

Fasteners & Metals Interlaboratory Testing Program

Summary Report Cycle 130, 2nd Qtr 2020

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<u>Analysis</u>	<u>Test Group</u>
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Impact Tests	
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1003	Charpy V-Notch (-30 degrees)
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Tensile Tests	
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1131	Tensile Strength: Lab-Machined Flat Steel
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1132	Yield Strength: Lab-Machined Flat Steel
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1133	Elongation: Lab-Machined Flat Steel
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1134	r-Value: Lab-Machined Flat Steel
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1135	n-Value: Lab-Machined Flat Steel
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Fasteners	
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1201	Fastener Wedge Tensile (10 degree)
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1202	Fastener Axial Tensile
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1203	Fastener Wedge Tensile (10 degree) - Metric
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1204	Fastener Axial Tensile - Metric
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1210	Rockwell Hardness: Externally Threaded Fasteners
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1211	Vickers Hardness: Externally Threaded Fasteners
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1220	Fastener Double Shear
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Hardness / Metallography Tests	
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1301	Rockwell Hardness: C & B Scales
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1303	Rockwell Hardness: C Scale
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1351	Rockwell Superficial Hardness (30N Scale)
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1401	Total Case Depth
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1402	Effective Case Depth
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1411	Grain Size (Stainless Steel)
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1421	Alpha Case Depth
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1422	Alloy Depletion: Inconel
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Chemical Analyses	
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1500 - 1507	Chemical Analysis: Nickel-based Alloy
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1540 - 1549	Chemical Analysis: Aluminum Alloy
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1640 - 1649	Chemical Analysis: Corrosion Resistant Steel
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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 except 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.



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1003

**2nd Qtr
2020**

**Charpy V-Notch (-30 degrees)
ASTM E23**

WebCode	Data Flag	Sample U67			Sample U68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
34WV2Q		14.01	-0.86	-0.38	18.53	-0.02	-0.01
48TTVF		16.33	1.46	0.65	18.33	-0.21	-0.09
8KMGDK		15.00	0.13	0.06	18.33	-0.21	-0.09
8N37LV		17.33	2.46	1.09	18.00	-0.55	-0.23
8PQB9M		13.07	-1.80	-0.80	17.57	-0.98	-0.41
D8C6HC		13.07	-1.80	-0.80	15.30	-3.25	-1.36
DDL8K8		13.22	-1.65	-0.73	14.75	-3.79	-1.59
DHX7YL		13.73	-1.14	-0.51	18.03	-0.51	-0.22
J8ZAN8		14.43	-0.44	-0.19	19.97	1.42	0.59
LBPJH4		14.01	-0.86	-0.38	22.14	3.60	1.50
NNHU69		16.67	1.80	0.80	16.67	-1.88	-0.79
R2ZVC4		14.84	-0.03	-0.01	19.32	0.77	0.32
R4QTQ2		16.67	1.80	0.80	16.33	-2.21	-0.93
R979GT		16.33	1.46	0.65	17.67	-0.88	-0.37
RFKAF3		9.467	-5.40	-2.40	14.73	-3.81	-1.60
UBJTET		12.64	-2.23	-0.99	19.21	0.66	0.28
UCCLAC		16.31	1.44	0.64	22.15	3.60	1.51
VQ9FXQ		13.20	-1.67	-0.74	20.58	2.03	0.85
XW8GEV		19.33	4.46	1.98	20.00	1.45	0.61
YJLLHV		17.76	2.89	1.28	23.34	4.80	2.01

Summary Statistics						
	<u>Sample U67</u>			<u>Sample U68</u>		
Grand Means	14.87	Joules		18.55	Joules	
Stnd Dev Btwn Labs	2.25	Joules		2.39	Joules	

Samples U67, U68 : AISI 4140, AISI 4140

Statistics based on 20 of 20 reporting participants



Analysis 1003

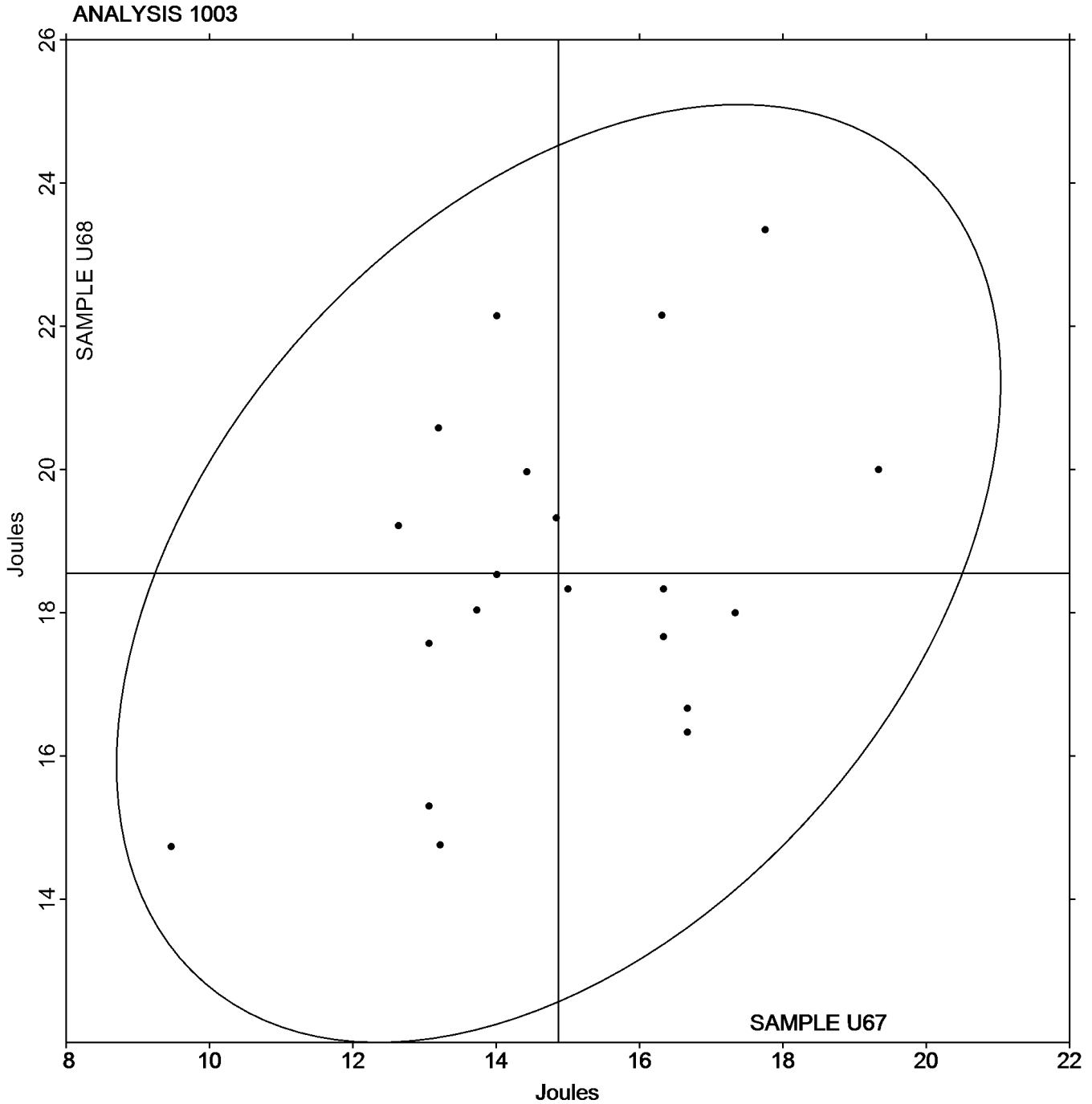
Charpy V-Notch (-30 degrees)
ASTM E23

SAMPLE U67

SAMPLE U68

14.87 Joules

18.55 Joules





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1131

2nd Qtr
2020

Tensile Strength: Lab-Machined Flat Steel ASTM E8

WebCode	Data Flag	Sample F67			Sample F68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2BXHNY		49.00	0.65	0.87	42.80	0.57	0.69
2Q8LVL		47.50	-0.85	-1.13	41.10	-1.13	-1.38
2RJ9EK		47.00	-1.35	-1.80	40.30	-1.93	-2.36
3GNU9R		48.59	0.23	0.31	42.39	0.16	0.19
3HWJAK	*	47.90	-0.45	-0.60	40.50	-1.73	-2.12
3QYWUT		48.59	0.24	0.32	41.92	-0.32	-0.39
46JTRU		48.25	-0.10	-0.13	41.86	-0.37	-0.46
4J6YBP		48.50	0.15	0.20	42.20	-0.03	-0.04
4PVEVP		47.20	-1.15	-1.54	42.20	-0.03	-0.04
679GQF		48.98	0.63	0.84	42.03	-0.20	-0.24
6B3K9L		46.85	-1.50	-2.01	41.63	-0.61	-0.74
6EZ2LF		49.00	0.65	0.87	42.40	0.17	0.20
6G7H3K		48.91	0.56	0.74	42.74	0.51	0.62
6MFK6F		49.10	0.75	1.00	43.40	1.17	1.43
6XMUAQ		49.00	0.65	0.87	41.60	-0.63	-0.77
79E9AG		49.10	0.75	1.00	42.70	0.47	0.57
7DRVCL		48.50	0.15	0.20	41.70	-0.53	-0.65
7EH74E	*	49.60	1.25	1.67	44.53	2.29	2.80
7Y7RJV		48.10	-0.25	-0.33	42.10	-0.13	-0.16
8MPAJC		48.99	0.64	0.85	42.99	0.76	0.93
8QNM4G		48.55	0.20	0.27	42.00	-0.23	-0.28
97E6EW	*	46.40	-1.95	-2.60	40.30	-1.93	-2.36
9DB3KL		48.70	0.35	0.47	42.80	0.57	0.69
9HDLHF	*	50.42	2.07	2.76	44.14	1.91	2.33
9J8KKK		47.90	-0.45	-0.60	41.20	-1.03	-1.26
9ZVQWK		47.76	-0.59	-0.79	42.38	0.15	0.18
A4AWNRR		48.70	0.35	0.47	43.20	0.97	1.18
AKCJ7D	X	49.55	1.20	1.60	49.95	7.72	9.43
APP6AH		48.20	-0.15	-0.20	42.10	-0.13	-0.16
AQ3TGC		48.43	0.08	0.11	43.12	0.89	1.08
B78TRC		48.75	0.40	0.53	42.37	0.13	0.16
B7L77M		49.14	0.79	1.05	42.30	0.07	0.09
BL6P9P		48.00	-0.35	-0.47	42.00	-0.23	-0.28
C2V6RF		48.20	-0.15	-0.20	42.00	-0.23	-0.28
C9VBJC		48.32	-0.03	-0.04	41.56	-0.67	-0.82
CDA3WJ		47.11	-1.25	-1.66	41.08	-1.15	-1.41
CDNLGG		48.76	0.41	0.54	43.26	1.03	1.26
CMAPNF		48.63	0.28	0.37	42.60	0.37	0.45
CUX89J		48.65	0.30	0.40	42.65	0.42	0.51
CWKRAG		48.21	-0.14	-0.19	41.15	-1.09	-1.33
CXVTWF		48.00	-0.35	-0.47	41.80	-0.43	-0.53
D6EEKD		48.93	0.58	0.78	42.52	0.29	0.35
DV2GL9	X	48.38	0.03	0.04	44.29	2.06	2.52
E3U988		48.80	0.45	0.60	43.10	0.87	1.06
E7YM4D	X	45.11	-3.24	-4.33	38.29	-3.94	-4.82
EBEZ3F		47.70	-0.65	-0.87	41.70	-0.53	-0.65
EXZE8K		49.60	1.25	1.67	42.40	0.17	0.20



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1131

2nd Qtr
2020

Tensile Strength: Lab-Machined Flat Steel ASTM E8

WebCode	Data Flag	Sample F67			Sample F68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
F23CHD		47.24	-1.11	-1.48	41.30	-0.93	-1.14
FRXB9E		48.80	0.45	0.60	43.10	0.87	1.06
GE4EL8		48.90	0.55	0.73	42.70	0.47	0.57
GFTWC7		48.52	0.17	0.23	42.40	0.17	0.20
HBHW2Z		48.09	-0.26	-0.35	41.44	-0.79	-0.97
HE3V7H	X	46.00	-2.35	-3.14	39.31	-2.92	-3.57
HJWXZA		48.28	-0.07	-0.09	41.61	-0.62	-0.76
HUVT3C		48.00	-0.35	-0.47	41.90	-0.33	-0.41
J6Q9JZ		47.70	-0.65	-0.87	41.20	-1.03	-1.26
JF9L26		48.53	0.18	0.24	42.08	-0.15	-0.19
JJ8288	X	48.00	-0.35	-0.47	40.00	-2.23	-2.73
JLEJ73		48.47	0.12	0.16	42.20	-0.04	-0.05
JTGNZ8		48.89	0.54	0.71	42.71	0.48	0.58
L2LABE	*	47.90	-0.45	-0.60	40.30	-1.93	-2.36
LQDU67		48.80	0.45	0.60	42.70	0.47	0.57
LT6QTZ		47.44	-0.91	-1.21	42.26	0.03	0.03
N28Q77		48.15	-0.20	-0.27	41.03	-1.20	-1.47
P4TY3D	X	44.93	-3.42	-4.56	33.24	-8.99	-10.99
PEUAJ2		48.40	0.05	0.07	43.30	1.07	1.30
PFAHMA		48.50	0.15	0.20	42.30	0.07	0.08
PJQ2PC		47.50	-0.85	-1.13	41.60	-0.63	-0.77
PK4DLW		49.08	0.73	0.98	43.27	1.03	1.26
PQRDNU		48.40	0.05	0.07	42.60	0.37	0.45
PV3B8B		48.90	0.55	0.73	43.30	1.07	1.30
PXTCDY		48.68	0.33	0.44	43.38	1.15	1.40
PYM762		48.10	-0.25	-0.33	42.00	-0.23	-0.28
QBBERM2		48.26	-0.09	-0.12	42.48	0.25	0.31
QFPEDZ		47.85	-0.50	-0.66	41.97	-0.26	-0.32
QJ7KAA	*	46.80	-1.55	-2.07	42.20	-0.03	-0.04
QQ3L49		47.56	-0.79	-1.06	41.48	-0.75	-0.92
QRW8WZ		48.72	0.37	0.49	42.48	0.25	0.30
QULLB2		48.50	0.15	0.20	43.00	0.77	0.94
R979GT		48.20	-0.15	-0.21	42.39	0.16	0.20
RRXACW		47.50	-0.85	-1.13	42.30	0.07	0.08
T2YCUY	*	46.30	-2.05	-2.74	40.30	-1.93	-2.36
TA9QQ9		47.00	-1.35	-1.80	41.50	-0.73	-0.90
TCHLNU		47.90	-0.45	-0.60	41.10	-1.13	-1.38
TH4K9Z		48.90	0.55	0.73	42.90	0.67	0.82
UBJTET		47.52	-0.83	-1.10	40.97	-1.26	-1.54
V3P3BX		48.30	-0.05	-0.07	42.10	-0.13	-0.16
V6CLCV	X	27.63	-20.72	-27.64	20.16	-22.07	-26.97
VPY7AY		48.09	-0.26	-0.34	42.37	0.13	0.16
WFNL6U	*	50.51	2.16	2.88	43.74	1.51	1.84
WGEPUU		48.33	-0.02	-0.02	42.07	-0.16	-0.20
WZUTQU		47.57	-0.78	-1.04	41.48	-0.75	-0.92
X24DVA		49.50	1.15	1.53	43.10	0.87	1.06
X6RXJX		48.80	0.45	0.60	42.80	0.57	0.69



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1131

2nd Qtr
2020

Tensile Strength: Lab-Machined Flat Steel ASTM E8

WebCode	Data Flag	Sample F67			Sample F68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
XENRY9		48.10	-0.25	-0.33	43.30	1.07	1.30
XJMW2U		48.66	0.30	0.41	42.27	0.04	0.04
XQ3UCU		49.40	1.05	1.40	42.60	0.37	0.45
XTMW4Z		49.70	1.35	1.80	43.30	1.07	1.30
XW8GEV		49.10	0.74	0.99	42.93	0.70	0.85
XYVZE9		48.01	-0.34	-0.46	42.50	0.26	0.32
Y9WZ4K		48.40	0.05	0.07	42.60	0.37	0.45
YH6CJ4		47.70	-0.65	-0.86	42.29	0.05	0.07
YMGDQT		48.80	0.45	0.60	42.30	0.07	0.08
Z78UNU		48.20	-0.15	-0.20	42.50	0.27	0.33
ZPE66J		48.40	0.05	0.07	42.00	-0.23	-0.28

Summary Statistics

	Sample F67		Sample F68	
Grand Means	48.35	ksi	42.23	ksi
Stnd Dev Btwn Labs	0.75	ksi	0.82	ksi

Samples F67, F68 : AISI 1008 - 14G, AISI 1008 - 16G

Statistics based on 98 of 105 reporting participants

Comments on Assigned Data Flags for Test #1131

- AKCJ7D (X) - Data for sample F68 are high.
- DV2GL9 (X) - Inconsistent in testing between samples.
- E7YM4D (X) - Data for both samples are low. Possible Systematic Error.
- HE3V7H (X) - Data for both samples are low. Possible Systematic Error.
- JJ8288 (X) - Inconsistent in testing between samples.
- P4TY3D (X) - Data for both samples are low. Possible Systematic Error.
- V6CLCV (X) - Data for both samples are extremely low. Possible Systematic Error.



Analysis 1131

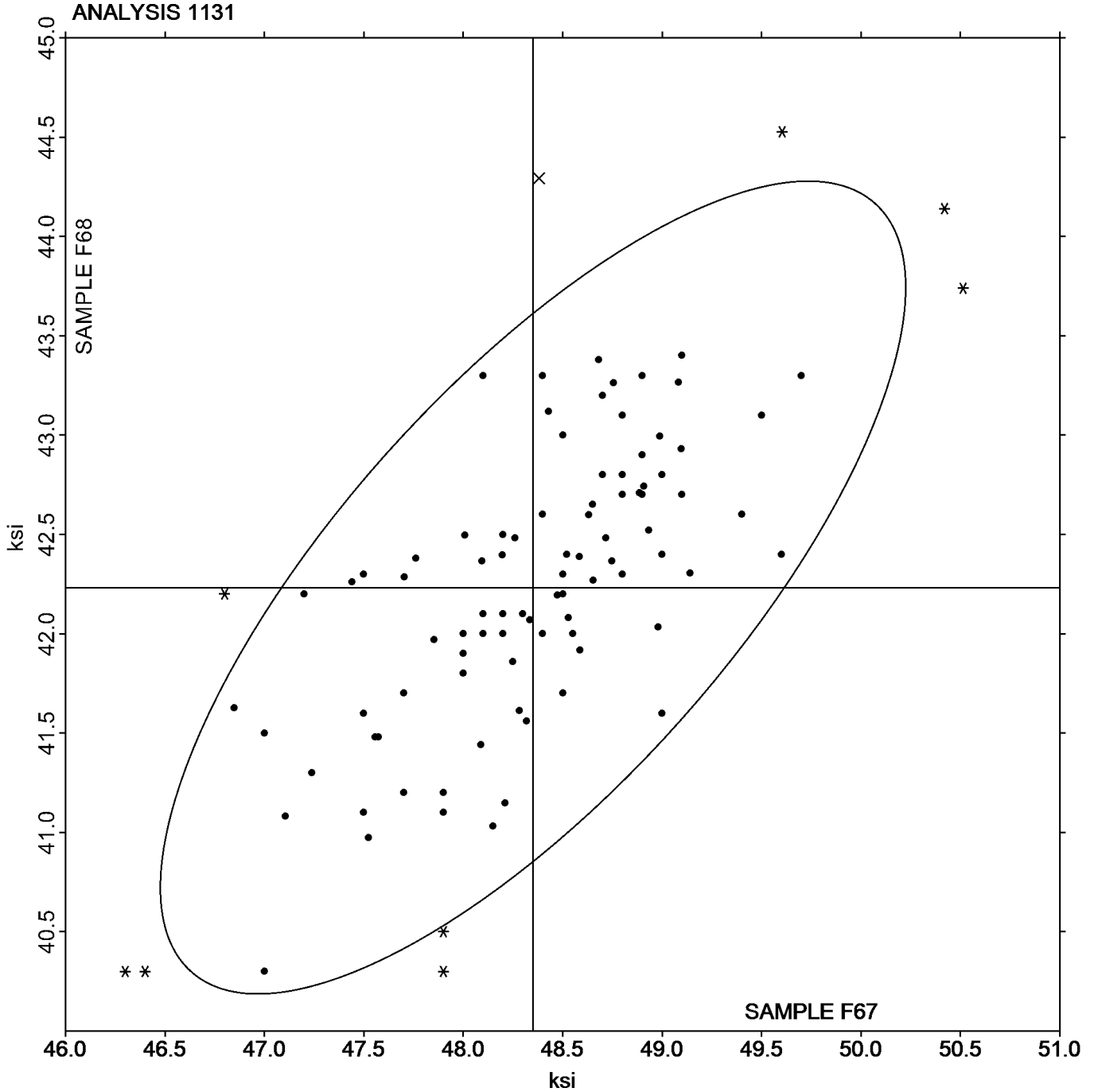
Tensile Strength: Lab-Machined Flat Steel
ASTM E8

SAMPLE F67

48.35 ksi

SAMPLE F68

42.23 ksi





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1132

2nd Qtr
2020

Yield Strength: Lab-Machined Flat Steel ASTM E8

WebCode	Data Flag	Sample F67			Sample F68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2BXHNY		31.10	0.63	0.72	23.80	1.37	1.47
2Q8LVL		32.10	1.63	1.88	23.60	1.17	1.25
2RJ9EK		29.00	-1.47	-1.70	21.00	-1.43	-1.54
3GNU9R	X	31.36	0.89	1.03	26.91	4.48	4.81
3HWJAK		32.40	1.93	2.22	24.00	1.57	1.68
3QYWUT		29.88	-0.59	-0.68	21.47	-0.97	-1.04
46JTRU	*	32.32	1.85	2.13	24.81	2.38	2.55
4J6YBP		29.70	-0.77	-0.89	21.80	-0.63	-0.68
4PVEVP	X	27.00	-3.47	-4.00	21.65	-0.78	-0.84
679GQF		31.08	0.61	0.70	22.87	0.44	0.47
6B3K9L	X	41.05	10.57	12.19	33.65	11.21	12.05
6EZ2LF		30.70	0.23	0.26	23.10	0.67	0.71
6G7H3K		31.21	0.74	0.85	23.12	0.68	0.74
6MFK6F		30.50	0.03	0.03	22.40	-0.03	-0.04
6XMUAQ		30.60	0.13	0.15	21.70	-0.73	-0.79
79E9AG		32.40	1.93	2.22	23.80	1.37	1.47
7DRVCL		30.30	-0.17	-0.20	21.90	-0.53	-0.57
7EH74E		30.17	-0.30	-0.35	22.92	0.48	0.52
7Y7RJV		30.20	-0.27	-0.31	22.10	-0.33	-0.36
8MPAJC		30.86	0.39	0.45	23.20	0.76	0.82
97E6EW		29.20	-1.27	-1.47	21.00	-1.43	-1.54
9DB3KL	*	31.90	1.43	1.65	24.90	2.47	2.65
9J8KKK		31.70	1.23	1.41	23.90	1.47	1.57
9ZVQWK		30.08	-0.39	-0.45	22.41	-0.03	-0.03
A4AWNRR		30.00	-0.47	-0.54	21.60	-0.83	-0.90
AKCJ7D	X	32.25	1.78	2.05	30.90	8.47	9.10
APP6AH		30.70	0.23	0.26	22.80	0.37	0.39
AQ3TGC	*	30.71	0.24	0.27	24.24	1.81	1.94
B78TRC		29.75	-0.72	-0.84	21.48	-0.95	-1.03
B7L77M	X	30.46	-0.01	-0.01	26.18	3.74	4.02
BL6P9P		29.50	-0.97	-1.12	21.80	-0.63	-0.68
C2V6RF		29.90	-0.57	-0.66	21.70	-0.73	-0.79
CDA3WJ		29.51	-0.97	-1.11	21.35	-1.08	-1.16
CDNLGG		31.10	0.63	0.72	23.21	0.78	0.83
CMAPNF		30.94	0.46	0.54	22.31	-0.13	-0.14
CUX89J		29.98	-0.49	-0.57	21.70	-0.73	-0.79
CWKRAG		29.62	-0.86	-0.99	21.28	-1.16	-1.24
CXVTWF		29.80	-0.67	-0.77	21.80	-0.63	-0.68
D6EEKD		29.72	-0.75	-0.87	21.21	-1.22	-1.32
DV2GL9	*	32.55	2.07	2.39	23.73	1.30	1.40
E3U988	X	30.00	-0.47	-0.54	23.80	1.37	1.47
E7YM4D	X	25.96	-4.51	-5.20	17.26	-5.18	-5.56
EBEZ3F		29.10	-1.37	-1.58	21.20	-1.23	-1.33
EXZE8K	X	33.50	3.03	3.49	24.30	1.87	2.00
F23CHD		30.00	-0.47	-0.54	22.00	-0.43	-0.47
GE4EL8		30.50	0.03	0.03	22.40	-0.03	-0.04
GFTWC7	*	32.30	1.83	2.11	22.90	0.47	0.50



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1132

2nd Qtr
2020

Yield Strength: Lab-Machined Flat Steel ASTM E8

WebCode	Data Flag	Sample F67			Sample F68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
HBHW2Z		30.94	0.47	0.54	22.78	0.35	0.37
HE3V7H		30.17	-0.31	-0.35	21.67	-0.77	-0.83
HJWXZA		29.75	-0.72	-0.84	21.49	-0.94	-1.01
HUVT3C		29.40	-1.07	-1.24	21.30	-1.13	-1.22
J6Q9JZ		29.40	-1.07	-1.24	21.20	-1.23	-1.33
JF9L26	X	30.70	0.23	0.26	24.94	2.51	2.69
JJ8288	X	30.00	-0.47	-0.54	25.00	2.57	2.76
JLEJ73		29.53	-0.94	-1.09	21.94	-0.50	-0.54
JTGNZ8		30.60	0.13	0.15	22.49	0.06	0.06
L2LABE		31.00	0.53	0.61	22.30	-0.13	-0.15
LQDU67		31.40	0.93	1.07	23.70	1.27	1.36
LT6QTZ		30.10	-0.37	-0.43	23.10	0.67	0.71
N28Q77		30.30	-0.17	-0.20	23.10	0.67	0.71
P4TY3D	X	29.52	-0.96	-1.10	13.36	-9.08	-9.75
PEUAJ2	X	34.30	3.83	4.41	23.50	1.07	1.14
PFAHMA		29.50	-0.97	-1.12	21.50	-0.93	-1.00
PJQ2PC		29.20	-1.27	-1.47	21.10	-1.33	-1.43
PK4DLW		30.63	0.16	0.18	22.54	0.10	0.11
PQRDNU		30.70	0.23	0.26	22.60	0.17	0.18
PV3B8B	X	33.30	2.83	3.26	26.10	3.67	3.94
PXTCDY	X	32.71	2.24	2.58	22.45	0.02	0.02
PYM762		30.00	-0.47	-0.54	21.90	-0.53	-0.57
QBBERM2		30.18	-0.29	-0.33	22.12	-0.31	-0.34
QFPEDZ		29.96	-0.52	-0.59	22.15	-0.28	-0.30
QJ7KAA		29.00	-1.47	-1.70	22.00	-0.43	-0.47
QQ3L49		30.33	-0.14	-0.17	22.70	0.27	0.28
QRW8WZ		29.92	-0.55	-0.63	21.47	-0.97	-1.04
QULLB2		30.50	0.03	0.03	23.00	0.57	0.61
R979GT		29.63	-0.84	-0.97	21.98	-0.46	-0.49
RRXACW		29.60	-0.87	-1.01	22.30	-0.13	-0.15
T2YCUY		29.80	-0.67	-0.77	21.50	-0.93	-1.00
TA9QQ9		30.60	0.13	0.15	22.50	0.07	0.07
TCHLNU		31.70	1.23	1.41	23.70	1.27	1.36
TH4K9Z		30.50	0.03	0.03	22.20	-0.23	-0.25
UBJTET		31.23	0.75	0.87	22.83	0.39	0.42
V3P3BX		30.10	-0.37	-0.43	21.60	-0.83	-0.90
V6CLCV	X	16.45	-14.02	-16.16	10.38	-12.05	-12.95
VPY7AY		29.85	-0.62	-0.72	22.86	0.42	0.45
WFNL6U		32.11	1.64	1.89	23.46	1.02	1.10
WGEPUU		30.33	-0.14	-0.16	22.35	-0.08	-0.09
X24DVA		30.90	0.43	0.49	22.00	-0.43	-0.47
X6RXJX	*	31.50	1.03	1.18	24.60	2.17	2.33
XENRY9	X	29.60	-0.87	-1.01	25.00	2.57	2.76
XJMW2U		30.43	-0.04	-0.05	21.25	-1.19	-1.28
XQ3UCU		31.00	0.53	0.61	23.30	0.87	0.93
XTMW4Z	*	31.70	1.23	1.41	22.30	-0.13	-0.15
XYVZE9		29.73	-0.74	-0.85	21.47	-0.97	-1.04



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1132

2nd Qtr
2020

Yield Strength: Lab-Machined Flat Steel ASTM E8

WebCode	Data Flag	Sample F67			Sample F68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
Y9WZ4K		30.50	0.03	0.03	22.50	0.07	0.07
YH6CJ4		31.32	0.85	0.98	23.58	1.14	1.23
YMGDQT		30.40	-0.07	-0.08	22.10	-0.33	-0.36
Z78UNU		30.20	-0.27	-0.31	22.70	0.27	0.28
ZPE66J		30.50	0.03	0.03	22.40	-0.03	-0.04

Summary Statistics

	Sample F67		Sample F68	
Grand Means	30.47	ksi	22.43	ksi
Std Dev Btwn Labs	0.87	ksi	0.93	ksi

Samples F67, F68 : AISI 1008 - 14G, AISI 1008 - 16G

Statistics based on 83 of 99 reporting participants

Comments on Assigned Data Flags for Test #1132

- 3GNU9R (X) - Data for sample F68 are high.
- 4PVEVP (X) - Data for sample F67 are low.
- 6B3K9L (X) - Data for both samples are high. Possible Systematic Error.
- AKCJ7D (X) - Data for sample F68 are high.
- B7L77M (X) - Data for sample F68 are high.
- E3U988 (X) - Inconsistent in testing between samples.
- E7YM4D (X) - Data for both samples are low. Possible Systematic Error.
- EXZE8K (X) - Data for sample F67 are high.
- JF9L26 (X) - Inconsistent in testing between samples.
- JJ8288 (X) - Data for sample F68 are high.
- P4TY3D (X) - Data for sample F68 are low.
- PEUAJ2 (X) - Data for sample F67 are high.
- PV3B8B (X) - Data for both samples are high. Possible Systematic Error.
- PXTCDY (X) - Inconsistent in testing between samples.
- V6CLCV (X) - Data for both samples are low. Possible Systematic Error.
- XENRY9 (X) - Data for sample F68 are high.



Analysis 1132

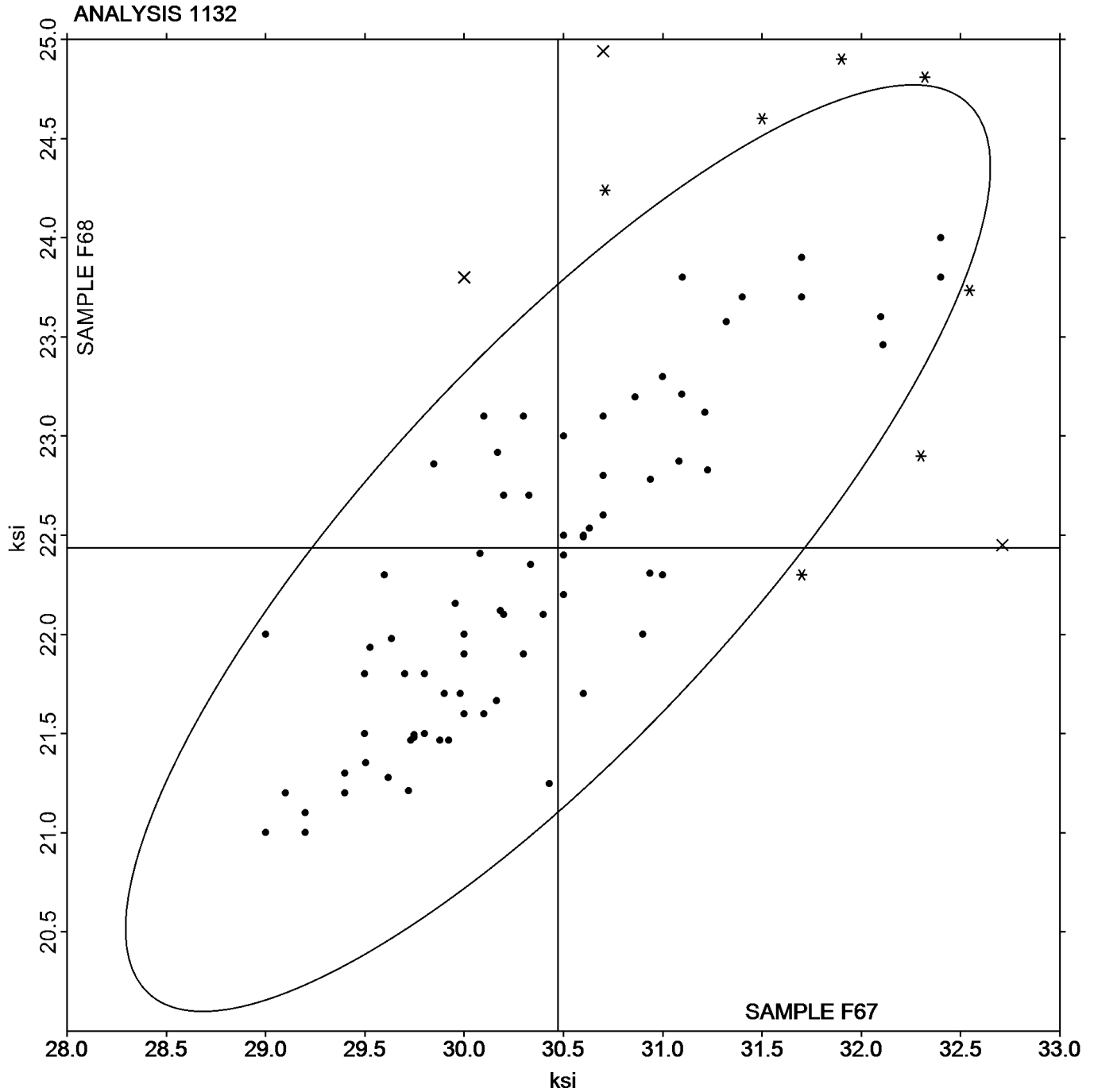
Yield Strength: Lab-Machined Flat Steel
ASTM E8

SAMPLE F67

SAMPLE F68

30.47 ksi

22.43 ksi





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1133

2nd Qtr
2020

Elongation: Lab-Machined Flat Steel ASTM E8

WebCode	Data Flag	Sample F67			Sample F68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2BXHNY		37.00	-2.68	-1.14	44.20	-2.81	-1.02
2Q8LVL	X	38.90	-0.78	-0.33	39.80	-7.21	-2.61
2RJ9EK		41.20	1.52	0.65	44.80	-2.21	-0.80
3GNU9R		37.00	-2.68	-1.14	46.00	-1.01	-0.37
3HWJAK		36.10	-3.58	-1.52	42.60	-4.41	-1.60
3QYWUT		42.00	2.32	0.99	50.50	3.49	1.26
46JTRU		36.72	-2.96	-1.26	42.13	-4.88	-1.77
4J6YBP		41.40	1.72	0.73	48.60	1.59	0.57
4PVEVP	X	27.25	-12.43	-5.29	34.75	-12.26	-4.44
679GQF		35.50	-4.18	-1.78	42.70	-4.31	-1.56
6B3K9L		45.00	5.32	2.27	52.40	5.39	1.95
6EZ2LF		39.50	-0.18	-0.08	46.50	-0.51	-0.19
6G7H3K		38.40	-1.28	-0.54	45.00	-2.01	-0.73
6MFK6F		40.30	0.62	0.26	50.00	2.99	1.08
6XMUAQ		40.00	0.32	0.14	50.00	2.99	1.08
79E9AG	*	36.50	-3.18	-1.35	48.10	1.09	0.39
7DRVCL	X	20.70	-18.98	-8.08	24.60	-22.41	-8.12
7EH74E		39.40	-0.28	-0.12	45.40	-1.61	-0.58
7Y7RJV		41.50	1.82	0.78	48.00	0.99	0.36
8MPAJC		41.20	1.52	0.65	48.40	1.39	0.50
8QNM4G	X	28.33	-11.35	-4.83	35.00	-12.01	-4.35
97E6EW		43.80	4.12	1.76	51.70	4.69	1.70
9DB3KL		41.00	1.32	0.56	50.00	2.99	1.08
9HDLHF	X	25.00	-14.68	-6.25	35.00	-12.01	-4.35
9J8KKK	*	41.00	1.32	0.56	44.00	-3.01	-1.09
9ZVQWK		43.50	3.82	1.63	50.30	3.29	1.19
A4AWNRR		39.00	-0.68	-0.29	46.00	-1.01	-0.37
AKCJ7D		38.00	-1.68	-0.71	44.10	-2.91	-1.06
APP6AH		39.10	-0.58	-0.25	46.80	-0.21	-0.08
AQ3TGC		44.00	4.32	1.84	51.60	4.59	1.66
B78TRC		38.40	-1.28	-0.54	45.10	-1.91	-0.69
B7L77M		41.00	1.32	0.56	48.00	0.99	0.36
BL6P9P		41.40	1.72	0.73	45.40	-1.61	-0.58
C2V6RF		41.10	1.42	0.61	49.50	2.49	0.90
C9VBJC	X	29.80	-9.88	-4.21	33.90	-13.11	-4.75
CDA3WJ		37.70	-1.98	-0.84	46.50	-0.51	-0.19
CDNLGG		40.00	0.32	0.14	46.40	-0.61	-0.22
CMAPNF		37.20	-2.48	-1.06	46.40	-0.61	-0.22
CUX89J		39.37	-0.31	-0.13	47.30	0.29	0.10
CWKRAG		37.60	-2.08	-0.88	44.20	-2.81	-1.02
CXVTWF		37.40	-2.28	-0.97	44.50	-2.51	-0.91
D6EEKD		40.90	1.22	0.52	49.00	1.99	0.72
DV2GL9		38.70	-0.98	-0.42	45.30	-1.71	-0.62
E3U988		38.80	-0.88	-0.37	43.80	-3.21	-1.16
E7YM4D		42.30	2.62	1.12	50.30	3.29	1.19
EBEZ3F		42.90	3.22	1.37	51.20	4.19	1.52
EXZE8K	*	36.80	-2.88	-1.23	40.50	-6.51	-2.36



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1133

2nd Qtr
2020

Elongation: Lab-Machined Flat Steel ASTM E8

WebCode	Data Flag	Sample F67			Sample F68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
F23CHD		36.10	-3.58	-1.52	44.90	-2.11	-0.77
GE4EL8		39.20	-0.48	-0.20	47.90	0.89	0.32
GFTWC7		43.02	3.34	1.42	50.97	3.96	1.43
HBHW2Z	*	45.22	5.54	2.36	49.97	2.96	1.07
HE3V7H	*	33.80	-5.88	-2.50	44.00	-3.01	-1.09
HJWXZA		40.10	0.42	0.18	47.70	0.69	0.25
HUVT3C		35.90	-3.78	-1.61	42.60	-4.41	-1.60
J6Q9JZ		41.10	1.42	0.61	49.00	1.99	0.72
JF9L26		40.90	1.22	0.52	47.10	0.09	0.03
JJ8288	*	39.00	-0.68	-0.29	42.00	-5.01	-1.82
JLEJ73		39.00	-0.68	-0.29	44.00	-3.01	-1.09
JTGNZ8		41.72	2.04	0.87	50.25	3.24	1.17
L2LABE		38.70	-0.98	-0.42	44.00	-3.01	-1.09
LQDU67		37.90	-1.78	-0.76	45.30	-1.71	-0.62
LT6QTZ		39.90	0.22	0.09	47.40	0.39	0.14
N28Q77		39.90	0.22	0.09	46.95	-0.06	-0.02
P4TY3D		41.10	1.42	0.61	47.80	0.79	0.28
PEUAJ2	*	39.50	-0.18	-0.08	51.50	4.49	1.62
PFAHMA		37.00	-2.68	-1.14	43.80	-3.21	-1.16
PJQ2PC		39.50	-0.18	-0.08	47.00	-0.01	-0.01
PK4DLW		39.60	-0.08	-0.03	46.80	-0.21	-0.08
PQRDNU		38.10	-1.58	-0.67	43.90	-3.11	-1.13
PV3B8B	X	25.00	-14.68	-6.25	31.20	-15.81	-5.73
PXTCDY	X	24.17	-15.51	-6.60	40.00	-7.01	-2.54
PYM762		43.50	3.82	1.63	52.30	5.29	1.91
QBBERM2		41.20	1.52	0.65	49.40	2.39	0.86
QFPEDZ		34.30	-5.38	-2.29	42.90	-4.11	-1.49
QJ7KAA		37.40	-2.28	-0.97	45.40	-1.61	-0.58
QQ3L49		41.30	1.62	0.69	48.60	1.59	0.57
QRW8WZ		39.18	-0.50	-0.21	46.36	-0.65	-0.24
QULLB2		41.50	1.82	0.78	48.10	1.09	0.39
R979GT		41.81	2.13	0.91	48.82	1.81	0.65
RRXACW		40.30	0.62	0.26	47.50	0.49	0.18
T2YCUY		45.00	5.32	2.27	53.00	5.99	2.17
TA9QQ9		41.60	1.92	0.82	50.50	3.49	1.26
TCHLNU		36.70	-2.98	-1.27	43.80	-3.21	-1.16
TH4K9Z		40.90	1.22	0.52	48.90	1.89	0.68
UBJTET		41.19	1.51	0.64	49.31	2.30	0.83
V3P3BX		41.60	1.92	0.82	49.30	2.29	0.83
V6CLCV		40.90	1.22	0.52	48.20	1.19	0.43
VPY7AY		37.00	-2.68	-1.14	44.00	-3.01	-1.09
WFNL6U		38.50	-1.18	-0.50	45.90	-1.11	-0.40
WGEPUU		39.65	-0.03	-0.01	49.80	2.79	1.01
WZUTQU		36.00	-3.68	-1.57	46.00	-1.01	-0.37
X24DVA		40.00	0.32	0.14	47.00	-0.01	-0.01
X6RXJX		41.00	1.32	0.56	49.00	1.99	0.72
XENRY9		39.70	0.02	0.01	46.00	-1.01	-0.37



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1133

2nd Qtr
2020

Elongation: Lab-Machined Flat Steel
ASTM E8

WebCode	Data Flag	Sample F67			Sample F68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
XJMW2U		38.65	-1.03	-0.44	47.09	0.08	0.03
XQ3UCU		40.50	0.82	0.35	47.20	0.19	0.07
XTMW4Z		36.90	-2.78	-1.18	44.50	-2.51	-0.91
XW8GEV		39.75	0.07	0.03	46.10	-0.91	-0.33
XYVZE9		37.40	-2.28	-0.97	44.40	-2.61	-0.95
Y9WZ4K		38.10	-1.58	-0.67	44.60	-2.41	-0.87
YH6CJ4		38.55	-1.13	-0.48	44.50	-2.51	-0.91
YMGDQT	X	20.90	-18.78	-8.00	24.70	-22.31	-8.08
Z78UNU		42.90	3.22	1.37	52.00	4.99	1.81
ZPE66J		40.50	0.82	0.35	47.80	0.79	0.28

Summary Statistics

	Sample F67		Sample F68	
Grand Means	39.68	Percent	47.01	Percent
Std Dev Btwn Labs	2.35	Percent	2.76	Percent

Samples F67, F68 : AISI 1008 - 14G, AISI 1008 - 16G

Statistics based on 95 of 104 reporting participants

Comments on Assigned Data Flags for Test #1133

- 2Q8LVL (X) - Inconsistent in testing between samples.
- 4PVEVP (X) - Data for both samples are low.
- 7DRVCL (X) - Data for both samples are low.
- 8QNM4G (X) - Data for both samples are low.
- 9HDLHF (X) - Data for both samples are low.
- C9VBJC (X) - Data for both samples are low.
- PV3B8B (X) - Data for both samples are low.
- PXTCDY (X) - Data for sample F67 are low.
- YMGDQT (X) - Data for both samples are low.



Analysis 1133

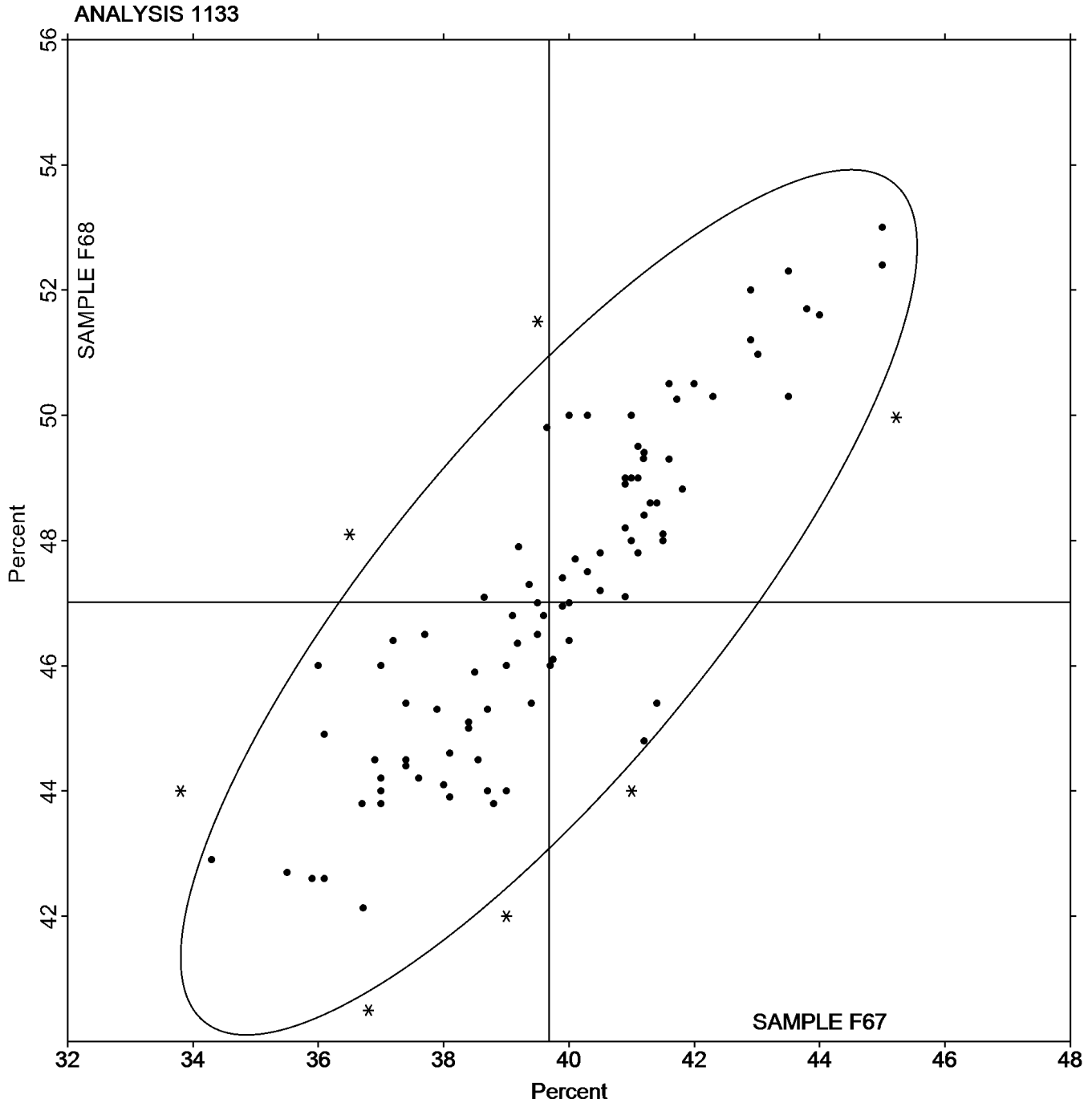
Elongation: Lab-Machined Flat Steel
ASTM E8

SAMPLE F67

39.68 Percent

SAMPLE F68

47.01 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1134

2nd Qtr
2020

r-Value: Lab-Machined Flat Steel
ASTM E517

WebCode	Data Flag	Sample F67			Sample F68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
3QYWUT	*	1.387	0.176	2.52	2.401	0.482	2.81
4J6YBP		1.220	0.009	0.13	1.970	0.051	0.30
7DRVCL		1.300	0.089	1.28	2.200	0.281	1.64
9ZVQWK		1.200	-0.011	-0.15	1.860	-0.059	-0.34
C2V6RF		1.276	0.065	0.94	2.060	0.141	0.82
CWKRAG		1.060	-0.151	-2.15	1.630	-0.289	-1.68
D6EEKD		1.192	-0.019	-0.27	1.858	-0.061	-0.35
EBEZ3F		1.170	-0.041	-0.58	1.890	-0.029	-0.17
HJWXZA		1.165	-0.046	-0.65	1.972	0.053	0.31
HUVT3C		1.169	-0.042	-0.60	1.962	0.043	0.25
JTGNZ8		1.179	-0.032	-0.45	1.955	0.036	0.21
LT6QTZ		1.190	-0.021	-0.29	1.960	0.041	0.24
PV3B8B	X	0.5020	-0.709	-10.13	0.5020	-1.417	-8.26
PYM762		1.220	0.009	0.13	1.900	-0.019	-0.11
QBBRM2		1.250	0.039	0.56	1.920	0.001	0.01
QFPEDZ	*	1.180	-0.031	-0.44	1.604	-0.315	-1.84
QULLB2		1.170	-0.041	-0.58	1.820	-0.099	-0.58
R979GT		1.274	0.063	0.91	2.017	0.098	0.57
RRXACW		1.240	0.029	0.42	2.030	0.111	0.65
TA9QQ9		1.170	-0.041	-0.58	1.850	-0.069	-0.40
V3P3BX		1.300	0.089	1.28	2.090	0.171	1.00
VPY7AY		1.150	-0.061	-0.87	1.710	-0.209	-1.22
WGEPUU		1.165	-0.046	-0.65	1.770	-0.149	-0.87
YH6CJ4		1.293	0.082	1.18	2.053	0.134	0.78
YMGDQT		1.180	-0.031	-0.44	1.810	-0.109	-0.63
Z78UNU		1.276	0.065	0.94	1.878	-0.041	-0.24
ZPE66J		1.100	-0.111	-1.58	1.720	-0.199	-1.16

Summary Statistics

	<u>Sample F67</u>	<u>Sample F68</u>
Grand Means	1.211	1.919
Std Dev Btwn Labs	0.070	0.171

Samples F67, F68 : AISI 1008 - 14G, AISI 1008 - 16G

Statistics based on 26 of 27 reporting participants

Comments on Assigned Data Flags for Test #1134

PV3B8B (X) - Data for both samples are low.



Analysis 1134

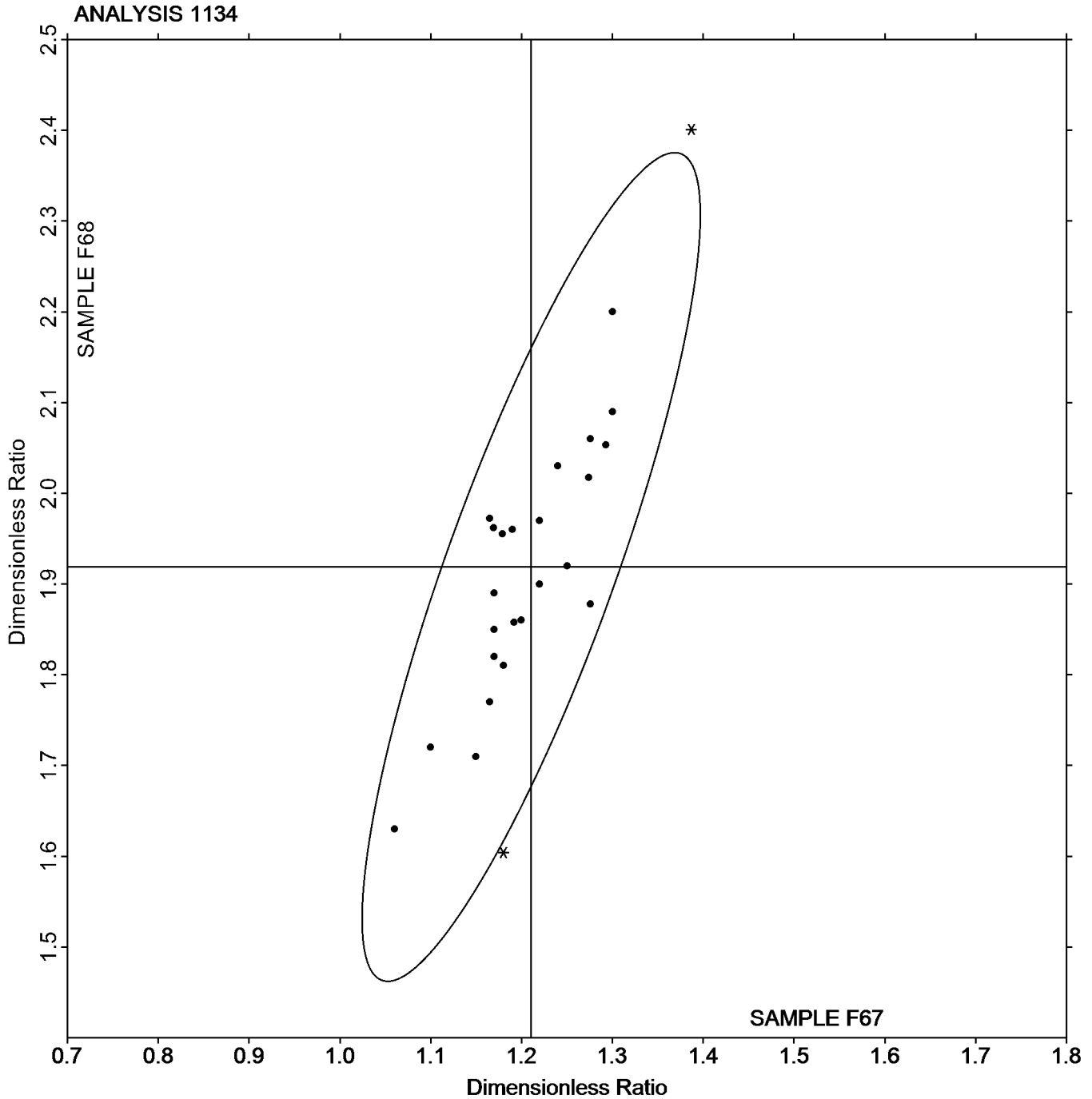
r-Value: Lab-Machined Flat Steel
ASTM E517

SAMPLE F67

SAMPLE F68

1.211

1.919





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1135

2nd Qtr
2020

n-Value: Lab-Machined Flat Steel
ASTM E646

WebCode	Data Flag	Sample F67			Sample F68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
3QYWUT		0.1800	-0.0048	-1.25	0.2250	-0.0103	-1.31
4J6YBP		0.1790	-0.0058	-1.51	0.2350	-0.0003	-0.04
7DRVCL		0.1900	0.0052	1.34	0.2550	0.0197	2.50
7Y7RJV		0.1800	-0.0048	-1.25	0.2200	-0.0153	-1.94
97E6EW		0.1910	0.0062	1.60	0.2440	0.0087	1.11
9ZVQWK	*	0.1940	0.0092	2.38	0.2420	0.0067	0.85
APP6AH		0.1830	-0.0018	-0.47	0.2420	0.0067	0.85
C2V6RF		0.1880	0.0032	0.82	0.2390	0.0037	0.47
CWKRAG		0.1840	-0.0008	-0.21	0.2440	0.0087	1.11
D6EEKD		0.1790	-0.0058	-1.51	0.2260	-0.0093	-1.18
EBEZ3F		0.1870	0.0022	0.56	0.2340	-0.0013	-0.16
GE4EL8	X	0.1520	-0.0328	-8.51	0.2250	-0.0103	-1.31
HJWXZA		0.1830	-0.0018	-0.47	0.2300	-0.0053	-0.67
HUVT3C		0.1850	0.0002	0.04	0.2300	-0.0053	-0.67
JF9L26		0.1899	0.0051	1.32	0.2375	0.0022	0.28
JTGNZ8		0.1840	-0.0008	-0.21	0.2430	0.0077	0.98
LQDU67		0.1800	-0.0048	-1.25	0.2300	-0.0053	-0.67
LT6QTZ		0.1800	-0.0048	-1.25	0.2230	-0.0123	-1.56
PJQ2PC		0.1904	0.0056	1.44	0.2470	0.0117	1.49
PQRDNU		0.1830	-0.0018	-0.47	0.2350	-0.0003	-0.04
PV3B8B	X	0.5020	0.3172	82.24	0.5020	0.2667	33.90
PYM762		0.1830	-0.0018	-0.47	0.2300	-0.0053	-0.67
QBBERM2		0.1800	-0.0048	-1.25	0.2290	-0.0063	-0.80
QFPEDZ		0.1880	0.0032	0.82	0.2380	0.0027	0.34
QULLB2		0.1830	-0.0018	-0.47	0.2280	-0.0073	-0.93
R979GT		0.1860	0.0012	0.30	0.2360	0.0007	0.09
RRXACW		0.1840	-0.0008	-0.21	0.2310	-0.0043	-0.55
TA9QQ9		0.1900	0.0052	1.34	0.2330	-0.0023	-0.29
UBJTET		0.1859	0.0011	0.28	0.2335	-0.0018	-0.23
V3P3BX		0.1873	0.0025	0.64	0.2390	0.0037	0.47
VPY7AY		0.1800	-0.0048	-1.25	0.2260	-0.0093	-1.18
WGEPUU		0.1860	0.0012	0.30	0.2330	-0.0023	-0.29
XENRY9		0.1821	-0.0027	-0.71	0.2249	-0.0104	-1.32
XJMW2U		0.1819	-0.0030	-0.77	0.2324	-0.0029	-0.36
XYVZE9		0.1850	0.0002	0.04	0.2360	0.0007	0.09
Y9WZ4K		0.1830	-0.0018	-0.47	0.2350	-0.0003	-0.04
YH6CJ4		0.1840	-0.0008	-0.21	0.2450	0.0097	1.23
YMGDQT		0.1900	0.0052	1.34	0.2500	0.0147	1.87
Z78UNU		0.1870	0.0022	0.56	0.2450	0.0097	1.23
ZPE66J		0.1870	0.0022	0.56	0.2350	-0.0003	-0.04



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1135

**2nd Qtr
2020**

n-Value: Lab-Machined Flat Steel
ASTM E646

Summary Statistics

	<u>Sample F67</u>	<u>Sample F68</u>
Grand Means	0.1848	0.2353
Std Dev Btwn Labs	0.0039	0.0079

Samples F67, F68 : AISI 1008 - 14G, AISI 1008 - 16G

Statistics based on 38 of 40 reporting participants

Comments on Assigned Data Flags for Test #1135

GE4EL8 (X) - Data for sample F67 are low.

PV3B8B (X) - Extreme data.



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1201

2nd Qtr
2020

Fastener Wedge Tensile (10 degree) ASTM F606

WebCode	Data Flag	Sample X67			Sample X68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
48TTVF		141.13	-2.43	-1.55	132.27	-1.31	-0.85
4NRZYG		142.56	-1.01	-0.64	132.20	-1.38	-0.89
683ADL		143.78	0.21	0.13	132.01	-1.57	-1.02
6XECWE		143.50	-0.07	-0.04	133.90	0.32	0.21
7UG7YN		143.82	0.25	0.16	132.74	-0.84	-0.54
7W6HYU		144.77	1.21	0.77	134.45	0.87	0.56
7XDYNC	*	143.63	0.07	0.04	135.93	2.35	1.52
7YTVGC		142.70	-0.87	-0.55	131.63	-1.95	-1.26
86QAFH	X	146.60	3.03	1.93	141.40	7.82	5.06
8KMGDK		141.33	-2.23	-1.42	132.33	-1.25	-0.81
8MVGUK		142.80	-0.77	-0.49	133.63	0.05	0.03
92MV6X		142.03	-1.53	-0.97	133.27	-0.31	-0.20
97GTWB		143.29	-0.28	-0.18	131.93	-1.65	-1.07
9843GQ		144.37	0.80	0.51	135.67	2.09	1.35
9D3L8A		143.10	-0.47	-0.30	132.97	-0.61	-0.40
9GFGWK	X	141.68	-1.89	-1.20	135.45	1.87	1.21
9GFL7M		144.70	1.13	0.72	134.87	1.29	0.83
9J8KKK	X	11.17	-132.40	-84.09	10.27	-123.31	-79.78
9NW2WB	X	144.33	0.77	0.49	145.00	11.42	7.39
A4AWNR		144.70	1.13	0.72	133.27	-0.31	-0.20
AHLF3K	*	142.67	-0.90	-0.57	135.17	1.59	1.03
BR4DGG		141.92	-1.65	-1.05	133.53	-0.05	-0.03
BU2K99		144.10	0.53	0.34	133.57	-0.01	-0.01
C2AH6Q		143.50	-0.07	-0.04	133.47	-0.11	-0.07
C6AT2Q		143.50	-0.07	-0.04	133.34	-0.24	-0.15
CA9X3C		146.03	2.47	1.57	135.13	1.55	1.00
CFC6HE	*	148.19	4.62	2.93	136.59	3.01	1.95
CK6286	X	11.05	-132.52	-84.17	10.27	-123.31	-79.78
CLJLZF		141.12	-2.44	-1.55	131.45	-2.13	-1.38
CZHDXD		143.62	0.05	0.03	132.87	-0.72	-0.46
D8C6HC		142.32	-1.24	-0.79	132.17	-1.41	-0.91
DFTCPG		144.66	1.10	0.70	135.03	1.45	0.94
E7TMTTC		143.00	-0.57	-0.36	132.86	-0.72	-0.47
FJHW23		142.80	-0.77	-0.49	134.23	0.65	0.42
FJLCD4		141.83	-1.73	-1.10	131.70	-1.88	-1.22
FQYDQR		141.67	-1.90	-1.21	131.64	-1.94	-1.25
GE68JE		142.65	-0.92	-0.58	133.74	0.16	0.10
GGBWJ3		143.33	-0.23	-0.15	132.67	-0.91	-0.59
J6UNW2		141.93	-1.63	-1.04	132.30	-1.28	-0.83
K2MTQ3		144.99	1.42	0.90	135.18	1.60	1.03
K2NLNB		143.93	0.37	0.23	133.17	-0.41	-0.27
KDYA89		142.17	-1.40	-0.89	132.83	-0.75	-0.48
KF8D46		143.37	-0.20	-0.13	133.43	-0.15	-0.10
LBPJH4		143.45	-0.12	-0.08	133.13	-0.46	-0.29
LKW6VY		141.75	-1.82	-1.16	130.53	-3.06	-1.98
ML3UU2		141.53	-2.03	-1.29	130.28	-3.31	-2.14
N28Q77	*	147.86	4.29	2.73	137.93	4.35	2.81



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1201

2nd Qtr
2020

Fastener Wedge Tensile (10 degree)
ASTM F606

WebCode	Data Flag	Sample X67			Sample X68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
N3B8N4	X	11.93	-131.64	-83.61	11.16	-122.42	-79.21
N7AJK4		143.36	-0.21	-0.13	133.06	-0.52	-0.34
NA9ZWX		144.38	0.81	0.51	134.26	0.68	0.44
NRMHH4		143.67	0.10	0.06	134.33	0.75	0.49
NXWP98		145.67	2.10	1.33	135.67	2.09	1.35
P3GAM8		144.51	0.94	0.60	134.50	0.92	0.60
QWCTRR		141.87	-1.70	-1.08	132.63	-0.95	-0.61
R3ZQ22		143.50	-0.07	-0.04	133.67	0.09	0.06
RLMDFA	X	147.76	4.19	2.66	139.09	5.51	3.56
T2YCUY		146.81	3.24	2.06	135.75	2.17	1.40
UK478W		142.44	-1.12	-0.71	132.84	-0.74	-0.48
UPZ2YW		146.07	2.50	1.59	135.97	2.39	1.54
UXDWT6		144.52	0.95	0.60	134.62	1.04	0.67
Y88PDR		143.70	0.13	0.08	132.93	-0.65	-0.42
ZMTNMX		145.63	2.06	1.31	135.76	2.18	1.41

Summary Statistics

	Sample X67		Sample X68	
Grand Means	143.57	ksi	133.58	ksi
Stnd Dev Btwn Labs	1.57	ksi	1.55	ksi

Samples X67, X68 : 3/8-16 x 2 1/4, 3/8-16 x 2 1/2

Statistics based on 55 of 62 reporting participants

Comments on Assigned Data Flags for Test #1201

- 86QAFH (X) - Data for sample X68 are high. Inconsistent within the determinations of sample X68.
- 9GFGWK (X) - Inconsistent in testing between samples.
- 9J8KKK (X) - Extreme data. Lab may have reported force data in lieu of stress data.
- 9NW2WB (X) - Data for sample X68 are high.
- CK6286 (X) - Extreme data. Lab may have reported force data in lieu of stress data.
- N3B8N4 (X) - Extreme data. Lab may have reported force data in lieu of stress data.
- RLMDFA (X) - Data for sample X68 are high.



Analysis 1201

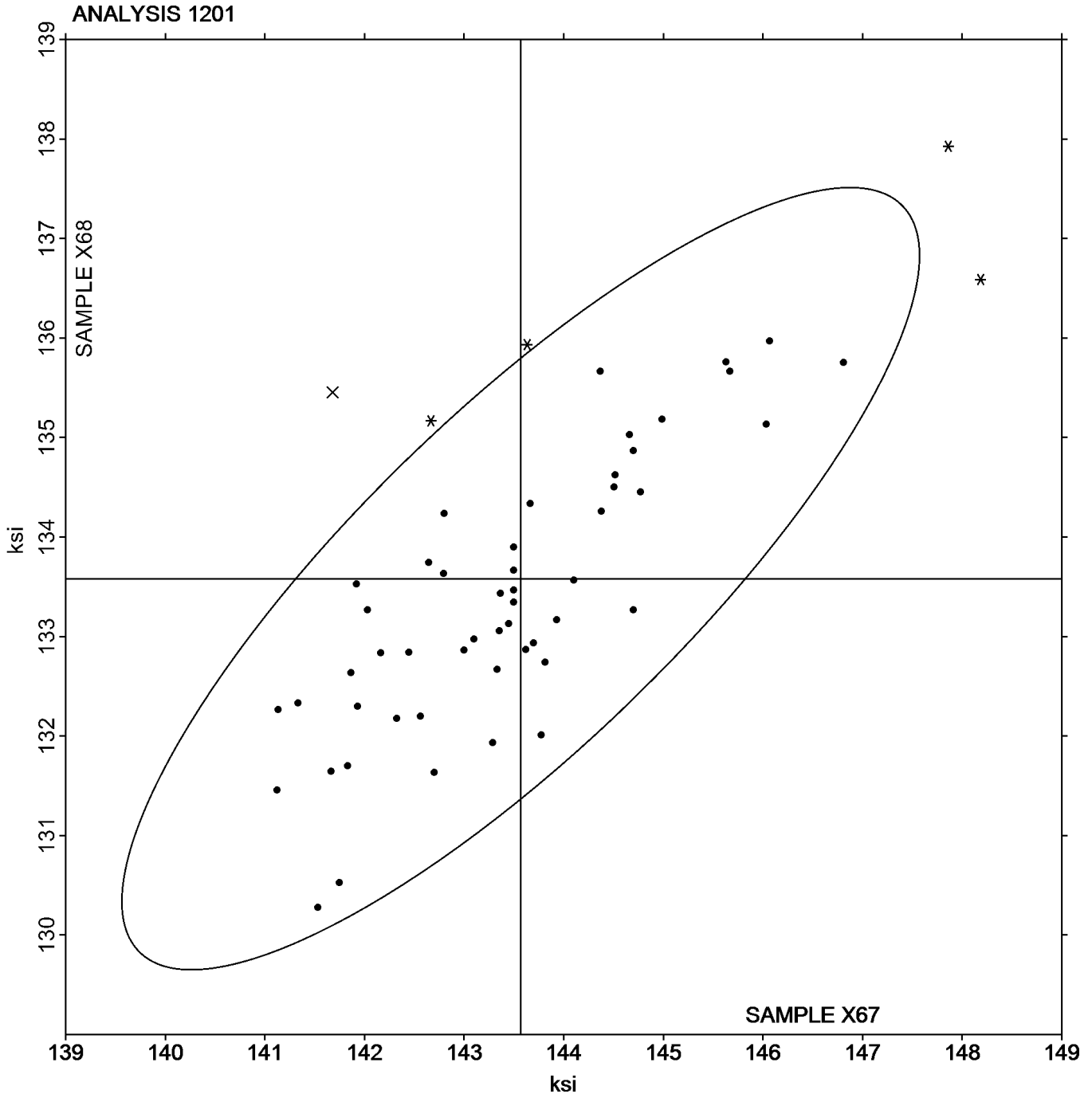
Fastener Wedge Tensile (10 degree)
ASTM F606

SAMPLE X67

SAMPLE X68

143.57 ksi

133.58 ksi





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1202

2nd Qtr
2020

Fastener Axial Tensile ASTM F606

WebCode	Data Flag	Sample Q67			Sample Q68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
48TTVF		142.83	-1.24	-0.80	132.03	-1.70	-1.23
4NRZYG		143.45	-0.62	-0.40	133.32	-0.41	-0.30
67R8QN		144.80	0.73	0.47	134.50	0.77	0.55
683ADL		143.53	-0.54	-0.35	133.41	-0.32	-0.23
6DCCTN		142.57	-1.50	-0.98	132.63	-1.10	-0.79
6RDZYW	X	143.29	-0.78	-0.51	154.32	20.59	14.85
6XECWE		142.93	-1.14	-0.74	133.20	-0.53	-0.38
7W6HYU		144.77	0.70	0.46	135.53	1.79	1.29
7YTVGC		143.27	-0.80	-0.52	132.57	-1.17	-0.84
8MVGUK		144.80	0.73	0.47	133.95	0.22	0.16
97GTWB		143.47	-0.60	-0.39	133.06	-0.68	-0.49
9843GQ		145.70	1.63	1.06	136.07	2.33	1.68
9D3L8A		143.96	-0.10	-0.07	133.39	-0.34	-0.25
9GFGWK	X	139.91	-4.16	-2.70	133.02	-0.71	-0.51
9GFL7M		145.27	1.20	0.78	134.30	0.57	0.41
9J8KKK	X	11.17	-132.90	-86.35	10.33	-123.40	-89.02
9NW2WB	*	144.33	0.26	0.17	136.00	2.27	1.64
A4AWNRR		143.90	-0.17	-0.11	134.23	0.50	0.36
AVZ9AT	X	100.27	-43.80	-28.46	93.57	-40.17	-28.98
CFC6HE	X	149.51	5.44	3.53	136.89	3.16	2.28
CLJLZF		141.90	-2.17	-1.41	131.79	-1.94	-1.40
CZHDXD		143.41	-0.66	-0.43	132.26	-1.47	-1.06
D8C6HC		143.62	-0.45	-0.29	132.99	-0.74	-0.54
E7E2JA		142.85	-1.22	-0.79	133.26	-0.47	-0.34
FJHW23		144.37	0.30	0.19	133.73	0.00	0.00
FJLCD4		141.20	-2.87	-1.86	131.30	-2.43	-1.76
GE68JE		143.41	-0.66	-0.43	133.48	-0.25	-0.18
J4Z34A		146.76	2.69	1.75	135.71	1.97	1.42
J6UNW2		142.10	-1.97	-1.28	132.30	-1.43	-1.03
KDYA89		142.30	-1.77	-1.15	133.40	-0.33	-0.24
KF8D46		144.47	0.40	0.26	133.13	-0.60	-0.43
L6F49F		145.57	1.50	0.97	135.04	1.30	0.94
LBPJH4		143.85	-0.22	-0.14	133.05	-0.68	-0.49
LKYXT7		144.00	-0.07	-0.05	133.57	-0.17	-0.12
M6GBYE		143.29	-0.78	-0.50	133.33	-0.40	-0.29
N28Q77	*	146.91	2.84	1.85	137.38	3.65	2.63
NRMHH4		143.67	-0.40	-0.26	133.67	-0.07	-0.05
NXWP98		143.67	-0.40	-0.26	133.33	-0.40	-0.29
P3GAM8		144.69	0.62	0.40	134.13	0.40	0.29
PK4DLW		143.44	-0.63	-0.41	133.41	-0.32	-0.23
QJ7KAA		142.09	-1.98	-1.28	131.35	-2.38	-1.72
QKCTB		142.19	-1.88	-1.22	131.34	-2.39	-1.72
QWCTRR		142.00	-2.07	-1.34	132.60	-1.13	-0.82
RDZ3EU		144.57	0.50	0.32	134.53	0.80	0.58
RLMDFA	*	148.36	4.29	2.79	136.52	2.79	2.01
RLNYDA	X	136.27	-7.80	-5.07	145.94	12.21	8.81
T2YCUY	*	148.61	4.54	2.95	136.89	3.15	2.27



Fasteners and Metals Interlaboratory Testing Program
Analysis 1202
Fastener Axial Tensile
ASTM F606

Cycle 130
2nd Qtr
2020

WebCode	Data Flag	Sample Q67			Sample Q68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
THNAA9		144.27	0.20	0.13	134.60	0.87	0.63
TWLG7N	X	103.38	-40.69	-26.43	96.33	-37.41	-26.99
U9BVMW		144.65	0.58	0.38	133.89	0.16	0.12
UPZ2YW	X	147.97	3.90	2.53	134.47	0.73	0.53
UYMQQQ		142.59	-1.48	-0.96	132.86	-0.87	-0.63
VCNZUQ		144.95	0.88	0.57	133.76	0.03	0.02
WKTD37		145.07	1.00	0.65	134.77	1.03	0.75
XX28HP		145.33	1.26	0.82	133.33	-0.40	-0.29
Y88PDR		144.13	0.06	0.04	133.13	-0.60	-0.43
ZMTNMX		145.56	1.49	0.97	134.87	1.13	0.82

Summary Statistics				
	Sample Q67		Sample Q68	
Grand Means	144.07	ksi	133.73	ksi
Std Dev Btwn Labs	1.54	ksi	1.39	ksi

Samples Q67, Q68 : 3/8-16 x 2 1/4, 3/8-16 x 2 1/2

Statistics based on 49 of 57 reporting participants

Comments on Assigned Data Flags for Test #1202

- 6RDZYW (X) - Data for sample Q68 are high. Inconsistent within the determinations of sample Q67.
- 9GFGWK (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample Q67.
- 9J8KKK (X) - Extreme data. Lab may have reported force data in lieu of stress data.
- AVZ9AT (X) - Data for both samples are extremely low. Possible Systematic Error.
- CFC6HE (X) - Data for sample Q67 are high. Inconsistent within the determinations of sample Q68.
- RLNYDA (X) - Data appear to be transposed between samples.
- TWLG7N (X) - Data for both samples are extremely low. Possible Systematic Error.
- UPZ2YW (X) - Inconsistent in testing between samples.



Analysis 1202

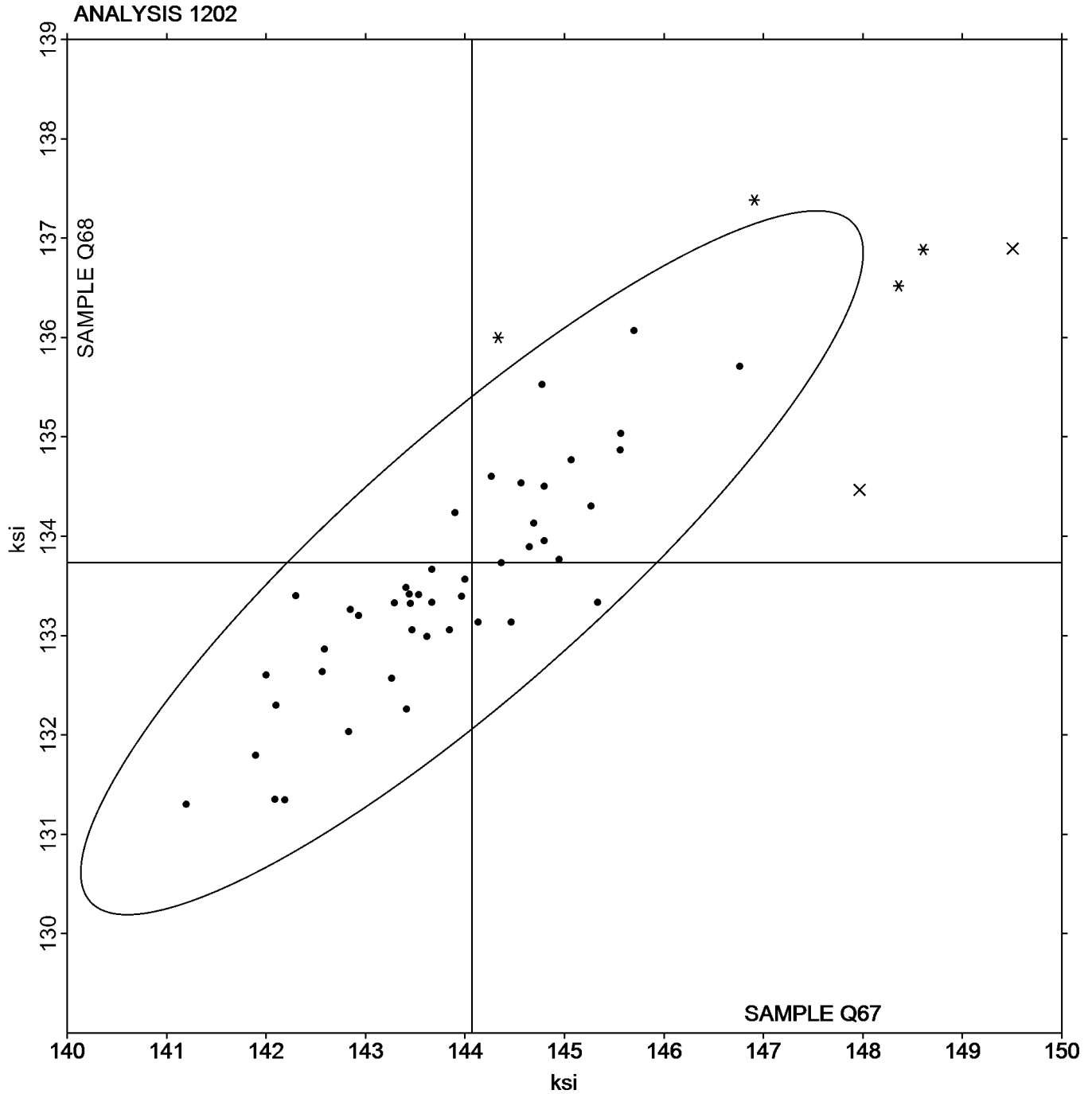
Fastener Axial Tensile
ASTM F606

SAMPLE Q67

144.07 ksi

SAMPLE Q68

133.73 ksi





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1203

2nd Qtr
2020

Fastener Wedge Tensile (10 degree) - Metric ASTM F606M

WebCode	Data Flag	Sample B67			Sample B68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2EYN2J		1,106	-13	-0.90	1,112	-7	-0.43
2WCC74		1,126	8	0.54	1,119	0	0.00
6MXFZN		1,105	-14	-0.99	1,110	-9	-0.58
6WMDHG		1,107	-12	-0.85	1,124	5	0.30
7DQAEK		1,117	-1	-0.09	1,110	-9	-0.58
7JLEM3		1,138	20	1.40	1,136	17	1.10
8TCY4L		1,102	-17	-1.18	1,103	-16	-1.03
9NW2WB	X	1,111	-8	-0.57	1,165	46	2.95
AF2JV8		1,109	-10	-0.71	1,119	0	0.00
AKTQEF		1,107	-12	-0.85	1,109	-10	-0.62
B8NHHJ		1,128	9	0.66	1,109	-10	-0.64
BRBERH		1,114	-4	-0.32	1,125	6	0.38
CK6286	X	14,426	13,307	942.64	14,421	13,302	852.58
FKATNB		1,139	20	1.44	1,139	20	1.28
FWRC88		1,103	-15	-1.09	1,089	-30	-1.90
KDYA89		1,112	-7	-0.47	1,124	5	0.32
KF8D46		1,104	-15	-1.03	1,113	-6	-0.36
L4ARG7		1,129	10	0.73	1,125	6	0.38
N28Q77	*	1,152	33	2.36	1,170	50	3.23
R7EDRY		1,117	-2	-0.14	1,109	-10	-0.63
UJTGP7		1,124	6	0.41	1,115	-4	-0.27
VTHF3W		1,132	13	0.92	1,122	2	0.16
W68NE6		1,129	11	0.76	1,132	13	0.84
Y88PDR		1,127	9	0.61	1,115	-4	-0.25
YMHF8K		1,102	-17	-1.21	1,108	-11	-0.69

Summary Statistics

	Sample B67		Sample B68	
Grand Means	1,119	MPa	1,119	MPa
Std Dev Btwn Labs	14	MPa	16	MPa

Samples B67, B68 : M-10x1.5x70, M-10x1.5x75

Statistics based on 23 of 25 reporting participants

Comments on Assigned Data Flags for Test #1203

9NW2WB (X) - Data for sample B68 are high.

CK6286 (X) - Extreme data. Lab may have reported force data in lieu of stress data.



Analysis 1203

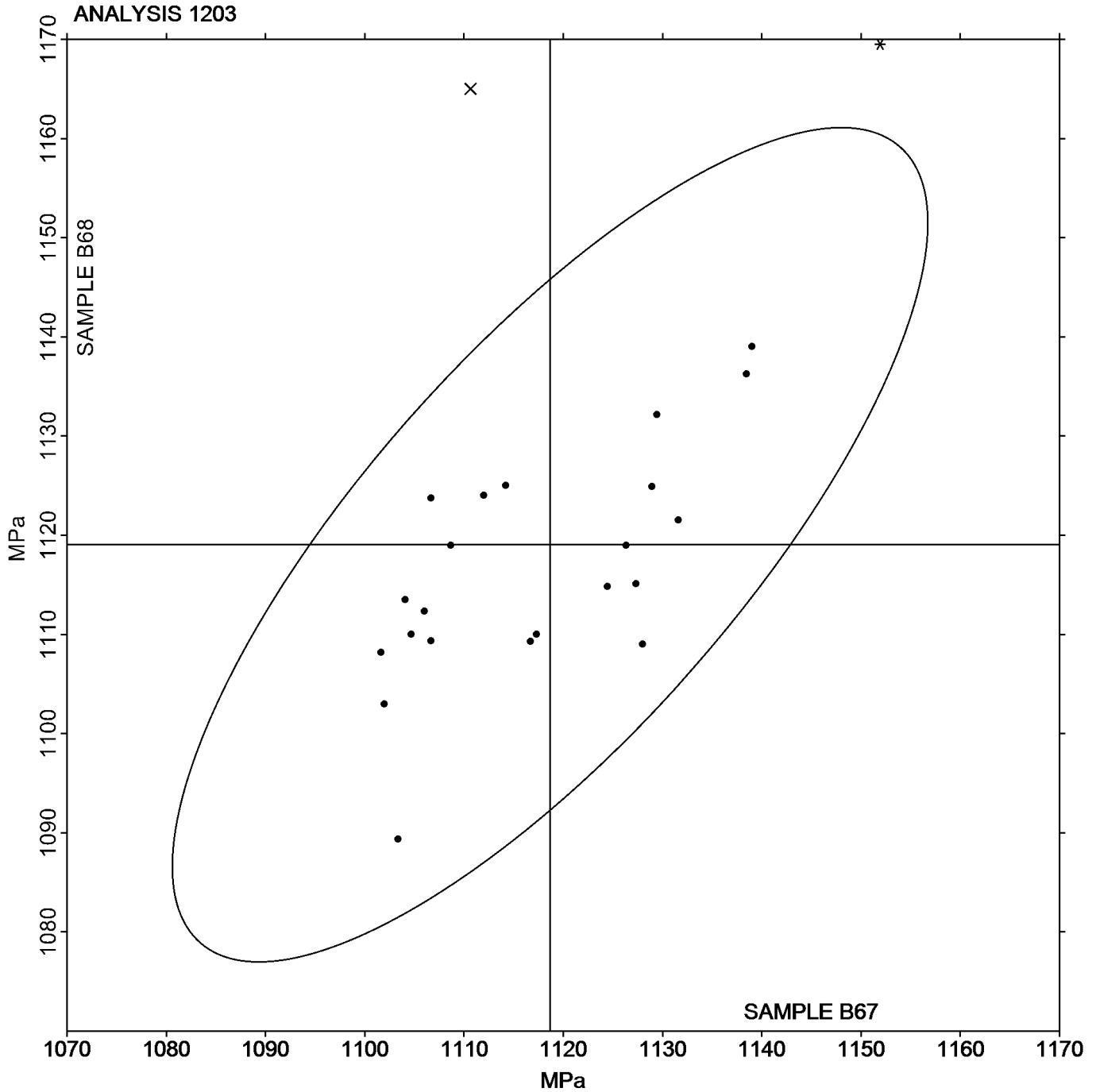
Fastener Wedge Tensile (10 degree) - Metric
ASTM F606M

SAMPLE B67

SAMPLE B68

1,119 MPa

1,119 MPa





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1204

2nd Qtr
2020

Fastener Axial Tensile - Metric ASTM F606M

WebCode	Data Flag	Sample T67			Sample T68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
7DQAEK		1,109	-14	-0.93	1,103	-40	-0.96
7JLEM3		1,131	8	0.55	1,232	89	2.11
9NW2WB		1,123	0	0.03	1,230	86	2.05
A8MJDP		1,149	26	1.81	1,169	25	0.60
AF2JV8		1,117	-5	-0.36	1,142	-1	-0.03
BRBERH		1,119	-3	-0.24	1,124	-19	-0.46
CK6286	X	14,458	13,335	912.94	14,415	13,272	315.55
E7J9V4		1,117	-6	-0.40	1,123	-21	-0.49
ECRMLF		1,099	-24	-1.63	1,103	-41	-0.97
FKATNB		1,123	0	0.01	1,132	-12	-0.28
K8EVXA		1,115	-8	-0.54	1,115	-29	-0.68
KDYA89		1,115	-8	-0.52	1,119	-24	-0.57
LE6R74		1,131	8	0.58	1,134	-10	-0.23
N28Q77		1,153	31	2.10	1,167	24	0.57
R7EDRY		1,116	-7	-0.48	1,116	-27	-0.65

Summary Statistics

	Sample T67		Sample T68	
Grand Means	1,123	MPa	1,143	MPa
Std Dev Btwn Labs	15	MPa	42	MPa

Samples T67, T68 : M-10x1.5x70, M-10x1.5x75

Statistics based on 14 of 15 reporting participants

Comments on Assigned Data Flags for Test #1204

CK6286 (X) - Extreme data. Lab may have reported force data in lieu of stress data.



Analysis 1204

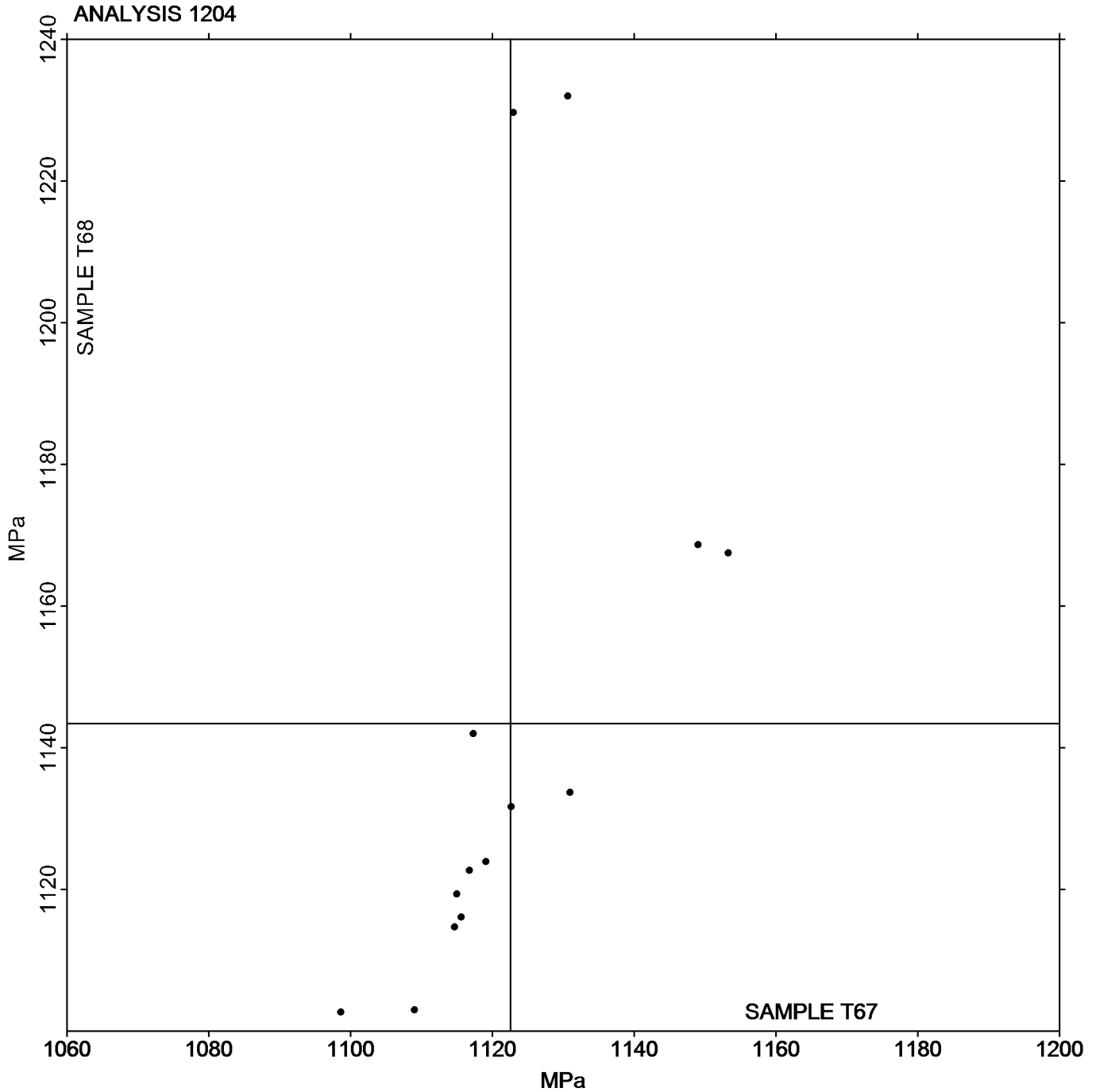
Fastener Axial Tensile - Metric
ASTM F606M

SAMPLE T67

SAMPLE T68

1,123 MPa

1,143 MPa





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1210

2nd Qtr
2020

Rockwell Hardness: Externally Threaded Fasteners ASTM F606/F606M AND ASTM E18

WebCode	Data Flag	Sample G67			Sample G68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2EYN2J		27.58	-1.40	-1.18	28.73	-0.91	-1.26
2WCC74		27.68	-1.29	-1.09	29.78	0.13	0.18
48TTVF		28.04	-0.93	-0.78	28.93	-0.72	-0.99
6MXFZN		30.02	1.05	0.88	30.53	0.88	1.21
6RDZYW		30.15	1.18	0.99	29.61	-0.04	-0.05
6WMDHG		29.19	0.22	0.19	30.33	0.68	0.94
6XECWE		29.01	0.04	0.03	29.98	0.34	0.46
7DQAEK	*	32.54	3.57	3.00	30.53	0.89	1.22
7W6HYU		29.05	0.08	0.07	29.70	0.05	0.07
7YTVGC		29.24	0.27	0.23	29.49	-0.16	-0.22
8MVGUK		27.43	-1.55	-1.30	28.13	-1.51	-2.09
8TCY4L		29.58	0.61	0.51	29.75	0.10	0.14
9D3L8A		29.31	0.34	0.29	30.35	0.70	0.97
9ETRQL		30.03	1.06	0.89	28.95	-0.70	-0.96
9GFGWK		28.33	-0.64	-0.54	29.51	-0.14	-0.19
9GFL7M		28.71	-0.26	-0.22	28.99	-0.66	-0.91
9NW2WB		30.73	1.75	1.48	30.29	0.65	0.89
AZ724N		29.26	0.29	0.24	29.74	0.09	0.13
BU2K99		28.89	-0.08	-0.07	30.44	0.79	1.09
C2AH6Q		28.54	-0.43	-0.36	29.88	0.23	0.32
C6AT2Q		28.19	-0.78	-0.65	29.34	-0.30	-0.42
CA9X3C		29.08	0.10	0.09	29.98	0.33	0.45
CJFVQE		29.89	0.92	0.77	29.08	-0.57	-0.79
CK6286		28.59	-0.38	-0.32	29.09	-0.56	-0.77
CLJLZF		26.89	-2.08	-1.75	29.18	-0.46	-0.64
D8C6HC		29.06	0.09	0.08	30.38	0.73	1.00
DHX7YL		28.01	-0.96	-0.81	29.39	-0.25	-0.35
E7J9V4		28.55	-0.42	-0.35	29.09	-0.56	-0.77
ECRMLF		28.60	-0.37	-0.31	30.45	0.81	1.11
FJHW23		29.04	0.07	0.06	29.57	-0.08	-0.11
FJLCD4		28.03	-0.94	-0.79	29.16	-0.49	-0.67
HCVQEF		28.89	-0.08	-0.07	29.66	0.02	0.02
J2N9GH	*	26.51	-2.46	-2.07	27.53	-2.11	-2.91
J4Z34A		27.92	-1.05	-0.89	30.23	0.58	0.80
JFAEYC		28.40	-0.57	-0.48	29.14	-0.51	-0.70
K8EVXA		29.09	0.12	0.10	29.93	0.28	0.38
KDYA89	*	27.11	-1.86	-1.56	27.74	-1.90	-2.62
KF8D46		28.91	-0.06	-0.05	30.18	0.53	0.73
LKYXT7		29.50	0.53	0.45	30.44	0.80	1.10
LTQ4HD		29.09	0.12	0.10	30.34	0.70	0.96
ML3UU2		29.23	0.26	0.22	30.19	0.55	0.76
N28Q77		30.33	1.35	1.14	30.69	1.04	1.43
N7AJK4		30.27	1.30	1.09	29.79	0.15	0.20
NRMHH4		28.04	-0.93	-0.78	29.58	-0.07	-0.10
QWCTRR		28.32	-0.65	-0.55	29.37	-0.28	-0.38
R7EDRY		30.44	1.47	1.24	30.78	1.13	1.56
RDZ3EU	X	24.41	-4.56	-3.84	26.96	-2.69	-3.70



**Fasteners and Metals Interlaboratory Testing Program
Analysis 1210**

**Cycle 130
2nd Qtr
2020**

**Rockwell Hardness: Externally Threaded Fasteners
ASTM F606/F606M AND ASTM E18**

WebCode	Data Flag	Sample G67			Sample G68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
RLMDFA		27.12	-1.85	-1.56	28.26	-1.38	-1.91
T2YCUY	*	32.37	3.40	2.86	30.57	0.92	1.27
THNAA9		30.40	1.43	1.20	29.51	-0.14	-0.19
TWLG7N		29.48	0.51	0.43	29.99	0.35	0.48
UJTGP7		27.14	-1.83	-1.54	29.46	-0.18	-0.25
UPZ2YW	X	31.73	2.76	2.33	29.24	-0.41	-0.56
VCNZUQ		29.70	0.73	0.61	30.44	0.80	1.10
VTHF3W		27.46	-1.51	-1.27	28.79	-0.85	-1.17
W68NE6		29.44	0.47	0.40	28.99	-0.66	-0.91
WKTD37		29.44	0.47	0.39	29.19	-0.46	-0.63
Y3ZLXW		29.25	0.28	0.24	29.86	0.22	0.30
Y88PDR		30.51	1.54	1.29	30.54	0.90	1.24
YMHF8K		28.69	-0.28	-0.23	29.95	0.30	0.42

Summary Statistics

	Sample G67		Sample G68	
Grand Means	28.97	HRC	29.65	HRC
Std Dev Btwn Labs	1.19	HRC	0.73	HRC

Samples G67, G68 : 1/2-20 x 2 1/4, 1/2-20 x 2 1/2

Statistics based on 58 of 60 reporting participants

Comments on Assigned Data Flags for Test #1210

RDZ3EU (X) - Data for both samples are low. Inconsistent within the determinations of both samples.

UPZ2YW (X) - Inconsistent in testing between samples.



Analysis 1210

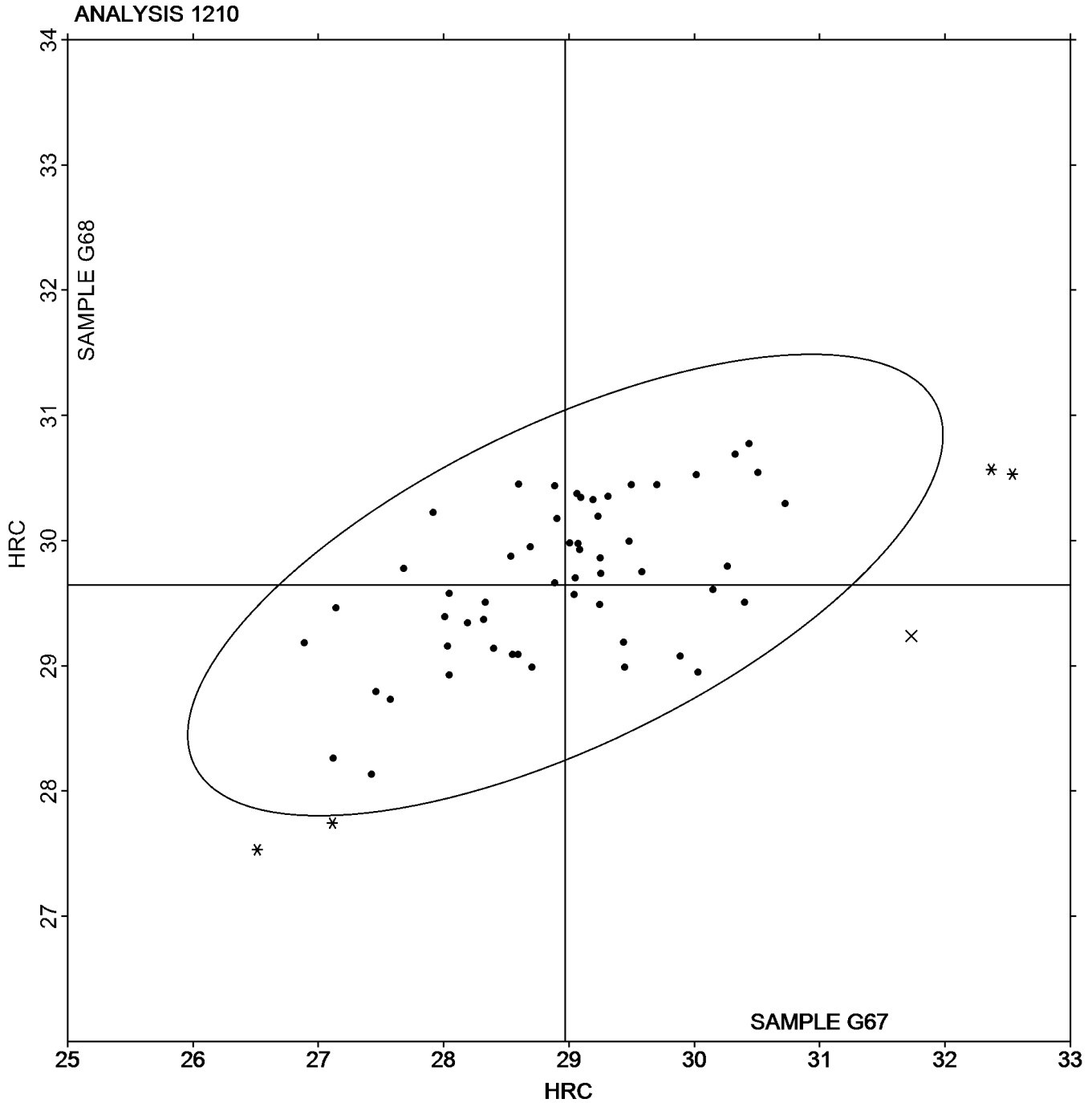
Rockwell Hardness: Externally Threaded Fasteners
ASTM F606/F606M AND ASTM E18

SAMPLE G67

SAMPLE G68

28.97 HRC

29.65 HRC





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1211

2nd Qtr
2020

Vickers Hardness: Externally Threaded Fasteners ASTM E92

WebCode	Data Flag	Sample V67			Sample V68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2YN3GT		284.88	-14.10	-1.54	299.69	-2.54	-0.43
48TTVF		301.13	2.15	0.23	306.88	4.65	0.79
63BW3J		298.88	-0.10	-0.01	301.56	-0.67	-0.11
6E6GZ3		282.65	-16.33	-1.78	293.28	-8.95	-1.53
6MXFZN		309.45	10.47	1.14	316.41	14.18	2.43
6XECWE		295.31	-3.66	-0.40	298.88	-3.35	-0.57
8N37LV		309.83	10.85	1.18	302.48	0.25	0.04
92MV6X		313.61	14.64	1.60	293.82	-8.41	-1.44
97GTWB		286.10	-12.88	-1.41	299.76	-2.47	-0.42
AVZ9AT		290.18	-8.80	-0.96	300.09	-2.14	-0.37
B8NHHJ		298.81	-0.16	-0.02	302.13	-0.10	-0.02
BRBERH		299.50	0.52	0.06	302.81	0.58	0.10
CLJLZF		291.63	-7.35	-0.80	302.44	0.21	0.04
E7YM4D	X	268.69	-30.29	-3.31	270.81	-31.42	-5.37
FKATNB		295.75	-3.23	-0.35	304.88	2.65	0.45
LTQ4HD		295.81	-3.16	-0.35	287.79	-14.44	-2.47
N28Q77		295.91	-3.06	-0.33	301.97	-0.26	-0.04
QFPEDZ		291.58	-7.40	-0.81	308.39	6.16	1.05
QQL6B2		302.64	3.67	0.40	303.76	1.53	0.26
R7EDRY		299.31	0.34	0.04	307.13	4.90	0.84
RFKAF3		307.69	8.71	0.95	299.56	-2.67	-0.46
TWLG7N		302.00	3.02	0.33	306.06	3.83	0.66
XW64JM		319.19	20.22	2.21	309.09	6.86	1.17
Y3WCVT		304.63	5.65	0.62	302.44	0.21	0.04

Summary Statistics

	Sample V67		Sample V68	
Grand Means	298.98	HV	302.23	HV
Stnd Dev Brwn Labs	9.16	HV	5.85	HV

Samples V67, V68 : 1/2-20 x 2 1/4, 1/2-20 x 2 1/2

Statistics based on 23 of 24 reporting participants

Comments on Assigned Data Flags for Test #1211

E7YM4D (X) - Data for both samples are low.



Analysis 1211

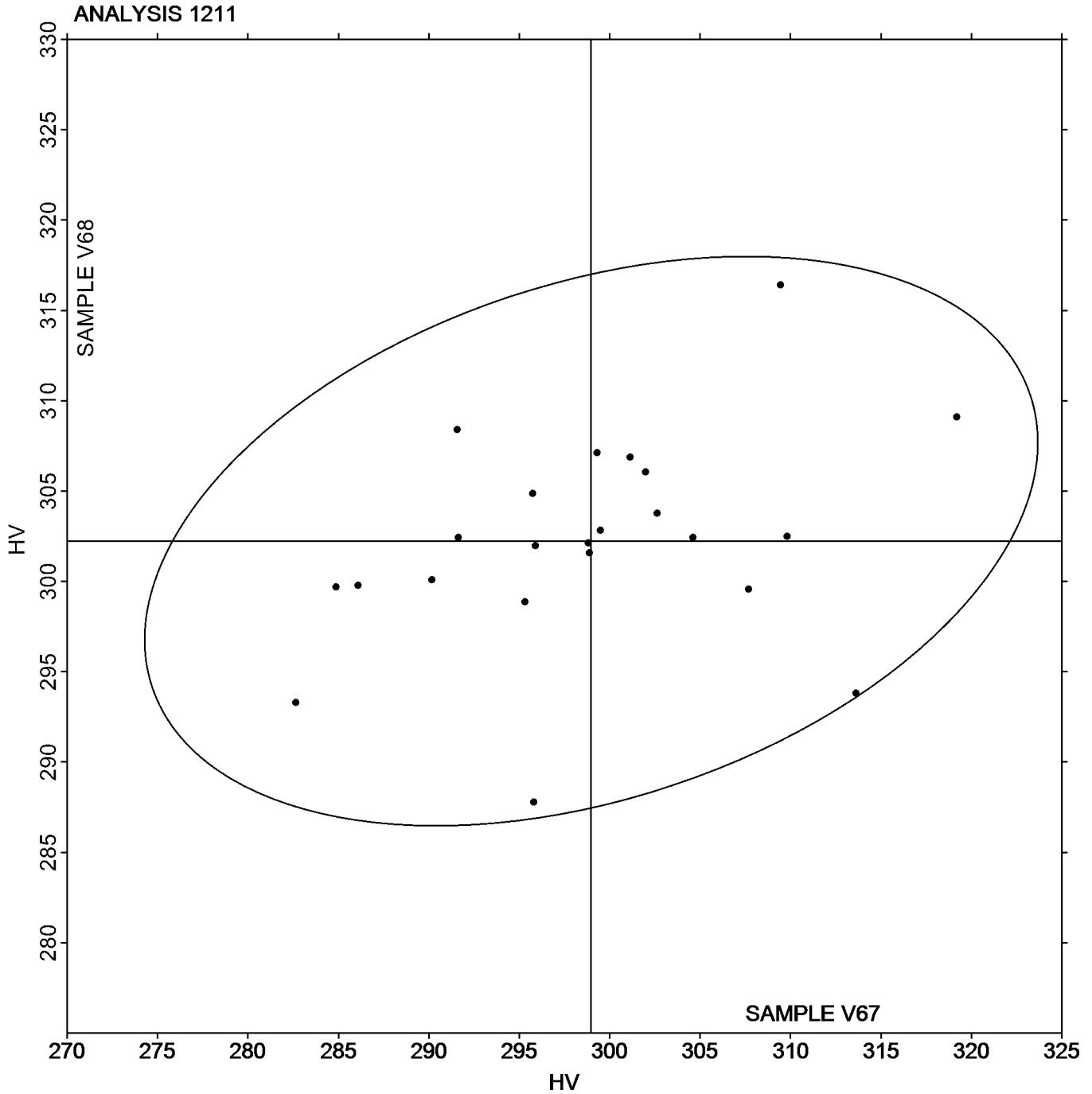
Vickers Hardness: Externally Threaded Fasteners
ASTM E92

SAMPLE V67

SAMPLE V68

298.98 HV

302.23 HV





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1220

**2nd Qtr
2020**

**Fastener Double Shear
NASM 1312-13**

WebCode	Data Flag	Sample Z67			Sample Z68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2EYN2J		18,896	-53	-0.12	17,852	145	0.32
6RDZYW		18,895	-54	-0.12	17,591	-116	-0.25
6XECWE		19,051	102	0.23	17,794	87	0.19
7XDYNC		18,900	-49	-0.11	17,500	-207	-0.45
7YTVGC		19,471	521	1.16	18,022	315	0.69
9GFL7M		18,355	-595	-1.32	17,171	-536	-1.17
GGBWJ3		18,633	-316	-0.70	17,333	-374	-0.81
J4Z34A	X	17,365	-1,584	-3.52	18,777	1,070	2.33
LKYXT7		18,584	-366	-0.81	17,259	-448	-0.97
LTQ4HD		18,488	-461	-1.03	17,274	-433	-0.94
N28Q77		19,960	1,011	2.25	18,868	1,161	2.53
NXWP98		18,704	-246	-0.55	17,755	48	0.10
QDKHD6		18,817	-132	-0.29	17,343	-364	-0.79
THNAA9		19,412	463	1.03	18,238	531	1.16
TWLG7N		18,438	-512	-1.14	17,283	-424	-0.92
VCNZUQ		19,550	601	1.34	18,150	443	0.96
WKTD37		19,035	86	0.19	17,877	170	0.37

Summary Statistics

	Sample Z67		Sample Z68	
Grand Means	18,949	1b	17,707	1b
Stnd Dev Btrwn Labs	450	1b	460	1b

Samples Z67, Z68 : 3/8-16 x 2 1/4, 3/8-16 x 2 1/2

Statistics based on 16 of 17 reporting participants

Comments on Assigned Data Flags for Test #1220

J4Z34A (X) - Data for sample Z67 are low.



Analysis 1220

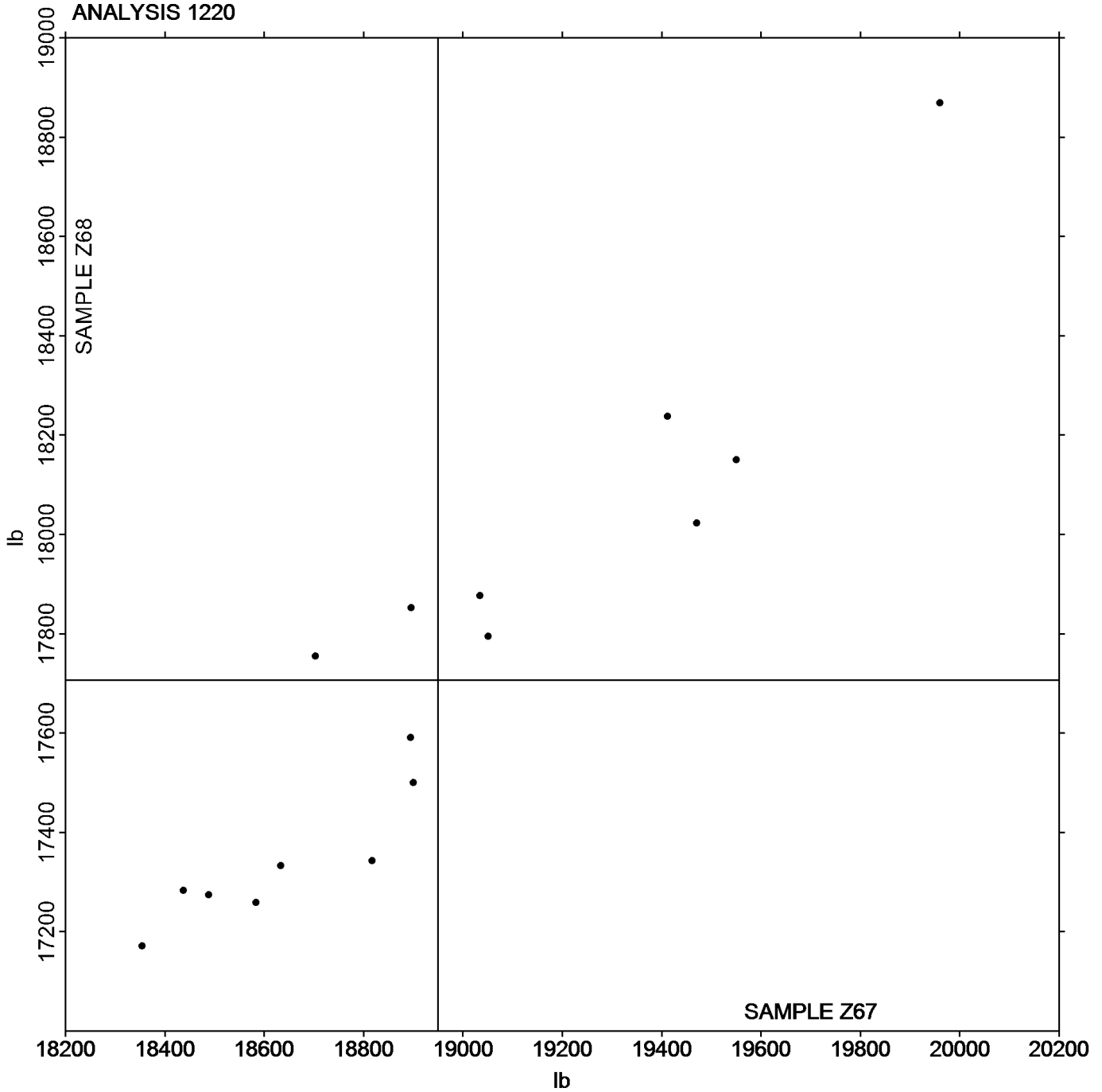
Fastener Double Shear
NASM 1312-13

SAMPLE Z67

SAMPLE Z68

18,949 lb

17,707 lb





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1301

2nd Qtr
2020

Rockwell Hardness: C & B Scales
ASTM E18

WebCode	Data Flag	Sample E67			Sample E68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2AHB9J		61.34	0.54	1.25	56.14	0.62	1.45
2BTCUG	*	59.74	-1.06	-2.47	54.26	-1.26	-2.96
2BWQQQ		61.24	0.44	1.02	55.92	0.40	0.93
2CQGUK		60.98	0.18	0.41	55.58	0.06	0.14
2EYN2J		60.66	-0.14	-0.33	55.42	-0.10	-0.24
2RJ9EK		60.96	0.16	0.37	55.62	0.10	0.23
2ZE77U	X	61.74	0.94	2.18	55.68	0.16	0.37
3EUVDV		61.14	0.34	0.79	55.70	0.18	0.42
3FLRZ4		61.22	0.42	0.97	56.10	0.58	1.36
3GNU9R		60.33	-0.47	-1.09	55.33	-0.19	-0.44
46Y82P		60.00	-0.80	-1.86	54.84	-0.68	-1.60
48PEHF		60.75	-0.05	-0.12	55.68	0.16	0.37
48TTVF		59.98	-0.82	-1.91	55.14	-0.38	-0.90
4GU9QM		60.12	-0.68	-1.58	55.28	-0.24	-0.57
4JL6FG		60.86	0.06	0.14	55.48	-0.04	-0.10
644VRH		60.92	0.12	0.27	56.00	0.48	1.12
679GQF		61.06	0.26	0.60	55.48	-0.04	-0.10
6B3K9L		60.80	0.00	0.00	55.44	-0.08	-0.19
6F4B7M		60.56	-0.24	-0.56	55.00	-0.52	-1.22
6F7K9Q		60.74	-0.06	-0.14	55.48	-0.04	-0.10
6LMHNR		61.04	0.24	0.55	55.74	0.22	0.51
6UJHYD		61.40	0.60	1.39	55.80	0.28	0.65
6UZUGJ		61.00	0.20	0.46	56.00	0.48	1.12
6WH66M		61.60	0.80	1.86	56.48	0.96	2.25
6XECWE	*	60.48	-0.32	-0.75	54.66	-0.86	-2.02
6YUHAJ	*	59.94	-0.86	-2.00	55.14	-0.38	-0.90
7EH74E		60.00	-0.80	-1.86	54.58	-0.94	-2.21
7XDYNC		60.96	0.16	0.37	55.62	0.10	0.23
832XFD		61.18	0.38	0.88	55.92	0.40	0.93
8KMGDK		60.76	-0.04	-0.10	55.50	-0.02	-0.05
8N37LV		61.28	0.48	1.11	55.82	0.30	0.70
9GFGWK		60.86	0.06	0.14	55.68	0.16	0.37
9HT63D		60.04	-0.76	-1.77	55.18	-0.34	-0.80
9J8KKK		61.40	0.60	1.39	56.22	0.70	1.64
9NW2WB		60.78	-0.02	-0.05	55.38	-0.14	-0.33
9ZVQWK		61.00	0.20	0.46	55.40	-0.12	-0.29
AGC8BD		61.04	0.24	0.55	56.00	0.48	1.12
AKCJ7D		61.22	0.42	0.97	55.72	0.20	0.46
BBKMHG		60.64	-0.16	-0.38	55.30	-0.22	-0.52
BW69PJ		61.54	0.74	1.72	56.32	0.80	1.87
CDAXLG		61.06	0.26	0.60	55.54	0.02	0.04
CMUKZQ		60.78	-0.02	-0.05	55.54	0.02	0.04
CUX89J		60.80	0.00	0.00	55.74	0.22	0.51
CV6UHG		60.96	0.16	0.37	55.76	0.24	0.56
CW6Q8E	*	61.06	0.26	0.60	55.18	-0.34	-0.80
DDL8K8		60.82	0.02	0.04	55.60	0.08	0.18
DK3P8F		60.04	-0.76	-1.77	54.84	-0.68	-1.60



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1301

2nd Qtr
2020

Rockwell Hardness: C & B Scales
ASTM E18

WebCode	Data Flag	Sample E67			Sample E68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
DV2GL9		60.60	-0.20	-0.47	55.02	-0.50	-1.18
E3U988		60.90	0.10	0.23	55.36	-0.16	-0.38
E4XM4G		60.72	-0.08	-0.19	55.56	0.04	0.09
F6DM9M	X	59.56	-1.24	-2.89	54.86	-0.66	-1.55
FBAZLC		60.74	-0.06	-0.14	55.46	-0.06	-0.15
FRDURC		60.78	-0.02	-0.05	55.38	-0.14	-0.33
HA7G8Z		60.70	-0.10	-0.24	55.52	0.00	0.00
HBHW2Z		61.71	0.91	2.11	56.39	0.87	2.04
HDU77Q		60.28	-0.52	-1.21	54.90	-0.62	-1.46
HPBTHC		61.26	0.46	1.07	55.66	0.14	0.32
J2N9GH		61.06	0.26	0.60	55.64	0.12	0.28
J4BWTH		60.72	-0.08	-0.19	55.40	-0.12	-0.29
J6UNW2		59.98	-0.82	-1.91	54.98	-0.54	-1.27
J8ZAN8		61.00	0.20	0.46	55.48	-0.04	-0.10
JLEJ73		61.24	0.44	1.02	56.06	0.54	1.26
JWVDAH		61.30	0.50	1.16	55.92	0.40	0.93
K2MTQ3		60.96	0.16	0.37	55.48	-0.04	-0.10
KCAPVB		60.48	-0.32	-0.75	55.36	-0.16	-0.38
KDYA89		60.68	-0.12	-0.28	55.20	-0.32	-0.75
KF8D46		60.72	-0.08	-0.19	55.70	0.18	0.42
KRF6M6		60.78	-0.02	-0.05	55.26	-0.26	-0.61
LBPJH4		60.60	-0.20	-0.47	55.22	-0.30	-0.71
LCGF8X		61.52	0.72	1.67	56.30	0.78	1.83
LDU3QX		61.14	0.34	0.79	56.00	0.48	1.12
LKYXT7		60.90	0.10	0.23	55.68	0.16	0.37
LQDU67		60.70	-0.10	-0.24	54.90	-0.62	-1.46
LZ8XGF		60.98	0.18	0.41	55.24	-0.28	-0.66
M47DLX		60.40	-0.40	-0.93	55.04	-0.48	-1.13
MXDM28	*	59.72	-1.08	-2.51	54.72	-0.80	-1.88
N28Q77	*	61.54	0.74	1.72	56.68	1.16	2.72
N2W268		60.72	-0.08	-0.19	55.34	-0.18	-0.43
N3B8N4	*	60.70	-0.10	-0.24	54.82	-0.70	-1.65
NMUAJ3	X	58.08	-2.72	-6.32	53.40	-2.12	-4.98
NV7LK8		60.72	-0.08	-0.19	55.60	0.08	0.18
P8FJZU		60.96	0.16	0.37	55.68	0.16	0.37
PG2M8U	X	59.40	-1.40	-3.26	55.04	-0.48	-1.13
PHW8UU		61.04	0.24	0.55	55.70	0.18	0.42
PJQ2PC		60.98	0.18	0.41	55.68	0.16	0.37
QBE2V2		60.68	-0.12	-0.28	55.48	-0.04	-0.10
QDKHD6		60.60	-0.20	-0.47	55.66	0.14	0.32
QFPEDZ		60.64	-0.16	-0.38	55.52	0.00	0.00
QLAK2U		60.86	0.06	0.14	55.26	-0.26	-0.61
QQ3L49		60.63	-0.17	-0.39	55.33	-0.19	-0.45
QZCQGY		60.76	-0.04	-0.10	55.52	0.00	0.00
R2ZVC4		60.10	-0.70	-1.63	54.80	-0.72	-1.69
R3ZQ22		60.90	0.10	0.23	55.76	0.24	0.56
R979GT		60.72	-0.08	-0.19	55.48	-0.04	-0.10



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1301

2nd Qtr
2020

Rockwell Hardness: C & B Scales
ASTM E18

WebCode	Data Flag	Sample E67			Sample E68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
RF3DZW		60.90	0.10	0.23	55.54	0.02	0.04
RGBGWT		61.22	0.42	0.97	56.10	0.58	1.36
RJ2NVW	X	59.58	-1.22	-2.84	53.58	-1.94	-4.55
RJBWM4		60.40	-0.40	-0.93	55.10	-0.42	-0.99
RLNYDA		61.70	0.90	2.09	56.10	0.58	1.36
RTMT3V		61.10	0.30	0.69	56.10	0.58	1.36
T2WGGU		61.00	0.20	0.46	55.76	0.24	0.56
T2YCUY		60.04	-0.76	-1.77	55.02	-0.50	-1.18
T6Z3ET	X	59.00	-1.80	-4.19	53.20	-2.32	-5.45
TYTLXR		60.68	-0.12	-0.28	55.42	-0.10	-0.24
U9BVMW		61.30	0.50	1.16	55.82	0.30	0.70
UBJTET		60.26	-0.54	-1.26	55.32	-0.20	-0.47
UGKB46		60.34	-0.46	-1.07	55.12	-0.40	-0.94
UMV6KV		60.80	0.00	0.00	55.72	0.20	0.46
UPZ2YW		60.56	-0.24	-0.56	54.98	-0.54	-1.27
UR7FB4	*	60.06	-0.74	-1.72	55.34	-0.18	-0.43
UR9RNZ		60.54	-0.26	-0.61	55.02	-0.50	-1.18
UZGGW6		60.52	-0.28	-0.65	55.30	-0.22	-0.52
V3P3BX		61.12	0.32	0.74	55.68	0.16	0.37
WFNL6U		61.64	0.84	1.95	56.10	0.58	1.36
X3372U		60.86	0.06	0.14	55.96	0.44	1.03
X4TGTM		60.26	-0.54	-1.26	55.14	-0.38	-0.90
XBB68P	*	60.02	-0.78	-1.82	55.34	-0.18	-0.43
XNAXPL		60.86	0.06	0.14	55.46	-0.06	-0.15
XTMW4Z		61.26	0.46	1.07	55.94	0.42	0.98
XW64JM		60.68	-0.12	-0.28	55.20	-0.32	-0.75
XX28HP		61.10	0.30	0.69	55.96	0.44	1.03
YD9WN2		61.62	0.82	1.90	56.48	0.96	2.25
YH6CJ4		60.72	-0.08	-0.19	55.34	-0.18	-0.43
YTL7N6		60.80	0.00	0.00	55.64	0.12	0.28
ZKL9GR		60.84	0.04	0.09	55.40	-0.12	-0.29

Summary Statistics

	Sample E67		Sample E68	
Grand Means	60.80	HRC	55.52	HRC
Std Dev Btwn Labs	0.43	HRC	0.43	HRC

Samples E67, E68 : Steel, Steel

Statistics based on 119 of 125 reporting participants



Comments on Assigned Data Flags for Test #1301

2ZE77U (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample E67.

F6DM9M (X) - Data for sample E67 are low. Inconsistent within the determinations of sample E67.

NMUAJ3 (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample E67.

PG2M8U (X) - Data for sample E67 are low. Inconsistent within the determinations of sample E67.

RJ2NVW (X) - Data for both samples are low. Possible Systematic Error.

T6Z3ET (X) - Data for both samples are low. Possible Systematic Error.



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1301

2nd Qtr
2020

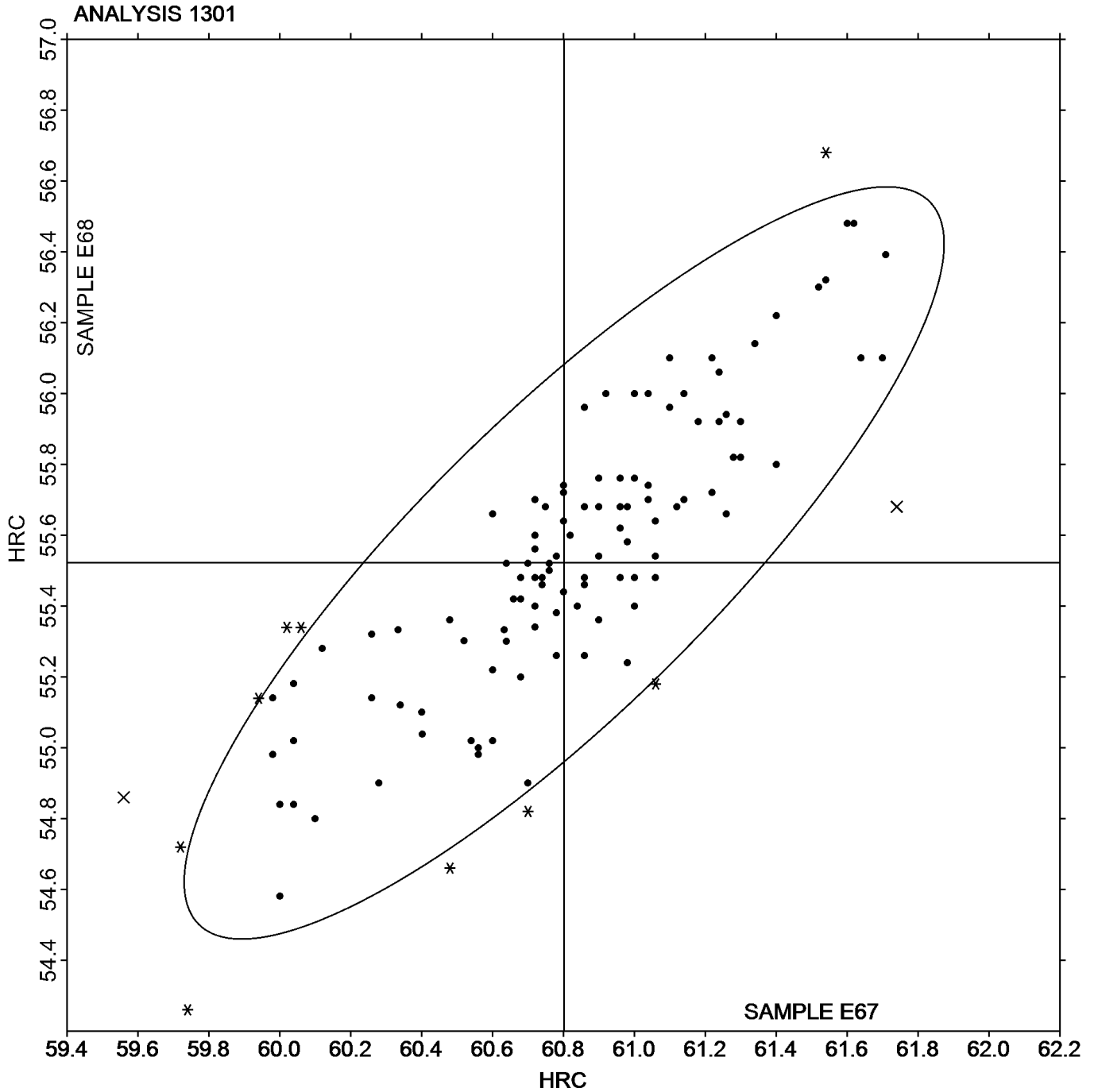
Rockwell Hardness: C & B Scales
ASTM E18

SAMPLE E67

SAMPLE E68

60.80 HRC

55.52 HRC





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1303

2nd Qtr
2020

Rockwell Hardness: C Scale
ASTM E18

WebCode	Data Flag	Sample E67			Sample E68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2YN3GT		61.10	0.22	0.60	55.58	0.05	0.13
2ZCTAK		60.20	-0.68	-1.82	55.10	-0.43	-1.07
2ZF2VR		60.68	-0.20	-0.53	55.18	-0.35	-0.87
34WV2Q		61.24	0.36	0.98	55.68	0.15	0.38
3BRX33		60.76	-0.12	-0.32	55.20	-0.33	-0.82
3K3YN4		61.08	0.20	0.55	55.24	-0.29	-0.72
4J48CG	*	59.94	-0.94	-2.53	55.18	-0.35	-0.87
4NDP6H		60.50	-0.38	-1.02	54.84	-0.69	-1.72
6E4FGP		61.48	0.60	1.62	56.42	0.89	2.23
86QAFH		60.50	-0.38	-1.02	55.14	-0.39	-0.97
8PQB9M		60.40	-0.48	-1.29	54.60	-0.93	-2.32
8TQL23	*	60.74	-0.14	-0.37	54.68	-0.85	-2.12
92MV6X		60.82	-0.06	-0.15	55.40	-0.13	-0.32
9M7VGK		61.26	0.38	1.03	56.00	0.47	1.18
A4AWNR		60.42	-0.46	-1.23	55.40	-0.13	-0.32
A8MJDP		61.24	0.36	0.98	56.42	0.89	2.23
B6RFZ9		60.70	-0.18	-0.48	55.60	0.07	0.18
BPM3TD		61.72	0.84	2.27	56.28	0.75	1.88
CDA3WJ		60.43	-0.45	-1.21	55.23	-0.30	-0.75
CEY9DA		61.10	0.22	0.60	55.56	0.03	0.08
CFC6HE		60.84	-0.04	-0.10	55.60	0.07	0.18
CJGNPM		61.18	0.30	0.81	55.76	0.23	0.58
D2N4GE		60.54	-0.34	-0.91	55.26	-0.27	-0.67
D8C6HC		60.58	-0.30	-0.80	55.52	-0.01	-0.02
E7TMT		60.58	-0.30	-0.80	54.98	-0.55	-1.37
FRXB9E		60.88	0.00	0.01	55.68	0.15	0.38
FZ8VBB		60.18	-0.70	-1.88	54.94	-0.59	-1.47
GGBWJ3		61.37	0.49	1.33	55.89	0.37	0.91
GGWA9F	X	60.22	-0.65	-1.76	54.12	-1.41	-3.52
GNPKCJ		60.66	-0.22	-0.59	55.98	0.45	1.13
GTPLME		60.80	-0.08	-0.21	55.90	0.37	0.93
HHK3G4		61.32	0.44	1.19	55.78	0.25	0.63
J2N9GH		61.12	0.24	0.65	55.62	0.09	0.23
J6Q9JZ		61.18	0.30	0.81	55.66	0.13	0.33
JW4L3B		61.30	0.42	1.14	56.30	0.77	1.93
K4U3R9		60.99	0.11	0.29	55.47	-0.06	-0.15
KVKJJB		60.44	-0.44	-1.18	55.24	-0.29	-0.72
KY2XY4		61.20	0.32	0.87	55.58	0.05	0.13
L2X2TA		61.06	0.18	0.49	55.84	0.31	0.78
L4ARG7		61.20	0.32	0.87	55.88	0.35	0.88
LAVXND	X	60.40	-0.48	-1.29	56.40	0.87	2.18
LE6R74		61.32	0.44	1.19	56.04	0.51	1.28
LVU3T7		60.64	-0.24	-0.64	55.36	-0.17	-0.42
MHKWYJ		61.20	0.32	0.87	55.80	0.27	0.68
MP4XM9		60.80	-0.08	-0.21	55.40	-0.13	-0.32
NT23BD		61.14	0.26	0.71	55.70	0.17	0.43
NXWP98		61.14	0.26	0.71	55.58	0.05	0.13



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1303

**2nd Qtr
2020**

**Rockwell Hardness: C Scale
ASTM E18**

WebCode	Data Flag	Sample E67			Sample E68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
Q4KA47		60.77	-0.10	-0.28	55.41	-0.12	-0.30
QXMDXG		61.08	0.20	0.55	55.78	0.25	0.63
R8EN3F		60.84	-0.04	-0.10	55.44	-0.09	-0.22
RCLYK3		61.61	0.73	1.97	56.28	0.75	1.88
RFKAF3		61.10	0.22	0.59	55.57	0.04	0.10
T3FALX		60.30	-0.58	-1.56	55.36	-0.17	-0.42
TFDCWQ		60.62	-0.26	-0.69	55.58	0.05	0.13
TH4K9Z		60.86	-0.02	-0.05	55.66	0.13	0.33
TKRA2T		61.00	0.12	0.33	55.40	-0.13	-0.32
TRBD9V		60.80	-0.08	-0.21	54.80	-0.73	-1.82
UG6RJ8		61.02	0.14	0.38	55.66	0.13	0.33
UK478W		60.60	-0.28	-0.75	55.28	-0.25	-0.62
UQ4N93		60.80	-0.08	-0.21	55.00	-0.53	-1.32
XP83PN		60.94	0.06	0.17	55.72	0.19	0.48
XW8GEV		61.26	0.38	1.03	55.72	0.19	0.48
Y8NRY8		60.16	-0.72	-1.93	55.08	-0.45	-1.12
YRUZGQ		60.58	-0.30	-0.80	55.54	0.01	0.03
ZH4WRN		60.98	0.10	0.28	55.50	-0.03	-0.07

Summary Statistics

	Sample E67		Sample E68	
Grand Means	60.88	HRC	55.53	HRC
Std Dev Btwn Labs	0.37	HRC	0.40	HRC

Samples E67, E68 : Steel, Steel

Statistics based on 63 of 65 reporting participants

Comments on Assigned Data Flags for Test #1303

GGWA9F (X) - Data for sample E68 are low. Inconsistent within the determinations of both samples.

LAVXND (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample E68.

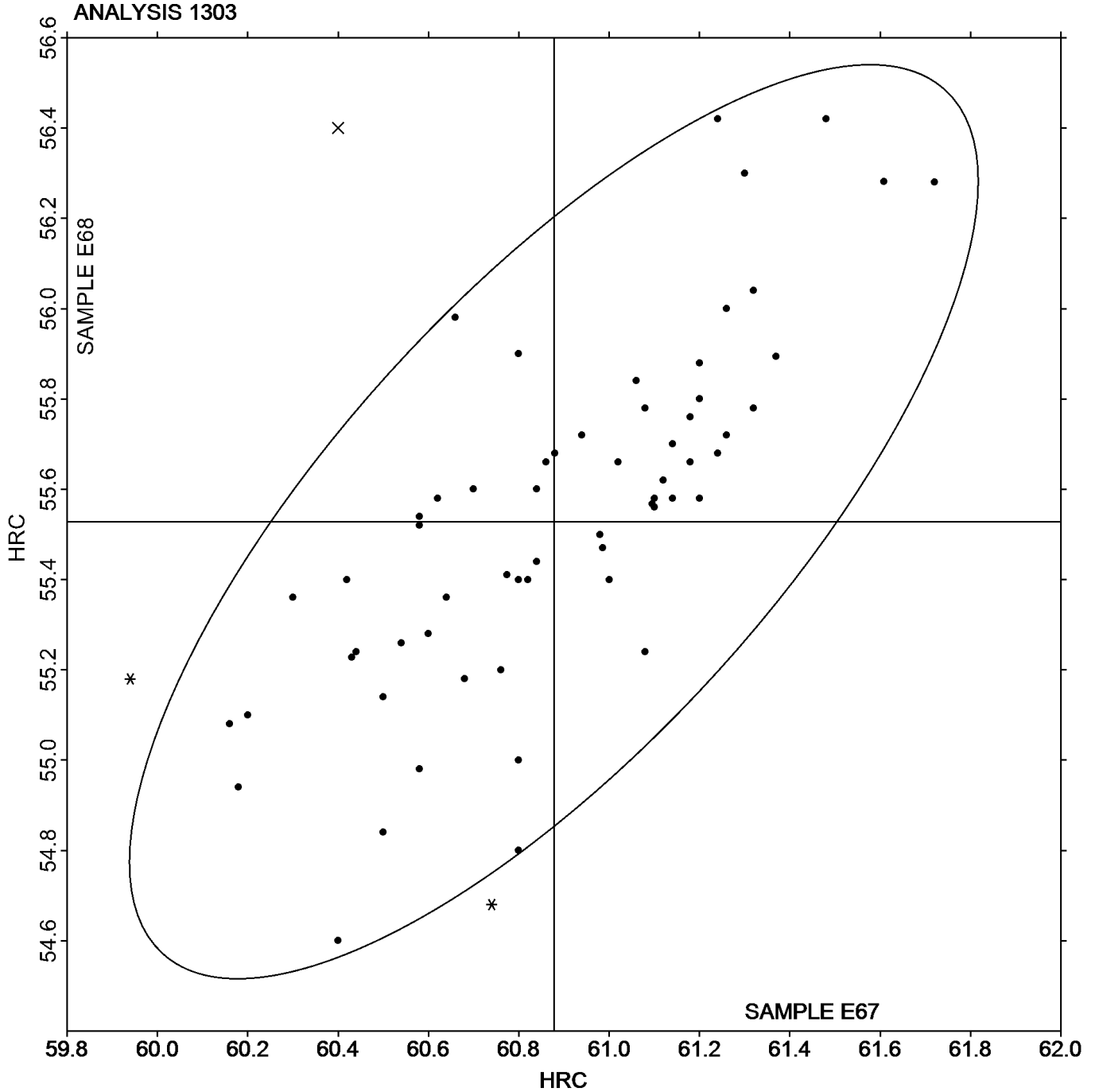


Analysis 1303

Rockwell Hardness: C Scale
ASTM E18

SAMPLE E67
60.88 HRC

SAMPLE E68
55.53 HRC





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1351

2nd Qtr
2020

Rockwell Superficial Hardness (30N Scale) ASTM E18

WebCode	Data Flag	Sample E67			Sample E68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2BWQQQ		78.40	0.37	0.54	73.70	0.15	0.25
2EYN2J		78.34	0.31	0.45	74.04	0.49	0.83
2RJ9EK		78.64	0.61	0.89	73.96	0.41	0.70
2WCC74		78.48	0.45	0.65	73.74	0.19	0.32
3BRX33	*	76.58	-1.45	-2.10	72.00	-1.55	-2.64
48TTVF		77.14	-0.89	-1.29	73.24	-0.31	-0.53
4JL6FG		78.10	0.07	0.10	73.76	0.21	0.36
6LMHNR		78.32	0.29	0.42	73.96	0.41	0.70
6XECWE		78.40	0.37	0.54	73.66	0.11	0.19
7UG7YN	*	77.88	-0.15	-0.21	72.48	-1.07	-1.82
86QAFH		77.80	-0.23	-0.33	72.60	-0.95	-1.62
8KMGDK		77.88	-0.15	-0.21	72.98	-0.57	-0.97
8TCY4L		77.62	-0.41	-0.59	73.62	0.07	0.12
92MV6X		77.92	-0.11	-0.16	73.30	-0.25	-0.43
9NW2WB	X	72.62	-5.41	-7.83	76.48	2.93	4.99
9ZVQWK		79.00	0.97	1.41	74.00	0.45	0.77
A8MJDP		78.40	0.37	0.54	74.38	0.83	1.41
BW69PJ		78.36	0.33	0.48	73.76	0.21	0.36
CJGNPM		78.44	0.41	0.60	73.96	0.41	0.70
D2N4GE		76.46	-1.57	-2.27	72.70	-0.85	-1.45
HALPA9		78.00	-0.03	-0.04	74.00	0.45	0.77
J2N9GH		77.08	-0.95	-1.37	72.58	-0.97	-1.65
J6Q9JZ		79.38	1.35	1.96	74.52	0.97	1.65
JXU6YC		77.84	-0.19	-0.27	73.36	-0.19	-0.32
K2NLNB		78.78	0.75	1.09	74.04	0.49	0.83
KDYA89		78.46	0.43	0.63	73.66	0.11	0.19
LDU3QX		77.70	-0.33	-0.48	73.20	-0.35	-0.60
LKYXT7		78.06	0.03	0.05	73.50	-0.05	-0.09
LQDU67		77.52	-0.51	-0.74	73.00	-0.55	-0.94
M47DLX		78.92	0.89	1.29	74.38	0.83	1.41
MAQNGD		77.80	-0.23	-0.33	73.84	0.29	0.49
N28Q77		78.10	0.07	0.10	73.60	0.05	0.08
N2W268		77.20	-0.83	-1.20	73.38	-0.17	-0.29
NMUAJ3		77.17	-0.86	-1.25	72.26	-1.29	-2.20
NZMREV		78.06	0.03	0.05	73.32	-0.23	-0.39
PJQ2PC		76.32	-1.71	-2.47	72.48	-1.07	-1.82
QBE2V2		78.24	0.21	0.31	73.46	-0.09	-0.15
QQ3L49		78.18	0.15	0.21	73.85	0.30	0.51
QWCTRR		76.80	-1.23	-1.78	73.00	-0.55	-0.94
QZCQGY		78.22	0.19	0.28	73.40	-0.15	-0.26
RGBGWT		77.36	-0.67	-0.97	73.41	-0.14	-0.23
RLNYDA		78.66	0.63	0.91	74.44	0.89	1.52
RTMT3V		78.70	0.67	0.97	74.30	0.75	1.28
T6Z3ET		78.00	-0.03	-0.04	73.60	0.05	0.08
TRBD9V		78.42	0.39	0.57	73.52	-0.03	-0.05
U9BVMW		78.72	0.69	1.00	74.22	0.67	1.14
UZGGW6		78.37	0.34	0.50	73.81	0.26	0.44



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1351

**2nd Qtr
2020**

**Rockwell Superficial Hardness (30N Scale)
ASTM E18**

WebCode	Data Flag	Sample E67			Sample E68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
VTHF3W		78.42	0.39	0.57	74.40	0.85	1.45
W68NE6		77.16	-0.87	-1.26	73.48	-0.07	-0.12
WZUTQU		78.76	0.73	1.06	74.08	0.53	0.90
X4TGTM		77.70	-0.33	-0.48	73.20	-0.35	-0.60
XBB68P		77.80	-0.23	-0.33	73.50	-0.05	-0.09
XTMW4Z		79.42	1.39	2.02	74.00	0.45	0.77

Summary Statistics		Sample E67		Sample E68	
Grand Means		78.03	HR30N	73.55	HR30N
Stnd Dev Btwn Labs		0.69	HR30N	0.59	HR30N

Samples E67, E68 : Steel, Steel

Statistics based on 52 of 53 reporting participants

Comments on Assigned Data Flags for Test #1351

9NW2WB (X) - Data appear to be transposed between samples.



Analysis 1351

Rockwell Superficial Hardness (30N Scale)

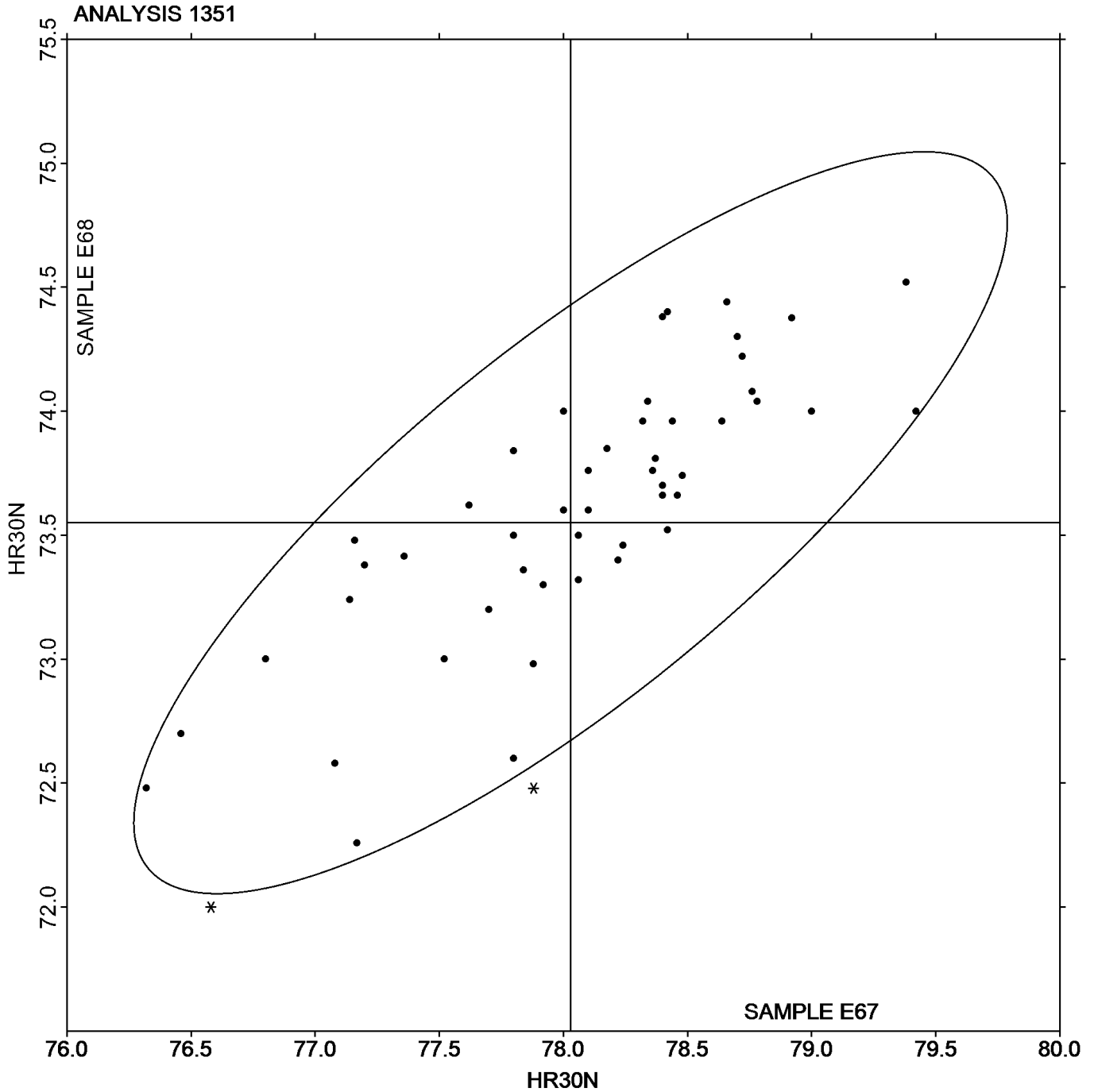
ASTM E18

SAMPLE E67

SAMPLE E68

78.03 HR30N

73.55 HR30N





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1401

2nd Qtr
2020

Total Case Depth
SAE J423, SAE J78

WebCode	Data Flag	Sample C67			Sample C68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
3BRX33		0.0216	-0.0043	-0.89	0.0167	-0.0073	-1.41
3FLRZ4		0.0215	-0.0044	-0.92	0.0184	-0.0056	-1.08
48TTVF		0.0230	-0.0029	-0.60	0.0232	-0.0008	-0.16
6LMHNR		0.0256	-0.0003	-0.06	0.0252	0.0012	0.24
6MFK6F		0.0234	-0.0025	-0.53	0.0216	-0.0024	-0.46
6MXFZN		0.0348	0.0089	1.84	0.0356	0.0116	2.24
7UG7YN		0.0328	0.0069	1.43	0.0304	0.0064	1.24
887K9N	X	0.0272	0.0013	0.28	0.0335	0.0096	1.85
92MV6X		0.0238	-0.0021	-0.44	0.0230	-0.0010	-0.19
97K89B		0.0206	-0.0053	-1.11	0.0170	-0.0070	-1.36
9ZVQWK		0.0303	0.0044	0.91	0.0303	0.0063	1.22
A4AWNRR		0.0222	-0.0037	-0.78	0.0207	-0.0032	-0.63
A8MJDP	*	0.0253	-0.0006	-0.12	0.0289	0.0049	0.94
AC28Z8		0.0264	0.0005	0.10	0.0217	-0.0022	-0.44
ADV2VQ		0.0236	-0.0023	-0.48	0.0250	0.0010	0.20
AF2JV8		0.0311	0.0052	1.08	0.0302	0.0063	1.21
AQGBHW		0.0332	0.0073	1.52	0.0308	0.0068	1.32
C7EH6V	*	0.0390	0.0131	2.73	0.0378	0.0139	2.68
CDAXLG		0.0201	-0.0058	-1.20	0.0177	-0.0063	-1.21
CLJLZF		0.0174	-0.0085	-1.77	0.0152	-0.0088	-1.70
DXD3PG		0.0265	0.0006	0.12	0.0246	0.0006	0.11
FWRC88		0.0194	-0.0065	-1.35	0.0177	-0.0063	-1.21
GZWH2Q		0.0234	-0.0025	-0.52	0.0220	-0.0019	-0.37
J2N9GH	X	0.00718	-0.0187	-3.89	0.00681	-0.0172	-3.32
K2NLNB		0.0317	0.0058	1.21	0.0299	0.0060	1.15
KDYA89		0.0308	0.0049	1.02	0.0314	0.0074	1.44
KF8D46		0.0260	0.0001	0.02	0.0252	0.0012	0.24
LCGF8X		0.0308	0.0049	1.02	0.0290	0.0050	0.97
M2EGW4		0.0322	0.0063	1.32	0.0276	0.0036	0.71
M3A78C		0.0234	-0.0025	-0.52	0.0226	-0.0014	-0.27
MFDGRD		0.0256	-0.0003	-0.06	0.0232	-0.0008	-0.15
ML3UU2		0.0211	-0.0048	-0.99	0.0202	-0.0037	-0.72
MP4XM9		0.0176	-0.0083	-1.73	0.0148	-0.0092	-1.78
N28Q77		0.0239	-0.0020	-0.41	0.0234	-0.0006	-0.12
N2W268		0.0244	-0.0015	-0.31	0.0216	-0.0024	-0.47
PDW7JY		0.0294	0.0035	0.72	0.0242	0.0002	0.04
PGHV4B		0.0236	-0.0023	-0.48	0.0214	-0.0026	-0.50
PJQ2PC		0.0339	0.0080	1.65	0.0314	0.0074	1.43
PWEZHZ	X	0.000460	-0.0254	-5.29	0.000340	-0.0236	-4.58
QBE2V2		0.0236	-0.0023	-0.48	0.0214	-0.0026	-0.50
QFPEDZ		0.0191	-0.0068	-1.41	0.0178	-0.0062	-1.20
R2ZVC4		0.0278	0.0019	0.40	0.0268	0.0028	0.55
R7EDRY		0.0272	0.0013	0.28	0.0233	-0.0007	-0.13
T6Z3ET	*	0.0342	0.0083	1.73	0.0282	0.0042	0.82
TRBD9V		0.0231	-0.0028	-0.59	0.0193	-0.0047	-0.91
UGKB46		0.0264	0.0005	0.10	0.0210	-0.0030	-0.58
UR9RNZ		0.0236	-0.0023	-0.48	0.0190	-0.0050	-0.96



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1401

**2nd Qtr
2020**

**Total Case Depth
SAE J423, SAE J78**

WebCode	Data Flag	Sample C67			Sample C68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
VA372W		0.0248	-0.0011	-0.23	0.0234	-0.0006	-0.11
VTHF3W		0.0250	-0.0009	-0.20	0.0204	-0.0036	-0.69
WUJY94		0.0255	-0.0004	-0.09	0.0237	-0.0002	-0.05
X4TGTM	X	0.0358	0.0099	2.06	0.0270	0.0030	0.58
XBB68P		0.0253	-0.0006	-0.13	0.0242	0.0002	0.05
Y88PDR		0.0242	-0.0017	-0.35	0.0268	0.0028	0.55

Summary Statistics

	Sample C67		Sample C68	
Grand Means	0.0259	inches	0.0240	inches
Stnd Dev Btwn Labs	0.0048	inches	0.0052	inches

Samples C67, C68 : Steel, Steel

Statistics based on 49 of 53 reporting participants

Comments on Assigned Data Flags for Test #1401

- 887K9N (X) - Inconsistent in testing between samples.
- J2N9GH (X) - Data for both samples are low. Possible Systematic Error.
- PWEZHZ (X) - Data for both samples are low. Possible Systematic Error.
- X4TGTM (X) - Inconsistent in testing between samples.

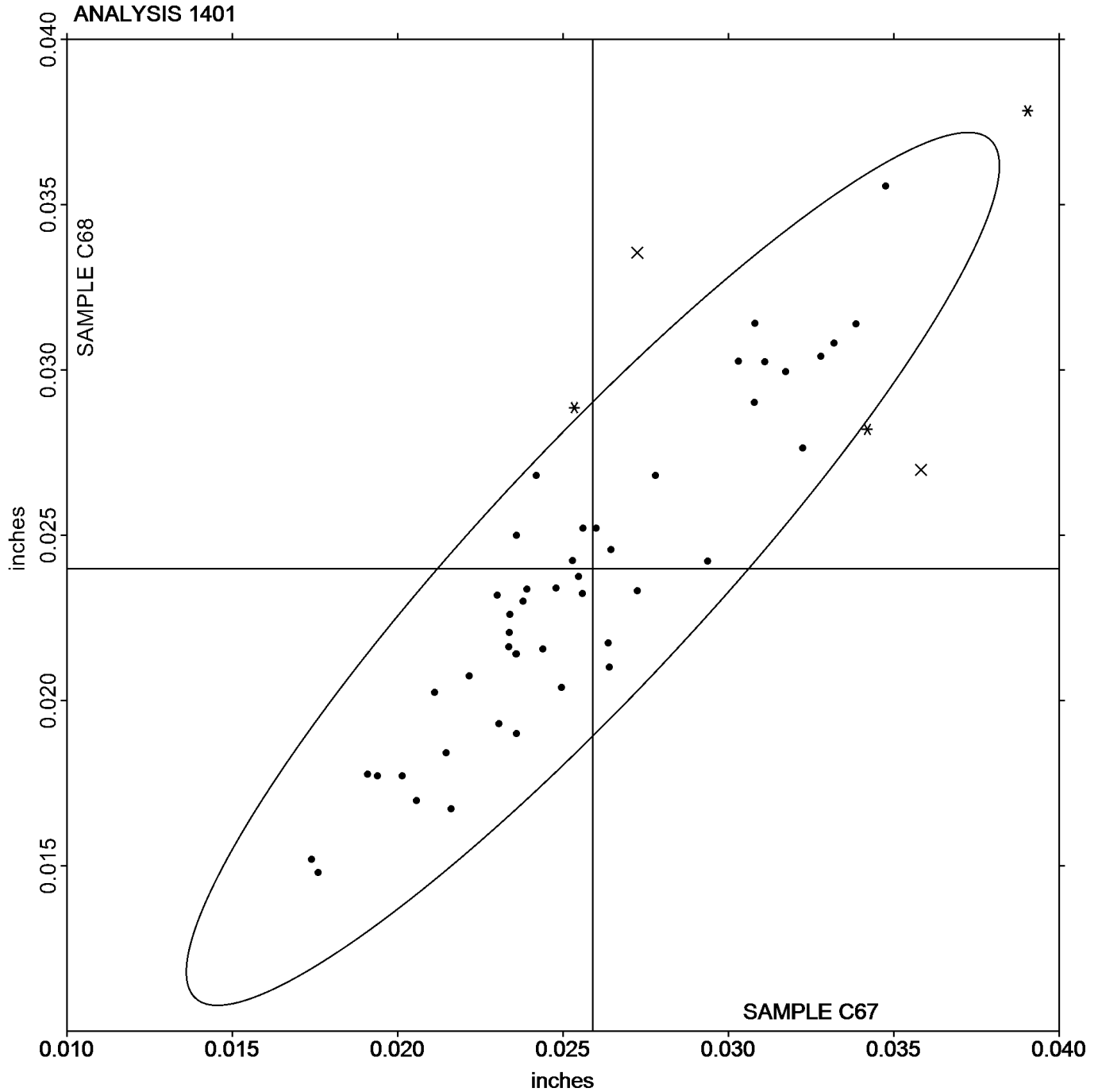


Analysis 1401

Total Case Depth
SAE J423, SAE J78

SAMPLE C67
0.0259 inches

SAMPLE C68
0.0240 inches





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1402

2nd Qtr
2020

Effective Case Depth
SAE J423, SAE J78

WebCode	Data Flag	Sample C67			Sample C68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
3BRX33		0.0214	-0.0019	-1.17	0.0172	-0.0039	-1.58
3FLRZ4		0.0213	-0.0020	-1.25	0.0181	-0.0031	-1.22
42HU9P		0.0242	0.0009	0.55	0.0209	-0.0003	-0.13
48TTVF		0.0218	-0.0015	-0.93	0.0190	-0.0022	-0.87
6LMHNR		0.0220	-0.0013	-0.80	0.0218	0.0006	0.25
6MFK6F		0.0230	-0.0003	-0.18	0.0176	-0.0036	-1.43
6MXFZN		0.0220	-0.0013	-0.80	0.0234	0.0022	0.89
7DQAEK		0.0259	0.0026	1.62	0.0264	0.0052	2.08
7UG7YN	X	0.0308	0.0075	4.66	0.0272	0.0060	2.41
887K9N		0.0249	0.0016	0.99	0.0266	0.0054	2.17
8KMGDK		0.0227	-0.0006	-0.38	0.0175	-0.0037	-1.48
92MV6X		0.0228	-0.0005	-0.30	0.0216	0.0004	0.17
97K89B		0.0236	0.0003	0.19	0.0166	-0.0046	-1.83
9ZVQWK		0.0221	-0.0012	-0.74	0.0223	0.0012	0.46
A4AWNR		0.0216	-0.0017	-1.05	0.0198	-0.0014	-0.55
A8MJDP	X	0.0188	-0.0045	-2.79	0.0252	0.0040	1.61
AC28Z8		0.0232	-0.0001	-0.04	0.0189	-0.0023	-0.91
ADV2VQ	X	0.0161	-0.0072	-4.47	0.0186	-0.0026	-1.02
AF2JV8		0.0248	0.0015	0.94	0.0229	0.0017	0.69
BU2K99		0.0238	0.0005	0.32	0.0206	-0.0006	-0.23
C7EH6V		0.0213	-0.0020	-1.21	0.0236	0.0024	0.98
CDAXLG		0.0212	-0.0021	-1.31	0.0181	-0.0031	-1.23
CLJLZF		0.0267	0.0034	2.13	0.0235	0.0023	0.92
DXD3PG		0.0247	0.0014	0.89	0.0224	0.0013	0.50
FWRC88		0.0248	0.0015	0.94	0.0206	-0.0006	-0.22
GZWH2Q		0.0238	0.0005	0.31	0.0228	0.0016	0.63
J2N9GH		0.0223	-0.0010	-0.61	0.0199	-0.0012	-0.50
JD7R2E		0.0230	-0.0003	-0.20	0.0230	0.0018	0.72
JN3V69		0.0239	0.0006	0.40	0.0232	0.0020	0.82
K2NLNB		0.0240	0.0007	0.45	0.0231	0.0019	0.75
KDYA89		0.0212	-0.0021	-1.30	0.0214	0.0002	0.09
KF8D46		0.0234	0.0001	0.08	0.0227	0.0016	0.62
LCGF8X		0.0242	0.0009	0.57	0.0212	0.0000	-0.01
LKW6VY		0.0250	0.0017	1.08	0.0220	0.0008	0.31
M3A78C		0.0196	-0.0037	-2.29	0.0184	-0.0028	-1.11
MFDGRD		0.0254	0.0021	1.31	0.0218	0.0006	0.25
ML3UU2		0.0246	0.0013	0.81	0.0236	0.0025	0.98
MP4XM9	X	0.0120	-0.0113	-7.00	0.0136	-0.0076	-3.03
N28Q77		0.0212	-0.0021	-1.30	0.0184	-0.0028	-1.13
PDW7JY		0.0227	-0.0006	-0.36	0.0201	-0.0011	-0.45
PGHV4B		0.0232	-0.0001	-0.04	0.0188	-0.0024	-0.94
PJQ2PC		0.0228	-0.0005	-0.30	0.0214	0.0002	0.09
PK4DLW		0.0263	0.0030	1.88	0.0253	0.0041	1.66
QBE2V2		0.0216	-0.0017	-1.05	0.0178	-0.0034	-1.35
QFPEDZ		0.0233	0.0000	-0.02	0.0189	-0.0023	-0.91
QP9VXU		0.0244	0.0011	0.69	0.0219	0.0007	0.28
R2ZVC4		0.0230	-0.0003	-0.18	0.0216	0.0004	0.17



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1402

**2nd Qtr
2020**

**Effective Case Depth
SAE J423, SAE J78**

WebCode	Data Flag	Sample C67			Sample C68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
R7EDRY		0.0252	0.0019	1.17	0.0220	0.0008	0.31
T6Z3ET		0.0260	0.0027	1.68	0.0250	0.0038	1.53
TRBD9V		0.0259	0.0026	1.62	0.0221	0.0010	0.38
UGKB46		0.0210	-0.0023	-1.42	0.0160	-0.0052	-2.07
UR9RNZ		0.0210	-0.0023	-1.42	0.0166	-0.0046	-1.83
VA372W		0.0228	-0.0005	-0.30	0.0214	0.0002	0.09
VTHF3W		0.0245	0.0012	0.76	0.0207	-0.0005	-0.18
WUJY94		0.0234	0.0001	0.06	0.0235	0.0023	0.91
X4TGTM		0.0221	-0.0012	-0.71	0.0229	0.0017	0.68
XBB68P		0.0243	0.0010	0.60	0.0218	0.0006	0.25
XX28HP		0.0244	0.0011	0.69	0.0220	0.0009	0.35
Y88PDR		0.0216	-0.0017	-1.05	0.0242	0.0030	1.21
Z78V88	X	0.0301	0.0068	4.22	0.0228	0.0016	0.65

Summary Statistics

	Sample C67		Sample C68	
Grand Means	0.0233	inches	0.0212	inches
Std Dev Btwn Labs	0.0016	inches	0.0025	inches

Samples C67, C68 : Steel, Steel

Statistics based on 55 of 60 reporting participants

Comments on Assigned Data Flags for Test #1402

- 7UG7YN (X) - Data for sample C67 are high.
- A8MJDP (X) - Data for sample C67 are low.
- ADV2VQ (X) - Data for sample C67 are low.
- MP4XM9 (X) - Data for both samples are low.
- Z78V88 (X) - Data for sample C67 are high.

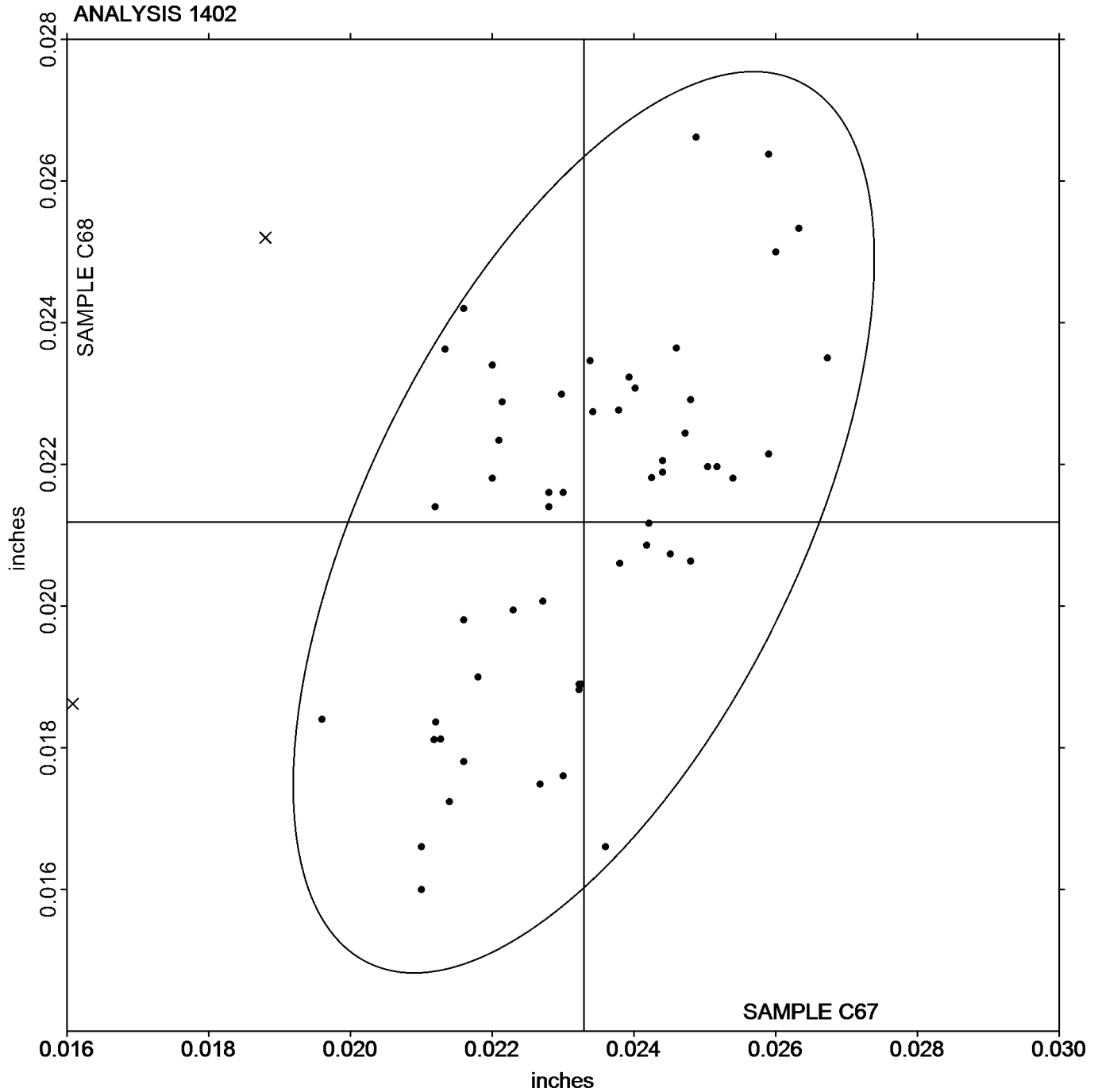


Analysis 1402

Effective Case Depth
SAE J423, SAE J78

SAMPLE C67
0.0233 inches

SAMPLE C68
0.0212 inches





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1411

2nd Qtr
2020

Grain Size (Stainless Steel)
ASTM E112, ASTM E1382

WebCode	Data Flag	Sample Y67			Sample Y68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2ZCTAK		6.301	0.475	0.54	9.462	0.044	0.06
4J6YBP		6.000	0.174	0.20	9.600	0.182	0.23
679GQF		5.200	-0.626	-0.71	8.800	-0.618	-0.79
6F7K9Q		6.200	0.374	0.43	9.400	-0.018	-0.02
6MFK6F		5.400	-0.426	-0.49	10.10	0.682	0.87
6XECWE		5.400	-0.426	-0.49	10.70	1.282	1.64
72CCAG		3.900	-1.926	-2.19	8.800	-0.618	-0.79
7MUFDT		5.800	-0.026	-0.03	10.00	0.582	0.75
7YTVGC		7.000	1.174	1.34	11.00	1.582	2.03
97E6EW		7.300	1.474	1.68	10.32	0.902	1.16
9M7VGK		4.900	-0.926	-1.06	9.900	0.482	0.62
9ZCRZM		6.100	0.274	0.31	10.20	0.782	1.00
A4AWNRR		5.000	-0.826	-0.94	7.700	-1.718	-2.20
A8MJDP		5.500	-0.326	-0.37	9.480	0.062	0.08
B79LQK		7.200	1.374	1.57	10.00	0.582	0.75
BPM3TD		6.520	0.694	0.79	9.520	0.102	0.13
CDAXLG		5.200	-0.626	-0.71	9.800	0.382	0.49
CYBXQ8		5.400	-0.426	-0.49	8.900	-0.518	-0.66
DHX7YL		5.000	-0.826	-0.94	9.040	-0.378	-0.49
HALPA9		6.300	0.474	0.54	9.500	0.082	0.10
HHK3G4		5.500	-0.326	-0.37	7.800	-1.618	-2.08
JWVDAH		6.300	0.474	0.54	9.700	0.282	0.36
LGMANM		7.716	1.890	2.15	9.730	0.312	0.40
MPZKRZ		5.200	-0.626	-0.71	8.700	-0.718	-0.92
N28Q77		5.856	0.031	0.03	9.226	-0.193	-0.25
NMUAJ3		5.000	-0.826	-0.94	9.500	0.082	0.10
NV7LK8		5.900	0.074	0.08	11.10	1.682	2.16
PGHV4B		5.100	-0.726	-0.83	8.900	-0.518	-0.66
PJQ2PC		6.500	0.674	0.77	10.50	1.082	1.39
QGB74J		4.600	-1.226	-1.40	8.780	-0.638	-0.82
QRW8WZ		5.998	0.172	0.20	9.644	0.226	0.29
QUVL8H		7.564	1.738	1.98	9.498	0.080	0.10
QXVX3H	X	3.980	-1.846	-2.10	6.300	-3.118	-4.00
R2ZVC4		7.100	1.274	1.45	9.500	0.082	0.10
RACZX9		6.200	0.374	0.43	9.200	-0.218	-0.28
T4NFVT		7.100	1.274	1.45	9.500	0.082	0.10
T6Z3ET	X	8.100	2.274	2.59	4.300	-5.118	-6.56
THNAA9	X	5.900	0.074	0.08	6.400	-3.018	-3.87
TWLG7N	*	4.000	-1.826	-2.08	7.000	-2.418	-3.10
TYTLXR		5.700	-0.126	-0.14	8.400	-1.018	-1.31
UGKB46		6.000	0.174	0.20	10.00	0.582	0.75
UQ4N93		3.940	-1.886	-2.15	9.200	-0.218	-0.28
UR9RNZ		5.800	-0.026	-0.03	9.400	-0.018	-0.02
VQYQBC		6.000	0.174	0.20	9.000	-0.418	-0.54
XBB68P		5.800	-0.026	-0.03	8.800	-0.618	-0.79
XW8GEV		6.250	0.424	0.48	9.448	0.030	0.04
YH6CJ4		6.220	0.394	0.45	9.660	0.242	0.31



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1411

**2nd Qtr
2020**

**Grain Size (Stainless Steel)
ASTM E112, ASTM E1382**

WebCode	Data Flag	Sample Y67			Sample Y68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
YJLLHV		5.400	-0.426	-0.49	10.04	0.623	0.80
YYR2AP		5.800	-0.026	-0.03	9.300	-0.118	-0.15
ZG3DDZ		5.640	-0.186	-0.21	8.914	-0.504	-0.65

Summary Statistics

	Sample Y67		Sample Y68	
Grand Means	5.826	ASTM Grain Size	9.418	ASTM Grain Size
Std Dev Btwn Labs	0.877	ASTM Grain Size	0.780	ASTM Grain Size

Samples Y67, Y68 : AISI 304L, AISI 304L

Statistics based on 47 of 50 reporting participants

Comments on Assigned Data Flags for Test #1411

QXVX3H (X) - Data for sample Y68 are low.

T6Z3ET (X) - Data for sample Y68 are low.

THNAA9 (X) - Data for sample Y68 are low. Inconsistent within the determinations of sample Y68.



Analysis 1411

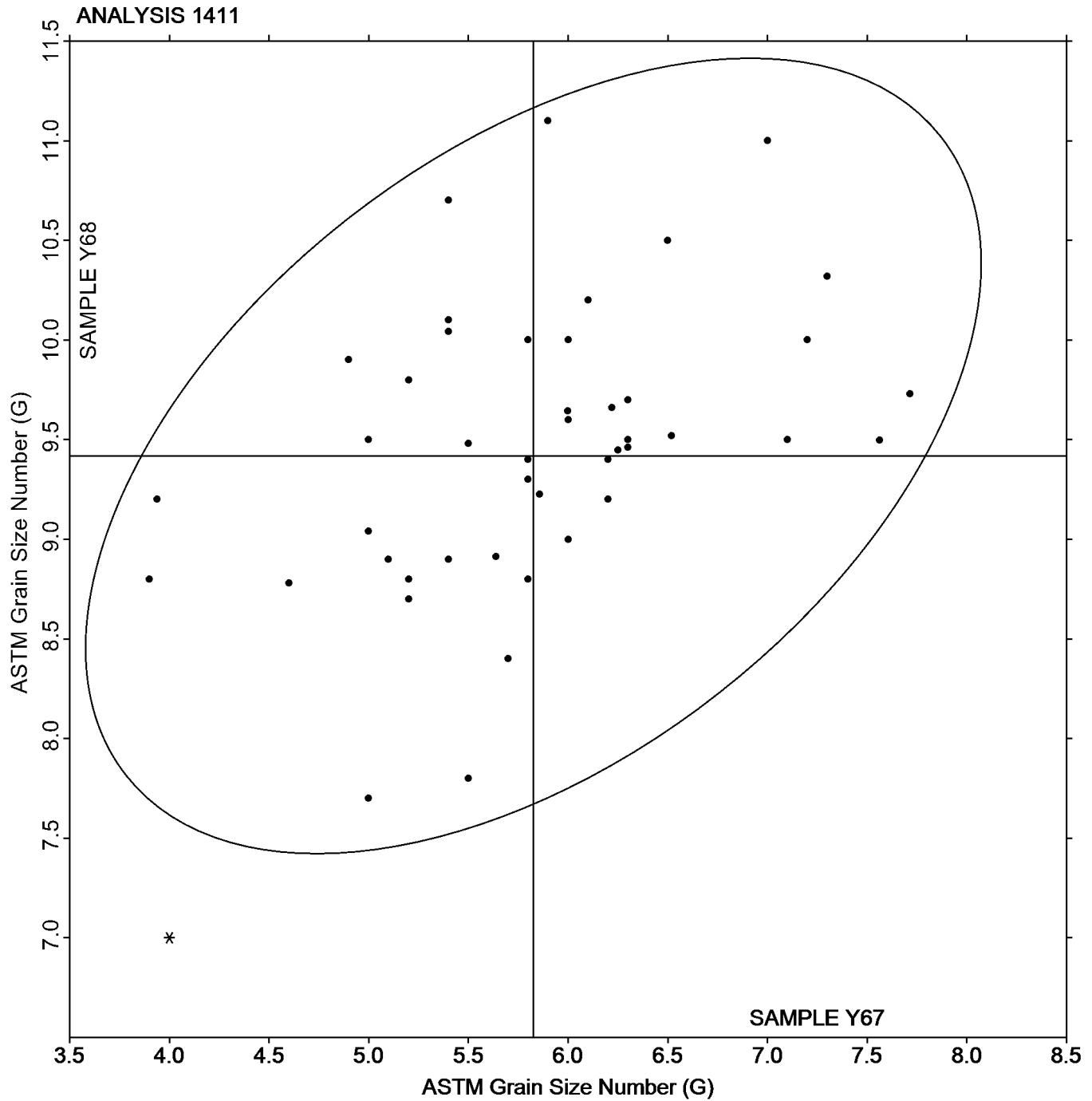
Grain Size (Stainless Steel)
ASTM E112, ASTM E1382

SAMPLE Y67

SAMPLE Y68

5.826 ASTM Grain Size Number (G)

9.418 ASTM Grain Size Number (G)





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1421

2nd Qtr
2020

Alpha Case Depth
ASTM E3, E407

WebCode	Data Flag	Sample W67			Sample W68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2TVWUQ		0.000351	0.000060	1.59	0.000198	-0.000005	-0.10
6RDZYW		0.000266	-0.000025	-0.66	0.000162	-0.000041	-0.80
6XMUAQ		0.000306	0.000015	0.40	0.000166	-0.000037	-0.72
7MUFDT		0.000324	0.000033	0.88	0.000220	0.000017	0.33
7YTVGC		0.000255	-0.000036	-0.95	0.000201	-0.000002	-0.03
9LU4LH		0.000297	0.000006	0.16	0.000218	0.000015	0.29
B6RFZ9		0.000299	0.000008	0.21	0.000285	0.000082	1.59
BPM3TD		0.000302	0.000011	0.30	0.000160	-0.000043	-0.84
GH4UPN		0.000284	-0.000007	-0.19	0.000158	-0.000045	-0.88
J4BWTH		0.000300	0.000009	0.24	0.000200	-0.000003	-0.06
JLEJ73		0.000254	-0.000037	-0.98	0.000216	0.000013	0.25
K2NLNB		0.000236	-0.000054	-1.45	0.000181	-0.000022	-0.43
N28Q77		0.000284	-0.000007	-0.19	0.000153	-0.000050	-0.98
NXWP98		0.000310	0.000019	0.51	0.000146	-0.000057	-1.11
PJQ2PC	X	0.000460	0.000169	4.49	0.000660	0.000457	8.90
PWEZHZ		0.000278	-0.000013	-0.34	0.000220	0.000017	0.33
QXVX3H	*	0.000370	0.000079	2.10	0.000315	0.000112	2.18
RDZ3EU	*	0.000200	-0.000091	-2.41	0.000326	0.000123	2.40
THNAA9		0.000273	-0.000018	-0.48	0.000151	-0.000052	-1.01
TWLG7N	X	0.000333	0.000042	1.12	0.00288	0.002676	52.12
UG6RJ8	X	0.000344	0.000053	1.41	0.000566	0.000363	7.07
UR9RNZ		0.000336	0.000045	1.20	0.000194	-0.000009	-0.17
VCNZUQ		0.000306	0.000015	0.40	0.000153	-0.000050	-0.97
WKTD37		0.000300	0.000009	0.24	0.000200	-0.000003	-0.06
XXM3NX		0.000268	-0.000023	-0.60	0.000242	0.000039	0.76
YYR2AP	X	0.000312	0.000021	0.56	0.00688	0.006673	129.98

Summary Statistics

	Sample W67		Sample W68	
Grand Means	0.000291	inches	0.000203	inches
Std Dev Btwn Labs	0.000038	inches	0.000051	inches

Samples W67, W68 : Ti 6Al-4V, Ti CP2

Statistics based on 22 of 26 reporting participants

Comments on Assigned Data Flags for Test #1421

PJQ2PC (X) - Data for both samples are high. Inconsistent within the determinations of both samples.

TWLG7N (X) - Data for sample W68 are extreme.

UG6RJ8 (X) - Data for sample W68 are high.

YYR2AP (X) - Data for sample W68 are extreme.

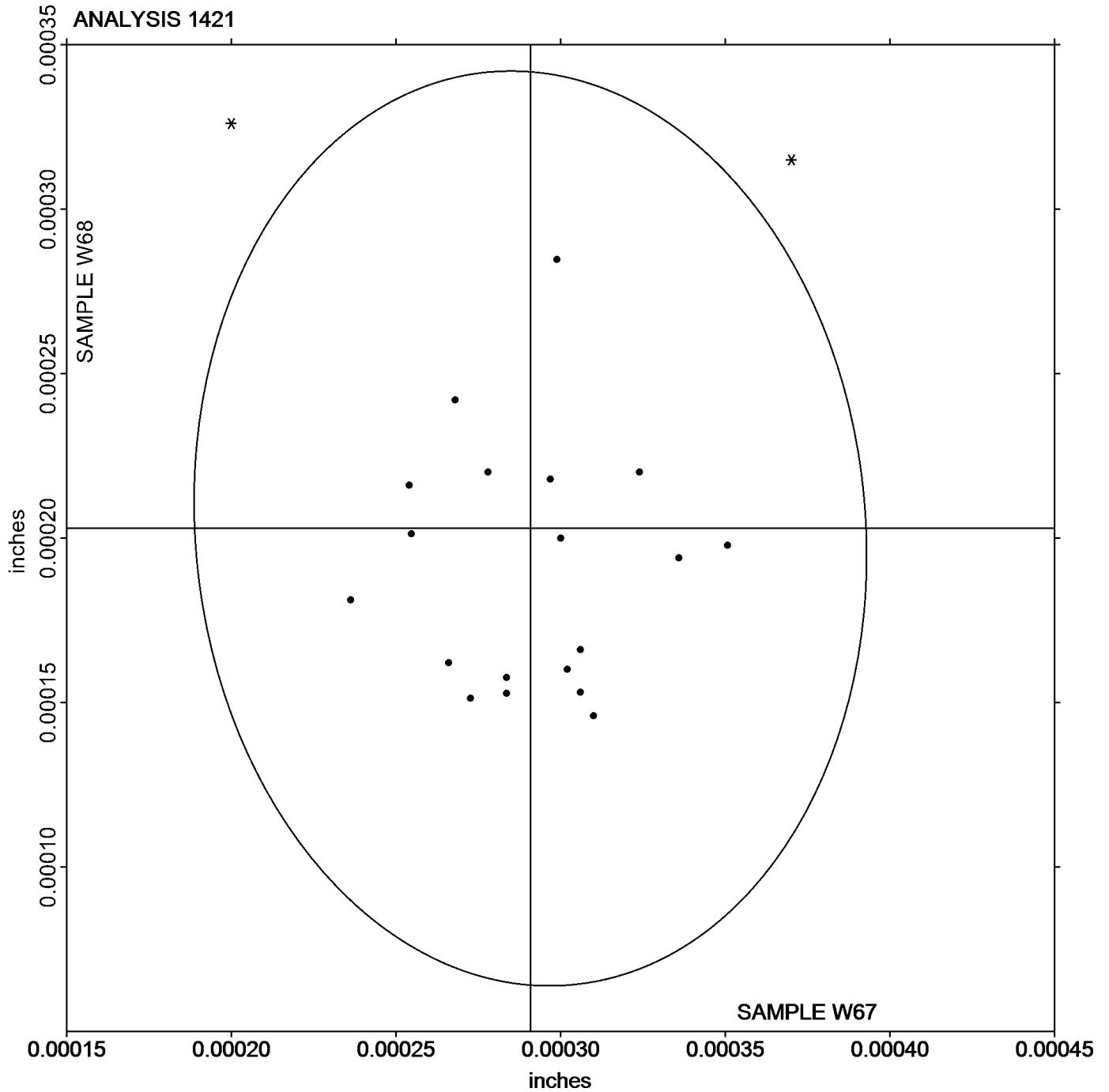


Analysis 1421

Alpha Case Depth
ASTM E3, E407

SAMPLE W67
0.00029 inches

SAMPLE W68
0.00020 inches





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1422

2nd Qtr
2020

Alloy Depletion: Inconel
ASTM E3, E407

WebCode	Data Flag	Sample K67			Sample K68		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
6RDZYW		0.000136	-0.000078	-0.79	0.000134	-0.000156	-0.94
6WH66M		0.000062	-0.000152	-1.53	0.000166	-0.000124	-0.75
6XMUAQ		0.000262	0.000048	0.48	0.000246	-0.000044	-0.27
F46BT7		0.000242	0.000028	0.28	0.000371	0.000081	0.49
HALPA9		0.000316	0.000102	1.03	0.000357	0.000067	0.41
J6Q9JZ		0.000260	0.000046	0.46	0.000220	-0.000070	-0.42
JLEJ73		0.000182	-0.000032	-0.32	0.000558	0.000268	1.63
K2NLNB		0.000202	-0.000012	-0.12	0.000194	-0.000095	-0.58
N28Q77		0.000185	-0.000029	-0.29	0.000342	0.000052	0.32
NXWP98		0.000070	-0.000144	-1.45	0.000130	-0.000160	-0.97
RDZ3EU		0.000414	0.000200	2.02	0.000138	-0.000152	-0.92
YYR2AP		0.000238	0.000024	0.24	0.000621	0.000331	2.01

Summary Statistics

	Sample K67		Sample K68	
Grand Means	0.000214	inches	0.000290	inches
Stnd Dev Btwn Labs	0.000099	inches	0.000165	inches

Samples K67, K68 : Inconel 718, Waspaloy

Statistics based on 12 of 12 reporting participants

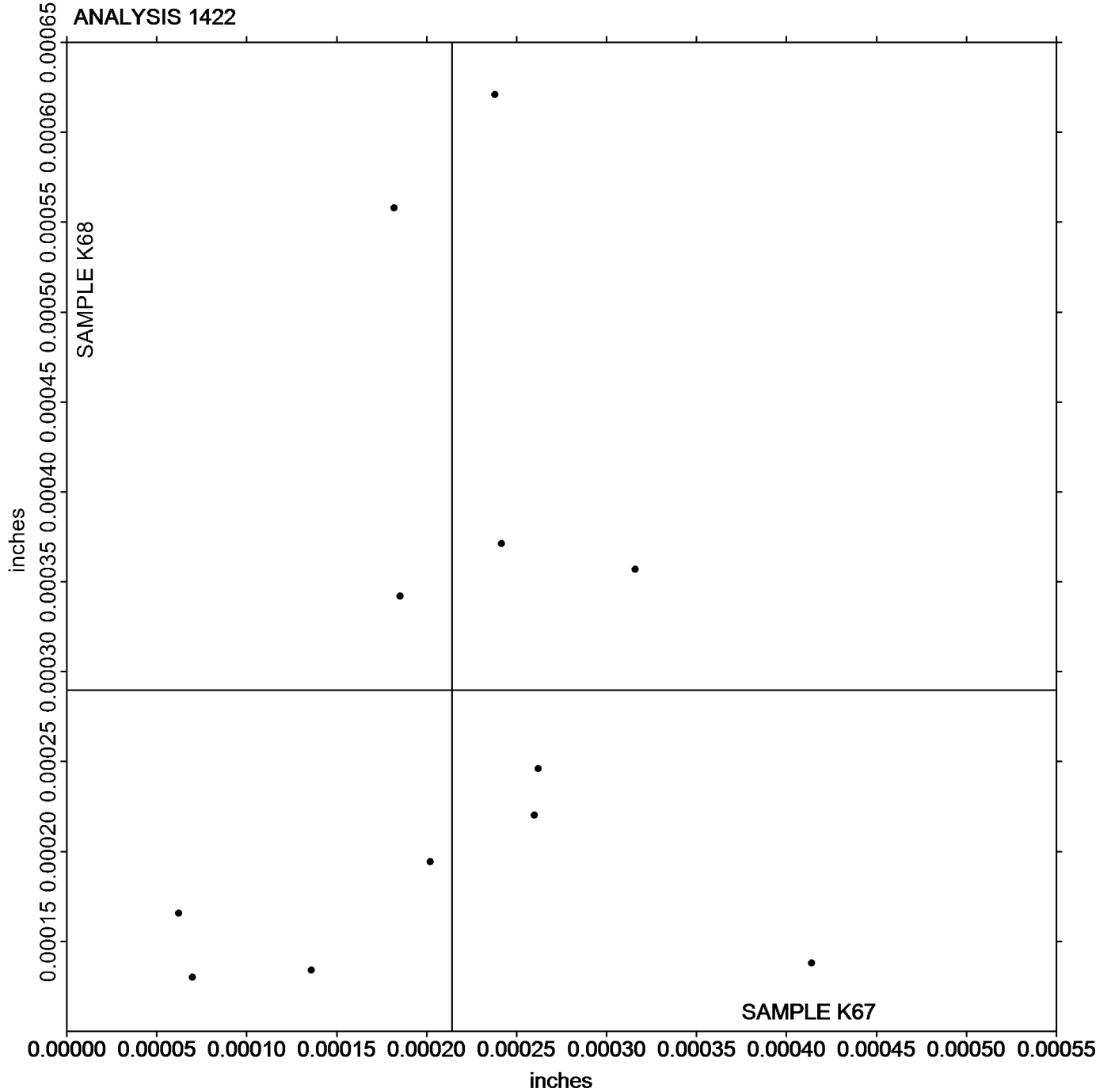


Analysis 1422

Alloy Depletion: Inconel
ASTM E3, E407

SAMPLE K67
0.00021 inches

SAMPLE K68
0.00029 inches





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1500

2nd Qtr
2020

Nickel-based Alloy, CHROMIUM (Cr)
CHROMIUM (Cr)

WebCode	Data Flag	Sample J67			Sample J68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
327TV3		18.25	0.20	1.31	18.32	0.20	1.23	OE
3FLRZ4		17.92	-0.13	-0.82	18.13	0.01	0.04	OE
3GNU9R		17.80	-0.24	-1.58	18.00	-0.12	-0.78	XX
6GMG2P		18.17	0.12	0.80	18.32	0.20	1.26	WD
6XECWE		18.00	-0.04	-0.26	17.93	-0.19	-1.22	OE
8AZDHE		18.31	0.27	1.73	18.26	0.14	0.88	OE
8KMGDK		17.94	-0.10	-0.67	17.95	-0.17	-1.09	OE
A4AWNR		18.03	-0.02	-0.11	18.08	-0.05	-0.30	OE
B6RFZ9		17.91	-0.14	-0.89	18.02	-0.10	-0.63	OE
BBPQK9		18.23	0.19	1.23	18.33	0.21	1.32	GD
BFBU3B	X	17.52	-0.52	-3.37	18.75	0.63	3.96	IC
BN472K		17.99	-0.05	-0.33	18.14	0.02	0.10	WD
C4KB97		17.90	-0.14	-0.91	18.02	-0.10	-0.63	WD
CPF2HB		18.05	0.01	0.05	18.18	0.05	0.33	OE
DV2GL9		18.15	0.11	0.71	18.21	0.08	0.52	OE
F3YYZB		18.00	-0.05	-0.31	18.01	-0.11	-0.70	OE
F46BT7		18.32	0.28	1.80	18.43	0.31	1.93	WD
GGBWJ3		18.11	0.07	0.45	18.27	0.15	0.92	OE
J6Q9JZ		18.17	0.13	0.84	18.20	0.07	0.46	XR
JJNDPC		18.15	0.11	0.69	18.34	0.21	1.33	IC
L2X2TA		18.06	0.01	0.08	18.17	0.04	0.26	DR
L8NFQH		17.73	-0.31	-2.03	17.78	-0.34	-2.15	OE
LBPJH4		18.02	-0.02	-0.16	18.17	0.04	0.27	OE
LCGF8X		17.93	-0.11	-0.72	17.90	-0.22	-1.41	GD
LKYXT7		17.94	-0.10	-0.67	18.06	-0.06	-0.40	OE
N28Q77		18.03	-0.01	-0.09	18.02	-0.11	-0.67	OE
N3L8KX		18.09	0.05	0.30	18.18	0.06	0.35	WD
NZMREV		18.25	0.21	1.33	18.39	0.27	1.67	IC
QHMHMB		17.93	-0.12	-0.76	17.99	-0.13	-0.84	OE
QUVL8H	X	18.64	0.60	3.89	18.81	0.68	4.29	XR
R3NDRG	*	18.22	0.18	1.16	18.08	-0.04	-0.25	XX
TA9QQ9		18.01	-0.04	-0.24	18.04	-0.08	-0.51	OE
TRTGP9		18.02	-0.02	-0.13	18.06	-0.07	-0.42	IC
UZATWC		17.68	-0.37	-2.38	17.82	-0.30	-1.91	IC
WX3UCW		18.00	-0.05	-0.31	18.17	0.05	0.29	OE
YH6CJ4		18.18	0.14	0.88	18.24	0.12	0.76	XR

Summary Statistics

	Sample J67		Sample J68	
Grand Means	18.04	Percent	18.12	Percent
Std Dev Btwn Labs	0.15	Percent	0.16	Percent

Samples J67, J68 : Alloy 718, Alloy 718

Statistics based on 34 of 36 reporting participants



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1500

2nd Qtr
2020

Nickel-based Alloy, CHROMIUM (Cr)
CHROMIUM (Cr)

Key to Method Codes Reported by Participants

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		

Comments on Assigned Data Flags for Test #1500

- BFBU3B (X) - Data for sample J67 are low and data for sample J68 are high. Inconsistent in testing between samples. Inconsistent within the determinations of sample J68.
- QUVL8H (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1501

2nd Qtr
2020

Nickel-based Alloy, MANGANESE (Mn) MANGANESE (Mn)

WebCode	Data Flag	Sample J67			Sample J68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
327TV3		0.0917	-0.0022	-0.33	0.1073	-0.0022	-0.28	OE
3FLRZ4		0.0933	-0.0006	-0.09	0.1097	0.0001	0.02	OE
3GNU9R		0.1080	0.0141	2.11	0.1240	0.0145	1.81	XX
6GMG2P		0.1034	0.0095	1.42	0.1210	0.0115	1.43	WD
6XECWE		0.0917	-0.0022	-0.34	0.1060	-0.0035	-0.44	OE
8AZDHE	X	0.1390	0.0451	6.75	0.1563	0.0468	5.86	OE
8KMGDK		0.0940	0.0001	0.01	0.1090	-0.0005	-0.07	OE
A4AWNR		0.0940	0.0001	0.01	0.1087	-0.0009	-0.11	OE
B6RFZ9		0.0901	-0.0038	-0.57	0.1050	-0.0045	-0.57	XX
BBPQK9		0.0923	-0.0016	-0.24	0.1083	-0.0012	-0.15	GD
BFBU3B	*	0.0930	-0.0009	-0.14	0.1220	0.0125	1.56	IC
BN472K		0.0948	0.0009	0.14	0.1116	0.0021	0.26	WD
C4KB97		0.0953	0.0014	0.21	0.1137	0.0041	0.52	WD
CPF2HB		0.0977	0.0038	0.57	0.1112	0.0017	0.21	OE
DV2GL9		0.0890	-0.0049	-0.74	0.1010	-0.0085	-1.07	OE
F3YYZB		0.1017	0.0078	1.16	0.1170	0.0075	0.93	OE
F46BT7		0.0896	-0.0043	-0.65	0.1060	-0.0035	-0.44	WD
GGBWJ3		0.0977	0.0038	0.56	0.1150	0.0055	0.68	OE
J6Q9JZ		0.0940	0.0001	0.01	0.1090	-0.0005	-0.07	XR
JJNDPC		0.0948	0.0008	0.13	0.1130	0.0035	0.43	IC
L2X2TA		0.0908	-0.0031	-0.47	0.1060	-0.0035	-0.44	DR
L8NFQH		0.1063	0.0124	1.86	0.1240	0.0145	1.81	OE
LBPJH4		0.0876	-0.0063	-0.94	0.1031	-0.0064	-0.80	OE
LCGF8X	*	0.1097	0.0158	2.36	0.1310	0.0215	2.69	GD
LKYXT7		0.0923	-0.0016	-0.24	0.1077	-0.0019	-0.23	OE
N28Q77		0.0900	-0.0039	-0.59	0.1070	-0.0025	-0.32	OE
N3L8KX		0.0920	-0.0019	-0.29	0.1067	-0.0029	-0.36	WD
NZMREV		0.0870	-0.0069	-1.04	0.0992	-0.0104	-1.30	OE
QHMHMB		0.0853	-0.0086	-1.28	0.0980	-0.0115	-1.44	OE
QUVL8H	X	0.2300	0.1361	20.38	0.3100	0.2005	25.08	XR
R3NDRG		0.0980	0.0041	0.61	0.1133	0.0038	0.48	XX
TA9QQ9	*	0.0750	-0.0189	-2.83	0.0884	-0.0211	-2.64	OE
TRTGP9		0.0930	-0.0009	-0.14	0.1073	-0.0022	-0.28	IC
UZATWC		0.0937	-0.0002	-0.04	0.1093	-0.0003	-0.03	IC
WX3UCW		0.0910	-0.0029	-0.44	0.1067	-0.0029	-0.36	OE
YH6CJ4		0.0943	0.0004	0.06	0.1103	0.0008	0.10	XR

Summary Statistics

	Sample J67		Sample J68	
Grand Means	0.0939	Percent	0.1095	Percent
Std Dev Btw Labs	0.0067	Percent	0.0080	Percent

Samples J67, J68 : Alloy 718, Alloy 718

Statistics based on 33 of 36 reporting participants



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1501

2nd Qtr
2020

Nickel-based Alloy, MANGANESE (Mn)
MANGANESE (Mn)

Key to Method Codes Reported by Participants

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		

Comments on Assigned Data Flags for Test #1501

8AZDHE (X) - Data for both samples are high.

QUVL8H (X) - Data for both samples are very high. Inconsistent within the determinations of both samples.

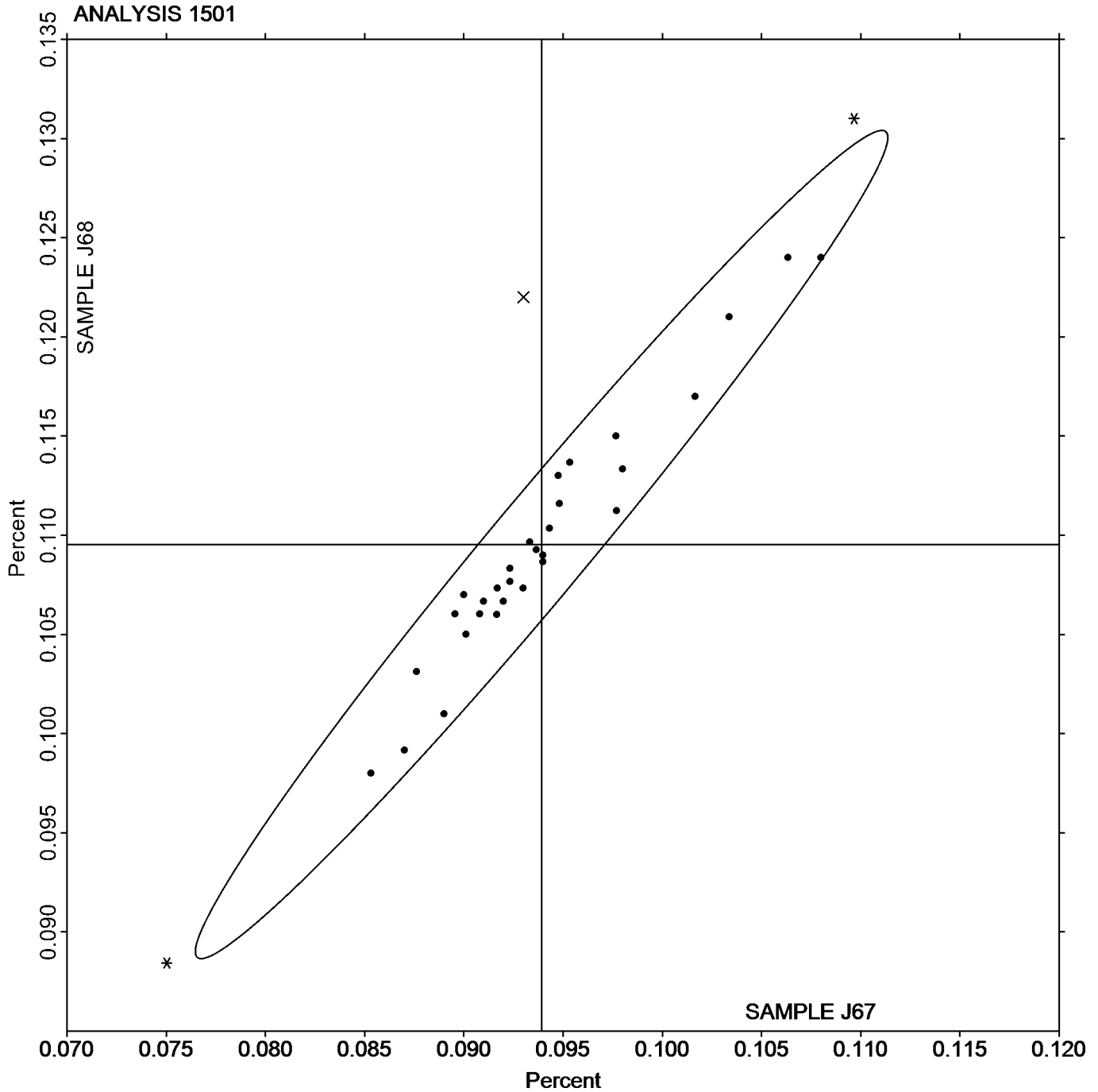


Analysis 1501

Nickel-based Alloy, MANGANESE (Mn)
MANGANESE (Mn)

SAMPLE J67
0.0939 Percent

SAMPLE J68
0.1095 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1502

2nd Qtr
2020

Nickel-based Alloy, IRON (Fe)
IRON (Fe)

WebCode	Data Flag	Sample J67			Sample J68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
327TV3		18.03	0.08	0.24	19.28	0.05	0.15	OE
3FLRZ4		17.81	-0.14	-0.44	18.99	-0.24	-0.67	OE
3GNU9R		17.30	-0.65	-2.00	18.70	-0.53	-1.50	XX
6GMG2P		18.14	0.20	0.60	19.56	0.33	0.94	WD
6XECWE		18.06	0.11	0.35	19.35	0.13	0.36	OE
8AZDHE	*	16.93	-1.02	-3.15	18.14	-1.09	-3.10	OE
8KMGDK		18.01	0.06	0.19	19.31	0.08	0.24	OE
A4AWNR		17.89	-0.06	-0.19	19.27	0.05	0.13	OE
B6RFZ9		17.94	-0.01	-0.03	19.17	-0.06	-0.17	OE
BBPQK9		18.17	0.22	0.67	19.37	0.14	0.40	GD
BFBU3B		18.07	0.12	0.37	19.42	0.20	0.56	IC
BN472K		17.72	-0.23	-0.70	19.09	-0.14	-0.40	WD
C4KB97		17.91	-0.04	-0.11	19.32	0.09	0.26	WD
CPF2HB		18.16	0.21	0.66	19.26	0.03	0.10	OE
DV2GL9		18.07	0.13	0.39	19.18	-0.05	-0.14	OE
F3YYZB	*	17.84	-0.10	-0.32	19.54	0.31	0.89	OE
F46BT7		18.05	0.10	0.32	19.45	0.22	0.64	WD
GGBWJ3		18.13	0.19	0.57	19.23	0.00	0.00	OE
J6Q9JZ		18.09	0.14	0.43	19.39	0.17	0.48	XR
JJNDPC		18.09	0.14	0.43	19.49	0.27	0.76	IC
L2X2TA		18.04	0.09	0.29	19.40	0.17	0.49	DR
L8NFQH		18.29	0.34	1.06	19.53	0.30	0.86	OE
LBPJH4		18.20	0.25	0.77	19.21	-0.02	-0.04	OE
LCGF8X		18.30	0.35	1.09	19.60	0.37	1.06	GD
N28Q77		18.01	0.06	0.19	19.15	-0.08	-0.22	OE
N3L8KX		17.93	-0.02	-0.05	19.32	0.09	0.26	WD
NZMREV		18.11	0.16	0.49	19.40	0.17	0.49	IC
QHMHMB		17.38	-0.56	-1.74	18.50	-0.72	-2.06	OE
QUVL8H		18.68	0.73	2.26	19.80	0.58	1.64	XR
R3NDRG		17.56	-0.38	-1.19	18.62	-0.60	-1.71	XX
TA9QQ9		17.90	-0.05	-0.16	19.22	0.00	-0.01	OE
TRTGP9		18.01	0.06	0.18	19.27	0.04	0.12	IC
UZATWC		17.33	-0.61	-1.89	18.50	-0.73	-2.07	IC
WX3UCW		17.92	-0.03	-0.09	19.29	0.06	0.17	OE
YH6CJ4		18.12	0.17	0.52	19.61	0.38	1.08	XR

Summary Statistics

	Sample J67		Sample J68	
Grand Means	17.95	Percent	19.23	Percent
Std Dev Btwn Labs	0.32	Percent	0.35	Percent

Samples J67, J68 : Alloy 718, Alloy 718

Statistics based on 35 of 35 reporting participants



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1502

2nd Qtr
2020

Nickel-based Alloy, IRON (Fe)
IRON (Fe)

Key to Method Codes Reported by Participants

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		



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1503

2nd Qtr
2020

Nickel-based Alloy, MOLYBDENUM (Mo)
MOLYBDENUM (Mo)

WebCode	Data Flag	Sample J67			Sample J68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
327TV3		3.013	0.003	0.09	3.020	-0.036	-0.92	OE
3FLRZ4		3.037	0.027	0.71	3.043	-0.013	-0.33	OE
3GNU9R		3.010	0.000	0.00	2.990	-0.066	-1.68	XX
6GMG2P		2.956	-0.054	-1.42	2.990	-0.066	-1.69	WD
6XECWE		3.043	0.033	0.88	3.071	0.014	0.36	OE
8AZDHE		2.964	-0.046	-1.23	3.052	-0.004	-0.11	OE
8KMGDK		2.976	-0.034	-0.90	3.030	-0.026	-0.67	OE
A4AWNR		2.967	-0.043	-1.15	3.070	0.013	0.34	OE
B6RFZ9		3.013	0.003	0.09	3.060	0.004	0.09	OE
BBPQK9		2.960	-0.050	-1.33	3.043	-0.013	-0.33	GD
BFBU3B		3.017	0.007	0.18	3.093	0.037	0.94	IC
BN472K		3.033	0.023	0.61	3.068	0.012	0.30	WD
C4KB97		3.026	0.016	0.43	3.050	-0.006	-0.16	WD
CPF2HB		3.023	0.013	0.34	3.057	0.000	0.01	OE
DV2GL9		3.007	-0.003	-0.09	3.097	0.040	1.02	XX
F3YYZB		2.974	-0.036	-0.96	3.028	-0.029	-0.73	OE
F46BT7		3.027	0.017	0.46	3.059	0.002	0.06	WD
GGBWJ3	X	3.130	0.120	3.18	3.218	0.162	4.10	OE
J6Q9JZ		3.042	0.032	0.86	3.079	0.023	0.58	XR
JJNDPC		3.023	0.013	0.35	3.054	-0.002	-0.06	IC
L2X2TA		3.065	0.055	1.45	3.103	0.046	1.17	DR
L8NFQH		2.929	-0.081	-2.15	2.997	-0.059	-1.50	OE
LBPJH4		3.018	0.008	0.22	3.076	0.019	0.49	OE
LCGF8X		3.077	0.067	1.77	3.147	0.090	2.29	GD
LKYXT7		3.033	0.023	0.62	3.037	-0.020	-0.50	OE
N28Q77		3.040	0.030	0.80	3.063	0.007	0.18	OE
N3L8KX		3.019	0.009	0.23	3.052	-0.004	-0.10	WD
NZMREV		3.033	0.023	0.60	3.078	0.022	0.56	OE
QHPMHB	*	2.927	-0.083	-2.19	2.947	-0.109	-2.77	OE
QUVL8H		3.074	0.064	1.70	3.099	0.043	1.08	XR
R3NDRG		2.973	-0.037	-0.97	3.090	0.034	0.86	AA
TA9QQ9		3.030	0.020	0.53	3.053	-0.003	-0.08	OE
TRTGP9		2.984	-0.026	-0.69	3.100	0.044	1.11	IC
UZATWC	X	3.371	0.361	9.59	3.382	0.326	8.28	IC
WX3UCW		3.038	0.028	0.73	3.099	0.043	1.08	OE
YH6CJ4		2.989	-0.021	-0.57	3.020	-0.037	-0.93	XR

Summary Statistics

	Sample J67		Sample J68	
Grand Means	3.010	Percent	3.056	Percent
Std Dev Btwn Labs	0.038	Percent	0.039	Percent

Samples J67, J68 : Alloy 718, Alloy 718

Statistics based on 34 of 36 reporting participants



Analysis 1503

**Nickel-based Alloy, MOLYBDENUM (Mo)
MOLYBDENUM (Mo)**

Key to Method Codes Reported by Participants

AA	Spectrometry - Atomic Absorption (AAS)	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

Comments on Assigned Data Flags for Test #1503

GGBWJ3 (X) - Data for both samples are high.

UZATWC (X) - Data for both samples are high. Inconsistent within the determinations of sample J68.

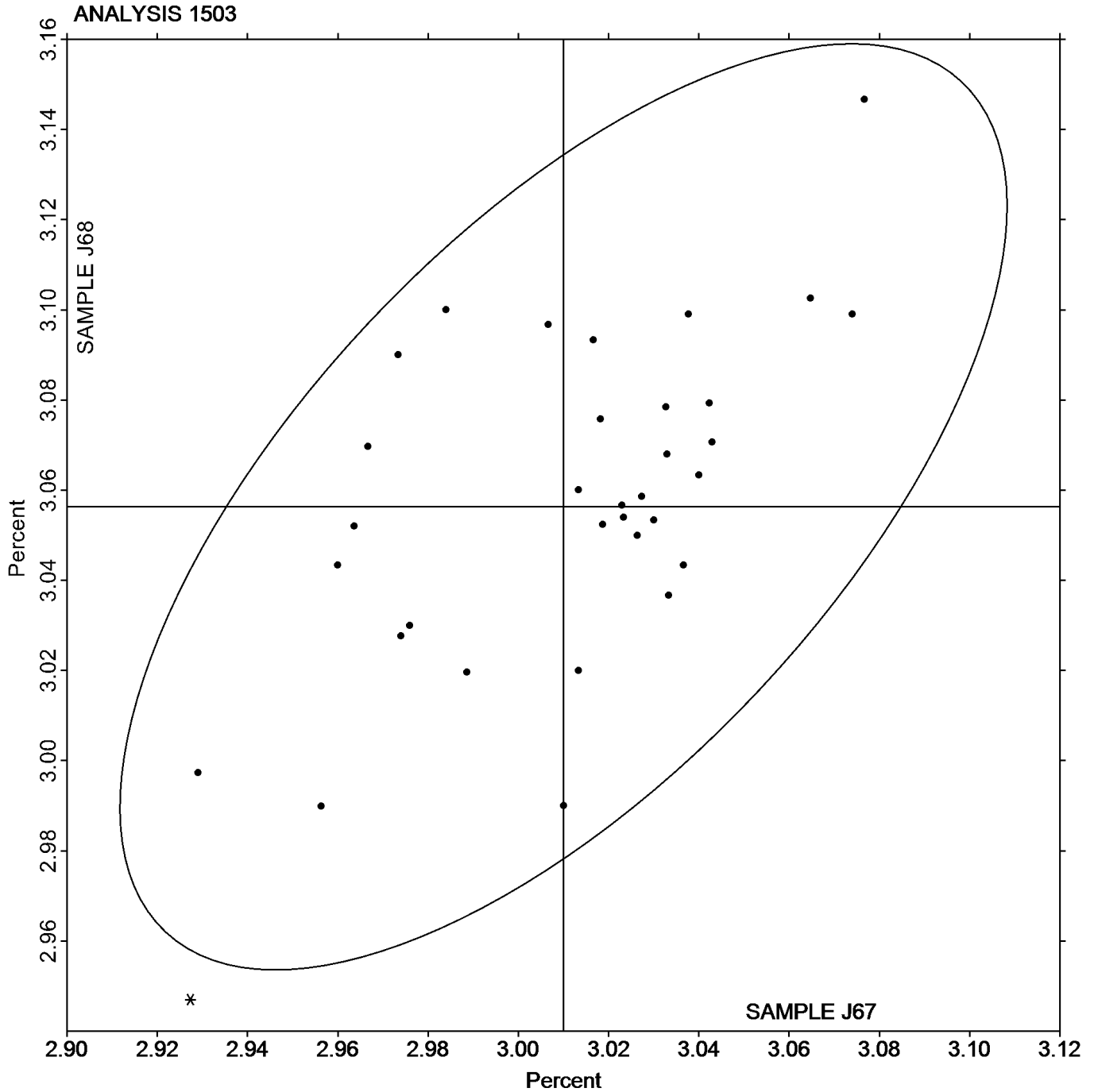


Analysis 1503

Nickel-based Alloy, MOLYBDENUM (Mo)
MOLYBDENUM (Mo)

SAMPLE J67
3.010 Percent

SAMPLE J68
3.056 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1504

2nd Qtr
2020

Nickel-based Alloy, ALUMINUM (AI)
ALUMINUM (AI)

WebCode	Data Flag	Sample J67			Sample J68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
327TV3		0.5133	0.0134	0.56	0.5013	0.0137	0.62	OE
3FLRZ4		0.5013	0.0014	0.06	0.4930	0.0053	0.24	OE
3GNU9R		0.4730	-0.0269	-1.13	0.4580	-0.0297	-1.35	XX
6GMG2P		0.4894	-0.0106	-0.44	0.4856	-0.0021	-0.09	WD
6XECWE		0.5277	0.0277	1.16	0.5170	0.0293	1.33	OE
8AZDHE		0.4763	-0.0236	-0.99	0.4647	-0.0230	-1.05	OE
8KMGDK		0.5390	0.0391	1.64	0.5240	0.0363	1.65	OE
A4AWNR		0.5000	0.0001	0.00	0.4900	0.0023	0.11	OE
B6RFZ9		0.5177	0.0177	0.74	0.5040	0.0163	0.74	OE
BBPQK9		0.4833	-0.0166	-0.69	0.4693	-0.0183	-0.83	GD
BFBU3B		0.4857	-0.0143	-0.60	0.4837	-0.0040	-0.18	IC
BN472K		0.4610	-0.0389	-1.63	0.4593	-0.0283	-1.29	WD
C4KB97		0.4703	-0.0296	-1.24	0.4593	-0.0283	-1.29	OE
CPF2HB		0.5063	0.0064	0.27	0.4940	0.0063	0.29	OE
DV2GL9		0.5267	0.0267	1.12	0.5067	0.0190	0.86	XX
F3YYZB		0.4960	-0.0039	-0.16	0.4883	0.0007	0.03	OE
F46BT7		0.4972	-0.0027	-0.11	0.4890	0.0014	0.06	WD
GGBWJ3		0.5070	0.0071	0.30	0.4903	0.0027	0.12	OE
J6Q9JZ		0.5123	0.0124	0.52	0.4973	0.0097	0.44	OE
JJNDPC		0.5073	0.0073	0.31	0.4957	0.0081	0.37	IC
L2X2TA	X	0.5225	0.0226	0.95	0.5579	0.0702	3.19	DR
L8NFQH		0.5590	0.0591	2.47	0.5327	0.0450	2.05	OE
LBPJH4		0.5133	0.0134	0.56	0.5047	0.0170	0.77	OE
LCGF8X		0.5043	0.0044	0.18	0.4870	-0.0007	-0.03	GD
LKYXT7		0.5040	0.0041	0.17	0.4837	-0.0040	-0.18	OE
N28Q77		0.5100	0.0101	0.42	0.4997	0.0120	0.55	OE
N3L8KX		0.4973	-0.0026	-0.11	0.4980	0.0103	0.47	WD
NZMREV		0.4951	-0.0048	-0.20	0.4826	-0.0050	-0.23	OE
QHPMHB		0.4603	-0.0396	-1.66	0.4417	-0.0460	-2.09	OE
QUVL8H	X	0.2933	-0.2066	-8.65	0.3333	-0.1543	-7.02	XR
R3NDRG	*	0.4433	-0.0566	-2.37	0.4300	-0.0577	-2.62	AA
TA9QQ9		0.4947	-0.0053	-0.22	0.4773	-0.0103	-0.47	OE
TRTGP9		0.5007	0.0007	0.03	0.4907	0.0030	0.14	IC
UZATWC		0.4873	-0.0126	-0.53	0.4807	-0.0070	-0.32	IC
WX3UCW		0.5370	0.0371	1.55	0.5133	0.0257	1.17	OE

Summary Statistics

	Sample J67		Sample J68	
Grand Means	0.4999	Percent	0.4877	Percent
Stnd Dev Btwn Labs	0.0239	Percent	0.0220	Percent

Samples J67, J68 : Alloy 718, Alloy 718

Statistics based on 33 of 35 reporting participants



Key to Method Codes Reported by Participants

AA	Spectrometry - Atomic Absorption (AAS)	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

Comments on Assigned Data Flags for Test #1504

L2X2TA (X) - Data for sample J68 are high.

QUVL8H (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of both samples.

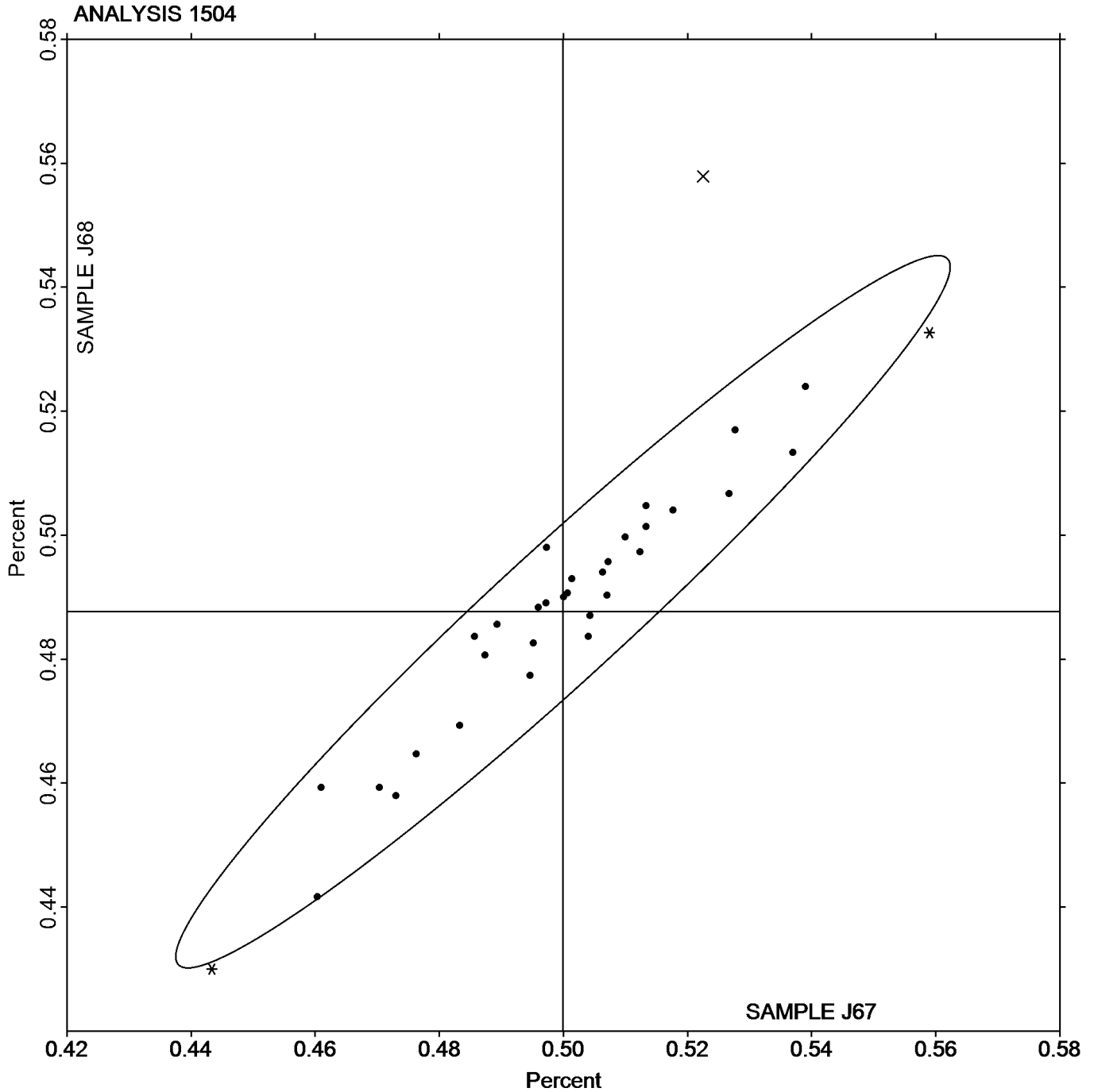


Analysis 1504

Nickel-based Alloy, ALUMINUM (Al)
ALUMINUM (Al)

SAMPLE J67
0.4999 Percent

SAMPLE J68
0.4877 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1505

2nd Qtr
2020

Nickel-based Alloy, SILICON (Si)
SILICON (Si)

WebCode	Data Flag	Sample J67			Sample J68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
327TV3		0.0926	0.0087	0.75	0.0973	0.0071	0.59	OE
3FLRZ4		0.0833	-0.0006	-0.05	0.0883	-0.0019	-0.16	OE
3GNU9R		0.0887	0.0048	0.41	0.0959	0.0057	0.48	XX
6GMG2P		0.0630	-0.0210	-1.82	0.0692	-0.0210	-1.76	WD
6XECWE		0.0687	-0.0153	-1.32	0.0783	-0.0119	-0.99	OE
8AZDHE	X	0.1370	0.0531	4.60	0.1453	0.0551	4.62	OE
8KMGDK		0.0660	-0.0179	-1.55	0.0700	-0.0202	-1.69	OE
A4AWNR		0.0860	0.0021	0.18	0.0913	0.0011	0.09	OE
B6RFZ9		0.1049	0.0209	1.82	0.1129	0.0227	1.91	OE
BBPQK9		0.0727	-0.0113	-0.98	0.0793	-0.0109	-0.91	GD
BFBU3B		0.0820	-0.0019	-0.17	0.0893	-0.0009	-0.07	GD
BN472K		0.0833	-0.0006	-0.05	0.0907	0.0005	0.04	WD
C4KB97		0.0857	0.0017	0.15	0.0923	0.0021	0.18	WD
CPF2HB		0.0873	0.0033	0.29	0.0940	0.0038	0.32	OE
DV2GL9		0.0787	-0.0053	-0.46	0.0797	-0.0105	-0.88	XX
F3YYZB		0.0953	0.0114	0.99	0.1020	0.0118	0.99	OE
F46BT7		0.0799	-0.0040	-0.35	0.0903	0.0001	0.01	WD
GGBWJ3		0.0803	-0.0036	-0.31	0.0880	-0.0022	-0.18	OE
J6Q9JZ		0.0813	-0.0026	-0.22	0.0847	-0.0055	-0.46	OE
L2X2TA		0.0886	0.0047	0.41	0.0964	0.0062	0.52	DR
L8NFQH		0.0917	0.0077	0.67	0.0983	0.0081	0.68	OE
LBPJH4		0.0686	-0.0154	-1.33	0.0757	-0.0145	-1.22	OE
LCGF8X		0.0750	-0.0089	-0.77	0.0826	-0.0076	-0.64	GD
LKYXT7		0.0957	0.0117	1.02	0.1077	0.0175	1.46	OE
N28Q77		0.0900	0.0061	0.53	0.0927	0.0025	0.21	OE
N3L8KX		0.0820	-0.0019	-0.17	0.0860	-0.0042	-0.35	OE
NZMREV		0.0815	-0.0025	-0.21	0.0860	-0.0042	-0.35	OE
QHMHMB		0.1043	0.0204	1.77	0.1067	0.0165	1.38	OE
QUVL8H	X	0.1653	0.0814	7.06	0.1283	0.0381	3.20	XR
R3NDRG		0.0754	-0.0085	-0.74	0.0814	-0.0088	-0.74	XX
TA9QQ9	*	0.1160	0.0321	2.78	0.1253	0.0351	2.94	OE
TRTGP9		0.0880	0.0041	0.35	0.0917	0.0015	0.12	IC
UZATWC		0.0714	-0.0125	-1.09	0.0772	-0.0130	-1.09	IC
WX3UCW		0.0877	0.0037	0.32	0.0927	0.0025	0.21	OE
YH6CJ4		0.0740	-0.0099	-0.86	0.0827	-0.0075	-0.63	XR

Summary Statistics

	Sample J67		Sample J68	
Grand Means	0.0839	Percent	0.0902	Percent
Stnd Dev Btwn Labs	0.0115	Percent	0.0119	Percent

Samples J67, J68 : Alloy 718, Alloy 718

Statistics based on 33 of 35 reporting participants



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1505

2nd Qtr
2020

Nickel-based Alloy, SILICON (Si)
SILICON (Si)

Key to Method Codes Reported by Participants

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		

Comments on Assigned Data Flags for Test #1505

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

QUVL8H (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.

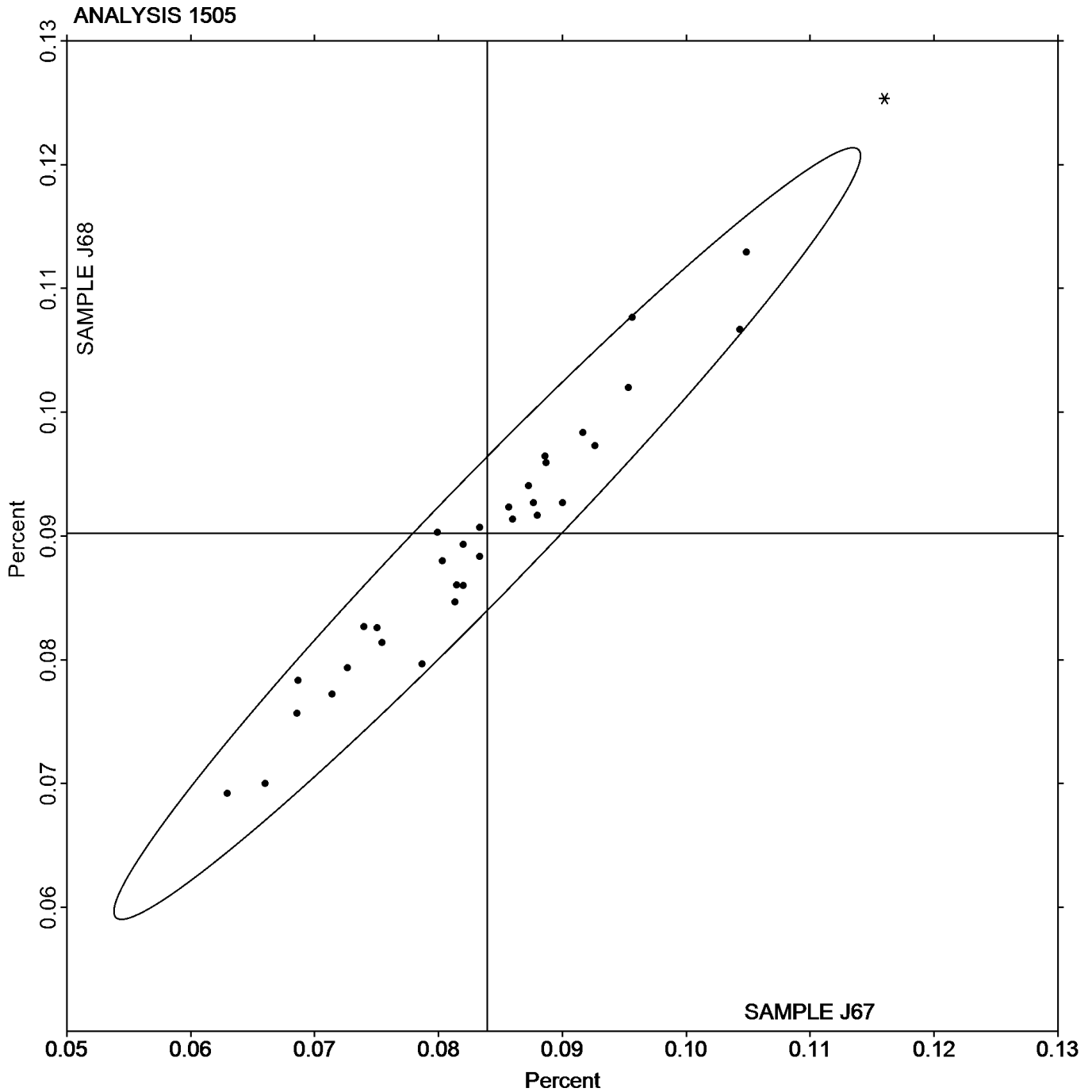


Analysis 1505

Nickel-based Alloy, SILICON (Si)
SILICON (Si)

SAMPLE J67
0.0839 Percent

SAMPLE J68
0.0902 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1506

2nd Qtr
2020

Nickel-based Alloy, NIOBIUM (Nb)
NIOBIUM (Nb)

WebCode	Data Flag	Sample J67			Sample J68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
327TV3		4.970	0.024	0.43	5.180	0.025	0.48	OE
3FLRZ4		4.873	-0.073	-1.31	5.125	-0.029	-0.56	OE
3GNU9R		5.030	0.084	1.51	5.240	0.085	1.64	XX
6GMG2P		4.969	0.023	0.41	5.185	0.030	0.58	WD
6XECWE		4.984	0.038	0.68	5.191	0.037	0.70	OE
8AZDHE	X	5.209	0.263	4.73	5.434	0.279	5.35	OE
8KMGDK		5.000	0.054	0.97	5.154	-0.001	-0.01	OE
A4AWNR		4.958	0.012	0.21	5.178	0.024	0.45	OE
B6RFZ9	X	5.170	0.224	4.03	5.047	-0.108	-2.07	OE
BBPQK9		4.990	0.044	0.79	5.213	0.059	1.12	GD
BFBU3B		4.953	0.007	0.13	5.197	0.042	0.80	IC
BN472K		4.933	-0.013	-0.23	5.167	0.012	0.23	WD
C4KB97		4.965	0.019	0.35	5.156	0.001	0.02	WD
CPF2HB		4.916	-0.030	-0.55	5.078	-0.077	-1.48	OE
DV2GL9	X	4.713	-0.233	-4.19	4.717	-0.438	-8.40	XX
F3YYZB		4.967	0.021	0.37	5.134	-0.021	-0.40	OE
F46BT7		4.919	-0.027	-0.48	5.154	0.000	-0.01	WD
GGBWJ3		4.898	-0.048	-0.86	5.137	-0.018	-0.35	XX
J6Q9JZ		4.936	-0.010	-0.17	5.159	0.005	0.09	XR
JJNDPC		4.919	-0.027	-0.48	5.141	-0.014	-0.26	IC
L2X2TA		4.971	0.025	0.45	5.203	0.048	0.92	DR
L8NFQH		4.813	-0.133	-2.40	5.048	-0.106	-2.04	OE
LBPJH4		4.935	-0.011	-0.20	5.207	0.052	1.00	OE
LCGF8X		4.967	0.021	0.37	5.090	-0.065	-1.24	GD
LKYXT7		5.043	0.097	1.75	5.183	0.029	0.55	OE
N28Q77	X	4.697	-0.249	-4.49	4.763	-0.391	-7.51	XX
N3L8KX		4.924	-0.022	-0.39	5.154	-0.001	-0.02	WD
NZMREV		4.943	-0.003	-0.05	5.202	0.047	0.90	OE
QHPMHB	X	4.380	-0.566	-10.19	4.511	-0.644	-12.35	OE
QUVL8H	*	4.985	0.039	0.70	5.047	-0.107	-2.06	XR
R3NDRG	X	4.730	-0.216	-3.89	4.937	-0.218	-4.18	IC
TA9QQ9		4.930	-0.016	-0.29	5.103	-0.051	-0.99	OE
TRTGP9		4.958	0.012	0.21	5.203	0.049	0.93	IC
UZATWC	*	4.774	-0.172	-3.10	5.041	-0.114	-2.18	XX
WX3UCW		5.004	0.058	1.04	5.185	0.030	0.58	OE
YH6CJ4		4.953	0.007	0.12	5.186	0.031	0.60	XR

Summary Statistics

	Sample J67		Sample J68	
Grand Means	4.946	Percent	5.155	Percent
Std Dev Btwn Labs	0.056	Percent	0.052	Percent

Samples J67, J68 : Alloy 718, Alloy 718

Statistics based on 30 of 36 reporting participants



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1506

2nd Qtr
2020

Nickel-based Alloy, NIOBIUM (Nb)
NIOBIUM (Nb)

Key to Method Codes Reported by Participants

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		

Comments on Assigned Data Flags for Test #1506

8AZDHE (X) - Data for both samples are high.

B6RFZ9 (X) - Data for sample J67 are high. Inconsistent within the determinations of sample J67.

DV2GL9 (X) - Data for both samples are low.

N28Q77 (X) - Data for both samples are low.

QHPMHB (X) - Data for both samples are low.

R3NDRG (X) - Data for both samples are low.

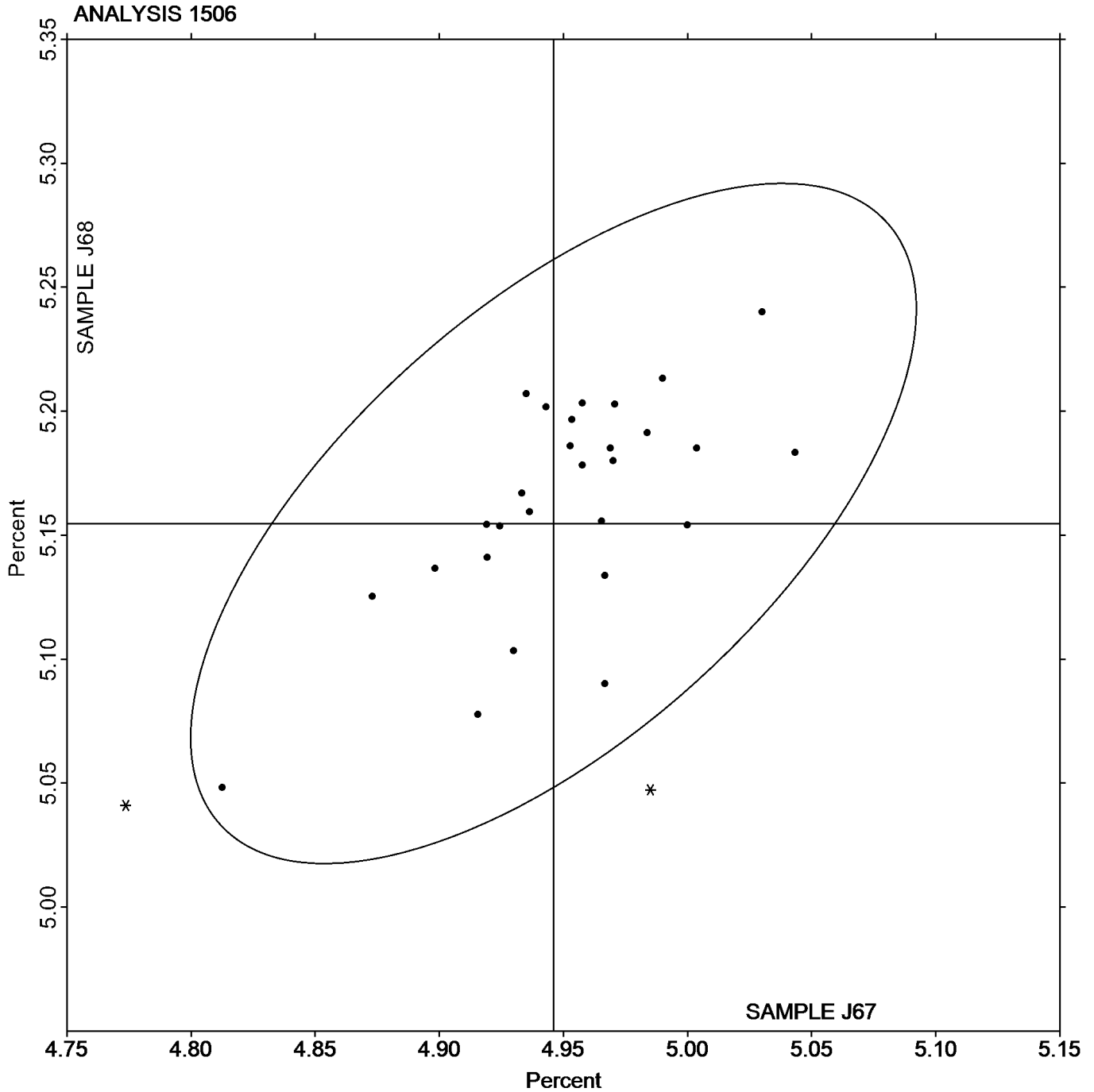


Analysis 1506

Nickel-based Alloy, NIOBIUM (Nb)
NIOBIUM (Nb)

SAMPLE J67
4.946 Percent

SAMPLE J68
5.155 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1507

2nd Qtr
2020

Nickel-based Alloy, TITANIUM (Ti)
TITANIUM (Ti)

WebCode	Data Flag	Sample J67			Sample J68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
327TV3		0.9053	0.0244	1.16	0.9953	0.0246	1.17	OE
3FLRZ4		0.8810	0.0001	0.00	0.9797	0.0090	0.43	OE
3GNU9R		0.8990	0.0181	0.86	0.9930	0.0223	1.06	XX
6GMG2P		0.9043	0.0234	1.11	0.9897	0.0190	0.90	WD
6XECWE		0.8433	-0.0376	-1.78	0.9290	-0.0417	-1.98	OE
8AZDHE		0.8837	0.0027	0.13	0.9833	0.0126	0.60	OE
8KMGDK		0.8760	-0.0049	-0.23	0.9780	0.0073	0.35	OE
A4AWNR		0.8967	0.0157	0.75	0.9803	0.0096	0.46	OE
B6RFZ9		0.8847	0.0037	0.18	0.9800	0.0093	0.44	OE
BBPQK9		0.8727	-0.0083	-0.39	0.9663	-0.0044	-0.21	GD
BFBU3B		0.8570	-0.0239	-1.13	0.9500	-0.0207	-0.98	IC
BN472K		0.9067	0.0257	1.22	0.9940	0.0233	1.11	WD
C4KB97		0.8887	0.0077	0.37	0.9643	-0.0064	-0.30	WD
CPF2HB		0.8807	-0.0003	-0.01	0.9619	-0.0088	-0.42	OE
DV2GL9		0.8500	-0.0309	-1.46	0.9500	-0.0207	-0.98	XX
F3YYZB		0.8683	-0.0126	-0.60	0.9537	-0.0170	-0.81	OE
F46BT7		0.8932	0.0122	0.58	0.9840	0.0133	0.63	WD
GGBWJ3		0.8923	0.0114	0.54	0.9827	0.0120	0.57	OE
J6Q9JZ		0.8820	0.0011	0.05	0.9740	0.0033	0.16	XR
JJNDPC		0.8845	0.0035	0.17	0.9749	0.0042	0.20	IC
L2X2TA		0.8899	0.0090	0.42	0.9839	0.0132	0.63	DR
L8NFQH	X	0.9323	0.0514	2.43	1.058	0.0870	4.13	OE
LBPJH4		0.8881	0.0071	0.34	0.9711	0.0004	0.02	OE
LCGF8X		0.8613	-0.0196	-0.93	0.9393	-0.0314	-1.49	GD
LKYXT7		0.8800	-0.0009	-0.04	0.9700	-0.0007	-0.03	OE
N28Q77		0.8933	0.0124	0.59	0.9900	0.0193	0.92	OE
N3L8KX		0.8943	0.0134	0.63	0.9713	0.0006	0.03	WD
NZMREV		0.9097	0.0287	1.36	0.9985	0.0278	1.32	OE
QHMHMB	X	0.6860	-0.1949	-9.22	0.7303	-0.2404	-11.41	OE
QUVL8H	X	0.9367	0.0557	2.64	0.9067	-0.0640	-3.04	XR
R3NDRG		0.8733	-0.0076	-0.36	0.9533	-0.0174	-0.82	XX
TA9QQ9		0.9073	0.0264	1.25	1.001	0.0300	1.42	OE
TRTGP9		0.9003	0.0194	0.92	0.9853	0.0146	0.69	IC
UZATWC		0.8267	-0.0543	-2.57	0.9233	-0.0474	-2.25	IC
WX3UCW		0.8333	-0.0476	-2.25	0.9233	-0.0474	-2.25	OE
YH6CJ4		0.8627	-0.0183	-0.86	0.9583	-0.0124	-0.59	XR

Summary Statistics

	Sample J67		Sample J68	
Grand Means	0.8809	Percent	0.9707	Percent
Std Dev Btwn Labs	0.0211	Percent	0.0211	Percent

Samples J67, J68 : Alloy 718, Alloy 718

Statistics based on 33 of 36 reporting participants



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1507

2nd Qtr
2020

Nickel-based Alloy, TITANIUM (Ti)
TITANIUM (Ti)

Key to Method Codes Reported by Participants

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		

Comments on Assigned Data Flags for Test #1507

L8NFQH (X) - Data for sample J68 are high.

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

QUVL8H (X) - Data for sample J68 are low. Inconsistent within the determinations of both samples.

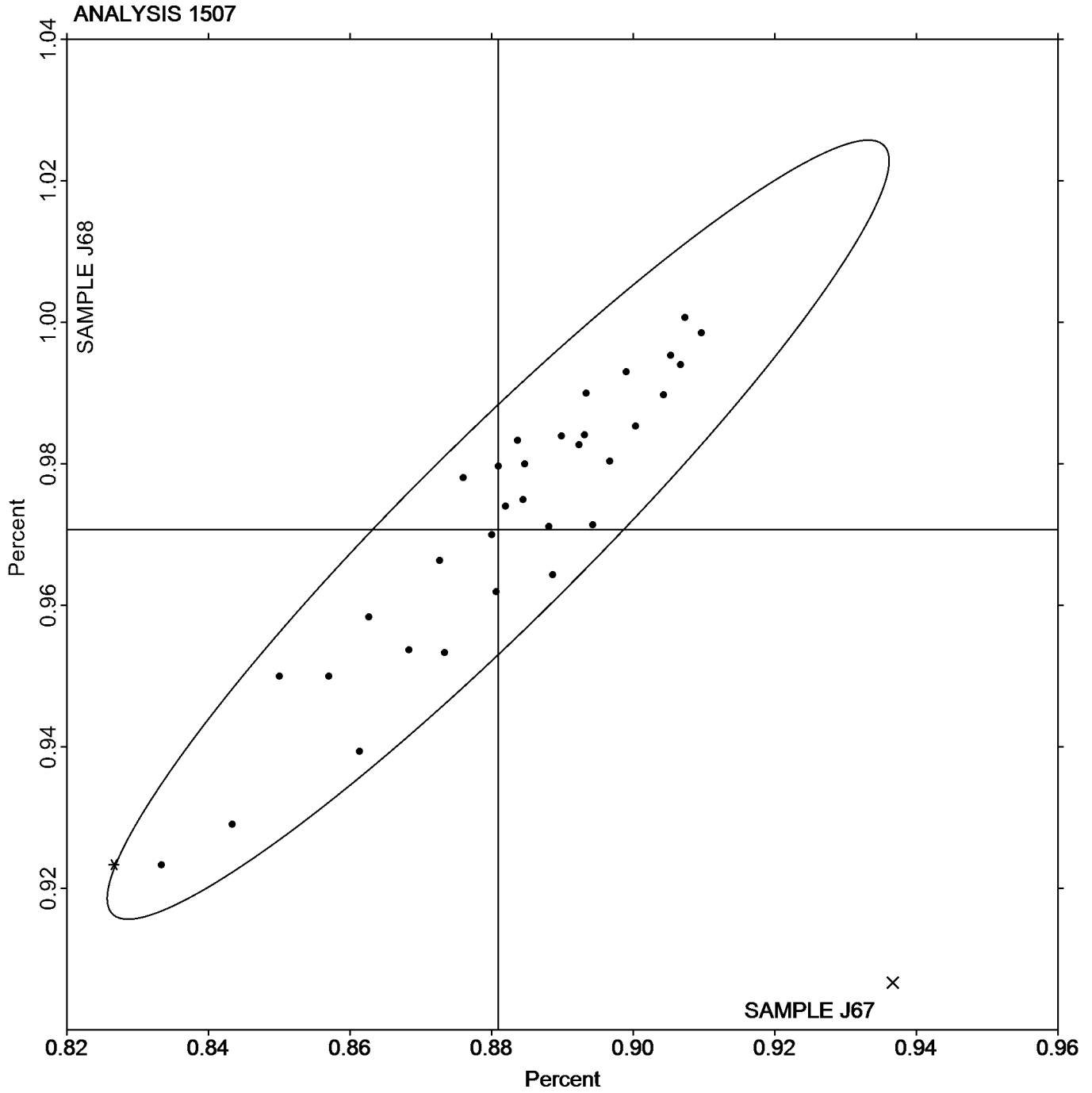


Analysis 1507

Nickel-based Alloy, TITANIUM (Ti)
TITANIUM (Ti)

SAMPLE J67
0.8809 Percent

SAMPLE J68
0.9707 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1540

2nd Qtr
2020

Aluminum, ZINC (Zn)
ZINC (Zn)

WebCode	Data Flag	Sample A67			Sample A68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK		0.0663	0.0040	1.29	0.0113	-0.0033	-0.92	OE
327TV3		0.0639	0.0016	0.51	0.0166	0.0020	0.57	OE
3FLRZ4		0.0613	-0.0010	-0.34	0.0153	0.0007	0.21	IC
3K3YN4		0.0560	-0.0064	-2.08	0.00677	-0.0078	-2.21	OE
6MFK6F		0.0627	0.0003	0.10	0.0187	0.0041	1.15	GD
8F84KK		0.0666	0.0042	1.37	0.0159	0.0013	0.36	OE
9HT63D		0.0587	-0.0036	-1.19	0.0145	-0.0001	-0.03	OE
9ZVQWK		0.0610	-0.0014	-0.45	0.0150	0.0004	0.11	OE
AXBNXX		0.0657	0.0033	1.08	0.0107	-0.0039	-1.11	IC
B6RFZ9		0.0567	-0.0057	-1.86	0.00783	-0.0068	-1.91	OE
B79LQK		0.0607	-0.0017	-0.56	0.0173	0.0027	0.77	XX
CF473H		0.0610	-0.0014	-0.45	0.0156	0.0010	0.27	OE
CPF2HB		0.0655	0.0031	1.01	0.0160	0.0014	0.40	OE
DK3P8F		0.0647	0.0024	0.77	0.0115	-0.0031	-0.88	OE
E3U988		0.0603	-0.0020	-0.67	0.0151	0.0005	0.14	IC
E7E2JA		0.0608	-0.0016	-0.53	0.0146	0.0000	-0.01	OE
EBEZ3F		0.0645	0.0022	0.70	0.0182	0.0036	1.01	OE
EVEBZM		0.0654	0.0030	0.98	0.0154	0.0008	0.23	IC
HR926N		0.0577	-0.0047	-1.54	0.0137	-0.0009	-0.25	IC
K72B6Y		0.0667	0.0043	1.40	0.00700	-0.0076	-2.14	OE
LBPJH4		0.0643	0.0020	0.64	0.0137	-0.0009	-0.24	OE
LCGF8X	X	0.0439	-0.0185	-6.05	0.0150	0.0004	0.11	GD
LKYXT7		0.0606	-0.0018	-0.59	0.0112	-0.0034	-0.97	OE
LRJFGK	X	0.1807	0.1183	38.64	0.1123	0.0977	27.59	OE
MCXWZ7		0.0645	0.0022	0.70	0.0179	0.0033	0.93	OE
N28Q77		0.0573	-0.0050	-1.65	0.0153	0.0007	0.21	OE
PFMB46		0.0630	0.0006	0.20	0.0162	0.0016	0.45	IC
PK4DLW		0.0657	0.0034	1.10	0.0162	0.0016	0.45	OE
QM3B89		0.0588	-0.0036	-1.17	0.0152	0.0006	0.18	OE
QUVL8H	*	0.0650	0.0026	0.86	0.0250	0.0104	2.94	XR
RRY3A4	X	0.0840	0.0216	7.06	0.0220	0.0074	2.09	XX
TH4K9Z		0.0618	-0.0006	-0.19	0.0133	-0.0013	-0.36	XX
TLEPEG		0.0624	0.0000	0.01	0.0155	0.0009	0.26	OE
YGVE7L		0.0655	0.0031	1.01	0.0174	0.0028	0.79	OE
YJLLHV		0.0630	0.0006	0.20	0.0153	0.0007	0.21	OE
ZC7M8N		0.0603	-0.0020	-0.67	0.0124	-0.0022	-0.62	OE

Summary Statistics

	Sample A67		Sample A68	
Grand Means	0.0624	Percent	0.0146	Percent
Std Dev Btw Labs	0.0031	Percent	0.0035	Percent

Samples A67, A68 : AA6262, AA6262

Statistics based on 33 of 36 reporting participants



Key to Method Codes Reported by Participants

- | | | | |
|-----------|---|-----------|---|
| 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 |
| XX | Please Indicate Method Used for Current Element | | |

Comments on Assigned Data Flags for Test #1540

LCGF8X (X) - Data for sample A67 are low.

LRJFGK (X) - Data for both samples are very high. Inconsistent within the determinations of both samples.

RRY3A4 (X) - Data for sample A67 are high.



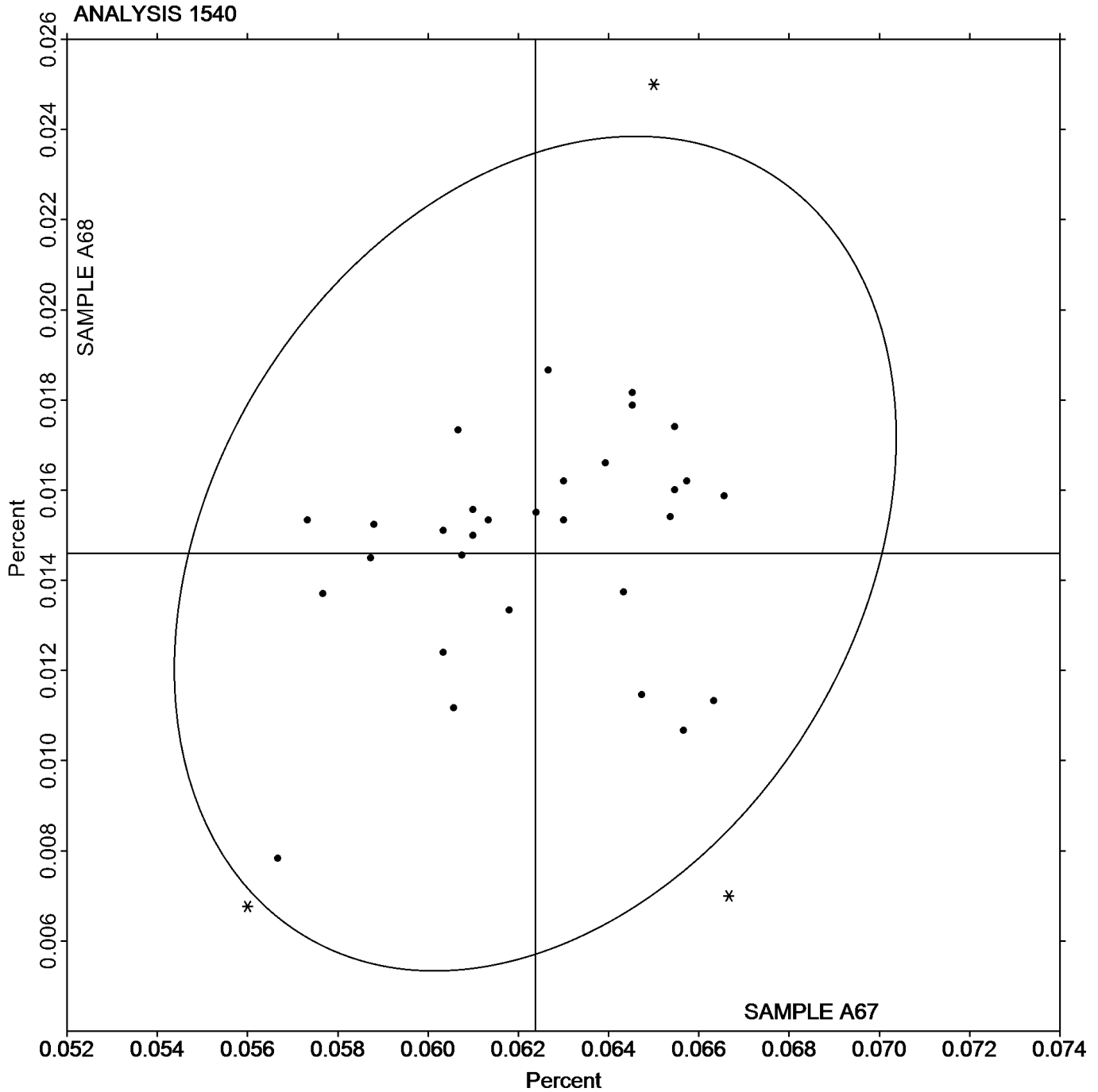
Analysis 1540

Aluminum, ZINC (Zn)

ZINC (Zn)

SAMPLE A67
0.0624 Percent

SAMPLE A68
0.0146 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1541

2nd Qtr
2020

Aluminum, COPPER (Cu)
COPPER (Cu)

WebCode	Data Flag	Sample A67			Sample A68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK		0.2740	-0.0141	-1.44	0.3510	-0.0160	-0.95	OE
327TV3		0.2820	-0.0061	-0.62	0.3600	-0.0070	-0.41	OE
3FLRZ4		0.2873	-0.0007	-0.07	0.3677	0.0007	0.04	IC
3K3YN4		0.2800	-0.0081	-0.83	0.3263	-0.0407	-2.40	OE
4J6YBP		0.2817	-0.0064	-0.66	0.3597	-0.0073	-0.43	GD
6MFK6F		0.2893	0.0013	0.13	0.3980	0.0310	1.83	GD
8F84KK		0.2971	0.0091	0.93	0.3768	0.0098	0.58	OE
9HT63D		0.2703	-0.0178	-1.82	0.3298	-0.0373	-2.20	OE
9ZVQWK		0.3083	0.0203	2.08	0.3927	0.0257	1.51	OE
A4AWNRR		0.2833	-0.0047	-0.48	0.3623	-0.0047	-0.28	OE
AXBNXX		0.3110	0.0229	2.36	0.4067	0.0397	2.34	IC
B6RFZ9		0.2650	-0.0231	-2.37	0.3370	-0.0300	-1.77	OE
B79LQK		0.2837	-0.0044	-0.45	0.3680	0.0010	0.06	XX
CF473H		0.2897	0.0016	0.17	0.3733	0.0063	0.37	OE
CPF2HB		0.2988	0.0107	1.10	0.3888	0.0218	1.28	OE
DK3P8F		0.2846	-0.0035	-0.36	0.3589	-0.0081	-0.48	OE
E3U988		0.2917	0.0036	0.37	0.3697	0.0027	0.16	IC
E7E2JA		0.2972	0.0091	0.93	0.3792	0.0121	0.72	OE
EBEZ3F		0.2968	0.0087	0.89	0.3737	0.0067	0.39	OE
EVEBZM		0.2970	0.0089	0.92	0.3780	0.0110	0.65	IC
HR926N		0.2903	0.0023	0.23	0.3673	0.0003	0.02	IC
K72B6Y		0.2867	-0.0014	-0.14	0.3560	-0.0110	-0.65	OE
LBPJH4		0.2914	0.0033	0.34	0.3698	0.0028	0.17	OE
LCGF8X	*	0.2937	0.0056	0.58	0.3287	-0.0383	-2.26	GD
LKYXT7		0.2889	0.0009	0.09	0.3692	0.0022	0.13	OE
LRJFGK	X	0.2423	-0.0457	-4.69	0.2220	-0.1450	-8.56	OE
MCXWZ7		0.2736	-0.0145	-1.49	0.3591	-0.0080	-0.47	OE
N28Q77		0.2867	-0.0014	-0.14	0.3637	-0.0033	-0.20	OE
PFMB46		0.2897	0.0016	0.17	0.3733	0.0063	0.37	IC
PK4DLW		0.2861	-0.0019	-0.20	0.3431	-0.0239	-1.41	OE
QM3B89		0.2941	0.0061	0.62	0.3774	0.0104	0.61	OE
QUVL8H	X	0.3640	0.0759	7.80	0.3947	0.0277	1.63	XR
RRY3A4	X	0.2313	-0.0567	-5.82	0.2907	-0.0763	-4.51	XX
TH4K9Z		0.2763	-0.0117	-1.20	0.3573	-0.0097	-0.57	XX
TLEPEG		0.3000	0.0119	1.22	0.3786	0.0116	0.69	OE
TRTGP9		0.2827	-0.0054	-0.55	0.3633	-0.0037	-0.22	IC
YGVE7L		0.2903	0.0023	0.23	0.3757	0.0087	0.51	OE
YJLLHV		0.2900	0.0019	0.20	0.3663	-0.0007	-0.04	OE
ZC7M8N		0.2863	-0.0017	-0.18	0.3680	0.0010	0.06	OE

Summary Statistics

	Sample A67		Sample A68	
Grand Means	0.2881	Percent	0.3670	Percent
Std Dev Btwn Labs	0.0097	Percent	0.0169	Percent

Samples A67, A68 : AA6262, AA6262

Statistics based on 35 of 39 reporting participants



Key to Method Codes Reported by Participants

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
XX	Please Indicate Method Used for Current Element		

Comments on Assigned Data Flags for Test #1541

LRJFGK (X) - Data for both samples are low. Inconsistent within the determinations of sample A68.

QUVL8H (X) - Data for sample A67 are high. Inconsistent within the determinations of both samples.

RRY3A4 (X) - Data for both samples are low.



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1542

2nd Qtr
2020

Aluminum, IRON (Fe)
IRON (Fe)

WebCode	Data Flag	Sample A67			Sample A68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK	X	0.3190	-0.0744	-3.84	0.2433	-0.0650	-4.24	OE
327TV3		0.3910	-0.0024	-0.12	0.3083	0.0000	0.00	OE
3FLRZ4		0.3420	-0.0514	-2.65	0.2687	-0.0397	-2.59	IC
3K3YN4		0.4323	0.0390	2.01	0.3393	0.0310	2.03	OE
4J6YBP		0.3610	-0.0324	-1.67	0.2833	-0.0250	-1.63	GD
6MFK6F		0.3887	-0.0047	-0.24	0.2983	-0.0100	-0.65	GD
8F84KK		0.3645	-0.0289	-1.49	0.2899	-0.0184	-1.20	OE
9HT63D		0.3941	0.0007	0.04	0.3033	-0.0050	-0.33	OE
9ZVQWK		0.3773	-0.0160	-0.83	0.2857	-0.0227	-1.48	OE
A4AWNRR		0.3997	0.0063	0.33	0.3110	0.0027	0.18	OE
AXBNXX		0.4303	0.0370	1.91	0.3400	0.0317	2.07	IC
B6RFZ9		0.4030	0.0096	0.50	0.3120	0.0037	0.24	OE
B79LQK		0.3993	0.0060	0.31	0.3163	0.0080	0.52	XX
CF473H		0.3960	0.0026	0.14	0.3057	-0.0027	-0.17	OE
CPF2HB		0.4088	0.0155	0.80	0.3186	0.0103	0.67	OE
DK3P8F	*	0.3987	0.0053	0.27	0.3323	0.0240	1.57	OE
E3U988		0.4053	0.0120	0.62	0.3143	0.0060	0.39	IC
E7E2JA		0.3922	-0.0011	-0.06	0.3099	0.0015	0.10	OE
EBEZ3F		0.3950	0.0016	0.08	0.3145	0.0061	0.40	OE
EVEBZM		0.4010	0.0076	0.39	0.3178	0.0095	0.62	IC
HR926N		0.3840	-0.0094	-0.48	0.3043	-0.0040	-0.26	IC
K72B6Y		0.4073	0.0140	0.72	0.2983	-0.0100	-0.65	OE
LBPJH4		0.4085	0.0152	0.78	0.3282	0.0199	1.30	OE
LCGF8X	*	0.3413	-0.0520	-2.69	0.2833	-0.0250	-1.63	GD
LKYXT7		0.4170	0.0236	1.22	0.3165	0.0081	0.53	OE
LRJFGK	X	1.199	0.8056	41.63	1.066	0.7573	49.46	XX
MCXWZ7		0.3836	-0.0097	-0.50	0.3067	-0.0016	-0.10	OE
N28Q77		0.3843	-0.0090	-0.47	0.3050	-0.0033	-0.22	OE
PFMB46		0.4057	0.0123	0.64	0.3123	0.0040	0.26	IC
PK4DLW		0.3869	-0.0065	-0.33	0.3018	-0.0065	-0.43	OE
QM3B89		0.4126	0.0192	0.99	0.3312	0.0229	1.50	OE
QUVL8H	X	0.5293	0.1360	7.03	0.3517	0.0433	2.83	XR
RRY3A4		0.3883	-0.0050	-0.26	0.3037	-0.0047	-0.30	XX
TH4K9Z		0.3823	-0.0110	-0.57	0.2947	-0.0137	-0.89	XX
TLEPEG		0.3997	0.0063	0.33	0.3087	0.0003	0.02	OE
TRTGP9		0.3963	0.0030	0.15	0.3057	-0.0027	-0.17	IC
YGVE7L		0.3980	0.0046	0.24	0.3057	-0.0027	-0.17	OE
YJLLHV		0.3967	0.0033	0.17	0.3183	0.0100	0.65	OE
ZC7M8N		0.3883	-0.0050	-0.26	0.3057	-0.0027	-0.17	OE

Summary Statistics

	Sample A67		Sample A68	
Grand Means	0.3934	Percent	0.3083	Percent
Std Dev Btwn Labs	0.0194	Percent	0.0153	Percent

Samples A67, A68 : AA6262, AA6262

Statistics based on 36 of 39 reporting participants



Key to Method Codes Reported by Participants

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
XX	Please Indicate Method Used for Current Element		

Comments on Assigned Data Flags for Test #1542

2CQGUK (X) - Data for both samples are low.

LRJFGK (X) - Extreme data.

QUVL8H (X) - Data for both samples are high. Inconsistent within the determinations of both samples.

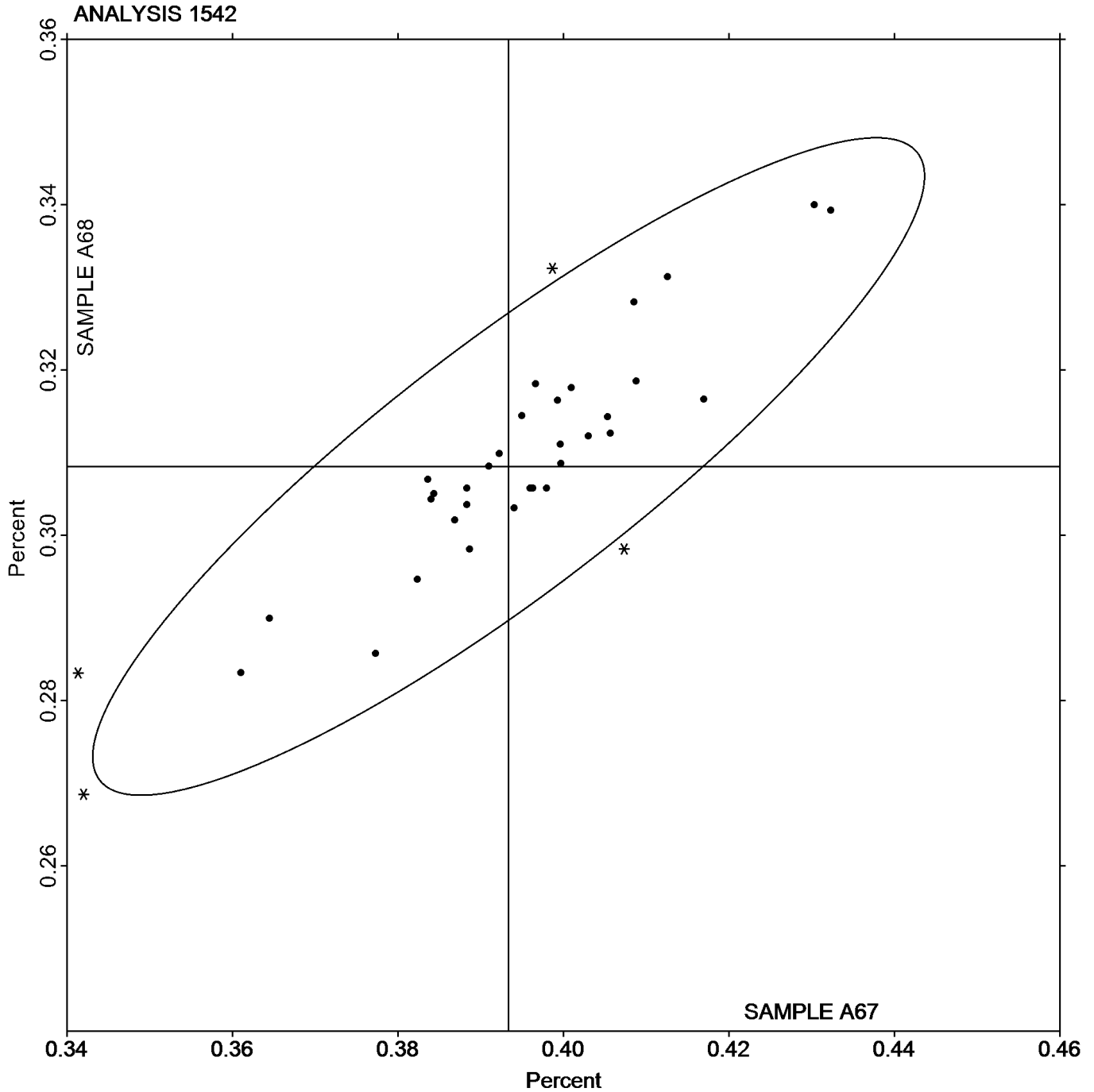


Analysis 1542

Aluminum, IRON (Fe)
IRON (Fe)

SAMPLE A67
0.3934 Percent

SAMPLE A68
0.3083 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1543

2nd Qtr
2020

Aluminum, SILICON (Si)
SILICON (Si)

WebCode	Data Flag	Sample A67			Sample A68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK		0.6653	-0.0219	-1.70	0.7630	-0.0012	-0.06	OE
327TV3		0.6983	0.0111	0.86	0.7820	0.0178	0.85	OE
3FLRZ4		0.7017	0.0144	1.12	0.7827	0.0184	0.88	IC
3K3YN4		0.7000	0.0127	0.99	0.7567	-0.0076	-0.36	OE
4J6YBP	X	0.5413	-0.1459	-11.32	0.6127	-0.1516	-7.26	GD
6MFK6F		0.6800	-0.0073	-0.56	0.7310	-0.0332	-1.59	GD
8F84KK		0.6991	0.0119	0.92	0.7701	0.0059	0.28	OE
9HT63D		0.6921	0.0048	0.37	0.7555	-0.0087	-0.42	OE
9ZVQWK	X	0.6270	-0.0603	-4.67	0.7027	-0.0616	-2.95	OE
A4AWNRR		0.6843	-0.0029	-0.23	0.7670	0.0028	0.13	OE
AXBXNXX	X	0.4500	-0.2373	-18.41	0.4800	-0.2842	-13.61	GR
B6RFZ9		0.6890	0.0017	0.14	0.7580	-0.0062	-0.30	OE
B79LQK		0.6970	0.0097	0.76	0.7850	0.0208	0.99	XX
CF473H		0.6803	-0.0069	-0.54	0.7573	-0.0069	-0.33	OE
CPF2HB		0.6662	-0.0211	-1.64	0.7415	-0.0228	-1.09	OE
DK3P8F		0.7098	0.0225	1.75	0.7907	0.0264	1.27	OE
E3U988	X	0.5677	-0.1196	-9.28	0.6167	-0.1476	-7.07	IC
E7E2JA		0.6971	0.0099	0.77	0.7928	0.0285	1.37	OE
EBEZ3F		0.7015	0.0142	1.10	0.7868	0.0226	1.08	OE
EVEBZM		0.7023	0.0151	1.17	0.7980	0.0338	1.62	IC
HR926N		0.6920	0.0047	0.37	0.7860	0.0218	1.04	IC
K72B6Y		0.6950	0.0077	0.60	0.7463	-0.0179	-0.86	OE
LBPJH4		0.6746	-0.0127	-0.98	0.7559	-0.0083	-0.40	OE
LCGF8X		0.6773	-0.0099	-0.77	0.7150	-0.0492	-2.36	GD
LKYXT7		0.7017	0.0144	1.12	0.7821	0.0178	0.85	OE
LRJFGK		0.6740	-0.0133	-1.03	0.7250	-0.0392	-1.88	OE
MCXWZ7		0.6703	-0.0169	-1.31	0.7554	-0.0088	-0.42	XX
N28Q77	X	0.6233	-0.0639	-4.96	0.8133	0.0491	2.35	OE
PFMB46		0.6677	-0.0196	-1.52	0.7443	-0.0199	-0.95	WC
PK4DLW		0.6950	0.0077	0.60	0.7817	0.0175	0.84	XX
QM3B89		0.6698	-0.0174	-1.35	0.7528	-0.0115	-0.55	OE
QUVL8H	X	0.8167	0.1294	10.04	0.7800	0.0158	0.76	XR
RRY3A4		0.6757	-0.0116	-0.90	0.7453	-0.0189	-0.91	XX
TH4K9Z		0.6867	-0.0006	-0.05	0.7657	0.0014	0.07	XX
TLEPEG		0.6941	0.0068	0.53	0.7875	0.0232	1.11	OE
TRTGP9		0.6893	0.0021	0.16	0.7653	0.0011	0.05	IC
YGVE7L		0.7027	0.0154	1.20	0.7883	0.0241	1.15	OE
YJLLHV		0.6763	-0.0109	-0.85	0.7520	-0.0122	-0.59	OE
ZC7M8N		0.6733	-0.0139	-1.08	0.7530	-0.0112	-0.54	OE

Summary Statistics

	Sample A67		Sample A68	
Grand Means	0.6873	Percent	0.7642	Percent
Std Dev Btwn Labs	0.0129	Percent	0.0209	Percent

Samples A67, A68 : AA6262, AA6262

Statistics based on 33 of 39 reporting participants



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1543

2nd Qtr
2020

Aluminum, SILICON (Si)
SILICON (Si)

Key to Method Codes Reported by Participants

GD	Spectrometry - Glow Discharge (GDS)	GR	Gravimetry
IC	Spectrometry - Inductively Coupled Plasma (ICP)	OE	Spectrometry - Optical Emission (OES)
WC	Wet Chemistry	XR	X-Ray Fluorescence - ED or WD not specified
XX	Please Indicate Method Used for Current Element		

Comments on Assigned Data Flags for Test #1543

- 4J6YBP (X) - Data for both samples are low. Inconsistent within the determinations of both samples.
- 9ZVQWK (X) - Data for both samples are low.
- AXBNXX (X) - Data for both samples are low.
- E3U988 (X) - Data for both samples are low. Inconsistent within the determinations of sample A68.
- N28Q77 (X) - Data for sample A67 are low.
- QUVL8H (X) - Data for sample A67 are high. Inconsistent within the determinations of both samples.

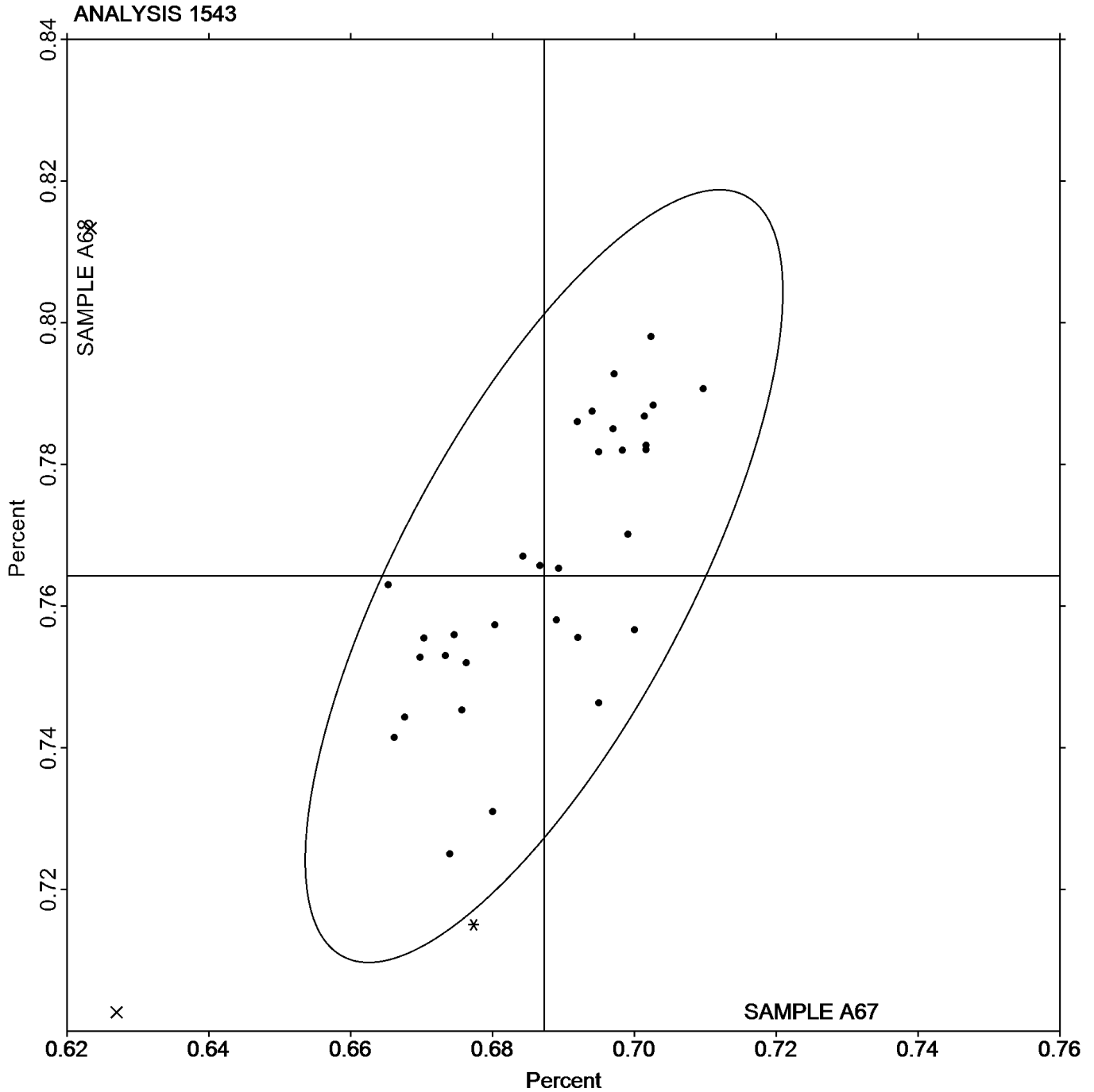


Analysis 1543

Aluminum, SILICON (Si)
SILICON (Si)

SAMPLE A67
0.6873 Percent

SAMPLE A68
0.7642 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1544

2nd Qtr
2020

Aluminum, MANGANESE (Mn)
MANGANESE (Mn)

WebCode	Data Flag	Sample A67			Sample A68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK		0.1367	-0.0046	-1.08	0.1300	-0.0060	-1.40	OE
327TV3		0.1437	0.0024	0.57	0.1380	0.0020	0.48	OE
3FLRZ4		0.1413	0.0001	0.02	0.1373	0.0014	0.33	IC
3K3YN4		0.1407	-0.0006	-0.14	0.1350	-0.0010	-0.22	OE
4J6YBP		0.1507	0.0094	2.22	0.1443	0.0084	1.97	GD
6MFK6F	X	0.1490	0.0078	1.83	0.1500	0.0140	3.31	GD
8F84KK	*	0.1298	-0.0115	-2.71	0.1254	-0.0106	-2.49	OE
9HT63D		0.1436	0.0023	0.55	0.1362	0.0002	0.05	OE
9ZVQWK		0.1440	0.0028	0.65	0.1383	0.0024	0.56	OE
A4AWNRR		0.1423	0.0011	0.26	0.1353	-0.0006	-0.15	OE
AXBNXX		0.1403	-0.0009	-0.22	0.1367	0.0007	0.17	IC
B6RFZ9		0.1373	-0.0039	-0.92	0.1303	-0.0056	-1.32	OE
B79LQK		0.1427	0.0014	0.33	0.1377	0.0017	0.40	XX
CF473H		0.1377	-0.0036	-0.84	0.1317	-0.0043	-1.01	OE
CPF2HB		0.1400	-0.0012	-0.29	0.1339	-0.0021	-0.49	OE
DK3P8F		0.1350	-0.0063	-1.48	0.1308	-0.0051	-1.21	OE
E3U988		0.1387	-0.0026	-0.61	0.1323	-0.0036	-0.85	IC
E7E2JA		0.1454	0.0042	0.99	0.1420	0.0060	1.42	OE
EBEZ3F		0.1443	0.0031	0.73	0.1394	0.0035	0.82	OE
EVEBZM		0.1394	-0.0019	-0.44	0.1350	-0.0009	-0.22	IC
HR926N		0.1373	-0.0039	-0.92	0.1310	-0.0050	-1.17	IC
K72B6Y		0.1467	0.0054	1.28	0.1410	0.0050	1.19	OE
LBPJH4		0.1441	0.0028	0.66	0.1401	0.0041	0.98	OE
LCGF8X		0.1503	0.0091	2.14	0.1430	0.0070	1.66	GD
LKYXT7		0.1391	-0.0021	-0.51	0.1333	-0.0027	-0.62	OE
LRJFGK	X	0.1540	0.0128	3.01	0.1397	0.0037	0.87	OE
MCXWZ7		0.1418	0.0005	0.13	0.1382	0.0022	0.53	OE
N28Q77		0.1367	-0.0046	-1.08	0.1310	-0.0050	-1.17	OE
PFMB46		0.1410	-0.0002	-0.06	0.1363	0.0004	0.09	IC
PK4DLW		0.1470	0.0058	1.36	0.1419	0.0059	1.39	OE
QM3B89		0.1367	-0.0046	-1.08	0.1317	-0.0043	-1.00	OE
QUVL8H	X	0.1817	0.0404	9.53	0.1507	0.0147	3.47	XR
RRY3A4	X	0.1820	0.0408	9.61	0.1737	0.0377	8.88	XX
TH4K9Z		0.1397	-0.0016	-0.37	0.1333	-0.0026	-0.62	XX
TLEPEG		0.1433	0.0020	0.48	0.1378	0.0018	0.43	OE
TRTGP9		0.1403	-0.0009	-0.22	0.1373	0.0014	0.33	IC
YGVE7L		0.1390	-0.0022	-0.53	0.1350	-0.0010	-0.22	OE
YJLLHV		0.1430	0.0018	0.41	0.1390	0.0030	0.72	OE
ZC7M8N		0.1443	0.0031	0.73	0.1387	0.0027	0.64	OE

Summary Statistics

	Sample A67		Sample A68	
Grand Means	0.1412	Percent	0.1360	Percent
Std Dev Btwn Labs	0.0042	Percent	0.0042	Percent

Samples A67, A68 : AA6262, AA6262

Statistics based on 35 of 39 reporting participants



Key to Method Codes Reported by Participants

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
XX	Please Indicate Method Used for Current Element		

Comments on Assigned Data Flags for Test #1544

6MFK6F (X) - Data for sample A68 are high.

LRJFGK (X) - Data for sample A67 are high.

QUVL8H (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample A68.

RRY3A4 (X) - Data for both samples are high. Possible Systematic Error.



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1545

2nd Qtr
2020

Aluminum, MAGNESIUM (Mg)
MAGNESIUM (Mg)

WebCode	Data Flag	Sample A67			Sample A68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK		1.077	0.019	0.37	1.037	0.018	0.31	OE
327TV3		1.017	-0.041	-0.77	0.9770	-0.042	-0.73	OE
3FLRZ4		0.9663	-0.091	-1.72	0.9197	-0.099	-1.73	IC
3K3YN4		1.093	0.036	0.68	1.050	0.031	0.55	OE
4J6YBP		0.9270	-0.130	-2.46	0.8813	-0.137	-2.40	GD
6MFK6F		1.060	0.003	0.05	1.020	0.001	0.02	GD
8F84KK		1.085	0.027	0.52	1.047	0.028	0.49	OE
9HT63D		1.191	0.133	2.52	1.130	0.112	1.95	XX
9ZVQWK		1.062	0.004	0.08	1.038	0.019	0.33	OE
A4AWN4		1.062	0.005	0.09	1.045	0.026	0.45	OE
B6RFZ9		1.010	-0.047	-0.89	0.9477	-0.071	-1.24	OE
B79LQK		1.054	-0.004	-0.07	1.016	-0.002	-0.04	XX
CF473H		1.014	-0.044	-0.83	0.9660	-0.053	-0.92	OE
CPF2HB		1.084	0.027	0.51	1.041	0.023	0.40	OE
DK3P8F		1.035	-0.023	-0.43	0.9861	-0.033	-0.57	OE
E3U988		1.014	-0.043	-0.81	0.9747	-0.044	-0.77	IC
E7E2JA		1.103	0.046	0.86	1.085	0.067	1.17	OE
EBEZ3F		1.119	0.062	1.17	1.089	0.071	1.24	OE
EVEBZM		1.032	-0.025	-0.48	1.009	-0.009	-0.16	IC
HR926N		0.9953	-0.062	-1.17	0.9617	-0.057	-1.00	IC
K72B6Y		1.120	0.063	1.18	1.058	0.040	0.69	OE
LBPJH4		1.077	0.020	0.38	1.050	0.032	0.55	OE
LCGF8X		1.094	0.036	0.69	1.085	0.066	1.16	GD
LKYXT7		1.066	0.009	0.16	1.014	-0.005	-0.09	OE
LRJFGK		0.9763	-0.081	-1.53	0.8990	-0.120	-2.09	OE
MCXWZ7		1.157	0.099	1.88	1.124	0.105	1.84	OE
N28Q77		1.013	-0.044	-0.83	0.9933	-0.025	-0.44	OE
PFMB46		1.023	-0.034	-0.64	0.9857	-0.033	-0.58	IC
PK4DLW		1.122	0.064	1.21	1.093	0.074	1.30	OE
QM3B89		1.052	-0.005	-0.10	1.016	-0.002	-0.04	OE
QUVL8H	X	1.273	0.216	4.08	1.163	0.145	2.53	XR
RRY3A4		1.073	0.016	0.30	1.023	0.005	0.08	XX
TH4K9Z		0.9957	-0.062	-1.17	0.9587	-0.060	-1.05	XX
TLEPEG		1.035	-0.022	-0.42	0.9971	-0.022	-0.38	OE
TRTGP9		1.074	0.017	0.32	1.030	0.011	0.20	IC
YGVE7L		1.087	0.029	0.55	1.077	0.058	1.01	OE
YJLLHV		1.074	0.016	0.31	1.026	0.007	0.12	OE
ZC7M8N		1.083	0.026	0.49	1.040	0.021	0.37	OE

Summary Statistics

	Sample A67		Sample A68	
Grand Means	1.057	Percent	1.019	Percent
Std Dev Btwn Labs	0.053	Percent	0.057	Percent

Samples A67, A68 : AA6262, AA6262

Statistics based on 37 of 38 reporting participants



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1545

**2nd Qtr
2020**

**Aluminum, MAGNESIUM (Mg)
MAGNESIUM (Mg)**

Key to Method Codes Reported by Participants

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
XX	Please Indicate Method Used for Current Element		

Comments on Assigned Data Flags for Test #1545

QUVL8H (X) - Data for sample A67 are high. Inconsistent within the determinations of both samples.



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1545

2nd Qtr
2020

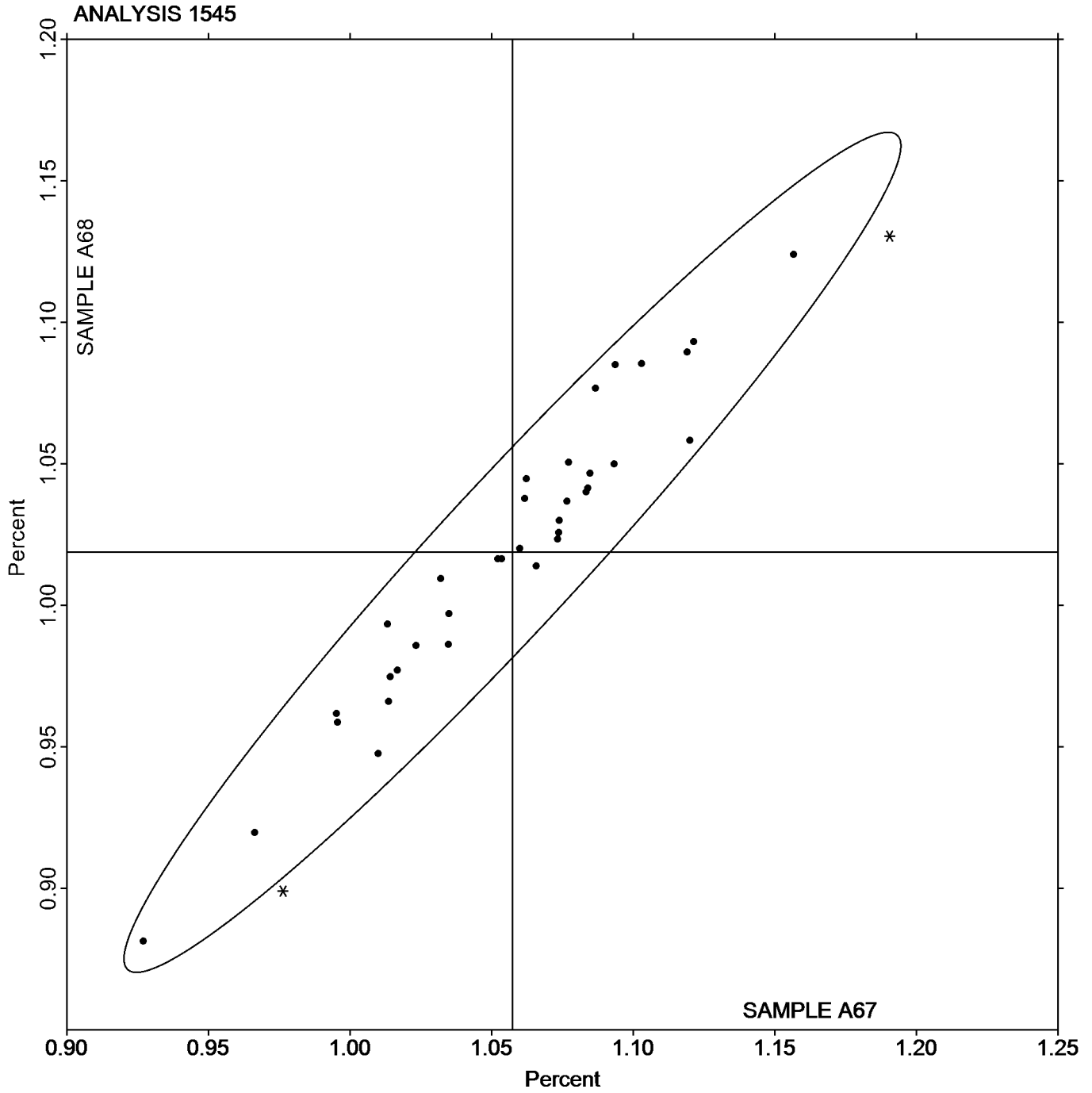
Aluminum, MAGNESIUM (Mg)
MAGNESIUM (Mg)

SAMPLE A67

SAMPLE A68

1.057 Percent

1.019 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1546

2nd Qtr
2020

Aluminum, CHROMIUM (Cr)
CHROMIUM (Cr)

WebCode	Data Flag	Sample A67			Sample A68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK		0.1100	0.0028	0.38	0.1100	0.0046	0.61	OE
327TV3		0.1170	0.0098	1.33	0.1137	0.0083	1.10	OE
3FLRZ4		0.1113	0.0041	0.56	0.1093	0.0039	0.53	IC
3K3YN4	X	0.1133	0.0061	0.83	0.1033	-0.0021	-0.27	OE
4J6YBP		0.1230	0.0158	2.14	0.1243	0.0189	2.52	GD
6MFK6F	X	0.1140	0.0068	0.92	1.023	0.9179	122.26	GD
8F84KK		0.1005	-0.0067	-0.92	0.0972	-0.0082	-1.09	OE
9HT63D		0.1102	0.0030	0.41	0.1081	0.0027	0.36	OE
9ZVQWK		0.1037	-0.0035	-0.48	0.0997	-0.0057	-0.76	OE
A4AWNRR		0.1040	-0.0032	-0.44	0.1013	-0.0041	-0.54	OE
B6RFZ9		0.1173	0.0101	1.37	0.1150	0.0096	1.28	OE
B79LQK	*	0.0837	-0.0235	-3.19	0.0814	-0.0240	-3.19	XX
CF473H		0.1137	0.0065	0.88	0.1097	0.0043	0.57	OE
CPF2HB		0.1078	0.0006	0.08	0.1060	0.0006	0.08	OE
DK3P8F		0.1055	-0.0017	-0.23	0.1034	-0.0020	-0.26	OE
E3U988		0.1043	-0.0029	-0.39	0.1050	-0.0004	-0.05	IC
E7E2JA		0.1085	0.0013	0.18	0.1076	0.0022	0.30	OE
EBEZ3F		0.1096	0.0024	0.32	0.1090	0.0036	0.48	OE
EVEBZM		0.1026	-0.0046	-0.62	0.1045	-0.0009	-0.12	IC
HR926N		0.1083	0.0011	0.15	0.1037	-0.0017	-0.23	IC
K72B6Y		0.1157	0.0085	1.15	0.1130	0.0076	1.01	OE
LBPJH4		0.0948	-0.0124	-1.69	0.0929	-0.0125	-1.66	OE
LCGF8X		0.1177	0.0105	1.42	0.1163	0.0109	1.46	GD
LKYXT7		0.1066	-0.0006	-0.08	0.1045	-0.0009	-0.12	OE
LRJFGK	X	0.1720	0.0648	8.79	0.1357	0.0303	4.03	OE
MCXWZ7		0.1075	0.0003	0.04	0.1057	0.0003	0.04	OE
N28Q77		0.1033	-0.0039	-0.53	0.1003	-0.0051	-0.67	OE
PFMB46		0.1103	0.0031	0.42	0.1077	0.0023	0.30	IC
PK4DLW		0.1090	0.0018	0.24	0.1073	0.0019	0.25	OE
QM3B89		0.1135	0.0063	0.85	0.1123	0.0069	0.92	OE
QUVL8H		0.1017	-0.0055	-0.75	0.1020	-0.0034	-0.45	XR
RRY3A4		0.0967	-0.0105	-1.43	0.0953	-0.0101	-1.34	XX
TH4K9Z		0.1037	-0.0035	-0.48	0.1013	-0.0041	-0.54	XX
TLEPEG		0.1116	0.0044	0.60	0.1088	0.0034	0.46	OE
TRTGP9		0.1017	-0.0055	-0.75	0.1013	-0.0041	-0.54	IC
YGVE7L		0.1107	0.0035	0.47	0.1070	0.0016	0.21	OE
YJLLHV		0.1060	-0.0012	-0.16	0.1050	-0.0004	-0.05	OE
ZC7M8N		0.1010	-0.0062	-0.84	0.0989	-0.0065	-0.86	OE

Summary Statistics

	Sample A67		Sample A68	
Grand Means	0.1072	Percent	0.1054	Percent
Std Dev Btwn Labs	0.0074	Percent	0.0075	Percent

Samples A67, A68 : AA6262, AA6262

Statistics based on 35 of 38 reporting participants



Key to Method Codes Reported by Participants

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
XX	Please Indicate Method Used for Current Element		

Comments on Assigned Data Flags for Test #1546

3K3YN4 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample A67.

6MFK6F (X) - Data for sample A68 are extreme.

LRJFGK (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample A67.

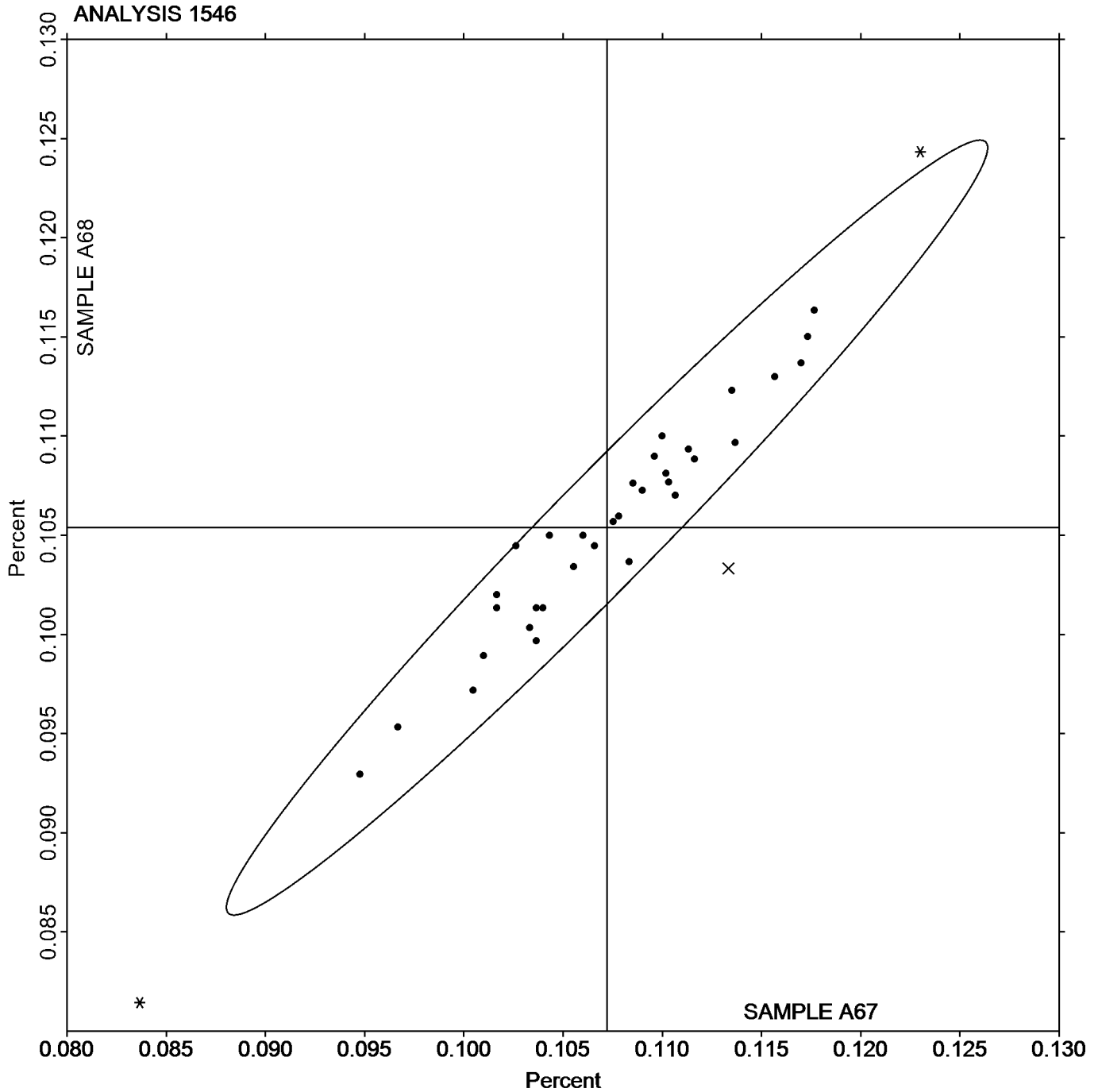


Analysis 1546

Aluminum, CHROMIUM (Cr)
CHROMIUM (Cr)

SAMPLE A67
0.1072 Percent

SAMPLE A68
0.1054 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1547

2nd Qtr
2020

Aluminum, TITANIUM (Ti)
TITANIUM (Ti)

WebCode	Data Flag	Sample A67			Sample A68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK		0.0243	-0.0034	-1.27	0.0220	-0.0023	-1.25	OE
327TV3		0.0269	-0.0008	-0.30	0.0242	-0.0001	-0.05	OE
3FLRZ4		0.0253	-0.0024	-0.89	0.0240	-0.0003	-0.17	IC
3K3YN4		0.0307	0.0030	1.13	0.0247	0.0003	0.19	OE
4J6YBP		0.0230	-0.0047	-1.77	0.0197	-0.0047	-2.50	GD
6MFK6F		0.0293	0.0016	0.62	0.0250	0.0007	0.37	GD
8F84KK		0.0280	0.0003	0.11	0.0235	-0.0009	-0.46	OE
9HT63D		0.0297	0.0020	0.76	0.0264	0.0021	1.11	XX
9ZVQWK		0.0260	-0.0017	-0.64	0.0230	-0.0013	-0.71	OE
A4AWNRR		0.0285	0.0008	0.30	0.0249	0.0006	0.31	OE
AXBNXX	*	0.0337	0.0060	2.26	0.0293	0.0050	2.69	IC
B6RFZ9		0.0307	0.0030	1.15	0.0264	0.0021	1.12	OE
B79LQK		0.0283	0.0006	0.25	0.0250	0.0007	0.37	XX
CF473H		0.0288	0.0011	0.42	0.0248	0.0005	0.26	OE
CPF2HB		0.0264	-0.0013	-0.50	0.0231	-0.0012	-0.64	OE
DK3P8F		0.0236	-0.0041	-1.54	0.0216	-0.0027	-1.44	OE
E3U988		0.0293	0.0016	0.60	0.0250	0.0007	0.37	IC
E7E2JA		0.0283	0.0006	0.23	0.0245	0.0002	0.09	OE
EBEZ3F		0.0247	-0.0030	-1.11	0.0229	-0.0015	-0.78	OE
EVEBZM		0.0276	-0.0001	-0.04	0.0249	0.0006	0.32	IC
HR926N		0.0273	-0.0004	-0.13	0.0240	-0.0003	-0.17	IC
K72B6Y		0.0213	-0.0064	-2.40	0.0197	-0.0047	-2.50	OE
LBPJH4		0.0269	-0.0008	-0.30	0.0223	-0.0020	-1.07	OE
LCGF8X	X	0.1177	0.0900	33.99	0.1163	0.0920	49.42	GD
LKYXT7		0.0244	-0.0033	-1.23	0.0234	-0.0009	-0.49	OE
LRJFGK	X	0.0437	0.0160	6.04	0.1150	0.0907	48.70	OE
MCXWZ7		0.0285	0.0009	0.32	0.0245	0.0002	0.12	OE
N28Q77		0.0327	0.0050	1.88	0.0263	0.0020	1.08	OE
PFMB46		0.0284	0.0007	0.27	0.0248	0.0005	0.26	IC
PK4DLW		0.0292	0.0015	0.57	0.0263	0.0020	1.06	OE
QM3B89		0.0306	0.0029	1.11	0.0257	0.0014	0.76	OE
QUVL8H	X	0.0493	0.0216	8.18	0.0647	0.0403	21.67	XR
RRY3A4	X	0.0512	0.0235	8.90	0.0484	0.0241	12.93	XX
TH4K9Z		0.0264	-0.0013	-0.47	0.0244	0.0001	0.06	XX
TLEPEG		0.0294	0.0017	0.66	0.0259	0.0016	0.85	OE
TRTGP9		0.0286	0.0009	0.36	0.0255	0.0012	0.65	IC
YGVE7L		0.0294	0.0017	0.66	0.0250	0.0006	0.35	OE
YJLLHV		0.0253	-0.0024	-0.89	0.0243	0.0000	0.01	OE
ZC7M8N		0.0272	-0.0005	-0.20	0.0240	-0.0003	-0.15	OE

Summary Statistics

	Sample A67		Sample A68	
Grand Means	0.0277	Percent	0.0243	Percent
Std Dev Btwn Labs	0.0026	Percent	0.0019	Percent

Samples A67, A68 : AA6262, AA6262

Statistics based on 35 of 39 reporting participants



Key to Method Codes Reported by Participants

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
XX	Please Indicate Method Used for Current Element		

Comments on Assigned Data Flags for Test #1547

LCGF8X (X) - Extreme data.

LRJFGK (X) - Data for both samples are high. Data for Sample A68 are extreme.

QUVL8H (X) - Data for both samples are high. Inconsistent within the determinations of both samples.

RRY3A4 (X) - Data for both samples are high. Inconsistent within the determinations of both samples.

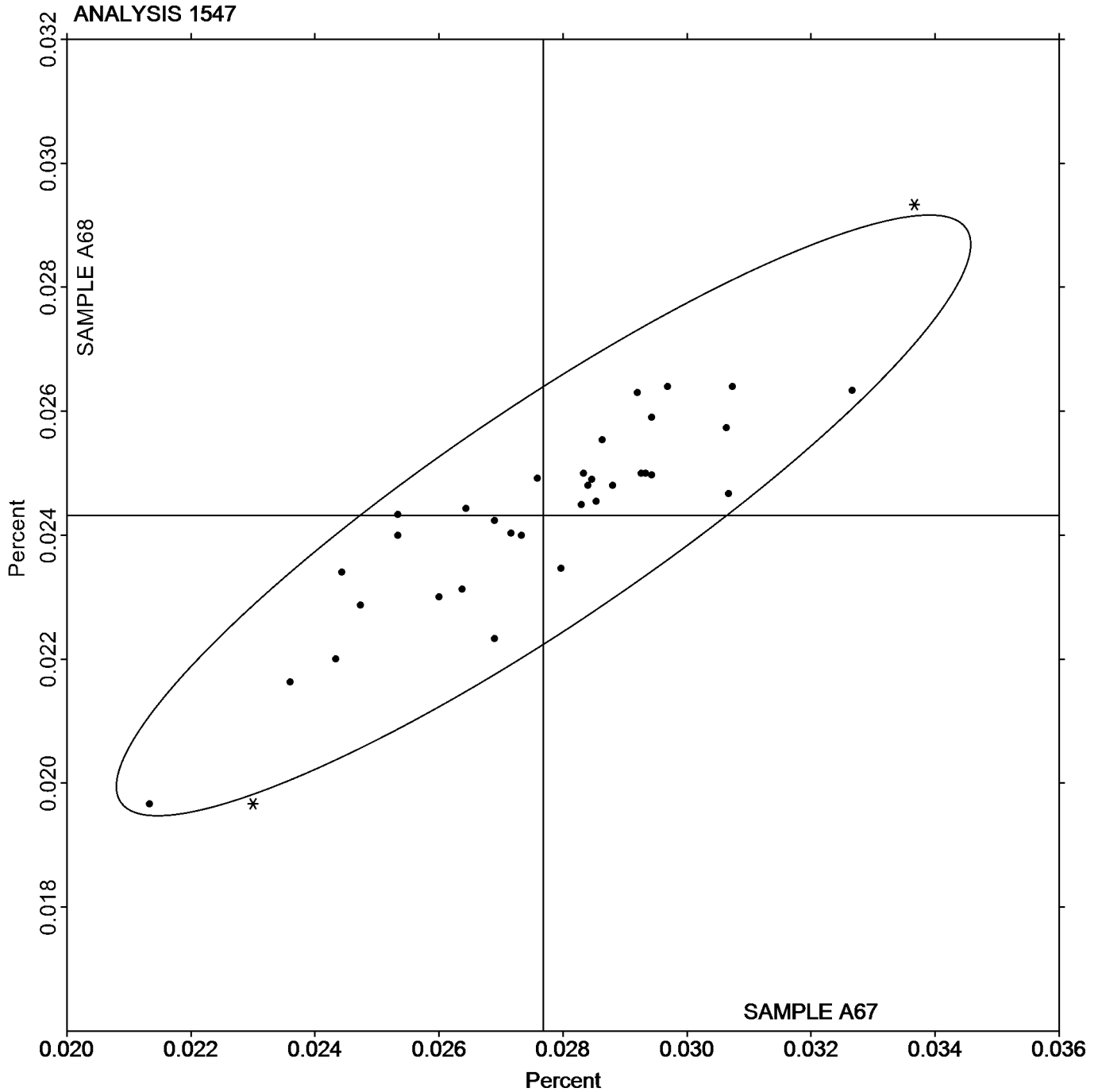


Analysis 1547

Aluminum, TITANIUM (Ti)
TITANIUM (Ti)

SAMPLE A67
0.0277 Percent

SAMPLE A68
0.0243 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1548

2nd Qtr
2020

Aluminum, BISMUTH (Bi)
BISMUTH (Bi)

WebCode	Data Flag	Sample A67			Sample A68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
327TV3		0.4790	-0.0107	-0.21	0.5810	-0.0110	-0.22	OE
3FLRZ4		0.4543	-0.0353	-0.69	0.5427	-0.0493	-0.98	IC
6MFK6F		0.4973	0.0077	0.15	0.5817	-0.0103	-0.21	GD
9HT63D	*	0.5986	0.1089	2.13	0.7218	0.1298	2.59	OE
9ZVQWK		0.5320	0.0423	0.83	0.6410	0.0490	0.98	OE
B6RFZ9		0.5237	0.0340	0.67	0.6213	0.0294	0.59	OE
CF473H		0.4670	-0.0227	-0.44	0.5647	-0.0273	-0.54	OE
CPF2HB		0.4962	0.0066	0.13	0.5862	-0.0058	-0.12	OE
DK3P8F		0.5169	0.0273	0.53	0.6149	0.0229	0.46	OE
EVEBZM		0.4680	-0.0217	-0.42	0.5750	-0.0170	-0.34	IC
HR926N		0.4500	-0.0397	-0.78	0.5473	-0.0446	-0.89	IC
K72B6Y		0.3733	-0.1163	-2.28	0.5200	-0.0720	-1.44	WD
LBPJH4		0.5512	0.0615	1.20	0.6605	0.0685	1.37	OE
LCGF8X		0.6063	0.1167	2.28	0.6977	0.1057	2.11	GD
N28Q77		0.4957	0.0060	0.12	0.5933	0.0014	0.03	OE
PFMB46		0.4697	-0.0200	-0.39	0.5793	-0.0126	-0.25	IC
QM3B89		0.4189	-0.0708	-1.39	0.5306	-0.0614	-1.22	OE
QUVL8H		0.4807	-0.0090	-0.18	0.6093	0.0174	0.35	XR
RRY3A4		0.4633	-0.0263	-0.52	0.5463	-0.0456	-0.91	XX
TLEPEG		0.4769	-0.0128	-0.25	0.5846	-0.0074	-0.15	OE
YGVE7L		0.4800	-0.0097	-0.19	0.5590	-0.0330	-0.66	XX
YJLLHV		0.4700	-0.0197	-0.39	0.5790	-0.0130	-0.26	OE
ZC7M8N		0.4933	0.0037	0.07	0.5780	-0.0140	-0.28	OE

Summary Statistics

	Sample A67		Sample A68	
Grand Means	0.4897	Percent	0.5920	Percent
Stnd Dev Btwn Labs	0.0511	Percent	0.0501	Percent

Samples A67, A68 : AA6262, AA6262

Statistics based on 23 of 23 reporting participants

Key to Method Codes Reported by Participants

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



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1549

2nd Qtr
2020

Aluminum, LEAD (Pb)
LEAD (Pb)

WebCode	Data Flag	Sample A67			Sample A68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
327TV3		0.5753	-0.0123	-0.26	0.6483	-0.0097	-0.16	OE
3FLRZ4		0.5670	-0.0207	-0.44	0.6147	-0.0434	-0.73	IC
6MFK6F		0.6760	0.0883	1.87	0.7750	0.1169	1.96	GD
9HT63D		0.5448	-0.0429	-0.91	0.5942	-0.0638	-1.07	OE
9ZVQWK		0.6227	0.0350	0.74	0.6713	0.0133	0.22	OE
A4AWNRR		0.5350	-0.0527	-1.11	0.5990	-0.0591	-0.99	OE
AXBNXX		0.5897	0.0020	0.04	0.6923	0.0343	0.57	IC
B6RFZ9		0.5783	-0.0093	-0.20	0.6397	-0.0184	-0.31	OE
B79LQK		0.5947	0.0070	0.15	0.6577	-0.0004	-0.01	XX
CF473H		0.5793	-0.0083	-0.18	0.6460	-0.0121	-0.20	OE
CPF2HB		0.6005	0.0129	0.27	0.6671	0.0091	0.15	OE
DK3P8F		0.5719	-0.0158	-0.33	0.6435	-0.0146	-0.24	OE
E7E2JA		0.5598	-0.0278	-0.59	0.6205	-0.0376	-0.63	OE
EVEBZM		0.5947	0.0070	0.15	0.6983	0.0403	0.67	IC
HR926N		0.5553	-0.0323	-0.68	0.6357	-0.0224	-0.38	XX
K72B6Y	*	0.4713	-0.1163	-2.46	0.4997	-0.1584	-2.65	OE
LBPJH4	X	0.7970	0.2093	4.42	0.9269	0.2688	4.50	OE
LCGF8X		0.6230	0.0353	0.75	0.7027	0.0446	0.75	XX
LRJFGK	X	0.5473	-0.0403	-0.85	0.4497	-0.2084	-3.49	OE
N28Q77		0.6200	0.0323	0.68	0.7000	0.0419	0.70	OE
PFMB46		0.5973	0.0097	0.20	0.6773	0.0193	0.32	IC
QM3B89		0.7097	0.1220	2.58	0.8033	0.1452	2.43	OE
QUVL8H		0.6667	0.0790	1.67	0.7387	0.0806	1.35	XR
RRY3A4		0.5857	-0.0020	-0.04	0.6287	-0.0294	-0.49	XX
TH4K9Z		0.5677	-0.0200	-0.42	0.6207	-0.0374	-0.63	XX
TLEPEG		0.5851	-0.0026	-0.06	0.6745	0.0164	0.27	OE
TRTGP9		0.5243	-0.0633	-1.34	0.6017	-0.0564	-0.94	IC
YGVE7L		0.5823	-0.0053	-0.11	0.6597	0.0016	0.03	XX
YJLLHV		0.5540	-0.0337	-0.71	0.6080	-0.0501	-0.84	OE
ZC7M8N		0.6223	0.0347	0.73	0.7080	0.0499	0.84	OE

Summary Statistics

	Sample A67		Sample A68	
Grand Means	0.5877	Percent	0.6581	Percent
Stnd Dev Btwn Labs	0.0474	Percent	0.0597	Percent

Samples A67, A68 : AA6262, AA6262

Statistics based on 28 of 30 reporting participants

Key to Method Codes Reported by Participants

- 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
- XX Please Indicate Method Used for Current Element



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1549

2nd Qtr

Aluminum, LEAD (Pb)

2020

LEAD (Pb)

Comments on Assigned Data Flags for Test #1549

LBPJH4 (X) - Data for both samples are high.

LRJFGK (X) - Data for sample A68 are low.



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1640

2nd Qtr
2020

Corrosion Resistant Steel, CARBON (C) CARBON (C)

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK		0.0387	-0.0090	-2.69	0.0380	-0.0087	-2.20	OE
327TV3		0.0532	0.0055	1.63	0.0527	0.0060	1.52	OE
3FLRZ4		0.0473	-0.0004	-0.11	0.0463	-0.0004	-0.09	OE
3GNU9R		0.0474	-0.0003	-0.09	0.0505	0.0038	0.97	XX
4J6YBP	X	0.0353	-0.0124	-3.68	0.0407	-0.0060	-1.53	GD
6DCCTN		0.0518	0.0041	1.22	0.0509	0.0042	1.08	DR
6GMG2P		0.0474	-0.0003	-0.09	0.0466	-0.0001	-0.03	CI
84QCKN		0.0460	-0.0017	-0.51	0.0440	-0.0027	-0.68	CI
8HGYEN		0.0503	0.0026	0.77	0.0469	0.0002	0.06	CI
8KMGDK		0.0491	0.0014	0.41	0.0479	0.0012	0.31	CO
8LDMTB	*	0.0407	-0.0070	-2.10	0.0357	-0.0110	-2.80	CI
8MPAJC		0.0479	0.0002	0.06	0.0478	0.0011	0.28	OE
8V2JTQ		0.0495	0.0018	0.54	0.0478	0.0011	0.29	WD
9843GQ		0.0443	-0.0034	-1.00	0.0437	-0.0030	-0.77	OE
9XHCXP	X	0.0470	-0.0007	-0.21	0.0327	-0.0140	-3.56	CI
9ZVQWK		0.0447	-0.0030	-0.91	0.0440	-0.0027	-0.68	OE
A4AWNRR		0.0510	0.0033	0.98	0.0510	0.0043	1.09	OE
AF2JV8		0.0500	0.0023	0.68	0.0497	0.0030	0.76	OE
B6RFZ9		0.0498	0.0021	0.63	0.0481	0.0014	0.37	CO
BBPQK9		0.0498	0.0021	0.63	0.0489	0.0022	0.57	GD
BRBERH		0.0477	0.0000	-0.01	0.0470	0.0003	0.08	OE
C4KB97		0.0427	-0.0050	-1.50	0.0437	-0.0030	-0.77	CI
CDA3WJ		0.0468	-0.0009	-0.26	0.0468	0.0001	0.04	OE
CDAXLG		0.0487	0.0010	0.28	0.0480	0.0013	0.33	CI
CYBXQ8		0.0510	0.0033	0.99	0.0475	0.0008	0.20	CI
DK3P8F		0.0522	0.0045	1.34	0.0514	0.0047	1.20	CO
F3YYZB		0.0443	-0.0034	-1.00	0.0457	-0.0010	-0.26	OE
GGBWJ3		0.0490	0.0013	0.39	0.0500	0.0033	0.85	OE
GRAGW3		0.0447	-0.0030	-0.91	0.0440	-0.0027	-0.68	CI
GRRKCF		0.0447	-0.0030	-0.89	0.0436	-0.0031	-0.78	IR
HTJ22H		0.0465	-0.0012	-0.36	0.0461	-0.0006	-0.16	CI
K8EVXA		0.0503	0.0026	0.78	0.0510	0.0043	1.09	OE
KDYA89		0.0497	0.0020	0.60	0.0497	0.0030	0.76	OE
LBPJH4		0.0492	0.0015	0.45	0.0485	0.0018	0.45	OE
LCGF8X		0.0405	-0.0072	-2.14	0.0402	-0.0065	-1.65	GD
LKYXT7		0.0513	0.0036	1.08	0.0500	0.0033	0.84	OE
MQUBXE		0.0425	-0.0052	-1.56	0.0376	-0.0091	-2.30	OE
N28Q77		0.0466	-0.0011	-0.32	0.0462	-0.0005	-0.12	CI
PRHC3T	*	0.0407	-0.0070	-2.10	0.0357	-0.0110	-2.80	CI
QHPMHB	X	0.0514	0.0037	1.10	0.0587	0.0120	3.04	OE
RBBWX4		0.0481	0.0004	0.12	0.0464	-0.0003	-0.08	OE
RRY3A4		0.0504	0.0027	0.81	0.0498	0.0031	0.80	XX
T2YCUY		0.0489	0.0012	0.34	0.0481	0.0014	0.37	CI
TA9QQ9		0.0470	-0.0007	-0.21	0.0471	0.0004	0.10	OE
TH4K9Z		0.0526	0.0049	1.46	0.0525	0.0058	1.47	XX
TRTGP9		0.0489	0.0012	0.34	0.0494	0.0027	0.70	CO
UZATWC		0.0508	0.0031	0.93	0.0489	0.0022	0.56	CI



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1640

**2nd Qtr
2020**

**Corrosion Resistant Steel, CARBON (C)
CARBON (C)**

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
V6CLCV		0.0481	0.0004	0.13	0.0468	0.0001	0.02	IR
VN8AMQ		0.0523	0.0046	1.37	0.0490	0.0023	0.59	CO
VPY7AY		0.0468	-0.0009	-0.26	0.0482	0.0015	0.39	OE
XXMYDV		0.0480	0.0003	0.09	0.0427	-0.0040	-1.02	GD
YH6CJ4		0.0478	0.0001	0.03	0.0457	-0.0010	-0.25	IR
Z78V88		0.0475	-0.0002	-0.06	0.0466	-0.0001	-0.02	CO

Summary Statistics

	Sample M67		Sample M68	
Grand Means	0.0477	Percent	0.0467	Percent
Stnd Dev Btwn Labs	0.0034	Percent	0.0039	Percent

Samples M67, M68 : AISI 316, AISI 316

Statistics based on 50 of 53 reporting participants

Key to Method Codes Reported by Participants

CI	Combustion / IR	CO	Combustion
DR	Spectrometry - Direct Reading OE (DROES)	GD	Spectrometry - Glow Discharge (GDS)
IR	IR (Absorption / Detection)	OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)	XX	Please Indicate Method Used for Current Element

Comments on Assigned Data Flags for Test #1640

4J6YBP (X) - Data for sample M67 are low. Inconsistent within the determinations of both samples.

9XHCXP (X) - Data for sample M68 are low. Inconsistent within the determinations of sample M68.

QHMHMB (X) - Data for sample M68 are high. Inconsistent within the determinations of sample M68.

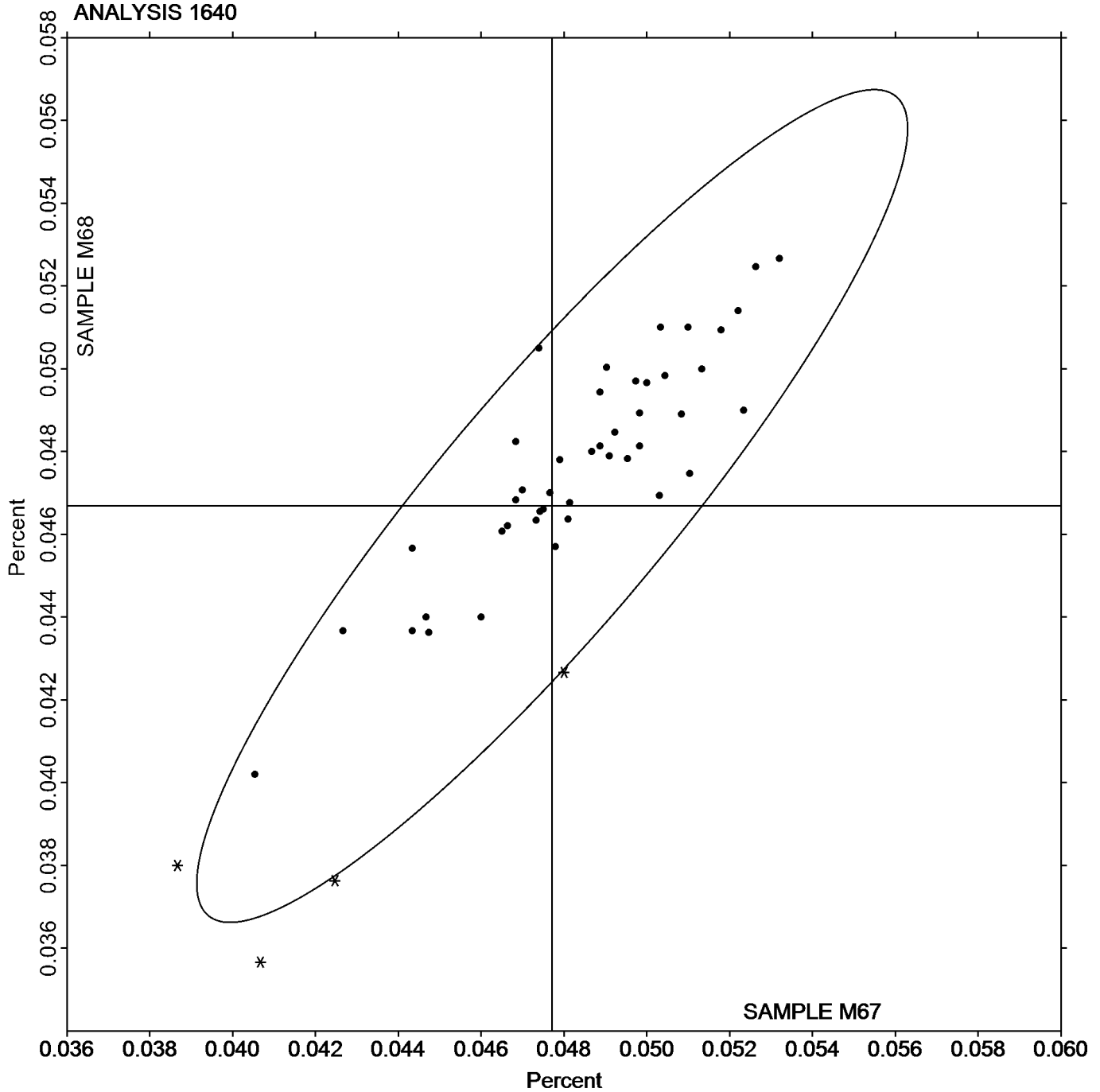


Analysis 1640

Corrosion Resistant Steel, CARBON (C)
CARBON (C)

SAMPLE M67
0.0477 Percent

SAMPLE M68
0.0467 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1641

2nd Qtr
2020

Corrosion Resistant Steel, MANGANESE (Mn) MANGANESE (Mn)

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK		1.433	-0.003	-0.15	1.450	-0.005	-0.27	OE
327TV3		1.457	0.020	1.01	1.480	0.025	1.26	OE
3FLRZ4		1.436	0.000	-0.02	1.455	-0.001	-0.03	OE
3GNU9R		1.440	0.004	0.18	1.460	0.005	0.24	XX
4J6YBP	*	1.492	0.056	2.77	1.492	0.037	1.89	GD
6DCCTN		1.437	0.000	0.01	1.453	-0.002	-0.10	DR
6GMG2P		1.443	0.006	0.31	1.460	0.005	0.26	WD
84QCKN	X	1.521	0.085	4.19	1.517	0.062	3.15	IC
8HGYEN		1.444	0.007	0.36	1.470	0.015	0.77	OE
8KMGDK		1.447	0.011	0.54	1.477	0.022	1.11	OE
8LDMTB		1.403	-0.033	-1.65	1.424	-0.031	-1.59	XR
8MPAJC	X	1.525	0.089	4.41	1.550	0.095	4.86	OE
8V2JTQ		1.438	0.001	0.06	1.462	0.007	0.36	XX
9843GQ		1.433	-0.003	-0.15	1.450	-0.005	-0.27	OE
9HT63D	*	1.492	0.056	2.75	1.509	0.053	2.72	IC
9XHCXP		1.446	0.009	0.46	1.475	0.020	1.02	OE
9ZVQWK		1.462	0.026	1.29	1.479	0.024	1.21	OE
A4AWNRR		1.437	0.000	0.01	1.445	-0.010	-0.51	OE
AF2JV8		1.437	0.000	0.01	1.453	-0.002	-0.10	OE
B6RFZ9		1.437	0.000	0.01	1.443	-0.012	-0.61	OE
BBPQK9		1.437	0.000	0.01	1.447	-0.009	-0.44	GD
BRBERH		1.460	0.024	1.17	1.477	0.021	1.09	OE
C4KB97		1.410	-0.027	-1.32	1.427	-0.028	-1.45	WD
CDA3WJ		1.439	0.003	0.13	1.463	0.008	0.39	OE
CDAXLG		1.473	0.037	1.83	1.467	0.011	0.58	IC
CYBXQ8		1.437	0.001	0.05	1.465	0.009	0.48	WD
DK3P8F		1.433	-0.003	-0.16	1.447	-0.008	-0.41	DR
F3YYZB		1.425	-0.011	-0.56	1.450	-0.005	-0.27	OE
GGBWJ3		1.426	-0.010	-0.50	1.457	0.001	0.07	OE
GRAGW3		1.390	-0.046	-2.30	1.409	-0.047	-2.39	IC
GRRKCF		1.420	-0.017	-0.83	1.436	-0.020	-1.01	XR
HTJ22H		1.424	-0.012	-0.60	1.448	-0.008	-0.39	WD
K8EVXA		1.434	-0.002	-0.10	1.460	0.004	0.22	OE
KDYA89		1.407	-0.030	-1.47	1.433	-0.022	-1.13	OE
KVKJJB		1.447	0.010	0.51	1.450	-0.005	-0.27	XR
LBPJH4		1.435	-0.002	-0.08	1.475	0.019	0.98	OE
LCGF8X	X	1.489	0.053	2.62	1.559	0.103	5.28	GD
LKYXT7		1.423	-0.013	-0.65	1.443	-0.012	-0.61	OE
MQUBXE		1.471	0.035	1.71	1.497	0.042	2.13	OE
N28Q77		1.407	-0.030	-1.47	1.433	-0.022	-1.13	OE
PRHC3T		1.416	-0.020	-1.01	1.436	-0.019	-0.97	XR
QHPMHB	X	1.423	-0.014	-0.68	0.4390	-1.016	-51.96	OE
RBBWX4		1.457	0.020	1.01	1.483	0.028	1.43	OE
RRY3A4		1.440	0.004	0.18	1.450	-0.005	-0.27	XX
T2YCUY		1.441	0.004	0.21	1.449	-0.007	-0.34	DR
TA9QQ9		1.423	-0.013	-0.65	1.460	0.005	0.24	OE
TH4K9Z		1.433	-0.003	-0.15	1.453	-0.002	-0.10	XX



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1641

**2nd Qtr
2020**

**Corrosion Resistant Steel, MANGANESE (Mn)
MANGANESE (Mn)**

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
TRTGP9		1.437	0.001	0.05	1.447	-0.008	-0.43	IC
UZATWC		1.428	-0.009	-0.43	1.425	-0.030	-1.53	IC
V6CLCV		1.435	-0.001	-0.05	1.457	0.002	0.10	WD
VPY7AY		1.431	-0.005	-0.25	1.452	-0.003	-0.15	WD
XXMYDV		1.410	-0.026	-1.31	1.447	-0.009	-0.44	GD
Z78V88		1.420	-0.016	-0.81	1.430	-0.025	-1.30	OE

Summary Statistics

	Sample M67		Sample M68	
Grand Means	1.436	Percent	1.455	Percent
Std Dev Btwn Labs	0.020	Percent	0.020	Percent

Samples M67, M68 : AISI 316, AISI 316

Statistics based on 49 of 53 reporting participants

Key to Method Codes Reported by Participants

- 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

Comments on Assigned Data Flags for Test #1641

- 84QCKN (X) - Data for both samples are high. Possible Systematic Error.
- 8MPAJC (X) - Data for both samples are high. Possible Systematic Error.
- LCGF8X (X) - Data for sample M68 are high. Inconsistent within the determinations of sample M68.
- QHMHMB (X) - Data for sample M68 are extreme.



Analysis 1641

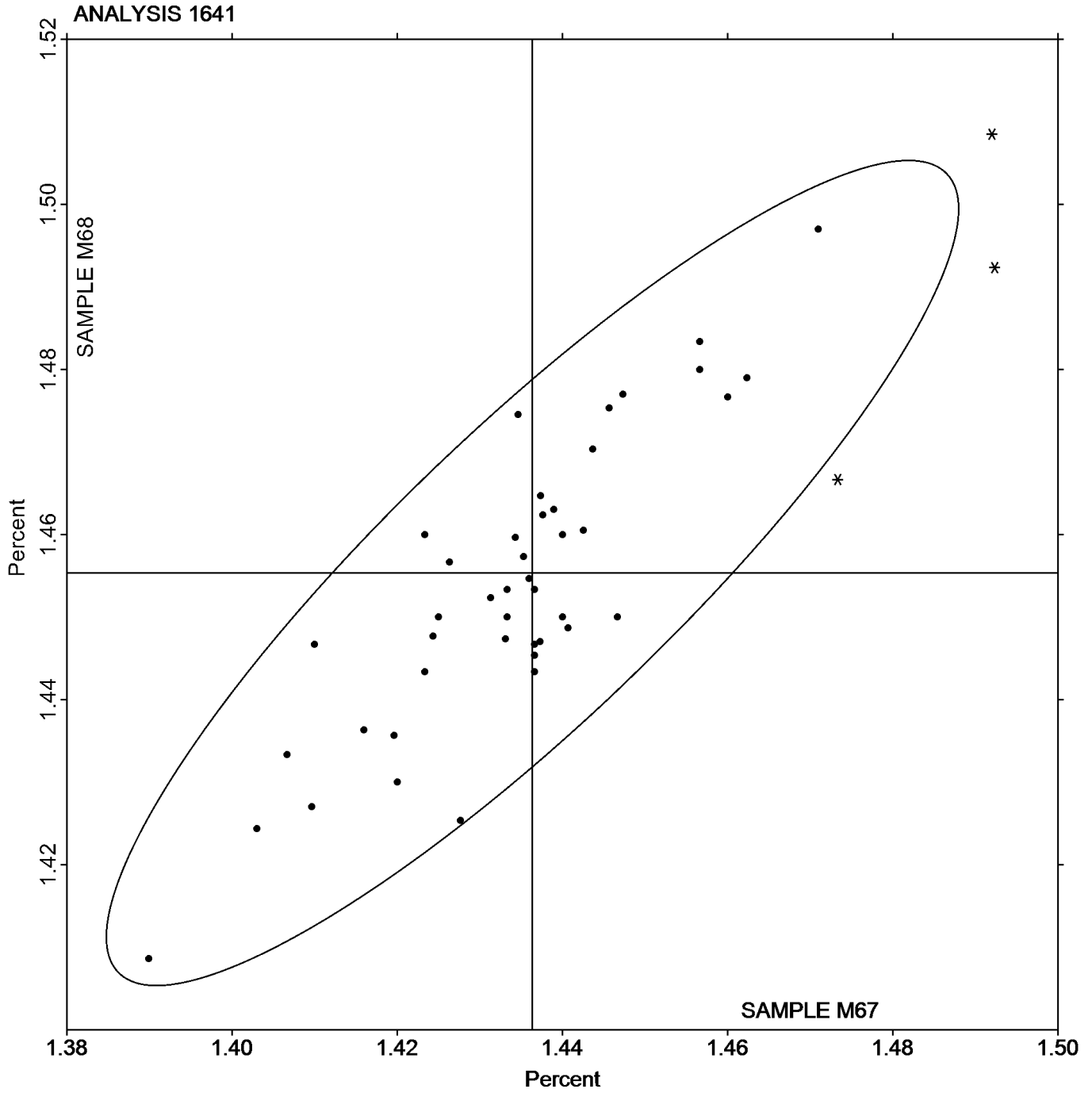
Corrosion Resistant Steel, MANGANESE (Mn)
MANGANESE (Mn)

SAMPLE M67

SAMPLE M68

1.436 Percent

1.455 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1642

2nd Qtr
2020

Corrosion Resistant Steel, PHOSPHORUS (P) PHOSPHORUS (P)

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK		0.0297	0.0042	1.72	0.0337	0.0045	1.80	OE
327TV3		0.0261	0.0007	0.29	0.0299	0.0007	0.28	OE
3FLRZ4		0.0261	0.0007	0.29	0.0301	0.0010	0.39	OE
3GNU9R		0.0211	-0.0043	-1.75	0.0253	-0.0039	-1.54	XX
4J6YBP		0.0253	-0.0001	-0.04	0.0280	-0.0012	-0.46	GD
6DCCTN		0.0277	0.0023	0.94	0.0320	0.0029	1.15	DR
6GMG2P		0.0272	0.0018	0.73	0.0310	0.0019	0.75	WD
8HGYEN		0.0242	-0.0012	-0.48	0.0273	-0.0019	-0.74	OE
8KMGDK		0.0218	-0.0036	-1.47	0.0255	-0.0037	-1.46	OE
8LDMTB		0.0240	-0.0014	-0.58	0.0278	-0.0014	-0.56	XR
8MPAJC	X	0.0116	-0.0139	-5.62	0.0159	-0.0133	-5.30	OE
8V2JTQ		0.0247	-0.0008	-0.31	0.0283	-0.0009	-0.36	XX
9843GQ		0.0233	-0.0021	-0.85	0.0267	-0.0025	-1.00	OE
9HT63D		0.0242	-0.0012	-0.50	0.0277	-0.0015	-0.58	IC
9XHCXP		0.0267	0.0013	0.53	0.0306	0.0014	0.56	OE
9ZVQWK		0.0247	-0.0008	-0.31	0.0287	-0.0005	-0.20	OE
AF2JV8		0.0263	0.0009	0.37	0.0297	0.0005	0.20	OE
B6RFZ9		0.0235	-0.0019	-0.77	0.0266	-0.0026	-1.04	OE
BBPQK9		0.0264	0.0010	0.41	0.0291	-0.0001	-0.04	GD
BRBERH		0.0257	0.0002	0.10	0.0297	0.0005	0.20	OE
C4KB97		0.0230	-0.0024	-0.98	0.0263	-0.0028	-1.13	WD
CDA3WJ		0.0254	-0.0001	-0.02	0.0286	-0.0006	-0.24	OE
CDAXLG		0.0237	-0.0018	-0.71	0.0260	-0.0032	-1.26	IC
CYBXQ8	*	0.0277	0.0023	0.92	0.0280	-0.0012	-0.48	WD
DK3P8F		0.0262	0.0008	0.33	0.0295	0.0004	0.15	DR
F3YYZB		0.0250	-0.0004	-0.17	0.0290	-0.0002	-0.07	OE
GGBWJ3		0.0247	-0.0008	-0.31	0.0300	0.0008	0.33	OE
GRAGW3		0.0248	-0.0007	-0.27	0.0287	-0.0005	-0.20	IC
GRRKCF		0.0193	-0.0061	-2.47	0.0237	-0.0055	-2.20	XR
HTJ22H		0.0251	-0.0003	-0.12	0.0288	-0.0004	-0.16	XX
K8EVXA		0.0288	0.0034	1.38	0.0323	0.0032	1.27	OE
KDYA89		0.0233	-0.0021	-0.86	0.0277	-0.0015	-0.60	OE
LBPJH4		0.0234	-0.0020	-0.81	0.0279	-0.0012	-0.49	OE
LCGF8X		0.0223	-0.0031	-1.25	0.0263	-0.0028	-1.13	GD
LKYXT7		0.0240	-0.0014	-0.58	0.0283	-0.0008	-0.33	OE
MQUBXE		0.0299	0.0045	1.83	0.0353	0.0061	2.44	OE
N28Q77		0.0280	0.0026	1.04	0.0313	0.0022	0.87	OE
PRHC3T		0.0244	-0.0010	-0.40	0.0285	-0.0007	-0.28	XR
QHPMHB		0.0250	-0.0004	-0.16	0.0286	-0.0006	-0.24	OE
RBBWX4		0.0274	0.0019	0.79	0.0306	0.0015	0.59	OE
RRY3A4	*	0.0324	0.0070	2.84	0.0356	0.0065	2.59	XX
T2YCUY		0.0260	0.0006	0.25	0.0289	-0.0002	-0.09	DR
TA9QQ9		0.0259	0.0004	0.18	0.0310	0.0018	0.73	OE
TH4K9Z		0.0238	-0.0016	-0.64	0.0285	-0.0006	-0.25	XX
UZATWC		0.0310	0.0056	2.27	0.0348	0.0056	2.24	IC
V6CLCV		0.0256	0.0002	0.08	0.0292	0.0000	0.01	WD
VPY7AY		0.0253	-0.0002	-0.06	0.0289	-0.0002	-0.09	WD



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1642

2nd Qtr
2020

Corrosion Resistant Steel, PHOSPHORUS (P) PHOSPHORUS (P)

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
XXMYDV		0.0267	0.0012	0.50	0.0297	0.0005	0.20	GD

Summary Statistics

	Sample M67		Sample M68	
Grand Means	0.0254	Percent	0.0292	Percent
Stnd Dev Btrwn Labs	0.0025	Percent	0.0025	Percent

Samples M67, M68 : AISI 316, AISI 316

Statistics based on 46 of 48 reporting participants

Key to Method Codes Reported by Participants

- 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

Comments on Assigned Data Flags for Test #1642

8MPAJC (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample M68.

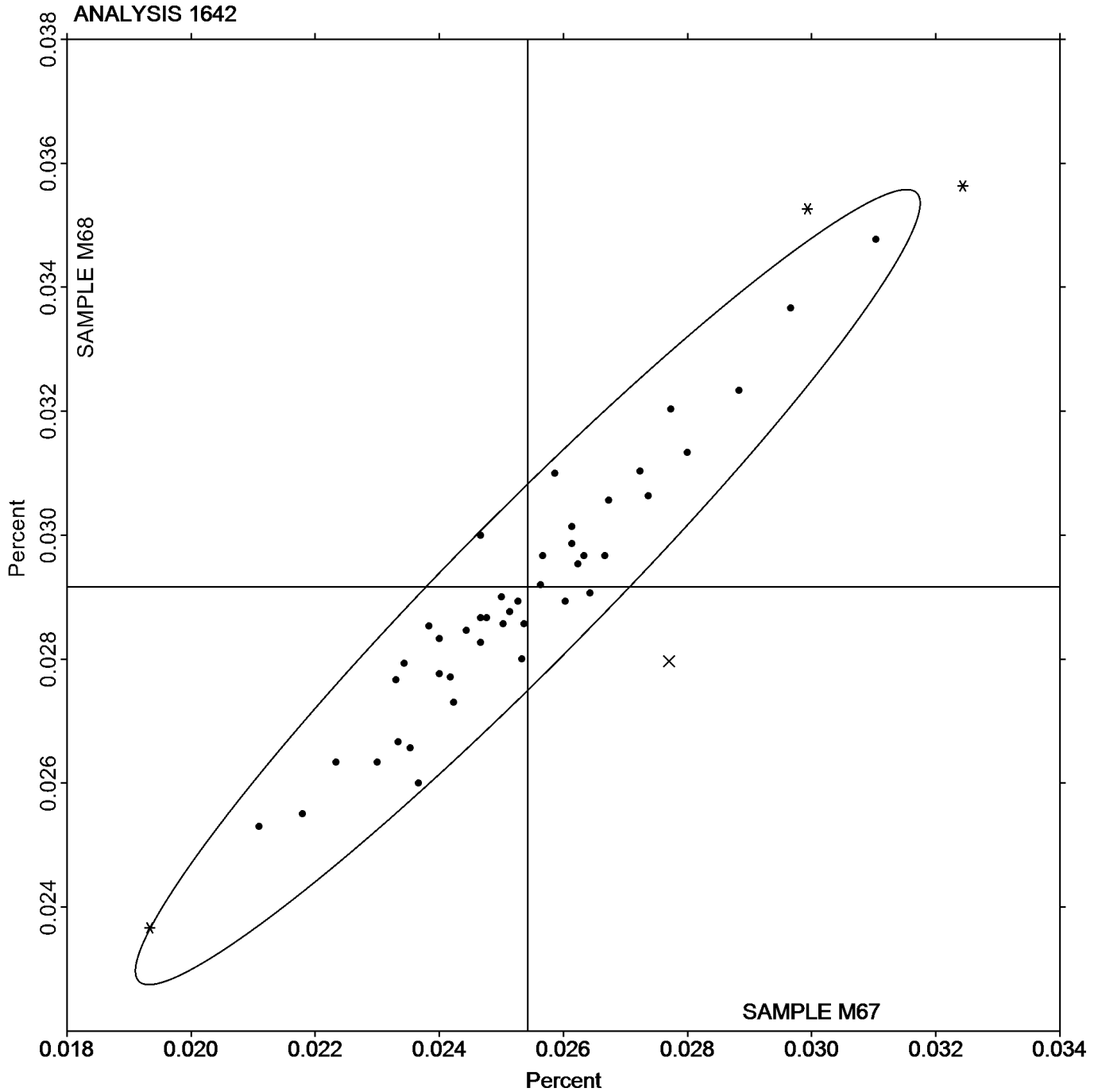


Analysis 1642

Corrosion Resistant Steel, PHOSPHORUS (P)
PHOSPHORUS (P)

SAMPLE M67
0.0254 Percent

SAMPLE M68
0.0292 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1643

2nd Qtr
2020

Corrosion Resistant Steel, SULFUR (S) SULFUR (S)

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK		0.0247	-0.0014	-0.51	0.0280	-0.0005	-0.23	OE
327TV3		0.0307	0.0046	1.67	0.0334	0.0048	2.10	OE
3FLRZ4		0.0244	-0.0017	-0.61	0.0263	-0.0023	-0.99	OE
3GNU9R		0.0217	-0.0044	-1.59	0.0258	-0.0027	-1.19	XX
4J6YBP		0.0283	0.0023	0.83	0.0287	0.0001	0.06	GD
6DCCTN		0.0264	0.0003	0.12	0.0272	-0.0013	-0.58	DR
6GMG2P		0.0279	0.0018	0.67	0.0312	0.0026	1.15	CI
84QCKN	*	0.0320	0.0059	2.16	0.0350	0.0065	2.81	IC
8HGYEN		0.0237	-0.0023	-0.85	0.0265	-0.0021	-0.90	CI
8KMGDK		0.0266	0.0005	0.19	0.0281	-0.0004	-0.19	CO
8LDMTB		0.0241	-0.0019	-0.70	0.0269	-0.0016	-0.71	CI
8MPAJC		0.0229	-0.0031	-1.14	0.0260	-0.0025	-1.10	XX
8V2JTQ		0.0249	-0.0011	-0.41	0.0286	0.0001	0.03	XX
9843GQ		0.0250	-0.0011	-0.39	0.0270	-0.0015	-0.67	OE
9HT63D		0.0235	-0.0025	-0.92	0.0255	-0.0030	-1.31	IC
9XHCXP		0.0257	-0.0003	-0.12	0.0288	0.0003	0.11	CI
9ZVQWK		0.0237	-0.0024	-0.87	0.0287	0.0001	0.06	OE
A4AWNRR		0.0257	-0.0004	-0.13	0.0289	0.0003	0.14	OE
AF2JV8		0.0207	-0.0054	-1.96	0.0227	-0.0059	-2.55	OE
B6RFZ9		0.0294	0.0033	1.20	0.0329	0.0044	1.91	CO
BBPQK9		0.0250	-0.0011	-0.39	0.0265	-0.0020	-0.88	GD
BRBERH		0.0257	-0.0004	-0.15	0.0280	-0.0005	-0.23	OE
C4KB97		0.0234	-0.0027	-0.98	0.0258	-0.0027	-1.17	CI
CDA3WJ		0.0256	-0.0005	-0.18	0.0288	0.0003	0.11	OE
CDAXLG		0.0263	0.0003	0.10	0.0267	-0.0019	-0.81	CI
CYBXQ8	*	0.0324	0.0063	2.31	0.0309	0.0024	1.04	CI
DK3P8F		0.0264	0.0004	0.13	0.0292	0.0006	0.27	CO
F3YYZB		0.0253	-0.0007	-0.27	0.0283	-0.0002	-0.09	OE
GGBWJ3		0.0270	0.0010	0.35	0.0317	0.0032	1.39	OE
GRAGW3		0.0230	-0.0031	-1.12	0.0257	-0.0029	-1.25	CI
GRRKCF		0.0280	0.0019	0.69	0.0303	0.0018	0.76	IR
HTJ22H		0.0255	-0.0006	-0.21	0.0299	0.0014	0.61	CI
K8EVXA		0.0259	-0.0002	-0.06	0.0299	0.0013	0.58	OE
KDYA89		0.0255	-0.0006	-0.21	0.0288	0.0003	0.13	OE
LBPJH4		0.0253	-0.0007	-0.27	0.0284	-0.0002	-0.07	OE
LCGF8X		0.0253	-0.0007	-0.27	0.0280	-0.0005	-0.23	GD
LKYXT7	*	0.0300	0.0039	1.43	0.0287	0.0001	0.06	OE
MQUBXE		0.0272	0.0011	0.40	0.0299	0.0013	0.58	OE
N28Q77		0.0264	0.0003	0.11	0.0289	0.0003	0.14	CI
PRHC3T		0.0241	-0.0019	-0.70	0.0269	-0.0016	-0.71	CI
QHPMHB		0.0267	0.0006	0.23	0.0285	0.0000	0.00	OE
RBBWX4		0.0279	0.0018	0.67	0.0288	0.0002	0.10	OE
RRY3A4	*	0.0345	0.0084	3.07	0.0339	0.0054	2.33	XX
T2YCUY		0.0270	0.0009	0.34	0.0297	0.0011	0.49	CI
TA9QQ9		0.0286	0.0025	0.92	0.0286	0.0001	0.04	OE
TH4K9Z		0.0254	-0.0006	-0.23	0.0273	-0.0012	-0.54	XX
TRTGP9		0.0254	-0.0007	-0.24	0.0284	-0.0002	-0.07	CO



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1643

**2nd Qtr
2020**

**Corrosion Resistant Steel, SULFUR (S)
SULFUR (S)**

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
UZATWC		0.0263	0.0002	0.09	0.0291	0.0005	0.23	CI
V6CLCV		0.0263	0.0002	0.07	0.0283	-0.0003	-0.12	IR
VN8AMQ		0.0190	-0.0071	-2.57	0.0247	-0.0039	-1.68	CO
VPY7AY		0.0253	-0.0008	-0.29	0.0285	0.0000	-0.02	OE
XXMYDV		0.0277	0.0016	0.58	0.0310	0.0025	1.07	GD

Summary Statistics

	Sample M67		Sample M68	
Grand Means	0.0261	Percent	0.0285	Percent
Std Dev Btwn Labs	0.0027	Percent	0.0023	Percent

Samples M67, M68 : AISI 316, AISI 316

Statistics based on 52 of 52 reporting participants

Key to Method Codes Reported by Participants

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

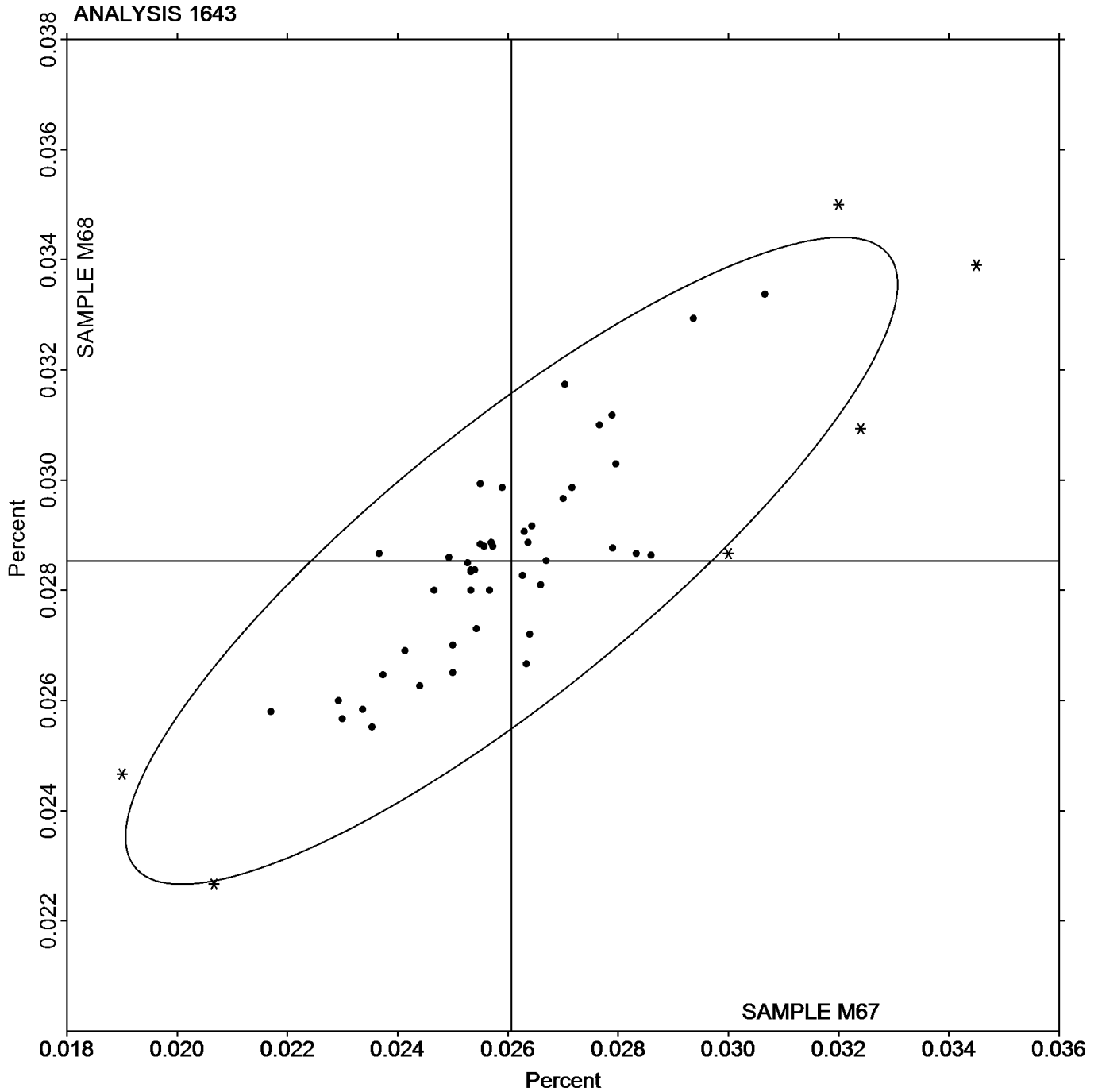


Analysis 1643

Corrosion Resistant Steel, SULFUR (S)
SULFUR (S)

SAMPLE M67
0.0261 Percent

SAMPLE M68
0.0285 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1644

2nd Qtr
2020

Corrosion Resistant Steel, SILICON (Si)
SILICON (Si)

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK	X	0.4770	0.0422	4.19	0.5237	0.0218	1.77	OE
327TV3		0.4443	0.0095	0.94	0.5133	0.0114	0.93	OE
3FLRZ4		0.4427	0.0078	0.78	0.5080	0.0061	0.50	OE
3GNU9R		0.4410	0.0062	0.61	0.5070	0.0051	0.41	XX
4J6YBP		0.4293	-0.0055	-0.55	0.5087	0.0068	0.55	GD
6DCCTN		0.4367	0.0018	0.18	0.4950	-0.0069	-0.56	DR
6GMG2P		0.4298	-0.0051	-0.50	0.4951	-0.0068	-0.56	WD
84QCKN	X	0.4250	-0.0098	-0.98	0.5250	0.0231	1.88	IC
8HGYEN		0.4273	-0.0075	-0.74	0.4987	-0.0032	-0.26	OE
8KMGDK	*	0.4590	0.0242	2.40	0.5370	0.0351	2.85	OE
8LDMTB	X	0.2950	-0.1398	-13.88	0.4870	-0.0149	-1.21	XR
8MPAJC	X	0.3792	-0.0556	-5.52	0.4417	-0.0602	-4.89	OE
8V2JTQ		0.4350	0.0002	0.02	0.5053	0.0034	0.28	XX
9843GQ		0.4200	-0.0148	-1.47	0.4800	-0.0219	-1.78	OE
9HT63D		0.4449	0.0100	1.00	0.5077	0.0058	0.47	IC
9XHCXP		0.4331	-0.0018	-0.18	0.5012	-0.0007	-0.05	XX
9ZVQWK		0.4260	-0.0088	-0.88	0.4913	-0.0106	-0.86	OE
A4AWNRR		0.4347	-0.0002	-0.02	0.4953	-0.0066	-0.53	OE
AF2JV8		0.4327	-0.0022	-0.22	0.5013	-0.0006	-0.05	OE
B6RFZ9		0.4370	0.0022	0.21	0.4993	-0.0026	-0.21	OE
BBPQK9		0.4570	0.0222	2.20	0.5223	0.0204	1.66	GD
BRBERH		0.4300	-0.0048	-0.48	0.4993	-0.0026	-0.21	OE
C4KB97		0.4303	-0.0045	-0.45	0.4987	-0.0032	-0.26	WD
CDA3WJ		0.4213	-0.0136	-1.35	0.4878	-0.0141	-1.15	OE
CDAXLG	X	0.4787	0.0438	4.35	0.5363	0.0344	2.80	IC
CYBXQ8		0.4314	-0.0035	-0.34	0.4957	-0.0062	-0.50	WD
DK3P8F		0.4357	0.0009	0.09	0.5049	0.0030	0.25	DR
F3YYZB	X	0.4687	0.0338	3.36	0.5490	0.0471	3.82	OE
GGBWJ3		0.4307	-0.0042	-0.41	0.5077	0.0058	0.47	OE
GRAGW3		0.4439	0.0091	0.90	0.5110	0.0091	0.74	IC
GRRKCF		0.4453	0.0105	1.04	0.5253	0.0234	1.90	OE
HTJ22H		0.4300	-0.0048	-0.48	0.4987	-0.0032	-0.26	WD
K8EVXA	X	0.4923	0.0575	5.71	0.5657	0.0638	5.18	OE
KDYA89		0.4247	-0.0102	-1.01	0.4893	-0.0126	-1.02	OE
KVKJJB	X	0.5557	0.1208	12.00	0.6210	0.1191	9.67	XR
LBPJH4		0.4344	-0.0004	-0.04	0.5021	0.0002	0.01	OE
LCGF8X		0.4219	-0.0130	-1.29	0.4874	-0.0145	-1.18	GD
LKYXT7		0.4233	-0.0115	-1.14	0.4767	-0.0252	-2.05	OE
MQUBXE		0.4343	-0.0005	-0.05	0.4937	-0.0082	-0.67	OE
N28Q77		0.4433	0.0085	0.84	0.5100	0.0081	0.66	OE
PRHC3T		0.4200	-0.0148	-1.47	0.4877	-0.0142	-1.16	XR
QHPMHB		0.4390	0.0042	0.41	0.5033	0.0014	0.12	OE
RBBWX4		0.4397	0.0048	0.48	0.5057	0.0038	0.31	OE
T2YCUY		0.4423	0.0075	0.74	0.5007	-0.0012	-0.10	DR
TA9QQ9		0.4160	-0.0188	-1.87	0.4860	-0.0159	-1.29	OE
TH4K9Z		0.4217	-0.0132	-1.31	0.4867	-0.0152	-1.24	XX
TRTGP9		0.4340	-0.0008	-0.08	0.5007	-0.0012	-0.10	IC



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1644

**2nd Qtr
2020**

**Corrosion Resistant Steel, SILICON (Si)
SILICON (Si)**

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
UZATWC		0.4573	0.0225	2.23	0.5213	0.0194	1.58	IC
V6CLCV		0.4310	-0.0038	-0.38	0.5017	-0.0002	-0.02	WD
VPY7AY		0.4400	0.0052	0.51	0.5100	0.0081	0.66	WD
XXMYDV	X	0.4447	0.0098	0.98	0.5357	0.0338	2.74	GD
Z78V88		0.4460	0.0112	1.11	0.5233	0.0214	1.74	OE

Summary Statistics

	Sample M67		Sample M68	
Grand Means	0.4348	Percent	0.5019	Percent
Std Dev Btwn Labs	0.0101	Percent	0.0123	Percent

Samples M67, M68 : AISI 316, AISI 316

Statistics based on 43 of 52 reporting participants

Key to Method Codes Reported by Participants

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

Comments on Assigned Data Flags for Test #1644

- 2CQGUK (X) - Data for sample M67 are high. Inconsistent within the determinations of sample M67.
- 84QCKN (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample M67.
- 8LDMTB (X) - Data for sample M67 are low. Inconsistent within the determinations of sample M67.
- 8MPAJC (X) - Data for both samples are low.
- CDAXLG (X) - Data for both samples are high.
- F3YYZB (X) - Data for both samples are high.
- K8EVXA (X) - Data for both samples are high.
- KVKJJB (X) - Data for both samples are high. Inconsistent within the determinations of sample M68.
- XXMYDV (X) - Data for sample M68 are high.

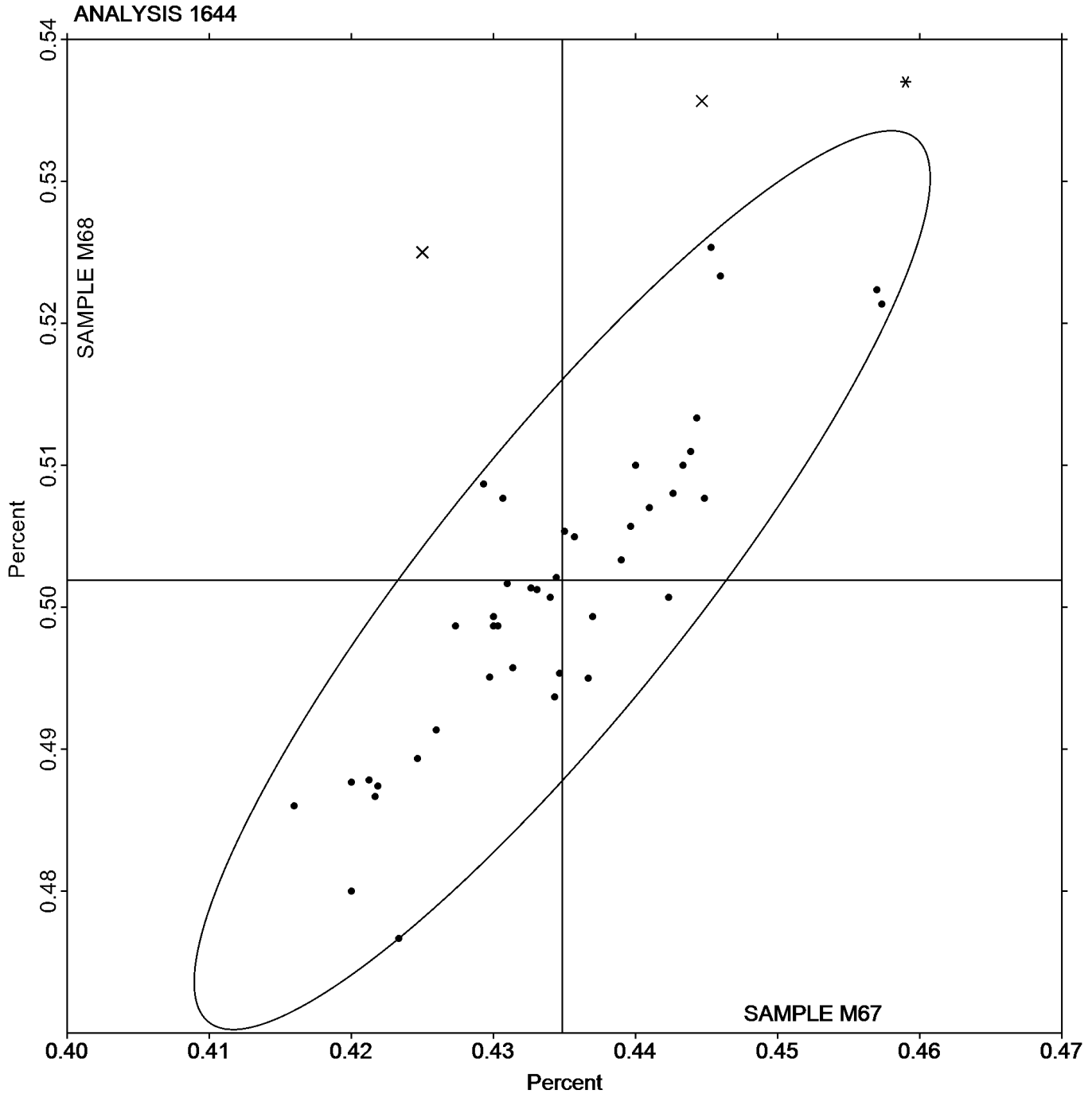


Analysis 1644

Corrosion Resistant Steel, SILICON (Si)
SILICON (Si)

SAMPLE M67
0.4348 Percent

SAMPLE M68
0.5019 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1645

2nd Qtr
2020

Corrosion Resistant Steel, COBALT (Co)
COBALT (Co)

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK	X	0.2533	-0.0511	-5.22	0.2933	-0.0783	-5.74	OE
327TV3		0.3160	0.0115	1.18	0.3953	0.0237	1.74	OE
3FLRZ4		0.2983	-0.0061	-0.63	0.3623	-0.0093	-0.68	OE
3GNU9R		0.2830	-0.0215	-2.19	0.3450	-0.0266	-1.95	XX
4J6YBP		0.2960	-0.0085	-0.86	0.3540	-0.0176	-1.29	GD
6DCCTN		0.3002	-0.0043	-0.43	0.3645	-0.0071	-0.52	DR
6GMG2P		0.3106	0.0061	0.63	0.3766	0.0050	0.37	WD
84QCKN		0.3045	0.0000	0.00	0.3715	-0.0001	-0.01	XX
8HGYEN		0.2940	-0.0105	-1.07	0.3610	-0.0106	-0.78	OE
8KMGDK		0.3040	-0.0005	-0.05	0.3740	0.0024	0.17	OE
8LDMTB		0.3037	-0.0008	-0.08	0.3697	-0.0020	-0.15	XR
8MPAJC		0.2917	-0.0128	-1.30	0.3591	-0.0125	-0.92	OE
8V2JTQ		0.3064	0.0020	0.20	0.3726	0.0010	0.07	XX
9843GQ		0.3100	0.0055	0.56	0.3700	-0.0016	-0.12	OE
9HT63D	*	0.2778	-0.0267	-2.72	0.3394	-0.0322	-2.36	IC
9XHCXP		0.3110	0.0066	0.67	0.3857	0.0141	1.03	XX
9ZVQWK		0.3107	0.0062	0.63	0.3777	0.0060	0.44	OE
AF2JV8		0.3000	-0.0045	-0.46	0.3690	-0.0026	-0.19	OE
B6RFZ9		0.3067	0.0022	0.22	0.3797	0.0080	0.59	OE
BBPQK9		0.3187	0.0142	1.45	0.3827	0.0110	0.81	GD
BRBERH		0.3097	0.0052	0.53	0.3820	0.0104	0.76	OE
C4KB97		0.2830	-0.0215	-2.19	0.3443	-0.0273	-2.00	WD
CDA3WJ		0.3107	0.0062	0.64	0.3791	0.0075	0.55	OE
CDAXLG		0.3010	-0.0035	-0.35	0.3633	-0.0083	-0.61	IC
CYBXQ8	X	0.2811	-0.0234	-2.38	0.2820	-0.0896	-6.57	WD
DK3P8F		0.3107	0.0062	0.63	0.3797	0.0080	0.59	DR
F3YYZB		0.3263	0.0219	2.23	0.4050	0.0334	2.44	OE
GGBWJ3		0.2957	-0.0088	-0.90	0.3653	-0.0063	-0.46	OE
GRAGW3		0.2974	-0.0071	-0.72	0.3596	-0.0120	-0.88	IC
GRRKCF		0.2997	-0.0048	-0.49	0.3653	-0.0063	-0.46	XR
HTJ22H		0.3037	-0.0008	-0.08	0.3717	0.0000	0.00	WD
KDYA89		0.3147	0.0102	1.04	0.3850	0.0134	0.98	OE
LBPJH4		0.3072	0.0027	0.28	0.3735	0.0019	0.14	OE
LCGF8X		0.2990	-0.0055	-0.56	0.3553	-0.0163	-1.20	GD
LKYXT7		0.3100	0.0055	0.56	0.3767	0.0050	0.37	OE
MQUBXE		0.3270	0.0225	2.30	0.4033	0.0317	2.32	OE
N28Q77		0.3140	0.0095	0.97	0.3930	0.0214	1.56	OE
PRHC3T		0.2983	-0.0061	-0.63	0.3620	-0.0096	-0.71	XR
QHPMHB		0.3163	0.0119	1.21	0.3873	0.0157	1.15	OE
RBBWX4		0.3013	-0.0031	-0.32	0.3670	-0.0046	-0.34	OE
RRY3A4		0.3060	0.0015	0.16	0.3770	0.0054	0.39	XX
T2YCUY		0.3007	-0.0038	-0.39	0.3657	-0.0060	-0.44	DR
TA9QQ9		0.2990	-0.0055	-0.56	0.3693	-0.0023	-0.17	OE
TH4K9Z		0.3047	0.0002	0.02	0.3730	0.0014	0.10	XX
UZATWC		0.3057	0.0012	0.12	0.3700	-0.0016	-0.12	IC
V6CLCV		0.3061	0.0016	0.17	0.3741	0.0024	0.18	WD
VPY7AY		0.3087	0.0042	0.43	0.3770	0.0054	0.39	WD



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1645

**2nd Qtr
2020**

**Corrosion Resistant Steel, COBALT (Co)
COBALT (Co)**

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
XXMYDV		0.3057	0.0012	0.12	0.3613	-0.0103	-0.76	GD

Summary Statistics

	Sample M67		Sample M68	
Grand Means	0.3045	Percent	0.3716	Percent
Stnd Dev Btrwn Labs	0.0098	Percent	0.0136	Percent

Samples M67, M68 : AISI 316, AISI 316

Statistics based on 46 of 48 reporting participants

Key to Method Codes Reported by Participants

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

Comments on Assigned Data Flags for Test #1645

- 2CQGUK (X) - Data for both samples are low. Inconsistent within the determinations of sample M67.
- CYBXQ8 (X) - Data for sample M68 are low.



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1646

2nd Qtr
2020

Corrosion Resistant Steel, NICKEL (Ni)
NICKEL (Ni)

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK		10.06	0.06	0.49	9.947	-0.09	-0.81	OE
327TV3		9.987	-0.01	-0.12	10.03	-0.01	-0.11	OE
3FLRZ4		10.14	0.14	1.24	10.15	0.11	1.01	OE
3GNU9R		10.20	0.20	1.74	10.10	0.06	0.54	XX
4J6YBP		10.22	0.22	1.91	10.16	0.12	1.10	GD
6DCCTN		10.06	0.05	0.47	10.01	-0.03	-0.28	DR
6GMG2P		9.854	-0.15	-1.28	9.901	-0.14	-1.21	WD
84QCKN		9.785	-0.22	-1.88	9.780	-0.26	-2.29	IC
8HGYEN		10.01	0.01	0.06	10.05	0.01	0.13	OE
8KMGDK		9.932	-0.07	-0.60	9.999	-0.04	-0.35	OE
8LDMTB		9.895	-0.11	-0.92	9.970	-0.07	-0.61	XR
8MPAJC		9.723	-0.28	-2.42	9.800	-0.24	-2.11	OE
8V2JTQ		10.03	0.03	0.27	10.09	0.05	0.43	XX
9843GQ		9.807	-0.19	-1.69	9.777	-0.26	-2.31	OE
9HT63D		10.11	0.11	0.93	10.13	0.09	0.80	IC
9XHCXP		10.14	0.14	1.25	10.19	0.15	1.33	XX
9ZVQWK		10.08	0.08	0.72	10.12	0.08	0.74	OE
A4AWNRR		10.12	0.12	1.07	10.09	0.05	0.48	OE
AF2JV8		9.967	-0.03	-0.30	9.970	-0.07	-0.61	OE
B6RFZ9		10.02	0.02	0.17	10.05	0.01	0.13	OE
BBPQK9	*	10.10	0.10	0.87	10.30	0.26	2.30	GD
BRBERH		9.890	-0.11	-0.97	9.910	-0.13	-1.14	OE
C4KB97		9.936	-0.06	-0.56	9.979	-0.06	-0.53	WD
CDA3WJ		10.00	0.00	0.00	10.01	-0.03	-0.27	OE
CDAXLG		10.16	0.16	1.36	10.03	-0.01	-0.08	IC
CYBXQ8		9.965	-0.04	-0.32	10.10	0.06	0.49	WD
DK3P8F		9.974	-0.03	-0.23	9.997	-0.04	-0.37	DR
F3YYZB		9.869	-0.13	-1.15	9.960	-0.08	-0.69	OE
GGBWJ3		9.871	-0.13	-1.13	10.03	-0.01	-0.06	OE
GRAGW3		9.867	-0.13	-1.17	9.916	-0.12	-1.08	IC
GRRKCF		9.912	-0.09	-0.78	10.01	-0.03	-0.29	XR
HTJ22H		9.943	-0.06	-0.50	10.02	-0.02	-0.20	WD
K8EVXA		10.08	0.08	0.72	10.15	0.11	1.01	OE
KDYA89		10.12	0.12	1.07	10.18	0.14	1.27	OE
KVKJJB		10.09	0.09	0.78	10.13	0.09	0.80	XR
LBPJH4		9.953	-0.05	-0.42	9.984	-0.05	-0.48	OE
LCGF8X		9.765	-0.24	-2.06	9.821	-0.22	-1.92	GD
LKYXT7		9.953	-0.05	-0.41	10.01	-0.03	-0.29	OE
MQUBXE		10.18	0.18	1.59	10.23	0.19	1.68	OE
N28Q77		10.08	0.08	0.69	10.18	0.14	1.21	OE
PRHC3T		9.964	-0.04	-0.32	10.04	0.00	0.01	XR
QHPMHB		9.938	-0.06	-0.54	9.965	-0.07	-0.66	OE
RBBWX4		10.12	0.12	1.04	10.08	0.04	0.33	OE
RKYRVY		10.06	0.06	0.53	10.12	0.09	0.75	WC
RRY3A4		10.03	0.03	0.28	10.04	0.00	0.01	XX
T2YCUY		9.985	-0.02	-0.14	10.04	0.00	0.03	WD
TA9QQ9		10.02	0.02	0.14	10.09	0.05	0.42	OE



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1646

**2nd Qtr
2020**

**Corrosion Resistant Steel, NICKEL (Ni)
NICKEL (Ni)**

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
TH4K9Z		10.07	0.07	0.57	10.16	0.12	1.04	XX
TRTGP9		10.08	0.08	0.69	10.08	0.04	0.39	IC
UZATWC	X	11.06	1.06	9.24	10.95	0.91	8.04	IC
V6CLCV		10.02	0.02	0.20	10.09	0.05	0.43	WD
VPY7AY		9.934	-0.07	-0.58	10.00	-0.04	-0.34	WD
XXMYDV		10.10	0.10	0.87	10.22	0.18	1.60	GD
Z78V88		9.863	-0.14	-1.20	9.883	-0.16	-1.37	OE

Summary Statistics				
	Sample M67		Sample M68	
Grand Means	10.00	Percent	10.04	Percent
Stnd Dev Btwn Labs	0.11	Percent	0.11	Percent

Samples M67, M68 : AISI 316, AISI 316

Statistics based on 53 of 54 reporting participants

Key to Method Codes Reported by Participants

- | | |
|---|--|
| DR Spectrometry - Direct Reading OE (DROES) | 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 |

Comments on Assigned Data Flags for Test #1646

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



Analysis 1646

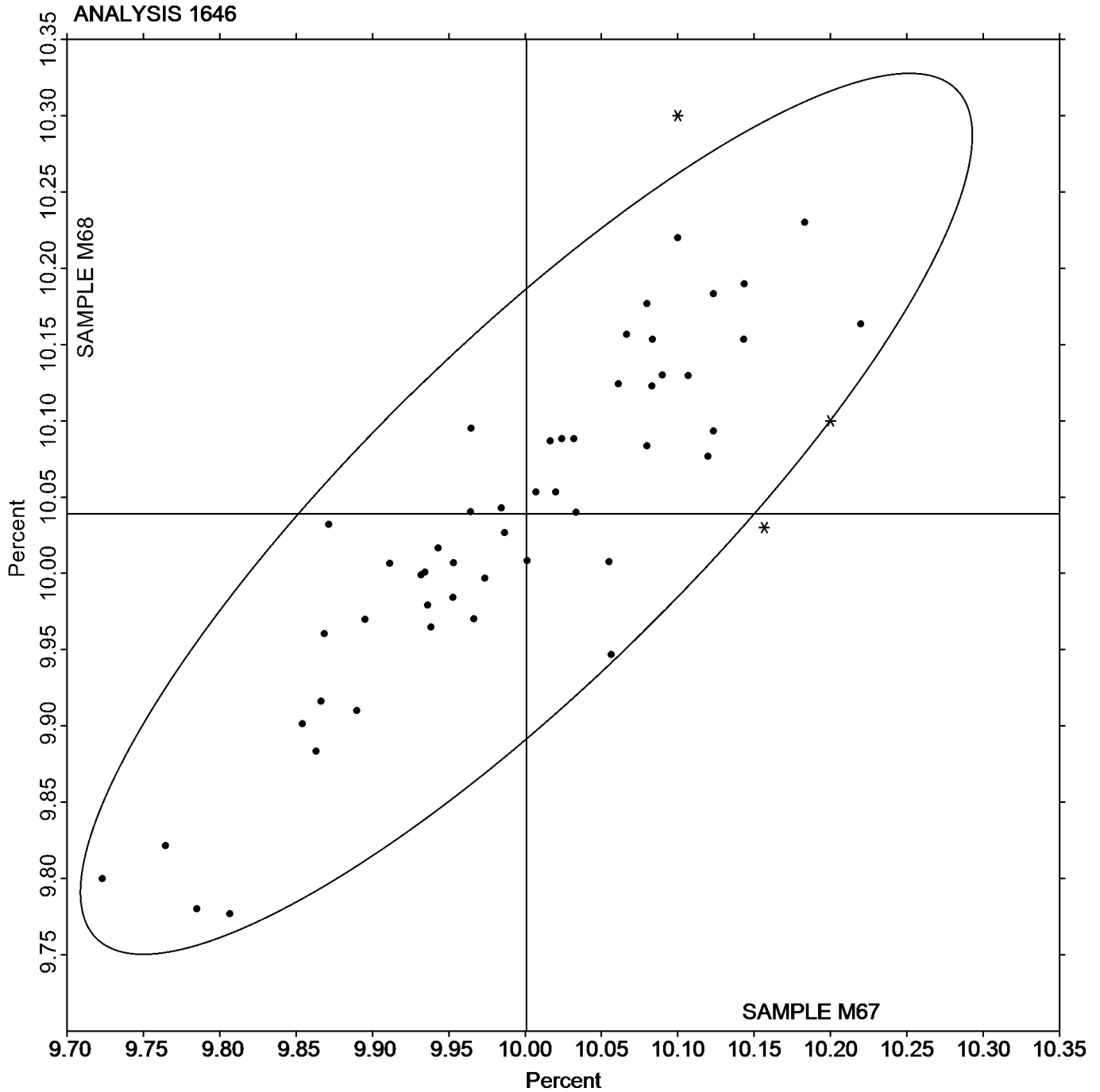
Corrosion Resistant Steel, NICKEL (Ni)
NICKEL (Ni)

SAMPLE M67

SAMPLE M68

10.00 Percent

10.04 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1647

2nd Qtr
2020

Corrosion Resistant Steel, CHROMIUM (Cr) CHROMIUM (Cr)

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK	X	17.59	0.81	9.85	16.67	-0.04	-0.58	OE
327TV3		16.93	0.15	1.77	16.84	0.13	1.68	OE
3FLRZ4		16.65	-0.13	-1.60	16.61	-0.10	-1.38	OE
3GNU9R		16.80	0.02	0.23	16.70	-0.01	-0.18	XX
4J6YBP	X	17.33	0.55	6.69	17.34	0.62	8.30	GD
6DCCTN		16.79	0.01	0.15	16.75	0.04	0.53	DR
6GMG2P		16.65	-0.13	-1.56	16.56	-0.16	-2.08	WD
84QCKN	X	16.60	-0.18	-2.21	16.45	-0.26	-3.51	IC
8HGYEN		16.74	-0.04	-0.49	16.64	-0.08	-1.04	OE
8KMGDK		16.83	0.05	0.59	16.75	0.04	0.49	OE
8LDMTB		16.70	-0.08	-0.97	16.64	-0.07	-0.98	XR
8MPAJC	X	17.15	0.37	4.53	16.94	0.23	3.02	OE
8V2JTQ		16.83	0.05	0.57	16.74	0.03	0.39	XX
9843GQ		16.75	-0.03	-0.38	16.68	-0.04	-0.49	OE
9HT63D	X	17.44	0.65	7.97	17.39	0.68	9.01	IC
9XHCXP		16.68	-0.10	-1.28	16.63	-0.09	-1.13	XX
9ZVQWK	X	16.70	-0.08	-1.03	16.50	-0.21	-2.80	OE
A4AWNRR		16.78	0.00	-0.05	16.74	0.03	0.40	OE
AF2JV8		16.80	0.02	0.19	16.75	0.04	0.49	OE
B6RFZ9		16.97	0.19	2.30	16.87	0.15	2.04	OE
BBPQK9		16.90	0.12	1.45	16.80	0.09	1.15	GD
BRBERH		16.82	0.04	0.47	16.76	0.05	0.66	OE
C4KB97	X	17.77	0.99	12.04	16.66	-0.05	-0.69	WD
CDA3WJ		16.92	0.14	1.69	16.82	0.11	1.42	OE
CDAXLG	*	16.85	0.07	0.88	16.63	-0.09	-1.16	TI
CYBXQ8		16.75	-0.03	-0.34	16.71	-0.01	-0.08	WD
DK3P8F		16.76	-0.02	-0.25	16.68	-0.03	-0.39	DR
F3YYZB		16.72	-0.06	-0.72	16.64	-0.07	-0.96	OE
GGBWJ3	*	17.03	0.25	3.07	16.93	0.21	2.84	OE
GRAGW3		16.69	-0.09	-1.13	16.62	-0.09	-1.20	IC
GRRKCF		16.73	-0.05	-0.57	16.71	0.00	-0.04	XR
HTJ22H		16.70	-0.08	-1.03	16.66	-0.06	-0.76	WD
K8EVXA		16.82	0.04	0.47	16.77	0.06	0.75	OE
KDYA89		16.81	0.03	0.39	16.75	0.04	0.53	OE
KVKJJB		16.85	0.07	0.88	16.72	0.00	0.04	XR
LBPJH4		16.79	0.01	0.16	16.78	0.07	0.88	OE
LCGF8X	X	17.34	0.56	6.77	16.97	0.26	3.42	GD
LKYXT7		16.73	-0.05	-0.66	16.67	-0.05	-0.62	OE
MQUBXE		16.71	-0.07	-0.87	16.62	-0.09	-1.20	OE
N28Q77		16.69	-0.09	-1.15	16.62	-0.10	-1.29	OE
PRHC3T		16.71	-0.07	-0.87	16.64	-0.07	-0.95	XR
QHPMHB		16.73	-0.05	-0.58	16.65	-0.06	-0.85	OE
RBBWX4		16.76	-0.02	-0.22	16.70	-0.01	-0.18	OE
RKYRVY		16.73	-0.05	-0.64	16.71	0.00	-0.06	WC
RRY3A4		16.77	-0.01	-0.14	16.71	0.00	-0.05	XX
T2YCUY		16.84	0.06	0.72	16.78	0.07	0.92	WD
TA9QQ9		16.84	0.06	0.68	16.74	0.03	0.40	OE



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1647

2nd Qtr

Corrosion Resistant Steel, CHROMIUM (Cr)

2020

CHROMIUM (Cr)

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
TH4K9Z		16.78	0.00	-0.01	16.70	-0.01	-0.14	XX
TRTGP9		16.79	0.01	0.11	16.75	0.03	0.44	IC
UZATWC	X	17.15	0.37	4.45	16.84	0.13	1.73	IC
V6CLCV		16.77	-0.02	-0.20	16.69	-0.02	-0.33	WD
VPY7AY		16.73	-0.05	-0.63	16.67	-0.04	-0.56	WD
XXMYDV	X	16.52	-0.26	-3.14	16.62	-0.09	-1.20	GD
Z78V88		16.82	0.04	0.43	16.78	0.07	0.89	OE

Summary Statistics

	Sample M67		Sample M68	
Grand Means	16.78	Percent	16.71	Percent
Stnd Dev Btwn Labs	0.08	Percent	0.08	Percent

Samples M67, M68 : AISI 316, AISI 316

Statistics based on 43 of 54 reporting participants

Key to Method Codes Reported by Participants

DR	Spectrometry - Direct Reading OE (DROES)	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		

Comments on Assigned Data Flags for Test #1647

- 2CQGUK (X) - Data for sample M67 are high. Inconsistent within the determinations of sample M67.
- 4J6YBP (X) - Data for both samples are high. Possible Systematic Error.
- 84QCKN (X) - Data for sample M68 are low.
- 8MPAJC (X) - Data for both samples are high. Possible Systematic Error.
- 9HT63D (X) - Data for both samples are high. Possible Systematic Error.
- 9ZVQWK (X) - Data for sample M68 are low.
- C4KB97 (X) - Data for sample M67 are high. Inconsistent within the determinations of sample M67.
- LCGF8X (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample M68.
- UZATWC (X) - Data for sample M67 are high. Inconsistent within the determinations of sample M68.
- XXMYDV (X) - Data for sample M67 are low.



Analysis 1647

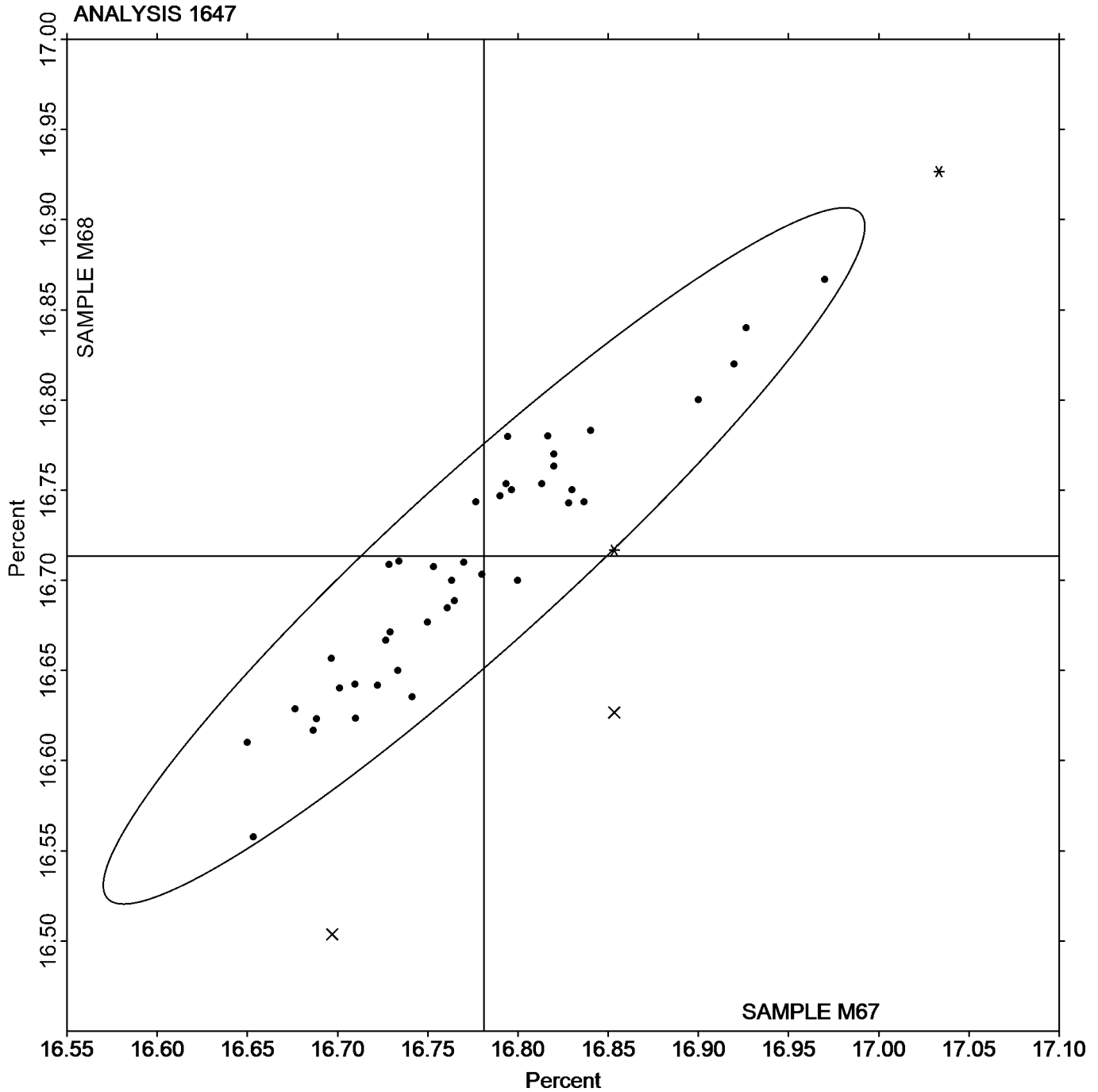
Corrosion Resistant Steel, CHROMIUM (Cr)
CHROMIUM (Cr)

SAMPLE M67

16.78 Percent

SAMPLE M68

16.71 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1648

2nd Qtr
2020

Corrosion Resistant Steel, MOLYBDENUM (Mo) MOLYBDENUM (Mo)

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK	X	2.043	0.019	0.86	2.120	0.057	3.00	OE
327TV3		2.057	0.033	1.46	2.097	0.034	1.78	OE
3FLRZ4		2.023	-0.001	-0.03	2.048	-0.014	-0.76	OE
3GNU9R	X	2.080	0.056	2.50	2.140	0.077	4.05	XX
4J6YBP		2.018	-0.006	-0.25	2.064	0.002	0.08	GD
6DCCTN		2.037	0.013	0.57	2.063	0.001	0.03	DR
6GMG2P		1.980	-0.044	-1.97	2.018	-0.045	-2.35	WD
84QCKN		2.035	0.011	0.49	2.065	0.002	0.12	IC
8HGYEN		2.014	-0.010	-0.46	2.057	-0.006	-0.30	OE
8KMGDK		2.016	-0.008	-0.35	2.076	0.013	0.70	OE
8LDMTB		2.017	-0.007	-0.29	2.060	-0.003	-0.16	XR
8MPAJC		1.967	-0.057	-2.55	2.029	-0.034	-1.78	OE
8V2JTQ		2.023	-0.001	-0.06	2.066	0.003	0.17	XX
9843GQ		2.007	-0.017	-0.77	2.040	-0.023	-1.19	OE
9HT63D		2.057	0.033	1.48	2.103	0.040	2.09	IC
9XHCXP		2.017	-0.007	-0.31	2.063	0.001	0.03	XX
9ZVQWK		1.985	-0.039	-1.72	2.027	-0.036	-1.88	OE
A4AWNRR		2.045	0.021	0.95	2.077	0.015	0.77	OE
AF2JV8		2.003	-0.021	-0.92	2.030	-0.033	-1.72	OE
B6RFZ9		2.063	0.039	1.76	2.090	0.027	1.43	OE
BBPQK9	*	2.093	0.069	3.09	2.110	0.047	2.48	GD
BRBERH		2.021	-0.003	-0.13	2.064	0.001	0.05	OE
C4KB97		2.025	0.001	0.06	2.065	0.002	0.10	WD
CDA3WJ		2.011	-0.013	-0.56	2.057	-0.005	-0.28	OE
CDAXLG	*	2.013	-0.011	-0.47	2.113	0.051	2.65	IC
CYBXQ8		2.026	0.002	0.07	2.079	0.016	0.84	WD
DK3P8F		2.035	0.011	0.48	2.065	0.003	0.14	DR
F3YYZB		2.019	-0.005	-0.20	2.066	0.004	0.19	OE
GGBWJ3		2.035	0.011	0.49	2.082	0.019	0.99	OE
GRAGW3		2.024	0.000	0.01	2.070	0.007	0.37	IC
GRRKCF		2.016	-0.008	-0.37	2.056	-0.007	-0.35	XR
HTJ22H		2.011	-0.013	-0.59	2.055	-0.008	-0.42	WD
K8EVXA	X	1.889	-0.135	-6.02	1.925	-0.138	-7.24	OE
KDYA89		2.010	-0.014	-0.62	2.043	-0.019	-1.02	OE
KVKJJB		2.063	0.039	1.76	2.081	0.019	0.98	XR
LBPJH4		1.994	-0.030	-1.33	2.041	-0.022	-1.16	OE
LCGF8X	X	2.112	0.088	3.92	2.201	0.138	7.24	GD
LKYXT7		2.053	0.029	1.31	2.067	0.004	0.21	OE
MQUBXE		2.019	-0.005	-0.23	2.050	-0.013	-0.67	OE
N28Q77		2.010	-0.014	-0.62	2.047	-0.016	-0.84	OE
PRHC3T		2.015	-0.009	-0.40	2.056	-0.007	-0.37	XR
QHPMHB		2.034	0.010	0.45	2.059	-0.004	-0.20	OE
RBBWX4		2.040	0.016	0.72	2.073	0.011	0.56	OE
RRY3A4		2.020	-0.004	-0.17	2.050	-0.013	-0.67	XX
T2YCUY		2.021	-0.003	-0.14	2.060	-0.002	-0.13	WD
TA9QQ9		2.017	-0.007	-0.32	2.067	0.004	0.21	OE
TH4K9Z		2.010	-0.014	-0.62	2.060	-0.003	-0.14	XX



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1648

2nd Qtr
2020

Corrosion Resistant Steel, MOLYBDENUM (Mo) MOLYBDENUM (Mo)

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
TRTGP9		2.044	0.020	0.88	2.082	0.019	0.99	IC
UZATWC	X	2.262	0.238	10.62	2.272	0.210	11.00	IC
V6CLCV		2.020	-0.004	-0.17	2.060	-0.002	-0.13	WD
VPY7AY		2.017	-0.007	-0.29	2.059	-0.004	-0.21	WD
XXMYDV	X	2.107	0.083	3.69	2.090	0.027	1.43	GD
Z78V88		2.033	0.009	0.42	2.090	0.027	1.43	OE

Summary Statistics

	Sample M67		Sample M68	
Grand Means	2.024	Percent	2.063	Percent
Std Dev Btwn Labs	0.022	Percent	0.019	Percent

Samples M67, M68 : AISI 316, AISI 316

Statistics based on 46 of 53 reporting participants

Key to Method Codes Reported by Participants

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		

Comments on Assigned Data Flags for Test #1648

2CQGUK (X) - Data for sample M68 are high.

3GNU9R (X) - Data for sample M68 are high.

K8EVXA (X) - Data for both samples are low. Possible Systematic Error.

LCGF8X (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample M68.

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

XXMYDV (X) - Data for sample M67 are high. Inconsistent within the determinations of sample M68.



Analysis 1648

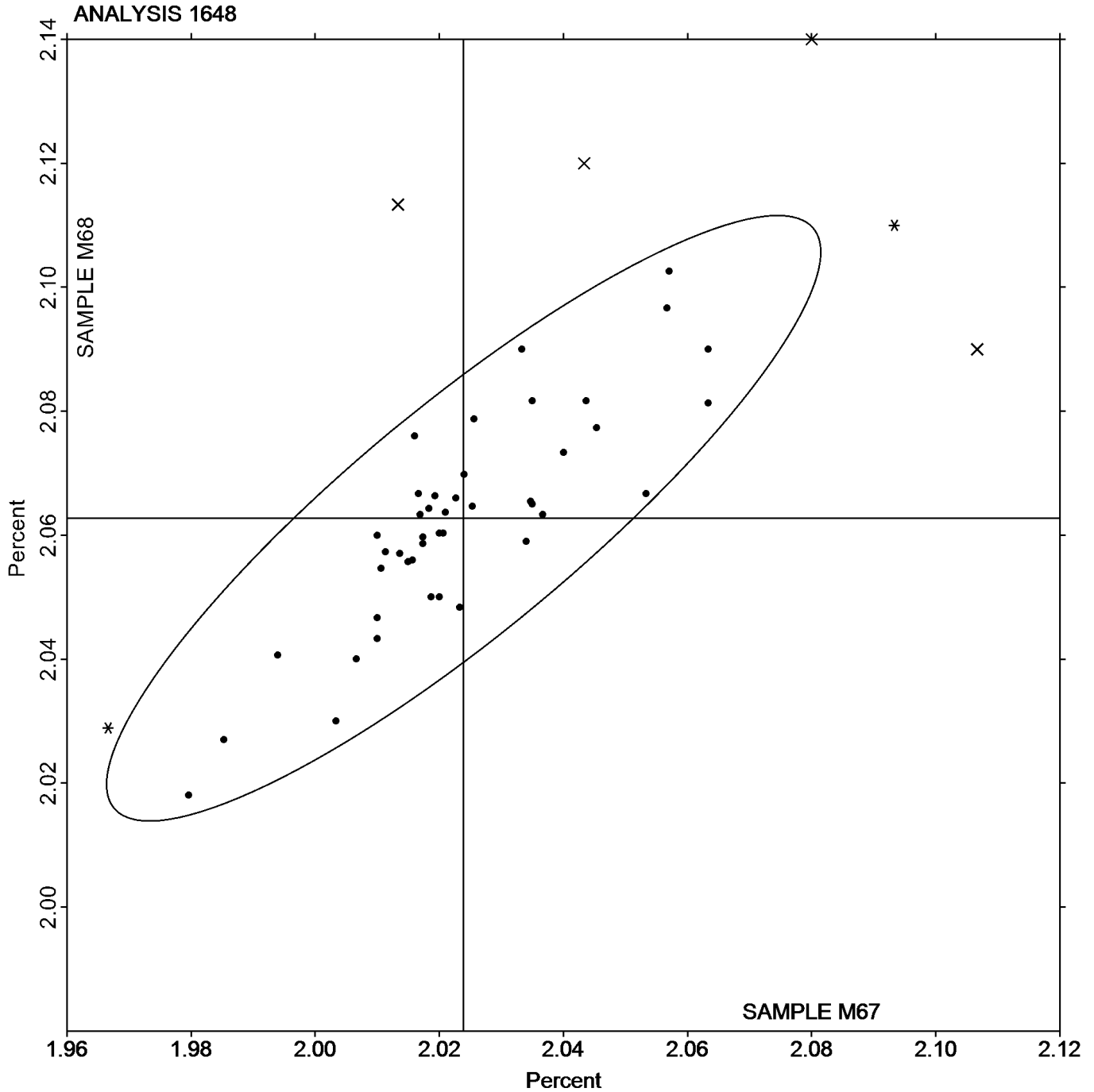
Corrosion Resistant Steel, MOLYBDENUM (Mo)
MOLYBDENUM (Mo)

SAMPLE M67

SAMPLE M68

2.024 Percent

2.063 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1649

2nd Qtr
2020

Corrosion Resistant Steel, COPPER (Cu)
COPPER (Cu)

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CQGUK		0.3233	0.0020	0.31	0.3867	0.0008	0.11	OE
327TV3		0.3223	0.0010	0.16	0.3847	-0.0012	-0.16	OE
3FLRZ4		0.3287	0.0074	1.13	0.3890	0.0032	0.43	OE
3GNU9R		0.3250	0.0037	0.57	0.3950	0.0092	1.26	XX
4J6YBP		0.3233	0.0020	0.31	0.3863	0.0005	0.07	GD
6DCCTN		0.3323	0.0110	1.69	0.3937	0.0078	1.07	DR
6GMG2P		0.3166	-0.0047	-0.72	0.3804	-0.0054	-0.75	WD
84QCKN		0.3235	0.0022	0.34	0.3930	0.0072	0.98	IC
8HGYEN		0.3097	-0.0116	-1.78	0.3737	-0.0122	-1.67	OE
8KMGDK	X	0.3730	0.0517	7.91	0.3730	-0.0128	-1.76	OE
8LDMTB		0.3220	0.0007	0.11	0.3850	-0.0008	-0.12	XR
8MPAJC		0.3225	0.0012	0.19	0.3907	0.0049	0.67	OE
8V2JTQ		0.3235	0.0022	0.34	0.3888	0.0030	0.41	XX
9843GQ		0.3100	-0.0113	-1.73	0.3733	-0.0125	-1.72	OE
9HT63D		0.3292	0.0079	1.20	0.3962	0.0103	1.41	IC
9XHCXP		0.3131	-0.0082	-1.25	0.3790	-0.0068	-0.93	XX
9ZVQWK		0.3260	0.0047	0.72	0.3897	0.0038	0.52	OE
A4AWNR		0.3177	-0.0036	-0.55	0.3810	-0.0048	-0.67	OE
AF2JV8		0.3083	-0.0130	-1.98	0.3703	-0.0155	-2.13	OE
B6RFZ9		0.3267	0.0054	0.82	0.3900	0.0042	0.57	OE
BBPQK9		0.3210	-0.0003	-0.04	0.3840	-0.0018	-0.25	GD
BRBERH		0.3380	0.0167	2.56	0.4010	0.0152	2.08	OE
C4KB97		0.3213	0.0000	0.01	0.3867	0.0008	0.11	WD
CDA3WJ		0.3062	-0.0151	-2.31	0.3722	-0.0136	-1.87	OE
CDAXLG		0.3193	-0.0020	-0.30	0.3757	-0.0102	-1.40	IC
CYBXQ8	X	0.3453	0.0240	3.68	0.3918	0.0060	0.82	WD
DK3P8F		0.3150	-0.0063	-0.96	0.3804	-0.0055	-0.75	DR
F3YYZB		0.3197	-0.0016	-0.25	0.3803	-0.0055	-0.76	OE
GGBWJ3	X	0.3253	0.0040	0.62	0.4050	0.0192	2.63	OE
GRAGW3		0.3139	-0.0074	-1.13	0.3775	-0.0083	-1.15	IC
GRRKCF		0.3237	0.0024	0.36	0.3880	0.0022	0.29	XR
HTJ22H		0.3188	-0.0025	-0.38	0.3825	-0.0034	-0.46	WD
K8EVXA		0.3307	0.0094	1.44	0.3970	0.0112	1.53	OE
KDYA89		0.3157	-0.0056	-0.86	0.3863	0.0005	0.07	OE
KVKJJB	*	0.3250	0.0037	0.57	0.3980	0.0122	1.67	XR
LBPJH4		0.3202	-0.0011	-0.16	0.3816	-0.0042	-0.58	OE
LCGF8X	X	0.2883	-0.0330	-5.04	0.3720	-0.0138	-1.90	GD
LKYXT7		0.3133	-0.0080	-1.22	0.3767	-0.0092	-1.26	OE
MQUBXE		0.3233	0.0020	0.31	0.3903	0.0045	0.62	OE
N28Q77		0.3233	0.0020	0.31	0.3900	0.0042	0.57	OE
PRHC3T		0.3233	0.0020	0.31	0.3867	0.0008	0.11	XR
QHPMHB		0.3180	-0.0033	-0.50	0.3827	-0.0032	-0.44	OE
RBBWX4		0.3343	0.0130	2.00	0.4013	0.0155	2.12	OE
RRY3A4		0.3227	0.0014	0.21	0.3843	-0.0015	-0.21	XX
T2YCUY		0.3253	0.0040	0.62	0.3850	-0.0008	-0.12	DR
TA9QQ9		0.3223	0.0010	0.16	0.3913	0.0055	0.75	OE
TH4K9Z		0.3163	-0.0050	-0.76	0.3823	-0.0035	-0.48	XX



Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1649

**2nd Qtr
2020**

**Corrosion Resistant Steel, COPPER (Cu)
COPPER (Cu)**

WebCode	Data Flag	Sample M67			Sample M68			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
TRTGP9		0.3127	-0.0086	-1.32	0.3790	-0.0068	-0.94	IC
UZATWC		0.3230	0.0017	0.26	0.3823	-0.0035	-0.48	IC
V6CLCV		0.3210	-0.0003	-0.04	0.3840	-0.0018	-0.25	WD
VPY7AY		0.3200	-0.0013	-0.20	0.3900	0.0042	0.57	WD
XXMYDV		0.3287	0.0074	1.13	0.3930	0.0072	0.98	GD
Z78V88		0.3233	0.0020	0.31	0.3900	0.0042	0.57	OE

Summary Statistics

	Sample M67		Sample M68	
Grand Means	0.3213	Percent	0.3858	Percent
Stnd Dev Btwn Labs	0.0065	Percent	0.0073	Percent

Samples M67, M68 : AISI 316, AISI 316

Statistics based on 49 of 53 reporting participants

Key to Method Codes Reported by Participants

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

Comments on Assigned Data Flags for Test #1649

- 8KMGDK (X) - Data for sample M67 are high.
- CYBXQ8 (X) - Data for sample M67 are high.
- GGBWJ3 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.
- LCGF8X (X) - Data for sample M67 are low. Inconsistent within the determinations of sample M67.

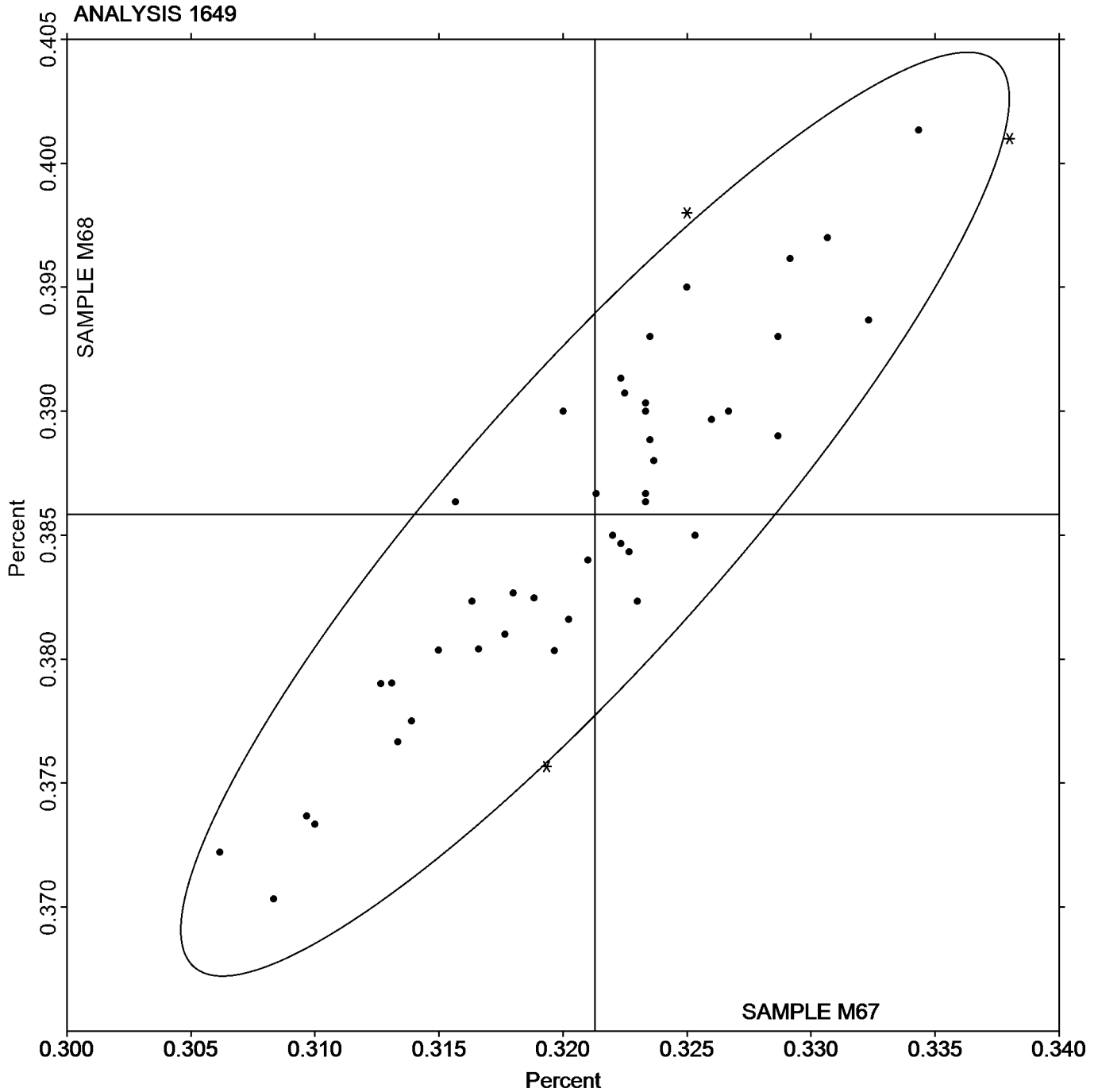


Analysis 1649

Corrosion Resistant Steel, COPPER (Cu)
COPPER (Cu)

SAMPLE M67
0.3213 Percent

SAMPLE M68
0.3858 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 130

Analysis 1649

2nd Qtr

Corrosion Resistant Steel, COPPER (Cu)

2020

COPPER (Cu)

-End of Report-