0.0057	-0.75	0.3143	-0.0019	-0.19	IC
M3WWMJ		0.2567	-0.0010	-0.14	0.3090	-0.0072	-0.71	OE
N6EHP7		0.2657	0.0080	1.05	0.3213	0.0051	0.51	OE
NLMX3Z		0.2543	-0.0034	-0.45	0.3191	0.0029	0.29	OE
PLXVHN		0.2623	0.0046	0.61	0.3226	0.0064	0.64	IC
Q6MYPU		0.2427	-0.0150	-1.98	0.2977	-0.0185	-1.84	OE
Q6P72G		0.2587	0.0010	0.13	0.3233	0.0071	0.71	WD
QEYLRP		0.2600	0.0023	0.31	0.3200	0.0038	0.38	WD
T2JFTT		0.2622	0.0045	0.60	0.3272	0.0110	1.09	OE
TYDXQQ		0.2667	0.0090	1.19	0.3257	0.0095	0.94	OE
TYX44F		0.2577	0.0000	0.00	0.3150	-0.0012	-0.12	WD
V9FDLU		0.2593	0.0016	0.22	0.3253	0.0091	0.91	OE

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 185

Chemical Analysis Element #6 - Corrosion Resistant Steel - Percent COPPER (Cu)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
VH2NUZ		0.2589	0.0012	0.16	0.3192	0.0030	0.30	0E
VVT6PT		0.2500	-0.0077	-1.02	0.3067	-0.0095	-0.95	0E
WTE62X		0.2657	0.0080	1.05	0.3220	0.0058	0.58	0E
XN4A2U		0.2630	0.0053	0.70	0.3197	0.0035	0.34	0E
XU7XL2		0.2583	0.0006	0.09	0.3193	0.0031	0.31	XX
YZNDDJ		0.2510	-0.0067	-0.88	0.3007	-0.0155	-1.54	0E

Summary Statistics

	Sample M27		Sample M28	
Grand Means	0.2577	Percent	0.3162	Percent
Stnd Dev Btwn Labs	0.0076	Percent	0.0101	Percent

Samples M27 , M28 : AISI 309, two different heats

Statistics based on 48 of 55 reporting participants

Comments on assigned Data Flags for Analysis #185

WebCode	Flag	Analyst Comment
6C6GDJ	X	Data for both samples are high. Inconsistent within the determinations of both samples.
8WKB6U	X	Data for sample M27 are low. Inconsistent within the determinations of both samples.
FQL2KF	X	Data for both samples are low.
JEGCRV	X	Data for both samples are high.
KQMJAD	X	Data for both samples are high.

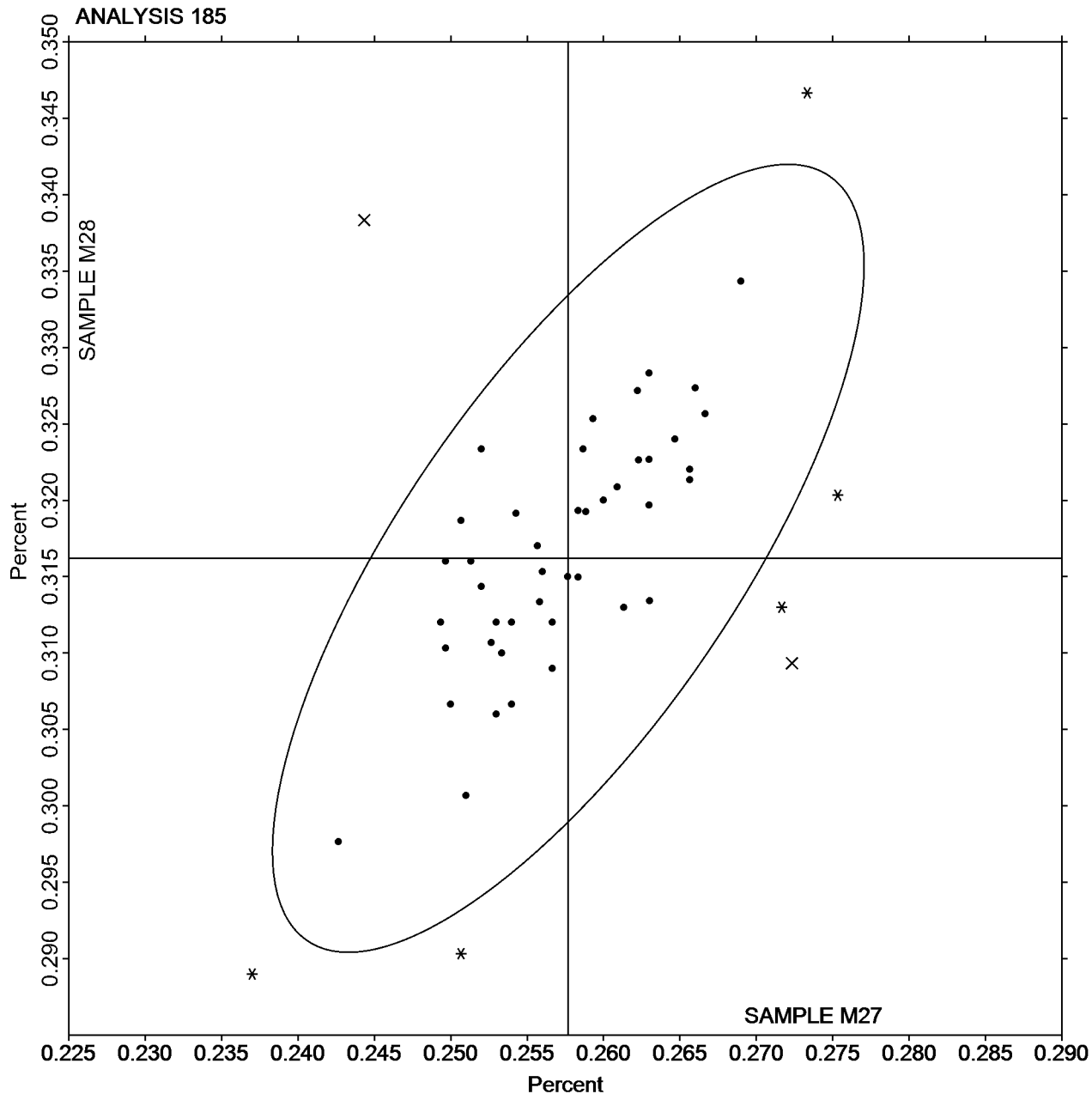
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 185

Chemical Analysis Element #6 - Corrosion Resistant Steel - Percent
COPPER (Cu)

SAMPLE M27	SAMPLE M28
0.2577 Percent	0.3162 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 186

Chemical Analysis Element #7 - Corrosion Resistant Steel - Percent
NICKEL (Ni)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2KAK8R		12.20	0.20	1.75	13.77	0.10	0.75	GD
48DPU3		11.97	-0.02	-0.21	13.56	-0.11	-0.87	XX
4VGGVD		12.04	0.04	0.34	13.85	0.18	1.37	OE
6C6GDJ	X	12.64	0.65	5.59	13.89	0.22	1.70	XR
6H8MU9		12.01	0.02	0.14	13.72	0.05	0.41	WD
6ZKCZT		12.09	0.09	0.80	13.82	0.15	1.13	IC
88X3HP		12.12	0.12	1.03	13.70	0.03	0.25	WD
8GPQQR		12.28	0.28	2.41	13.91	0.24	1.88	OE
8H2K7R		12.03	0.03	0.25	13.72	0.05	0.39	XR
8KQRQP		12.01	0.01	0.11	13.63	-0.04	-0.31	OE
8UU4MJ		11.98	-0.01	-0.13	13.86	0.19	1.43	DR
8WKB6U		11.85	-0.15	-1.28	13.50	-0.17	-1.31	OE
9P2WTV		12.02	0.02	0.19	13.68	0.01	0.11	WD
9QAAQH		12.02	0.02	0.19	13.65	-0.02	-0.18	OE
A2LVX4		11.96	-0.04	-0.36	13.65	-0.02	-0.16	XR
A8BNFB	*	11.98	-0.02	-0.18	13.89	0.22	1.70	OE
AR6EKG		12.04	0.05	0.40	13.66	-0.01	-0.07	ED
ATBCXD		11.90	-0.10	-0.84	13.69	0.02	0.12	OE
AWCML2		12.04	0.05	0.40	13.65	-0.02	-0.13	OE
BXM6L3		12.06	0.06	0.54	13.67	0.00	0.00	OE
C89NE2	*	12.04	0.04	0.34	13.47	-0.20	-1.51	OE
CQZBQC		12.07	0.07	0.63	13.74	0.07	0.57	OE
DCVAQF		11.87	-0.13	-1.13	13.46	-0.21	-1.64	OE
EG6HF4		12.20	0.21	1.78	13.90	0.23	1.75	OE
EPZDLF		12.03	0.04	0.31	13.77	0.10	0.75	XR
F3GWB2		12.03	0.03	0.28	13.62	-0.05	-0.40	OE
FNGNKT		12.06	0.06	0.54	13.72	0.05	0.36	IC
FQL2KF	X	12.08	0.08	0.71	14.83	1.16	8.95	OE
GEBDZ3		11.94	-0.05	-0.47	13.63	-0.04	-0.31	OE
GJ3TAV		11.91	-0.09	-0.79	13.67	0.00	0.00	OE
HE69QQ		12.05	0.06	0.48	13.72	0.05	0.36	OE
HJXAR6		11.94	-0.06	-0.50	13.47	-0.20	-1.57	OE
HUGVTT		11.94	-0.06	-0.48	13.69	0.02	0.15	XX
J348P7		11.96	-0.04	-0.36	13.56	-0.11	-0.83	DR
JDKTUZ		12.04	0.04	0.34	13.70	0.03	0.24	OE
JEGCRV		12.07	0.07	0.63	13.73	0.06	0.47	OE
JP22R8		12.12	0.13	1.09	13.85	0.18	1.42	OE
KQMJAD		11.80	-0.20	-1.69	13.49	-0.18	-1.40	ED
L4UUEE		11.97	-0.03	-0.27	13.66	-0.01	-0.10	WD
LAZ6KT	*	11.70	-0.30	-2.58	13.57	-0.10	-0.79	IC
M3WWMJ		12.11	0.11	0.94	13.90	0.23	1.75	OE
N6EHP7		12.07	0.07	0.63	13.63	-0.04	-0.31	OE
NLMX3Z		12.06	0.07	0.57	13.86	0.19	1.46	OE
PLXVHN		11.99	-0.01	-0.06	13.67	0.00	-0.01	IC
Q6DVFC		11.99	-0.01	-0.09	13.66	-0.01	-0.04	WC
Q6MYPU	*	11.66	-0.34	-2.95	13.34	-0.33	-2.57	OE
Q6P72G		11.99	-0.01	-0.07	13.64	-0.03	-0.20	WD
QEYLRP		12.07	0.08	0.66	13.77	0.10	0.80	WD
T2JFTT		11.94	-0.05	-0.47	13.56	-0.11	-0.83	OE

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 186

Chemical Analysis Element #7 - Corrosion Resistant Steel - Percent NICKEL (Ni)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
TYDXQQ		12.06	0.06	0.51	13.71	0.04	0.31	OE
TYX44F		12.03	0.03	0.28	13.58	-0.09	-0.67	WD
V9FDLU		12.00	0.01	0.05	13.68	0.01	0.05	OE
VH2NUZ	X	11.88	-0.12	-1.05	13.89	0.22	1.73	OE
VVT6PT		12.02	0.02	0.16	13.57	-0.10	-0.74	OE
WTE62X		11.83	-0.16	-1.43	13.51	-0.16	-1.22	OE
XN4A2U		12.05	0.05	0.45	13.66	-0.01	-0.05	OE
XU7XL2		11.99	-0.01	-0.07	13.73	0.06	0.49	XX
YZNDDJ	*	11.67	-0.33	-2.83	13.37	-0.30	-2.28	OE

Summary Statistics

	Sample M27		Sample M28	
Grand Means	12.00	Percent	13.67	Percent
Stnd Dev Btwn Labs	0.12	Percent	0.13	Percent

Samples M27 , M28 : AISI 309, two different heats

Statistics based on 55 of 58 reporting participants

Comments on assigned Data Flags for Analysis #186

WebCode	Flag	Analyst Comment
6C6GDJ	X	Data for sample M27 are high. Inconsistent in testing between samples. Inconsistent within the determinations of sample M27.
FQL2KF	X	Data for sample M28 are high. Inconsistent in testing between samples.
VH2NUZ	X	Inconsistent in testing between samples. Inconsistent within the determinations of sample M28.

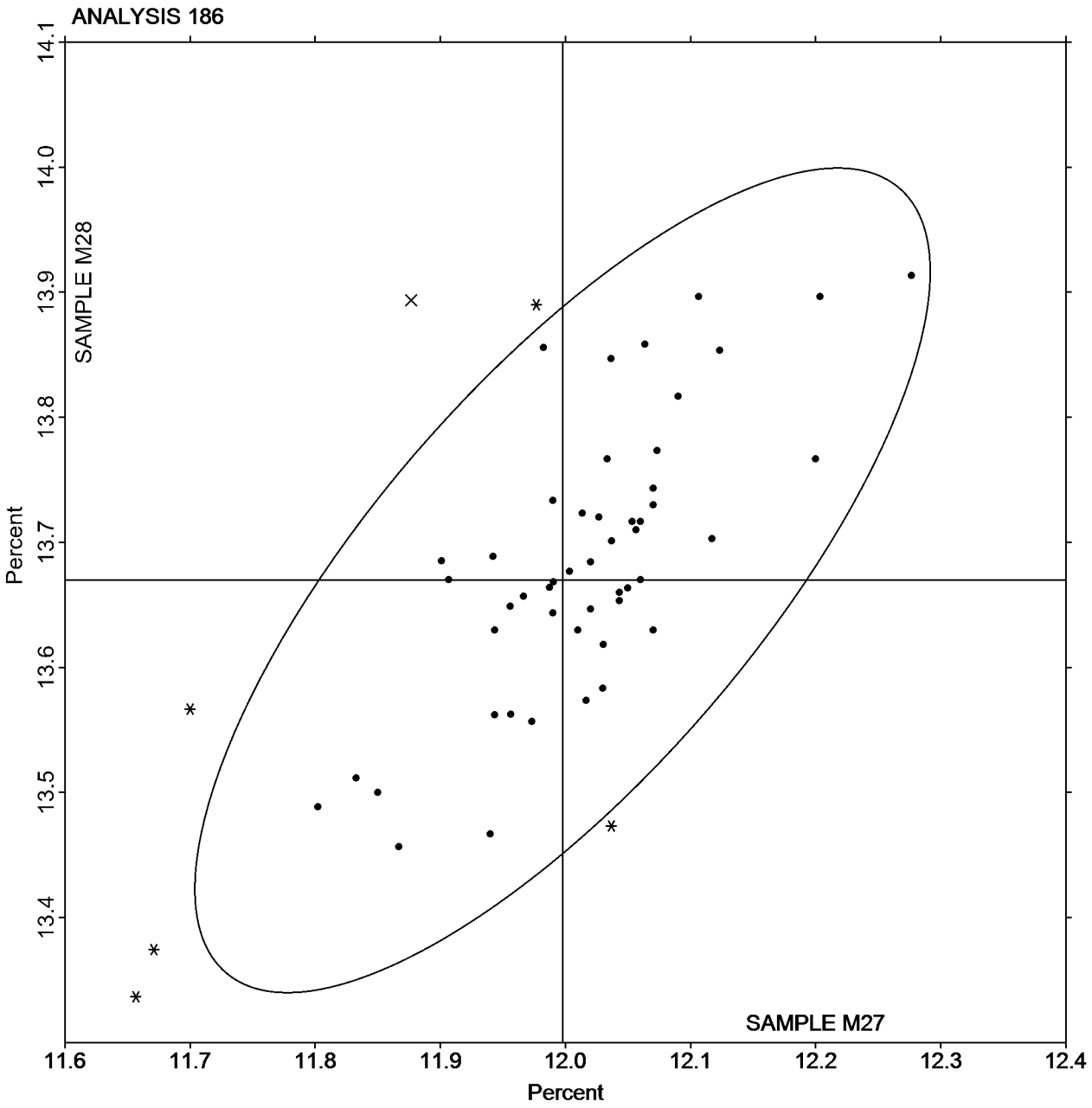
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 186

Chemical Analysis Element #7 - Corrosion Resistant Steel - Percent
NICKEL (Ni)

SAMPLE M27	SAMPLE M28
12.00 Percent	13.67 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 187

Chemical Analysis Element #8 - Corrosion Resistant Steel - Percent
CHROMIUM (Cr)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2KAK8R	X	22.80	0.30	3.13	22.90	0.10	0.86	GD
48DPU3		22.55	0.05	0.52	22.90	0.09	0.83	XX
4VGGVD		22.47	-0.03	-0.30	22.63	-0.17	-1.55	OE
6C6GDJ	X	21.58	-0.92	-9.45	22.76	-0.05	-0.42	XR
6H8MU9		22.30	-0.20	-2.01	22.64	-0.17	-1.49	WD
6ZKCZT		22.53	0.03	0.35	22.87	0.06	0.57	IC
88X3HP		22.53	0.03	0.34	22.76	-0.04	-0.36	WD
8GPQQR		22.52	0.02	0.25	22.84	0.04	0.36	OE
8H2K7R		22.45	-0.05	-0.50	22.80	-0.01	-0.06	XR
8KQRQP		22.56	0.06	0.66	23.00	0.20	1.79	OE
8UU4MJ		22.50	0.01	0.06	22.77	-0.03	-0.28	DR
8WKB6U		22.46	-0.04	-0.37	22.83	0.02	0.21	OE
9P2WTV		22.52	0.02	0.21	22.78	-0.02	-0.21	WD
9QAAQH		22.45	-0.04	-0.44	22.77	-0.03	-0.27	OE
A2LVX4		22.50	0.01	0.08	22.85	0.05	0.46	XR
A8BNFB	X	22.65	0.15	1.55	22.47	-0.33	-2.98	OE
AR6EKG		22.73	0.23	2.41	23.08	0.27	2.44	ED
ATBCXD		22.48	-0.02	-0.19	22.75	-0.06	-0.50	OE
AWCML2		22.46	-0.04	-0.40	22.78	-0.02	-0.21	OE
BXM6L3		22.57	0.07	0.73	22.89	0.08	0.74	OE
C89NE2		22.51	0.01	0.11	22.77	-0.03	-0.30	OE
CQZBQC		22.55	0.06	0.59	22.84	0.04	0.33	OE
DCVAQF	*	22.23	-0.27	-2.77	22.63	-0.17	-1.52	OE
EPZDLF		22.40	-0.10	-0.98	22.80	0.00	-0.03	XR
F3GWB2		22.51	0.01	0.15	22.91	0.10	0.91	OE
FNGNKT		22.49	-0.01	-0.09	22.75	-0.05	-0.48	IC
FQL2KF		22.46	-0.04	-0.40	22.65	-0.15	-1.37	OE
GEBDZ3		22.53	0.03	0.35	22.81	0.01	0.09	OE
GJ3TAV		22.51	0.02	0.18	22.82	0.01	0.12	OE
HE69QQ		22.47	-0.03	-0.30	22.80	0.00	0.00	OE
HJXAR6	*	22.22	-0.28	-2.83	22.48	-0.32	-2.89	OE
HUGVTT		22.64	0.15	1.53	22.94	0.13	1.18	WD
J348P7	X	22.93	0.44	4.48	23.10	0.30	2.64	DR
JDKTUZ		22.60	0.10	1.07	22.96	0.16	1.40	OE
JEGCRV	X	22.21	-0.29	-2.94	22.35	-0.45	-4.05	OE
JP22R8		22.48	-0.02	-0.16	22.64	-0.16	-1.43	OE
KQMJAD		22.49	0.00	-0.03	22.84	0.04	0.36	ED
L4UUEE		22.52	0.03	0.28	22.94	0.14	1.25	WD
LAZ6KT		22.46	-0.04	-0.40	22.80	0.00	0.00	TI
M3WWMJ		22.27	-0.23	-2.32	22.56	-0.24	-2.15	OE
N6EHP7		22.55	0.05	0.56	22.90	0.10	0.86	OE
NLMX3Z		22.46	-0.04	-0.42	22.75	-0.06	-0.52	OE
PLXVHN		22.53	0.04	0.37	22.80	-0.01	-0.06	IC
Q6DVFC		22.57	0.08	0.79	22.78	-0.02	-0.17	WC
Q6MYPU		22.54	0.04	0.42	22.82	0.01	0.12	OE
Q6P72G		22.58	0.08	0.83	22.95	0.14	1.28	WD
QEYLRP		22.47	-0.02	-0.23	22.84	0.04	0.36	WD
T2JFTT	X	22.98	0.48	4.95	23.37	0.57	5.09	OE
TYDXQQ		22.49	-0.01	-0.09	22.78	-0.03	-0.24	OE

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 187

Chemical Analysis Element #8 - Corrosion Resistant Steel - Percent CHROMIUM (Cr)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
TYX44F		22.46	-0.04	-0.37	22.77	-0.03	-0.30	WD
V9FDLU		22.46	-0.04	-0.37	22.77	-0.03	-0.30	OE
VH2NUZ		22.42	-0.08	-0.83	22.68	-0.12	-1.08	OE
VVT6PT		22.62	0.13	1.31	22.83	0.02	0.21	OE
WTE62X		22.56	0.07	0.70	22.88	0.08	0.72	OE
XN4A2U		22.71	0.21	2.17	22.97	0.17	1.49	OE
XU7XL2		22.47	-0.02	-0.23	22.77	-0.03	-0.30	XX
YZNDDJ	X	22.03	-0.47	-4.78	22.22	-0.58	-5.18	OE

Summary Statistics

	Sample M27		Sample M28	
Grand Means	22.50	Percent	22.80	Percent
Stnd Dev Btwn Labs	0.10	Percent	0.11	Percent

Samples M27 , M28 : AISI 309, two different heats

Statistics based on 50 of 57 reporting participants

Comments on assigned Data Flags for Analysis #187

WebCode	Flag	Analyst Comment
2KAK8R	X	Data for sample M27 are high. Inconsistent in testing between samples.
6C6GDJ	X	Data for sample M27 are low. Inconsistent in testing between samples. Inconsistent within the determinations of sample M28.
A8BNFB	X	Data for sample M28 are low. Inconsistent in testing between samples.
J348P7	X	Data for sample M27 are high. Inconsistent in testing between samples.
JEGCRV	X	Data for both samples are low. Possible Systematic error.
T2JFTT	X	Data for both samples are high. Possible Systematic error.
YZNDDJ	X	Data for both samples are low. Possible Systematic error.

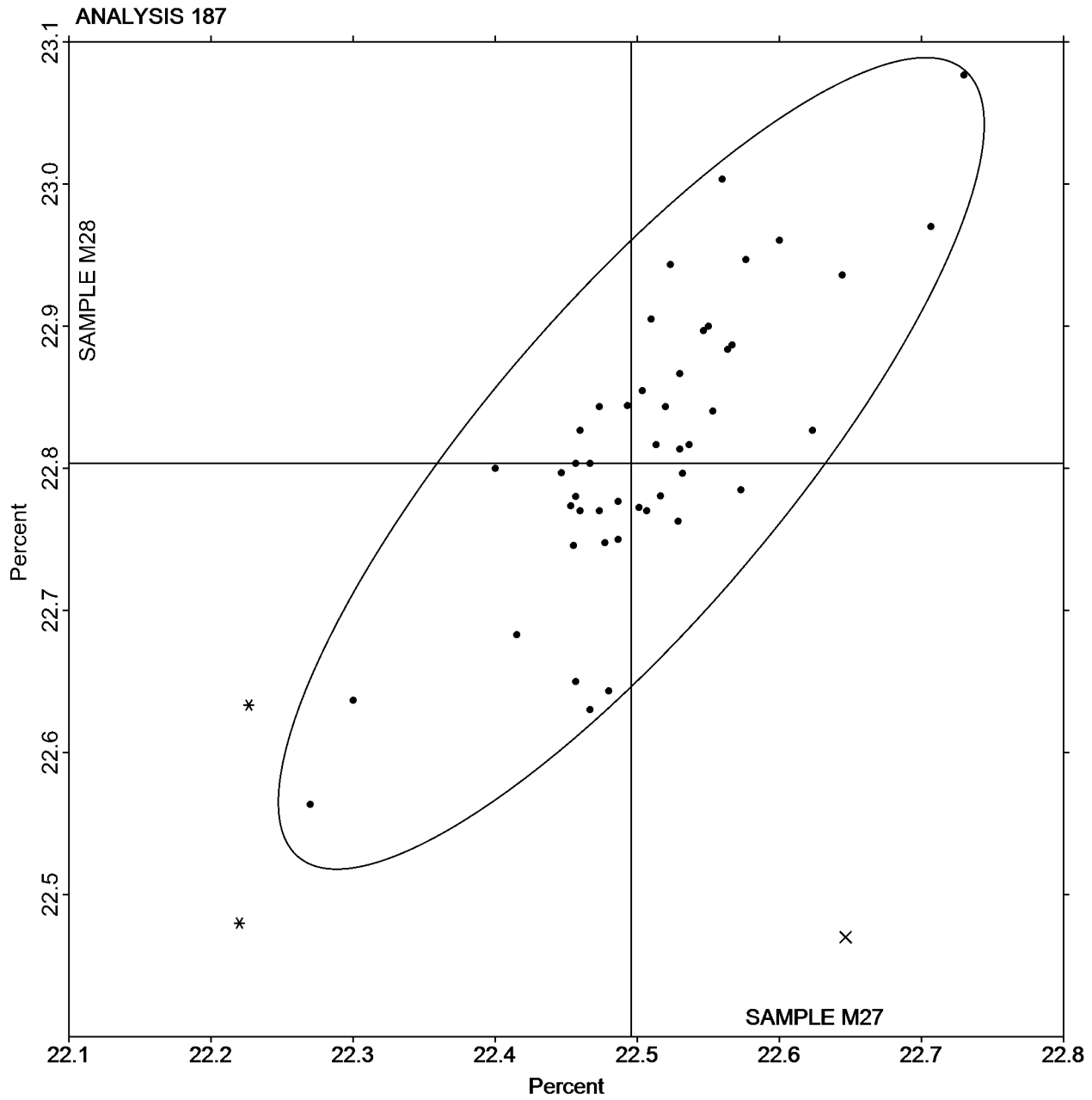
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 187

Chemical Analysis Element #8 - Corrosion Resistant Steel - Percent
CHROMIUM (Cr)

SAMPLE M27	SAMPLE M28
22.50 Percent	22.80 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 188

Chemical Analysis Element #9 - Corrosion Resistant Steel - Percent
MOLYBDENUM (Mo)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2KAK8R		0.2163	0.0017	0.24	0.2227	0.0050	0.69	GD
48DPU3		0.2123	-0.0023	-0.33	0.2147	-0.0030	-0.40	XX
4VGGVD		0.2200	0.0054	0.77	0.2200	0.0024	0.32	OE
6C6GDJ		0.2267	0.0120	1.72	0.2300	0.0124	1.69	XR
6H8MU9		0.2120	-0.0026	-0.37	0.2150	-0.0026	-0.36	WD
6ZKCZT		0.2097	-0.0050	-0.71	0.2147	-0.0030	-0.40	IC
88X3HP		0.2153	0.0007	0.10	0.2187	0.0010	0.14	OE
8GPQQR		0.2163	0.0017	0.24	0.2210	0.0034	0.46	OE
8H2K7R		0.2143	-0.0003	-0.04	0.2180	0.0004	0.05	XR
8KQRQP		0.2063	-0.0083	-1.18	0.2070	-0.0106	-1.45	OE
8UU4MJ		0.2093	-0.0053	-0.75	0.2117	-0.0060	-0.81	DR
8WKB6U	X	0.2577	0.0430	6.14	0.2460	0.0284	3.87	OE
9P2WTV		0.2187	0.0040	0.58	0.2191	0.0015	0.20	WD
9QAAQH		0.2157	0.0010	0.15	0.2210	0.0034	0.46	OE
A2LVX4		0.2118	-0.0028	-0.40	0.2126	-0.0051	-0.69	XR
A8BNFB	*	0.2147	0.0000	0.01	0.2227	0.0050	0.69	OE
AR6EKG		0.2140	-0.0006	-0.09	0.2200	0.0024	0.32	ED
ATBCXD		0.2145	-0.0002	-0.02	0.2184	0.0008	0.10	OE
AWCML2		0.2090	-0.0056	-0.80	0.2103	-0.0073	-1.00	OE
BXM6L3		0.2160	0.0014	0.20	0.2167	-0.0010	-0.13	OE
C89NE2		0.2037	-0.0110	-1.56	0.2060	-0.0116	-1.59	OE
CQZBQC		0.2107	-0.0040	-0.56	0.2154	-0.0022	-0.30	OE
DCVAQF	*	0.2330	0.0184	2.62	0.2387	0.0210	2.87	OE
EG6HF4	*	0.2323	0.0177	2.53	0.2343	0.0167	2.28	OE
EPZDLF		0.2100	-0.0046	-0.66	0.2100	-0.0076	-1.04	XR
F3GWB2		0.2020	-0.0126	-1.80	0.2030	-0.0146	-1.99	OE
FNGNKT		0.2153	0.0007	0.10	0.2180	0.0004	0.05	IC
FQL2KF	X	0.2540	0.0394	5.62	0.1753	-0.0423	-5.77	OE
GEBDZ3		0.2093	-0.0053	-0.75	0.2133	-0.0043	-0.59	OE
GJ3TAV		0.2153	0.0007	0.10	0.2183	0.0007	0.10	OE
HE69QQ		0.2143	-0.0003	-0.04	0.2170	-0.0006	-0.09	OE
HJXAR6		0.2050	-0.0096	-1.37	0.2070	-0.0106	-1.45	OE
HUGVTT		0.2087	-0.0060	-0.85	0.2123	-0.0053	-0.72	WD
J348P7		0.2120	-0.0026	-0.37	0.2140	-0.0036	-0.50	DR
JDKTUZ		0.2183	0.0037	0.53	0.2183	0.0007	0.10	OE
JEGCRV		0.2210	0.0064	0.91	0.2230	0.0054	0.73	OE
JP22R8		0.2220	0.0074	1.05	0.2250	0.0074	1.00	OE
KQMJAD		0.2135	-0.0011	-0.16	0.2251	0.0075	1.02	ED
L4UUEE		0.2117	-0.0030	-0.42	0.2153	-0.0023	-0.31	WD
LAZ6KT		0.2100	-0.0046	-0.66	0.2163	-0.0013	-0.18	IC
M3WWMJ		0.2123	-0.0023	-0.33	0.2147	-0.0030	-0.40	OE
N6EHP7		0.2163	0.0017	0.24	0.2190	0.0014	0.19	OE
NLMX3Z		0.2131	-0.0015	-0.22	0.2173	-0.0004	-0.05	OE
PLXVHN	*	0.2277	0.0131	1.87	0.2274	0.0098	1.33	IC
Q6MYPU		0.1973	-0.0173	-2.46	0.2007	-0.0170	-2.31	OE
Q6P72G		0.2120	-0.0026	-0.37	0.2153	-0.0023	-0.31	WD
QEYLRP		0.2133	-0.0013	-0.18	0.2200	0.0024	0.32	WD
T2JFTT		0.2283	0.0137	1.96	0.2298	0.0122	1.66	OE
TYDXQQ		0.2153	0.0007	0.10	0.2180	0.0004	0.05	OE

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 188

Chemical Analysis Element #9 - Corrosion Resistant Steel - Percent
MOLYBDENUM (Mo)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
TYX44F		0.2130	-0.0016	-0.23	0.2153	-0.0023	-0.31	WD
V9FDLU		0.2183	0.0037	0.53	0.2237	0.0060	0.82	OE
VH2NUZ		0.2156	0.0010	0.14	0.2186	0.0010	0.14	OE
VVT6PT		0.2150	0.0004	0.05	0.2163	-0.0013	-0.18	OE
WTE62X		0.2280	0.0134	1.91	0.2337	0.0160	2.19	OE
XN4A2U		0.2127	-0.0020	-0.28	0.2133	-0.0043	-0.59	OE
XU7XL2		0.2087	-0.0060	-0.85	0.2120	-0.0056	-0.77	XX
YZNDDJ	X	0.2500	0.0354	5.04	0.2540	0.0364	4.96	OE

Summary Statistics

	Sample M27		Sample M28	
Grand Means	0.2146	Percent	0.2176	Percent
Stnd Dev Btwn Labs	0.0070	Percent	0.0073	Percent

Samples M27 , M28 : AISI 309, two different heats

Statistics based on 53 of 57 reporting participants

Comments on assigned Data Flags for Analysis #188

WebCode	Flag	Analyst Comment
8WKB6U	X	Data for both samples are high. Possible Systematic error. Inconsistent within the determinations of both samples.
FQL2KF	X	Data for sample M27 are high and data for sample M28 are low.
YZNDDJ	X	Data for both samples are high. Possible Systematic error.

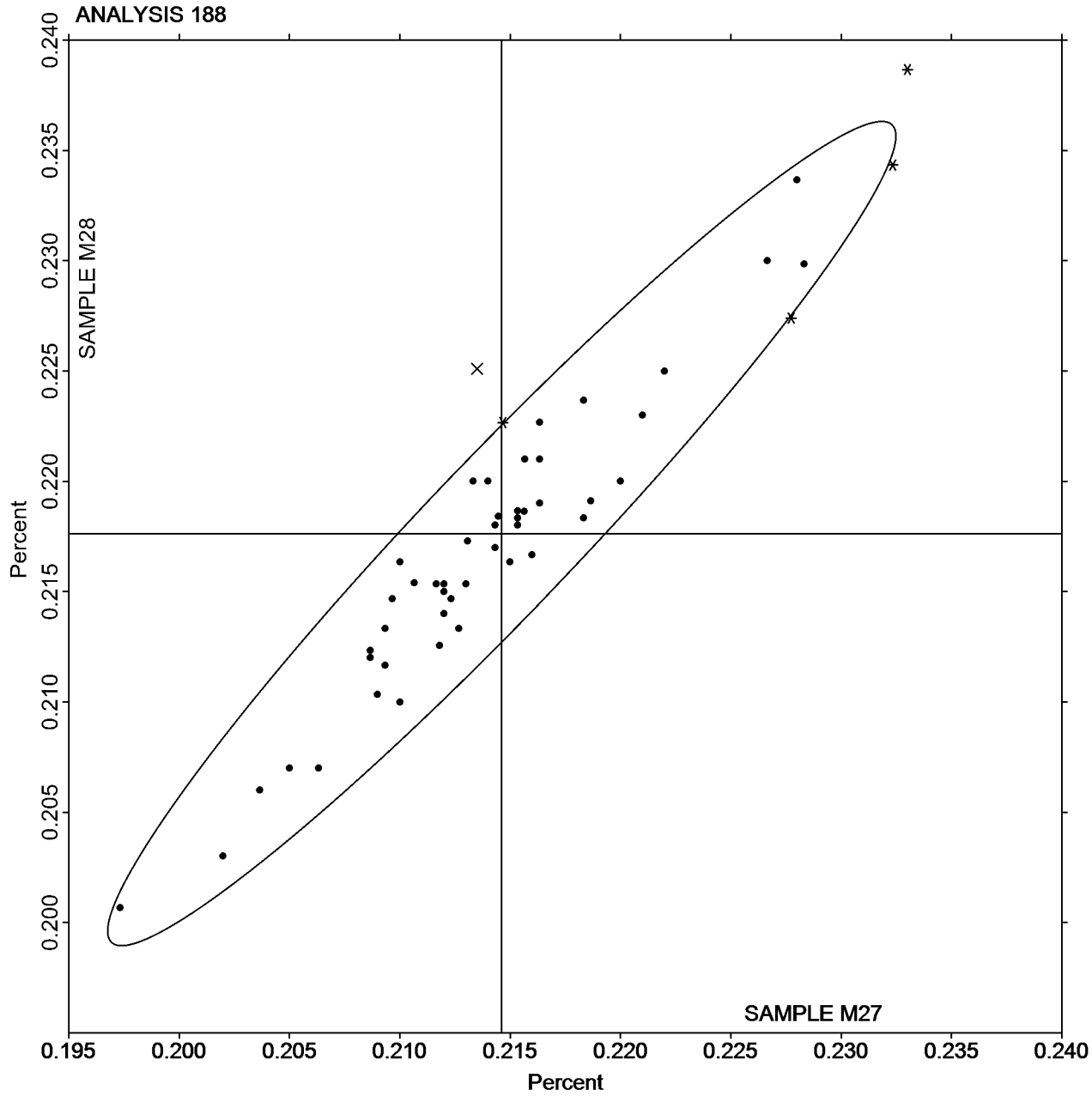
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 188

Chemical Analysis Element #9 - Corrosion Resistant Steel - Percent
MOLYBDENUM (Mo)

SAMPLE M27	SAMPLE M28
0.2146 Percent	0.2176 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 189

Chemical Analysis Element #10 - Corrosion Resistant Steel - Percent VANADIUM (V)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2KAK8R		0.1227	-0.0008	-0.18	0.0749	0.0026	0.78	GD
48DPU3		0.1283	0.0048	1.03	0.0740	0.0017	0.52	OE
4VGGVD		0.1200	-0.0035	-0.75	0.0700	-0.0023	-0.70	OE
6C6GDJ	X	0.0733	-0.0502	-10.69	0.0333	-0.0390	-11.77	XR
6H8MU9		0.1240	0.0005	0.10	0.0703	-0.0020	-0.60	WD
6ZKCZT		0.1260	0.0025	0.53	0.0707	-0.0017	-0.50	IC
8H2K7R		0.1260	0.0025	0.53	0.0717	-0.0007	-0.20	XR
8KQRQP		0.1270	0.0035	0.74	0.0767	0.0043	1.31	OE
8UU4MJ		0.1231	-0.0004	-0.09	0.0707	-0.0016	-0.48	DR
8WKB6U		0.1157	-0.0078	-1.67	0.0643	-0.0080	-2.41	OE
9P2WTV		0.1267	0.0032	0.67	0.0728	0.0005	0.14	WD
9QAAQH		0.1210	-0.0025	-0.54	0.0730	0.0007	0.20	XX
A2LVX4		0.1317	0.0082	1.74	0.0791	0.0068	2.05	OE
A8BNFB		0.1280	0.0045	0.96	0.0793	0.0070	2.12	OE
ATBCXD		0.1206	-0.0029	-0.62	0.0725	0.0002	0.05	OE
AWCML2	X	0.1370	0.0135	2.87	0.0670	-0.0053	-1.61	OE
BXM6L3		0.1240	0.0005	0.10	0.0710	-0.0013	-0.40	OE
C89NE2		0.1220	-0.0015	-0.32	0.0707	-0.0017	-0.50	OE
CQZBQC		0.1210	-0.0025	-0.54	0.0733	0.0010	0.31	OE
DCVAQF		0.1227	-0.0008	-0.18	0.0730	0.0007	0.20	OE
EG6HF4		0.1150	-0.0085	-1.81	0.0713	-0.0010	-0.30	OE
F3GWB2	X	0.1373	0.0138	2.94	0.0877	0.0153	4.63	OE
FNGNKT		0.1213	-0.0022	-0.46	0.0720	-0.0003	-0.10	IC
FQL2KF		0.1240	0.0005	0.10	0.0698	-0.0025	-0.76	OE
GEBDZ3		0.1317	0.0082	1.74	0.0760	0.0037	1.11	OE
GJ3TAV		0.1223	-0.0012	-0.25	0.0707	-0.0017	-0.50	OE
HE69QQ		0.1217	-0.0018	-0.39	0.0710	-0.0013	-0.40	OE
HJXAR6		0.1150	-0.0085	-1.81	0.0660	-0.0063	-1.91	OE
HUGVTT		0.1327	0.0092	1.95	0.0753	0.0030	0.91	WD
J348P7		0.1210	-0.0025	-0.54	0.0680	-0.0043	-1.31	DR
JDKTUZ	X	0.1003	-0.0232	-4.94	0.0610	-0.0113	-3.42	OE
JEGCRV	X	0.1077	-0.0158	-3.38	0.0500	-0.0223	-6.74	OE
JP22R8		0.1263	0.0028	0.60	0.0750	0.0027	0.81	WD
KQMJAD	X	0.1081	-0.0154	-3.28	0.0846	0.0123	3.71	ED
L4UUEE	*	0.1380	0.0145	3.09	0.0807	0.0083	2.52	OE
LAZ6KT		0.1180	-0.0055	-1.17	0.0693	-0.0030	-0.90	IC
M3WWMJ		0.1267	0.0032	0.67	0.0726	0.0002	0.07	OE
N6EHP7	*	0.1197	-0.0038	-0.82	0.0767	0.0043	1.31	OE
NLMX3Z		0.1221	-0.0014	-0.31	0.0703	-0.0020	-0.62	OE
PLXVHN		0.1257	0.0022	0.47	0.0709	-0.0015	-0.44	IC
Q6MYPU		0.1260	0.0025	0.53	0.0753	0.0030	0.91	OE
Q6P72G		0.1273	0.0038	0.81	0.0723	0.0000	0.00	WD
QEYLRP		0.1240	0.0005	0.10	0.0710	-0.0013	-0.40	OE
T2JFTT		0.1179	-0.0056	-1.20	0.0672	-0.0051	-1.54	OE
TYDXQQ		0.1213	-0.0022	-0.46	0.0703	-0.0020	-0.60	OE
TYX44F		0.1183	-0.0052	-1.10	0.0797	0.0073	2.22	WD
V9FDLU		0.1173	-0.0062	-1.32	0.0700	-0.0023	-0.70	OE
VH2NUZ		0.1202	-0.0033	-0.71	0.0710	-0.0013	-0.39	OE
VVT6PT		0.1213	-0.0022	-0.46	0.0753	0.0030	0.91	OE

Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 189

Chemical Analysis Element #10 - Corrosion Resistant Steel - Percent VANADIUM (V)

		Sample M27			Sample M28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
WTE62X	X	0.0830	-0.0405	-8.63	0.0527	-0.0197	-5.94	DR
XN4A2U		0.1247	0.0012	0.25	0.0727	0.0003	0.10	0E
XU7XL2		0.1230	-0.0005	-0.11	0.0733	0.0010	0.31	XX
YZNDDJ	X	0.1363	0.0128	2.73	0.0927	0.0203	6.14	XX

Summary Statistics

	Sample M27		Sample M28	
Grand Means	0.1235	Percent	0.0723	Percent
Stnd Dev Btwn Labs	0.0047	Percent	0.0033	Percent

Samples M27 , M28 : AISI 309, two different heats

Statistics based on 44 of 53 reporting participants

Comments on assigned Data Flags for Analysis #189

WebCode	Flag	Analyst Comment
6C6GDJ	X	Data for both samples are low. Inconsistent within the determinations of both samples.
AWCML2	X	Data for sample M27 are high.
F3GWB2	X	Data for both samples are high.
JDKTUZ	X	Data for both samples are low.
JEGCRV	X	Data for both samples are low.
KQMJAD	X	Data for sample M27 are low and data for sample M28 are high.
WTE62X	X	Data for both samples are low.
YZNDDJ	X	Data for both samples are high.

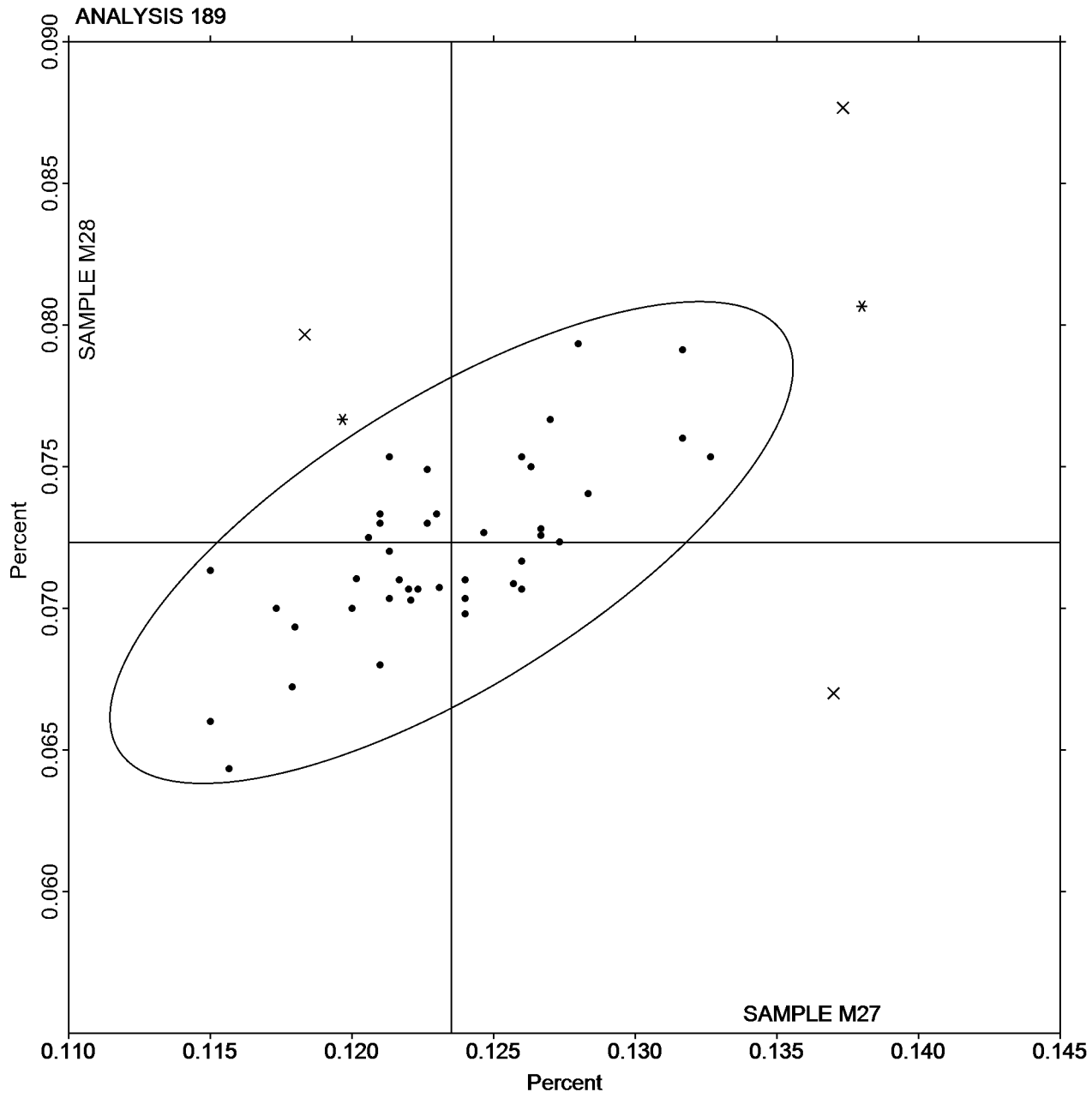
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 189

Chemical Analysis Element #10 - Corrosion Resistant Steel - Percent
VANADIUM (V)

SAMPLE M27	SAMPLE M28
0.1235 Percent	0.0723 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 190

Chemical Analysis Element #1: Aluminum - Percent
TITANIUM (Ti)

		Sample A27			Sample A28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2JRAUY		0.0111	-0.0001	-0.11	0.0111	-0.0007	-0.26	IC
6ZKCZT		0.00967	-0.0016	-1.21	0.00937	-0.0024	-0.92	IC
EPZDLF		0.0110	-0.0003	-0.21	0.0110	-0.0008	-0.29	OE
F2NDHV		0.0127	0.0014	1.05	0.0183	0.0066	2.50	OE
GDWLUL		0.0114	0.0001	0.10	0.0114	-0.0003	-0.13	OE
H4N7PY		0.0109	-0.0003	-0.26	0.0104	-0.0014	-0.52	OE
HW7ZQ7		0.0142	0.0030	2.22	0.0142	0.0025	0.94	OE
JMWTQW	X	0.1300	0.1187	89.16	0.1333	0.1216	46.26	OE
UZMK2V		0.0100	-0.0013	-0.96	0.0103	-0.0014	-0.55	GD
VH2NUZ		0.0104	-0.0009	-0.68	0.0105	-0.0012	-0.47	OE
VVT6PT		0.0113	0.0001	0.05	0.0110	-0.0008	-0.29	OE

Summary Statistics

	Sample A27		Sample A28	
Grand Means	0.0113	Percent	0.0118	Percent
Stnd Dev Btwn Labs	0.0013	Percent	0.0026	Percent

Samples A27 , A28 : AA6063, two different heats

Statistics based on 10 of 11 reporting participants

Comments on assigned Data Flags for Analysis #190

WebCode	Flag	Analyst Comment
JMWTQW	X	Extreme Data.

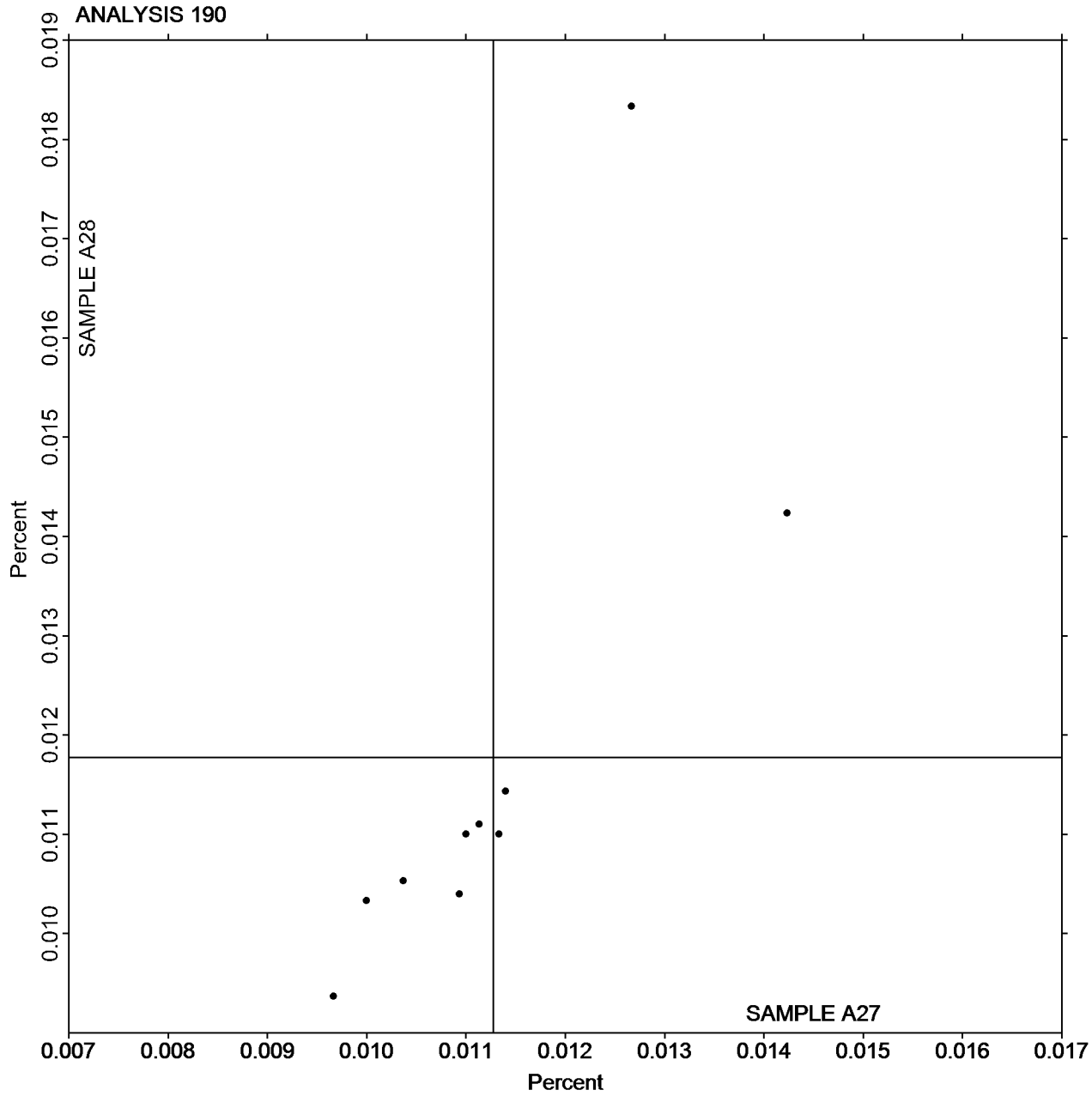
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 190

Chemical Analysis Element #1: Aluminum - Percent
TITANIUM (Ti)

SAMPLE A27	SAMPLE A28
0.0113 Percent	0.0118 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 191

Chemical Analysis Element #2: Aluminum - Percent
COPPER (Cu)

WebCode	Data Flag	Sample A27 Lab Mean	Sample A27 Diff. from Grand Mean	Sample A27 CPV	Sample A28 Lab Mean	Sample A28 Diff. from Grand Mean	Sample A28 CPV	Method
2JRAUY		0.0362	0.0013	0.17	0.0359	0.0019	0.36	IC
6ZKCZT		0.0325	-0.0024	-0.31	0.0327	-0.0013	-0.25	IC
APDQ9W	*	0.0567	0.0218	2.87	0.0467	0.0127	2.42	XR
EPZDLF		0.0303	-0.0045	-0.60	0.0310	-0.0030	-0.56	OE
F2NDHV		0.0443	0.0095	1.24	0.0420	0.0080	1.53	OE
GDWLUL		0.0292	-0.0057	-0.75	0.0296	-0.0043	-0.82	IC
H4N7PY		0.0316	-0.0032	-0.43	0.0299	-0.0041	-0.78	OE
HW7ZQ7		0.0332	-0.0017	-0.22	0.0330	-0.0009	-0.18	OE
JMWTQW		0.0357	0.0008	0.10	0.0373	0.0034	0.64	OE
UZMK2V		0.0293	-0.0055	-0.73	0.0290	-0.0050	-0.94	GD
VH2NUZ		0.0295	-0.0053	-0.70	0.0304	-0.0036	-0.68	OE
VVT6PT		0.0310	-0.0039	-0.51	0.0310	-0.0030	-0.56	OE
XX87L7		0.0300	-0.0049	-0.64	0.0300	-0.0040	-0.75	IC
ZNFNJN		0.0387	0.0038	0.50	0.0370	0.0030	0.58	IC

Summary Statistics

	Sample A27		Sample A28	
Grand Means	0.0349	Percent	0.0340	Percent
Stnd Dev Btwn Labs	0.0076	Percent	0.0053	Percent

Samples A27 , A28 : AA6063, two different heats

Statistics based on 14 of 14 reporting participants

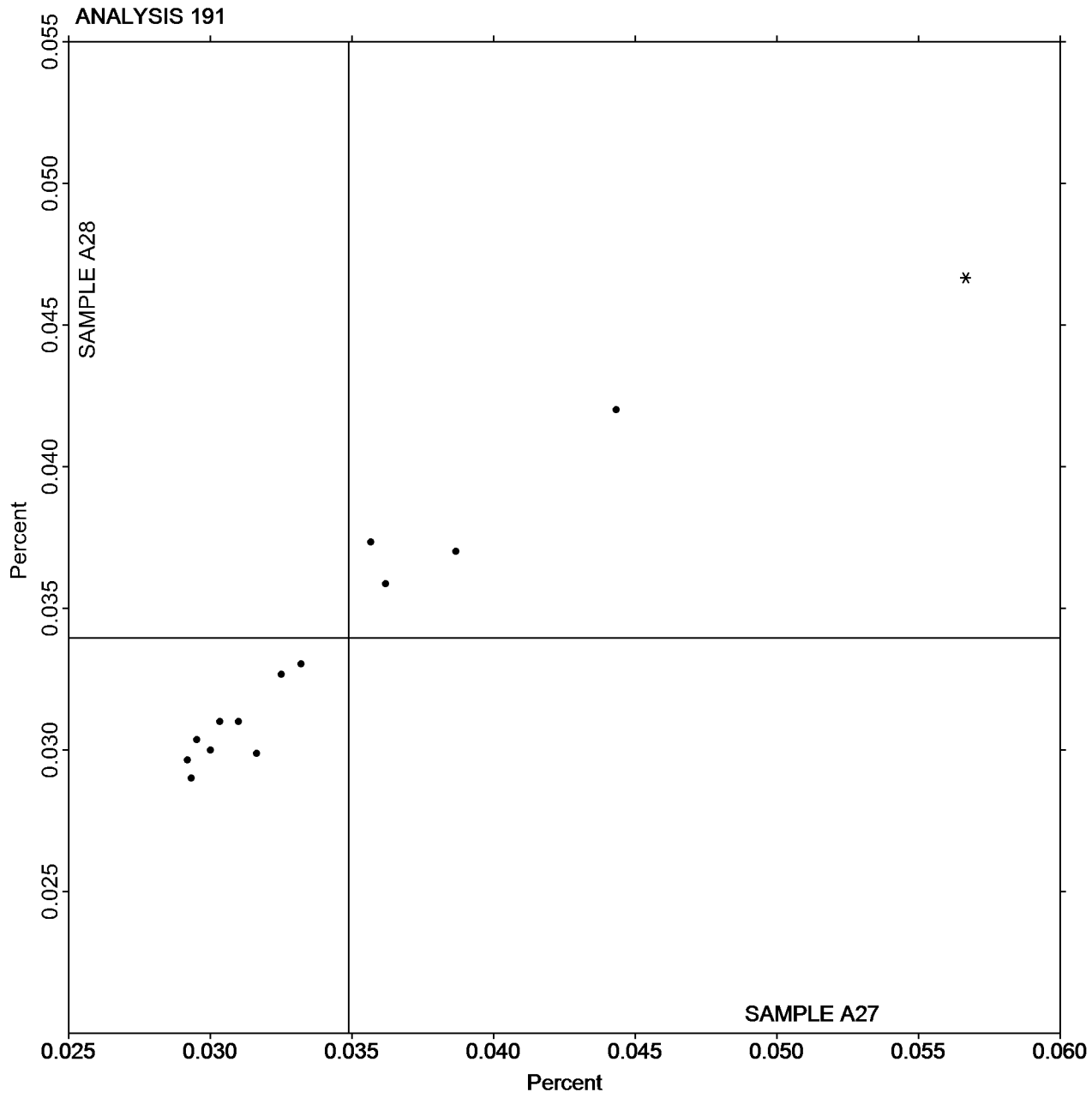
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 191

Chemical Analysis Element #2: Aluminum - Percent
COPPER (Cu)

SAMPLE A27	SAMPLE A28
0.0349 Percent	0.0340 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 192

Chemical Analysis Element #3: Aluminum - Percent
IRON (Fe)

		Sample A27			Sample A28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
6ZKCZT		0.1480	-0.0091	-0.70	0.1517	-0.0046	-0.44	IC
APDQ9W	X	0.5433	0.3863	30.04	0.5867	0.4304	40.69	XR
EPZDLF		0.1500	-0.0071	-0.55	0.1500	-0.0063	-0.59	OE
F2NDHV		0.1910	0.0339	2.64	0.1867	0.0304	2.87	OE
GDWLUL		0.1548	-0.0023	-0.18	0.1552	-0.0011	-0.10	IC
H4N7PY		0.1497	-0.0074	-0.58	0.1480	-0.0083	-0.78	OE
HW7ZQ7		0.1573	0.0003	0.02	0.1571	0.0008	0.08	OE
JMWTQW		0.1563	-0.0007	-0.06	0.1567	0.0004	0.04	OE
UZMK2V		0.1577	0.0006	0.05	0.1597	0.0034	0.32	GD
VH2NUZ		0.1466	-0.0105	-0.81	0.1487	-0.0076	-0.71	OE
VVT6PT		0.1500	-0.0071	-0.55	0.1500	-0.0063	-0.59	OE
XX87L7		0.1500	-0.0071	-0.55	0.1500	-0.0063	-0.59	IC
ZNFNJN		0.1733	0.0163	1.27	0.1617	0.0054	0.51	IC

Summary Statistics

	Sample A27		Sample A28	
Grand Means	0.1571	Percent	0.1563	Percent
Stnd Dev Btwn Labs	0.0129	Percent	0.0106	Percent

Samples A27 , A28 : AA6063, two different heats

Statistics based on 12 of 13 reporting participants

Comments on assigned Data Flags for Analysis #192

WebCode	Flag	Analyst Comment
APDQ9W	X	Extreme Data.

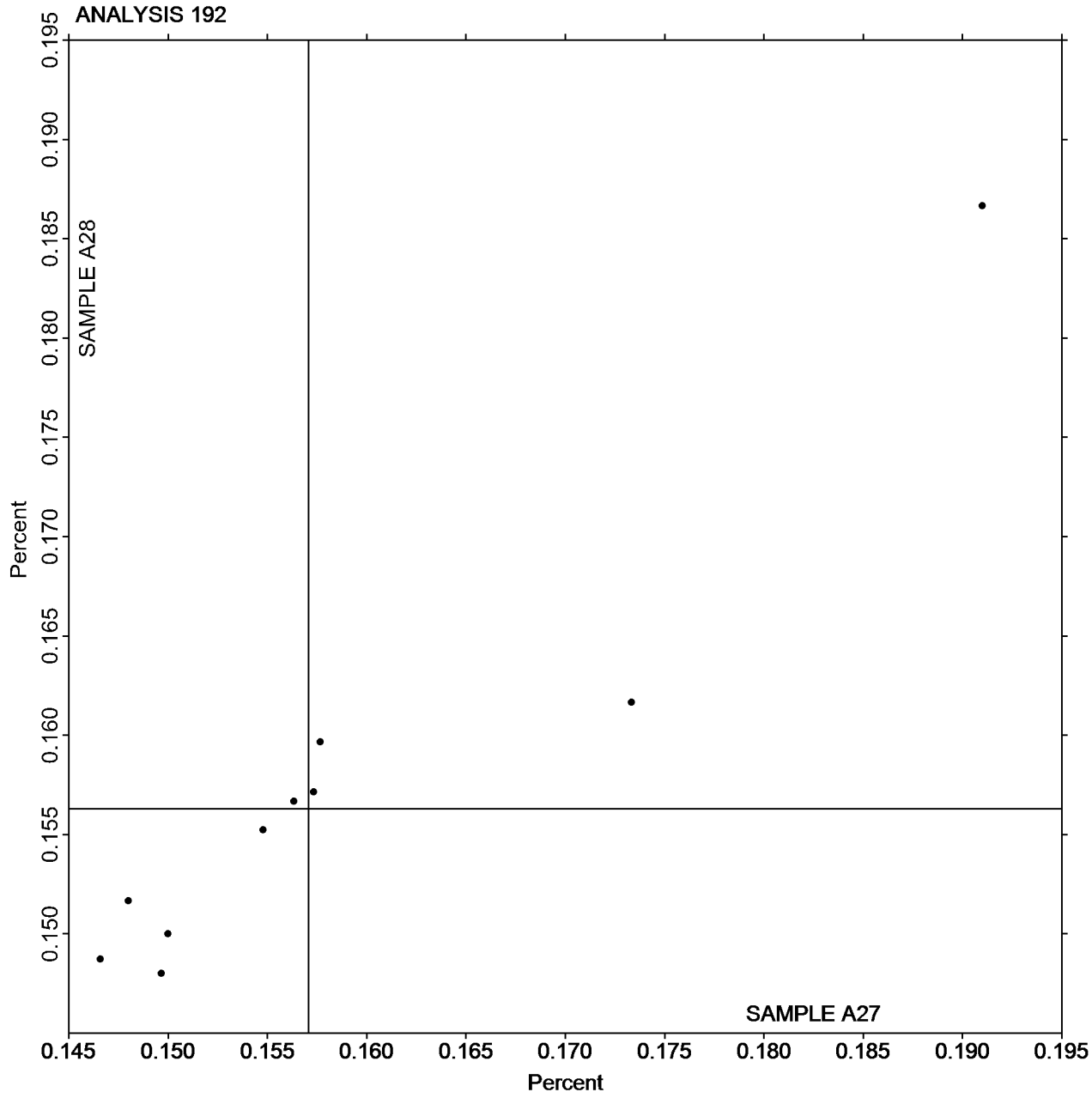
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 192

Chemical Analysis Element #3: Aluminum - Percent
IRON (Fe)

SAMPLE A27	SAMPLE A28
0.1571 Percent	0.1563 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 193

Chemical Analysis Element #4: Aluminum - Percent
SILICON (Si)

		Sample A27			Sample A28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
6ZKCZT		0.4997	0.0350	1.00	0.5013	0.0396	0.87	IC
EPZDLF		0.4533	-0.0113	-0.32	0.4667	0.0049	0.11	OE
F2NDHV		0.3923	-0.0723	-2.07	0.3540	-0.1078	-2.36	OE
GDWLUL		0.4631	-0.0015	-0.04	0.4645	0.0027	0.06	OE
H4N7PY		0.4490	-0.0156	-0.45	0.4443	-0.0174	-0.38	OE
HW7ZQ7		0.4724	0.0078	0.22	0.4698	0.0081	0.18	OE
JMWTQW		0.4933	0.0287	0.82	0.4967	0.0349	0.76	OE
UZMK2V		0.4877	0.0230	0.66	0.4910	0.0292	0.64	GD
VH2NUZ		0.4782	0.0136	0.39	0.4827	0.0209	0.46	OE
VVT6PT		0.5133	0.0487	1.39	0.5133	0.0516	1.13	OE
XX87L7		0.4600	-0.0046	-0.13	0.4600	-0.0018	-0.04	XX
ZNFNJN		0.4133	-0.0513	-1.47	0.3967	-0.0651	-1.42	IC

Summary Statistics

	Sample A27		Sample A28	
Grand Means	0.4646	Percent	0.4618	Percent
Stnd Dev Btwn Labs	0.0350	Percent	0.0457	Percent

Samples A27 , A28 : AA6063, two different heats

Statistics based on 12 of 12 reporting participants

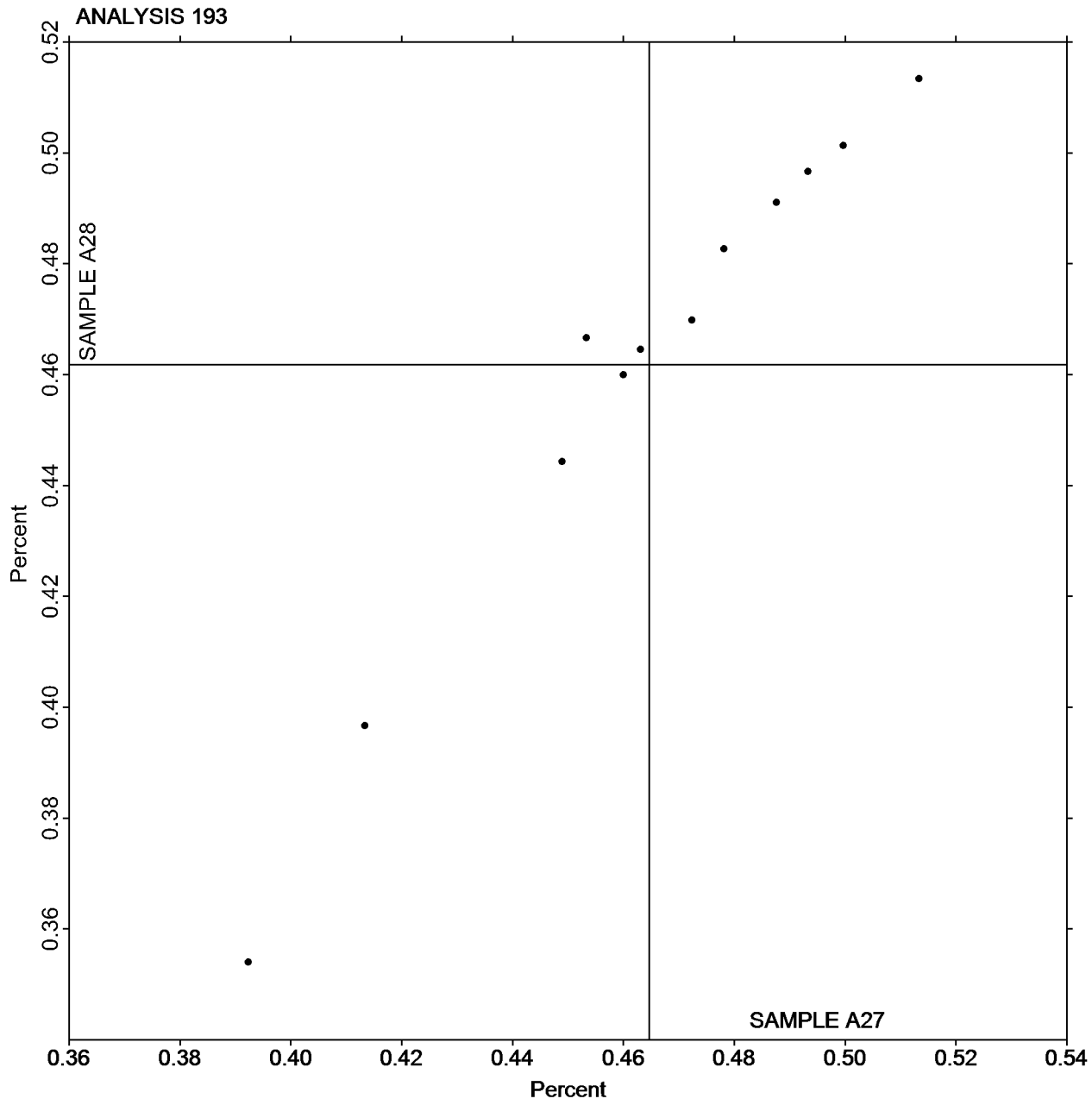
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 193

Chemical Analysis Element #4: Aluminum - Percent
SILICON (Si)

SAMPLE A27	SAMPLE A28
0.4646 Percent	0.4618 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 194

Chemical Analysis Element #5: Aluminum - Percent
MANGANESE (Mn)

WebCode	Data Flag	Sample A27 Lab Mean	Sample A27 Diff. from Grand Mean	Sample A27 CPV	Sample A28 Lab Mean	Sample A28 Diff. from Grand Mean	Sample A28 CPV	Method
2JRAUY		0.0228	-0.0007	-0.32	0.0228	-0.0007	-0.31	IC
6ZKCZT		0.0280	0.0045	2.10	0.0281	0.0046	1.99	IC
EPZDLF		0.0230	-0.0005	-0.25	0.0230	-0.0005	-0.21	OE
F2NDHV		0.0257	0.0021	1.00	0.0270	0.0035	1.50	OE
GDWLUL		0.0231	-0.0004	-0.20	0.0230	-0.0005	-0.21	IC
H4N7PY		0.0213	-0.0023	-1.05	0.0202	-0.0033	-1.43	OE
HW7ZQ7		0.0258	0.0022	1.04	0.0255	0.0020	0.86	OE
JMWTQW		0.0213	-0.0022	-1.02	0.0217	-0.0018	-0.78	OE
UZMK2V		0.0230	-0.0005	-0.25	0.0230	-0.0005	-0.21	GD
VH2NUZ		0.0207	-0.0029	-1.33	0.0210	-0.0025	-1.06	OE
VVT6PT		0.0230	-0.0005	-0.25	0.0230	-0.0005	-0.21	OE
ZNFNJN		0.0247	0.0011	0.53	0.0237	0.0002	0.07	IC

Summary Statistics

	Sample A27		Sample A28	
Grand Means	0.0235	Percent	0.0235	Percent
Stnd Dev Btwn Labs	0.0021	Percent	0.0023	Percent

Samples A27 , A28 : AA6063, two different heats

Statistics based on 12 of 12 reporting participants

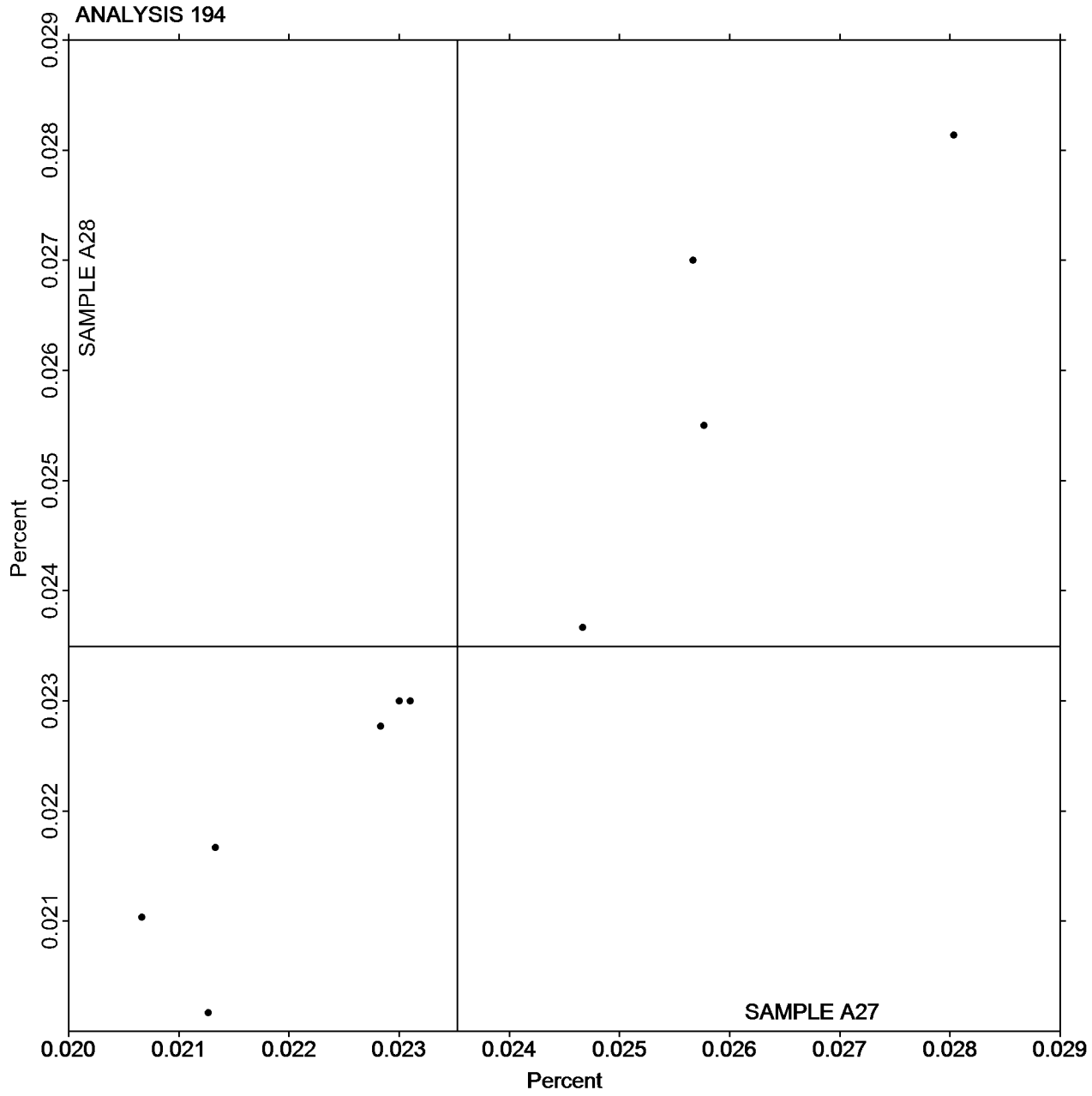
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 194

Chemical Analysis Element #5: Aluminum - Percent
MANGANESE (Mn)

SAMPLE A27	SAMPLE A28
0.0235 Percent	0.0235 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 195

Chemical Analysis Element #6: Aluminum - Percent
MAGNESIUM (Mg)

		Sample A27			Sample A28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
6ZKCZT		0.4657	-0.0160	-0.31	0.4713	-0.0176	-0.58	IC
EPZDLF		0.4833	0.0017	0.03	0.4967	0.0077	0.26	OE
F2NDHV	*	0.3583	-0.1233	-2.41	0.4777	-0.0113	-0.37	OE
GDWLUL		0.4691	-0.0125	-0.24	0.4695	-0.0195	-0.64	OE
H4N7PY		0.4667	-0.0150	-0.29	0.4620	-0.0269	-0.89	OE
HW7ZQ7		0.4759	-0.0057	-0.11	0.4782	-0.0108	-0.36	OE
JMWTQW		0.4660	-0.0156	-0.31	0.4480	-0.0409	-1.36	OE
UZMK2V		0.4993	0.0177	0.35	0.4933	0.0044	0.15	GD
VH2NUZ		0.4854	0.0037	0.07	0.4837	-0.0052	-0.17	OE
VVT6PT		0.5100	0.0284	0.55	0.5100	0.0211	0.70	OE
XX87L7		0.5167	0.0350	0.68	0.5133	0.0244	0.81	XX
ZNFNJN		0.5833	0.1017	1.99	0.5633	0.0744	2.47	IC

Summary Statistics

	Sample A27		Sample A28	
Grand Means	0.4816	Percent	0.4889	Percent
Stnd Dev Btwn Labs	0.0512	Percent	0.0302	Percent

Samples A27 , A28 : AA6063, two different heats

Statistics based on 12 of 12 reporting participants

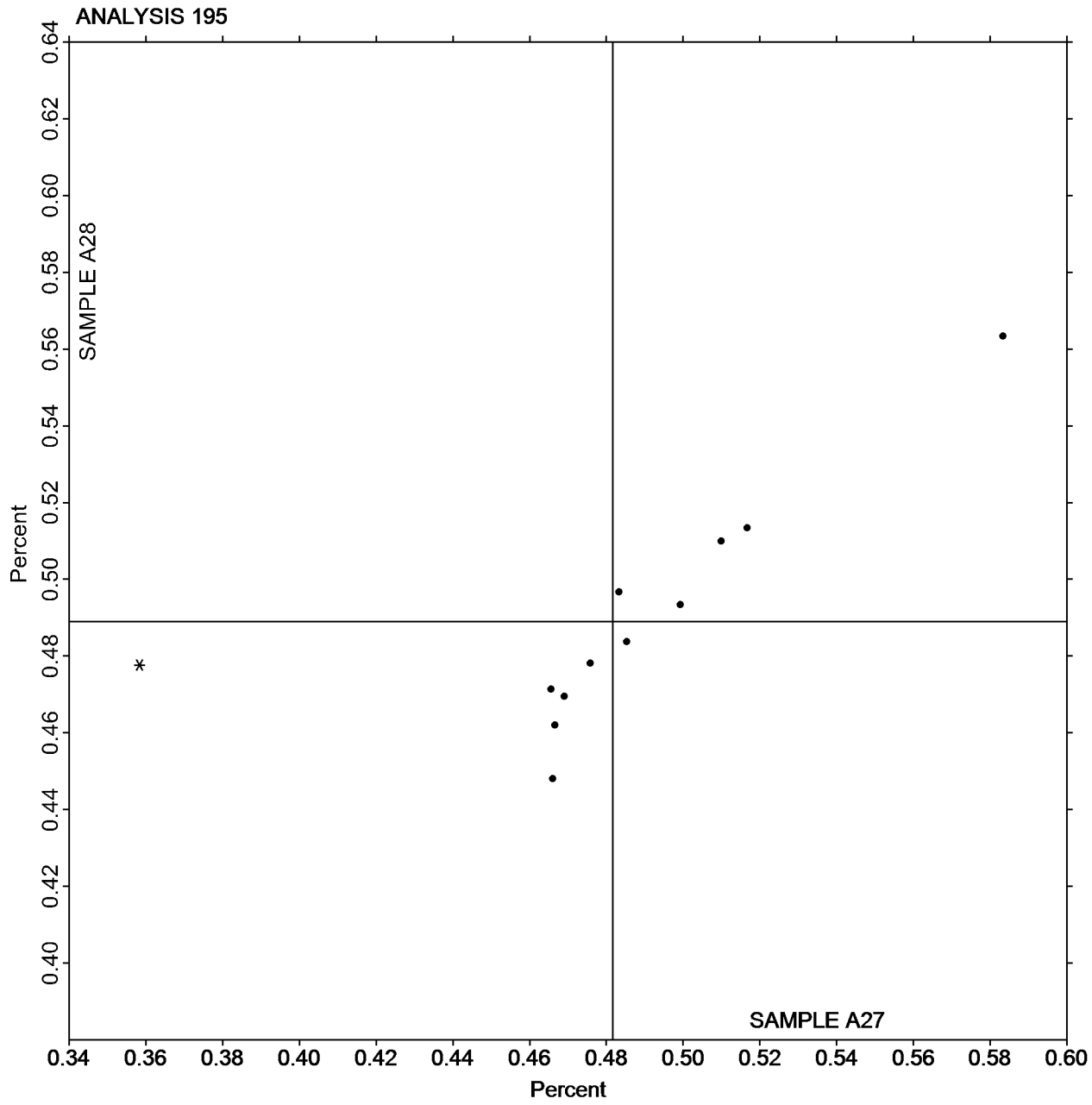
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 195

Chemical Analysis Element #6: Aluminum - Percent
MAGNESIUM (Mg)

SAMPLE A27	SAMPLE A28
0.4816 Percent	0.4889 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 196

Chemical Analysis Element #7: Aluminum - Percent
CHROMIUM (Cr)

		Sample A27			Sample A28			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
6ZKCZT		0.00547	-0.00441	-1.23	0.00837	-0.00157	-0.65	IC
F2NDHV		0.0177	0.00779	2.18	0.0147	0.00473	1.95	OE
GDWLUL		0.00833	-0.00155	-0.43	0.00833	-0.00160	-0.66	OE
H4N7PY		0.00907	-0.00081	-0.23	0.00903	-0.00090	-0.37	OE
HW7ZQ7		0.00913	-0.00075	-0.21	0.00913	-0.00080	-0.33	OE
JMWTQW		0.00983	-0.00005	-0.01	0.0103	0.00033	0.14	OE
UZMK2V		0.0133	0.00345	0.97	0.0133	0.00340	1.40	XX
VH2NUZ		0.00810	-0.00178	-0.50	0.00830	-0.00164	-0.68	OE
VVT6PT		0.00800	-0.00188	-0.53	0.00800	-0.00194	-0.80	OE

Summary Statistics

	Sample A27		Sample A28	
Grand Means	0.00988	Percent	0.00994	Percent
Stnd Dev Btwn Labs	0.00358	Percent	0.00242	Percent

Samples A27 , A28 : AA6063, two different heats

Statistics based on 9 of 9 reporting participants

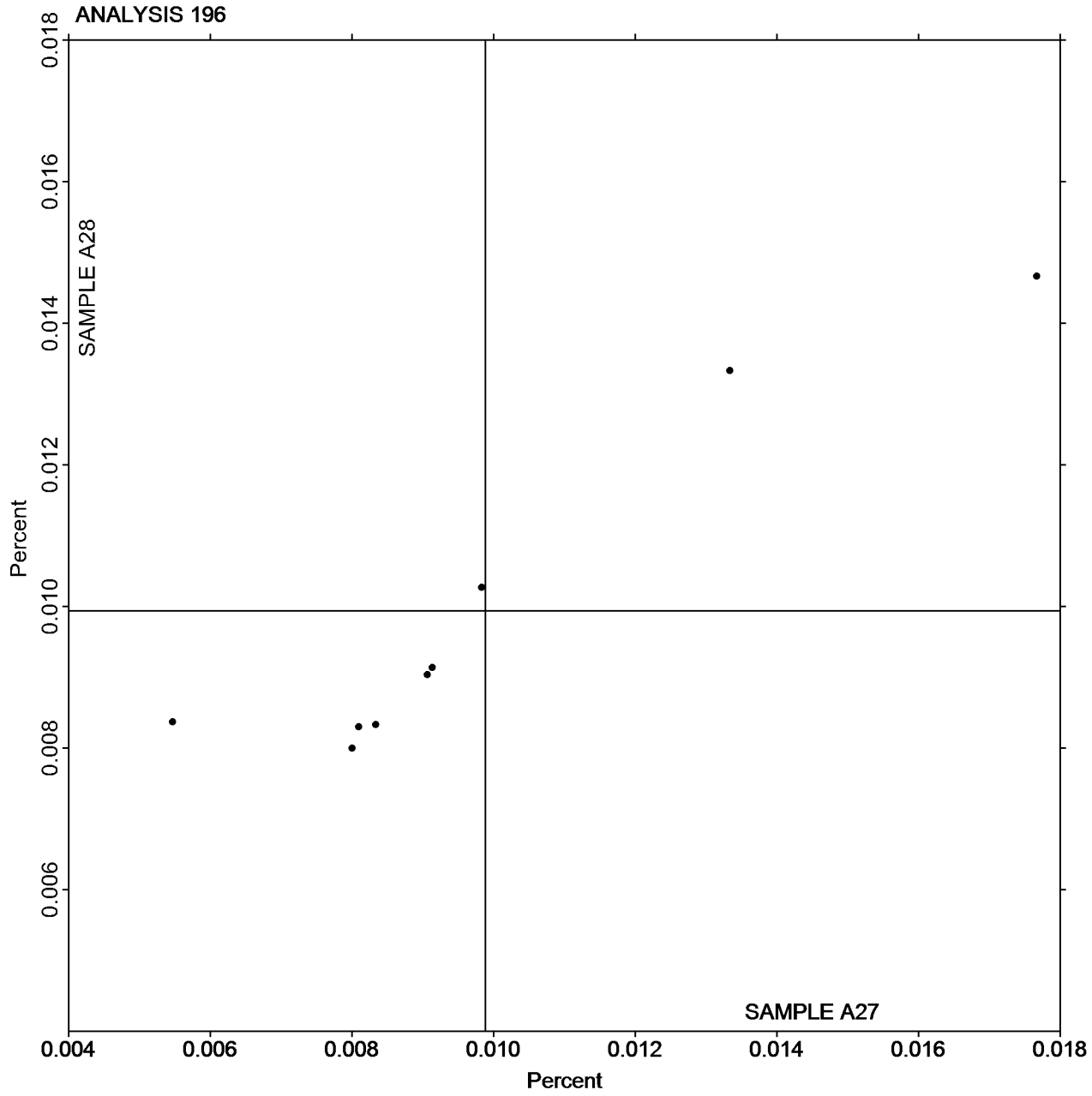
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 196

Chemical Analysis Element #7: Aluminum - Percent
CHROMIUM (Cr)

SAMPLE A27	SAMPLE A28
0.00988 Percent	0.00994 Percent



Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 197

Chemical Analysis Element #8: Aluminum - Percent
ZINC (Zn)

WebCode	Data Flag	Sample A27 Lab Mean	Sample A27 Diff. from Grand Mean	Sample A27 CPV	Sample A28 Lab Mean	Sample A28 Diff. from Grand Mean	Sample A28 CPV	Method
6ZKCZT		0.00553	0.00006	0.02	0.00597	0.00052	0.18	IC
F2NDHV		0.00280	-0.00267	-0.98	0.00280	-0.00265	-0.93	OE
H4N7PY		0.00487	-0.00060	-0.22	0.00427	-0.00118	-0.42	OE
HW7ZQ7		0.00553	0.00006	0.02	0.00533	-0.00012	-0.04	OE
JMWTQW		0.00100	-0.00447	-1.64	0.00100	-0.00445	-1.57	OE
UZMK2V		0.00967	0.00420	1.54	0.0100	0.00455	1.60	XX
VH2NUZ		0.00637	0.00090	0.33	0.00623	0.00078	0.28	OE
VVT6PT		0.00800	0.00253	0.93	0.00800	0.00255	0.90	OE

Summary Statistics

	Sample A27		Sample A28	
Grand Means	0.00547	Percent	0.00545	Percent
Stnd Dev Btwn Labs	0.00273	Percent	0.00284	Percent

Samples A27 , A28 : AA6063, two different heats

Statistics based on 8 of 8 reporting participants

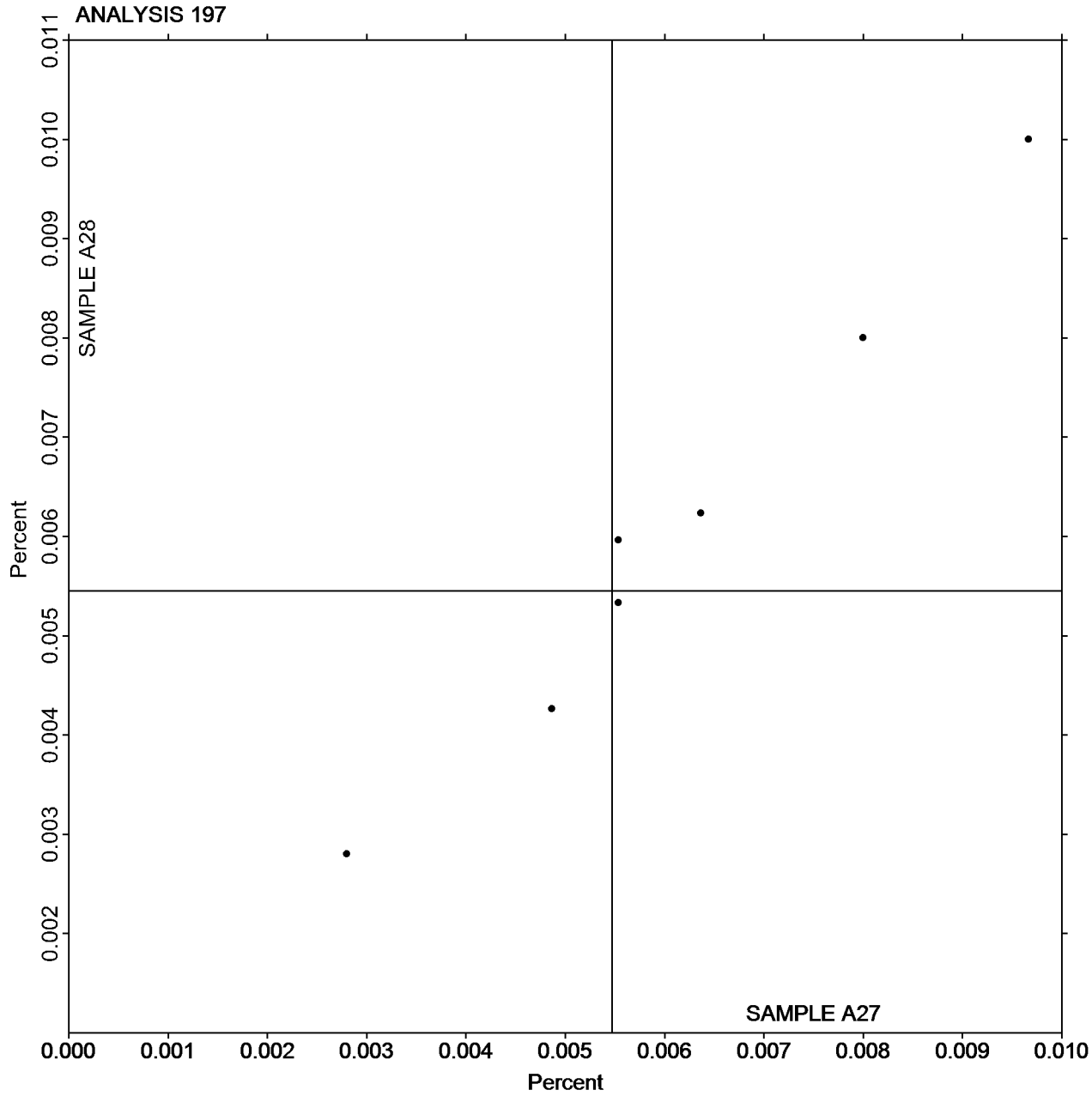
Cycle 110
2nd Q, 2015

Interlaboratory Testing Program for Metals

Analysis 197

Chemical Analysis Element #8: Aluminum - Percent
ZINC (Zn)

SAMPLE A27	SAMPLE A28
0.00547 Percent	0.00545 Percent



Instrument and Method Code List - Cycle 110

Instrument and Method information as provided by laboratories

Instruments are no longer tracked for analyses 105-148

150: Nickel-based Alloy, Element #1 - CHROMIUM (Cr)

Instrument code	Description
DR	Spectrometry - Direct Reading OE (DROES)
ED	X-Ray Fluorescence - Energy Dispersive (EDX)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XR	X-Ray Fluorescence - ED or WD not specified

151: Nickel-based Alloy, Element #2 - MANGANESE (Mn)

Instrument code	Description
DC	Spectrometry - DC Plasma (DCP)
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)
XR	X-Ray Fluorescence - ED or WD not specified

152: Nickel-based Alloy, Element #3 - IRON (Fe)

Instrument code	Description
DR	Spectrometry - Direct Reading OE (DROES)
ED	X-Ray Fluorescence - Energy Dispersive (EDX)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XR	X-Ray Fluorescence - ED or WD not specified

153: Nickel-based Alloy, Element #4 - MOLYBDENUM (Mo)

Instrument code	Description
DR	Spectrometry - Direct Reading OE (DROES)
ED	X-Ray Fluorescence - Energy Dispersive (EDX)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XR	X-Ray Fluorescence - ED or WD not specified

154: Nickel-based Alloy, Element #5 - ALUMINUM (Al)

Instrument code	Description
AA	Spectrometry - Atomic Absorption (AAS)
DC	Spectrometry - DC Plasma (DCP)
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

155: Nickel-based Alloy, Element #6 - SILICON (Si)

Instrument code	Description
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)
XR	X-Ray Fluorescence - ED or WD not specified
XX	Please Indicate Method Used for Current Element

156: Nickel-based Alloy, Element #7 - CARBON (C)

Instrument code	Description
CI	Combustion / IR
CO	Combustion
DR	Spectrometry - Direct Reading OE (DROES)
GD	Spectrometry - Glow Discharge (GDS)
OE	Spectrometry - Optical Emission (OES)

157: Nickel-based Alloy, Element #8 - NICKEL (Ni)

Instrument code	Description
BD	By Difference
ED	X-Ray Fluorescence - Energy Dispersive (EDX)
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

180: Corrosion Resistant Steel, Element #1 - CARBON (C)

Method Code	Description
CI	Combustion / IR
CO	Combustion
DR	Spectrometry - Direct Reading OE (DROES)
GD	Spectrometry - Glow Discharge (GDS)
OE	Spectrometry - Optical Emission (OES)

181: Corrosion Resistant Steel, Element #2 - MANGANESE (Mn)

Method Code	Description
DR	Spectrometry - Direct Reading OE (DROES)
ED	X-Ray Fluorescence - Energy Dispersive (EDX)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XR	X-Ray Fluorescence - ED or WD not specified
XX	Please Indicate Method Used for Current Element

182: Corrosion Resistant Steel, Element #3 - PHOSPHORUS (P)

Method Code	Description
DR	Spectrometry - Direct Reading OE (DROES)
ED	X-Ray Fluorescence - Energy Dispersive (EDX)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XR	X-Ray Fluorescence - ED or WD not specified
XX	Please Indicate Method Used for Current Element

183: Corrosion Resistant Steel, Element #4 - COBALT (Co)

Method Code	Description
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)
XR	X-Ray Fluorescence - ED or WD not specified
XX	Please Indicate Method Used for Current Element

184: Corrosion Resistant Steel, Element #5 - SILICON (Si)

Method Code	Description
DR	Spectrometry - Direct Reading OE (DROES)
ED	X-Ray Fluorescence - Energy Dispersive (EDX)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XR	X-Ray Fluorescence - ED or WD not specified
XX	Please Indicate Method Used for Current Element

185: Corrosion Resistant Steel, Element #6 - COPPER (Cu)

Method Code	Description
DR	Spectrometry - Direct Reading OE (DROES)
ED	X-Ray Fluorescence - Energy Dispersive (EDX)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XR	X-Ray Fluorescence - ED or WD not specified
XX	Please Indicate Method Used for Current Element

186: Corrosion Resistant Steel, Element #7 - NICKEL (Ni)

Method Code	Description
DR	Spectrometry - Direct Reading OE (DROES)
ED	X-Ray Fluorescence - Energy Dispersive (EDX)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WC	Wet Chemistry
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XR	X-Ray Fluorescence - ED or WD not specified
XX	Please Indicate Method Used for Current Element

187: Corrosion Resistant Steel, Element #8 - CHROMIUM (Cr)

Method Code	Description
DR	Spectrometry - Direct Reading OE (DROES)
ED	X-Ray Fluorescence - Energy Dispersive (EDX)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
TI	Titrimetry
WC	Wet Chemistry
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XR	X-Ray Fluorescence - ED or WD not specified
XX	Please Indicate Method Used for Current Element

188: Corrosion Resistant Steel, Element #9 - MOLYBDENUM (Mo)

Method Code	Description
DR	Spectrometry - Direct Reading OE (DROES)
ED	X-Ray Fluorescence - Energy Dispersive (EDX)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XR	X-Ray Fluorescence - ED or WD not specified
XX	Please Indicate Method Used for Current Element

189: Corrosion Resistant Steel, Element #10 - VANADIUM (V)

Method Code	Description
DR	Spectrometry - Direct Reading OE (DROES)
ED	X-Ray Fluorescence - Energy Dispersive (EDX)
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XR	X-Ray Fluorescence - ED or WD not specified
XX	Please Indicate Method Used for Current Element

190: Aluminum, Element #1 - TITANIUM (Ti)

Method Code	Description
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)

191: Aluminum, Element #2 - COPPER (Cu)

Method Code	Description
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
XR	X-Ray Fluorescence - ED or WD not specified

192: Aluminum, Element #3 - IRON (Fe)

Method Code	Description
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
XR	X-Ray Fluorescence - ED or WD not specified

193: Aluminum, Element #4 - SILICON (Si)

Method Code	Description
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
XX	Please Indicate Method Used for Current Element

194: Aluminum, Element #5 - MANGANESE (Mn)

Method Code	Description
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)

195: Aluminum, Element #6 - MAGNESIUM (Mg)

Method Code	Description
GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
XX	Please Indicate Method Used for Current Element

196: Aluminum, Element #7 - CHROMIUM (Cr)

Method Code	Description
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
XX	Please Indicate Method Used for Current Element

197: Aluminum, Element #8 - ZINC (Zn)

Method Code	Description
IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)
XX	Please Indicate Method Used for Current Element