

# Fasteners & Metals Interlaboratory Testing Program

Summary Report Cycle 134, 2nd Qtr 2021

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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.

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## Key for Fasteners & Metals Program Web Summary Report

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

### Data Flags

Data Flag Type	Statistically Included/Excluded	ACTION REQUIRED
*	INCLUDED	<b>CAUTION</b> - 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	<b>STOP</b> - 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	<b>PROCEED</b> - 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 134

## Analysis 1003

2nd Qtr  
2021

Charpy V-Notch (-30 degrees)  
ASTM E23

WebCode	Data Flag	Sample U75			Sample U76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
4MR9DY		24.82	0.81	0.44	24.99	1.50	0.60
68W4QN		23.47	-0.54	-0.29	23.47	-0.03	-0.01
8EH33D		23.00	-1.01	-0.55	22.67	-0.83	-0.33
8RRNF6	X	10.33	-13.67	-7.45	10.00	-13.50	-5.41
9KB8NU		24.20	0.19	0.10	23.17	-0.33	-0.13
A6QCMN		23.04	-0.97	-0.53	20.33	-3.17	-1.27
CYGV6E		26.63	2.63	1.43	26.30	2.80	1.12
FEFX83		23.67	-0.34	-0.19	19.33	-4.17	-1.67
GJ9DHV		25.67	1.66	0.90	24.67	1.17	0.47
HFJEEW		23.20	-0.81	-0.44	23.97	0.47	0.19
MBQ2LV		23.93	-0.07	-0.04	26.00	2.50	1.00
MRKFBP		22.67	-1.34	-0.73	23.03	-0.47	-0.19
QTZ322		24.45	0.44	0.24	22.06	-1.44	-0.58
REHQ36	*	26.67	2.66	1.45	30.67	7.17	2.87
V6GLF7		21.67	-2.34	-1.27	21.00	-2.50	-1.00
W8LKE6		27.56	3.55	1.93	24.56	1.06	0.43
XA29GP		21.91	-2.10	-1.14	22.20	-1.30	-0.52
XZZUN4		26.21	2.20	1.20	23.50	0.00	0.00
YBCEAJ		22.06	-1.94	-1.06	21.89	-1.61	-0.64
YF4PEG		21.33	-2.67	-1.46	22.67	-0.83	-0.33

### Summary Statistics

	Sample U75		Sample U76	
<b>Grand Means</b>	24.01	Joules	23.50	Joules
<b>Stnd Dev Btwn Labs</b>	1.84	Joules	2.50	Joules

Samples U75, U76 : AISI 4340, AISI 4340

Statistics based on 19 of 20 reporting participants

### Comments on Assigned Data Flags for Test #1003

8RRNF6 (X) - Data for both samples are low.



Analysis 1003

Charpy V-Notch (-30 degrees)

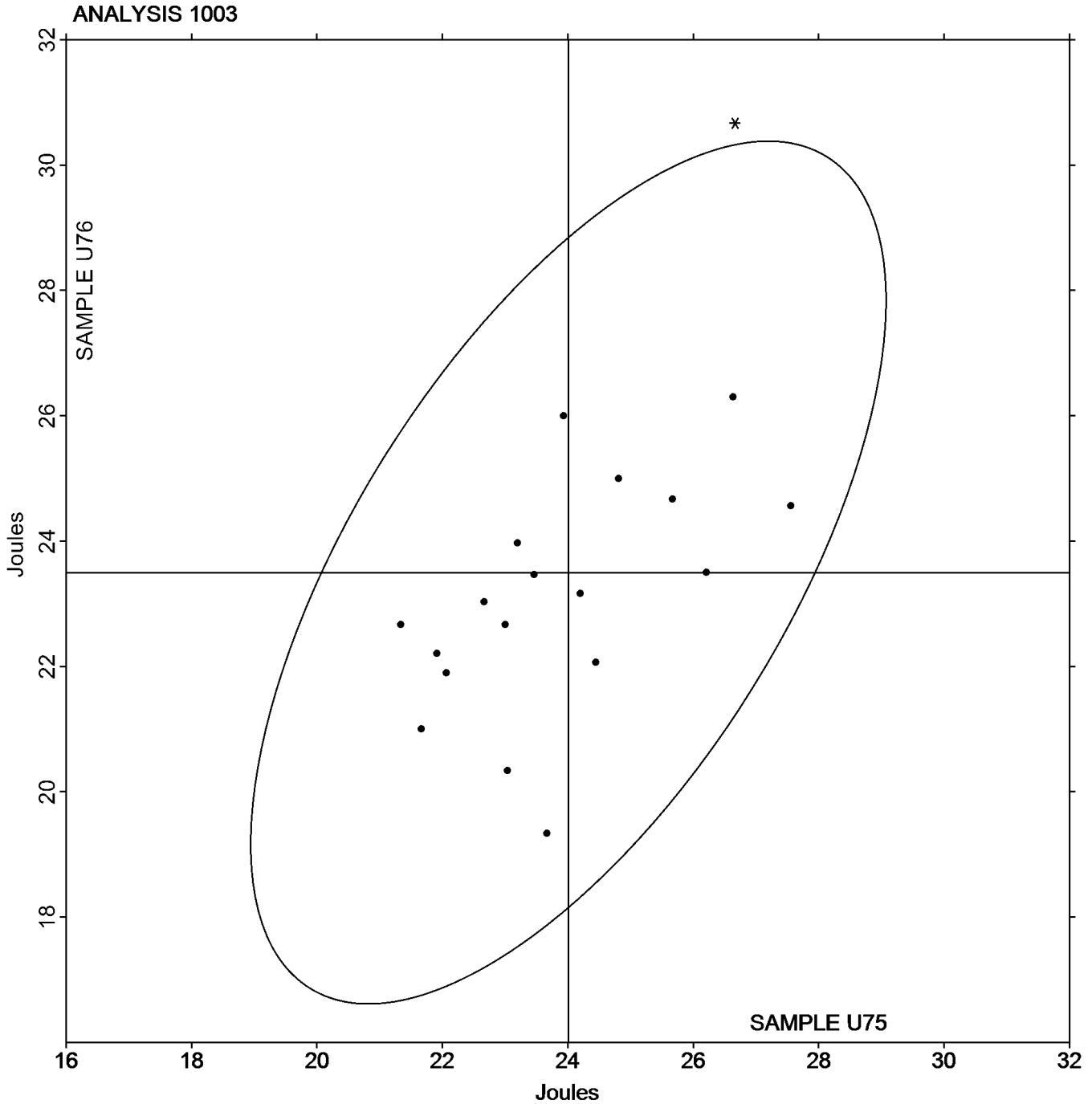
ASTM E23

SAMPLE U75

SAMPLE U76

24.01 Joules

23.50 Joules





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1131

2nd Qtr

Tensile Strength: Lab-Machined Flat Steel

2021

ASTM E8

WebCode	Data Flag	Sample F75			Sample F76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
23PKT6		55.80	1.02	1.60	55.40	0.90	1.35
2CYZMJ	X	53.80	-0.98	-1.53	41.00	-13.50	-20.28
2MZFMW		55.60	0.82	1.29	55.00	0.50	0.75
2P4B7Y		53.90	-0.88	-1.38	53.20	-1.30	-1.95
32WUHH		54.40	-0.38	-0.59	53.70	-0.80	-1.20
3LX67J		55.30	0.52	0.82	54.50	0.00	0.00
3PKFHX		54.44	-0.34	-0.53	53.60	-0.90	-1.35
48GK7Q		54.68	-0.09	-0.15	54.45	-0.05	-0.08
4F86CN		54.70	-0.08	-0.12	54.20	-0.30	-0.45
68W4QN		54.53	-0.24	-0.38	54.10	-0.40	-0.60
6EB28F		54.00	-0.78	-1.22	53.30	-1.20	-1.80
6HT9H2		55.69	0.92	1.44	55.40	0.91	1.36
6TRRBN		55.02	0.25	0.39	54.83	0.33	0.50
77F6EB		54.27	-0.50	-0.79	54.22	-0.28	-0.43
7DGJW7		53.90	-0.88	-1.38	53.60	-0.90	-1.35
7QH4BP		54.00	-0.78	-1.22	53.70	-0.80	-1.20
83R2TX	X	54.30	-0.48	-0.75	52.60	-1.90	-2.85
8EQQWE		54.70	-0.08	-0.12	54.70	0.20	0.30
9BMJQ8		54.50	-0.28	-0.43	54.10	-0.40	-0.60
9CY6RU		55.41	0.64	1.00	54.99	0.49	0.73
9EC8WC		54.45	-0.33	-0.52	54.07	-0.43	-0.64
9KB8NU		54.53	-0.24	-0.38	54.39	-0.11	-0.17
9UEMAT	*	56.40	1.62	2.55	56.30	1.80	2.70
AKKYTG		53.80	-0.98	-1.53	53.90	-0.60	-0.90
APEVGM		55.40	0.62	0.98	54.70	0.20	0.30
AV9L8R		55.60	0.82	1.28	55.56	1.06	1.59
B2PKW4		55.10	0.32	0.51	54.90	0.40	0.60
B6M8N7		55.01	0.23	0.37	54.79	0.29	0.44
BCJXZF		55.26	0.48	0.76	54.69	0.19	0.28
BQQUBV		54.53	-0.24	-0.38	53.81	-0.69	-1.04
CAT4LC		54.82	0.05	0.07	54.68	0.18	0.27
CDRH8G		56.29	1.51	2.37	56.13	1.63	2.44
CTMVQJ		55.20	0.42	0.66	55.20	0.70	1.05
DYVVCU		55.20	0.42	0.66	54.75	0.25	0.38
EW26Y8		55.30	0.53	0.83	55.16	0.66	0.99
FBTGUN		55.28	0.51	0.80	54.37	-0.13	-0.20
FTXQWA		55.40	0.62	0.98	54.80	0.30	0.45
FWX2RA		53.42	-1.36	-2.13	53.44	-1.06	-1.60
FYKNCA	X	56.45	1.67	2.62	57.87	3.37	5.06
G4QRRR		55.56	0.78	1.22	55.48	0.98	1.48
GDZYRJ		55.90	1.12	1.76	55.50	1.00	1.50
GPYVNK		55.28	0.51	0.80	54.90	0.40	0.60
HFJEEW		55.10	0.32	0.51	54.80	0.30	0.45
HJ2K4K		54.31	-0.46	-0.73	54.13	-0.37	-0.55
JCYV27		54.97	0.19	0.30	54.82	0.32	0.49
JL4ZR2		54.50	-0.28	-0.43	54.30	-0.20	-0.30
JNVVK2		55.10	0.32	0.51	54.80	0.30	0.45



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1131

2nd Qtr  
2021

### Tensile Strength: Lab-Machined Flat Steel ASTM E8

WebCode	Data Flag	Sample F75			Sample F76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
JRN84E	X	68.72	13.95	21.87	40.85	-13.65	-20.50
JXXAJG		55.12	0.34	0.54	54.95	0.45	0.68
K6ZJPA	*	53.77	-1.01	-1.58	52.99	-1.51	-2.28
KCFA3N		55.10	0.32	0.51	54.30	-0.20	-0.30
KFDQH4		53.67	-1.11	-1.73	53.33	-1.17	-1.76
L3KQ2K	X	58.16	3.38	5.31	58.16	3.66	5.50
L7TPNF	X	42.70	-12.08	-18.94	54.70	0.20	0.30
L9AAAY9		55.10	0.32	0.51	54.90	0.40	0.60
L9DNTW		55.20	0.42	0.66	54.60	0.10	0.15
LFRJM7		54.40	-0.38	-0.59	54.40	-0.10	-0.15
LHBZFB		54.64	-0.14	-0.22	54.73	0.23	0.34
LNNH9D		55.14	0.37	0.58	54.65	0.15	0.23
MAY4AH		54.72	-0.06	-0.10	54.19	-0.31	-0.46
MNHGVQ		55.10	0.32	0.51	54.90	0.40	0.60
N7WDTV		54.91	0.13	0.20	54.35	-0.15	-0.23
N8DFNB		54.26	-0.52	-0.81	54.37	-0.13	-0.20
NBADPM		54.17	-0.60	-0.95	54.20	-0.30	-0.45
NKY4AT		55.04	0.27	0.42	54.75	0.25	0.38
NRCVVK		55.00	0.22	0.35	54.60	0.10	0.15
NREK6N	*	56.42	1.64	2.58	56.28	1.78	2.67
NRFMLF		54.81	0.03	0.05	54.42	-0.08	-0.12
NULV2R	X	56.20	1.42	2.23	56.90	2.40	3.61
NVEVX3		54.70	-0.08	-0.12	54.80	0.30	0.45
P2CY9T		55.10	0.32	0.51	54.83	0.33	0.50
P7PR8Y		55.10	0.32	0.51	54.60	0.10	0.15
PD7D9Q		55.10	0.32	0.51	54.70	0.20	0.30
PPPNXA		54.83	0.05	0.08	54.72	0.22	0.34
PYW9KC	X	58.42	3.65	5.72	58.45	3.95	5.94
PZNAF2		54.23	-0.54	-0.85	54.39	-0.11	-0.17
Q4ZW9X		55.01	0.23	0.37	55.07	0.57	0.85
Q7N84W		55.26	0.48	0.76	55.11	0.61	0.92
QA88JC		53.90	-0.88	-1.38	53.30	-1.20	-1.80
QHYREC		55.26	0.48	0.76	54.82	0.32	0.49
QTYB3Y		54.70	-0.08	-0.12	54.60	0.10	0.15
QTZ322		55.03	0.25	0.39	55.22	0.72	1.08
QUYB6J		55.20	0.42	0.66	54.70	0.20	0.30
QXCYYN		55.14	0.36	0.57	54.90	0.40	0.60
QZHNV7		54.80	0.02	0.04	54.80	0.30	0.45
RPV28M		54.70	-0.08	-0.12	54.10	-0.40	-0.60
RWK9CA		54.48	-0.30	-0.47	54.63	0.13	0.19
TCBKEJ		53.66	-1.11	-1.74	53.66	-0.84	-1.25
TQKKRK		54.80	0.02	0.04	54.50	0.00	0.00
TYJZRZ		55.57	0.80	1.25	55.42	0.92	1.38
TYXE63		54.61	-0.17	-0.27	54.58	0.08	0.12
U9LU8B		54.56	-0.21	-0.33	54.46	-0.04	-0.06
UT9JJN		54.70	-0.08	-0.12	54.90	0.40	0.60
V6GLF7		54.10	-0.68	-1.06	54.10	-0.40	-0.60



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1131

2nd Qtr  
2021

### Tensile Strength: Lab-Machined Flat Steel ASTM E8

WebCode	Data Flag	Sample F75			Sample F76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
VNQQV3		54.40	-0.38	-0.59	54.60	0.10	0.15
VRWYEK	X	55.60	0.82	1.29	53.50	-1.00	-1.50
VUG3U6		55.00	0.22	0.35	55.00	0.50	0.75
VZ3ZEL		54.00	-0.78	-1.22	54.00	-0.50	-0.75
W8LKE6		54.64	-0.14	-0.22	55.06	0.56	0.84
X6BX8Q		53.76	-1.01	-1.59	53.56	-0.94	-1.41
XFTFZX		53.28	-1.49	-2.34	53.00	-1.50	-2.26
XLY8BG		54.64	-0.14	-0.22	54.35	-0.15	-0.23
XMNHZN		53.80	-0.98	-1.53	53.60	-0.90	-1.35
XRMPRD		55.05	0.27	0.43	54.74	0.24	0.36
XVMZMD	*	54.34	-0.44	-0.69	53.23	-1.27	-1.90
XXRMZG		54.60	-0.18	-0.28	54.10	-0.40	-0.60
Y299NH		54.90	0.12	0.19	54.60	0.10	0.15
YGKY93		53.50	-1.28	-2.00	53.10	-1.40	-2.10
ZD27VE	*	53.30	-1.48	-2.32	53.70	-0.80	-1.20
ZH8W4L		55.40	0.62	0.98	55.00	0.50	0.75
ZQ6EQB		54.95	0.17	0.27	54.19	-0.31	-0.46

#### Summary Statistics

	Sample F75		Sample F76	
<b>Grand Means</b>	54.78	ksi	54.50	ksi
<b>Std Dev Btrwn Labs</b>	0.64	ksi	0.67	ksi

Samples F75, F76 : AISI 1008 - 14G, AISI 1008 - 16G

Statistics based on 102 of 111 reporting participants

#### Comments on Assigned Data Flags for Test #1131

- 2CZYMJ (X) - Data for sample F76 are low.
- 83R2TX (X) - Data for sample F76 are low.
- FYKNCA (X) - Data for sample F76 are high.
- JRN84E (X) - Data for sample F75 are high and data for sample F76 are low. Inconsistent in testing between samples.
- L3KQ2K (X) - Data for both samples are high. Possible Systematic Error.
- L7TPNF (X) - Data for sample F75 are low.
- NULV2R (X) - Data for sample F76 are high.
- PYW9KC (X) - Data for both samples are high. Possible Systematic Error.
- VRWYEK (X) - Inconsistent in testing between samples.





Analysis 1131

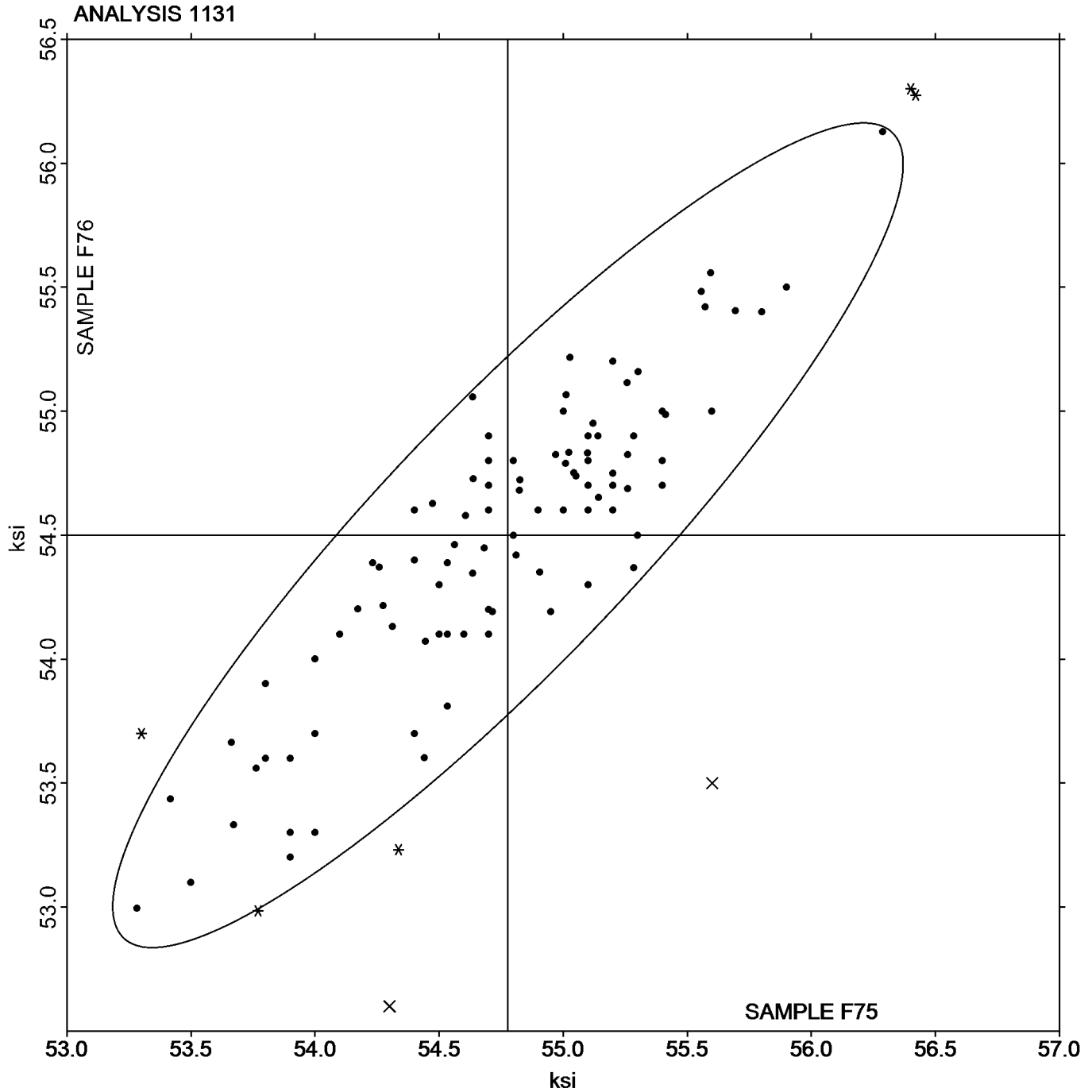
Tensile Strength: Lab-Machined Flat Steel  
ASTM E8

SAMPLE F75

SAMPLE F76

54.78 ksi

54.50 ksi





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1132

2nd Qtr  
2021

### Yield Strength: Lab-Machined Flat Steel ASTM E8

WebCode	Data Flag	Sample F75			Sample F76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
23PKT6		37.30	-0.40	-0.43	37.20	-0.28	-0.35
2CZYMJ	X	36.60	-1.10	-1.19	28.10	-9.38	-11.61
2MZFMW	*	40.40	2.70	2.94	39.50	2.02	2.50
2P4B7Y		38.80	1.10	1.20	37.30	-0.18	-0.22
32WUHV		38.60	0.90	0.98	37.20	-0.28	-0.35
3LX67J		38.60	0.90	0.98	37.80	0.32	0.40
3PKFNV		36.23	-1.47	-1.59	36.02	-1.46	-1.81
48GK7Q		37.23	-0.46	-0.50	37.07	-0.41	-0.51
4F86CN		36.80	-0.90	-0.97	36.80	-0.68	-0.84
68W4QN		37.57	-0.13	-0.14	37.13	-0.35	-0.43
6EB28F		36.60	-1.10	-1.19	36.40	-1.08	-1.34
6HT9H2		36.98	-0.71	-0.77	36.69	-0.79	-0.97
77F6EB		37.83	0.13	0.14	37.77	0.29	0.36
7DGJW7		37.50	-0.20	-0.21	36.80	-0.68	-0.84
7QH4BP		38.10	0.40	0.44	37.60	0.12	0.15
83R2TX	*	37.70	0.00	0.00	36.30	-1.18	-1.46
8EQQWE		37.20	-0.50	-0.54	37.50	0.02	0.02
9BMJQ8		37.90	0.20	0.22	37.20	-0.28	-0.35
9CY6RU		38.02	0.32	0.35	37.65	0.17	0.21
9EC8WC		37.12	-0.57	-0.62	37.33	-0.15	-0.18
9KB8NU		37.30	-0.39	-0.43	37.38	-0.10	-0.12
9UEMAT		39.40	1.70	1.85	39.00	1.52	1.88
AKKYTG		36.60	-1.10	-1.19	36.50	-0.98	-1.21
APEVGM		37.00	-0.70	-0.76	36.90	-0.58	-0.72
AV9L8R		37.66	-0.04	-0.04	37.40	-0.08	-0.10
B2PKW4		37.60	-0.10	-0.10	38.10	0.62	0.77
B6M8N7		39.16	1.46	1.59	38.83	1.35	1.67
BCJXZF		39.31	1.61	1.75	38.26	0.78	0.96
BQQUBV		35.82	-1.87	-2.03	36.26	-1.22	-1.51
CAT4LC		37.42	-0.28	-0.30	37.28	-0.21	-0.25
CTMVQJ		37.29	-0.41	-0.44	37.50	0.02	0.02
DYVVCU		37.60	-0.10	-0.10	37.50	0.02	0.02
EW26Y8		38.99	1.29	1.40	38.35	0.87	1.07
FBTGUN	X	41.04	3.35	3.64	40.49	3.01	3.73
FTXQWA		38.40	0.70	0.76	37.80	0.32	0.40
FWX2RA		37.00	-0.70	-0.76	37.00	-0.48	-0.59
FYKNCA	*	39.24	1.54	1.67	39.78	2.29	2.84
G4QRRR		37.67	-0.02	-0.03	38.34	0.86	1.06
GDZYRJ		38.60	0.90	0.98	38.20	0.72	0.89
GPYVNK		37.95	0.25	0.27	37.80	0.32	0.40
HFJEEW		37.00	-0.70	-0.76	36.80	-0.68	-0.84
HJ2K4K		37.27	-0.43	-0.46	37.43	-0.05	-0.06
JCYV27		37.42	-0.28	-0.30	36.98	-0.50	-0.61
JL4ZR2		37.00	-0.70	-0.76	36.80	-0.68	-0.84
JNVWK2	X	39.80	2.10	2.29	40.70	3.22	3.99
JRN84E	X	48.76	11.06	12.01	27.98	-9.50	-11.76
JXXAJG	*	37.59	-0.11	-0.12	36.20	-1.28	-1.58



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1132

2nd Qtr  
2021

### Yield Strength: Lab-Machined Flat Steel ASTM E8

WebCode	Data Flag	Sample F75			Sample F76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
K6ZJPA		36.43	-1.27	-1.38	35.91	-1.58	-1.95
KCFA3N		38.80	1.10	1.20	37.90	0.42	0.52
KFDQH4		37.72	0.03	0.03	37.99	0.51	0.63
L3KQ2K	X	39.45	1.75	1.91	40.32	2.84	3.52
L7TPNF	X	30.00	-7.70	-8.36	38.50	1.02	1.26
L9AAY9		37.70	0.00	0.00	37.90	0.42	0.52
L9DNTW		37.10	-0.60	-0.65	37.30	-0.18	-0.22
LFRJM7		37.00	-0.70	-0.76	36.40	-1.08	-1.34
LHBZFB	X	37.36	-0.33	-0.36	35.60	-1.88	-2.33
LNNH9D		37.04	-0.65	-0.71	36.91	-0.57	-0.70
MAY4AH		37.70	0.01	0.01	37.49	0.01	0.01
MNHGVQ		39.30	1.60	1.74	39.30	1.82	2.25
N7WDTV		37.58	-0.12	-0.13	37.52	0.04	0.04
N8DFNB		35.82	-1.88	-2.04	36.31	-1.17	-1.45
NBADPM		37.80	0.10	0.11	37.09	-0.39	-0.49
NKY4AT		36.67	-1.03	-1.12	37.01	-0.47	-0.58
NRCVVK		38.90	1.20	1.31	37.70	0.22	0.27
NREK6N		38.29	0.59	0.65	38.29	0.81	1.00
NRFMLF		37.10	-0.60	-0.65	36.96	-0.52	-0.65
NULV2R	*	37.20	-0.50	-0.54	38.50	1.02	1.26
NVEVX3		38.40	0.70	0.76	38.20	0.72	0.89
P2CY9T	X	36.92	-0.78	-0.84	38.79	1.31	1.62
P7PR8Y		37.80	0.10	0.11	37.50	0.02	0.02
PD7D9Q		37.30	-0.40	-0.43	37.30	-0.18	-0.22
PPNXA		38.31	0.61	0.66	38.36	0.87	1.08
PYW9KC	X	40.95	3.25	3.53	40.50	3.02	3.74
PZNAF2		37.59	-0.11	-0.12	37.41	-0.07	-0.09
Q4ZW9X		38.23	0.53	0.57	38.05	0.57	0.70
Q7N84W		37.57	-0.13	-0.14	37.42	-0.06	-0.07
QA88JC		36.80	-0.90	-0.97	36.70	-0.78	-0.97
QHYREC		37.71	0.01	0.02	37.57	0.08	0.11
QTYB3Y		37.60	-0.10	-0.10	37.40	-0.08	-0.10
QTZ322	X	40.86	3.16	3.43	38.17	0.69	0.86
QUYB6J		37.50	-0.20	-0.21	37.50	0.02	0.02
QXCYYN		38.90	1.20	1.31	37.80	0.32	0.40
QZHN7		39.50	1.80	1.96	38.70	1.22	1.51
RPV28M		37.00	-0.70	-0.76	37.00	-0.48	-0.59
RWK9CA		37.67	-0.03	-0.03	37.60	0.11	0.14
TCBKEJ		37.13	-0.57	-0.61	37.57	0.08	0.11
TQKKRK		37.70	0.00	0.00	37.30	-0.18	-0.22
TYJZRZ		37.73	0.03	0.04	37.73	0.25	0.31
TYXE63		37.45	-0.25	-0.27	37.42	-0.06	-0.07
U9LU8B		36.58	-1.12	-1.21	36.93	-0.55	-0.68
UT9JJN		37.20	-0.50	-0.54	37.80	0.32	0.40
V6GLF7		36.84	-0.86	-0.93	36.98	-0.50	-0.61
VNQQV3	*	39.70	2.00	2.18	39.80	2.32	2.87
VRWYEK		37.90	0.20	0.22	36.60	-0.88	-1.09



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1132

2nd Qtr  
2021

### Yield Strength: Lab-Machined Flat Steel ASTM E8

WebCode	Data Flag	Sample F75			Sample F76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
VUG3U6	*	39.00	1.30	1.42	37.40	-0.08	-0.10
VZ3ZEL		38.00	0.30	0.33	38.00	0.52	0.64
W8LKE6		36.98	-0.71	-0.77	37.57	0.08	0.11
X6BX8Q		37.14	-0.56	-0.61	37.26	-0.22	-0.27
XFTFZX		35.87	-1.83	-1.99	36.06	-1.42	-1.76
XLY8BG		38.61	0.91	0.99	37.28	-0.21	-0.25
XMNHZN		37.40	-0.30	-0.32	36.90	-0.58	-0.72
XRMPRD		39.62	1.92	2.09	39.20	1.72	2.13
XVMZMD		38.23	0.54	0.58	38.52	1.03	1.28
XXRMZG		37.50	-0.20	-0.21	37.40	-0.08	-0.10
Y299NH		36.20	-1.50	-1.62	36.90	-0.58	-0.72
YGKY93		36.50	-1.20	-1.30	36.10	-1.38	-1.71
ZD27VE		36.70	-1.00	-1.08	37.00	-0.48	-0.59
ZH8W4L		39.50	1.80	1.96	39.00	1.52	1.88
ZQ6EQB		37.65	-0.05	-0.05	37.22	-0.26	-0.32

#### Summary Statistics

	Sample F75		Sample F76	
<b>Grand Means</b>	37.70	ksi	37.48	ksi
<b>Stnd Dev Btwn Labs</b>	0.92	ksi	0.81	ksi

Samples F75, F76 : AISI 1008 - 14G, AISI 1008 - 16G

Statistics based on 99 of 109 reporting participants

#### Comments on Assigned Data Flags for Test #1132

- 2CZYMJ (X) - Data for sample F76 are low.
- FBTGUN (X) - Data for both samples are high. Possible Systematic Error.
- JNVWK2 (X) - Data for sample F76 are high.
- JRN84E (X) - Data for sample F75 are high and data for sample F76 are low. Inconsistent in testing between samples.
- L3KQ2K (X) - Data for sample F76 are high.
- L7TPNF (X) - Data for sample F75 are low.
- LHBZFB (X) - Inconsistent in testing between samples.
- P2CY9T (X) - Inconsistent in testing between samples.
- PYW9KC (X) - Data for both samples are high. Possible Systematic Error.
- QTZ322 (X) - Data for sample F75 are high.



Analysis 1132

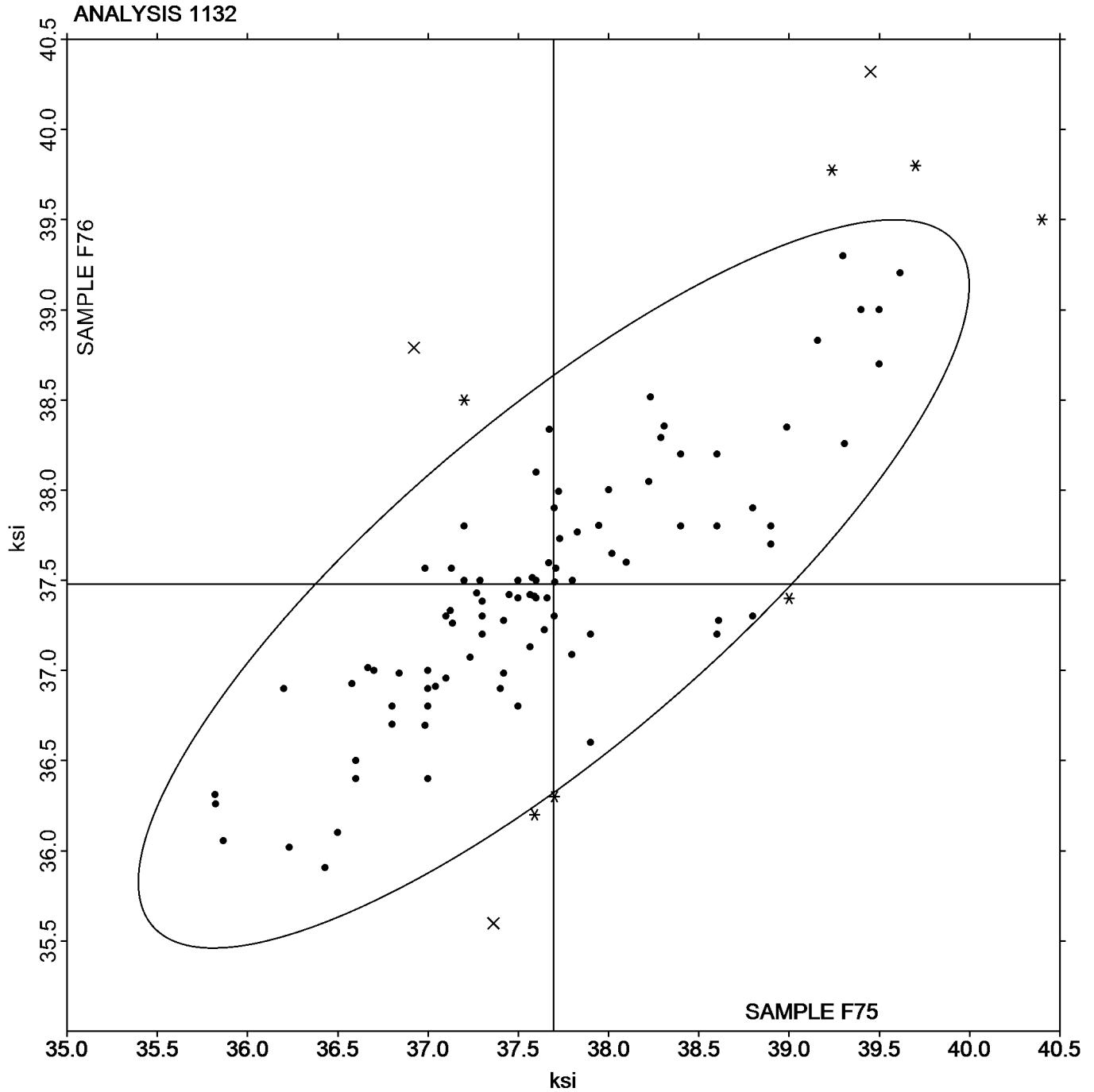
Yield Strength: Lab-Machined Flat Steel  
ASTM E8

SAMPLE F75

SAMPLE F76

37.70 ksi

37.48 ksi





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1133

2nd Qtr

Elongation: Lab-Machined Flat Steel

2021

ASTM E8

WebCode	Data Flag	Sample F75			Sample F76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
23PKT6		34.50	-2.33	-1.10	35.10	-1.82	-0.81
2CYZMJ	X	40.50	3.67	1.73	37.50	0.58	0.26
2MZFMW		36.40	-0.43	-0.20	36.80	-0.12	-0.05
2P4B7Y	*	31.30	-5.53	-2.61	31.30	-5.62	-2.50
32WUJH		35.70	-1.13	-0.53	35.60	-1.32	-0.59
3LX67J		37.10	0.27	0.13	37.40	0.48	0.21
3PKFJX		37.90	1.07	0.50	38.00	1.08	0.48
48GK7Q		35.25	-1.58	-0.75	35.00	-1.92	-0.85
4F86CN		36.00	-0.83	-0.39	35.80	-1.12	-0.50
68W4QN		37.70	0.87	0.41	38.10	1.18	0.53
6EB28F		40.70	3.87	1.82	41.80	4.88	2.17
6HT9H2		35.00	-1.83	-0.86	35.00	-1.92	-0.85
6TRRBN	X	31.67	-5.17	-2.44	21.67	-15.25	-6.79
77F6EB		40.40	3.57	1.68	40.30	3.38	1.50
7DGJW7		37.00	0.17	0.08	36.50	-0.42	-0.19
7QH4BP		36.20	-0.63	-0.30	36.50	-0.42	-0.19
83R2TX		38.50	1.67	0.79	38.40	1.48	0.66
8EQQWE	X	37.10	0.27	0.13	35.00	-1.92	-0.85
9BMJQ8		38.70	1.87	0.88	39.20	2.28	1.02
9CY6RU		39.20	2.37	1.12	39.50	2.58	1.15
9EC8WC		39.00	2.17	1.02	40.00	3.08	1.37
9KB8NU		37.74	0.91	0.43	37.98	1.06	0.47
9UEMAT	X	41.40	4.57	2.15	43.50	6.58	2.93
AKKYTG		34.60	-2.23	-1.05	36.00	-0.92	-0.41
APEVGM		34.50	-2.33	-1.10	34.80	-2.12	-0.94
AV9L8R	X	19.64	-17.19	-8.11	19.78	-17.14	-7.63
B2PKW4		38.20	1.37	0.64	38.20	1.28	0.57
B6M8N7		35.48	-1.35	-0.64	35.40	-1.52	-0.68
BCJXZF		39.40	2.57	1.21	40.10	3.18	1.42
BQQUBV	X	34.00	-2.83	-1.34	36.00	-0.92	-0.41
CAT4LC		38.80	1.97	0.93	39.80	2.88	1.28
CDRH8G	X	23.33	-13.50	-6.37	26.67	-10.25	-4.56
CTMVQJ		38.00	1.17	0.55	38.00	1.08	0.48
DYVVCU		36.60	-0.23	-0.11	36.90	-0.02	-0.01
EW26Y8		35.20	-1.63	-0.77	35.00	-1.92	-0.85
FBTGUN	X	40.00	3.17	1.49	38.00	1.08	0.48
FTXQWA		34.00	-2.83	-1.34	33.10	-3.82	-1.70
FWX2RA		37.80	0.97	0.46	39.00	2.08	0.93
FYKNCA	X	33.00	-3.83	-1.81	37.00	0.08	0.04
G4QRRR		38.98	2.15	1.01	38.48	1.56	0.70
GDZYRJ		36.00	-0.83	-0.39	35.50	-1.42	-0.63
GPYVVK		38.80	1.97	0.93	38.90	1.98	0.88
HFJEEW	X	35.50	-1.33	-0.63	32.20	-4.72	-2.10
HJ2K4K		35.00	-1.83	-0.86	36.00	-0.92	-0.41
JCYV27		35.00	-1.83	-0.86	34.90	-2.02	-0.90
JL4ZR2		37.40	0.57	0.27	37.50	0.58	0.26
JNVVK2		38.00	1.17	0.55	39.50	2.58	1.15



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1133

2nd Qtr  
2021

Elongation: Lab-Machined Flat Steel  
ASTM E8

WebCode	Data Flag	Sample F75			Sample F76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
JRN84E		33.10	-3.73	-1.76	33.80	-3.12	-1.39
JXXAJG		36.45	-0.38	-0.18	35.95	-0.97	-0.43
K6ZJPA		34.00	-2.83	-1.34	34.00	-2.92	-1.30
KCFA3N		35.50	-1.33	-0.63	35.80	-1.12	-0.50
KFDQH4	X	37.80	0.97	0.46	35.40	-1.52	-0.68
L3KQ2K		36.00	-0.83	-0.39	36.00	-0.92	-0.41
L7TPNF		39.00	2.17	1.02	38.50	1.58	0.70
L9AAAY9		37.50	0.67	0.31	36.70	-0.22	-0.10
L9DNTW	X	34.00	-2.83	-1.34	40.00	3.08	1.37
LFRJM7		36.00	-0.83	-0.39	35.50	-1.42	-0.63
LHBZFB		35.28	-1.55	-0.73	36.42	-0.50	-0.22
LNNH9D		34.00	-2.83	-1.34	34.40	-2.52	-1.12
MAY4AH		33.35	-3.48	-1.64	32.70	-4.22	-1.88
MNHGVQ		34.20	-2.63	-1.24	33.20	-3.72	-1.66
N7WDTV		39.00	2.17	1.02	38.09	1.17	0.52
N8DFNB		37.76	0.93	0.44	37.80	0.88	0.39
NBADPM		34.70	-2.13	-1.01	34.50	-2.42	-1.08
NKY4AT		37.30	0.47	0.22	37.20	0.28	0.12
NRCVVK		34.80	-2.03	-0.96	34.30	-2.62	-1.17
NREK6N		38.00	1.17	0.55	38.00	1.08	0.48
NRFMLF		37.90	1.07	0.50	37.90	0.98	0.44
NULV2R		33.50	-3.33	-1.57	33.50	-3.42	-1.52
NVEVX3	*	42.20	5.37	2.53	43.30	6.38	2.84
P2CY9T	*	41.00	4.17	1.97	40.00	3.08	1.37
P7PR8Y		36.50	-0.33	-0.16	36.80	-0.12	-0.05
PD7D9Q		39.30	2.47	1.16	39.80	2.88	1.28
PPNXA		38.80	1.97	0.93	38.30	1.38	0.61
PYW9KC		36.50	-0.33	-0.16	37.10	0.18	0.08
PZNAF2		35.20	-1.63	-0.77	35.90	-1.02	-0.45
Q4ZW9X		34.50	-2.33	-1.10	34.00	-2.92	-1.30
Q7N84W		37.60	0.77	0.36	36.70	-0.22	-0.10
QA88JC	X	55.30	18.47	8.71	55.10	18.18	8.09
QHYREC		38.19	1.36	0.64	37.81	0.89	0.40
QTYB3Y		37.20	0.37	0.17	37.40	0.48	0.21
QTZ322		34.74	-2.09	-0.99	35.18	-1.74	-0.77
QUYB6J		38.00	1.17	0.55	38.00	1.08	0.48
QXCYYN		39.40	2.57	1.21	39.40	2.48	1.10
QZHNV7		35.70	-1.13	-0.53	34.60	-2.32	-1.03
RPV28M		34.20	-2.63	-1.24	35.30	-1.62	-0.72
RWK9CA		34.90	-1.93	-0.91	35.00	-1.92	-0.85
TCBKEJ	*	37.50	0.67	0.31	35.70	-1.22	-0.54
TQKKRK		41.20	4.37	2.06	41.30	4.38	1.95
TYJZRZ	X	23.33	-13.50	-6.37	30.00	-6.92	-3.08
TYXE63		38.30	1.47	0.69	38.90	1.98	0.88
U9LU8B		37.10	0.27	0.13	37.20	0.28	0.12
UT9JJN		36.90	0.07	0.03	37.00	0.08	0.04
V6GLF7		41.00	4.17	1.97	40.50	3.58	1.59



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1133

2nd Qtr  
2021

Elongation: Lab-Machined Flat Steel  
ASTM E8

WebCode	Data Flag	Sample F75			Sample F76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
VNQQV3	*	31.20	-5.63	-2.66	31.20	-5.72	-2.55
VRWYEK		37.40	0.57	0.27	37.50	0.58	0.26
VUG3U6		38.40	1.57	0.74	38.20	1.28	0.57
VZ3ZEL		38.10	1.27	0.60	38.10	1.18	0.53
W8LKE6	X	34.24	-2.59	-1.22	36.56	-0.36	-0.16
X6BX8Q	X	40.15	3.32	1.56	42.25	5.33	2.37
XFTFZX		35.13	-1.70	-0.80	35.87	-1.05	-0.47
XLY8BG		37.80	0.97	0.46	38.70	1.78	0.79
XMNHZN		39.60	2.77	1.31	40.70	3.78	1.68
XRMPRD		36.09	-0.74	-0.35	36.89	-0.03	-0.01
XVMZMD		35.72	-1.11	-0.53	34.91	-2.01	-0.90
XXRMZG		38.80	1.97	0.93	39.40	2.48	1.10
Y299NH		36.70	-0.13	-0.06	36.10	-0.82	-0.36
YGKY93		37.30	0.47	0.22	37.70	0.78	0.35
ZD27VE		35.10	-1.73	-0.82	35.20	-1.72	-0.77
ZH8W4L		36.00	-0.83	-0.39	36.10	-0.82	-0.36
ZQ6EQB		36.50	-0.33	-0.16	36.00	-0.92	-0.41

### Summary Statistics

	Sample F75		Sample F76	
<b>Grand Means</b>	36.83	Percent	36.92	Percent
<b>Stnd Dev Btrwn Labs</b>	2.12	Percent	2.25	Percent

Samples F75, F76 : AISI 1008 - 14G, AISI 1008 - 16G

Statistics based on 95 of 111 reporting participants





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**Comments on Assigned Data Flags for Test #1133**

2CYZMJ (X) - Inconsistent in testing between samples.

6TRRBN (X) - Data for sample F76 are low.

8EQQWE (X) - Inconsistent in testing between samples.

9UEMAT (X) - Data for sample F76 are high.

AV9L8R (X) - Data for both samples are low. Possible Systematic Error.

BQQUBV (X) - Inconsistent in testing between samples.

CDRH8G (X) - Data for both samples are low. Possible Systematic Error.

FBTGUN (X) - Inconsistent in testing between samples.

FYKNCA (X) - Inconsistent in testing between samples.

HFJEEW (X) - Inconsistent in testing between samples.

KFDQH4 (X) - Inconsistent in testing between samples.

L9DNTW (X) - Inconsistent in testing between samples.

QA88JC (X) - Data for both samples are high. Possible Systematic Error.

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

W8LKE6 (X) - Inconsistent in testing between samples.

X6BX8Q (X) - Inconsistent in testing between samples.



Analysis 1133

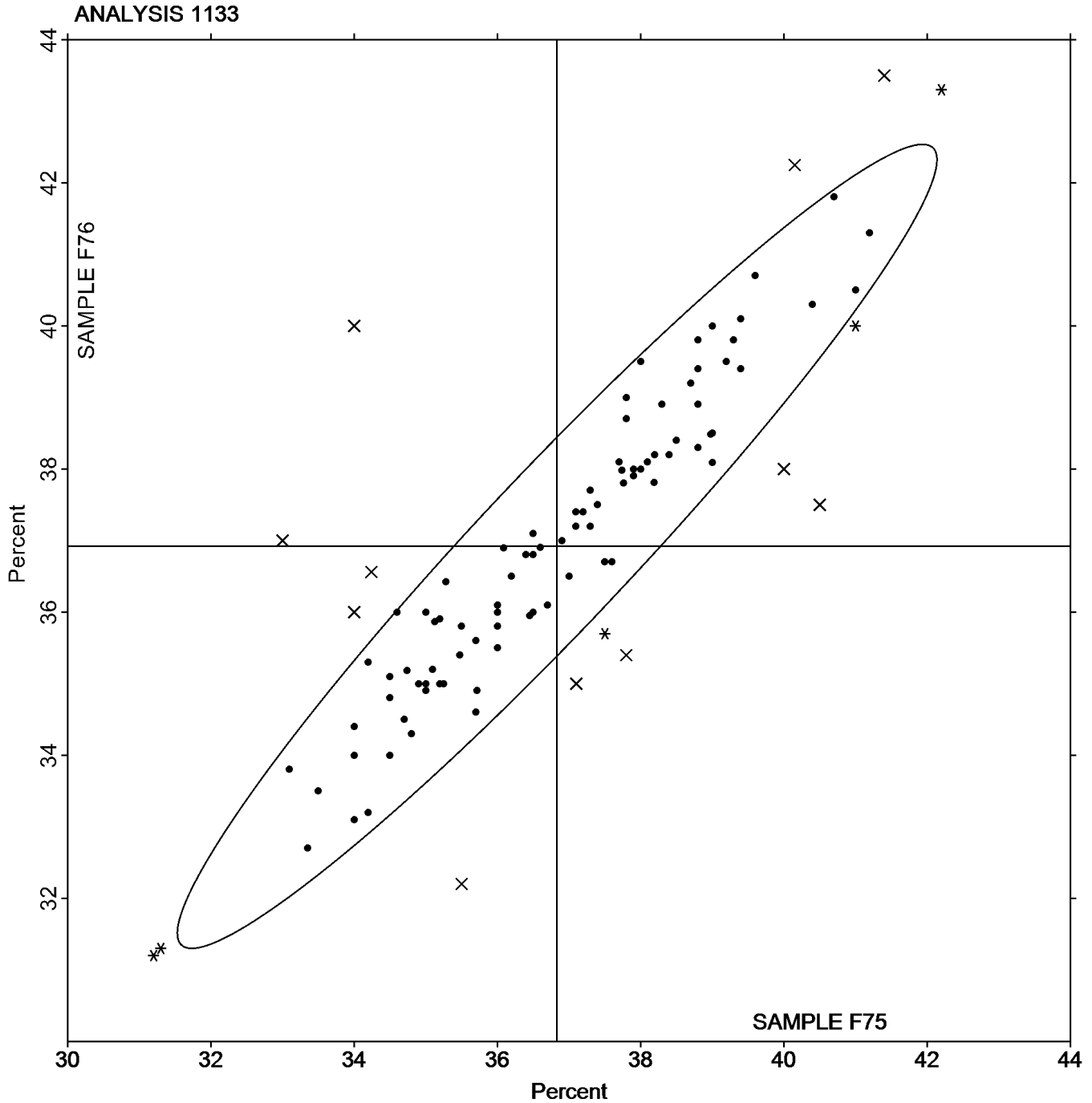
Elongation: Lab-Machined Flat Steel  
ASTM E8

SAMPLE F75

SAMPLE F76

36.83 Percent

36.92 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1134

2nd Qtr  
2021

r-Value: Lab-Machined Flat Steel  
ASTM E517

WebCode	Data Flag	Sample F75			Sample F76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
3LX67J		1.290	0.121	1.69	1.300	0.070	0.93
48GK7Q		1.170	0.001	0.01	1.250	0.020	0.26
4F86CN		1.140	-0.029	-0.41	1.290	0.060	0.79
68W4QN		1.230	0.061	0.85	1.280	0.050	0.66
77F6EB		1.190	0.021	0.29	1.230	0.000	0.00
9BMJQ8		1.200	0.031	0.43	1.290	0.060	0.79
9CY6RU		1.098	-0.071	-1.00	1.237	0.007	0.09
9KB8NU		1.056	-0.113	-1.59	1.079	-0.151	-2.00
9UEMAT		1.060	-0.109	-1.53	1.110	-0.120	-1.59
AV9L8R		1.178	0.009	0.12	1.250	0.020	0.26
BCJXZF		1.130	-0.039	-0.55	1.170	-0.060	-0.80
BQQUBV		1.220	0.051	0.71	1.250	0.020	0.26
FBTGUN	X	0.7600	-0.409	-5.74	0.7600	-0.470	-6.22
GPYVNK		1.194	0.025	0.34	1.275	0.045	0.59
JCYV27		1.175	0.006	0.08	1.227	-0.003	-0.04
KFDQH4		1.212	0.043	0.60	1.260	0.030	0.40
L7TPNF		1.180	0.011	0.15	1.250	0.020	0.26
L9AA9		1.200	0.031	0.43	1.280	0.050	0.66
LNNH9D		1.138	-0.031	-0.44	1.166	-0.064	-0.85
MNHGVQ	*	1.360	0.191	2.67	1.450	0.220	2.91
NBADPM	*	1.268	0.099	1.38	1.147	-0.083	-1.10
NVEVX3	X	0.4700	-0.699	-9.80	0.5200	-0.710	-9.40
PD7D9Q		1.155	-0.014	-0.20	1.209	-0.021	-0.28
PPNXA		1.120	-0.049	-0.69	1.240	0.010	0.13
Q4ZW9X	X	0.8350	-0.334	-4.69	1.178	-0.052	-0.69
QUYB6J		1.136	-0.033	-0.47	1.258	0.028	0.37
QXCYYN	*	0.9900	-0.179	-2.51	1.220	-0.010	-0.13
TQKKRK		1.117	-0.052	-0.74	1.167	-0.063	-0.84
TYXE63		1.150	-0.019	-0.27	1.190	-0.040	-0.53
U9LU8B		1.167	-0.002	-0.03	1.217	-0.013	-0.17
UT9JJN	X	0.3620	-0.807	-11.31	0.3820	-0.848	-11.22
V6GLF7		1.225	0.056	0.78	1.286	0.056	0.74
XFTFZX	X	1.689	0.520	7.28	1.636	0.406	5.37
XLY8BG		1.160	-0.009	-0.13	1.230	0.000	0.00
XMNHZN	*	1.120	-0.049	-0.69	1.040	-0.190	-2.52
XXRMZG		1.225	0.056	0.78	1.285	0.055	0.73
ZQ6EQB	X	10.00	8.831	123.70	10.00	8.770	116.06

### Summary Statistics

	Sample F75	Sample F76
<b>Grand Means</b>	1.169	1.230
<b>Std Dev Btwn Labs</b>	0.071	0.076

Samples F75, F76 : AISI 1008 - 14G, AISI 1008 - 16G

Statistics based on 31 of 37 reporting participants



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**Comments on Assigned Data Flags for Test #1134**

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

NVEVX3 (X) - Data for both samples are low.

Q4ZW9X (X) - Data for sample F75 are low.

UT9JJN (X) - Data for both samples are low.

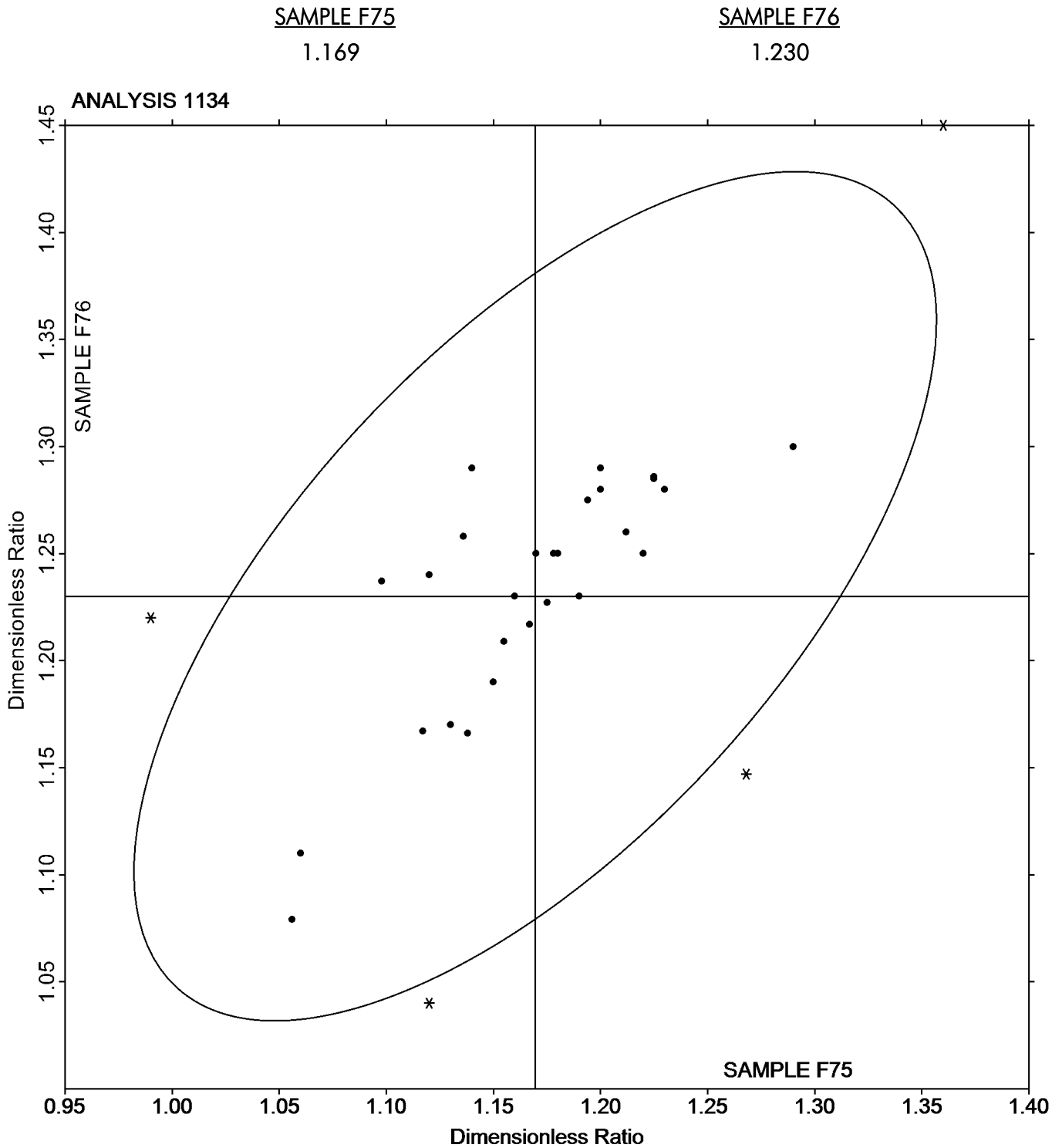
XFTFZX (X) - Data for both samples are high.

ZQ6EQB (X) - Extreme data.



Analysis 1134

r-Value: Lab-Machined Flat Steel  
ASTM E517





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1135

2nd Qtr  
2021

n-Value: Lab-Machined Flat Steel  
ASTM E646

WebCode	Data Flag	Sample F75			Sample F76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
32WUHH	*	0.1720	-0.0043	-0.86	0.1830	0.0047	1.02
3LX67J	X	0.1740	-0.0023	-0.46	0.1880	0.0097	2.09
48GK7Q		0.1710	-0.0053	-1.07	0.1740	-0.0043	-0.91
4F86CN		0.1790	0.0027	0.55	0.1790	0.0007	0.16
68W4QN		0.1700	-0.0063	-1.27	0.1740	-0.0043	-0.91
77F6EB		0.1870	0.0107	2.16	0.1880	0.0097	2.09
7QH4BP		0.1730	-0.0033	-0.66	0.1800	0.0017	0.37
9BMJQ8		0.1820	0.0057	1.15	0.1805	0.0022	0.48
9CY6RU		0.1770	0.0007	0.14	0.1790	0.0007	0.16
9KB8NU		0.1770	0.0007	0.14	0.1790	0.0007	0.16
9UEMAT	X	0.1900	0.0137	2.76	0.1960	0.0177	3.81
AKKYTG		0.1738	-0.0025	-0.50	0.1819	0.0036	0.78
AV9L8R		0.1730	-0.0033	-0.66	0.1760	-0.0023	-0.48
BCJXZF	*	0.1700	-0.0063	-1.27	0.1800	0.0017	0.37
BQQUBV		0.1800	0.0037	0.75	0.1800	0.0017	0.37
DYVVCU		0.1780	0.0017	0.35	0.1790	0.0007	0.16
FBTGUN	X	0.2818	0.1055	21.27	0.2819	0.1036	22.24
GPYVNK		0.1770	0.0007	0.14	0.1830	0.0047	1.02
JCYV27		0.1830	0.0067	1.35	0.1850	0.0067	1.45
JL4ZR2		0.1752	-0.0011	-0.22	0.1761	-0.0022	-0.46
JXXAJG		0.1734	-0.0029	-0.58	0.1732	-0.0051	-1.08
KCFA3N		0.1790	0.0027	0.55	0.1780	-0.0003	-0.05
KFDQH4		0.1690	-0.0073	-1.47	0.1700	-0.0083	-1.77
L3KQ2K		0.1700	-0.0063	-1.27	0.1700	-0.0083	-1.77
L7TPNF		0.1740	-0.0023	-0.46	0.1740	-0.0043	-0.91
L9AA9		0.1760	-0.0003	-0.06	0.1760	-0.0023	-0.48
L9DNTW	X	0.1460	-0.0303	-6.11	0.1560	-0.0223	-4.77
LNNH9D		0.1770	0.0007	0.14	0.1810	0.0027	0.59
MNHGVQ	X	0.1660	-0.0103	-2.07	0.1830	0.0047	1.02
N7WDTV		0.1817	0.0054	1.09	0.1810	0.0027	0.59
NBADPM		0.1770	0.0007	0.14	0.1750	-0.0033	-0.70
NRCVVK		0.1780	0.0017	0.35	0.1770	-0.0013	-0.27
NRFMLF		0.1740	-0.0023	-0.46	0.1760	-0.0023	-0.48
NVEVX3		0.1830	0.0067	1.35	0.1850	0.0067	1.45
PD7D9Q	X	0.1770	0.0007	0.14	1.082	0.9037	193.88
PPNXA		0.1780	0.0017	0.35	0.1770	-0.0013	-0.27
PZNAF2		0.1732	-0.0031	-0.62	0.1761	-0.0022	-0.46
Q4ZW9X		0.1808	0.0045	0.91	0.1778	-0.0005	-0.10
Q7N84W		0.1720	-0.0043	-0.86	0.1730	-0.0053	-1.13
QTYB3Y	*	0.1700	-0.0063	-1.27	0.1800	0.0017	0.37
QUYB6J		0.1740	-0.0023	-0.46	0.1750	-0.0033	-0.70
QXCYYN		0.1800	0.0037	0.75	0.1800	0.0017	0.37
TQKKRK		0.1770	0.0007	0.14	0.1770	-0.0013	-0.27
TYXE63		0.1700	-0.0063	-1.27	0.1730	-0.0053	-1.13
U9LU8B		0.1740	-0.0023	-0.46	0.1760	-0.0023	-0.48
UT9JJN		0.1770	0.0007	0.14	0.1760	-0.0023	-0.48
V6GLF7		0.1850	0.0087	1.76	0.1860	0.0077	1.66



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1135

2nd Qtr  
2021

n-Value: Lab-Machined Flat Steel  
ASTM E646

WebCode	Data Flag	Sample F75			Sample F76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
VZ3ZEL		0.1750	-0.0013	-0.26	0.1760	-0.0023	-0.48
XFTFZX		0.1850	0.0087	1.76	0.1870	0.0087	1.88
XLY8BG		0.1810	0.0047	0.95	0.1840	0.0057	1.23
XMNHZN		0.1840	0.0077	1.55	0.1860	0.0077	1.66
XRMPRD		0.1651	-0.0112	-2.26	0.1694	-0.0089	-1.90
XVMZMD		0.1707	-0.0056	-1.13	0.1726	-0.0057	-1.21
XXRMZG		0.1815	0.0052	1.05	0.1810	0.0027	0.59
YGKY93		0.1810	0.0047	0.95	0.1850	0.0067	1.45
ZH8W4L		0.1700	-0.0063	-1.27	0.1710	-0.0073	-1.56
ZQ6EQB	X	10.00	9.8237	1,980.48	10.00	9.8217	2,107.04

### Summary Statistics

	Sample F75	Sample F76
<b>Grand Means</b>	0.1763	0.1783
<b>Stnd Dev Btwn Labs</b>	0.0050	0.0047

Samples F75, F76 : AISI 1008 - 14G, AISI 1008 - 16G

Statistics based on 50 of 57 reporting participants

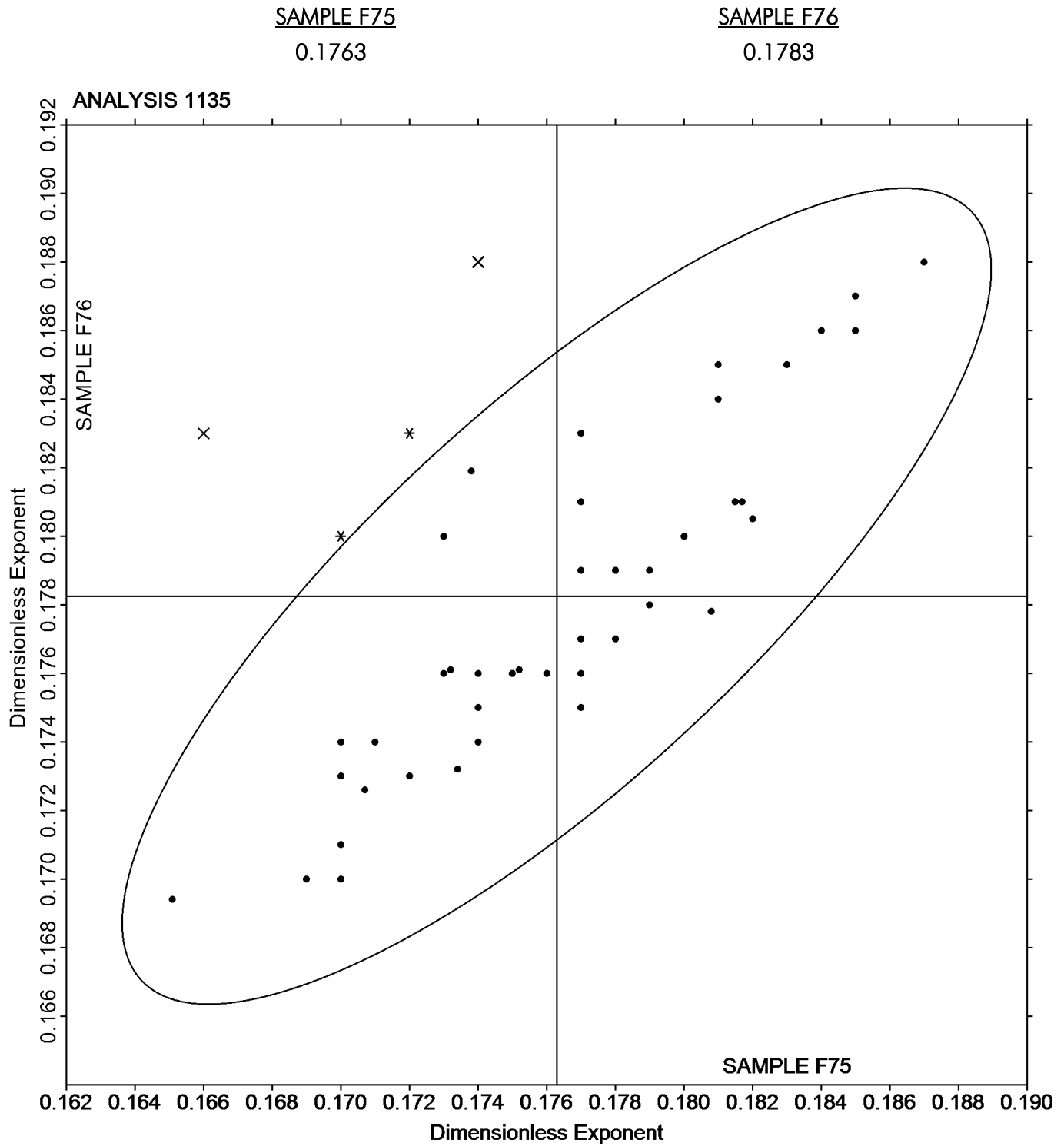
### Comments on Assigned Data Flags for Test #1135

- 3LX67J (X) - Inconsistent in testing between samples.
- 9UEMAT (X) - Data for both samples are high. Possible Systematic Error.
- FBTGUN (X) - Data for both samples are high. Possible Systematic Error.
- L9DNTW (X) - Data for both samples are low. Possible Systematic Error.
- MNHGVQ (X) - Inconsistent in testing between samples.
- PD7D9Q (X) - Data for sample F76 are extreme.
- ZQ6EQB (X) - Extreme data.



Analysis 1135

n-Value: Lab-Machined Flat Steel  
ASTM E646







# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1201

2nd Qtr  
2021

### Fastener Wedge Tensile (10 degree) ASTM F606

WebCode	Data Flag	Sample X75			Sample X76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
22KQJY		138.33	1.24	1.04	145.33	1.82	1.17
248D6Z		137.77	0.68	0.57	144.43	0.92	0.59
3DLTAL		136.61	-0.48	-0.40	144.21	0.70	0.45
3LX67J		136.50	-0.59	-0.49	140.13	-3.38	-2.16
436GJV		137.30	0.21	0.18	144.57	1.06	0.68
49UYX7		136.73	-0.36	-0.30	144.97	1.46	0.93
4HE467		137.07	-0.02	-0.02	144.33	0.82	0.53
6966NF		138.35	1.26	1.06	141.68	-1.83	-1.17
8MCALJ		135.93	-1.16	-0.97	142.30	-1.21	-0.77
8THY8W	X	151.38	14.29	11.94	148.31	4.80	3.07
9KALYU	X	146.73	9.64	8.06	147.60	4.09	2.62
A6QCMN	*	134.28	-2.81	-2.35	143.78	0.27	0.17
BUTLQN		137.57	0.48	0.40	141.20	-2.31	-1.48
CL6GY7		138.37	1.28	1.07	143.97	0.46	0.30
DT9P99		137.53	0.44	0.37	145.30	1.79	1.15
FEFX83		136.29	-0.80	-0.67	141.22	-2.29	-1.47
FLHZKF		136.94	-0.15	-0.12	143.84	0.33	0.21
FYZZ32	X	130.72	-6.37	-5.32	136.42	-7.09	-4.54
GJ9DHV		135.22	-1.86	-1.56	143.69	0.18	0.11
H7UNR6	*	140.07	2.98	2.49	146.64	3.13	2.00
HGZENE		137.33	0.24	0.20	141.00	-2.51	-1.61
HKG2ZX		138.17	1.08	0.91	144.77	1.25	0.80
JGYVKC		136.27	-0.82	-0.69	144.33	0.82	0.53
JT746E		137.27	0.18	0.15	145.47	1.96	1.25
JXVJHZ		135.97	-1.12	-0.94	142.53	-0.98	-0.63
KK8M3N		137.60	0.51	0.43	144.07	0.56	0.36
KMVBC3		136.57	-0.52	-0.44	143.50	-0.01	-0.01
LMCUK8		134.65	-2.44	-2.04	142.32	-1.19	-0.76
LMULVC		137.83	0.74	0.62	141.20	-2.31	-1.48
MBQ2LV		135.33	-1.76	-1.47	143.00	-0.51	-0.33
MCCG9D		138.85	1.76	1.47	145.74	2.23	1.43
MNXZH9		135.60	-1.49	-1.24	143.53	0.02	0.01
NB8HAW		137.77	0.68	0.57	144.03	0.52	0.33
NNG4PA		136.97	-0.12	-0.10	143.70	0.19	0.12
NXLB8U		138.15	1.06	0.89	143.91	0.40	0.26
PKRA9Y	*	139.23	2.14	1.79	147.37	3.86	2.47
PZ3XE9		135.93	-1.16	-0.97	143.63	0.12	0.08
QUEMNA		136.33	-0.76	-0.63	143.13	-0.38	-0.24
R722HC		137.29	0.20	0.17	143.11	-0.40	-0.26
TYHGB3		137.81	0.72	0.60	142.84	-0.67	-0.43
UMJWRP		137.06	-0.03	-0.02	144.67	1.16	0.74
VKCWA4		136.50	-0.59	-0.49	141.43	-2.08	-1.33
VNBCMT		137.59	0.50	0.42	143.99	0.48	0.31
VWAPV9		136.52	-0.57	-0.48	142.00	-1.51	-0.97
W8LKE6		139.01	1.92	1.60	142.04	-1.47	-0.94
WKQPGQ	X	153.74	16.65	13.91	150.86	7.35	4.70
X8MJBY		137.33	0.24	0.20	144.00	0.49	0.31



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1201

2nd Qtr  
2021

Fastener Wedge Tensile (10 degree)  
ASTM F606

WebCode	Data Flag	Sample X75			Sample X76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
XKJ3GN		136.10	-0.99	-0.83	141.53	-1.98	-1.26
ZMZ3HN	X	142.33	5.24	4.38	137.33	-6.18	-3.95

### Summary Statistics

	Sample X75		Sample X76	
<b>Grand Means</b>	137.09	ksi	143.51	ksi
<b>Stnd Dev Btwn Labs</b>	1.20	ksi	1.56	ksi

Samples X75, X76 : 3/8-16 x 2 1/2, 3/8-16 x 2 3/4

Statistics based on 44 of 49 reporting participants

### Comments on Assigned Data Flags for Test #1201

8THY8W (X) - Data for both samples are high. Inconsistent within the determinations of sample X75.

9KALYU (X) - Data for sample X75 are high.

FYZZ32 (X) - Data for both samples are low.

WKQPGQ (X) - Data for both samples are high. Inconsistent within the determinations of sample X75.

ZMZ3HN (X) - Data for sample X75 are high and data for sample X76 are low.



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1201

2nd Qtr  
2021

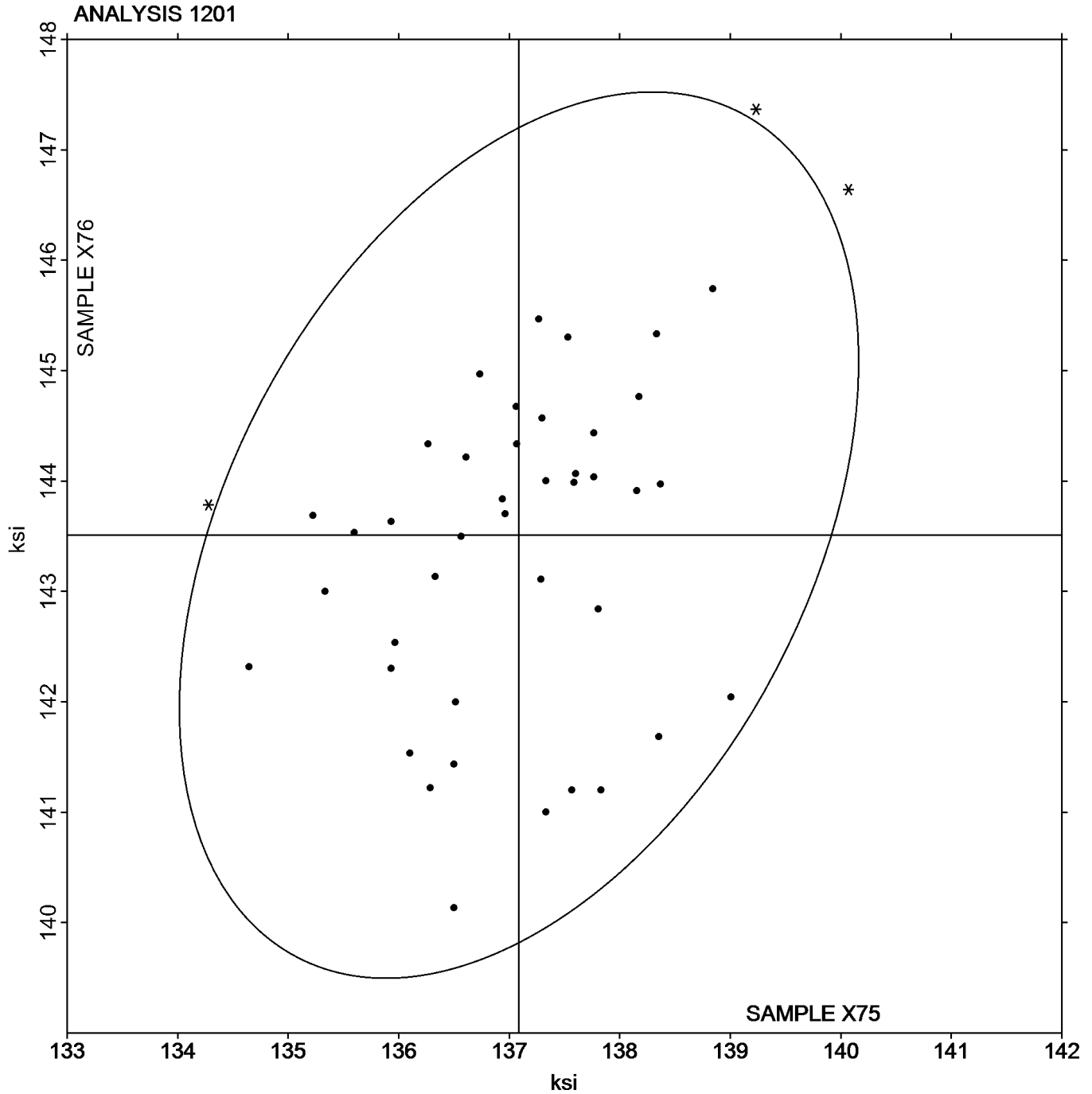
Fastener Wedge Tensile (10 degree)  
ASTM F606

SAMPLE X75

SAMPLE X76

137.09 ksi

143.51 ksi





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1202

2nd Qtr

Fastener Axial Tensile

2021

ASTM F606

WebCode	Data Flag	Sample Q75			Sample Q76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
248D6Z		145.37	2.75	0.64	144.60	0.60	0.28
34KG2Y		145.83	3.22	0.74	142.98	-1.02	-0.48
3786DY		137.94	-4.67	-1.08	142.25	-1.75	-0.83
3DQB8K		150.75	8.14	1.88	142.90	-1.10	-0.52
3YPKGE		145.43	2.82	0.65	143.32	-0.68	-0.32
6966NF		137.77	-4.85	-1.12	145.17	1.17	0.55
6ER43V		145.81	3.19	0.74	143.23	-0.78	-0.37
89D4U9		141.43	-1.18	-0.27	142.93	-1.07	-0.51
8THY8W		144.32	1.71	0.39	149.06	5.06	2.39
9FC6BE	X	43.23	-99.38	-22.99	45.34	-98.67	-46.70
9KALYU	X	165.27	22.65	5.24	151.80	7.80	3.69
9RRYXT		144.70	2.09	0.48	144.40	0.40	0.19
A6QCMN		143.87	1.26	0.29	141.72	-2.29	-1.08
BUTLQN		146.00	3.39	0.78	144.23	0.23	0.11
BW8E8F		138.06	-4.55	-1.05	145.12	1.12	0.53
CL6GY7		138.03	-4.58	-1.06	145.87	1.87	0.88
DT9P99		144.90	2.29	0.53	142.83	-1.17	-0.55
F9MV43		137.88	-4.73	-1.09	144.03	0.03	0.01
FLHZKF		146.43	3.82	0.88	145.47	1.47	0.69
FYZZ32	X	138.43	-4.18	-0.97	133.18	-10.83	-5.12
GJJGM8		135.82	-6.79	-1.57	143.31	-0.69	-0.33
GRE9CZ		137.63	-4.98	-1.15	143.47	-0.54	-0.25
H7UNR6		146.38	3.77	0.87	147.83	3.82	1.81
HGBJXW		149.36	6.75	1.56	146.55	2.55	1.21
HGZENE		146.53	3.92	0.91	142.10	-1.90	-0.90
HKG2ZX		145.93	3.31	0.77	144.18	0.18	0.08
JGYVKC		144.83	2.22	0.51	141.53	-2.47	-1.17
JNC6GJ		132.33	-10.28	-2.38	143.57	-0.44	-0.21
JT746E		145.40	2.79	0.64	144.90	0.90	0.42
JXVJHZ		134.57	-8.05	-1.86	140.43	-3.57	-1.69
KK8M3N		145.37	2.75	0.64	146.23	2.23	1.06
KMVCB3		137.00	-5.61	-1.30	143.27	-0.74	-0.35
LMCUK8	*	131.16	-11.45	-2.65	142.29	-1.72	-0.81
LZBU6V		137.13	-5.48	-1.27	142.70	-1.30	-0.62
MBQ2LV		144.00	1.39	0.32	140.00	-4.00	-1.89
MCCG9D		146.66	4.05	0.94	145.58	1.58	0.75
MNXZH9		143.43	0.82	0.19	142.37	-1.64	-0.77
MVG2Z8	X	11.28	-131.34	-30.38	11.46	-132.55	-62.73
N7BTTP		140.22	-2.39	-0.55	143.17	-0.83	-0.39
NREK6N		138.67	-3.95	-0.91	144.33	0.33	0.16
NYKHF		145.04	2.43	0.56	143.54	-0.46	-0.22
QK8TRW		142.23	-0.39	-0.09	139.38	-4.62	-2.19
QUEMNA		145.40	2.79	0.64	141.87	-2.14	-1.01
TYHBG3		145.94	3.32	0.77	145.89	1.89	0.89
U8BQXT		144.58	1.97	0.45	142.71	-1.30	-0.61
UMJWRP		143.91	1.29	0.30	140.67	-3.33	-1.58
VWAPV9		145.30	2.69	0.62	144.89	0.89	0.42



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

**Cycle 134**  
**2nd Qtr**  
**2021**

WebCode	Data Flag	Sample Q75			Sample Q76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
VYVPVP		146.32	3.71	0.86	146.08	2.08	0.99
W8LKE6		146.43	3.82	0.88	143.41	-0.59	-0.28
WKQPGQ	X	155.80	13.19	3.05	157.93	13.92	6.59
XCRK7M		144.05	1.44	0.33	144.09	0.09	0.04
XKJ3GN		145.07	2.45	0.57	144.03	0.03	0.01
YXLTUG		144.26	1.65	0.38	145.36	1.36	0.64
Z3D79P		141.03	-1.58	-0.37	148.51	4.51	2.13
ZKDJGQ		138.37	-4.24	-0.98	144.90	0.90	0.43
ZMZ3HN		143.00	0.39	0.09	149.33	5.33	2.52
ZRVPFJ		137.97	-4.64	-1.07	145.52	1.52	0.72

**Summary Statistics**

	Sample Q75		Sample Q76	
<b>Grand Means</b>	142.61	ksi	144.00	ksi
<b>Std Dev Btwn Labs</b>	4.32	ksi	2.11	ksi

Samples Q75, Q76 : 3/8-16 x 2 1/2, 3/8-16 x 2 3/4

Statistics based on 52 of 57 reporting participants

**Comments on Assigned Data Flags for Test #1202**

- 9FC6BE (X) - Extreme data.
- 9KALYU (X) - Data for both samples are high.
- FYZZ32 (X) - Data for sample Q76 are low. Inconsistent within the determinations of sample Q76.
- MVG2Z8 (X) - Extreme data.
- WKQPGQ (X) - Data for both samples are high.



Analysis 1202

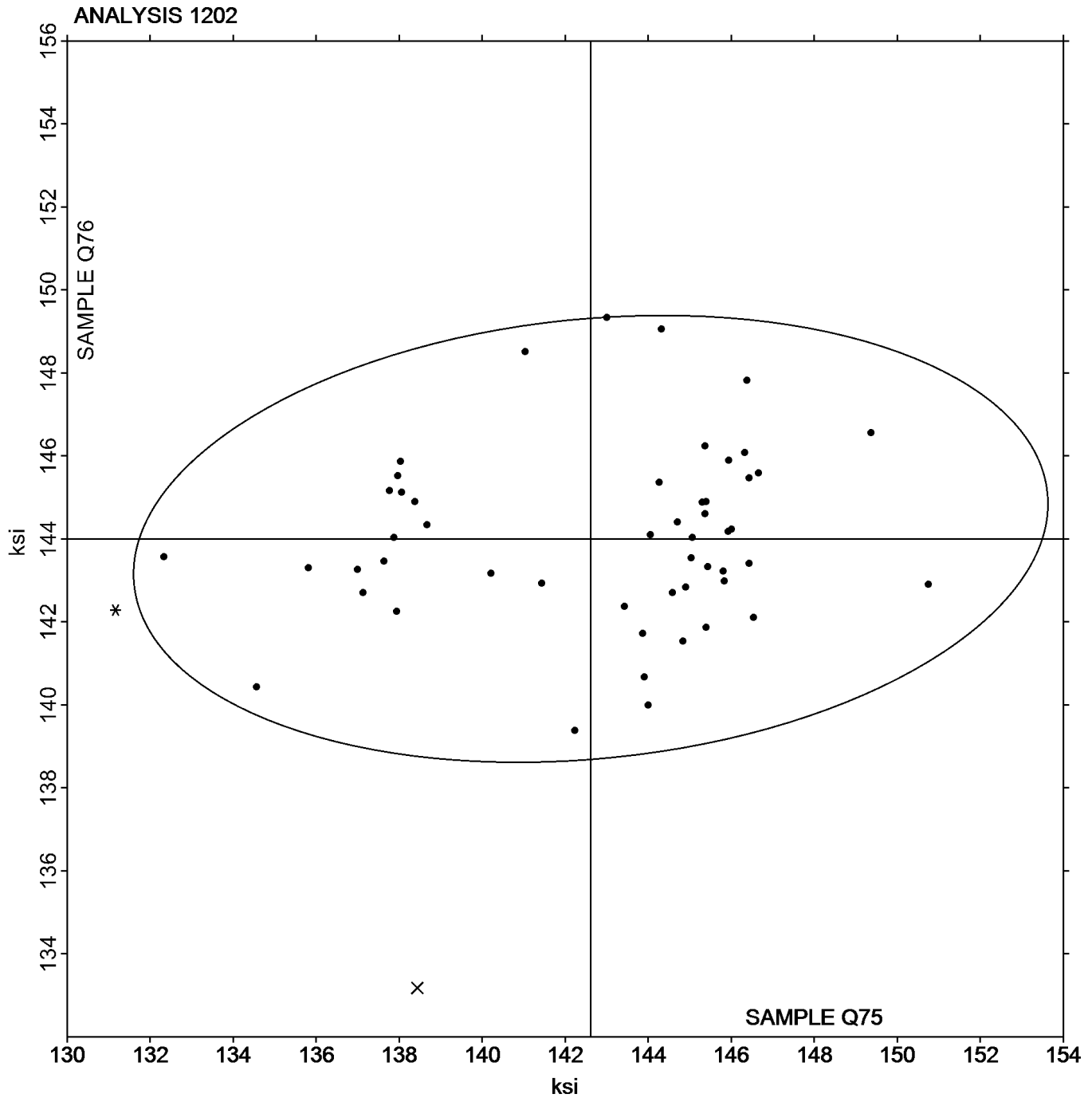
Fastener Axial Tensile  
ASTM F606

SAMPLE Q75

SAMPLE Q76

142.61 ksi

144.00 ksi





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1203

2nd Qtr  
2021

### Fastener Wedge Tensile (10 degree) - Metric ASTM F606M

WebCode	Data Flag	Sample B75			Sample B76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
248D6Z		1,145	10	0.92	1,127	12	1.23
4Y9NTK		1,119	-17	-1.50	1,116	1	0.08
6HG7GV	*	1,122	-13	-1.17	1,140	24	2.56
6MQTLK		1,152	17	1.56	1,114	-2	-0.18
6XR9V93		1,135	0	-0.03	1,118	3	0.30
7N2NAX		1,152	16	1.50	1,118	3	0.31
7RUUKT		1,124	-11	-0.98	1,105	-10	-1.10
8CCEP9		1,138	2	0.23	1,108	-7	-0.75
A6A7AK		1,138	2	0.23	1,117	2	0.17
ADLACC		1,142	7	0.60	1,131	16	1.67
AFUHJC	X	1,210	75	6.84	1,191	75	7.96
ALEKKM		1,136	0	0.05	1,111	-4	-0.43
AVHNMB		1,138	3	0.26	1,115	0	-0.01
BNK8XQ		1,145	10	0.90	1,110	-5	-0.53
BQ3EA8		1,131	-4	-0.35	1,104	-11	-1.17
DT9P99		1,136	1	0.06	1,127	11	1.18
FLHZKF		1,143	8	0.74	1,120	5	0.48
FWD94H		1,132	-3	-0.26	1,117	2	0.20
H7UNR6	X	1,166	31	2.80	1,159	44	4.62
HVYJT6		1,117	-19	-1.68	1,101	-15	-1.56
JT6A3Z		1,157	21	1.95	1,123	8	0.84
KMVBC3		1,123	-12	-1.08	1,123	8	0.80
LFQYLN		1,124	-11	-1.01	1,099	-17	-1.77
MQ4EW2		1,148	12	1.13	1,113	-3	-0.31
NHRKQZ		1,154	19	1.71	1,123	7	0.77
R722HC		1,123	-12	-1.08	1,110	-6	-0.61
RKLLZJ	X	1,212	76	6.95	1,163	48	5.02
TQ9TY4		1,138	2	0.23	1,109	-6	-0.66
WCCYY7		1,135	0	-0.02	1,106	-9	-0.96
WV7QRQ		1,128	-7	-0.65	1,124	8	0.87
XY68YT		1,130	-6	-0.50	1,101	-15	-1.56
YJ4Z8V		1,121	-14	-1.31	1,113	-2	-0.22
YVLFPG		1,130	-5	-0.44	1,119	3	0.34

#### Summary Statistics

	Sample B75		Sample B76	
<b>Grand Means</b>	1,135	MPa	1,115	MPa
<b>Std Dev Btrwn Labs</b>	11	MPa	9	MPa

Samples B75, B76 : M-10x1.5x70, M-10x1.5x75

Statistics based on 30 of 33 reporting participants

#### Comments on Assigned Data Flags for Test #1203

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

H7UNR6 (X) - Data for both samples are high. Inconsistent within the determinations of sample B76.

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



Analysis 1203

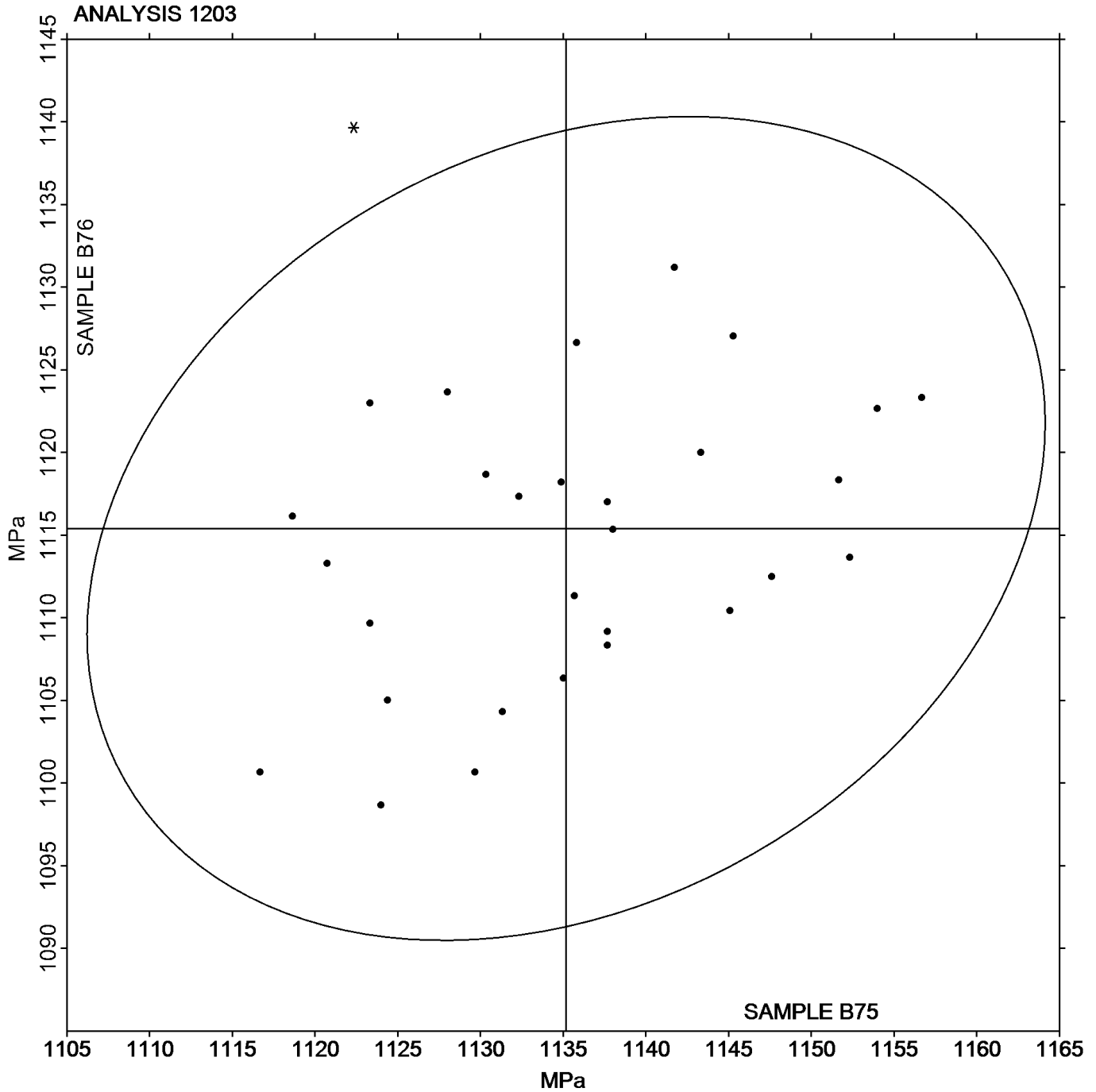
Fastener Wedge Tensile (10 degree) - Metric  
ASTM F606M

SAMPLE B75

SAMPLE B76

1,135 MPa

1,115 MPa







# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1204

2nd Qtr  
2021

### Fastener Axial Tensile - Metric ASTM F606M

WebCode	Data Flag	Sample T75			Sample T76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
4Y9NTK		1,141	0	-0.01	1,115	-5	-0.49
6XRV93		1,140	-2	-0.15	1,123	3	0.36
7RUUKT		1,119	-22	-1.96	1,111	-9	-1.01
AKNGX8		1,149	8	0.70	1,111	-9	-0.93
ALEKKM		1,134	-7	-0.64	1,107	-13	-1.40
AN38RF		1,150	9	0.76	1,125	5	0.56
BLRH8J		1,158	17	1.45	1,133	13	1.41
BQ3EA8		1,152	10	0.90	1,111	-9	-0.97
FLHZKF		1,138	-4	-0.32	1,124	4	0.48
GZ9FZZ		1,155	13	1.16	1,127	7	0.77
H7UNR6	X	1,188	46	4.04	1,188	69	7.42
JT6A3Z		1,160	19	1.63	1,140	20	2.17
KMVCB3		1,143	2	0.18	1,115	-5	-0.50
L7TPNF		1,137	-4	-0.38	1,129	9	0.98
MRG3G2		1,134	-7	-0.60	1,114	-6	-0.65
NHRKQZ		1,157	16	1.37	1,139	19	2.03
R722HC		1,138	-3	-0.26	1,114	-6	-0.64
R9NWRX		1,146	5	0.44	1,123	3	0.30
RT2FYM		1,138	-3	-0.29	1,118	-2	-0.17
TEEC9H		1,136	-5	-0.43	1,119	-1	-0.15
VBKELV		1,128	-13	-1.16	1,116	-4	-0.39
WCCYY7		1,118	-24	-2.06	1,111	-9	-0.93
YJ4Z8V		1,137	-4	-0.34	1,112	-8	-0.84

#### Summary Statistics

	Sample T75		Sample T76	
<b>Grand Means</b>	1,141	MPa	1,120	MPa
<b>Stnd Dev Btwn Labs</b>	11	MPa	9	MPa

Samples T75, T76 : M-10x1.5x70, M-10x1.5x75

Statistics based on 22 of 23 reporting participants

#### Comments on Assigned Data Flags for Test #1204

H7UNR6 (X) - Data for both samples are high.



Analysis 1204

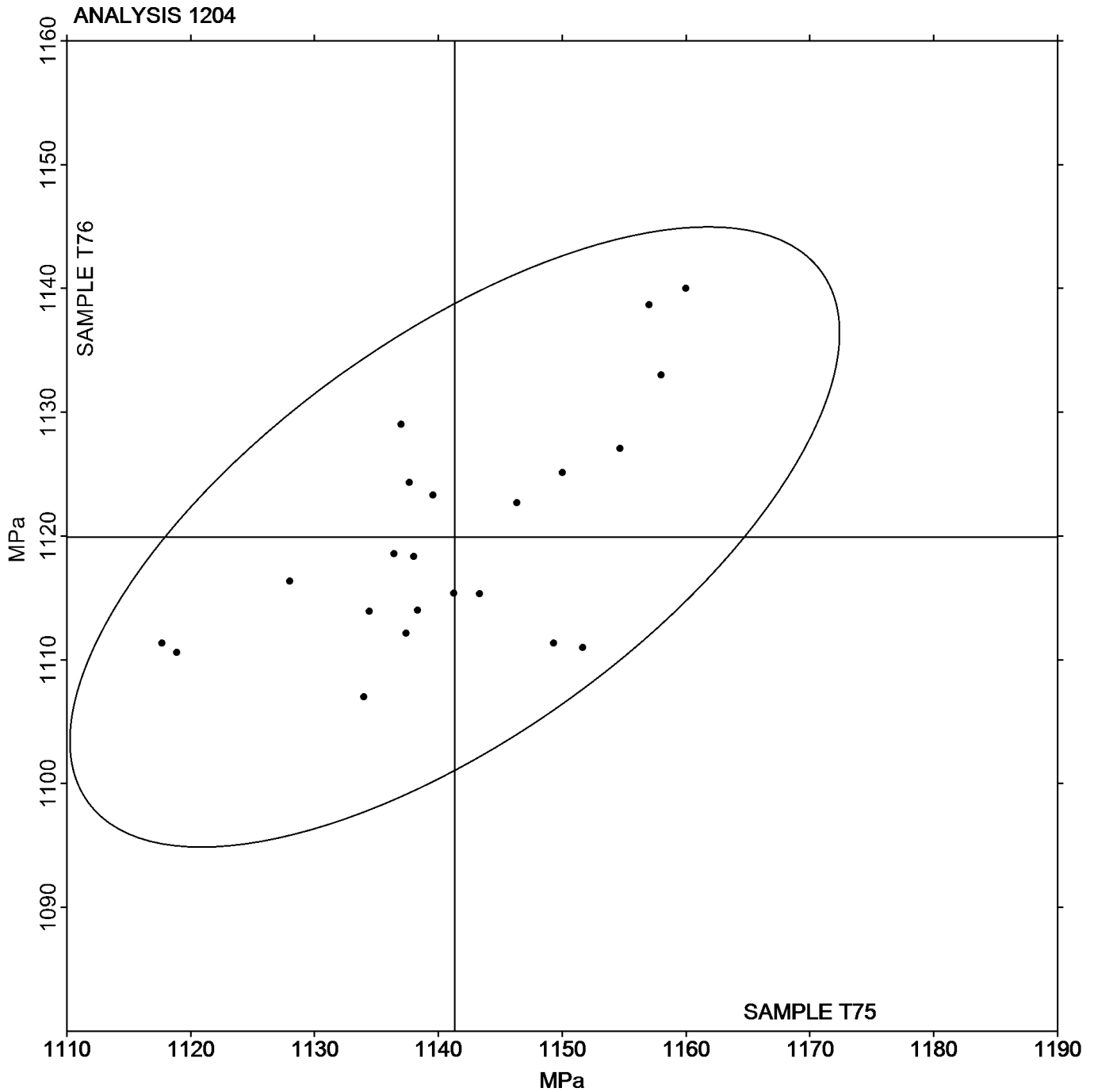
Fastener Axial Tensile - Metric  
ASTM F606M

SAMPLE T75

SAMPLE T76

1,141 MPa

1,120 MPa





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1210

2nd Qtr  
2021

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

WebCode	Data Flag	Sample G75			Sample G76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
248D6Z		30.74	1.72	1.95	30.03	1.05	1.54
34KG2Y		28.74	-0.27	-0.31	28.37	-0.61	-0.90
3FC7YJ		27.68	-1.34	-1.52	28.44	-0.54	-0.79
436GJV		29.05	0.03	0.04	29.91	0.93	1.36
4HE467	X	25.91	-3.11	-3.53	26.74	-2.24	-3.29
4Y9NTK		28.68	-0.34	-0.39	29.33	0.35	0.51
6966NF		29.88	0.86	0.97	29.97	0.99	1.45
6ER43V		28.71	-0.31	-0.35	29.48	0.50	0.73
6HG7GV		28.43	-0.59	-0.67	28.10	-0.88	-1.29
6MQTLK		28.76	-0.26	-0.29	28.79	-0.19	-0.28
7N2NAX		29.30	0.28	0.32	29.68	0.70	1.02
89D4U9		28.50	-0.52	-0.59	29.29	0.31	0.46
8RXPTR		29.58	0.56	0.64	29.59	0.61	0.89
8THY8W	*	26.42	-2.60	-2.95	27.79	-1.19	-1.75
8ZMJMF		28.94	-0.08	-0.09	29.00	0.02	0.03
9KALYU		28.73	-0.29	-0.33	29.14	0.16	0.23
9RRYXT		30.08	1.06	1.20	29.93	0.95	1.39
A6A7AK		29.58	0.56	0.63	27.98	-1.00	-1.48
A6QCMN	X	29.44	0.42	0.48	26.19	-2.79	-4.10
ADLACC		28.98	-0.04	-0.05	29.01	0.03	0.04
AKNGX8		29.29	0.27	0.31	29.13	0.15	0.22
AVHNMB		29.63	0.61	0.70	28.88	-0.10	-0.15
B6KGE3		28.18	-0.84	-0.95	28.60	-0.38	-0.56
BNK8XQ		28.79	-0.23	-0.26	28.24	-0.74	-1.09
BQ3EA8		28.85	-0.17	-0.19	28.88	-0.10	-0.15
BUTLQN		29.06	0.04	0.05	29.38	0.40	0.58
DT9P99		30.01	0.99	1.12	29.62	0.64	0.94
FLHZKF	*	30.21	1.19	1.36	27.88	-1.10	-1.61
FWD94H		27.77	-1.25	-1.42	28.06	-0.92	-1.35
GRE9CZ		29.53	0.51	0.58	28.36	-0.62	-0.91
HGBJXW		28.50	-0.52	-0.59	29.52	0.54	0.79
HGZENE		28.95	-0.07	-0.08	28.68	-0.30	-0.45
HX7WJJ		28.40	-0.62	-0.70	28.73	-0.25	-0.37
KMVCB3		27.49	-1.52	-1.73	27.55	-1.43	-2.10
LFQYLN		28.43	-0.59	-0.67	28.68	-0.30	-0.44
M4V369		29.43	0.41	0.46	29.39	0.41	0.60
MCCG9D		29.08	0.06	0.06	29.71	0.73	1.07
MNXZH9		28.21	-0.81	-0.92	28.84	-0.14	-0.20
MQ4EW2		30.01	0.99	1.13	28.12	-0.86	-1.26
MVG2Z8	X	25.18	-3.84	-4.37	27.39	-1.59	-2.34
NHRKQZ		31.00	1.98	2.25	29.73	0.75	1.10
NNG4PA		28.28	-0.74	-0.84	28.87	-0.11	-0.16
NYYKHF		29.42	0.40	0.46	29.35	0.37	0.54
PKRA9Y		29.16	0.14	0.16	29.58	0.60	0.87
QUEMNA		29.41	0.39	0.45	29.43	0.45	0.66
R722HC		28.04	-0.98	-1.11	28.58	-0.40	-0.59
RT2FYM	*	28.77	-0.25	-0.29	30.64	1.66	2.45



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1210

2nd Qtr  
2021

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

WebCode	Data Flag	Sample G75			Sample G76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
RYZZPW		29.59	0.57	0.65	29.35	0.37	0.54
TQ9TY4		28.24	-0.77	-0.88	28.53	-0.45	-0.67
TYHGB3		29.08	0.06	0.06	29.14	0.16	0.23
UEPUKL	X	27.18	-1.84	-2.09	25.74	-3.24	-4.76
UMJWRP	*	30.56	1.54	1.75	28.01	-0.97	-1.43
VWAPV9		29.54	0.53	0.60	29.57	0.59	0.87
WKQPGQ		27.26	-1.76	-2.00	28.92	-0.06	-0.09
XCRK7M		29.12	0.10	0.12	27.85	-1.13	-1.67
XY68YT		30.31	1.29	1.46	29.23	0.25	0.36
ZPAWTF		29.63	0.61	0.70	29.16	0.18	0.27

#### Summary Statistics

	Sample G75		Sample G76	
<b>Grand Means</b>	29.02	HRC	28.98	HRC
<b>Stnd Dev Btwn Labs</b>	0.88	HRC	0.68	HRC

Samples G75, G76 : 1/2-20 x 2 1/4, 1/2-20 x 2 3/4

Statistics based on 53 of 57 reporting participants

#### Comments on Assigned Data Flags for Test #1210

- 4HE467 (X) - Data for both samples are low. Inconsistent within the determinations of both samples.
- A6QCMN (X) - Data for sample G76 are low. Inconsistent within the determinations of both samples.
- MVG2Z8 (X) - Data for sample G75 are low. Inconsistent within the determinations of both samples.
- UEPUKL (X) - Data for sample G76 are low. Inconsistent within the determinations of sample G76.



Analysis 1210

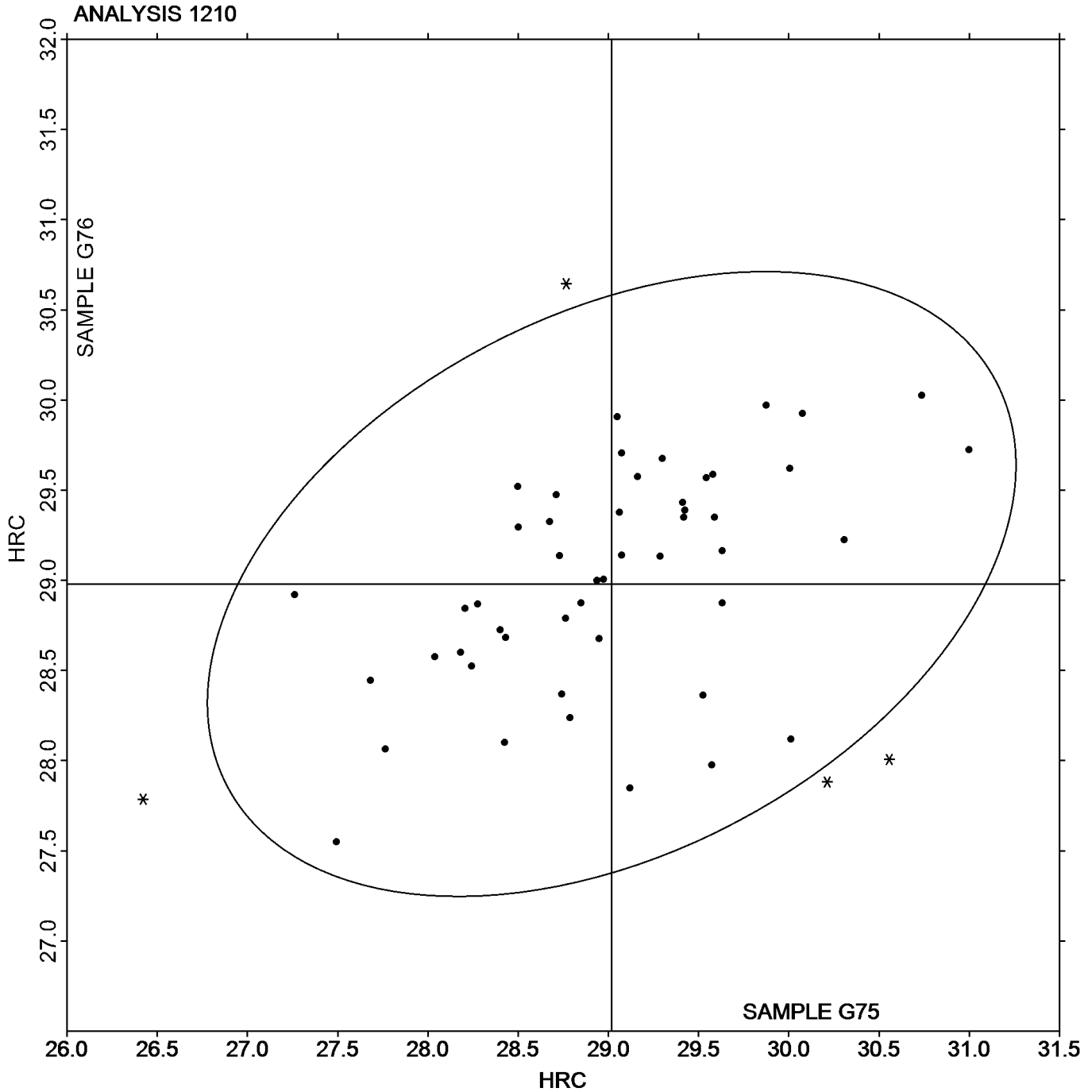
Rockwell Hardness: Externally Threaded Fasteners  
ASTM F606/F606M AND ASTM E18

SAMPLE G75

SAMPLE G76

29.02 HRC

28.98 HRC





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1211

2nd Qtr  
2021

### Vickers Hardness: Externally Threaded Fasteners ASTM E92

WebCode	Data Flag	Sample V75			Sample V76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
22KQJY		295.88	-5.18	-0.86	292.63	-6.30	-1.04
4Y9NTK		294.56	-6.50	-1.08	295.25	-3.68	-0.61
6XRV93		294.94	-6.12	-1.02	294.38	-4.55	-0.75
7N2NAX		301.70	0.64	0.11	297.61	-1.31	-0.22
AA98QG		306.99	5.93	0.98	308.32	9.39	1.55
BCJXZF	X	311.13	10.07	1.67	291.25	-7.68	-1.27
BQ3EA8		302.89	1.83	0.30	302.62	3.69	0.61
CVXMWE		305.59	4.53	0.75	302.65	3.72	0.62
D2EMNB		301.97	0.91	0.15	299.38	0.45	0.07
DZ6KX7		300.29	-0.77	-0.13	299.83	0.91	0.15
HX7WJJ		295.78	-5.28	-0.88	298.75	-0.18	-0.03
JT6A3Z		317.00	15.94	2.65	313.56	14.64	2.42
L7TPNF		296.56	-4.50	-0.75	297.94	-0.99	-0.16
MCCG9D		309.06	8.00	1.33	303.19	4.26	0.70
MRKFBP	*	302.81	1.75	0.29	290.94	-7.99	-1.32
NYYKHF		298.06	-3.00	-0.50	293.69	-5.24	-0.87
PUHVDW		297.12	-3.94	-0.65	293.21	-5.71	-0.94
Q4ZW9X		296.07	-4.99	-0.83	288.62	-10.31	-1.70
Q6ZPBC		300.76	-0.30	-0.05	302.61	3.69	0.61
QK8TRW		297.52	-3.54	-0.59	297.06	-1.86	-0.31
QUEMNA	X	249.41	-51.65	-8.58	249.44	-49.49	-8.18
TCBKEJ		303.13	2.07	0.34	303.88	4.95	0.82
UEPUKL		313.19	12.13	2.01	308.00	9.07	1.50
WCCYY7		295.63	-5.43	-0.90	294.38	-4.55	-0.75
YVLFPG		296.88	-4.18	-0.70	296.81	-2.11	-0.35

#### Summary Statistics

	Sample V75		Sample V76	
<b>Grand Means</b>	301.06	HV	298.93	HV
<b>Std Dev Btwn Labs</b>	6.02	HV	6.05	HV

Samples V75, V76 : 1/2-20 x 2 1/4, 1/2-20 x 2 3/4

Statistics based on 23 of 25 reporting participants

#### Comments on Assigned Data Flags for Test #1211

BCJXZF (X) - Inconsistent in testing between samples.

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



Analysis 1211

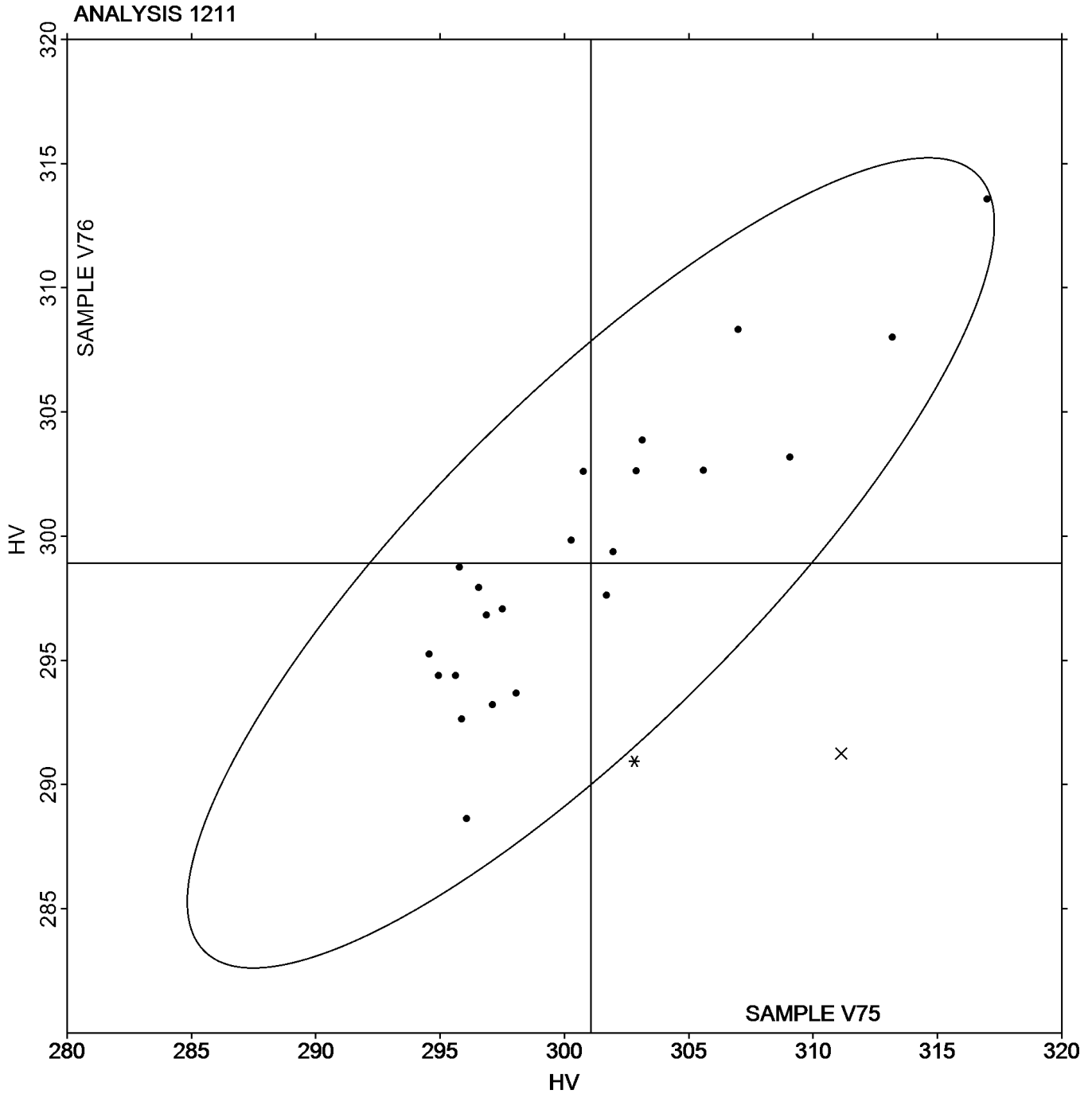
Vickers Hardness: Externally Threaded Fasteners  
ASTM E92

SAMPLE V75

SAMPLE V76

301.06 HV

298.93 HV





**Fasteners and Metals Interlaboratory Testing Program**

**Cycle 134**

**Analysis 1220**

**2nd Qtr  
2021**

**Fastener Double Shear  
NASM 1312-13**

WebCode	Data Flag	Sample Z75			Sample Z76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
6ER43V		19,000	-50	-0.08	18,267	-164	-0.26
89D4U9		18,730	-320	-0.50	18,145	-286	-0.46
9RRYXT		18,593	-457	-0.72	18,192	-239	-0.38
A6A7AK		19,210	160	0.25	18,717	286	0.46
H7UNR6		20,241	1,191	1.88	19,935	1,504	2.41
HGBJXW		18,813	-237	-0.37	18,478	47	0.08
MVG2Z8		19,395	345	0.54	18,821	390	0.62
NYYKHF		18,567	-483	-0.76	17,852	-578	-0.92
PZ3XE9		18,600	-450	-0.71	17,867	-564	-0.90
QUEMNA		18,705	-345	-0.54	18,394	-36	-0.06
VWAPV9		19,018	-32	-0.05	18,262	-169	-0.27
WKQPGQ	X	12,566	-6,484	-10.22	12,087	-6,344	-10.15
YBV938		18,361	-689	-1.09	17,520	-910	-1.46
ZMZ3HN		20,416	1,366	2.15	19,149	718	1.15

**Summary Statistics**

	Sample Z75		Sample Z76	
<b>Grand Means</b>	19,050	1b	18,431	1b
<b>Stnd Dev Btwn Labs</b>	634	1b	625	1b

Samples Z75, Z76 : 3/8-16 x 2 1/2, 3/8-16 x 2 3/4

Statistics based on 13 of 14 reporting participants

**Comments on Assigned Data Flags for Test #1220**

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





Analysis 1220

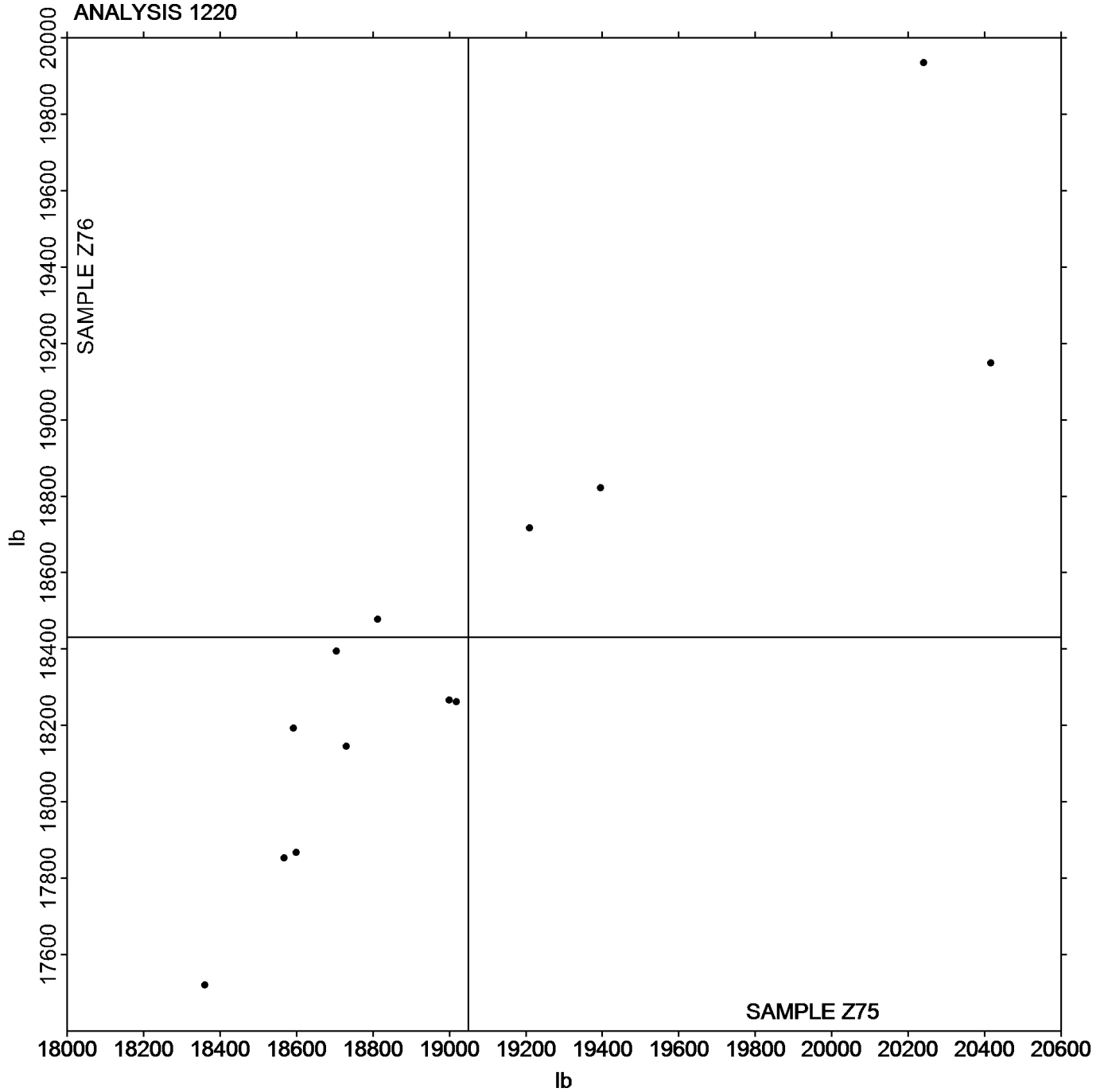
Fastener Double Shear  
NASM 1312-13

SAMPLE Z75

SAMPLE Z76

19,050 lb

18,431 lb





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1301

2nd Qtr  
2021

Rockwell Hardness: C & B Scales  
ASTM E18

WebCode	Data Flag	Sample E75			Sample E76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
27PWN6		53.02	0.37	0.47	58.96	0.27	0.30
2DVEEH		52.42	-0.23	-0.29	58.18	-0.51	-0.56
2KQFHP		52.14	-0.51	-0.65	58.16	-0.53	-0.59
2MFRA8		52.49	-0.16	-0.20	58.02	-0.67	-0.74
2Z79CM	X	51.80	-0.85	-1.09	59.74	1.05	1.16
3BUWGL		53.64	0.99	1.27	60.24	1.55	1.72
3HJGYU		52.42	-0.23	-0.29	58.38	-0.31	-0.34
3LE76E		53.44	0.79	1.01	59.18	0.49	0.54
3LX67J		51.74	-0.91	-1.16	57.54	-1.15	-1.27
3YPKGE		53.80	1.15	1.47	59.94	1.25	1.38
48GMVV		51.68	-0.97	-1.24	57.48	-1.21	-1.34
6C3QFH		51.08	-1.57	-2.01	57.54	-1.15	-1.27
77F6EB		53.20	0.55	0.70	60.00	1.31	1.45
7C4YXU		51.22	-1.43	-1.83	56.80	-1.89	-2.09
7DGJW7		53.16	0.51	0.65	59.36	0.67	0.74
7FM22U		52.98	0.33	0.42	59.08	0.39	0.43
7NG4BR		51.00	-1.65	-2.11	57.38	-1.31	-1.45
7UGM6B		54.14	1.49	1.91	59.98	1.29	1.43
7VUAMP		52.62	-0.03	-0.03	58.44	-0.25	-0.27
8RRNF6		52.02	-0.63	-0.80	58.28	-0.41	-0.45
8X3M3V		53.26	0.61	0.78	59.62	0.93	1.03
9BMJQ8		53.12	0.47	0.60	59.15	0.46	0.51
9EKVQD		50.74	-1.91	-2.44	56.78	-1.91	-2.11
9KALYU		53.24	0.59	0.76	58.76	0.07	0.08
9KB8NU		52.90	0.25	0.32	58.66	-0.03	-0.03
9RRYXT		51.82	-0.83	-1.06	57.58	-1.11	-1.23
A6A7AK		52.82	0.17	0.22	58.74	0.05	0.06
ABYJDT		51.90	-0.75	-0.96	58.02	-0.67	-0.74
AJPAJ9		53.14	0.49	0.63	59.36	0.67	0.74
ALY4RE		53.06	0.41	0.53	58.90	0.21	0.23
AMPHMH		53.34	0.69	0.88	59.32	0.63	0.70
APEVGM		53.68	1.03	1.32	60.28	1.59	1.76
B6KGE3		53.70	1.05	1.34	59.54	0.85	0.94
BAHV6D		52.66	0.01	0.01	58.42	-0.27	-0.30
BHT8BJ		51.46	-1.19	-1.52	57.14	-1.55	-1.71
BLRH8J		52.64	-0.01	-0.01	58.86	0.17	0.19
BWDFK3		53.62	0.97	1.24	59.60	0.91	1.01
BZDQCW		52.16	-0.49	-0.63	57.78	-0.91	-1.01
CAT4LC		51.26	-1.39	-1.78	57.22	-1.47	-1.62
CKE7BY		52.14	-0.51	-0.65	58.14	-0.55	-0.61
CQNDYH		51.64	-1.01	-1.29	57.20	-1.49	-1.65
CTMVQJ		53.18	0.53	0.68	59.07	0.38	0.43
CVXMWE		52.26	-0.39	-0.50	59.18	0.49	0.54
CYGV6E		52.74	0.09	0.12	58.42	-0.27	-0.30
DNRBDM		53.28	0.63	0.81	59.22	0.53	0.59
DT9P99		53.16	0.51	0.65	58.66	-0.03	-0.03
F3YDN7		53.80	1.15	1.47	60.28	1.59	1.76



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1301

2nd Qtr  
2021

Rockwell Hardness: C & B Scales  
ASTM E18

WebCode	Data Flag	Sample E75			Sample E76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
F8WKFV		51.56	-1.09	-1.39	57.50	-1.19	-1.32
FC8YYF		52.80	0.15	0.19	59.02	0.33	0.37
FEFX83	*	52.62	-0.03	-0.04	59.82	1.13	1.25
FLHZKF		53.18	0.53	0.68	58.76	0.07	0.08
FTXQWA		51.64	-1.01	-1.29	57.90	-0.79	-0.87
G877CA		52.38	-0.27	-0.34	58.68	-0.01	-0.01
GJ9DHV		53.16	0.51	0.65	59.00	0.31	0.34
GQAMTU		53.04	0.39	0.50	59.04	0.35	0.39
GZ9FZZ		51.74	-0.91	-1.16	57.44	-1.25	-1.38
HAUYX6		53.20	0.55	0.70	58.62	-0.07	-0.08
HDDXBZ		52.72	0.07	0.09	58.58	-0.11	-0.12
HFJEEW		52.34	-0.31	-0.40	58.36	-0.33	-0.36
HJ2K4K		53.30	0.65	0.83	59.36	0.67	0.74
JGYVKC		53.20	0.55	0.70	59.20	0.51	0.56
JKFHYG		52.48	-0.17	-0.22	59.06	0.37	0.41
JL4ZR2	X	53.06	0.41	0.53	60.60	1.91	2.11
JNC6GJ		52.54	-0.11	-0.14	58.22	-0.47	-0.52
KBEMYV		51.80	-0.85	-1.09	57.88	-0.81	-0.90
KDUR9F		52.36	-0.29	-0.37	58.34	-0.35	-0.39
KFDQH4		52.62	-0.03	-0.04	59.06	0.37	0.41
KK8M3N		52.46	-0.19	-0.24	58.30	-0.39	-0.43
KMVCB3		53.48	0.83	1.06	60.00	1.31	1.45
KNQTE4	X	51.44	-1.21	-1.55	59.20	0.51	0.56
KXEQA4		52.72	0.07	0.09	59.40	0.71	0.79
L3KQ2K	X	44.84	-7.81	-9.99	58.34	-0.35	-0.39
L7TPNF		52.90	0.25	0.32	58.94	0.25	0.28
L7ZDFQ		52.84	0.19	0.24	58.64	-0.05	-0.05
LKJ7ZQ		52.36	-0.29	-0.37	58.70	0.01	0.01
LR3BQ7		53.14	0.49	0.63	59.10	0.41	0.45
M8BNK9		52.40	-0.25	-0.32	58.32	-0.37	-0.41
MAY4AH		51.23	-1.42	-1.82	57.31	-1.38	-1.53
MBQ2LV		53.26	0.61	0.78	60.12	1.43	1.58
MCCG9D		53.62	0.97	1.24	60.18	1.49	1.65
MFMLRZ		50.82	-1.83	-2.34	56.74	-1.95	-2.16
N2JRH3		51.96	-0.69	-0.88	57.56	-1.13	-1.25
N8DFNB		53.00	0.35	0.45	58.50	-0.19	-0.21
NHRKQZ		52.14	-0.51	-0.65	58.04	-0.65	-0.72
NULV2R		53.04	0.39	0.50	58.90	0.21	0.23
NX3AKR		52.68	0.03	0.04	58.78	0.09	0.10
NXLB8U		53.06	0.41	0.53	59.42	0.73	0.81
P2CY9T		51.44	-1.21	-1.55	57.66	-1.03	-1.14
PFZ3PQ		53.40	0.75	0.96	59.54	0.85	0.94
PYW9KC		51.64	-1.01	-1.29	57.54	-1.15	-1.27
PZ3XE9		52.66	0.01	0.01	58.00	-0.69	-0.76
Q4ZW9X		53.40	0.75	0.96	59.62	0.93	1.03
Q6ZPBC		51.54	-1.11	-1.42	57.66	-1.03	-1.14
Q7N84W	*	51.20	-1.45	-1.86	57.84	-0.85	-0.94



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1301

2nd Qtr  
2021

Rockwell Hardness: C & B Scales  
ASTM E18

WebCode	Data Flag	Sample E75			Sample E76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
QA88JC		52.30	-0.35	-0.45	58.20	-0.49	-0.54
QK8TRW	X	52.52	-0.13	-0.17	56.92	-1.77	-1.96
QMAX2B		52.80	0.15	0.19	58.62	-0.07	-0.08
QTZ322		53.38	0.73	0.93	59.40	0.71	0.79
QUEMNA	*	53.28	0.63	0.81	60.36	1.67	1.85
QUYB6J		54.04	1.39	1.78	60.50	1.81	2.00
R9NWRX		52.30	-0.35	-0.45	57.76	-0.93	-1.03
RTJ6M9		52.60	-0.05	-0.06	58.00	-0.69	-0.76
RY4AB3		53.02	0.37	0.47	58.78	0.09	0.10
U92674		52.82	0.17	0.22	58.20	-0.49	-0.54
UATWAA	*	51.58	-1.07	-1.37	56.74	-1.95	-2.16
UEPUKL		53.18	0.53	0.68	58.70	0.01	0.01
ULP6RC		53.70	1.05	1.34	59.22	0.53	0.59
UQ3YT3		52.62	-0.03	-0.04	58.48	-0.21	-0.23
V6GLF7		52.44	-0.21	-0.27	58.42	-0.27	-0.30
V8L4QV		52.78	0.13	0.17	58.80	0.11	0.12
VKCWA4		53.48	0.83	1.06	60.22	1.53	1.69
VMZF7V		52.10	-0.55	-0.70	58.44	-0.25	-0.28
VP4Z9A		52.42	-0.23	-0.29	58.74	0.05	0.06
W7N2MC		53.10	0.45	0.58	59.00	0.31	0.34
WD7G9U		51.34	-1.31	-1.67	57.58	-1.11	-1.23
WNMBFG		53.34	0.69	0.88	59.86	1.17	1.29
XA29GP		51.82	-0.83	-1.06	58.20	-0.49	-0.54
XKJ3GN		53.08	0.43	0.55	58.96	0.27	0.30
XNHDCN	*	54.36	1.71	2.19	60.98	2.29	2.53
XZZUN4		53.66	1.01	1.29	59.86	1.17	1.29
Y299NH		53.00	0.35	0.45	59.22	0.53	0.59
Y8XRQD		53.06	0.41	0.52	59.13	0.44	0.49
YF4PEG		53.30	0.65	0.83	59.24	0.55	0.61
YFZCKT	X	51.26	-1.39	-1.78	58.40	-0.29	-0.32
YT9X8R		52.02	-0.63	-0.80	58.00	-0.69	-0.76
YXLTUG		51.54	-1.11	-1.42	58.26	-0.43	-0.47
Z66AAX		54.10	1.45	1.86	60.02	1.33	1.47

### Summary Statistics

	Sample E75		Sample E76	
<b>Grand Means</b>	52.65	HRC	58.69	HRC
<b>Std Dev Btrwn Labs</b>	0.78	HRC	0.90	HRC

Samples E75, E76 : Steel, Steel

Statistics based on 121 of 127 reporting participants



**Comments on Assigned Data Flags for Test #1301**

2Z79CM (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

JL4ZR2 (X) - Inconsistent in testing between samples.

KNQTE4 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

L3KQ2K (X) - Data for sample E75 are low. Inconsistent within the determinations of sample E75.

QK8TRW (X) - Inconsistent in testing between samples.

YFZCKT (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample E75.



Analysis 1301

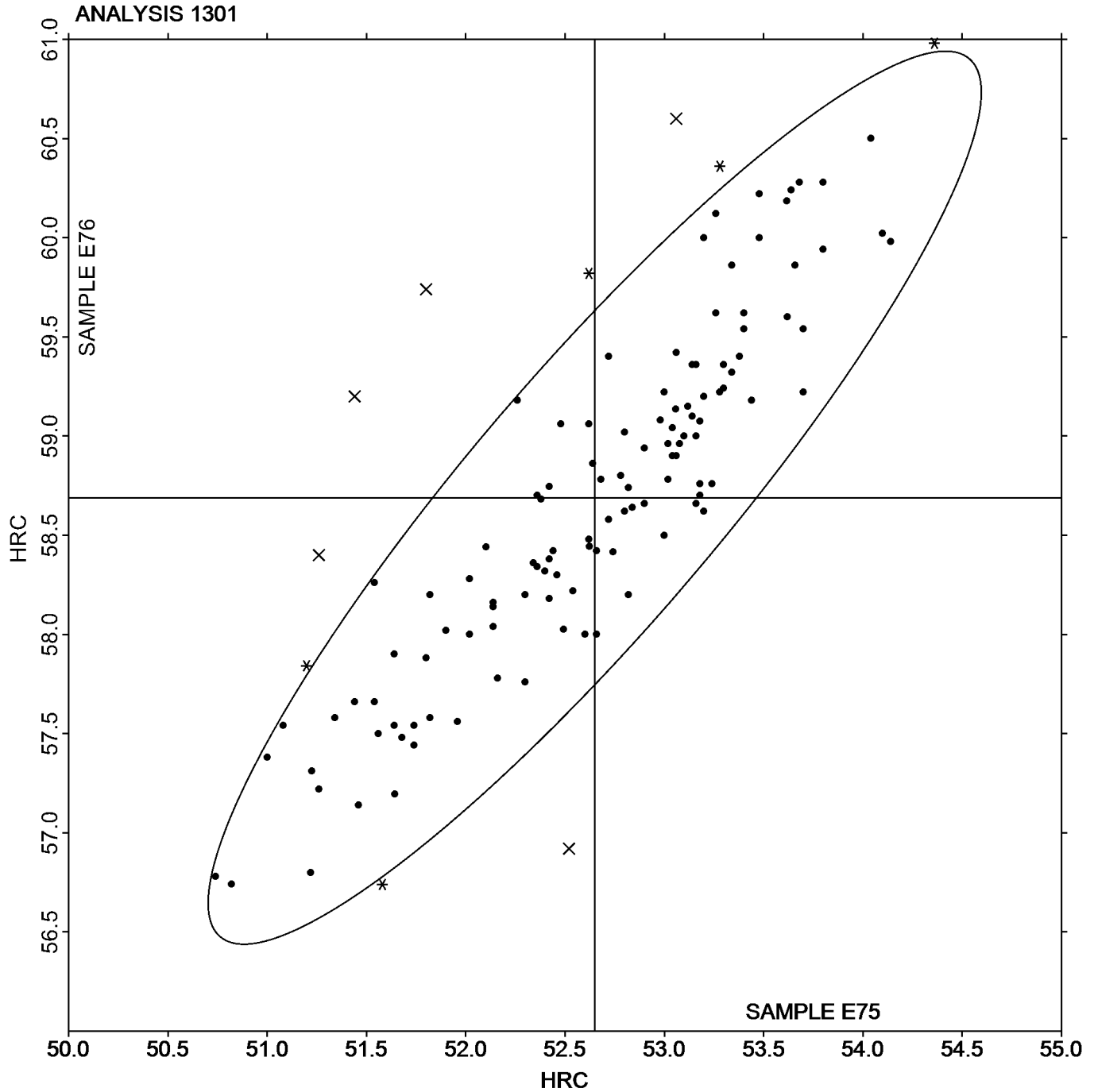
Rockwell Hardness: C & B Scales  
ASTM E18

SAMPLE E75

SAMPLE E76

52.65 HRC

58.69 HRC





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1303

2nd Qtr  
2021

Rockwell Hardness: C Scale  
ASTM E18

WebCode	Data Flag	Sample E75			Sample E76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
22KQJY		54.06	-0.06	-0.11	59.98	-0.29	-0.72
3DLTAL		54.34	0.22	0.45	60.58	0.31	0.79
3UDNNX		54.10	-0.02	-0.03	60.00	-0.27	-0.67
436GJV		54.02	-0.10	-0.19	60.42	0.15	0.39
4HE467		53.62	-0.50	-0.99	59.88	-0.39	-0.97
68W4QN		54.20	0.08	0.17	60.20	-0.07	-0.17
6EB28F		54.80	0.68	1.37	60.66	0.39	0.99
74KURM	X	54.08	-0.04	-0.07	56.32	-3.95	-9.94
7T8QPX		53.76	-0.36	-0.71	60.14	-0.13	-0.32
824HZD		54.36	0.25	0.49	60.41	0.15	0.37
9FC6BE		54.42	0.30	0.61	60.52	0.25	0.64
9RN9WC		54.34	0.22	0.45	60.14	-0.13	-0.32
A6QCMN		53.20	-0.92	-1.83	59.80	-0.47	-1.18
AYHYE6		54.56	0.44	0.89	60.50	0.23	0.59
AYPVE4		53.83	-0.29	-0.57	60.34	0.07	0.18
B2PKW4		54.18	0.06	0.13	60.36	0.09	0.23
BCJXZF		54.14	0.02	0.05	60.44	0.17	0.44
BPDBCJ		54.38	0.26	0.53	60.68	0.41	1.04
DNV2GN		53.34	-0.78	-1.55	59.86	-0.41	-1.03
EQ88BB		53.76	-0.36	-0.71	60.26	-0.01	-0.02
EWHFLD		54.60	0.48	0.97	60.60	0.33	0.84
F6NPH6		54.50	0.38	0.77	60.10	-0.17	-0.42
F6WEZP		54.15	0.04	0.08	60.26	-0.01	-0.02
F7LRPM	X	83.60	29.48	59.00	89.70	29.43	74.13
FEUL79		54.03	-0.09	-0.18	59.86	-0.40	-1.02
GEPMP7		54.32	0.20	0.41	60.14	-0.13	-0.32
GJMUGU		54.49	0.37	0.74	60.29	0.03	0.07
GKXM83		54.10	-0.02	-0.03	60.12	-0.15	-0.37
GVKM2E		53.80	-0.32	-0.63	60.00	-0.27	-0.67
GZB694		54.24	0.12	0.25	60.28	0.01	0.03
H7UNR6	*	53.10	-1.02	-2.03	59.10	-1.17	-2.94
H87L42		54.30	0.18	0.37	60.30	0.03	0.08
H8BTGV		54.66	0.54	1.09	60.54	0.27	0.69
HYW88Q		53.98	-0.14	-0.27	60.20	-0.07	-0.17
JCCJ7D	X	53.46	-0.66	-1.31	57.92	-2.35	-5.91
K69U6Z	X	51.80	-2.32	-4.63	59.00	-1.27	-3.19
KE4RZF		54.30	0.18	0.37	60.32	0.05	0.13
KVKZT4		54.56	0.44	0.89	60.92	0.65	1.64
KXEQA4		53.80	-0.32	-0.63	60.20	-0.07	-0.17
LFRJM7		53.48	-0.64	-1.27	59.60	-0.67	-1.68
LMULVC	*	52.76	-1.36	-2.71	59.42	-0.85	-2.13
M8E3EW		54.46	0.34	0.69	60.36	0.09	0.23
MRKFBP		53.76	-0.35	-0.71	59.90	-0.37	-0.93
NYCC9C		53.94	-0.18	-0.35	60.18	-0.09	-0.22
Q6ZPBC		54.38	0.26	0.53	60.60	0.33	0.84
QDZH3P		54.00	-0.11	-0.23	60.27	0.01	0.01
QHYREC		54.80	0.68	1.37	60.90	0.63	1.59



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1303

2nd Qtr  
2021

Rockwell Hardness: C Scale  
ASTM E18

WebCode	Data Flag	Sample E75			Sample E76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
QZ2HNT		54.18	0.06	0.13	60.10	-0.17	-0.42
R2RXJW		54.50	0.38	0.77	60.54	0.27	0.69
REXY8Y		52.92	-1.20	-2.39	59.52	-0.75	-1.88
RKLLZJ		55.12	1.00	2.01	60.76	0.49	1.24
T2PF7J	*	53.20	-0.92	-1.83	60.02	-0.25	-0.62
TGXJJX		54.20	0.08	0.17	60.62	0.35	0.89
TRE6PR		54.25	0.13	0.26	60.35	0.08	0.20
U2HVN9	*	55.22	1.10	2.21	61.42	1.15	2.90
UEPUKL	X	54.90	0.78	1.57	60.12	-0.15	-0.37
VHP3QG		54.50	0.38	0.77	60.68	0.41	1.04
VLNLNA		53.94	-0.18	-0.35	60.00	-0.27	-0.67
VNBCMT		54.16	0.04	0.09	60.42	0.15	0.39
VRWYEK		54.26	0.14	0.29	60.12	-0.15	-0.37
WCCYY7	X	54.90	0.78	1.56	61.98	1.71	4.30
WCELH6		53.96	-0.16	-0.31	60.40	0.13	0.34
WKQPGQ		53.84	-0.28	-0.55	60.40	0.13	0.34
X8MJB Y		55.00	0.88	1.77	61.00	0.73	1.85
YYVUPM	X	54.80	0.68	1.37	59.60	-0.67	-1.68
ZKDJGQ		53.48	-0.64	-1.27	59.48	-0.79	-1.98
ZQ6EQB		53.82	-0.30	-0.59	60.26	-0.01	-0.02
ZU7FVE		54.60	0.48	0.97	60.56	0.29	0.74

### Summary Statistics

	Sample E75		Sample E76	
<b>Grand Means</b>	54.12	HRC	60.27	HRC
<b>Stnd Dev Btwn Labs</b>	0.50	HRC	0.40	HRC

Samples E75, E76 : Steel, Steel

Statistics based on 61 of 68 reporting participants

### Comments on Assigned Data Flags for Test #1303

74KURM (X) - Data for sample E76 are low. Inconsistent within the determinations of sample E76.

F7LRPM (X) - Extreme data.

JCCJ7D (X) - Data for sample E76 are low.

K69U6Z (X) - Data for both samples are low.

UEPUKL (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample E76.

WCCYY7 (X) - Data for sample E76 are high.

YYVUPM (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample E76.





Analysis 1303

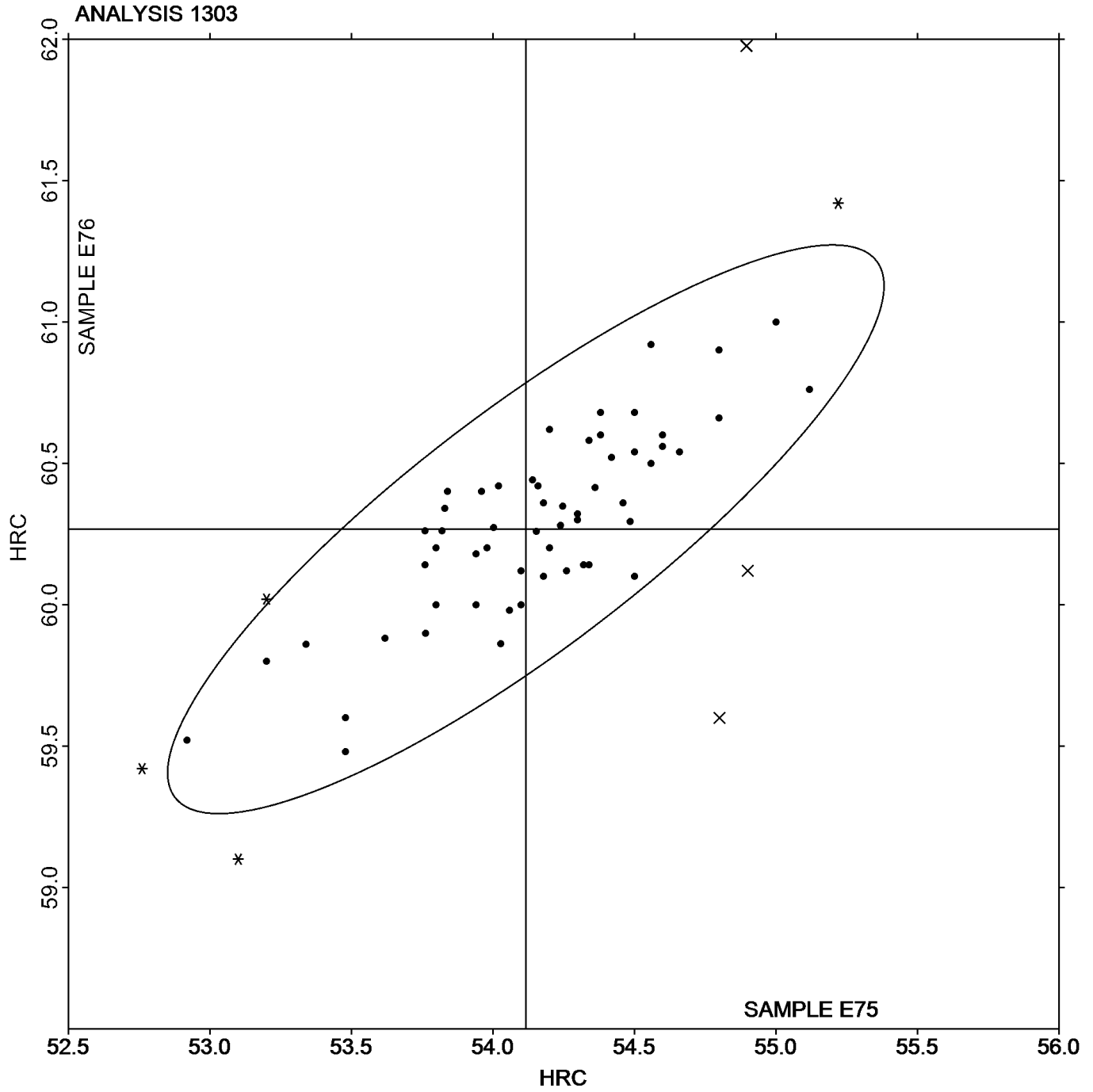
Rockwell Hardness: C Scale  
ASTM E18

SAMPLE E75

SAMPLE E76

54.12 HRC

60.27 HRC





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1351

2nd Qtr  
2021

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

WebCode	Data Flag	Sample E75			Sample E76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2MFRA8		72.81	0.29	0.58	78.07	0.35	0.59
3YPKGE		73.36	0.84	1.65	78.44	0.72	1.22
436GJV		71.40	-1.12	-2.19	76.30	-1.42	-2.41
6HG7GV	X	68.60	-3.92	-7.67	74.04	-3.68	-6.25
77F6EB	*	73.90	1.38	2.70	78.50	0.78	1.33
7DGJW7		72.28	-0.24	-0.47	77.68	-0.04	-0.07
7NG4BR		72.38	-0.14	-0.27	77.22	-0.50	-0.85
7RUUKT		72.84	0.32	0.63	78.04	0.32	0.54
7VUAMP		72.78	0.26	0.51	77.86	0.14	0.24
9RRYXT		72.26	-0.26	-0.51	77.32	-0.40	-0.68
A6A7AK		72.52	0.00	0.00	77.76	0.04	0.07
APEVGM		72.18	-0.34	-0.66	78.02	0.30	0.51
AVHNMB		71.98	-0.54	-1.05	76.62	-1.10	-1.87
B6KGE3		72.18	-0.34	-0.66	77.40	-0.32	-0.54
BCJXZF		72.14	-0.38	-0.74	77.52	-0.20	-0.34
BPDBCJ		72.98	0.46	0.90	78.12	0.40	0.68
BWDFK3		73.28	0.76	1.49	78.48	0.76	1.29
E4NQCK		71.66	-0.86	-1.68	76.74	-0.98	-1.67
EWHFLD		72.72	0.20	0.39	77.50	-0.22	-0.37
FC8YYF		72.52	0.00	0.00	77.58	-0.14	-0.24
FEFX83	X	70.12	-2.40	-4.69	74.60	-3.12	-5.30
FLHZKF	X	70.76	-1.76	-3.44	76.96	-0.76	-1.29
FTXQWA		71.78	-0.74	-1.44	77.18	-0.54	-0.92
GCMERM	*	72.94	0.42	0.83	76.98	-0.74	-1.26
GJ9DHV		72.18	-0.34	-0.66	78.18	0.46	0.78
HDDXBZ		72.50	-0.02	-0.04	76.86	-0.86	-1.46
HX7WJJ		71.92	-0.60	-1.17	77.16	-0.56	-0.95
JL4ZR2		72.54	0.02	0.04	78.42	0.70	1.19
JNC6GJ		73.02	0.50	0.98	78.40	0.68	1.16
KMVBC3		72.10	-0.42	-0.82	77.54	-0.18	-0.31
M8BNK9		73.34	0.82	1.61	78.28	0.56	0.95
MAY4AH		71.46	-1.06	-2.08	76.95	-0.77	-1.31
MNXZH9		72.36	-0.16	-0.31	77.00	-0.72	-1.22
NHRKQZ		73.04	0.52	1.02	78.76	1.04	1.77
NX3AKR		72.52	0.00	0.00	78.04	0.32	0.54
NXLB8U		72.46	-0.06	-0.11	78.24	0.52	0.88
PH88JE		73.38	0.86	1.69	78.26	0.54	0.92
PUHVDW	X	70.04	-2.48	-4.85	76.52	-1.20	-2.04
QA88JC		72.84	0.32	0.63	78.00	0.28	0.48
QMAX2B		72.36	-0.16	-0.31	77.34	-0.38	-0.65
QUEMNA		72.50	-0.02	-0.04	77.60	-0.12	-0.20
REXY8Y	X	69.96	-2.56	-5.01	76.00	-1.72	-2.92
UEPUKL		72.44	-0.08	-0.15	77.64	-0.08	-0.14
VP4Z9A		72.65	0.13	0.26	78.09	0.37	0.63
VYVPVP		72.54	0.02	0.04	77.70	-0.02	-0.03
W7N2MC	X	65.60	-6.92	-13.54	70.80	-6.92	-11.76
WRQ3K2		72.50	-0.02	-0.04	77.52	-0.20	-0.34



**Fasteners and Metals Interlaboratory Testing Program**

**Cycle 134**

**Analysis 1351**

**2nd Qtr  
2021**

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

WebCode	Data Flag	Sample E75			Sample E76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
XY68YT		72.82	0.30	0.59	77.52	-0.20	-0.34
Y299NH		72.16	-0.36	-0.70	77.82	0.10	0.17
YXLTUG	*	72.64	0.12	0.24	78.94	1.22	2.07
ZD27VE		72.16	-0.36	-0.70	77.82	0.10	0.17

**Summary Statistics**

	Sample E75		Sample E76	
<b>Grand Means</b>	72.52	HR30N	77.72	HR30N
<b>Stnd Dev Btwn Labs</b>	0.51	HR30N	0.59	HR30N

Samples E75, E76 : Steel, Steel

Statistics based on 45 of 51 reporting participants

**Comments on Assigned Data Flags for Test #1351**

- 6HG7GV (X) - Data for both samples are low. Inconsistent within the determinations of sample E75.
- FEFX83 (X) - Data for both samples are low. Inconsistent within the determinations of both samples.
- FLHZKF (X) - Data for sample E75 are low.
- PUHVDW (X) - Data for sample E75 are low.
- REXY8Y (X) - Data for both samples are low. Inconsistent within the determinations of sample E75.
- W7N2MC (X) - Data for both samples are low.



Analysis 1351

Rockwell Superficial Hardness (30N Scale)

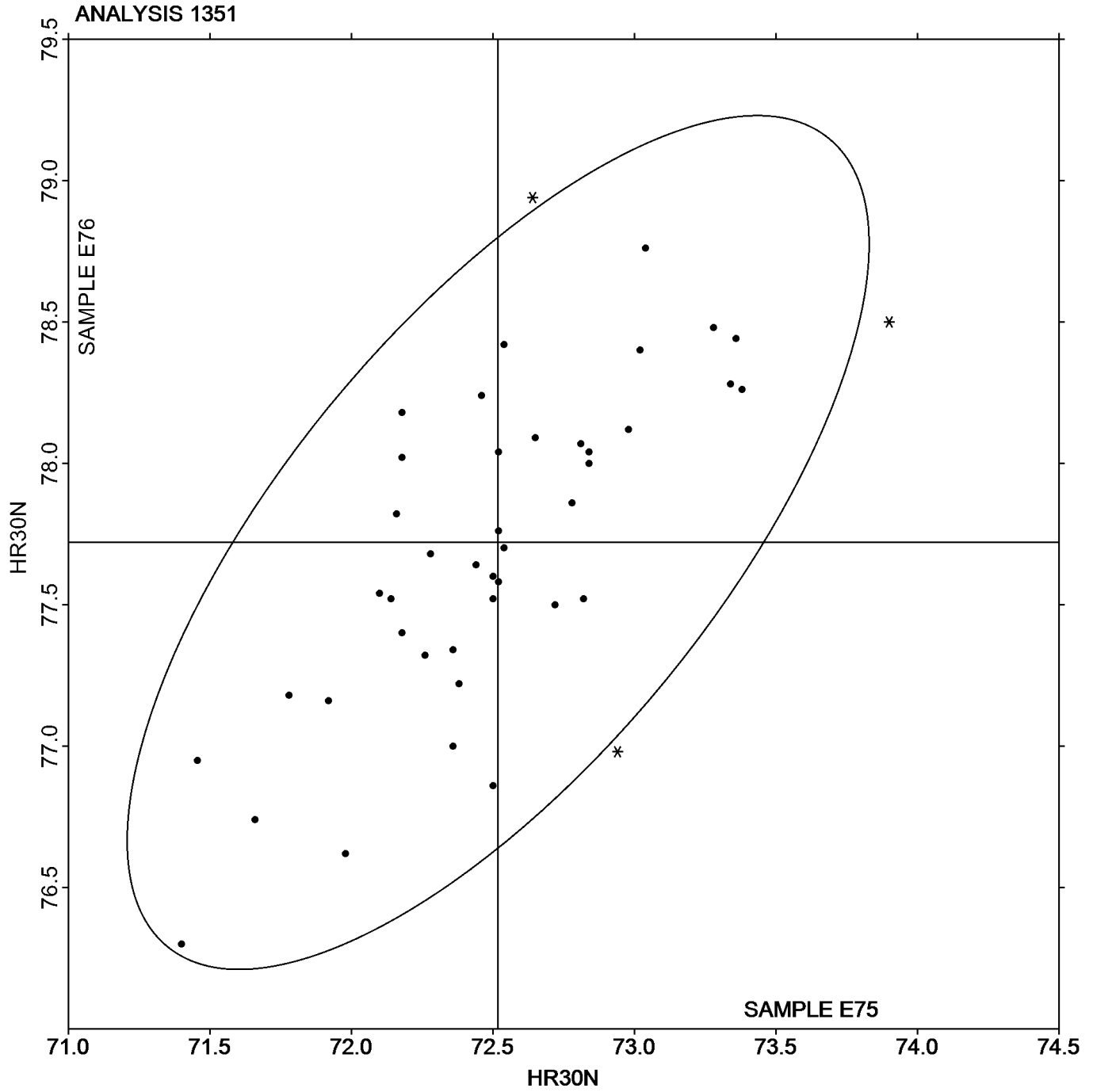
ASTM E18

SAMPLE E75

72.52 HR30N

SAMPLE E76

77.72 HR30N





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1401

2nd Qtr  
2021

Total Case Depth  
SAE J423, SAE J78

WebCode	Data Flag	Sample C75			Sample C76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2KQFHP		0.0337	0.0058	1.03	0.0355	0.0053	0.84
3BUWGL		0.0338	0.0060	1.05	0.0344	0.0042	0.66
4Y9NTK		0.0283	0.0005	0.09	0.0327	0.0024	0.39
6HG7GV		0.0238	-0.0041	-0.72	0.0228	-0.0075	-1.19
74KURM		0.0249	-0.0030	-0.52	0.0259	-0.0044	-0.69
77F6EB		0.0301	0.0023	0.40	0.0314	0.0012	0.19
7FM22U		0.0208	-0.0071	-1.25	0.0255	-0.0047	-0.75
7N2NAX		0.0313	0.0034	0.61	0.0366	0.0063	1.01
8RRNF6		0.0296	0.0018	0.31	0.0288	-0.0014	-0.23
9UAC8U		0.0290	0.0011	0.20	0.0340	0.0038	0.60
9V2FUA		0.0200	-0.0079	-1.39	0.0203	-0.0099	-1.58
AGJM4H		0.0282	0.0003	0.06	0.0278	-0.0025	-0.40
ALEKKM		0.0180	-0.0099	-1.75	0.0205	-0.0098	-1.56
ALY4RE		0.0240	-0.0039	-0.68	0.0290	-0.0012	-0.20
BWDFK3		0.0216	-0.0062	-1.10	0.0238	-0.0064	-1.03
CYGV6E		0.0197	-0.0081	-1.44	0.0217	-0.0086	-1.37
DT9P99		0.0260	-0.0018	-0.32	0.0305	0.0002	0.04
ED968B		0.0368	0.0090	1.59	0.0380	0.0078	1.24
EWHFLD	*	0.0404	0.0126	2.22	0.0488	0.0186	2.96
FFQZX8		0.0242	-0.0036	-0.64	0.0268	-0.0034	-0.55
H7UNR6		0.0268	-0.0010	-0.18	0.0292	-0.0010	-0.17
H8BTGV		0.0336	0.0058	1.02	0.0338	0.0036	0.57
HAUYX6		0.0276	-0.0002	-0.04	0.0292	-0.0010	-0.17
HDDXBZ		0.0384	0.0106	1.87	0.0377	0.0075	1.20
JL4ZR2		0.0228	-0.0050	-0.89	0.0238	-0.0064	-1.03
JNC6GJ		0.0223	-0.0055	-0.97	0.0303	0.0000	0.00
JXVJHZ		0.0252	-0.0026	-0.47	0.0254	-0.0048	-0.77
K8F66A		0.0412	0.0134	2.36	0.0414	0.0112	1.78
KMVBC3		0.0258	-0.0020	-0.36	0.0298	-0.0004	-0.07
NHRKQZ		0.0283	0.0004	0.08	0.0296	-0.0007	-0.11
P8NJV8		0.0246	-0.0032	-0.57	0.0224	-0.0078	-1.25
Q4ZW9X		0.0219	-0.0059	-1.05	0.0232	-0.0071	-1.13
QMAX2B		0.0284	0.0005	0.09	0.0304	0.0002	0.03
QUYB6J		0.0334	0.0055	0.98	0.0361	0.0059	0.94
REXY8Y		0.0250	-0.0028	-0.50	0.0261	-0.0041	-0.65
T2PF7J		0.0260	-0.0018	-0.33	0.0310	0.0008	0.12
UATWAA		0.0282	0.0004	0.06	0.0310	0.0008	0.12
UEPUKL	X	0.0508	0.0230	4.06	0.0452	0.0150	2.38
UQ3YT3		0.0256	-0.0022	-0.39	0.0314	0.0012	0.19
V3R6F7		0.0354	0.0076	1.34	0.0426	0.0124	1.97
W7N2MC		0.0314	0.0036	0.63	0.0274	-0.0028	-0.45
WCCYY7		0.0199	-0.0079	-1.40	0.0222	-0.0081	-1.29
XERPMN		0.0285	0.0006	0.11	0.0357	0.0054	0.87
ZFJHGX		0.0327	0.0048	0.85	0.0359	0.0057	0.91



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1401

2nd Qtr  
2021

Total Case Depth  
SAE J423, SAE J78

### Summary Statistics

	<u>Sample C75</u>	<u>Sample C76</u>
<b>Grand Means</b>	0.0278 inches	0.0302 inches
<b>Stnd Dev Btwn Labs</b>	0.0057 inches	0.0063 inches

Samples C75, C76 : Steel, Steel

Statistics based on 43 of 44 reporting participants

### Comments on Assigned Data Flags for Test #1401

UEPUKL (X) - Data for sample C75 are high. Inconsistent within the determinations of both samples.

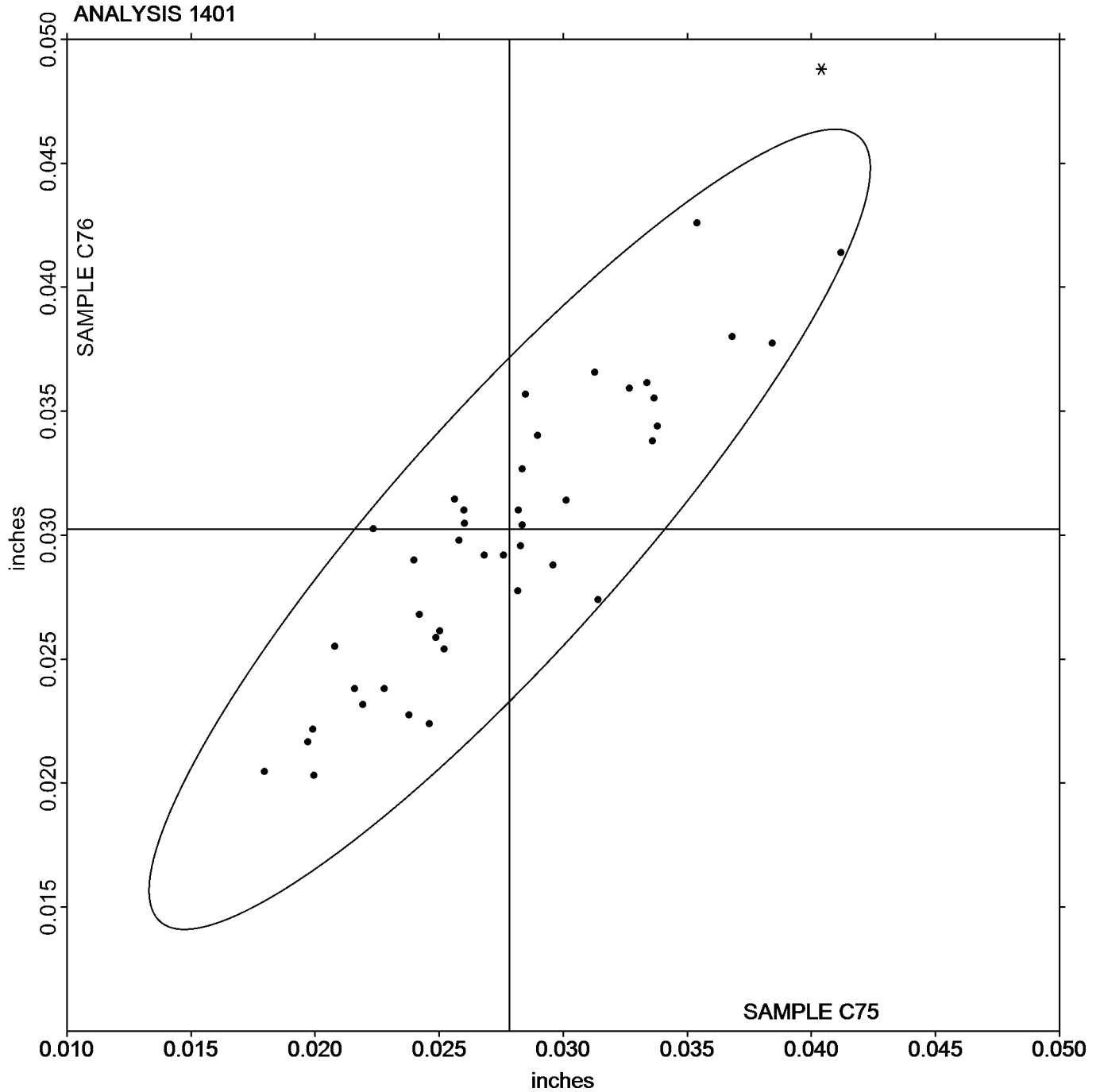


Analysis 1401

Total Case Depth  
SAE J423, SAE J78

SAMPLE C75  
0.0278 inches

SAMPLE C76  
0.0302 inches





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1402

2nd Qtr  
2021

Effective Case Depth  
SAE J423, SAE J78

WebCode	Data Flag	Sample C75			Sample C76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2KQFHP		0.0294	0.0035	2.19	0.0312	0.0034	2.09
3BUWGL		0.0280	0.0021	1.30	0.0280	0.0002	0.13
4Y9NTK		0.0259	0.0000	0.02	0.0300	0.0023	1.39
6HG7GV		0.0267	0.0008	0.47	0.0282	0.0005	0.29
74KURM		0.0258	-0.0001	-0.07	0.0278	0.0000	0.01
77F6EB		0.0261	0.0002	0.09	0.0291	0.0014	0.83
7DGJW7		0.0240	-0.0019	-1.18	0.0266	-0.0012	-0.73
7FM22U		0.0231	-0.0028	-1.75	0.0259	-0.0019	-1.15
7N2NAX		0.0254	-0.0005	-0.31	0.0290	0.0012	0.75
8CWVBG		0.0251	-0.0008	-0.50	0.0285	0.0007	0.42
8RRNF6		0.0270	0.0011	0.68	0.0270	-0.0008	-0.48
9UAC8U		0.0248	-0.0011	-0.68	0.0275	-0.0003	-0.18
9V2FUA		0.0284	0.0025	1.53	0.0278	0.0000	0.00
AGJM4H		0.0283	0.0024	1.51	0.0276	-0.0002	-0.11
ALEKKM		0.0265	0.0006	0.34	0.0260	-0.0018	-1.10
ALY4RE		0.0230	-0.0029	-1.80	0.0282	0.0004	0.26
AM8KDR		0.0252	-0.0007	-0.44	0.0272	-0.0006	-0.36
BCJXZF		0.0249	-0.0010	-0.63	0.0263	-0.0015	-0.90
BWDFK3		0.0252	-0.0007	-0.44	0.0260	-0.0018	-1.10
CJM6AH		0.0264	0.0005	0.32	0.0288	0.0010	0.60
CYGV6E	X	0.0197	-0.0062	-3.84	0.0217	-0.0061	-3.76
DT9P99		0.0230	-0.0029	-1.82	0.0266	-0.0011	-0.70
ED968B		0.0280	0.0021	1.30	0.0272	-0.0006	-0.36
ETFDWC		0.0255	-0.0004	-0.23	0.0279	0.0001	0.08
EWHFLD		0.0264	0.0005	0.31	0.0302	0.0024	1.49
FEFX83		0.0257	-0.0002	-0.12	0.0264	-0.0013	-0.83
FFQZX8		0.0268	0.0009	0.55	0.0288	0.0010	0.63
GJ9DHV		0.0260	0.0001	0.05	0.0273	-0.0005	-0.28
H7UNR6		0.0247	-0.0012	-0.77	0.0260	-0.0017	-1.07
H8BTGV		0.0286	0.0027	1.67	0.0302	0.0024	1.49
HAUYX6		0.0264	0.0005	0.31	0.0246	-0.0032	-1.96
HDDXBZ		0.0283	0.0024	1.46	0.0276	-0.0002	-0.14
HKG2ZX		0.0262	0.0003	0.16	0.0248	-0.0030	-1.83
JL4ZR2	X	0.0174	-0.0085	-5.27	0.0172	-0.0106	-6.51
K8F66A		0.0274	0.0015	0.93	0.0288	0.0010	0.63
KE4RZF		0.0257	-0.0002	-0.10	0.0268	-0.0010	-0.62
KMVCB3		0.0238	-0.0021	-1.30	0.0276	-0.0002	-0.11
LMCUK8		0.0289	0.0030	1.83	0.0296	0.0018	1.14
LZBU6V		0.0248	-0.0011	-0.68	0.0294	0.0016	1.00
NHRKQZ	X	0.0308	0.0049	3.03	0.0360	0.0082	5.06
NNG4PA	*	0.0276	0.0017	1.05	0.0320	0.0042	2.60
Q4ZW9X		0.0267	0.0008	0.51	0.0290	0.0012	0.75
QMAX2B		0.0252	-0.0007	-0.41	0.0276	-0.0002	-0.12
QUYB6J		0.0225	-0.0034	-2.12	0.0253	-0.0025	-1.55
REXY8Y		0.0251	-0.0008	-0.47	0.0259	-0.0019	-1.17
T2PF7J		0.0256	-0.0003	-0.19	0.0278	0.0000	0.01
TZXE8M		0.0243	-0.0016	-0.99	0.0280	0.0002	0.11





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1402

2nd Qtr  
2021

Effective Case Depth  
SAE J423, SAE J78

WebCode	Data Flag	Sample C75			Sample C76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
UATWAA		0.0254	-0.0005	-0.31	0.0292	0.0014	0.87
UEPUKL		0.0238	-0.0021	-1.28	0.0274	-0.0004	-0.25
UQ3YT3		0.0236	-0.0023	-1.43	0.0244	-0.0034	-2.08
V3R6F7		0.0262	0.0003	0.18	0.0274	-0.0004	-0.23
W7N2MC		0.0276	0.0017	1.05	0.0282	0.0004	0.26
WCCYY7		0.0284	0.0025	1.54	0.0299	0.0021	1.31
XERPMN		0.0246	-0.0013	-0.81	0.0264	-0.0014	-0.85
Y8XRQD		0.0244	-0.0015	-0.93	0.0284	0.0006	0.38
YBV938		0.0264	0.0005	0.31	0.0262	-0.0016	-0.97
Z3D79P		0.0258	-0.0001	-0.05	0.0267	-0.0011	-0.69
ZFJHGX		0.0261	0.0002	0.10	0.0291	0.0014	0.83
ZPAWTF		0.0260	0.0001	0.07	0.0304	0.0026	1.59

### Summary Statistics

	Sample C75		Sample C76	
<b>Grand Means</b>	0.0259	inches	0.0278	inches
<b>Stnd Dev Btwn Labs</b>	0.0016	inches	0.0016	inches

Samples C75, C76 : Steel, Steel

Statistics based on 56 of 59 reporting participants

### Comments on Assigned Data Flags for Test #1402

- CYGV6E (X) - Data for both samples are low.
- JL4ZR2 (X) - Data for both samples are low.
- NHRKQZ (X) - Data for both samples are high.

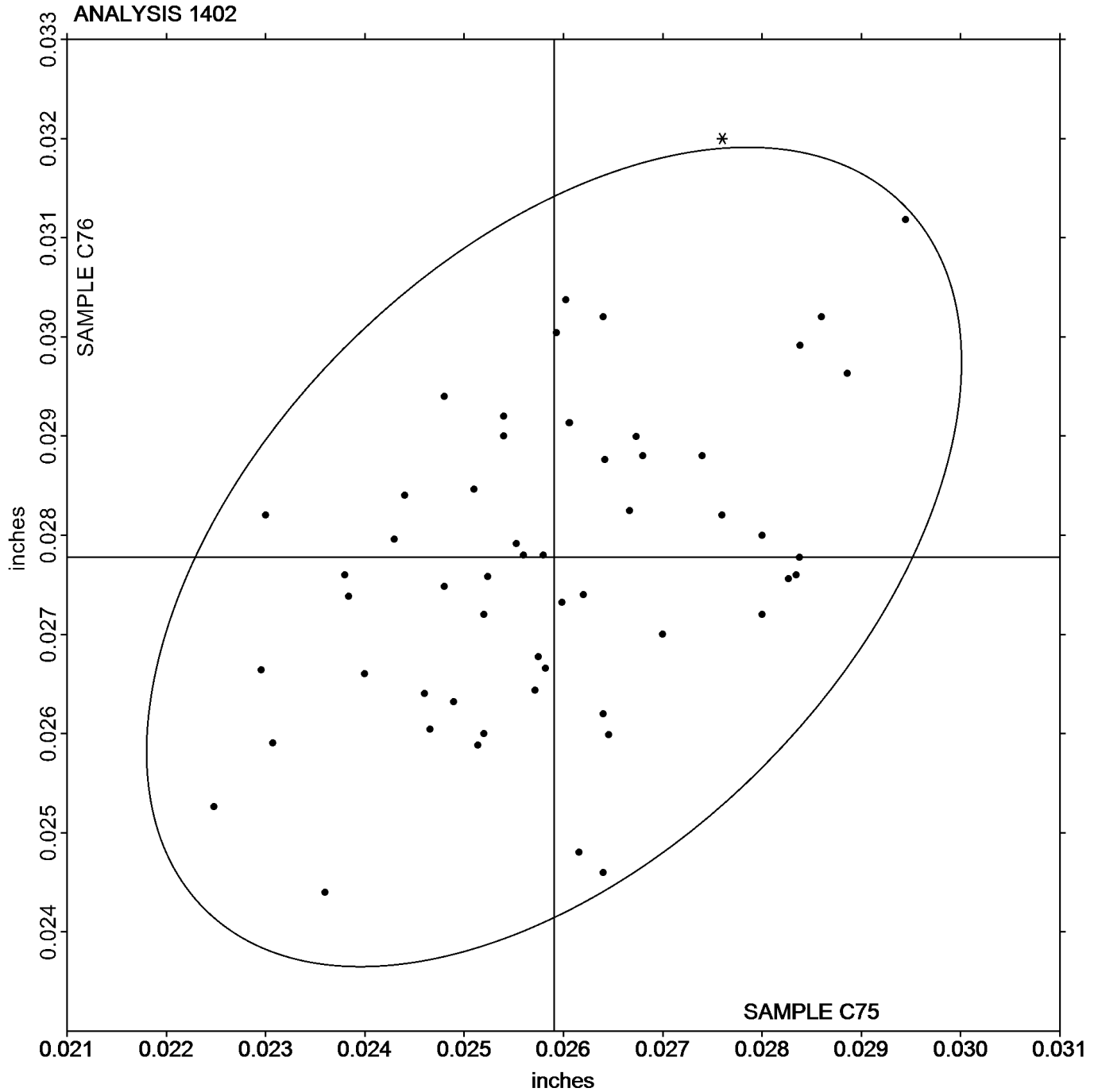


Analysis 1402

Effective Case Depth  
SAE J423, SAE J78

SAMPLE C75  
0.0259 inches

SAMPLE C76  
0.0278 inches





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1411

2nd Qtr  
2021

Grain Size (Stainless Steel)  
ASTM E112, ASTM E1382

WebCode	Data Flag	Sample Y75			Sample Y76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2KQFHP		7.600	-1.467	-1.76	5.400	0.076	0.11
2Z79CM		8.700	-0.367	-0.44	5.100	-0.224	-0.32
33PP2L	X	7.800	-1.267	-1.52	2.600	-2.724	-3.84
3LX67J		8.318	-0.749	-0.90	4.450	-0.874	-1.23
4DJMEX		9.400	0.333	0.40	5.300	-0.024	-0.03
4QRJ9Y		9.382	0.315	0.38	5.506	0.182	0.26
6C3QFH	X	5.246	-3.821	-4.60	8.634	3.310	4.66
78PGQL		9.000	-0.067	-0.08	4.500	-0.824	-1.16
7FM22U		8.000	-1.067	-1.28	5.400	0.076	0.11
7NG4BR		9.000	-0.067	-0.08	5.500	0.176	0.25
7T8QPX	X	6.200	-2.867	-3.45	5.000	-0.324	-0.46
824HZD		9.964	0.897	1.08	6.214	0.890	1.25
8L33KB	X	9.900	0.833	1.00	8.500	3.176	4.48
8NB96R		9.860	0.793	0.95	5.400	0.076	0.11
8RRNF6		9.000	-0.067	-0.08	6.000	0.676	0.95
9EC8WC		10.20	1.133	1.36	5.900	0.576	0.81
A6QCMN		9.200	0.133	0.16	6.200	0.876	1.23
AFPUEQ		8.000	-1.067	-1.28	5.600	0.276	0.39
ALY4RE		9.500	0.433	0.52	5.000	-0.324	-0.46
AMPHMH		9.520	0.453	0.55	5.900	0.576	0.81
BU4LAB		7.400	-1.667	-2.01	4.600	-0.724	-1.02
DB4E62		9.600	0.533	0.64	4.600	-0.724	-1.02
GVKM2E		9.554	0.487	0.59	5.046	-0.278	-0.39
HDDXBZ		8.600	-0.467	-0.56	4.200	-1.124	-1.58
HFJEEW		9.240	0.173	0.21	5.646	0.322	0.45
HRY7FD		9.600	0.533	0.64	4.700	-0.624	-0.88
JL4ZR2		10.00	0.933	1.12	6.600	1.276	1.80
JNC6GJ		9.660	0.593	0.71	5.680	0.356	0.50
KBEMYV		9.200	0.133	0.16	6.100	0.776	1.09
KFDQH4		8.720	-0.347	-0.42	5.160	-0.164	-0.23
KG46D8		9.540	0.473	0.57	6.350	1.026	1.45
KMAUZ7		8.500	-0.567	-0.68	4.800	-0.524	-0.74
KXEQA4		9.400	0.333	0.40	4.100	-1.224	-1.72
L3KQ2K		8.700	-0.367	-0.44	4.900	-0.424	-0.60
L7TPNF		8.600	-0.467	-0.56	5.100	-0.224	-0.32
LAGP9Z		10.60	1.533	1.84	6.200	0.876	1.23
MGGDGR		8.800	-0.267	-0.32	4.900	-0.424	-0.60
MVG2Z8		8.000	-1.067	-1.28	5.800	0.476	0.67
N9XP2F		8.591	-0.476	-0.57	5.591	0.267	0.38
NYYKHF		8.400	-0.667	-0.80	4.400	-0.924	-1.30
REHQ36		10.20	1.133	1.36	5.800	0.476	0.67
REXY8Y	X	9.958	0.891	1.07	9.418	4.094	5.77
U8BQXT		8.500	-0.567	-0.68	4.000	-1.324	-1.87
UATWAA		10.00	0.933	1.12	5.200	-0.124	-0.17
UQ3YT3		9.940	0.873	1.05	4.600	-0.724	-1.02
V7XFH2		8.622	-0.445	-0.54	5.584	0.260	0.37
VWAPV9		11.00	1.933	2.33	6.000	0.676	0.95



**Fasteners and Metals Interlaboratory Testing Program**

**Cycle 134**

**Analysis 1411**

**2nd Qtr  
2021**

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

WebCode	Data Flag	Sample Y75			Sample Y76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
W7N2MC	X	5.400	-3.667	-4.41	10.00	4.676	6.59
W8LKE6		9.441	0.374	0.45	5.400	0.076	0.11
WKQPGQ		8.800	-0.267	-0.32	6.200	0.876	1.23
XKJ3GN		8.186	-0.881	-1.06	5.788	0.464	0.65
ZFJHGX		9.200	0.133	0.16	6.300	0.976	1.38
ZGGLEE	*	6.900	-2.167	-2.61	3.500	-1.824	-2.57

Summary Statistics		Sample Y75		Sample Y76	
<b>Grand Means</b>		9.067	ASTM Grain Size	5.324	ASTM Grain Size
<b>Std Dev Btwn Labs</b>		0.831	ASTM Grain Size	0.710	ASTM Grain Size

Samples Y75, Y76 : AISI 304L, AISI 304L

Statistics based on 47 of 53 reporting participants

**Comments on Assigned Data Flags for Test #1411**

- 33PP2L (X) - Data for sample Y76 are low.
- 6C3QFH (X) - Data appear to be transposed between samples.
- 7T8QPX (X) - Data for sample Y75 are low.
- 8L33KB (X) - Data for sample Y76 are high.
- REXY8Y (X) - Data for sample Y76 are high.
- W7N2MC (X) - Data appear to be transposed between samples.



Analysis 1411

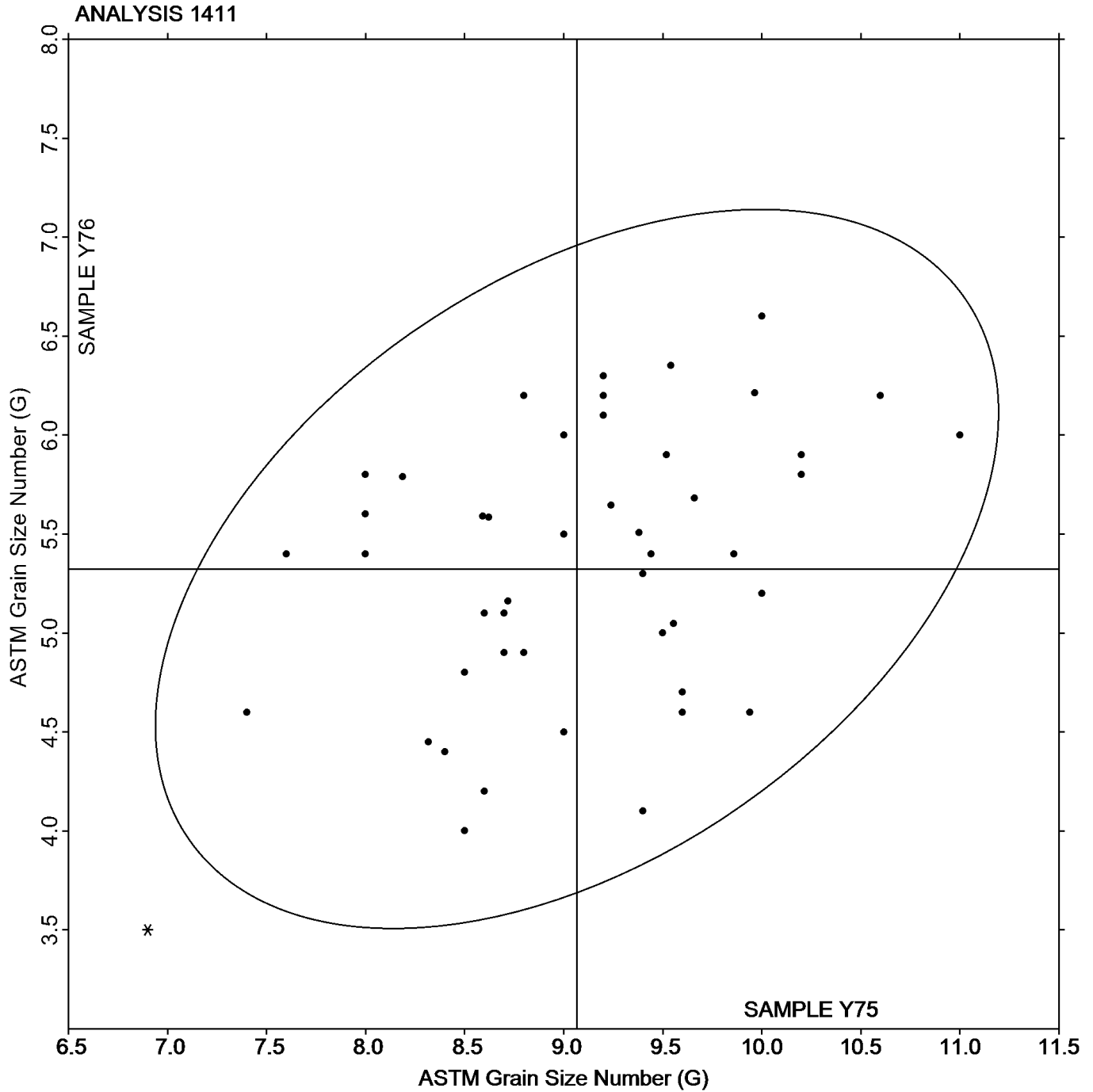
Grain Size (Stainless Steel)  
ASTM E112, ASTM E1382

SAMPLE Y75

SAMPLE Y76

9.067 ASTM Grain Size Number (G)

5.324 ASTM Grain Size Number (G)





**Fasteners and Metals Interlaboratory Testing Program**

**Cycle 134**

**Analysis 1422**

**2nd Qtr  
2021**

**Alloy Depletion: Inconel  
ASTM E3, E407**

WebCode	Data Flag	Sample K75			Sample K76		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
34KG2Y		0.000270	-0.000073	-0.51	0.000672	0.000073	0.35
9EC8WC		0.000651	0.000308	2.13	0.000785	0.000186	0.89
9UAC8U		0.000406	0.000063	0.44	0.000987	0.000389	1.86
ALY4RE	X	0.000288	-0.000055	-0.38	0.00253	0.001935	9.25
APEVGM		0.000280	-0.000063	-0.44	0.000340	-0.000259	-1.24
CQWQ3D		0.000229	-0.000115	-0.79	0.000583	-0.000015	-0.07
HJ2K4K		0.000346	0.000003	0.02	0.000452	-0.000147	-0.70
V8L4QV		0.000375	0.000032	0.22	0.000503	-0.000096	-0.46
WKQPGQ		0.000188	-0.000155	-1.07	0.000466	-0.000133	-0.63
XXAJK4	X	0.00861	0.008264	57.14	0.000590	-0.000008	-0.04

**Summary Statistics**

	Sample K75		Sample K76	
<b>Grand Means</b>	0.000343	inches	0.000599	inches
<b>Std Dev Btwn Labs</b>	0.000145	inches	0.000209	inches

Samples K75, K76 : Inconel 718, Inconel 718

Statistics based on 8 of 10 reporting participants

**Comments on Assigned Data Flags for Test #1422**

ALY4RE (X) - Data for Sample K76 are high.

XXAJK4 (X) - Data for Sample K75 are high. Inconsistent within the determinations of sample K75.

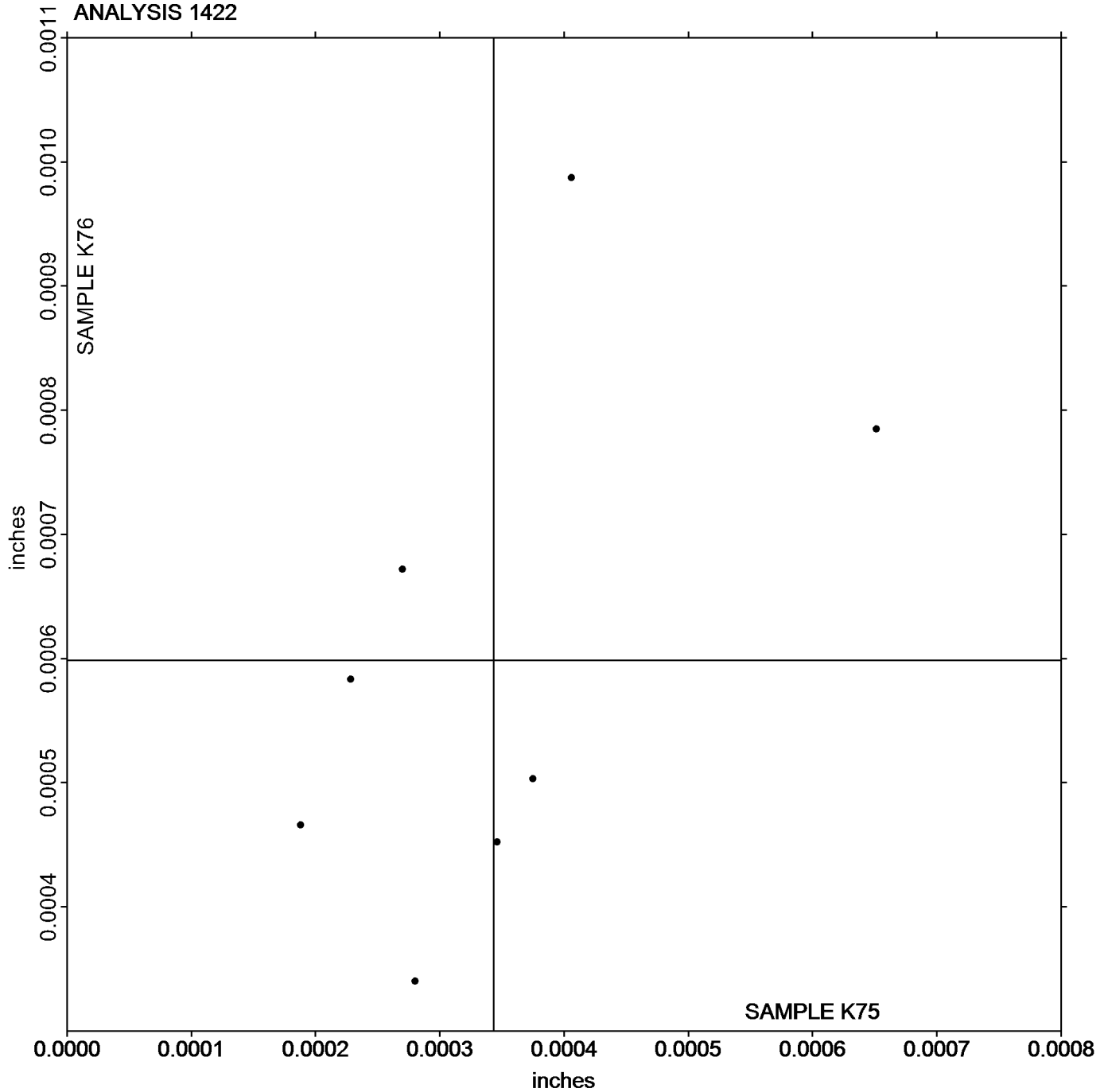


Analysis 1422

Alloy Depletion: Inconel  
ASTM E3, E407

SAMPLE K75  
0.00034 inches

SAMPLE K76  
0.00060 inches





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1500

2nd Qtr  
2021

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

WebCode	Data Flag	Sample J75			Sample J76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2VAVGB		15.80	-0.01	-0.05	15.58	0.08	0.35	IC
3ZE3AY		15.91	0.11	0.53	15.37	-0.13	-0.56	IC
4HE467		15.59	-0.22	-1.11	15.30	-0.20	-0.87	OE
4ZTVGM	X	15.97	0.16	0.81	14.68	-0.82	-3.64	IC
7GC7HF		16.06	0.25	1.27	15.73	0.24	1.05	WD
8L33KB		15.69	-0.12	-0.61	15.33	-0.17	-0.74	ED
99BN3U		15.80	-0.01	-0.03	15.47	-0.03	-0.13	WD
9RRYXT		15.84	0.03	0.15	15.46	-0.04	-0.16	OE
9WFQYU		15.94	0.13	0.67	15.60	0.10	0.44	WD
A8Y99T		15.72	-0.08	-0.42	15.43	-0.07	-0.30	WD
AFPUEQ	X	15.31	-0.49	-2.49	14.64	-0.86	-3.81	OE
ALUZLG		15.66	-0.15	-0.76	15.28	-0.21	-0.95	VO
ALY4RE		15.78	-0.03	-0.13	15.57	0.07	0.32	IC
APEVGM		15.72	-0.09	-0.45	15.49	-0.01	-0.05	XR
AYHYE6		15.80	0.00	-0.02	15.53	0.03	0.13	DR
CYGV6E		15.75	-0.06	-0.29	15.40	-0.10	-0.43	XX
DZ8FBA		15.68	-0.12	-0.62	15.69	0.19	0.84	OE
EELQKQ	X	13.55	-2.26	-11.42	13.62	-1.87	-8.32	OE
GEPMP7		15.71	-0.10	-0.49	15.40	-0.09	-0.42	OE
GJ9DHV		15.41	-0.40	-2.00	15.06	-0.44	-1.94	OE
GT989D		15.78	-0.03	-0.15	15.45	-0.05	-0.21	IC
H7UNR6		15.63	-0.17	-0.88	15.24	-0.25	-1.13	OE
HAUYX6		15.96	0.15	0.78	15.52	0.02	0.10	OE
HAVMBA		15.83	0.02	0.11	15.57	0.07	0.32	OE
HJHQBW		15.83	0.03	0.14	15.54	0.04	0.18	WD
HNURHL	*	16.40	0.59	3.00	16.10	0.60	2.68	OE
JKVQXJ		15.82	0.02	0.08	15.49	-0.01	-0.03	WD
JT746E		15.81	0.00	0.00	15.48	-0.01	-0.06	OE
KFDQH4		15.68	-0.13	-0.65	15.37	-0.13	-0.58	WD
MBQ2LV		15.92	0.11	0.57	15.61	0.11	0.49	OE
MFLVEQ	X	15.20	-0.61	-3.09	15.15	-0.34	-1.52	OE
MN2DAB	*	16.31	0.50	2.54	16.13	0.64	2.83	IC
NULV2R		15.74	-0.06	-0.32	15.74	0.24	1.06	OE
P2CY9T		15.60	-0.21	-1.04	15.20	-0.30	-1.32	GD
UQ3YT3		15.84	0.03	0.15	15.40	-0.09	-0.42	OE
VRWYEK		15.74	-0.06	-0.32	15.44	-0.06	-0.27	OE
WRQ3K2		15.72	-0.08	-0.43	15.40	-0.10	-0.44	IC
X8MJB Y		15.62	-0.19	-0.94	15.37	-0.13	-0.56	OE
XXAJK4		16.25	0.44	2.24	15.93	0.44	1.94	WD
ZFJHG X		15.70	-0.11	-0.54	15.23	-0.26	-1.17	IC





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1500

2nd Qtr  
2021

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

#### Summary Statistics

	<u>Sample J75</u>		<u>Sample J76</u>	
<b>Grand Means</b>	15.81	Percent	15.50	Percent
<b>Stnd Dev Btwn Labs</b>	0.20	Percent	0.23	Percent

Samples J75, J76 : Alloy 600, Alloy 600

Statistics based on 36 of 40 reporting participants

#### Key to Method Codes Reported by Participants

DR	Spectrometry - Direct Reading OE (DROES)	ED	X-Ray Fluorescence - Energy Dispersive (EDX)
GD	Spectrometry - Glow Discharge (GDS)	IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)	VO	Volumetric
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

- 4ZTVGM (X) - Data for sample J76 are low. Inconsistent within the determinations of sample J76.
- AFPUEQ (X) - Data for sample J76 are low.
- EELQQK (X) - Data for both samples are low. Possible Systematic Error.
- MFLVEQ (X) - Data for sample J75 are low. Inconsistent within the determinations of sample J75.



Analysis 1500

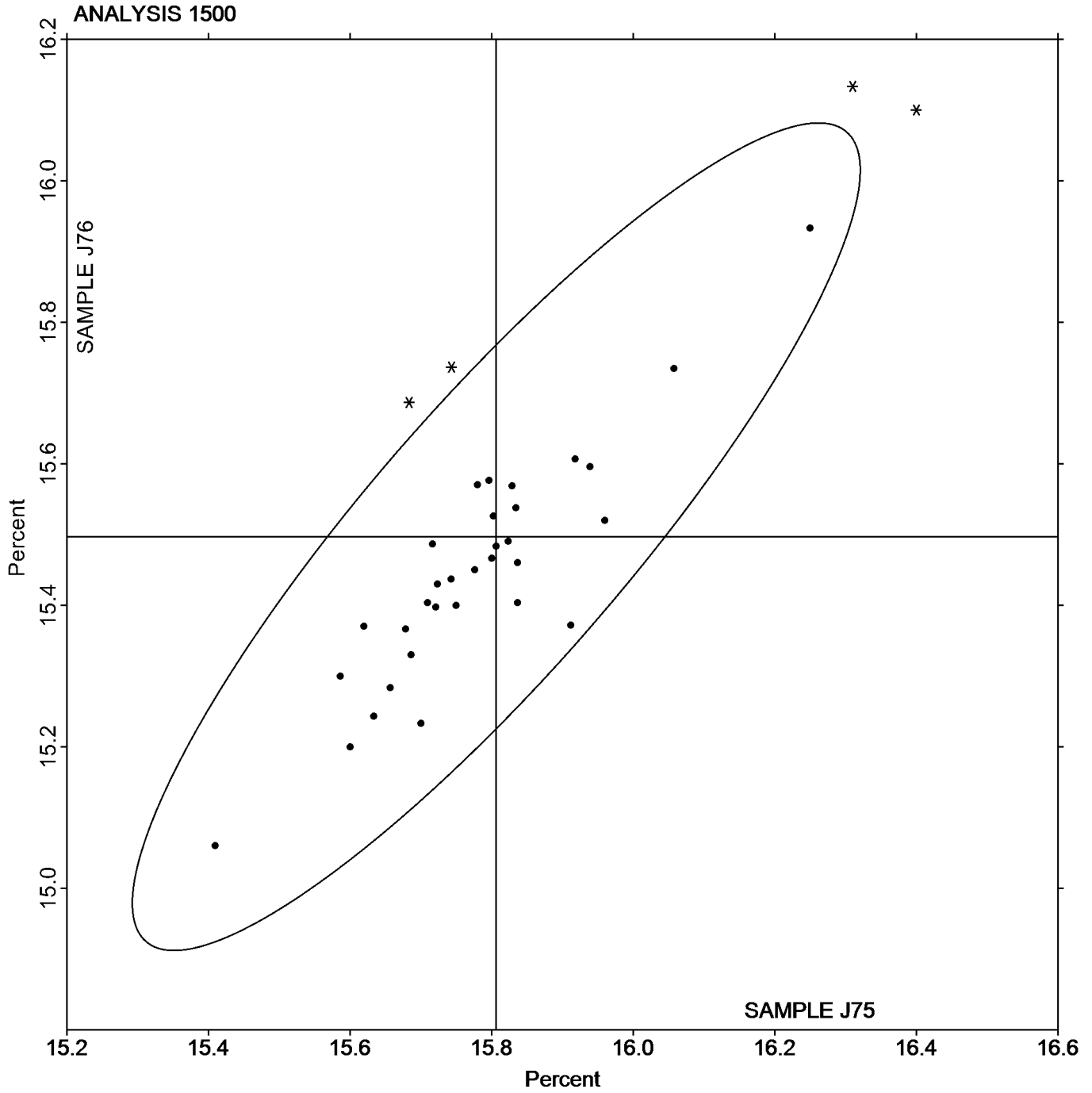
Nickel-based Alloy, CHROMIUM (Cr)  
CHROMIUM (Cr)

SAMPLE J75

15.81 Percent

SAMPLE J76

15.50 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1501

2nd Qtr  
2021

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

WebCode	Data Flag	Sample J75			Sample J76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2VAVGB		0.2280	-0.0032	-0.46	0.5047	-0.0098	-0.40	IC
3ZE3AY		0.2300	-0.0012	-0.17	0.5140	-0.0004	-0.02	IC
4HE467		0.2240	-0.0072	-1.04	0.5300	0.0156	0.64	OE
4ZTVGM		0.2366	0.0054	0.78	0.5159	0.0015	0.06	IC
7GC7HF		0.2207	-0.0105	-1.52	0.5034	-0.0111	-0.45	WD
8L33KB	X	0.3333	0.1021	14.81	0.6313	0.1169	4.78	ED
99BN3U		0.2287	-0.0025	-0.37	0.5113	-0.0031	-0.13	WD
9RRYXT		0.2300	-0.0012	-0.17	0.5167	0.0022	0.09	OE
9WFQYU		0.2222	-0.0090	-1.30	0.5063	-0.0082	-0.33	WD
A8Y99T		0.2300	-0.0012	-0.17	0.5100	-0.0044	-0.18	WD
AFPUEQ		0.2463	0.0151	2.19	0.5100	-0.0044	-0.18	OE
ALUZLG		0.2400	0.0088	1.28	0.5167	0.0022	0.09	AA
ALY4RE		0.2293	-0.0019	-0.27	0.5077	-0.0068	-0.28	IC
APEVGM		0.2307	-0.0005	-0.08	0.5167	0.0022	0.09	XR
AYHYE6		0.2347	0.0035	0.51	0.5071	-0.0074	-0.30	DR
CYGV6E		0.2347	0.0035	0.50	0.5120	-0.0024	-0.10	XX
DZ8FBA	X	0.1787	-0.0525	-7.62	0.4213	-0.0931	-3.80	OE
EELQQK	*	0.2317	0.0005	0.07	0.4417	-0.0728	-2.97	OE
GEPMP7		0.2263	-0.0049	-0.71	0.5440	0.0296	1.21	OE
GJ9DHV		0.2260	-0.0052	-0.75	0.5070	-0.0074	-0.30	OE
GT989D		0.2263	-0.0049	-0.71	0.5043	-0.0101	-0.41	IC
H7UNR6		0.2330	0.0018	0.26	0.4843	-0.0301	-1.23	OE
HAUYX6	X	0.2000	-0.0312	-4.52	0.5200	0.0056	0.23	OE
HAVMBA	*	0.2320	0.0008	0.11	0.5877	0.0733	3.00	OE
HJHQBW		0.2259	-0.0053	-0.76	0.5072	-0.0072	-0.30	WD
HNURHL	X	0.2623	0.0311	4.51	0.6160	0.1016	4.15	OE
JKVQXJ		0.2313	0.0001	0.02	0.5580	0.0436	1.78	WD
KFDQH4		0.2313	0.0001	0.02	0.5127	-0.0018	-0.07	WD
MBQ2LV		0.2309	-0.0003	-0.04	0.5286	0.0142	0.58	OE
MFLVEQ	X	0.1923	-0.0389	-5.64	0.4297	-0.0848	-3.46	OE
MN2DAB		0.2227	-0.0085	-1.24	0.4970	-0.0174	-0.71	IC
NULV2R		0.2353	0.0041	0.60	0.4943	-0.0201	-0.82	OE
P2CY9T		0.2450	0.0138	2.00	0.5510	0.0366	1.50	GD
UQ3YT3		0.2320	0.0008	0.12	0.5020	-0.0124	-0.51	OE
VRWYEK		0.2200	-0.0112	-1.62	0.5030	-0.0114	-0.47	OE
WRQ3K2		0.2481	0.0169	2.45	0.5572	0.0428	1.75	IC
X8MJBY		0.2270	-0.0042	-0.61	0.5050	-0.0094	-0.39	OE
XXAJK4		0.2280	-0.0032	-0.46	0.5080	-0.0064	-0.26	WD
ZFJHGX		0.2420	0.0108	1.57	0.5150	0.0006	0.02	IC

### Summary Statistics

	Sample J75		Sample J76	
<b>Grand Means</b>	0.2312	Percent	0.5144	Percent
<b>Std Dev Btwn Labs</b>	0.0069	Percent	0.0245	Percent

Samples J75, J76 : Alloy 600, Alloy 600

Statistics based on 34 of 39 reporting participants



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1501

2nd Qtr  
2021

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

#### Key to Method Codes Reported by Participants

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

#### **Comments on Assigned Data Flags for Test #1501**

8L33KB (X) - Data for both samples are high.

DZ8FBA (X) - Data for both samples are low.

HAUYX6 (X) - Data for sample J75 are low.

HNURHL (X) - Data for both samples are high. Inconsistent within the determinations of sample J75.

MFLVEQ (X) - Data for both samples are low. Inconsistent within the determinations of sample J75.



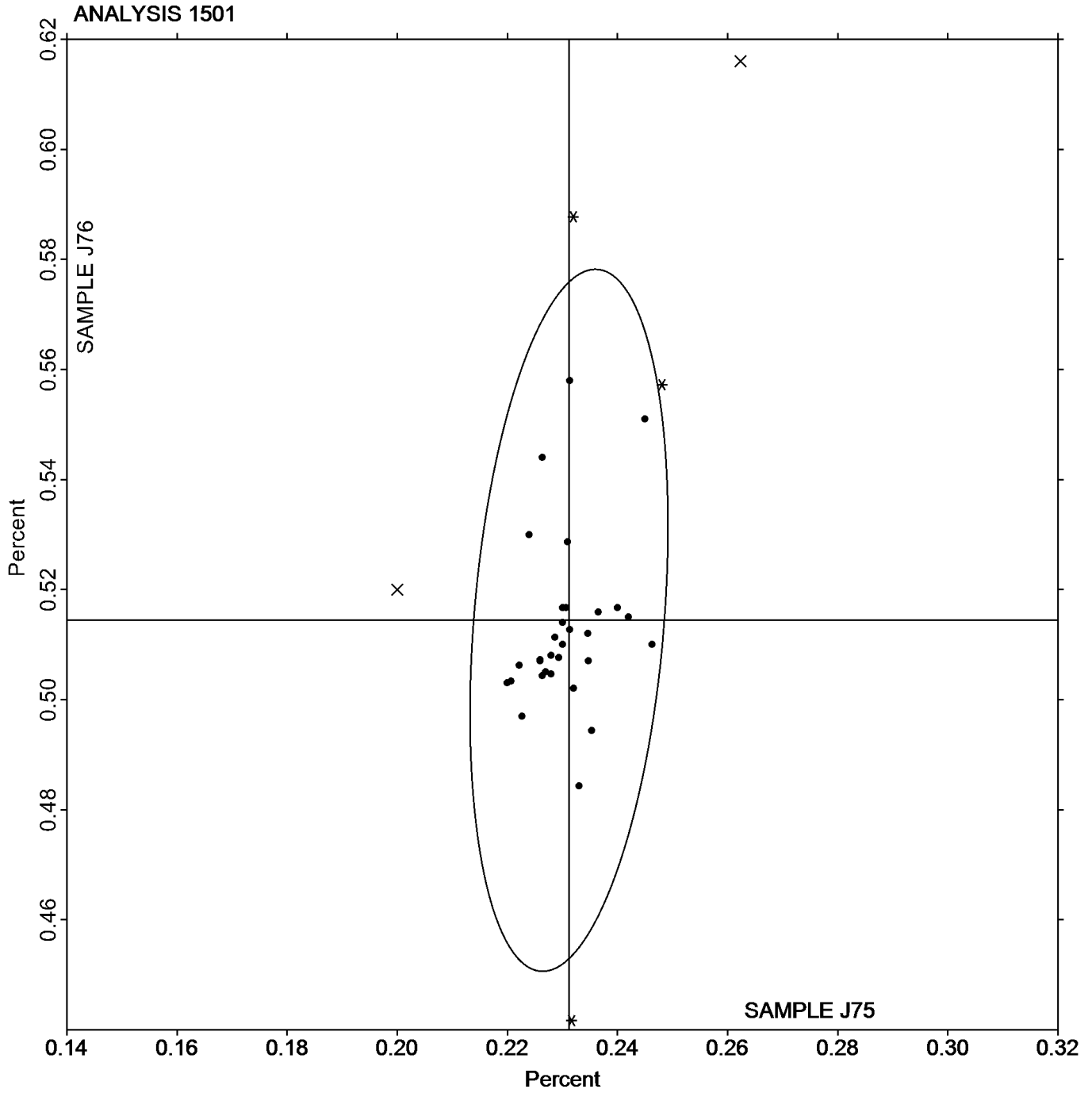
Analysis 1501

Nickel-based Alloy, MANGANESE (Mn)

MANGANESE (Mn)

SAMPLE J75  
0.2312 Percent

SAMPLE J76  
0.5144 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1502

2nd Qtr  
2021

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

WebCode	Data Flag	Sample J75			Sample J76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2VAVGB		9.490	0.067	0.40	8.640	0.055	0.40	IC
3ZE3AY		9.555	0.132	0.79	8.791	0.205	1.51	IC
4HE467		9.340	-0.083	-0.50	8.473	-0.112	-0.82	OE
4ZTVGM		9.542	0.119	0.71	8.600	0.015	0.11	IC
7GC7HF		9.531	0.108	0.65	8.686	0.100	0.74	WD
8L33KB		9.640	0.216	1.29	8.788	0.203	1.50	ED
99BN3U		9.616	0.192	1.15	8.732	0.147	1.08	WD
9RRYXT		9.327	-0.097	-0.58	8.577	-0.009	-0.06	OE
9WFQYU		9.285	-0.138	-0.83	8.453	-0.132	-0.97	WD
A8Y99T		9.400	-0.023	-0.14	8.623	0.038	0.28	WD
AFPUEQ	*	9.727	0.303	1.82	8.920	0.335	2.47	OE
ALUZLG		9.370	-0.053	-0.32	8.610	0.025	0.18	VO
ALY4RE		9.297	-0.127	-0.76	8.560	-0.025	-0.19	IC
APEVGM		9.390	-0.033	-0.20	8.587	0.001	0.01	XR
AYHYE6		9.652	0.229	1.37	8.643	0.058	0.43	DR
CYGV6E		9.277	-0.147	-0.88	8.433	-0.152	-1.12	XX
DZ8FBA	X	7.948	-1.475	-8.83	7.391	-1.194	-8.79	OE
EELQQK	X	10.59	1.163	6.96	9.793	1.208	8.90	OE
GEPMP7		9.613	0.190	1.14	8.727	0.141	1.04	OE
GJ9DHV	X	7.965	-1.458	-8.73	7.291	-1.294	-9.53	OE
GT989D		9.330	-0.093	-0.56	8.523	-0.062	-0.46	IC
H7UNR6		9.383	-0.040	-0.24	8.527	-0.059	-0.43	OE
HAUYX6		9.220	-0.203	-1.22	8.490	-0.095	-0.70	OE
HAVMBA		9.444	0.021	0.12	8.588	0.003	0.02	OE
HJHQBW		9.420	-0.003	-0.02	8.607	0.022	0.16	WD
HNURHL	*	9.913	0.490	2.93	8.910	0.325	2.39	OE
JKVQXJ		9.353	-0.070	-0.42	8.522	-0.063	-0.46	WD
JT746E		9.457	0.033	0.20	8.623	0.038	0.28	OE
KFDQH4		9.428	0.005	0.03	8.613	0.028	0.21	WD
MBQ2LV		9.300	-0.124	-0.74	8.552	-0.034	-0.25	OE
MFLVEQ	X	8.886	-0.537	-3.22	8.432	-0.153	-1.13	OE
MN2DAB		9.000	-0.423	-2.53	8.277	-0.309	-2.27	IC
NULV2R		9.340	-0.083	-0.50	8.500	-0.085	-0.63	OE
P2CY9T		9.230	-0.193	-1.16	8.400	-0.185	-1.36	GD
UQ3YT3		9.246	-0.177	-1.06	8.440	-0.145	-1.07	OE
VRWYEK		9.313	-0.110	-0.66	8.467	-0.119	-0.87	OE
WRQ3K2		9.448	0.025	0.15	8.595	0.009	0.07	IC
X8MJB Y		9.410	-0.013	-0.08	8.470	-0.115	-0.85	XX
XXAJK4		9.500	0.077	0.46	8.660	0.075	0.55	WD
ZFJHG X		9.450	0.027	0.16	8.460	-0.125	-0.92	IC



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1502

2nd Qtr  
2021

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

### Summary Statistics

	<u>Sample J75</u>		<u>Sample J76</u>	
<b>Grand Means</b>	9.423	Percent	8.585	Percent
<b>Stnd Dev Btwn Labs</b>	0.167	Percent	0.136	Percent

Samples J75, J76 : Alloy 600, Alloy 600

Statistics based on 36 of 40 reporting participants

### Key to Method Codes Reported by Participants

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

### Comments on Assigned Data Flags for Test #1502

DZ8FBA (X) - Data for both samples are low.

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

GJ9DHV (X) - Data for both samples are low.

MFLVEQ (X) - Data for sample J75 are low. Inconsistent within the determinations of sample J75.

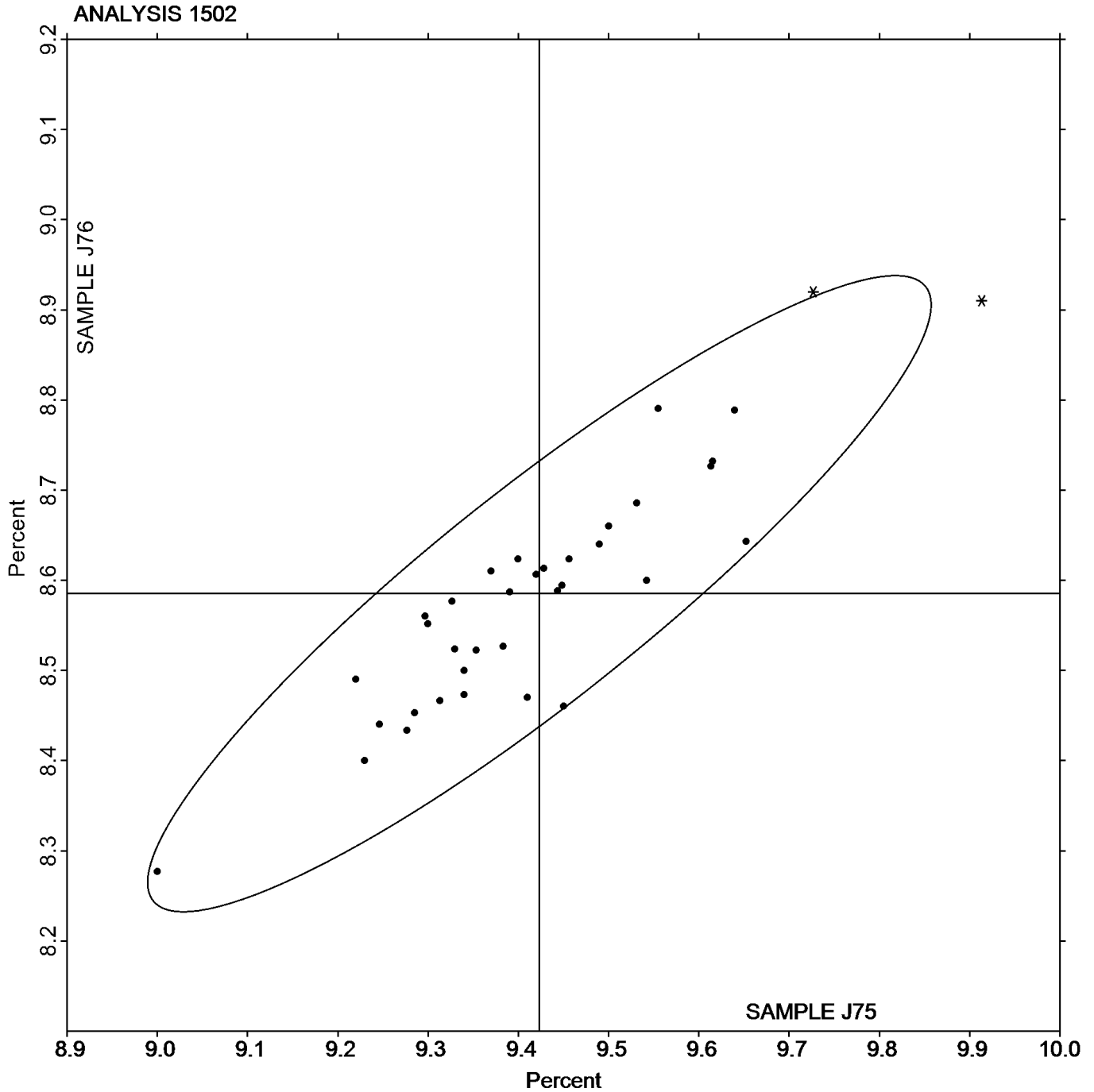


Analysis 1502

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

SAMPLE J75  
9.423 Percent

SAMPLE J76  
8.585 Percent







# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1503

2nd Qtr  
2021

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

WebCode	Data Flag	Sample J75			Sample J76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2VAVGB		0.1733	-0.0008	-0.05	0.0304	-0.0060	-0.41	IC
3ZE3AY		0.1980	0.0239	1.60	0.0370	0.0007	0.05	IC
4HE467		0.1467	-0.0274	-1.83	0.0273	-0.0090	-0.63	OE
4ZTVGM		0.1737	-0.0004	-0.03	0.0283	-0.0080	-0.55	IC
7GC7HF		0.1743	0.0002	0.01	0.0282	-0.0082	-0.57	WD
8L33KB	*	0.2167	0.0426	2.84	0.0540	0.0177	1.23	ED
99BN3U		0.1740	-0.0001	-0.01	0.0293	-0.0070	-0.49	WD
9WFQYU		0.1815	0.0074	0.50	0.0448	0.0084	0.59	WD
A8Y99T		0.1700	-0.0041	-0.27	0.0300	-0.0063	-0.44	WD
AFPUEQ		0.1817	0.0076	0.51	0.0740	0.0377	2.61	OE
ALUZLG		0.1700	-0.0041	-0.27	0.0257	-0.0107	-0.74	AA
ALY4RE	M	0.1763	0.0022	0.15	No Data Reported			IC
APEVGM		0.1790	0.0049	0.33	0.0330	-0.0033	-0.23	XR
AYHYE6		0.1700	-0.0041	-0.27	0.0284	-0.0080	-0.55	DR
CYGV6E		0.1697	-0.0044	-0.30	0.0377	0.0013	0.09	XX
DZ8FBA		0.1500	-0.0241	-1.61	0.0280	-0.0083	-0.58	OE
EELQQK	*	0.1943	0.0202	1.35	0.0833	0.0470	3.26	OE
GEPMP7		0.1452	-0.0289	-1.93	0.0273	-0.0090	-0.62	OE
GJ9DHV		0.1640	-0.0101	-0.68	0.0379	0.0016	0.11	OE
GT989D		0.1873	0.0132	0.88	0.0317	-0.0047	-0.32	XX
H7UNR6		0.1683	-0.0058	-0.39	0.0187	-0.0177	-1.23	OE
HAUYX6		0.2000	0.0259	1.73	0.0400	0.0037	0.25	OE
HAVMBA		0.1678	-0.0063	-0.42	0.0391	0.0027	0.19	OE
HJHQBW		0.1733	-0.0008	-0.05	0.0290	-0.0073	-0.51	WD
HNURHL	X	0.00100	-0.1731	-11.57	0.00100	-0.0353	-2.45	OE
JKVQXJ		0.1607	-0.0134	-0.90	0.0204	-0.0159	-1.11	WD
JT746E		0.1617	-0.0124	-0.83	0.0330	-0.0033	-0.23	OE
KFDQH4		0.1783	0.0042	0.28	0.0350	-0.0013	-0.09	WD
MBQ2LV		0.1830	0.0089	0.59	0.0292	-0.0071	-0.49	OE
MFLVEQ		0.1450	-0.0291	-1.95	0.0320	-0.0043	-0.30	OE
NULV2R		0.1673	-0.0068	-0.45	0.0413	0.0050	0.35	OE
P2CY9T		0.1850	0.0109	0.73	0.0256	-0.0107	-0.74	GD
UQ3YT3		0.1743	0.0002	0.02	0.0402	0.0039	0.27	OE
VRWYEK		0.1757	0.0016	0.10	0.0723	0.0360	2.50	OE
WRQ3K2		0.1723	-0.0018	-0.12	0.0304	-0.0059	-0.41	IC
X8MJB Y		0.1860	0.0119	0.79	0.0500	0.0137	0.95	OE
XXAJK4		0.1697	-0.0044	-0.30	0.0253	-0.0111	-0.77	WD
ZFJHG X		0.1800	0.0059	0.39	0.0300	-0.0063	-0.44	IC

### Summary Statistics

	Sample J75		Sample J76	
<b>Grand Means</b>	0.1741	Percent	0.0363	Percent
<b>Std Dev Btwn Labs</b>	0.0150	Percent	0.0144	Percent

Samples J75, J76 : Alloy 600, Alloy 600

Statistics based on 36 of 38 reporting participants



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1503

2nd Qtr

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

2021

### Key to Method Codes Reported by Participants

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

### **Comments on Assigned Data Flags for Test #1503**

ALY4RE (M) - Participant did not submit data for sample J76.

HNURHL (X) - Data for sample J75 are low.

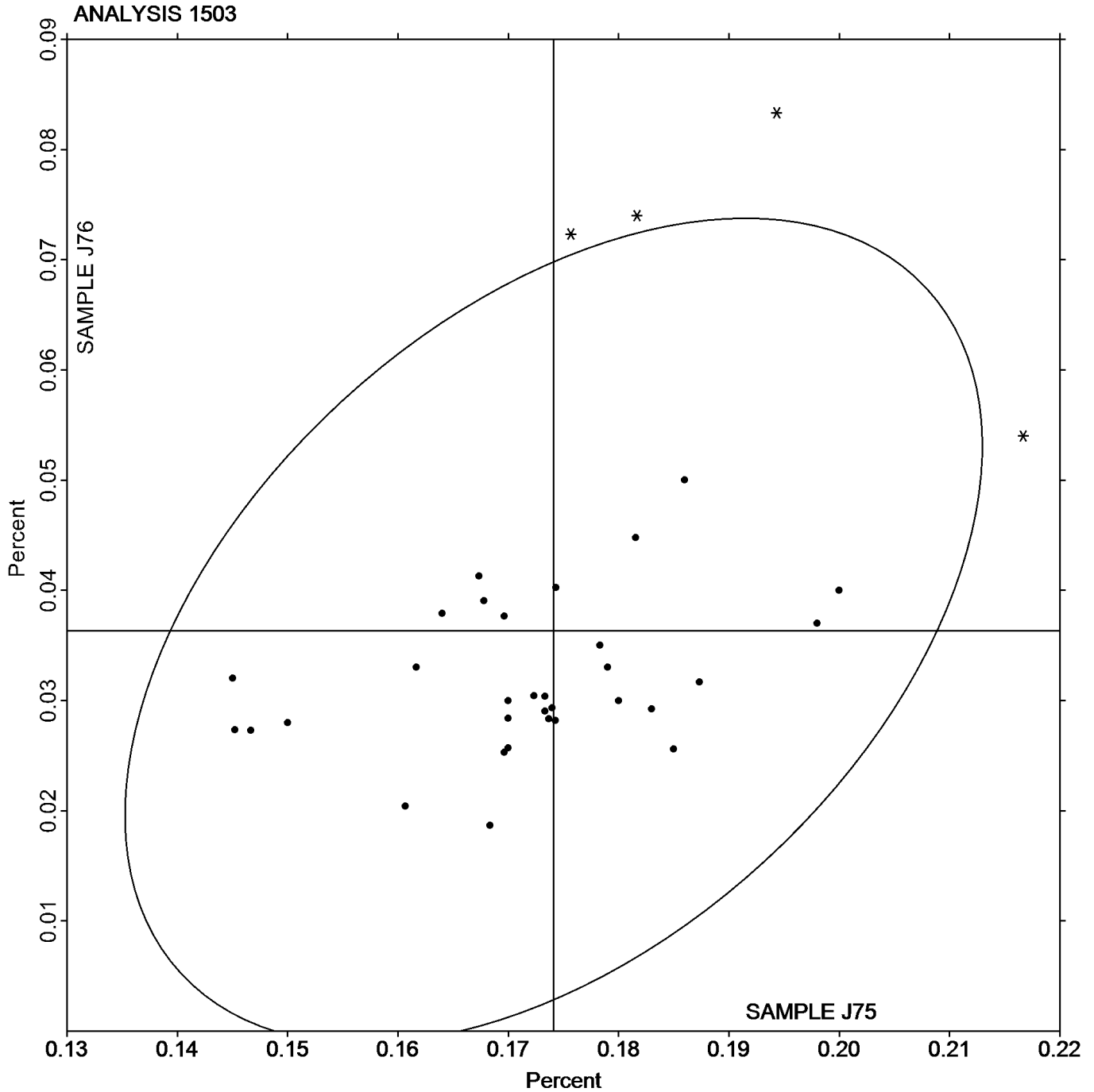


Analysis 1503

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

SAMPLE J75  
0.1741 Percent

SAMPLE J76  
0.0363 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1504

2nd Qtr  
2021

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

WebCode	Data Flag	Sample J75			Sample J76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2VAVGB		0.1833	-0.0037	-0.18	0.2133	0.0037	0.16	IC
3ZE3AY		0.1877	0.0006	0.03	0.2157	0.0061	0.26	IC
4HE467		0.2023	0.0153	0.75	0.2230	0.0134	0.56	OE
4ZTVGM		0.1873	0.0003	0.01	0.2131	0.0035	0.15	IC
7GC7HF		0.1934	0.0063	0.31	0.2131	0.0035	0.15	OE
99BN3U		0.1883	0.0013	0.06	0.2053	-0.0043	-0.18	XX
9WFQYU		0.1617	-0.0254	-1.24	0.1761	-0.0335	-1.41	OE
A8Y99T		0.2067	0.0196	0.96	0.2300	0.0204	0.86	WD
AFPUEQ		0.2237	0.0366	1.80	0.2483	0.0387	1.63	OE
ALUZLG		0.1600	-0.0270	-1.33	0.1800	-0.0296	-1.25	AA
ALY4RE		0.1937	0.0066	0.33	0.2190	0.0094	0.40	IC
APEVGM		0.1887	0.0016	0.08	0.2093	-0.0003	-0.01	XR
AYHYE6	*	0.1975	0.0105	0.51	0.1943	-0.0153	-0.64	DR
CYGV6E		0.1843	-0.0027	-0.13	0.1987	-0.0109	-0.46	XX
DZ8FBA		0.1383	-0.0487	-2.39	0.1543	-0.0553	-2.33	OE
EELQQK	X	0.1983	0.0113	0.55	0.1753	-0.0343	-1.45	OE
GEPMP7		0.2133	0.0263	1.29	0.2400	0.0304	1.28	OE
GJ9DHV	*	0.1270	-0.0600	-2.95	0.1380	-0.0716	-3.02	OE
GT989D		0.1863	-0.0007	-0.03	0.2123	0.0027	0.12	IC
H7UNR6		0.1803	-0.0067	-0.33	0.2187	0.0091	0.38	OE
HAUYX6		0.2100	0.0230	1.13	0.2300	0.0204	0.86	OE
HAVMBA		0.1965	0.0094	0.46	0.2166	0.0070	0.30	OE
HJHQBW		0.1517	-0.0353	-1.73	0.1655	-0.0441	-1.86	OE
HNURHL		0.1957	0.0086	0.42	0.2147	0.0051	0.21	OE
JKVQXJ		0.1983	0.0113	0.55	0.2200	0.0104	0.44	WD
JT746E		0.1923	0.0053	0.26	0.2163	0.0067	0.28	OE
MBQ2LV		0.1917	0.0046	0.23	0.2092	-0.0004	-0.02	OE
MFLVEQ	X	0.1917	0.0046	0.23	0.1243	-0.0853	-3.60	OE
MN2DAB		0.1940	0.0070	0.34	0.2187	0.0091	0.38	XX
NULV2R		0.1923	0.0053	0.26	0.2197	0.0101	0.42	OE
P2CY9T		0.1590	-0.0280	-1.38	0.1840	-0.0256	-1.08	GD
UQ3YT3		0.1910	0.0040	0.19	0.2113	0.0017	0.07	OE
VRWYEK		0.1940	0.0070	0.34	0.2177	0.0081	0.34	OE
WRQ3K2		0.1879	0.0009	0.04	0.2196	0.0100	0.42	IC
X8MJB Y		0.1970	0.0100	0.49	0.2180	0.0084	0.35	OE
XXAJK4		0.2047	0.0176	0.87	0.2457	0.0361	1.52	WD
ZFJHG X		0.1967	0.0096	0.47	0.2113	0.0017	0.07	IC

### Summary Statistics

	Sample J75		Sample J76	
<b>Grand Means</b>	0.1870	Percent	0.2096	Percent
<b>Std Dev Btwn Labs</b>	0.0204	Percent	0.0237	Percent

Samples J75, J76 : Alloy 600, Alloy 600

Statistics based on 34 of 37 reporting participants



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1504

2nd Qtr  
2021

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

### 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

EELQQK (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample J75.

MFLVEQ (X) - Data for sample J76 are low. Inconsistent within the determinations of sample J75.

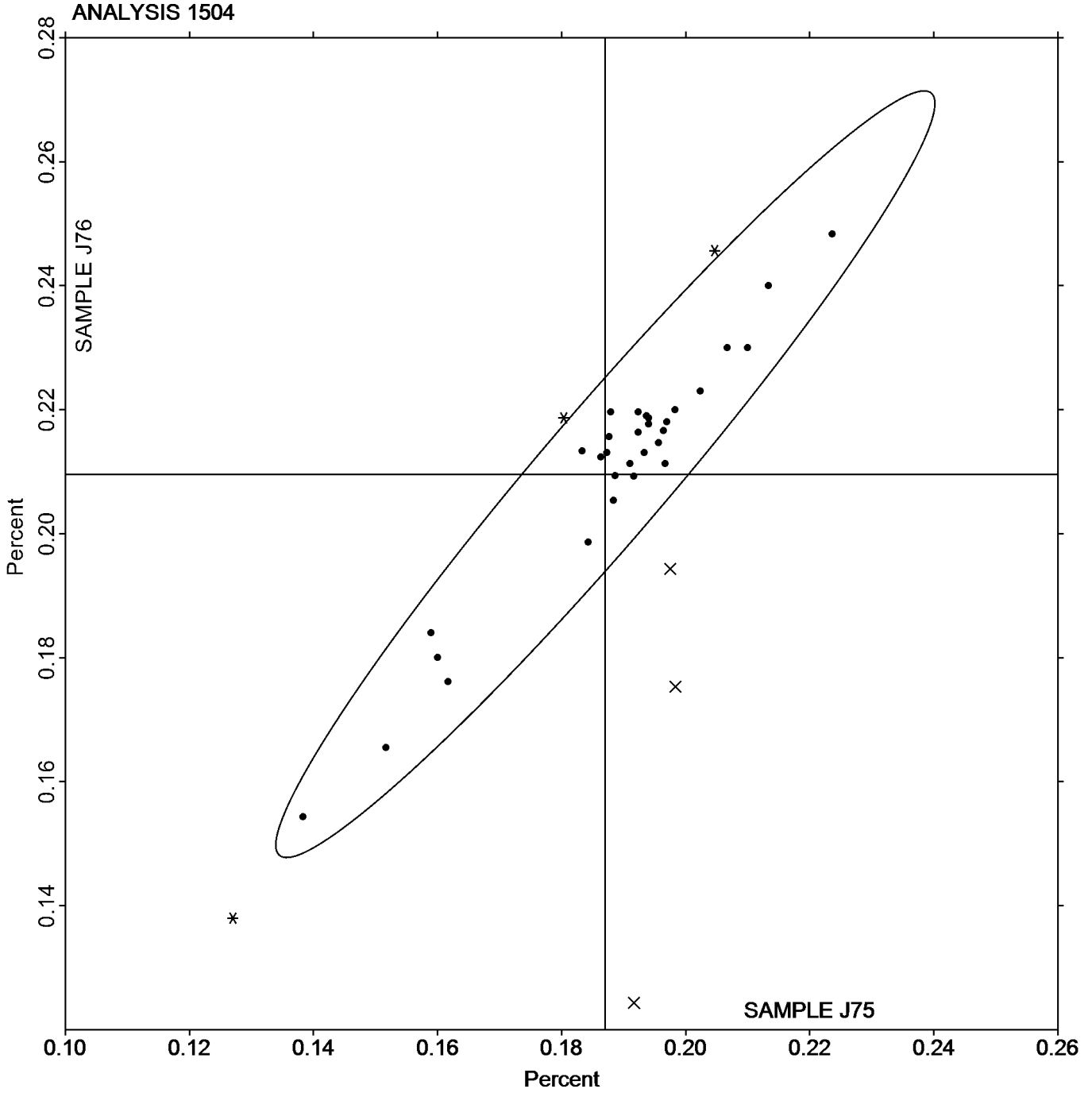


**Analysis 1504**

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

SAMPLE J75  
0.1870 Percent

SAMPLE J76  
0.2096 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1505

2nd Qtr  
2021

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

WebCode	Data Flag	Sample J75			Sample J76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3ZE3AY		0.0673	-0.0077	-0.41	0.1970	0.0029	0.17	IC
4HE467		0.0480	-0.0270	-1.42	0.1723	-0.0218	-1.26	OE
4ZTVGM		0.0651	-0.0099	-0.52	0.1917	-0.0025	-0.14	IC
7GC7HF		0.0662	-0.0088	-0.46	0.1897	-0.0044	-0.25	WD
99BN3U		0.0613	-0.0137	-0.72	0.1850	-0.0091	-0.53	WD
9RRYXT		0.0600	-0.0150	-0.79	0.1900	-0.0041	-0.24	OE
9WFQYU		0.0693	-0.0057	-0.30	0.1887	-0.0055	-0.32	WD
A8Y99T		0.0800	0.0050	0.26	0.1900	-0.0041	-0.24	WD
AFPUEQ	*	0.1260	0.0510	2.69	0.2167	0.0225	1.30	OE
ALUZLG		0.0700	-0.0050	-0.26	0.2000	0.0059	0.34	XX
ALY4RE		0.0637	-0.0114	-0.60	0.1847	-0.0095	-0.55	IC
APEVGM		0.1043	0.0293	1.54	0.2093	0.0152	0.88	XR
AYHYE6		0.0781	0.0030	0.16	0.1887	-0.0054	-0.31	DR
CYGV6E		0.0860	0.0110	0.58	0.2033	0.0092	0.53	XX
DZ8FBA		0.1093	0.0343	1.81	0.2160	0.0219	1.26	OE
EELQQK	X	0.3090	0.2340	12.32	0.3937	0.1995	11.52	OE
GEPMP7	M	No Data Reported			0.1273	-0.0668	-3.86	OE
GJ9DHV		0.0900	0.0150	0.79	0.2190	0.0249	1.44	OE
GT989D		0.0837	0.0086	0.46	0.2097	0.0155	0.90	IC
H7UNR6		0.0950	0.0200	1.05	0.2237	0.0295	1.71	OE
HAUYX6		0.0400	-0.0350	-1.84	0.1700	-0.0241	-1.39	OE
HAVMBA		0.0812	0.0062	0.32	0.1952	0.0011	0.06	OE
HJHQBW		0.0748	-0.0002	-0.01	0.1979	0.0037	0.22	WD
HNURHL		0.1143	0.0393	2.07	0.2170	0.0229	1.32	OE
JKVQXJ		0.0809	0.0059	0.31	0.1870	-0.0071	-0.41	OE
JT746E		0.0643	-0.0107	-0.56	0.1957	0.0015	0.09	OE
KFDQH4		0.0663	-0.0087	-0.46	0.1820	-0.0121	-0.70	WD
MBQ2LV		0.0806	0.0056	0.30	0.1984	0.0043	0.25	OE
MFLVEQ		0.0580	-0.0170	-0.90	0.1503	-0.0438	-2.53	OE
MN2DAB		0.0620	-0.0130	-0.69	0.1853	-0.0088	-0.51	IC
NULV2R		0.0844	0.0093	0.49	0.1770	-0.0171	-0.99	OE
P2CY9T		0.0473	-0.0277	-1.46	0.1810	-0.0131	-0.76	GD
UQ3YT3		0.0496	-0.0255	-1.34	0.2053	0.0112	0.65	OE
VRWYEK		0.0817	0.0066	0.35	0.1660	-0.0281	-1.63	OE
WRQ3K2		0.0750	0.0000	0.00	0.2289	0.0348	2.01	IC
X8MJB Y		0.0640	-0.0110	-0.58	0.1770	-0.0171	-0.99	OE
XXAJK4		0.0780	0.0030	0.16	0.2053	0.0112	0.65	WD

### Summary Statistics

	Sample J75		Sample J76	
<b>Grand Means</b>	0.0750	Percent	0.1941	Percent
<b>Std Dev Btwn Labs</b>	0.0190	Percent	0.0173	Percent

Samples J75, J76 : Alloy 600, Alloy 600

Statistics based on 35 of 37 reporting participants



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1505

2nd Qtr  
2021

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

EELQQK (X) - Data for both samples are high. Inconsistent within the determinations of sample J75.

GEPMP7 (M) - Participant did not submit data for sample J75.



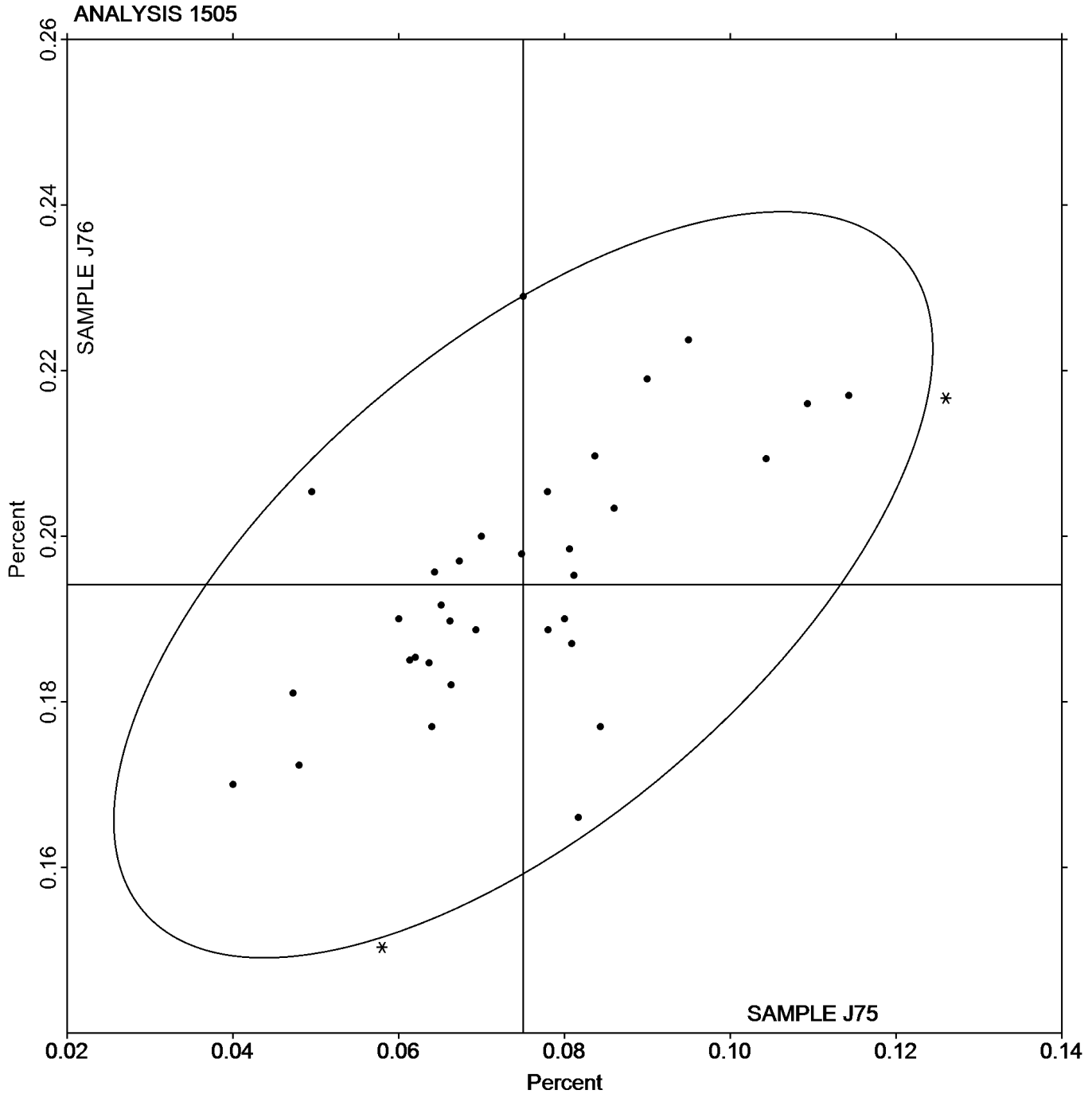


Analysis 1505

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

SAMPLE J75  
0.0750 Percent

SAMPLE J76  
0.1941 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1507

2nd Qtr  
2021

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

WebCode	Data Flag	Sample J75			Sample J76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2VAVGB		0.2947	-0.0029	-0.43	0.1730	0.0053	0.66	IC
3ZE3AY		0.3017	0.0041	0.61	0.1660	-0.0017	-0.22	IC
4HE467		0.2953	-0.0022	-0.33	0.1757	0.0079	0.99	OE
4ZTVGM		0.2980	0.0004	0.07	0.1568	-0.0109	-1.36	IC
7GC7HF		0.3111	0.0135	1.99	0.1772	0.0094	1.18	WD
8L33KB		0.2840	-0.0136	-2.00	0.1620	-0.0057	-0.72	ED
99BN3U		0.2927	-0.0049	-0.72	0.1610	-0.0067	-0.84	WD
9WFQYU		0.3049	0.0073	1.08	0.1799	0.0122	1.52	WD
A8Y99T		0.2933	-0.0042	-0.62	0.1700	0.0023	0.28	WD
AFPUEQ		0.3000	0.0024	0.36	0.1767	0.0089	1.11	OE
ALUZLG		0.2967	-0.0009	-0.13	0.1633	-0.0044	-0.55	XX
ALY4RE		0.2957	-0.0019	-0.28	0.1650	-0.0027	-0.34	IC
APEVGM		0.3007	0.0031	0.46	0.1677	-0.0001	-0.01	XR
AYHYE6		0.2901	-0.0075	-1.10	0.1549	-0.0129	-1.61	DR
CYGV6E		0.3013	0.0038	0.56	0.1660	-0.0017	-0.22	XX
DZ8FBA	X	0.2577	-0.0399	-5.88	0.1490	-0.0187	-2.34	OE
EELQQK	X	0.3497	0.0521	7.69	0.1817	0.0139	1.74	OE
GEPMP7	X	0.3017	0.0041	0.61	0.1433	-0.0244	-3.05	OE
GJ9DHV		0.3120	0.0144	2.13	0.1750	0.0073	0.91	OE
GT989D		0.2827	-0.0149	-2.20	0.1563	-0.0114	-1.42	IC
H7UNR6		0.3013	0.0038	0.56	0.1627	-0.0051	-0.63	OE
HAUYX6	X	0.3000	0.0024	0.36	0.1200	-0.0477	-5.96	OE
HAVMBA		0.2944	-0.0031	-0.46	0.1712	0.0034	0.43	OE
HJHQBW		0.3041	0.0066	0.97	0.1714	0.0037	0.46	WD
HNURHL		0.2910	-0.0066	-0.97	0.1583	-0.0094	-1.17	OE
JKVQXJ		0.2990	0.0014	0.21	0.1707	0.0029	0.36	WD
KFDQH4		0.3017	0.0041	0.61	0.1680	0.0003	0.03	WD
MBQ2LV		0.2988	0.0012	0.18	0.1785	0.0108	1.34	OE
MFLVEQ	*	0.2950	-0.0026	-0.38	0.1453	-0.0224	-2.80	OE
MN2DAB		0.2837	-0.0139	-2.05	0.1607	-0.0071	-0.88	XX
NULV2R	X	0.3193	0.0218	3.21	0.1527	-0.0151	-1.88	OE
P2CY9T	X	0.2630	-0.0346	-5.10	0.1360	-0.0317	-3.96	GD
UQ3YT3		0.2993	0.0018	0.26	0.1670	-0.0007	-0.09	OE
VRWYEK		0.2967	-0.0009	-0.13	0.1720	0.0043	0.53	OE
WRQ3K2		0.3051	0.0075	1.11	0.1769	0.0092	1.14	IC
X8MJB Y		0.3000	0.0024	0.36	0.1720	0.0043	0.53	OE
XXAJK4		0.3010	0.0034	0.51	0.1733	0.0056	0.70	WD
ZFJHG X		0.2960	-0.0016	-0.23	0.1733	0.0056	0.70	IC

### Summary Statistics

	Sample J75		Sample J76	
<b>Grand Means</b>	0.2976	Percent	0.1677	Percent
<b>Std Dev Btwn Labs</b>	0.0068	Percent	0.0080	Percent

Samples J75, J76 : Alloy 600, Alloy 600

Statistics based on 32 of 38 reporting participants



**Key to Method Codes Reported by Participants**

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

**Comments on Assigned Data Flags for Test #1507**

DZ8FBA (X) - Data for sample J75 are low.

EELQKK (X) - Data for sample J75 are high. Inconsistent within the determinations of sample J75.

GEPMP7 (X) - Data for sample J76 are low.

HAUYX6 (X) - Data for sample J76 are low.

NULV2R (X) - Data for sample J75 are high.

P2CY9T (X) - Data for both samples are low.



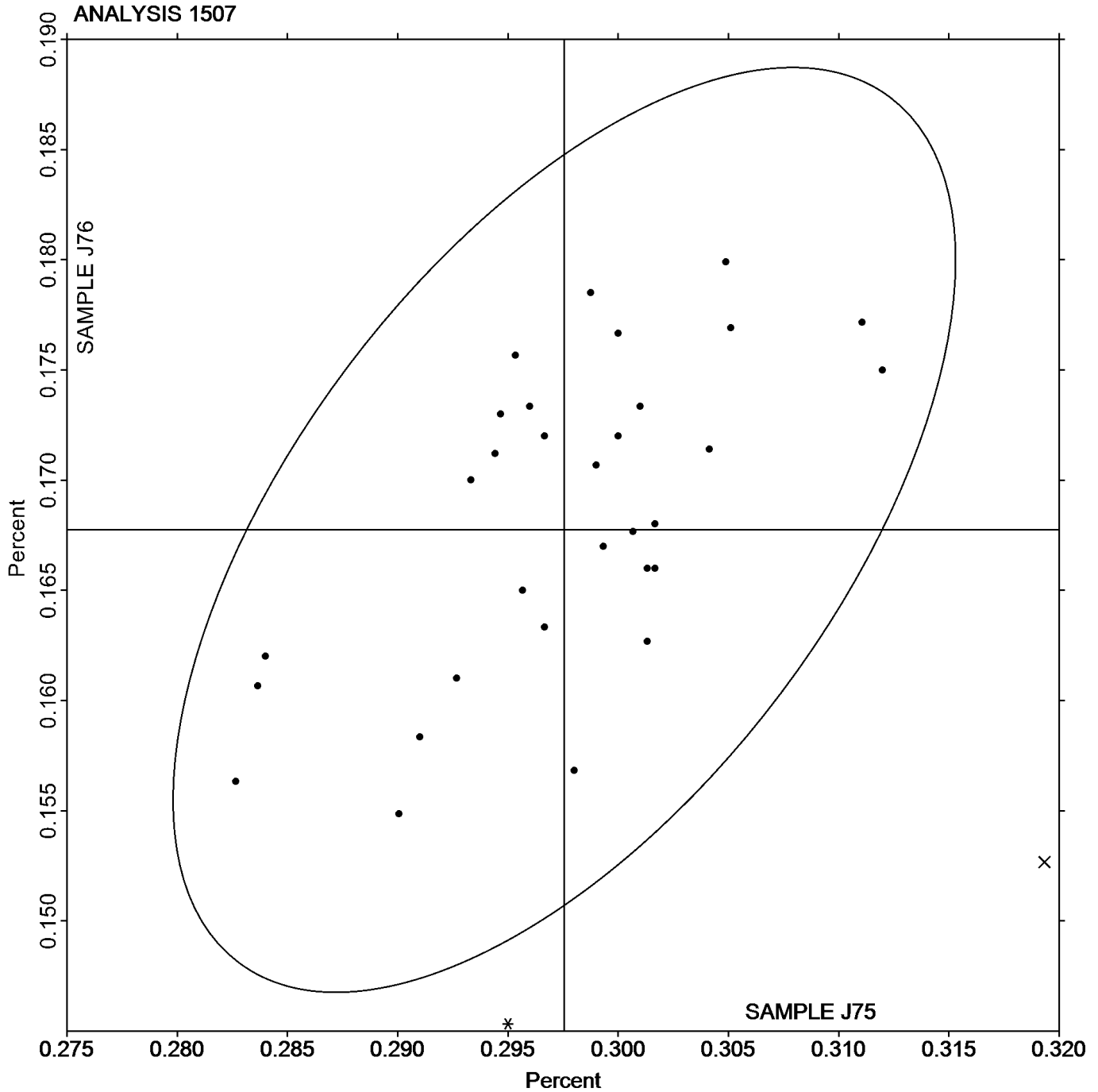
Analysis 1507

Nickel-based Alloy, TITANIUM (Ti)

TITANIUM (Ti)

SAMPLE J75  
0.2976 Percent

SAMPLE J76  
0.1677 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1508

2nd Qtr  
2021

Nickel-based Alloy, COBALT (Co)  
COBALT (Co)

WebCode	Data Flag	Sample J75			Sample J76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2VAVGB		0.0452	-0.0007	-0.12	0.0282	0.0035	0.53	IC
3ZE3AY		0.0403	-0.0056	-0.93	0.0197	-0.0050	-0.76	IC
4HE467		0.0441	-0.0018	-0.30	0.0224	-0.0023	-0.35	OE
4ZTVGM		0.0480	0.0021	0.35	0.0255	0.0009	0.13	IC
7GC7HF		0.0452	-0.0007	-0.12	0.0220	-0.0027	-0.40	WD
99BN3U		0.0470	0.0011	0.19	0.0260	0.0013	0.20	WD
9WFQYU		0.0512	0.0053	0.90	0.0323	0.0077	1.16	WD
A8Y99T		0.0500	0.0041	0.69	0.0300	0.0053	0.81	WD
AFPUEQ	*	0.0260	-0.0199	-3.33	0.00633	-0.0183	-2.78	OE
ALUZLG		0.0523	0.0064	1.08	0.0257	0.0010	0.15	AA
APEVGM		0.0489	0.0030	0.50	0.0331	0.0084	1.28	XR
AYHYE6		0.0460	0.0001	0.02	0.0239	-0.0007	-0.11	DR
DZ8FBA		0.0461	0.0002	0.04	0.0287	0.0040	0.61	OE
EELQQK	X	0.1047	0.0588	9.85	0.0300	0.0053	0.81	OE
GEPMP7		0.0480	0.0021	0.36	0.0226	-0.0020	-0.31	OE
GJ9DHV	*	0.0630	0.0171	2.87	0.0430	0.0183	2.78	OE
GT989D		0.0420	-0.0039	-0.65	0.0197	-0.0050	-0.76	IC
H7UNR6		0.0480	0.0021	0.35	0.0200	-0.0047	-0.71	OE
HAUYX6		0.0500	0.0041	0.69	0.0300	0.0053	0.81	OE
HAVMBA		0.0421	-0.0038	-0.63	0.0202	-0.0045	-0.68	OE
HJHQBW		0.0441	-0.0018	-0.30	0.0228	-0.0019	-0.29	WD
HNURHL	X	0.0118	-0.0341	-5.71	0.00100	-0.0237	-3.59	OE
JKVQXJ		0.0471	0.0012	0.20	0.0271	0.0024	0.36	WD
KFDQH4	X	0.0733	0.0274	4.60	0.0537	0.0290	4.40	XX
MBQ2LV		0.0494	0.0035	0.58	0.0275	0.0028	0.43	OE
MN2DAB		0.0416	-0.0043	-0.72	0.0217	-0.0030	-0.45	IC
NULV2R		0.0425	-0.0034	-0.56	0.0250	0.0003	0.05	OE
UQ3YT3		0.0423	-0.0036	-0.61	0.0161	-0.0086	-1.30	OE
VRWYEK		0.0463	0.0004	0.07	0.0323	0.0076	1.16	OE
WRQ3K2		0.0462	0.0003	0.06	0.0198	-0.0048	-0.73	IC
X8MJB Y		0.0370	-0.0089	-1.49	0.0160	-0.0087	-1.31	OE
XXAJK4		0.0487	0.0028	0.48	0.0266	0.0019	0.29	WD
ZFJHG X		0.0480	0.0021	0.35	0.0260	0.0013	0.20	IC

### Summary Statistics

	Sample J75		Sample J76	
<b>Grand Means</b>	0.0459	Percent	0.0247	Percent
<b>Stnd Dev Btrwn Labs</b>	0.0060	Percent	0.0066	Percent

Samples J75, J76 : Alloy 600, Alloy 600

Statistics based on 30 of 33 reporting participants



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1508

2nd Qtr  
2021

Nickel-based Alloy, COBALT (Co)  
COBALT (Co)

### Key to Method Codes Reported by Participants

AA	Spectrometry - Atomic Absorption (AAS)	DR	Spectrometry - Direct Reading OE (DROES)
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 #1508

EELQQK (X) - Data for sample J75 are high. Inconsistent within the determinations of sample J75.

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

KFDQH4 (X) - Data for both samples are high. Possible Systematic Error.



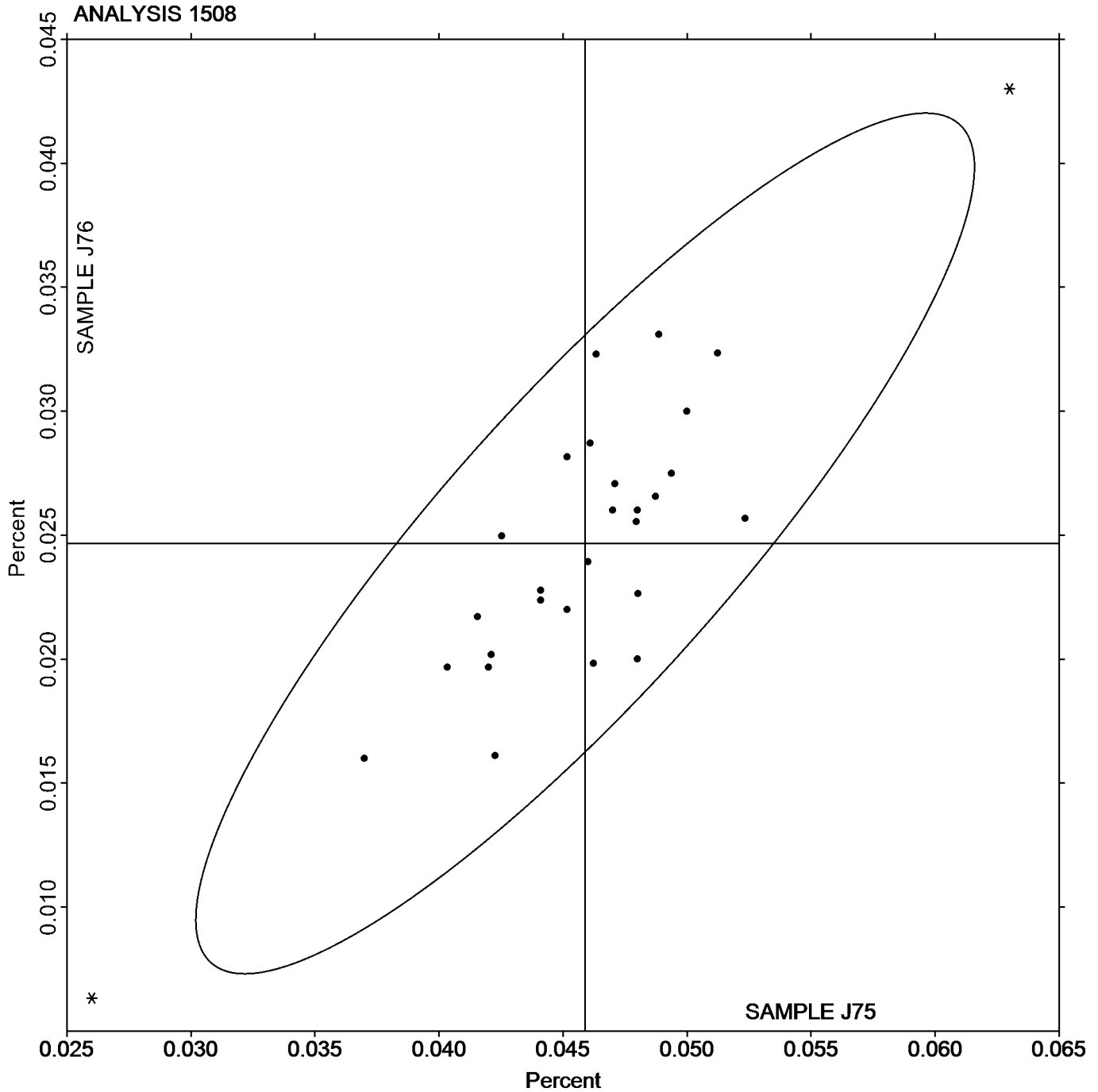
Analysis 1508

Nickel-based Alloy, COBALT (Co)

COBALT (Co)

SAMPLE J75  
0.0459 Percent

SAMPLE J76  
0.0247 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1540

2nd Qtr  
2021

Aluminum, ZINC (Zn)  
ZINC (Zn)

WebCode	Data Flag	Sample A75			Sample A76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2KQFHP		0.1330	-0.0015	-0.24	0.1003	-0.0032	-0.65	OE
3FRFHK		0.1303	-0.0042	-0.65	0.1020	-0.0016	-0.31	OE
4F86CN		0.1321	-0.0024	-0.37	0.1021	-0.0015	-0.29	OE
6F326Q		0.1224	-0.0121	-1.87	0.0956	-0.0080	-1.60	OE
6LRJLM		0.1375	0.0030	0.46	0.1030	-0.0006	-0.12	IC
6ZCYQ9		0.1323	-0.0022	-0.34	0.1010	-0.0026	-0.51	OE
78PGQL		0.1200	-0.0145	-2.25	0.0940	-0.0096	-1.91	OE
83R2TX		0.1400	0.0055	0.85	0.1100	0.0064	1.28	OE
84ZHJG		0.1328	-0.0018	-0.27	0.1013	-0.0023	-0.46	OE
8L33KB		0.1490	0.0145	2.24	0.1170	0.0134	2.68	ED
98ZTEG		0.1284	-0.0061	-0.95	0.1011	-0.0025	-0.49	OE
9RRYXT		0.1300	-0.0045	-0.70	0.0994	-0.0042	-0.84	OE
9UEMAT	X	0.1570	0.0225	3.48	0.1373	0.0338	6.73	IC
AMPHMH	X	0.1490	0.0145	2.24	0.1213	0.0178	3.54	OE
B3XPHE		0.1400	0.0055	0.85	0.1057	0.0021	0.42	OE
C2E8VK		0.1450	0.0105	1.62	0.1120	0.0084	1.68	OE
CYGV6E		0.1380	0.0035	0.54	0.1023	-0.0012	-0.25	IC
D42A9B		0.1307	-0.0039	-0.60	0.1033	-0.0002	-0.05	OE
DH7B7M		0.1283	-0.0062	-0.96	0.0991	-0.0044	-0.89	OE
DNRBDM		0.1257	-0.0088	-1.36	0.0968	-0.0068	-1.36	OE
EELQQK	X	0.0740	-0.0605	-9.38	0.0543	-0.0492	-9.82	OE
EMBKJ9		0.1343	-0.0002	-0.03	0.1057	0.0021	0.42	IC
FK6BBC		0.1355	0.0010	0.15	0.1071	0.0035	0.70	OE
FTEYPA		0.1330	-0.0015	-0.24	0.1022	-0.0014	-0.28	OE
GEPMP7		0.1317	-0.0029	-0.44	0.1003	-0.0032	-0.65	OE
H7UNR6		0.1313	-0.0032	-0.49	0.1023	-0.0012	-0.25	OE
HAUYX6		0.1500	0.0155	2.40	0.1100	0.0064	1.28	OE
HAVMBA		0.1360	0.0015	0.23	0.1044	0.0008	0.17	OE
JE4C74		0.1333	-0.0012	-0.18	0.1000	-0.0035	-0.71	OE
KDUR9F	*	0.1470	0.0125	1.93	0.1177	0.0141	2.81	GD
KG46ER		0.1347	0.0001	0.02	0.1043	0.0008	0.15	IC
KGT6RY		0.1307	-0.0039	-0.60	0.1017	-0.0019	-0.38	OE
L26KBA		0.1335	-0.0010	-0.15	0.1032	-0.0003	-0.07	OE
MBQ2LV		0.1322	-0.0023	-0.35	0.1011	-0.0024	-0.49	OE
MKFPGX		0.1437	0.0091	1.42	0.1117	0.0081	1.61	OE
MZT7G9		0.1297	-0.0049	-0.75	0.1013	-0.0022	-0.45	OE
NMH66F		0.1310	-0.0036	-0.55	0.1032	-0.0003	-0.07	OE
NREK6N		0.1367	0.0022	0.34	0.1046	0.0010	0.20	OE
QUDR8Y		0.1480	0.0135	2.09	0.1133	0.0098	1.95	OE
QUYB6J		0.1370	0.0025	0.38	0.0990	-0.0046	-0.91	GD
TDVMU4		0.1320	-0.0025	-0.39	0.1000	-0.0036	-0.71	OE
U2HVN9		0.1357	0.0011	0.18	0.1040	0.0004	0.08	IC
U9KVBH		0.1293	-0.0052	-0.80	0.1000	-0.0036	-0.71	OE
UFKBRP		0.1306	-0.0039	-0.61	0.1039	0.0003	0.06	OE
UQ3YT3		0.1340	-0.0005	-0.08	0.1023	-0.0012	-0.25	OE
VRWYEK		0.1353	0.0008	0.13	0.1040	0.0004	0.08	OE
W8LKE6		0.1370	0.0025	0.38	0.1040	0.0004	0.08	OE





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1540

2nd Qtr

Aluminum, ZINC (Zn)

2021

ZINC (Zn)

### Summary Statistics

	<u>Sample A75</u>		<u>Sample A76</u>	
<b>Grand Means</b>	0.1345	Percent	0.1036	Percent
<b>Std Dev Btwn Labs</b>	0.0065	Percent	0.0050	Percent

Samples A75, A76 : AA6061, AA6061

Statistics based on 44 of 47 reporting participants

### Key to Method Codes Reported by Participants

- ED X-Ray Fluorescence - Energy Dispersive (EDX)      GD Spectrometry - Glow Discharge (GDS)
- IC Spectrometry - Inductively Coupled Plasma (ICP)      OE Spectrometry - Optical Emission (OES)

### Comments on Assigned Data Flags for Test #1540

9UEMAT (X) - Data for both samples are high. Inconsistent within the determinations of sample A75.

AMPHMH (X) - Data for sample A76 are high.

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



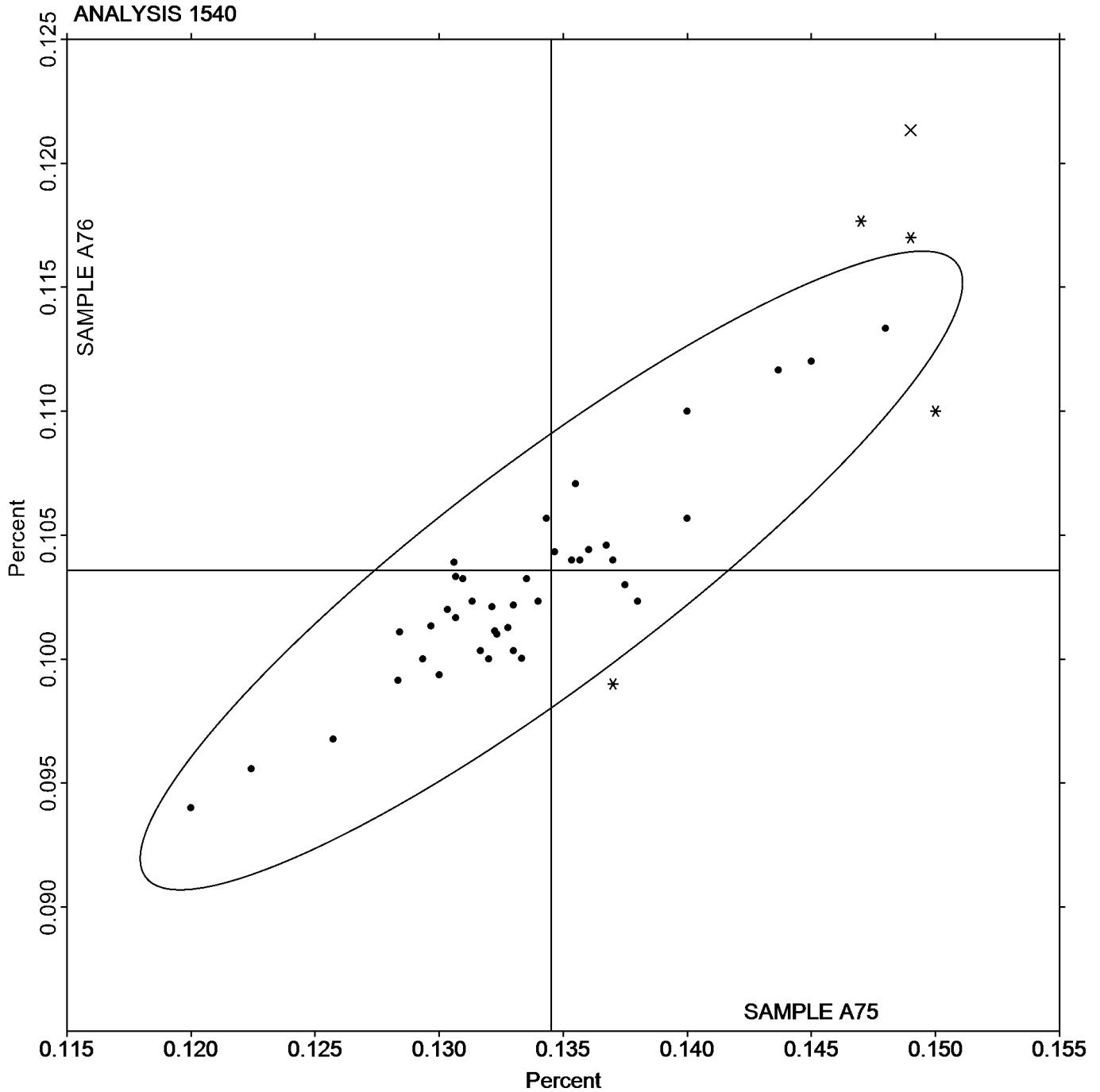
Analysis 1540

Aluminum, ZINC (Zn)

ZINC (Zn)

SAMPLE A75  
0.1345 Percent

SAMPLE A76  
0.1036 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1541

2nd Qtr  
2021

Aluminum, COPPER (Cu)  
COPPER (Cu)

WebCode	Data Flag	Sample A75			Sample A76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2KQFHP		0.1887	-0.0038	-0.44	0.2757	-0.0061	-0.63	OE
3FRFHK		0.1863	-0.0062	-0.70	0.2780	-0.0038	-0.39	OE
4F86CN		0.2019	0.0094	1.07	0.2894	0.0076	0.77	OE
6F326Q		0.2076	0.0151	1.71	0.2828	0.0010	0.10	OE
6LRJLM		0.2000	0.0075	0.85	0.2905	0.0087	0.89	IC
6ZCYQ9		0.1813	-0.0112	-1.27	0.2727	-0.0091	-0.93	OE
78PGQL	*	0.1730	-0.0195	-2.21	0.2550	-0.0268	-2.74	OE
83R2TX		0.1900	-0.0025	-0.28	0.2900	0.0082	0.84	OE
84ZHJG		0.1954	0.0029	0.33	0.2796	-0.0022	-0.23	OE
8L33KB	*	0.2120	0.0195	2.21	0.3083	0.0265	2.71	ED
98ZTEG		0.1941	0.0016	0.18	0.2827	0.0009	0.09	OE
9RRYXT		0.1889	-0.0036	-0.41	0.2778	-0.0040	-0.41	OE
9UEMAT		0.1920	-0.0005	-0.06	0.2860	0.0042	0.43	IC
AMPHMH	X	0.2873	0.0948	10.75	0.3253	0.0435	4.44	OE
B3XPHE		0.1897	-0.0028	-0.32	0.2817	-0.0001	-0.01	OE
C2E8VK		0.1993	0.0068	0.77	0.2923	0.0105	1.07	OE
CYGV6E		0.1937	0.0012	0.13	0.2850	0.0032	0.33	IC
D42A9B		0.1943	0.0018	0.21	0.2847	0.0029	0.29	OE
DH7B7M		0.1847	-0.0078	-0.89	0.2760	-0.0058	-0.59	OE
DNRBDM		0.2008	0.0082	0.93	0.2792	-0.0027	-0.27	OE
EELQQK	X	0.1967	0.0042	0.47	0.2650	-0.0168	-1.72	OE
EMBKJ9		0.1930	0.0005	0.06	0.2817	-0.0001	-0.01	IC
FK6BBC		0.1881	-0.0044	-0.50	0.2798	-0.0020	-0.20	OE
FTEYPA		0.1943	0.0018	0.21	0.2857	0.0039	0.39	OE
GEPMP7		0.1783	-0.0142	-1.61	0.2667	-0.0151	-1.55	OE
H7UNR6		0.1920	-0.0005	-0.06	0.2853	0.0035	0.36	OE
HAUYX6		0.1900	-0.0025	-0.28	0.2800	-0.0018	-0.18	OE
HAVMBA		0.1970	0.0045	0.51	0.2901	0.0082	0.84	OE
JE4C74		0.1895	-0.0030	-0.35	0.2815	-0.0003	-0.03	OE
KDUR9F	*	0.2160	0.0235	2.66	0.2757	-0.0061	-0.63	GD
KG46ER		0.1937	0.0012	0.13	0.2870	0.0052	0.53	XX
KGT6RY	*	0.1733	-0.0192	-2.18	0.2520	-0.0298	-3.04	OE
L26KBA		0.1893	-0.0032	-0.37	0.2782	-0.0036	-0.37	OE
MBQ2LV		0.1919	-0.0006	-0.07	0.2809	-0.0009	-0.09	OE
MKFPGX		0.1853	-0.0072	-0.81	0.2843	0.0025	0.26	OE
MZT7G9		0.1900	-0.0025	-0.28	0.2797	-0.0021	-0.22	OE
NMH66F		0.1938	0.0013	0.14	0.2845	0.0027	0.28	OE
NREK6N		0.1939	0.0014	0.15	0.2844	0.0026	0.27	OE
QUDR8Y		0.1847	-0.0078	-0.89	0.2733	-0.0085	-0.86	OE
QUYB6J		0.2100	0.0175	1.98	0.2980	0.0162	1.65	XX
TDVMU4		0.1830	-0.0095	-1.08	0.2723	-0.0095	-0.97	OE
U2HVN9		0.1977	0.0052	0.58	0.2900	0.0082	0.84	IC
U9KVBH		0.2137	0.0212	2.40	0.2913	0.0095	0.97	OE
UFKBRP		0.1988	0.0063	0.71	0.2875	0.0057	0.58	OE
UQ3YT3		0.1973	0.0048	0.55	0.2863	0.0045	0.46	OE
VRWYEK		0.1823	-0.0102	-1.15	0.2667	-0.0151	-1.55	OE
W8LKE6		0.1960	0.0035	0.40	0.2850	0.0032	0.33	OE



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1541

2nd Qtr  
2021

Aluminum, COPPER (Cu)  
COPPER (Cu)

### Summary Statistics

	<u>Sample A75</u>		<u>Sample A76</u>	
<b>Grand Means</b>	0.1925	Percent	0.2818	Percent
<b>Std Dev Btwn Labs</b>	0.0088	Percent	0.0098	Percent

Samples A75, A76 : AA6061, AA6061

Statistics based on 44 of 47 reporting participants

### Key to Method Codes Reported by Participants

- ED X-Ray Fluorescence - Energy Dispersive (EDX)
- GD Spectrometry - Glow Discharge (GDS)
- IC Spectrometry - Inductively Coupled Plasma (ICP)
- OE Spectrometry - Optical Emission (OES)
- XX Please Indicate Method Used for Current Element

### Comments on Assigned Data Flags for Test #1541

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

EELQQK (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample A76.



Analysis 1541

Aluminum, COPPER (Cu)

2nd Qtr  
2021

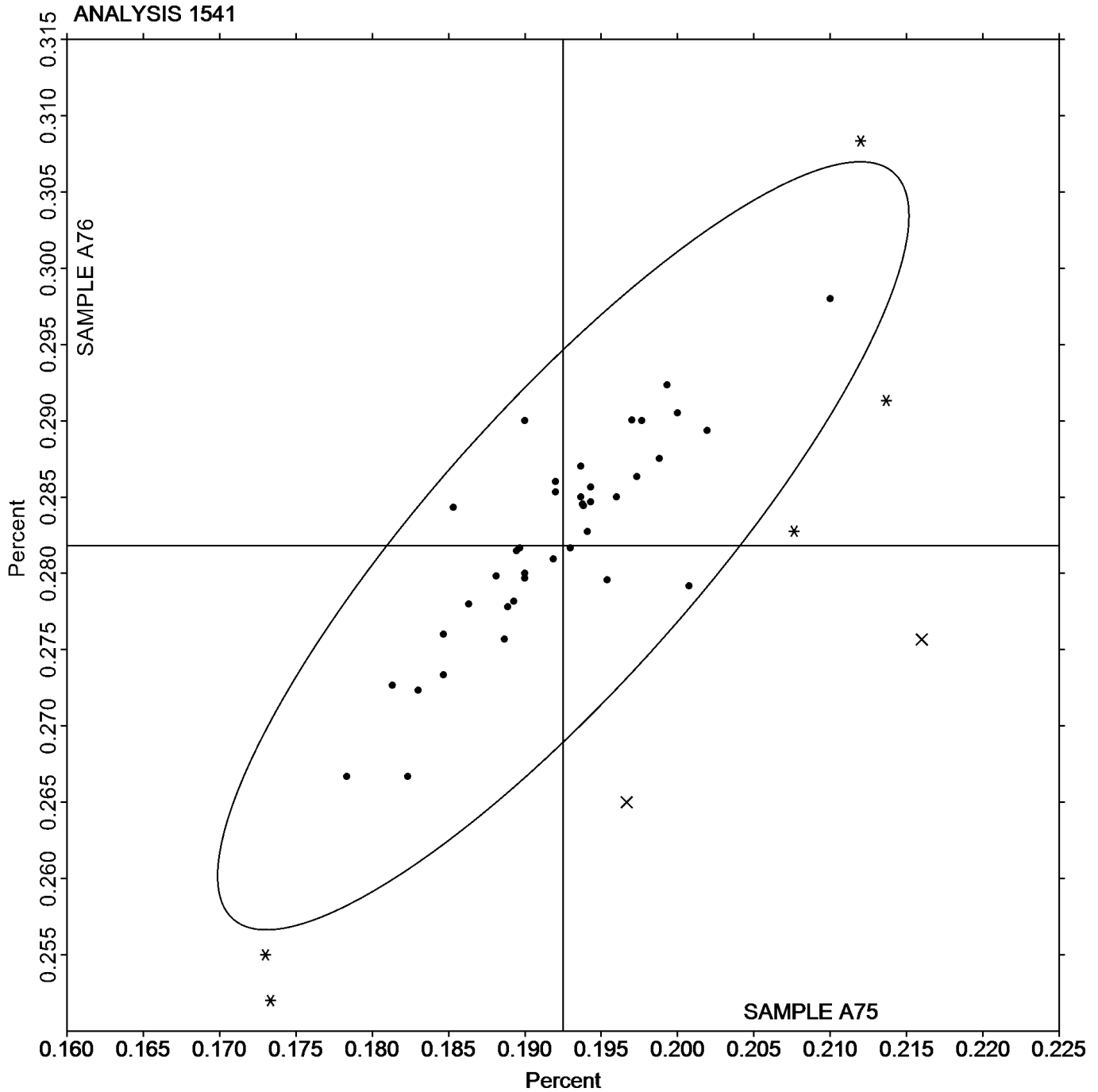
COPPER (Cu)

SAMPLE A75

0.1925 Percent

SAMPLE A76

0.2818 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1542

2nd Qtr

Aluminum, IRON (Fe)

2021

IRON (Fe)

WebCode	Data Flag	Sample A75			Sample A76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2KQFHP		0.6373	0.0216	1.02	0.3683	0.0015	0.14	OE
3FRFHK		0.6137	-0.0021	-0.10	0.3647	-0.0021	-0.20	OE
4F86CN		0.6204	0.0047	0.22	0.3624	-0.0044	-0.41	OE
6F326Q		0.5926	-0.0231	-1.09	0.3700	0.0032	0.29	OE
6LRJLM		0.6335	0.0178	0.84	0.3795	0.0127	1.17	IC
6ZCYQ9		0.6097	-0.0061	-0.29	0.3640	-0.0028	-0.26	OE
78PGQL	X	0.6200	0.0043	0.20	0.3967	0.0299	2.75	OE
83R2TX		0.6367	0.0209	0.99	0.3800	0.0132	1.22	OE
84ZHJG		0.6299	0.0142	0.67	0.3689	0.0021	0.20	OE
8L33KB		0.6323	0.0166	0.79	0.3807	0.0139	1.28	ED
98ZTEG		0.6359	0.0202	0.95	0.3801	0.0133	1.22	OE
9RRYXT		0.6343	0.0186	0.88	0.3780	0.0112	1.03	OE
9UEMAT	*	0.5537	-0.0621	-2.93	0.3393	-0.0275	-2.53	IC
AMPHMH	M	0.4460	-0.1697	-8.03	No Data Reported			OE
B3XPHE		0.6077	-0.0081	-0.38	0.3647	-0.0021	-0.20	OE
C2E8VK		0.6187	0.0029	0.14	0.3653	-0.0015	-0.14	OE
CYGV6E		0.6123	-0.0034	-0.16	0.3680	0.0012	0.11	IC
D42A9B		0.6100	-0.0057	-0.27	0.3710	0.0042	0.39	OE
DH7B7M		0.6173	0.0016	0.08	0.3637	-0.0031	-0.29	OE
DNRBDM		0.5981	-0.0176	-0.83	0.3534	-0.0134	-1.24	OE
EELQQK		0.5923	-0.0234	-1.11	0.3497	-0.0171	-1.58	OE
EMBKJ9		0.6120	-0.0037	-0.18	0.3697	0.0029	0.26	IC
FK6BBC		0.5860	-0.0298	-1.41	0.3484	-0.0184	-1.70	OE
FTEYPA		0.6263	0.0106	0.50	0.3653	-0.0015	-0.14	OE
GEPMP7		0.6353	0.0196	0.93	0.3827	0.0159	1.46	OE
H7UNR6	X	0.5233	-0.0924	-4.37	0.3630	-0.0038	-0.35	OE
HAUYX6		0.6200	0.0043	0.20	0.3600	-0.0068	-0.63	OE
HAVMBA		0.6263	0.0106	0.50	0.3667	-0.0002	-0.01	OE
JE4C74		0.6025	-0.0132	-0.63	0.3705	0.0037	0.34	OE
KDUR9F	X	0.7943	0.1786	8.45	0.3767	0.0099	0.91	GD
KG46ER		0.6090	-0.0067	-0.32	0.3670	0.0002	0.02	XX
KGT6RY		0.5893	-0.0264	-1.25	0.3527	-0.0141	-1.30	OE
L26KBA		0.5984	-0.0174	-0.82	0.3529	-0.0139	-1.28	OE
MBQ2LV		0.6424	0.0266	1.26	0.3801	0.0133	1.23	OE
MKFPGX		0.6127	-0.0031	-0.14	0.3710	0.0042	0.39	OE
MZT7G9		0.6097	-0.0061	-0.29	0.3670	0.0002	0.02	OE
NMH66F		0.6197	0.0040	0.19	0.3668	0.0000	0.00	OE
NREK6N		0.6071	-0.0086	-0.41	0.3621	-0.0047	-0.43	OE
QUDR8Y		0.6063	-0.0094	-0.44	0.3687	0.0019	0.17	OE
QUYB6J	*	0.6820	0.0663	3.13	0.3940	0.0272	2.51	GD
TDVMU4		0.5920	-0.0237	-1.12	0.3513	-0.0155	-1.43	OE
U2HVN9		0.6330	0.0173	0.82	0.3777	0.0109	1.00	IC
U9KVBH		0.6000	-0.0157	-0.74	0.3673	0.0005	0.05	OE
UFKBRP	X	0.5526	-0.0631	-2.99	0.3714	0.0046	0.42	OE
UQ3YT3		0.6440	0.0283	1.34	0.3760	0.0092	0.85	OE
VRWYEK		0.5957	-0.0201	-0.95	0.3520	-0.0148	-1.37	OE
W8LKE6		0.6243	0.0086	0.41	0.3647	-0.0021	-0.20	OE



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1542

2nd Qtr

Aluminum, IRON (Fe)

2021

IRON (Fe)

### Summary Statistics

	<u>Sample A75</u>		<u>Sample A76</u>	
<b>Grand Means</b>	0.6157	Percent	0.3668	Percent
<b>Std Dev Btwn Labs</b>	0.0211	Percent	0.0108	Percent

Samples A75, A76 : AA6061, AA6061

Statistics based on 42 of 47 reporting participants

### Key to Method Codes Reported by Participants

- ED X-Ray Fluorescence - Energy Dispersive (EDX)
- GD Spectrometry - Glow Discharge (GDS)
- IC Spectrometry - Inductively Coupled Plasma (ICP)
- OE Spectrometry - Optical Emission (OES)
- XX Please Indicate Method Used for Current Element

### Comments on Assigned Data Flags for Test #1542

78PGQL (X) - Data for sample A76 are high.

AMPHMH (M) - Participant did not submit data for sample A76.

H7UNR6 (X) - Data for sample A75 are low.

KDUR9F (X) - Data for sample A75 are high.

UFKBRP (X) - Data for sample A75 are low.



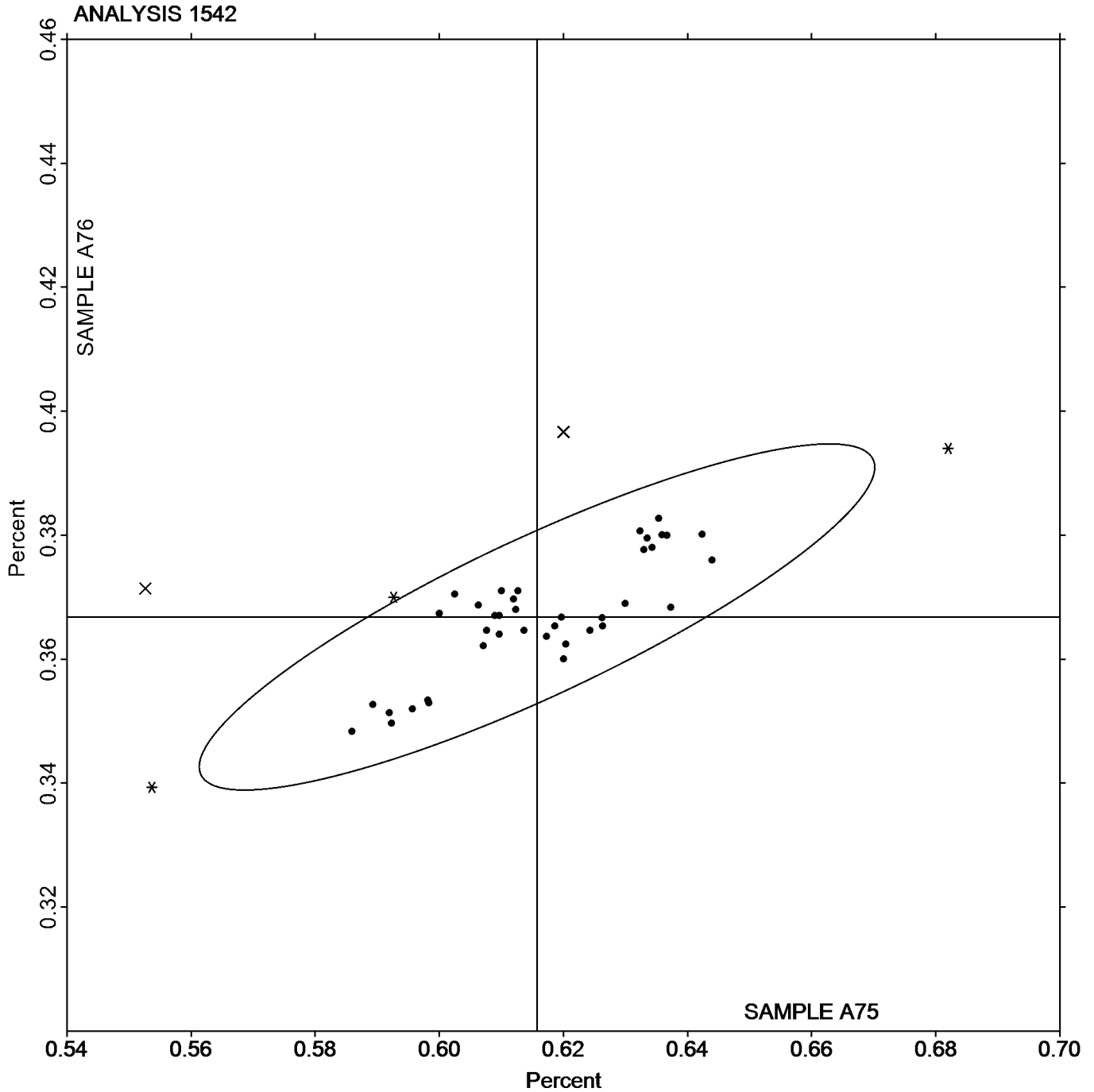
Analysis 1542

Aluminum, IRON (Fe)

IRON (Fe)

SAMPLE A75  
0.6157 Percent

SAMPLE A76  
0.3668 Percent







# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1543

2nd Qtr  
2021

Aluminum, SILICON (Si)  
SILICON (Si)

WebCode	Data Flag	Sample A75			Sample A76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2KQFHP		0.7377	0.0047	0.31	0.7347	-0.0060	-0.37	OE
3FRFHK		0.7437	0.0107	0.71	0.7517	0.0110	0.68	OE
4F86CN		0.7401	0.0071	0.47	0.7488	0.0081	0.50	OE
6F326Q		0.7446	0.0116	0.77	0.7565	0.0158	0.98	OE
6LRJLM	X	0.6910	-0.0420	-2.79	0.7520	0.0113	0.70	IC
6ZCYQ9		0.7047	-0.0283	-1.88	0.7100	-0.0307	-1.90	OE
78PGQL		0.7500	0.0170	1.13	0.7700	0.0293	1.82	OE
83R2TX		0.7533	0.0204	1.35	0.7600	0.0193	1.20	OE
84ZHJG		0.7344	0.0014	0.09	0.7362	-0.0045	-0.28	OE
98ZTEG		0.7458	0.0128	0.85	0.7518	0.0111	0.69	OE
9RRYXT		0.7482	0.0152	1.01	0.7547	0.0140	0.87	OE
9UEMAT		0.7273	-0.0056	-0.37	0.7303	-0.0104	-0.64	OE
AMPHMH	X	0.6703	-0.0626	-4.16	0.6897	-0.0510	-3.16	OE
B3XPHE		0.7417	0.0087	0.58	0.7500	0.0093	0.58	OE
C2E8VK		0.7610	0.0280	1.86	0.7693	0.0286	1.78	XX
CYGV6E		0.7357	0.0027	0.18	0.7443	0.0036	0.23	IC
D42A9B		0.7417	0.0087	0.58	0.7527	0.0120	0.74	OE
DH7B7M		0.7390	0.0060	0.40	0.7450	0.0043	0.27	OE
DNRBDM		0.7165	-0.0165	-1.10	0.7291	-0.0116	-0.72	OE
EELQQK	X	0.6833	-0.0496	-3.30	0.6700	-0.0707	-4.38	OE
EMBKJ9		0.7253	-0.0076	-0.51	0.7360	-0.0047	-0.29	WC
FK6BBC		0.7222	-0.0107	-0.71	0.7337	-0.0070	-0.43	OE
FTEYPA		0.7323	-0.0006	-0.04	0.7393	-0.0014	-0.08	OE
GEPMP7		0.7503	0.0174	1.15	0.7543	0.0136	0.85	OE
H7UNR6		0.7200	-0.0130	-0.86	0.7300	-0.0107	-0.66	OE
HAUYX6	*	0.6900	-0.0430	-2.86	0.7000	-0.0407	-2.52	OE
HAVMBA		0.7212	-0.0118	-0.78	0.7251	-0.0156	-0.97	OE
JE4C74		0.7377	0.0047	0.31	0.7522	0.0115	0.71	OE
KDUR9F	X	0.6870	-0.0460	-3.05	0.7170	-0.0237	-1.47	GD
KG46ER		0.7467	0.0137	0.91	0.7480	0.0073	0.45	XX
KGT6RY		0.7093	-0.0236	-1.57	0.7227	-0.0180	-1.12	OE
L26KBA		0.7278	-0.0051	-0.34	0.7365	-0.0042	-0.26	OE
MBQ2LV		0.7107	-0.0223	-1.48	0.7192	-0.0215	-1.34	OE
MKFPGX	*	0.7030	-0.0300	-1.99	0.7460	0.0053	0.33	OE
MZT7G9		0.7443	0.0114	0.76	0.7500	0.0093	0.58	OE
NMH66F		0.7481	0.0151	1.01	0.7599	0.0192	1.19	OE
NREK6N		0.7192	-0.0138	-0.91	0.7203	-0.0204	-1.26	OE
QUDR8Y		0.7267	-0.0063	-0.42	0.7353	-0.0054	-0.33	OE
QUYB6J	X	0.6670	-0.0660	-4.38	0.7210	-0.0197	-1.22	GD
TDVMU4		0.7403	0.0074	0.49	0.7470	0.0063	0.39	OE
U2HVN9		0.7200	-0.0130	-0.86	0.7233	-0.0174	-1.08	IC
U9KVBH		0.7450	0.0120	0.80	0.7557	0.0150	0.93	OE
UFKBRP		0.7315	-0.0014	-0.10	0.7522	0.0115	0.71	OE
UQ3YT3	X	0.7930	0.0600	3.99	0.8003	0.0596	3.70	OE
VRWYEK		0.7183	-0.0146	-0.97	0.7143	-0.0264	-1.64	OE
W8LKE6		0.7333	0.0004	0.02	0.7370	-0.0037	-0.23	OE



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1543

2nd Qtr  
2021

Aluminum, SILICON (Si)  
SILICON (Si)

### Summary Statistics

	<u>Sample A75</u>		<u>Sample A76</u>	
<b>Grand Means</b>	0.7330	Percent	0.7407	Percent
<b>Std Dev Btwn Labs</b>	0.0150	Percent	0.0161	Percent

Samples A75, A76 : AA6061, AA6061

Statistics based on 39 of 46 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)                      WC Wet Chemistry
- XX Please Indicate Method Used for Current Element

### Comments on Assigned Data Flags for Test #1543

- 6LRJLM (X) - Data for sample A75 are low.
- AMPHMH (X) - Data for both samples are low. Possible Systematic Error.
- EELQQK (X) - Data for both samples are low. Possible Systematic Error.
- KDUR9F (X) - Data for sample A75 are low.
- QUYB6J (X) - Data for sample A75 are low.
- UQ3YT3 (X) - Data for both samples are high. Possible Systematic Error.



Fasteners and Metals Interlaboratory Testing Program

Cycle 134

Analysis 1543

2nd Qtr

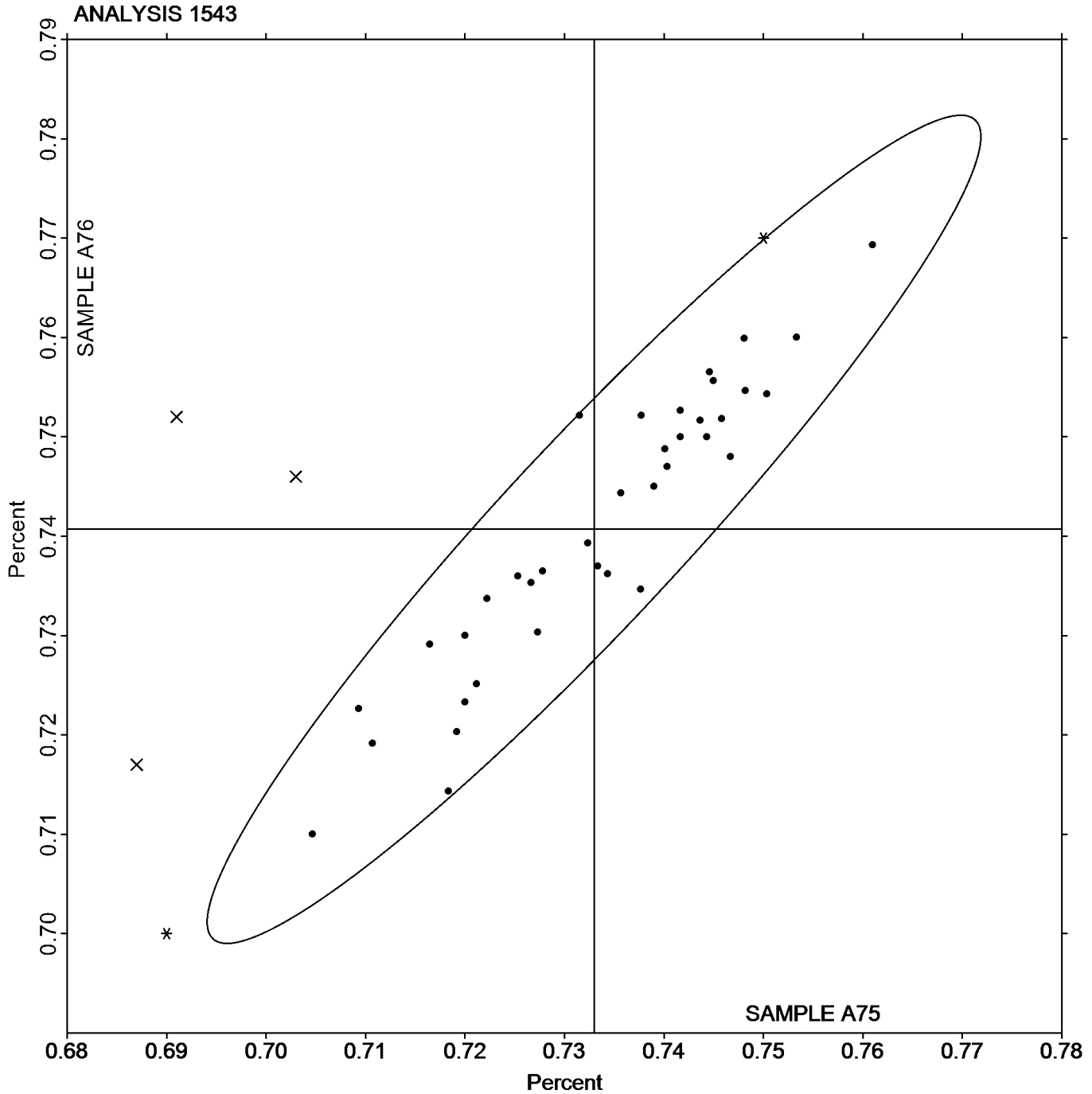
Aluminum, SILICON (Si)

2021

SILICON (Si)

SAMPLE A75  
0.7330 Percent

SAMPLE A76  
0.7407 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1544

2nd Qtr  
2021

Aluminum, MANGANESE (Mn)  
MANGANESE (Mn)

WebCode	Data Flag	Sample A75			Sample A76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2KQFHP		0.1057	0.0039	1.05	0.0630	0.0029	1.35	OE
3FRFHK		0.1027	0.0009	0.24	0.0603	0.0002	0.12	OE
4F86CN		0.0984	-0.0034	-0.91	0.0586	-0.0015	-0.70	OE
6F326Q		0.1001	-0.0017	-0.46	0.0582	-0.0019	-0.85	OE
6LRJLM		0.1025	0.0007	0.20	0.0580	-0.0021	-0.96	IC
6ZCYQ9		0.1020	0.0002	0.06	0.0597	-0.0004	-0.19	OE
78PGQL		0.1090	0.0072	1.95	0.0640	0.0039	1.81	OE
83R2TX		0.1000	-0.0018	-0.48	0.0597	-0.0004	-0.19	OE
84ZHJG		0.1031	0.0013	0.35	0.0605	0.0004	0.19	OE
8L33KB	X	0.1717	0.0699	18.83	0.0970	0.0369	17.05	ED
98ZTEG		0.1075	0.0057	1.55	0.0629	0.0028	1.32	OE
9RRYXT		0.1006	-0.0012	-0.32	0.0593	-0.0008	-0.35	OE
9UEMAT		0.0983	-0.0034	-0.92	0.0553	-0.0048	-2.19	IC
AMPHMH	*	0.1027	0.0009	0.24	0.0647	0.0046	2.12	OE
B3XPHE		0.1020	0.0002	0.06	0.0600	-0.0001	-0.04	OE
C2E8VK		0.0990	-0.0028	-0.74	0.0590	-0.0011	-0.50	OE
CYGV6E		0.1040	0.0022	0.60	0.0617	0.0016	0.73	IC
D42A9B		0.1023	0.0006	0.15	0.0597	-0.0004	-0.19	OE
DH7B7M		0.1023	0.0006	0.15	0.0598	-0.0003	-0.15	OE
DNRBDM		0.1061	0.0043	1.17	0.0608	0.0007	0.32	OE
EELQQK		0.1047	0.0029	0.78	0.0620	0.0019	0.89	OE
EMBKJ9		0.1037	0.0019	0.51	0.0613	0.0012	0.58	IC
FK6BBC	*	0.0898	-0.0120	-3.22	0.0547	-0.0054	-2.47	OE
FTEYPA		0.1039	0.0021	0.58	0.0602	0.0001	0.05	OE
GEPMP7		0.1003	-0.0015	-0.40	0.0591	-0.0010	-0.47	OE
H7UNR6		0.1023	0.0006	0.15	0.0607	0.0006	0.27	OE
HAUYX6		0.1000	-0.0018	-0.48	0.0600	-0.0001	-0.04	OE
HAVMBA		0.0998	-0.0020	-0.54	0.0580	-0.0021	-0.98	OE
JE4C74		0.0930	-0.0088	-2.36	0.0589	-0.0012	-0.56	OE
KDUR9F		0.1017	-0.0001	-0.03	0.0600	-0.0001	-0.04	GD
KG46ER		0.1010	-0.0008	-0.21	0.0599	-0.0002	-0.07	XX
KGT6RY		0.1023	0.0006	0.15	0.0620	0.0019	0.89	OE
L26KBA		0.1040	0.0022	0.59	0.0609	0.0008	0.38	OE
MBQ2LV		0.1000	-0.0018	-0.48	0.0600	-0.0001	-0.05	OE
MKFPGX		0.1000	-0.0018	-0.48	0.0597	-0.0004	-0.19	OE
MZT7G9		0.1023	0.0006	0.15	0.0607	0.0006	0.27	OE
NMH66F		0.1003	-0.0015	-0.40	0.0598	-0.0003	-0.13	OE
NREK6N		0.0995	-0.0023	-0.61	0.0578	-0.0023	-1.04	OE
QUDR8Y		0.1017	-0.0001	-0.03	0.0603	0.0002	0.12	OE
QUYB6J		0.1100	0.0082	2.22	0.0610	0.0009	0.42	GD
TDVMU4		0.0957	-0.0061	-1.64	0.0553	-0.0048	-2.19	OE
U2HVN9	*	0.1097	0.0079	2.13	0.0660	0.0059	2.73	IC
U9KVBH		0.0983	-0.0034	-0.92	0.0580	-0.0021	-0.96	OE
UFKBRP		0.1009	-0.0009	-0.23	0.0621	0.0020	0.95	OE
UQ3YT3		0.1013	-0.0004	-0.12	0.0593	-0.0008	-0.35	OE
VRWYEK		0.1030	0.0012	0.33	0.0610	0.0009	0.42	OE
W8LKE6		0.1040	0.0022	0.60	0.0600	-0.0001	-0.04	OE



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1544

2nd Qtr  
2021

Aluminum, MANGANESE (Mn)  
MANGANESE (Mn)

### Summary Statistics

	<u>Sample A75</u>		<u>Sample A76</u>	
<b>Grand Means</b>	0.1018	Percent	0.0601	Percent
<b>Stnd Dev Btwn Labs</b>	0.0037	Percent	0.0022	Percent

Samples A75, A76 : AA6061, AA6061

Statistics based on 46 of 47 reporting participants

### Key to Method Codes Reported by Participants

- ED X-Ray Fluorescence - Energy Dispersive (EDX)
- GD Spectrometry - Glow Discharge (GDS)
- IC Spectrometry - Inductively Coupled Plasma (ICP)
- OE Spectrometry - Optical Emission (OES)
- XX Please Indicate Method Used for Current Element

### Comments on Assigned Data Flags for Test #1544

8L33KB (X) - Data for both samples are high. Inconsistent within the determinations of both samples.

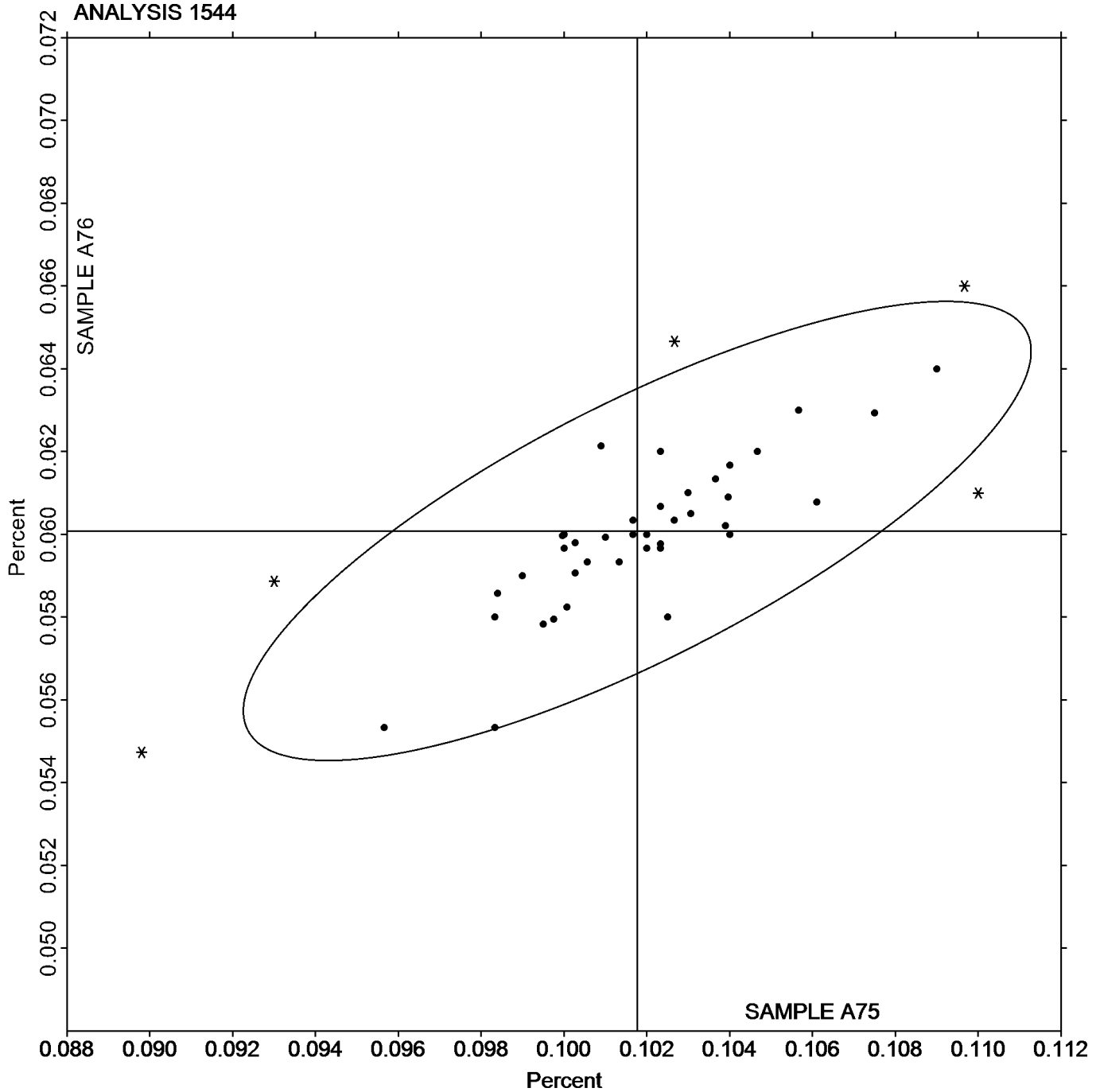


Analysis 1544

Aluminum, MANGANESE (Mn)  
MANGANESE (Mn)

SAMPLE A75  
0.1018 Percent

SAMPLE A76  
0.0601 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1545

2nd Qtr

Aluminum, MAGNESIUM (Mg)

2021

MAGNESIUM (Mg)

WebCode	Data Flag	Sample A75			Sample A76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2KQFHP	*	0.9853	0.0589	2.93	0.9687	0.0609	3.01	OE
3FRFHK		0.9200	-0.0064	-0.32	0.8920	-0.0158	-0.78	OE
4F86CN		0.9322	0.0057	0.29	0.9067	-0.0010	-0.05	OE
6F326Q		0.9214	-0.0051	-0.25	0.9038	-0.0040	-0.20	XX
6ZCYQ9		0.9157	-0.0108	-0.53	0.9013	-0.0064	-0.32	OE
78PGQL		0.9400	0.0136	0.67	0.9400	0.0322	1.59	OE
83R2TX		0.9300	0.0036	0.18	0.9167	0.0089	0.44	OE
84ZHJG		0.9096	-0.0169	-0.84	0.9070	-0.0008	-0.04	OE
8L33KB	X	1.064	0.1379	6.85	1.033	0.1249	6.18	ED
98ZTEG		0.9245	-0.0019	-0.10	0.8936	-0.0141	-0.70	OE
9RRYXT		0.9181	-0.0084	-0.42	0.9028	-0.0050	-0.25	OE
9UEMAT		0.9420	0.0156	0.77	0.9443	0.0366	1.81	IC
AMPHMH	X	0.8553	-0.0711	-3.53	0.8313	-0.0764	-3.78	OE
B3XPHE		0.9407	0.0142	0.71	0.9247	0.0169	0.84	OE
C2E8VK		0.9020	-0.0244	-1.21	0.8903	-0.0174	-0.86	XX
CYGV6E		0.9263	-0.0001	0.00	0.9133	0.0056	0.28	IC
D42A9B		0.9250	-0.0014	-0.07	0.9093	0.0016	0.08	OE
DH7B7M		0.9023	-0.0241	-1.20	0.8743	-0.0334	-1.65	OE
DNRBDM		0.9092	-0.0172	-0.85	0.8828	-0.0250	-1.23	OE
EELQQK		0.8967	-0.0298	-1.48	0.8600	-0.0478	-2.36	OE
EMBKJ9		0.9353	0.0089	0.44	0.8910	-0.0168	-0.83	IC
FK6BBC		0.9500	0.0235	1.17	0.9222	0.0145	0.72	OE
FTEYPA		0.9197	-0.0068	-0.34	0.9003	-0.0074	-0.37	OE
GEPMP7		0.9333	0.0069	0.34	0.9193	0.0116	0.57	OE
H7UNR6	*	0.9433	0.0169	0.84	0.8700	-0.0378	-1.87	OE
HAUYX6		0.9400	0.0136	0.67	0.9100	0.0022	0.11	OE
HAVMBA		0.9308	0.0044	0.22	0.9241	0.0163	0.81	OE
JE4C74		0.9111	-0.0153	-0.76	0.9028	-0.0050	-0.25	OE
KDUR9F		0.9453	0.0189	0.94	0.8937	-0.0141	-0.70	GD
KG46ER		0.9167	-0.0098	-0.48	0.9177	0.0099	0.49	XX
KGT6RY		0.9613	0.0349	1.73	0.9313	0.0236	1.17	OE
L26KBA		0.9237	-0.0027	-0.14	0.9037	-0.0041	-0.20	OE
MBQ2LV		0.9186	-0.0079	-0.39	0.9256	0.0178	0.88	OE
MKFPGX	*	0.8720	-0.0544	-2.70	0.8680	-0.0398	-1.97	OE
MZT7G9		0.9083	-0.0181	-0.90	0.8930	-0.0148	-0.73	OE
NMH66F		0.9318	0.0054	0.27	0.9124	0.0046	0.23	OE
NREK6N		0.9171	-0.0094	-0.46	0.8934	-0.0144	-0.71	OE
QUDR8Y		0.9310	0.0046	0.23	0.9023	-0.0054	-0.27	OE
QUYB6J		0.9580	0.0316	1.57	0.9190	0.0112	0.56	XX
TDVMU4		0.8880	-0.0384	-1.91	0.8803	-0.0274	-1.36	XX
U2HVN9		0.9353	0.0089	0.44	0.9197	0.0119	0.59	IC
U9KVBH		0.9403	0.0139	0.69	0.9170	0.0092	0.46	OE
UFKBRP		0.9413	0.0149	0.74	0.9228	0.0151	0.75	OE
UQ3YT3		0.9477	0.0212	1.05	0.9177	0.0099	0.49	OE
VRWYEK		0.9113	-0.0151	-0.75	0.8977	-0.0101	-0.50	OE
W8LKE6		0.9273	0.0009	0.05	0.9170	0.0092	0.46	OE



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1545

2nd Qtr  
2021

Aluminum, MAGNESIUM (Mg)  
MAGNESIUM (Mg)

### Summary Statistics

	<u>Sample A75</u>		<u>Sample A76</u>	
<b>Grand Means</b>	0.9264	Percent	0.9078	Percent
<b>Stnd Dev Btwn Labs</b>	0.0201	Percent	0.0202	Percent

Samples A75, A76 : AA6061, AA6061

Statistics based on 43 of 46 reporting participants

### Key to Method Codes Reported by Participants

- ED X-Ray Fluorescence - Energy Dispersive (EDX)
- GD Spectrometry - Glow Discharge (GDS)
- IC Spectrometry - Inductively Coupled Plasma (ICP)
- OE Spectrometry - Optical Emission (OES)
- XX Please Indicate Method Used for Current Element

### Comments on Assigned Data Flags for Test #1545

8L33KB (X) - Data for both samples are high. Possible Systematic Error.

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



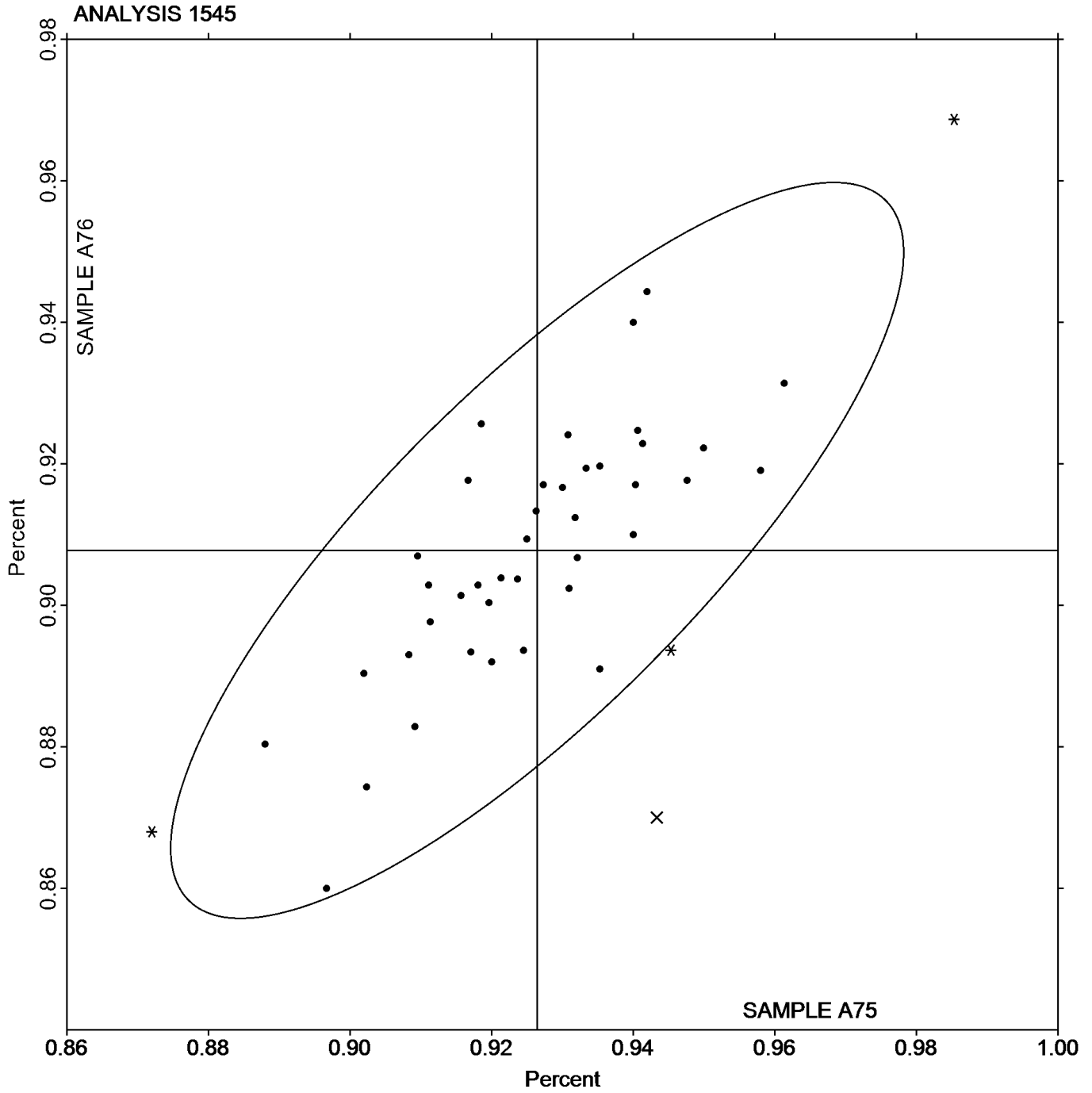


Analysis 1545

Aluminum, MAGNESIUM (Mg)  
MAGNESIUM (Mg)

SAMPLE A75  
0.9264 Percent

SAMPLE A76  
0.9078 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1546

2nd Qtr  
2021

Aluminum, CHROMIUM (Cr)  
CHROMIUM (Cr)

WebCode	Data Flag	Sample A75			Sample A76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2KQFHP	X	0.1543	0.0070	0.95	0.1553	0.1035	36.30	OE
3FRFHK		0.1457	-0.0016	-0.22	0.0488	-0.0031	-1.09	OE
4F86CN		0.1452	-0.0021	-0.28	0.0520	0.0002	0.06	OE
6F326Q		0.1564	0.0091	1.22	0.0553	0.0034	1.19	OE
6ZCYQ9		0.1527	0.0054	0.72	0.0510	-0.0009	-0.30	OE
78PGQL	X	0.0950	-0.0523	-7.02	0.0400	-0.0119	-4.16	OE
83R2TX		0.1500	0.0027	0.36	0.0530	0.0011	0.40	OE
84ZHJG		0.1464	-0.0009	-0.11	0.0517	-0.0001	-0.05	OE
8L33KB	*	0.1683	0.0210	2.82	0.0607	0.0088	3.09	XX
98ZTEG		0.1439	-0.0034	-0.46	0.0507	-0.0012	-0.42	OE
9RRYXT		0.1454	-0.0019	-0.26	0.0513	-0.0006	-0.20	OE
9UEMAT		0.1463	-0.0010	-0.13	0.0493	-0.0025	-0.89	IC
AMPHMH		0.1603	0.0130	1.75	0.0550	0.0031	1.10	OE
B3XPHE		0.1473	0.0000	0.01	0.0520	0.0001	0.05	OE
C2E8VK		0.1483	0.0010	0.14	0.0523	0.0005	0.16	OE
CYGV6E		0.1507	0.0034	0.45	0.0507	-0.0012	-0.42	IC
D42A9B		0.1440	-0.0033	-0.44	0.0529	0.0010	0.36	OE
DH7B7M		0.1443	-0.0030	-0.40	0.0482	-0.0037	-1.30	OE
DNRBDM		0.1464	-0.0009	-0.12	0.0526	0.0007	0.25	OE
EELQQK		0.1487	0.0014	0.19	0.0547	0.0028	0.98	OE
EMBKJ9		0.1487	0.0014	0.19	0.0523	0.0005	0.16	IC
FK6BBC		0.1410	-0.0063	-0.84	0.0516	-0.0002	-0.08	OE
FTEYPA		0.1453	-0.0020	-0.26	0.0520	0.0001	0.04	OE
GEPMP7		0.1617	0.0144	1.93	0.0586	0.0067	2.36	OE
H7UNR6		0.1433	-0.0040	-0.53	0.0520	0.0001	0.05	OE
HAUYX6		0.1400	-0.0073	-0.98	0.0500	-0.0019	-0.65	OE
HAVMBA		0.1503	0.0030	0.40	0.0529	0.0010	0.35	OE
JE4C74		0.1491	0.0018	0.24	0.0517	-0.0002	-0.06	OE
KDUR9F		0.1417	-0.0056	-0.75	0.0470	-0.0049	-1.71	GD
KG46ER		0.1437	-0.0036	-0.49	0.0515	-0.0004	-0.14	XX
KGT6RY		0.1273	-0.0200	-2.68	0.0463	-0.0056	-1.95	OE
L26KBA		0.1484	0.0011	0.15	0.0527	0.0008	0.29	OE
MBQ2LV	*	0.1254	-0.0219	-2.93	0.0453	-0.0066	-2.30	OE
MKFPGX		0.1373	-0.0100	-1.34	0.0483	-0.0035	-1.24	OE
MZT7G9		0.1433	-0.0040	-0.53	0.0510	-0.0009	-0.30	OE
NMH66F		0.1453	-0.0020	-0.27	0.0487	-0.0032	-1.12	OE
NREK6N		0.1476	0.0003	0.04	0.0541	0.0022	0.77	OE
QUDR8Y		0.1450	-0.0023	-0.31	0.0526	0.0008	0.27	OE
QUYB6J		0.1530	0.0057	0.77	0.0540	0.0021	0.75	XX
TDVMU4		0.1520	0.0047	0.63	0.0537	0.0018	0.63	OE
U2HVN9		0.1517	0.0044	0.59	0.0530	0.0011	0.40	IC
U9KVBH		0.1540	0.0067	0.90	0.0533	0.0015	0.52	OE
UFKBRP		0.1548	0.0075	1.00	0.0527	0.0008	0.29	OE
UQ3YT3		0.1507	0.0034	0.45	0.0543	0.0025	0.87	OE
VRWYEK		0.1417	-0.0056	-0.75	0.0517	-0.0002	-0.07	OE
W8LKE6		0.1480	0.0007	0.10	0.0487	-0.0032	-1.12	OE



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1546

2nd Qtr  
2021

Aluminum, CHROMIUM (Cr)  
CHROMIUM (Cr)

### Summary Statistics

	<u>Sample A75</u>		<u>Sample A76</u>	
<b>Grand Means</b>	0.1473	Percent	0.0519	Percent
<b>Stnd Dev Btwn Labs</b>	0.0075	Percent	0.0029	Percent

Samples A75, A76 : AA6061, AA6061

Statistics based on 44 of 46 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)      XX Please Indicate Method Used for Current Element

### Comments on Assigned Data Flags for Test #1546

2KQFHP (X) - Data for sample A76 are extreme. Inconsistent within the determinations of both samples.  
 78PGQL (X) - Data for both samples are low.

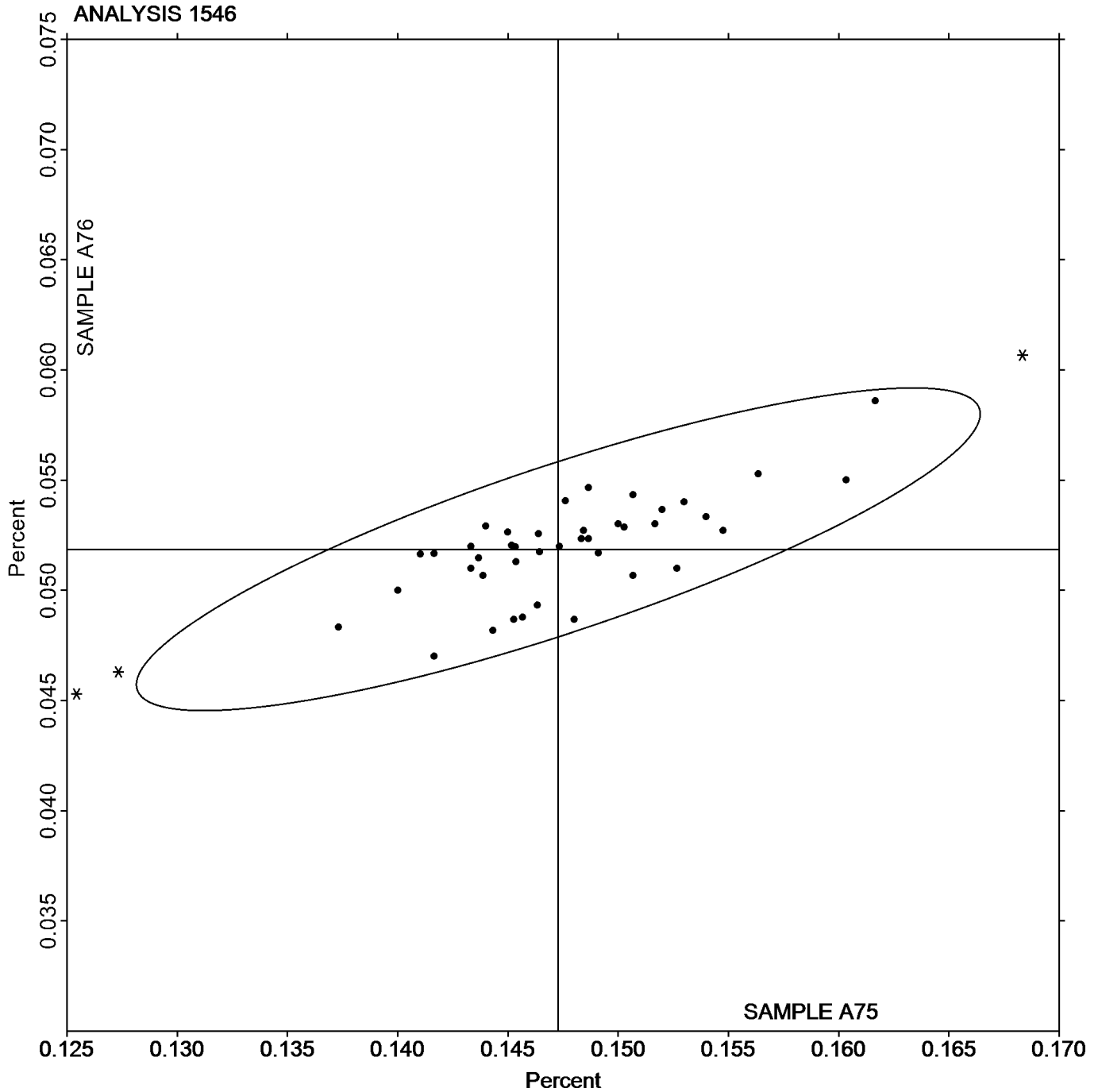


Analysis 1546

Aluminum, CHROMIUM (Cr)  
CHROMIUM (Cr)

SAMPLE A75  
0.1473 Percent

SAMPLE A76  
0.0519 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1547

2nd Qtr  
2021

Aluminum, TITANIUM (Ti)  
TITANIUM (Ti)

WebCode	Data Flag	Sample A75			Sample A76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2KQFHP		0.0510	0.0023	1.33	0.0238	0.0021	2.00	OE
3FRFHK		0.0489	0.0002	0.12	0.0217	0.0000	0.02	OE
4F86CN		0.0485	-0.0002	-0.10	0.0217	0.0000	0.02	OE
6F326Q		0.0481	-0.0006	-0.33	0.0218	0.0001	0.08	OE
6LRJLM		0.0465	-0.0022	-1.27	0.0210	-0.0007	-0.65	IC
6ZCYQ9		0.0490	0.0003	0.17	0.0227	0.0010	0.93	OE
78PGQL	X	0.0590	0.0103	5.97	0.0240	0.0023	2.19	OE
83R2TX		0.0483	-0.0004	-0.21	0.0220	0.0003	0.30	OE
84ZHJG		0.0465	-0.0022	-1.27	0.0208	-0.0009	-0.87	OE
8L33KB		0.0527	0.0040	2.30	0.0237	0.0020	1.88	XX
98ZTEG		0.0446	-0.0041	-2.35	0.0198	-0.0018	-1.75	OE
9RRYXT		0.0477	-0.0010	-0.56	0.0215	-0.0001	-0.14	OE
9UEMAT		0.0477	-0.0010	-0.60	0.0207	-0.0010	-0.96	IC
AMPHMH	X	0.0730	0.0243	14.07	0.0240	0.0023	2.19	OE
B3XPHE		0.0497	0.0010	0.56	0.0217	0.0000	-0.02	OE
C2E8VK		0.0487	0.0000	-0.02	0.0193	-0.0023	-2.22	OE
CYGV6E		0.0497	0.0010	0.56	0.0210	-0.0007	-0.65	IC
D42A9B		0.0490	0.0003	0.17	0.0222	0.0005	0.49	OE
DH7B7M		0.0485	-0.0002	-0.13	0.0219	0.0002	0.21	OE
DNRBDM		0.0477	-0.0010	-0.61	0.0217	0.0000	-0.03	OE
EELQQK		0.0503	0.0016	0.95	0.0223	0.0007	0.62	OE
EMBKJ9		0.0483	-0.0004	-0.21	0.0213	-0.0003	-0.33	IC
FK6BBC		0.0480	-0.0007	-0.42	0.0220	0.0003	0.27	OE
FTEYPA		0.0494	0.0007	0.39	0.0221	0.0004	0.39	OE
GEPMP7		0.0496	0.0009	0.54	0.0218	0.0001	0.11	OE
H7UNR6		0.0473	-0.0014	-0.79	0.0210	-0.0007	-0.65	OE
HAUYX6		0.0500	0.0013	0.75	0.0200	-0.0017	-1.59	OE
HAVMBA		0.0490	0.0003	0.19	0.0221	0.0004	0.39	OE
JE4C74		0.0491	0.0004	0.23	0.0213	-0.0004	-0.39	OE
KDUR9F		0.0483	-0.0004	-0.21	0.0240	0.0023	2.19	GD
KG46ER		0.0473	-0.0014	-0.79	0.0210	-0.0007	-0.68	XX
KGT6RY		0.0502	0.0015	0.89	0.0245	0.0029	2.69	OE
L26KBA		0.0482	-0.0005	-0.29	0.0217	0.0000	0.02	OE
MBQ2LV	*	0.0438	-0.0049	-2.82	0.0201	-0.0016	-1.53	OE
MKFPGX	X	0.0517	0.0030	1.72	0.0277	0.0060	5.66	OE
MZT7G9		0.0470	-0.0017	-0.98	0.0207	-0.0010	-0.96	OE
NMH66F		0.0466	-0.0021	-1.24	0.0218	0.0001	0.08	OE
NREK6N		0.0507	0.0020	1.18	0.0220	0.0004	0.33	OE
QUDR8Y		0.0498	0.0011	0.66	0.0215	-0.0002	-0.20	OE
QUYB6J		0.0520	0.0033	1.91	0.0210	-0.0007	-0.65	GD
TDVMU4		0.0501	0.0014	0.81	0.0228	0.0011	1.06	OE
U2HVN9		0.0497	0.0010	0.56	0.0223	0.0007	0.62	IC
U9KVBH		0.0480	-0.0007	-0.41	0.0210	-0.0007	-0.65	OE
UFKBRP		0.0504	0.0017	1.00	0.0209	-0.0008	-0.74	OE
UQ3YT3		0.0504	0.0017	1.00	0.0227	0.0010	0.96	OE
VRWYEK		0.0466	-0.0021	-1.22	0.0217	0.0000	0.02	OE
W8LKE6		0.0497	0.0010	0.56	0.0217	0.0000	-0.02	OE



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1547

2nd Qtr  
2021

Aluminum, TITANIUM (Ti)  
TITANIUM (Ti)

### Summary Statistics

	<u>Sample A75</u>		<u>Sample A76</u>	
<b>Grand Means</b>	0.0487	Percent	0.0217	Percent
<b>Stnd Dev Btwn Labs</b>	0.0017	Percent	0.0011	Percent

Samples A75, A76 : AA6061, AA6061

Statistics based on 44 of 47 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) | XX | Please Indicate Method Used for Current Element |

### Comments on Assigned Data Flags for Test #1547

78PGQL (X) - Data for sample A75 are high.

AMPHMH (X) - Data for sample A75 are high. Inconsistent within the determinations of both samples.

MKFPGX (X) - Data for sample A76 are high. Inconsistent within the determinations of sample A76.

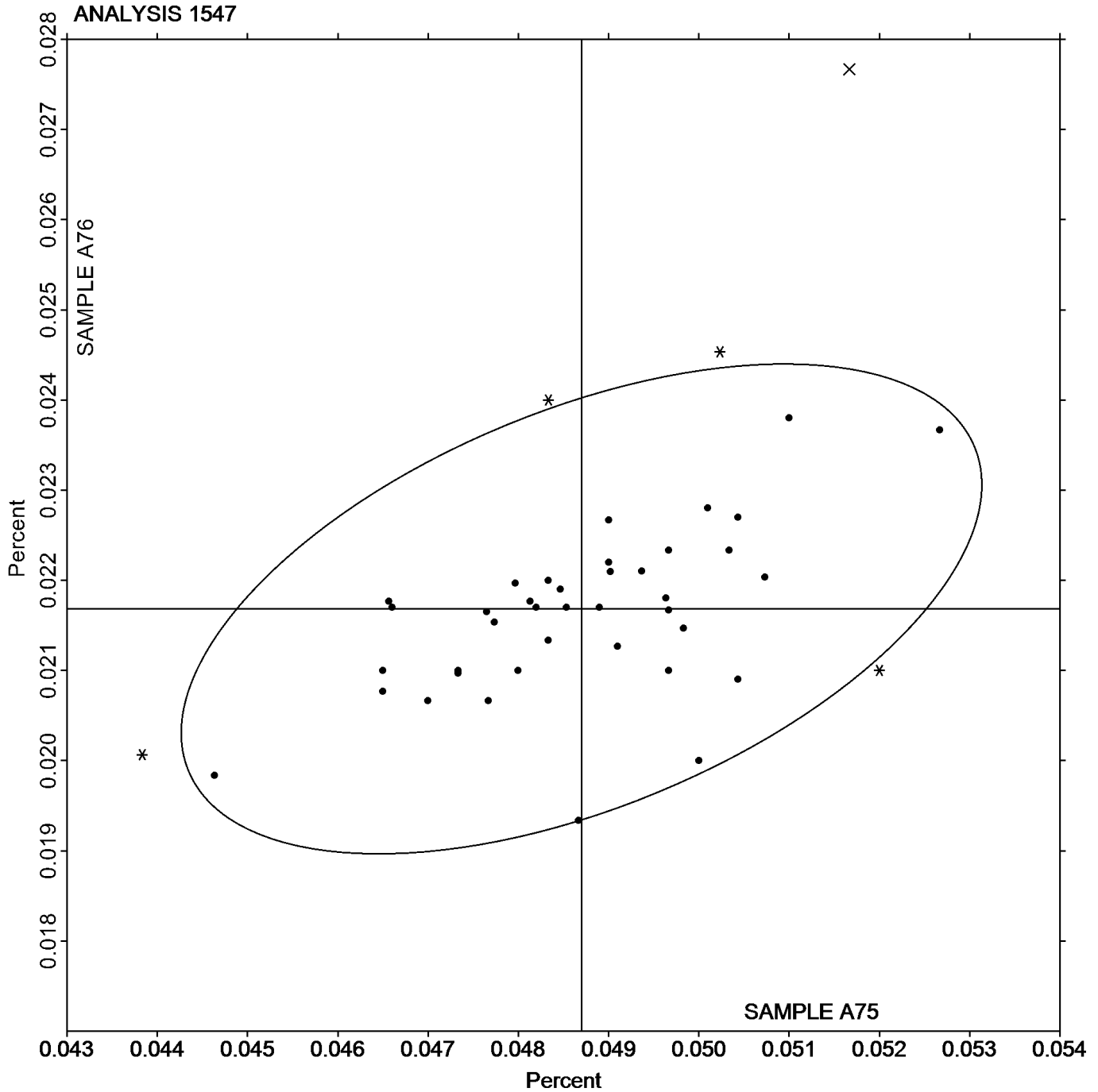


Analysis 1547

Aluminum, TITANIUM (Ti)  
TITANIUM (Ti)

SAMPLE A75  
0.0487 Percent

SAMPLE A76  
0.0217 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1640

2nd Qtr  
2021

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

WebCode	Data Flag	Sample M75			Sample M76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3LX67J		0.0807	0.0065	1.87	0.0687	0.0053	1.92	CO
4HE467		0.0807	0.0065	1.87	0.0646	0.0013	0.47	OE
4ZTVGM		0.0732	-0.0009	-0.26	0.0618	-0.0015	-0.55	CI
6LQJM9		0.0753	0.0011	0.32	0.0640	0.0006	0.23	OE
6XRV93		0.0757	0.0015	0.44	0.0653	0.0020	0.72	OE
7BQJFM		0.0787	0.0045	1.30	0.0653	0.0020	0.72	CI
7FM22U		0.0780	0.0039	1.11	0.0667	0.0033	1.20	CI
7GC7HF		0.0702	-0.0039	-1.13	0.0586	-0.0047	-1.68	CI
7VXMFD		0.0746	0.0005	0.14	0.0634	0.0001	0.03	CI
83R2TX		0.0783	0.0042	1.20	0.0670	0.0037	1.32	OE
9RRYXT		0.0710	-0.0031	-0.90	0.0600	-0.0033	-1.19	OE
9WFQYU		0.0713	-0.0028	-0.82	0.0609	-0.0024	-0.87	CO
ABYJDT		0.0745	0.0004	0.11	0.0637	0.0004	0.15	OE
AKNGX8		0.0780	0.0039	1.11	0.0657	0.0023	0.84	OE
ALEKKM		0.0750	0.0009	0.25	0.0643	0.0010	0.36	OE
ALUZLG		0.0746	0.0005	0.13	0.0632	-0.0001	-0.03	OE
ALY4RE		0.0693	-0.0048	-1.38	0.0603	-0.0030	-1.07	OE
B3XPHE	X	0.0730	-0.0011	-0.33	0.0790	0.0157	5.63	OE
BEAY64		0.0780	0.0039	1.11	0.0643	0.0010	0.36	CI
CYGV6E	X	0.0760	0.0019	0.53	0.0723	0.0090	3.23	CI
DNRBDM		0.0655	-0.0086	-2.47	0.0569	-0.0064	-2.30	OE
DZ8FBA		0.0737	-0.0005	-0.14	0.0643	0.0010	0.36	OE
GEPMP7		0.0673	-0.0068	-1.96	0.0597	-0.0037	-1.31	OE
GJ9DHV		0.0730	-0.0011	-0.33	0.0630	-0.0003	-0.11	CO
GT989D		0.0717	-0.0025	-0.71	0.0617	-0.0017	-0.59	CI
H7UNR6		0.0738	-0.0003	-0.10	0.0642	0.0009	0.33	CO
HAUYX6		0.0700	-0.0041	-1.19	0.0600	-0.0033	-1.19	OE
HAVMBA		0.0764	0.0023	0.65	0.0641	0.0008	0.29	OE
JT746E	X	0.0810	0.0069	1.97	0.0774	0.0141	5.06	CO
KFDQH4		0.0760	0.0018	0.52	0.0630	-0.0003	-0.10	CI
KGT6RY	*	0.0809	0.0067	1.93	0.0709	0.0076	2.72	OE
KMVBC3		0.0740	-0.0001	-0.04	0.0657	0.0023	0.84	OE
LR8NKT		0.0757	0.0015	0.43	0.0644	0.0011	0.40	WD
MBQ2LV		0.0716	-0.0026	-0.74	0.0601	-0.0033	-1.17	CO
NBADPM	X	0.0743	0.0002	0.05	0.0719	0.0085	3.07	OE
P2CY9T		0.0730	-0.0011	-0.33	0.0625	-0.0008	-0.29	GD
QUYB6J		0.0780	0.0039	1.11	0.0660	0.0027	0.96	XX
RLY7RU		0.0745	0.0004	0.11	0.0635	0.0002	0.06	IR
UQ3YT3		0.0713	-0.0028	-0.81	0.0597	-0.0037	-1.31	CO
VQW2ZJ		0.0725	-0.0016	-0.47	0.0631	-0.0003	-0.09	CI
VRWYEK		0.0707	-0.0035	-1.00	0.0597	-0.0037	-1.31	OE
WD7G9U	X	0.0897	0.0155	4.46	0.0693	0.0060	2.16	GD
WV7QRQ		0.0723	-0.0018	-0.53	0.0641	0.0008	0.29	OE
X8MJB Y		0.0770	0.0029	0.82	0.0630	-0.0003	-0.11	OE
YB7HK7		0.0733	-0.0009	-0.25	0.0632	-0.0001	-0.04	CI
YBV938		0.0733	-0.0008	-0.23	0.0670	0.0037	1.32	OE
ZQ6EQB		0.0717	-0.0025	-0.71	0.0617	-0.0016	-0.57	OE





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1640

2nd Qtr  
2021

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

### Summary Statistics

	<u>Sample M75</u>		<u>Sample M76</u>	
<b>Grand Means</b>	0.0741	Percent	0.0633	Percent
<b>Std Dev Btwn Labs</b>	0.0035	Percent	0.0028	Percent

Samples M75, M76 : AISI 309, AISI 309

Statistics based on 42 of 47 reporting participants

### Key to Method Codes Reported by Participants

- |    |   |    |  |
|----|---|----|--|
| CI | Combustion / IR                                 | CO | Combustion                                       |
| 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

- B3XPHE (X) - Data for sample M76 are high. Inconsistent within the determinations of both samples.
- CYGV6E (X) - Data for sample M76 are high.
- JT746E (X) - Data for sample M76 are high. Inconsistent within the determinations of both samples.
- NBADPM (X) - Data for sample M76 are high.
- WD7G9U (X) - Data for sample M75 are high.



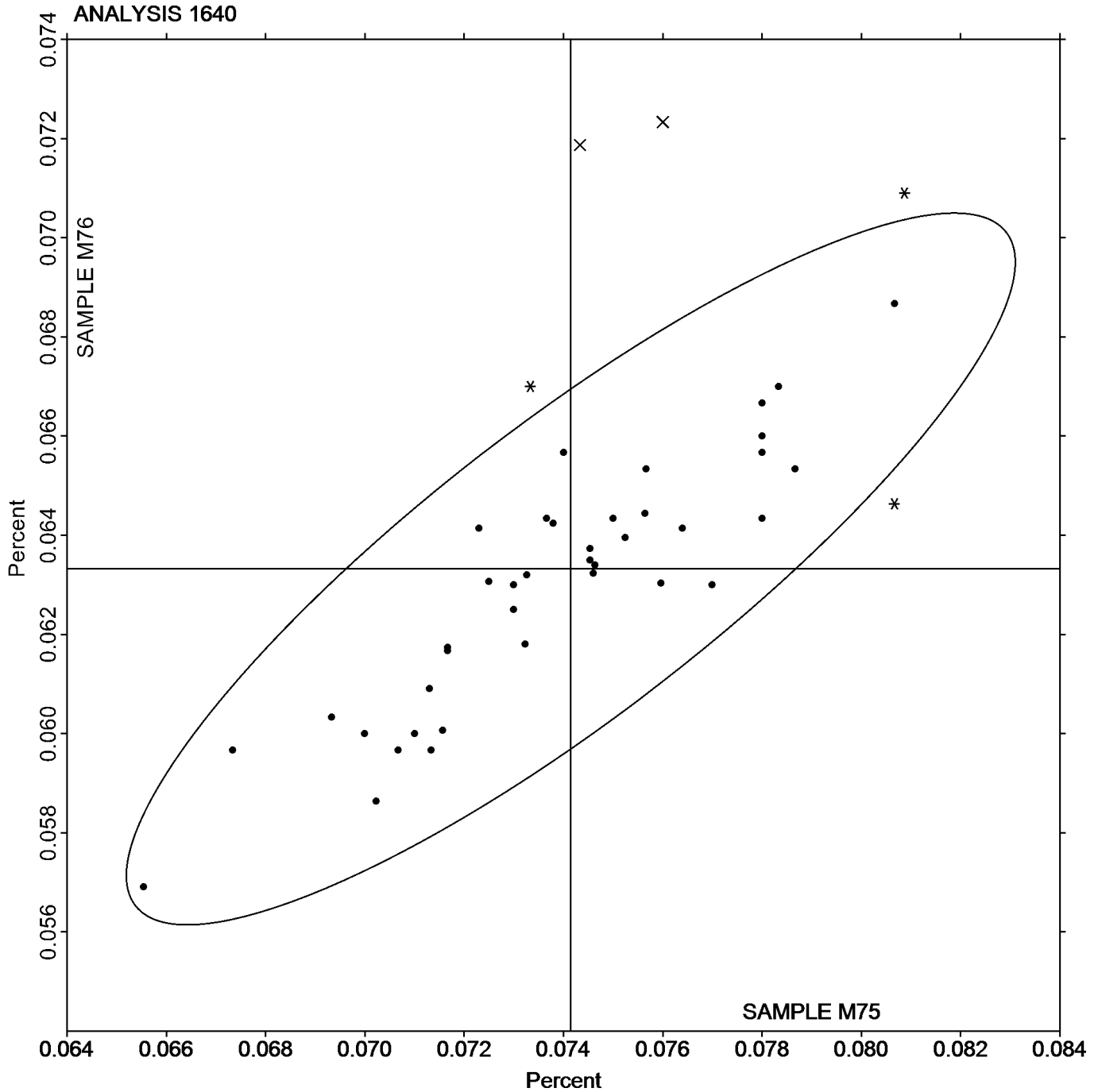
Analysis 1640

Corrosion Resistant Steel, CARBON (C)

CARBON (C)

SAMPLE M75  
0.0741 Percent

SAMPLE M76  
0.0633 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1641

2nd Qtr  
2021

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

WebCode	Data Flag	Sample M75			Sample M76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3LX67J		1.785	0.012	0.57	1.633	0.022	0.91	OE
4HE467		1.823	0.050	2.32	1.657	0.045	1.91	OE
4ZTVGM		1.809	0.036	1.65	1.627	0.016	0.66	IC
6LQJM9		1.798	0.025	1.14	1.621	0.010	0.40	WD
6XRV93	X	1.557	-0.216	-9.96	1.650	0.039	1.63	OE
7BQJFM		1.777	0.004	0.17	1.600	-0.012	-0.49	WD
7FM22U		1.740	-0.033	-1.51	1.587	-0.025	-1.04	IC
7GC7HF		1.783	0.010	0.46	1.608	-0.003	-0.14	WD
7VXMFD		1.766	-0.007	-0.32	1.591	-0.020	-0.86	XR
83R2TX		1.767	-0.006	-0.29	1.600	-0.011	-0.48	OE
9RRYXT		1.767	-0.006	-0.29	1.590	-0.021	-0.90	OE
9WFQYU		1.770	-0.003	-0.15	1.591	-0.020	-0.86	WD
ABYJDT		1.769	-0.004	-0.19	1.611	-0.001	-0.02	OE
AKNGX8		1.740	-0.033	-1.51	1.583	-0.028	-1.18	OE
ALEKKM		1.770	-0.003	-0.13	1.623	0.012	0.51	OE
ALUZLG		1.752	-0.021	-0.96	1.593	-0.018	-0.78	OE
ALY4RE		1.767	-0.006	-0.27	1.614	0.002	0.10	OE
B3XPHE		1.740	-0.033	-1.51	1.607	-0.005	-0.20	OE
BEAY64		1.780	0.007	0.33	1.600	-0.011	-0.48	WD
CYGV6E		1.767	-0.006	-0.29	1.567	-0.045	-1.88	WC
DNRBDM		1.757	-0.016	-0.74	1.591	-0.021	-0.87	OE
DZ8FBA		1.788	0.015	0.70	1.638	0.027	1.13	OE
GEPMP7		1.790	0.017	0.79	1.613	0.002	0.08	OE
GJ9DHV		1.738	-0.035	-1.61	1.590	-0.021	-0.90	OE
GT989D		1.764	-0.009	-0.41	1.600	-0.011	-0.46	IC
H7UNR6		1.757	-0.016	-0.75	1.600	-0.011	-0.48	OE
HAUYX6		1.760	-0.013	-0.59	1.630	0.019	0.79	OE
HAVMBA		1.782	0.009	0.42	1.625	0.013	0.56	OE
JT746E		1.756	-0.017	-0.76	1.628	0.016	0.69	OE
KFDQH4		1.752	-0.021	-0.96	1.581	-0.030	-1.28	WD
KGT6RY	X	1.763	-0.010	-0.44	1.460	-0.151	-6.38	OE
KMVCB3		1.780	0.007	0.33	1.607	-0.005	-0.20	OE
LR8NKT		1.777	0.004	0.17	1.612	0.001	0.03	WD
MBQ2LV	*	1.841	0.068	3.12	1.665	0.053	2.25	OE
MN2DAB		1.800	0.027	1.25	1.667	0.055	2.33	IC
NBADPM		1.774	0.001	0.07	1.599	-0.013	-0.53	WD
P2CY9T		1.800	0.027	1.25	1.650	0.039	1.63	GD
QUYB6J		1.783	0.010	0.47	1.660	0.049	2.05	GD
RLY7RU		1.787	0.014	0.64	1.612	0.001	0.04	WD
UQ3YT3		1.777	0.004	0.17	1.621	0.010	0.41	OE
VHP3QG		1.767	-0.006	-0.29	1.587	-0.025	-1.04	XR
VQW2ZJ		1.765	-0.008	-0.36	1.583	-0.028	-1.18	OE
VRWYEK		1.750	-0.023	-1.05	1.583	-0.028	-1.18	OE
WD7G9U		1.747	-0.026	-1.21	1.597	-0.015	-0.62	GD
WV7QRQ		1.777	0.004	0.17	1.640	0.029	1.21	OE
X8MJBV		1.810	0.037	1.71	1.630	0.019	0.79	OE
YB7HK7		1.766	-0.007	-0.30	1.604	-0.008	-0.33	OE



**Fasteners and Metals Interlaboratory Testing Program**

**Cycle 134**

**Analysis 1641**

**2nd Qtr  
2021**

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

WebCode	Data Flag	Sample M75			Sample M76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
YBV938		1.753	-0.020	-0.90	1.600	-0.011	-0.48	OE
ZQ6EQB		1.761	-0.012	-0.56	1.620	0.008	0.35	OE

**Summary Statistics**

	Sample M75		Sample M76	
<b>Grand Means</b>	1.773	Percent	1.611	Percent
<b>Stnd Dev Btwn Labs</b>	0.022	Percent	0.024	Percent

Samples M75, M76 : AISI 309, AISI 309

Statistics based on 47 of 49 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)
- WC Wet Chemistry
- WD X-Ray Fluorescence - Wavelength Dispersive (WDX)
- XR X-Ray Fluorescence - ED or WD not specified

**Comments on Assigned Data Flags for Test #1641**

- 6XRV93 (X) - Data for sample M75 are low. Inconsistent within the determinations of sample M75.
- KGT6RY (X) - Data for sample M76 are low.



Analysis 1641

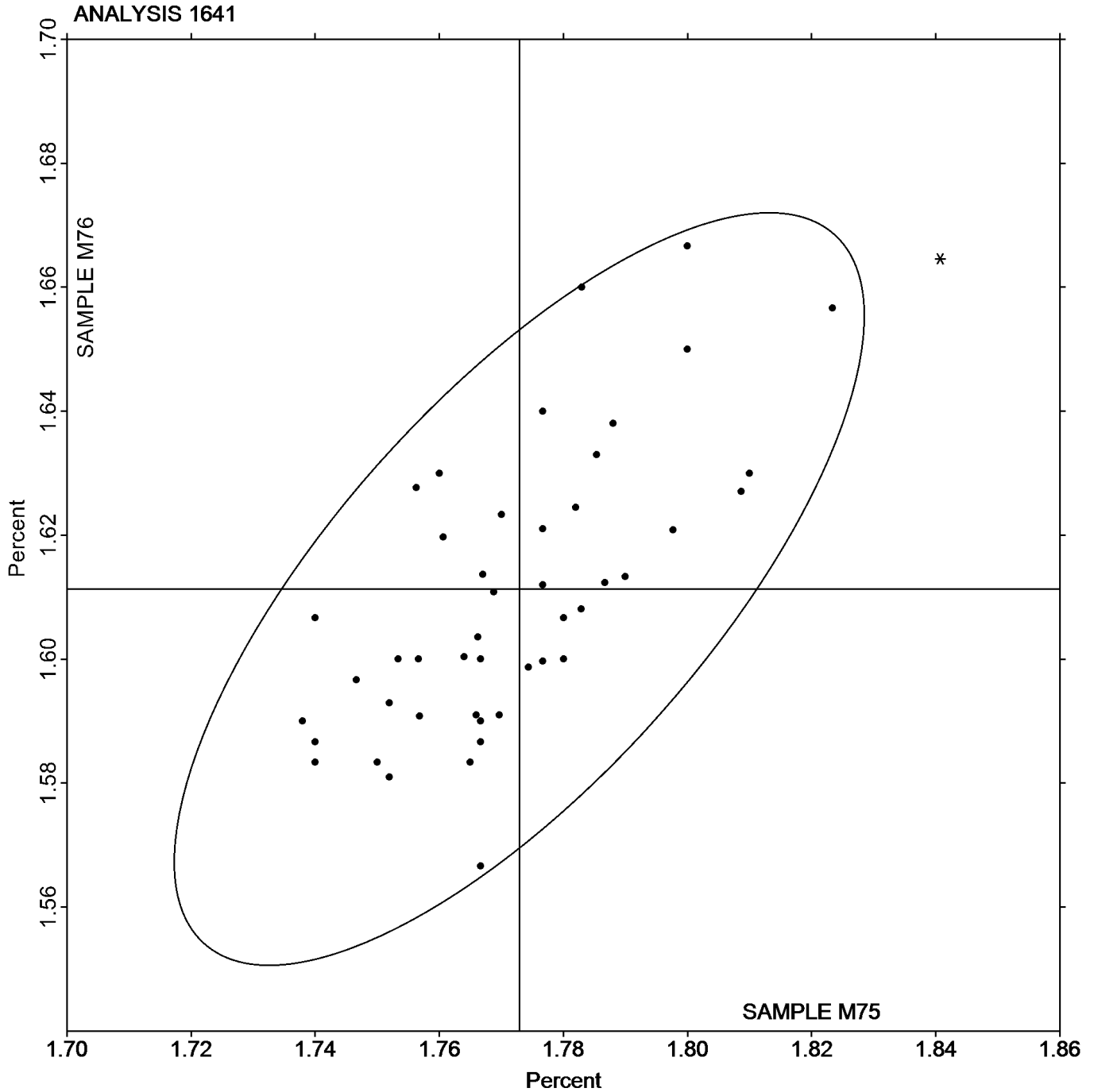
Corrosion Resistant Steel, MANGANESE (Mn)  
MANGANESE (Mn)

SAMPLE M75

1.773 Percent

SAMPLE M76

1.611 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1642

2nd Qtr  
2021

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

WebCode	Data Flag	Sample M75			Sample M76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3LX67J		0.0252	-0.0019	-1.00	0.0273	-0.0019	-0.87	OE
4HE467		0.0277	0.0006	0.31	0.0286	-0.0006	-0.26	OE
4ZTVGM		0.0288	0.0017	0.94	0.0332	0.0040	1.88	IC
6LQJM9		0.0283	0.0012	0.63	0.0305	0.0013	0.62	WD
6XRV93		0.0300	0.0029	1.58	0.0327	0.0035	1.63	OE
7BQJFM		0.0279	0.0008	0.44	0.0295	0.0004	0.17	WD
7FM22U		0.0260	-0.0011	-0.59	0.0277	-0.0015	-0.70	IC
7GC7HF		0.0274	0.0003	0.17	0.0291	-0.0001	-0.03	WD
7VXMFD		0.0261	-0.0009	-0.51	0.0273	-0.0019	-0.89	XR
83R2TX		0.0273	0.0002	0.13	0.0300	0.0008	0.39	OE
9RRYXT		0.0300	0.0029	1.58	0.0300	0.0008	0.39	OE
9WFQYU		0.0253	-0.0018	-0.95	0.0264	-0.0028	-1.29	WD
ABYJDT		0.0261	-0.0010	-0.52	0.0300	0.0008	0.37	OE
AKNGX8		0.0228	-0.0043	-2.32	0.0244	-0.0047	-2.20	OE
ALEKKM		0.0260	-0.0011	-0.59	0.0290	-0.0002	-0.08	OE
ALUZLG		0.0268	-0.0003	-0.14	0.0293	0.0002	0.08	OE
B3XPHE		0.0263	-0.0008	-0.41	0.0283	-0.0008	-0.39	OE
BEAY64		0.0283	0.0012	0.67	0.0300	0.0008	0.39	WD
CYGV6E		0.0253	-0.0018	-0.95	0.0260	-0.0032	-1.47	WC
DNRBDM		0.0255	-0.0016	-0.87	0.0269	-0.0023	-1.06	OE
DZ8FBA		0.0273	0.0002	0.11	0.0299	0.0007	0.34	OE
GEPMP7		0.0321	0.0050	2.69	0.0341	0.0049	2.30	OE
GJ9DHV		0.0248	-0.0023	-1.24	0.0268	-0.0024	-1.10	OE
GT989D		0.0270	-0.0001	-0.05	0.0297	0.0005	0.23	IC
H7UNR6		0.0267	-0.0004	-0.23	0.0277	-0.0015	-0.70	OE
HAUYX6		0.0270	-0.0001	-0.05	0.0300	0.0008	0.39	OE
HAVMBA		0.0267	-0.0004	-0.19	0.0285	-0.0007	-0.32	OE
JT746E		0.0262	-0.0009	-0.50	0.0293	0.0001	0.06	OE
KFDQH4		0.0270	-0.0001	-0.05	0.0290	-0.0002	-0.08	WD
KGT6RY		0.0293	0.0022	1.21	0.0314	0.0022	1.04	OE
KMVBC3		0.0294	0.0023	1.25	0.0326	0.0034	1.58	OE
LR8NKT		0.0272	0.0001	0.08	0.0290	-0.0001	-0.06	WD
MBQ2LV		0.0263	-0.0008	-0.43	0.0281	-0.0011	-0.51	OE
MN2DAB		0.0241	-0.0030	-1.64	0.0267	-0.0024	-1.13	IC
NBADPM		0.0277	0.0006	0.31	0.0295	0.0003	0.16	WD
P2CY9T		0.0230	-0.0041	-2.21	0.0250	-0.0042	-1.94	GD
QUYB6J		0.0300	0.0029	1.58	0.0320	0.0028	1.32	GD
RLY7RU		0.0273	0.0002	0.13	0.0291	-0.0001	-0.05	WD
UQ3YT3		0.0260	-0.0011	-0.57	0.0288	-0.0003	-0.15	OE
VQW2ZJ		0.0287	0.0016	0.87	0.0304	0.0013	0.59	OE
VRWYEK		0.0240	-0.0031	-1.69	0.0248	-0.0044	-2.03	OE
WD7G9U		0.0287	0.0016	0.85	0.0290	-0.0002	-0.08	GD
WV7QRQ		0.0274	0.0003	0.15	0.0295	0.0003	0.16	OE
X8MJB Y		0.0275	0.0004	0.22	0.0291	-0.0001	-0.03	OE
YB7HK7		0.0288	0.0017	0.91	0.0308	0.0016	0.75	OE
YBV938		0.0283	0.0012	0.67	0.0327	0.0035	1.63	OE
ZQ6EQB		0.0274	0.0003	0.19	0.0312	0.0020	0.95	OE



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1642

2nd Qtr

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

2021

### Summary Statistics

	<u>Sample M75</u>		<u>Sample M76</u>	
<b>Grand Means</b>	0.0271	Percent	0.0292	Percent
<b>Stnd Dev Btwn Labs</b>	0.0018	Percent	0.0021	Percent

Samples M75, M76 : AISI 309, AISI 309

Statistics based on 47 of 47 reporting participants

### Key to Method Codes Reported by Participants

- |  |   |
|--|---|
| <b>GD</b> Spectrometry - Glow Discharge (GDS)              | <b>IC</b> Spectrometry - Inductively Coupled Plasma (ICP) |
| <b>OE</b> Spectrometry - Optical Emission (OES)            | <b>WC</b> Wet Chemistry                                   |
| <b>WD</b> X-Ray Fluorescence - Wavelength Dispersive (WDX) | <b>XR</b> X-Ray Fluorescence - ED or WD not specified     |

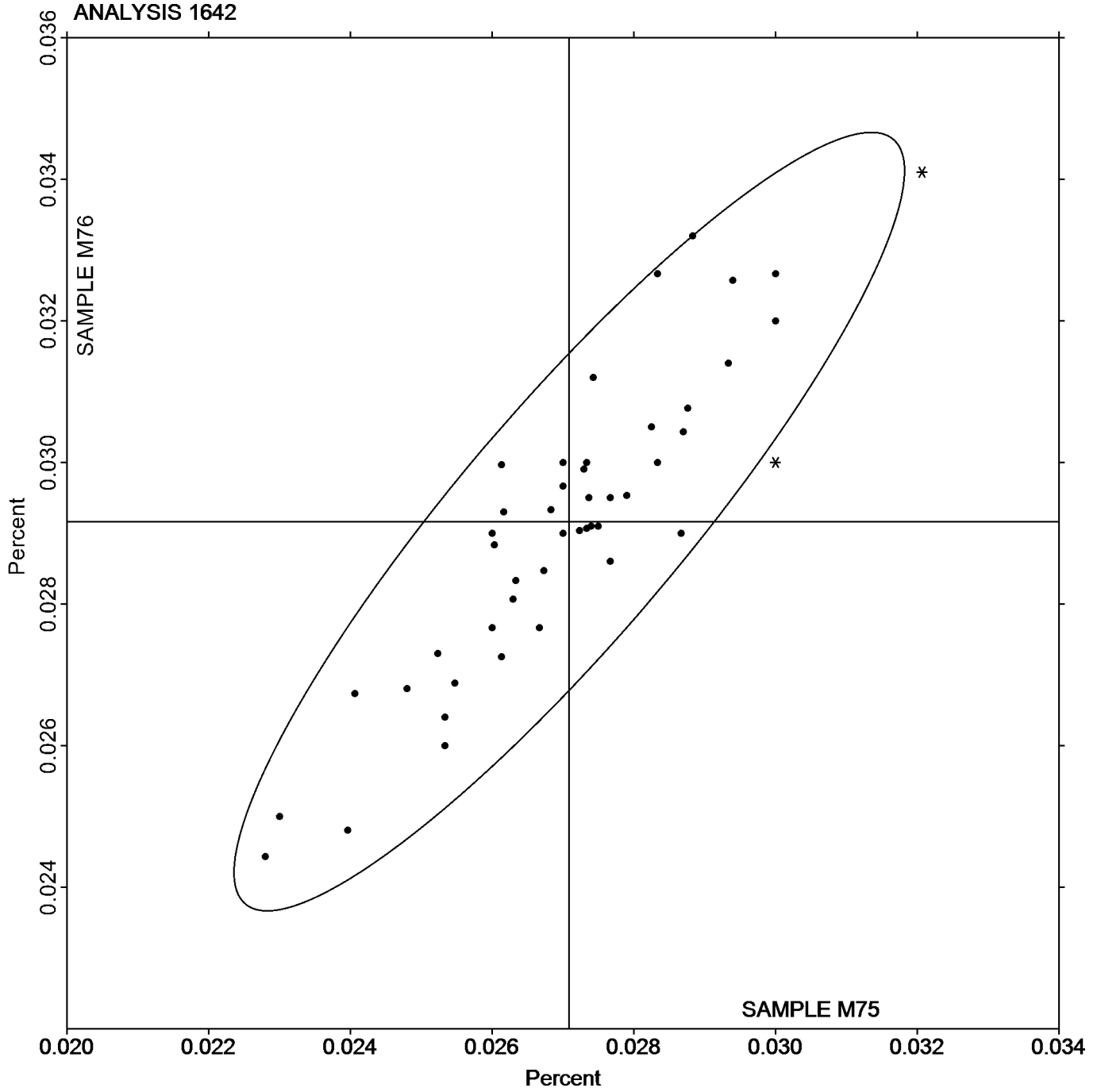


Analysis 1642

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

SAMPLE M75  
0.0271 Percent

SAMPLE M76  
0.0292 Percent







# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1643

2nd Qtr  
2021

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

WebCode	Data Flag	Sample M75			Sample M76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3LX67J		0.00607	0.00224	1.40	0.00377	0.00200	1.34	OE
4HE467		0.00493	0.00111	0.69	0.00100	-0.00077	-0.52	OE
4ZTVGM		0.00360	-0.00022	-0.14	0.00110	-0.00067	-0.45	CI
6LQJM9		0.000800	-0.00302	-1.88	0.000800	-0.00097	-0.65	WD
6XRV93		0.00300	-0.00082	-0.51	0.00123	-0.00054	-0.36	OE
7BQJFM		0.00290	-0.00092	-0.57	0.000667	-0.00110	-0.74	CI
7FM22U		0.00400	0.00018	0.11	0.00200	0.00023	0.15	CI
7GC7HF		0.00303	-0.00079	-0.49	0.000400	-0.00137	-0.92	CI
7VXMFD		0.00347	-0.00036	-0.22	0.00177	0.00000	0.00	CI
83R2TX	M	0.00300	-0.00082	-0.51	No Data Reported			OE
9WFQYU		0.00350	-0.00032	-0.20	0.00107	-0.00070	-0.47	CI
ABYJDT		0.00383	0.00001	0.01	0.00173	-0.00004	-0.02	OE
AKNGX8		0.00640	0.00258	1.60	0.00470	0.00293	1.96	OE
ALUZLG		0.00307	-0.00076	-0.47	0.000767	-0.00100	-0.67	OE
ALY4RE	M	0.00523	0.00141	0.88	No Data Reported			OE
B3XPHE		0.00500	0.00118	0.73	0.00133	-0.00044	-0.29	OE
BEAY64		0.00317	-0.00066	-0.41	0.000700	-0.00107	-0.72	CI
CYGV6E		0.00323	-0.00059	-0.37	0.00113	-0.00064	-0.43	CI
DNRBDM		0.00505	0.00123	0.76	0.00319	0.00142	0.95	OE
DZ8FBA		0.00307	-0.00076	-0.47	0.000633	-0.00114	-0.76	OE
GEPMP7		0.00453	0.00071	0.44	0.00287	0.00110	0.74	OE
GJ9DHV		0.00340	-0.00042	-0.26	0.00110	-0.00067	-0.45	CO
GT989D		0.00330	-0.00052	-0.33	0.000900	-0.00087	-0.58	CI
H7UNR6		0.00260	-0.00122	-0.76	0.000779	-0.00099	-0.66	CO
HAUYX6		0.00200	-0.00182	-1.13	0.00100	-0.00077	-0.52	OE
HAVMBA		0.00300	-0.00082	-0.51	0.000633	-0.00114	-0.76	OE
KFDQH4		0.00372	-0.00011	-0.07	0.000717	-0.00105	-0.71	CI
KGT6RY	*	0.00900	0.00518	3.22	0.00597	0.00420	2.81	OE
KMVBC3	*	0.00690	0.00308	1.92	0.00590	0.00413	2.77	OE
MBQ2LV		0.00283	-0.00099	-0.62	0.000667	-0.00110	-0.74	CO
NBADPM		0.00280	-0.00102	-0.64	0.000600	-0.00117	-0.78	OE
P2CY9T		0.00528	0.00146	0.91	0.00300	0.00123	0.82	GD
QUYB6J		0.00300	-0.00082	-0.51	0.00100	-0.00077	-0.52	GD
RLY7RU		0.00345	-0.00037	-0.23	0.000783	-0.00099	-0.66	CI
UQ3YT3		0.00403	0.00021	0.13	0.00170	-0.00007	-0.05	CO
VQW2ZJ		0.00343	-0.00039	-0.24	0.00137	-0.00040	-0.27	OE
VRWYEK		0.00580	0.00198	1.23	0.00357	0.00180	1.20	OE
WD7G9U	X	0.0100	0.00618	3.84	0.00567	0.00390	2.61	GD
WV7QRQ		0.00143	-0.00239	-1.49	0.00117	-0.00060	-0.40	OE
X8MJB Y		0.00420	0.00038	0.23	0.00210	0.00033	0.22	OE
YB7HK7		0.00320	-0.00062	-0.39	0.00110	-0.00067	-0.45	CI
YBV938		0.00600	0.00218	1.35	0.00500	0.00323	2.17	OE
ZQ6EQB		0.000900	-0.00292	-1.82	0.000900	-0.00087	-0.58	OE



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1643

2nd Qtr  
2021

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

### Summary Statistics

	<u>Sample M75</u>		<u>Sample M76</u>	
<b>Grand Means</b>	0.00382	Percent	0.00177	Percent
<b>Std Dev Btwn Labs</b>	0.00161	Percent	0.00149	Percent

Samples M75, M76 : AISI 309, AISI 309

Statistics based on 40 of 43 reporting participants

### Key to Method Codes Reported by Participants

- CI Combustion / IR
- GD Spectrometry - Glow Discharge (GDS)
- WD X-Ray Fluorescence - Wavelength Dispersive (WDX)
- CO Combustion
- OE Spectrometry - Optical Emission (OES)

### Comments on Assigned Data Flags for Test #1643

- 83R2TX (M) - Participant did not submit data for sample M76.
- ALY4RE (M) - Participant did not submit data for sample M76.
- WD7G9U (X) - Data for sample M75 are high. Inconsistent within the determinations of both samples.



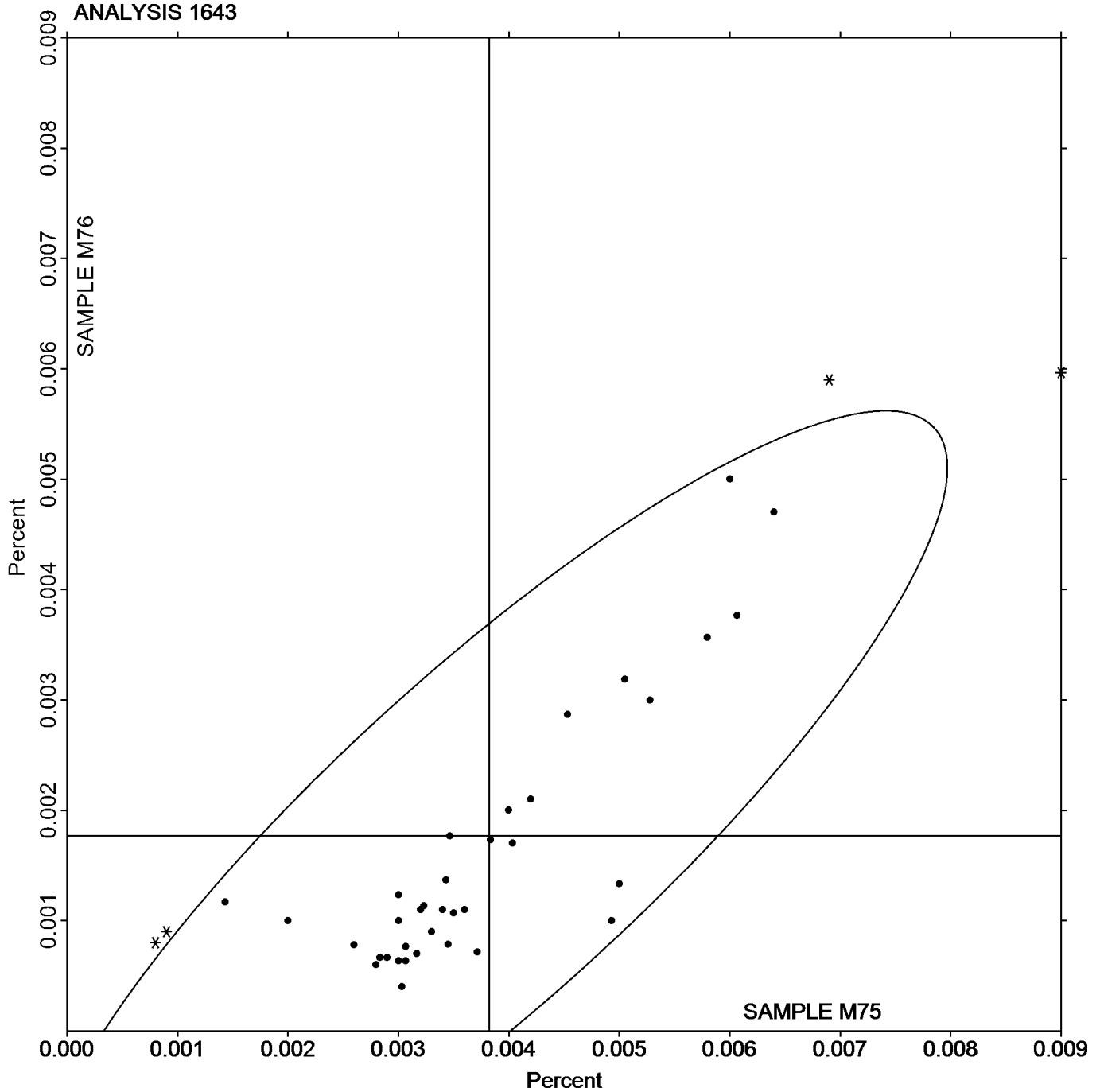
Analysis 1643

Corrosion Resistant Steel, SULFUR (S)

SULFUR (S)

SAMPLE M75  
0.00382 Percent

SAMPLE M76  
0.00177 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1644

2nd Qtr

Corrosion Resistant Steel, SILICON (Si)

2021

SILICON (Si)

WebCode	Data Flag	Sample M75			Sample M76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3LX67J		0.3533	-0.0165	-1.76	0.2827	-0.0174	-2.10	OE
4HE467		0.3860	0.0161	1.72	0.3113	0.0112	1.36	OE
4ZTVGM		0.3839	0.0140	1.50	0.3095	0.0094	1.13	IC
6LQJM9		0.3515	-0.0184	-1.96	0.2803	-0.0198	-2.39	WD
6XRV93		0.3620	-0.0079	-0.84	0.2970	-0.0031	-0.37	OE
7BQJFM		0.3717	0.0018	0.19	0.2970	-0.0031	-0.37	WD
7FM22U		0.3620	-0.0079	-0.84	0.2970	-0.0031	-0.37	IC
7GC7HF		0.3661	-0.0038	-0.40	0.2968	-0.0033	-0.39	WD
7VXMFD		0.3687	-0.0012	-0.13	0.3008	0.0007	0.09	OE
83R2TX		0.3700	0.0001	0.02	0.3000	-0.0001	-0.01	OE
9RRYXT		0.3500	-0.0199	-2.12	0.2900	-0.0101	-1.22	OE
9WFQYU		0.3791	0.0092	0.99	0.3052	0.0051	0.62	WD
ABYJDT		0.3561	-0.0138	-1.47	0.2911	-0.0090	-1.09	XX
AKNGX8		0.3747	0.0048	0.51	0.3057	0.0056	0.67	OE
ALEKKM		0.3787	0.0088	0.94	0.3063	0.0062	0.75	OE
ALUZLG		0.3779	0.0081	0.86	0.3108	0.0107	1.30	OE
ALY4RE		0.3700	0.0001	0.02	0.3040	0.0039	0.47	OE
B3XPHE		0.3610	-0.0089	-0.94	0.3023	0.0022	0.27	OE
BEAY64		0.3700	0.0001	0.02	0.2973	-0.0028	-0.33	WD
CYGV6E		0.3700	0.0001	0.02	0.3000	-0.0001	-0.01	GR
DNRBDM		0.3600	-0.0098	-1.05	0.2920	-0.0081	-0.98	OE
DZ8FBA		0.3557	-0.0142	-1.51	0.2887	-0.0114	-1.38	OE
GEPMP7		0.3727	0.0028	0.30	0.3027	0.0026	0.31	OE
GJ9DHV		0.3730	0.0031	0.34	0.3050	0.0049	0.59	OE
GT989D		0.3597	-0.0102	-1.09	0.2867	-0.0134	-1.62	IC
H7UNR6		0.3803	0.0105	1.12	0.2970	-0.0031	-0.37	OE
HAUYX6		0.3700	0.0001	0.02	0.2900	-0.0101	-1.22	OE
HAVMBA		0.3829	0.0130	1.39	0.3095	0.0094	1.14	OE
JT746E		0.3677	-0.0022	-0.23	0.3073	0.0072	0.87	OE
KFDQH4		0.3600	-0.0099	-1.05	0.2880	-0.0121	-1.46	WD
KGT6RY		0.3710	0.0011	0.12	0.3087	0.0086	1.03	OE
KMVBC3		0.3640	-0.0059	-0.62	0.2990	-0.0011	-0.13	OE
LR8NKT		0.3760	0.0061	0.66	0.2997	-0.0004	-0.05	WD
MBQ2LV		0.3827	0.0128	1.37	0.3095	0.0094	1.14	OE
MN2DAB		0.3787	0.0088	0.94	0.3080	0.0079	0.95	IC
NBADPM		0.3767	0.0068	0.73	0.3000	-0.0001	-0.01	WD
P2CY9T		0.3600	-0.0099	-1.05	0.2940	-0.0061	-0.73	GD
QUYB6J		0.3840	0.0141	1.51	0.3110	0.0109	1.32	GD
RLY7RU		0.3730	0.0031	0.34	0.3023	0.0022	0.27	WD
UQ3YT3		0.3700	0.0001	0.02	0.3033	0.0032	0.39	OE
VQW2ZJ		0.3647	-0.0052	-0.55	0.2910	-0.0091	-1.10	OE
VRWYEK		0.3750	0.0051	0.55	0.3040	0.0039	0.47	OE
WD7G9U		0.3833	0.0135	1.44	0.3183	0.0182	2.20	GD
WV7QRQ		0.3700	0.0001	0.02	0.3033	0.0032	0.39	OE
X8MJB Y		0.3650	-0.0049	-0.52	0.2940	-0.0061	-0.73	OE
YB7HK7		0.3816	0.0118	1.26	0.3096	0.0095	1.14	OE
YBV938	X	0.4453	0.0755	8.05	0.3297	0.0296	3.57	OE



**Fasteners and Metals Interlaboratory Testing Program**

**Cycle 134**

**Analysis 1644**

**2nd Qtr  
2021**

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

WebCode	Data Flag	Sample M75			Sample M76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
ZQ6EQB		0.3629	-0.0070	-0.74	0.2965	-0.0036	-0.44	OE

**Summary Statistics**

	Sample M75		Sample M76	
<b>Grand Means</b>	0.3699	Percent	0.3001	Percent
<b>Stnd Dev Btrwn Labs</b>	0.0094	Percent	0.0083	Percent

Samples M75, M76 : AISI 309, AISI 309

Statistics based on 47 of 48 reporting participants

**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)
- WD X-Ray Fluorescence - Wavelength Dispersive (WDX)
- XX Please Indicate Method Used for Current Element

**Comments on Assigned Data Flags for Test #1644**

YBV938 (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample M75.

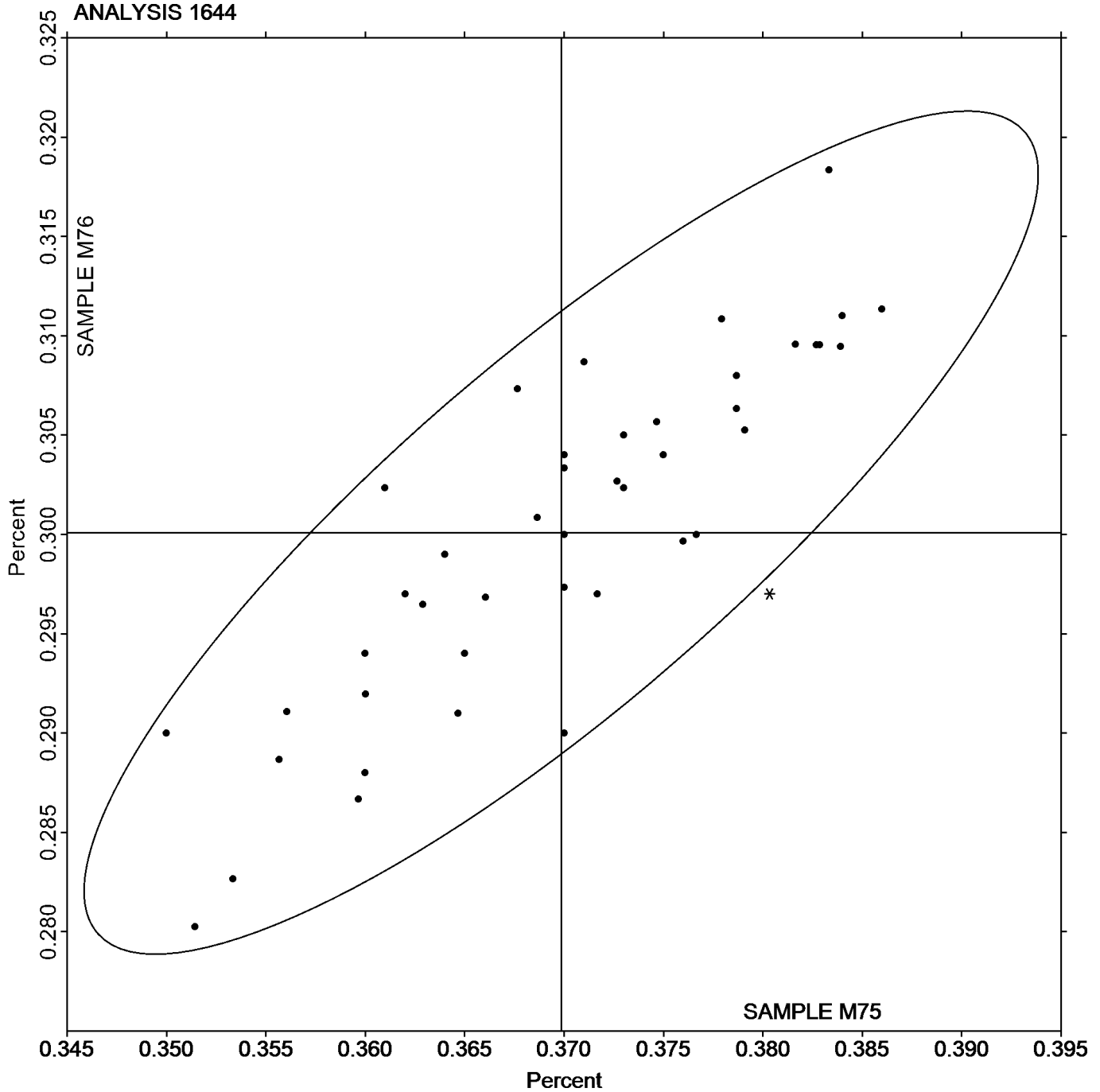


Analysis 1644

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

SAMPLE M75  
0.3699 Percent

SAMPLE M76  
0.3001 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1645

2nd Qtr  
2021

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

WebCode	Data Flag	Sample M75			Sample M76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3LX67J	X	0.0950	0.0083	1.75	0.2697	0.0295	3.89	OE
4HE467		0.0953	0.0086	1.81	0.2447	0.0045	0.60	OE
4ZTVGM		0.0847	-0.0020	-0.42	0.2506	0.0105	1.38	IC
6LQJM9		0.0836	-0.0031	-0.64	0.2293	-0.0109	-1.43	WD
6XRV93		0.0893	0.0027	0.56	0.2440	0.0039	0.51	OE
7BQJFM		0.0803	-0.0063	-1.33	0.2413	0.0012	0.16	XX
7FM22U		0.0887	0.0020	0.42	0.2400	-0.0001	-0.02	IC
7GC7HF		0.0860	-0.0006	-0.13	0.2459	0.0058	0.76	WD
7VXMFD		0.0847	-0.0020	-0.42	0.2427	0.0026	0.34	XR
83R2TX		0.0890	0.0023	0.49	0.2300	-0.0101	-1.33	OE
9WFQYU		0.0820	-0.0046	-0.97	0.2290	-0.0111	-1.47	WD
ABYJDT		0.0841	-0.0026	-0.54	0.2420	0.0018	0.24	OE
ALEKKM		0.0870	0.0003	0.07	0.2357	-0.0045	-0.59	OE
ALUZLG		0.0903	0.0036	0.76	0.2498	0.0097	1.27	OE
ALY4RE		0.0867	0.0000	0.00	0.2267	-0.0135	-1.77	OE
B3XPHE		0.0760	-0.0107	-2.24	0.2297	-0.0105	-1.38	OE
BEAY64		0.0943	0.0077	1.61	0.2483	0.0082	1.08	WD
CYGV6E		0.0857	-0.0010	-0.21	0.2347	-0.0055	-0.72	WC
DNRBDM		0.0859	-0.0008	-0.17	0.2212	-0.0189	-2.49	OE
DZ8FBA	X	0.0837	-0.0030	-0.63	0.2733	0.0332	4.37	OE
GEPMP7		0.0857	-0.0010	-0.20	0.2427	0.0025	0.33	OE
GJ9DHV		0.0834	-0.0033	-0.69	0.2370	-0.0031	-0.41	OE
GT989D		0.0877	0.0010	0.21	0.2390	-0.0011	-0.15	IC
H7UNR6		0.0883	0.0017	0.35	0.2347	-0.0055	-0.72	OE
HAUYX6		0.0800	-0.0067	-1.40	0.2300	-0.0101	-1.33	OE
HAVMBA		0.0855	-0.0012	-0.25	0.2438	0.0036	0.48	OE
KFDQH4		0.0837	-0.0030	-0.63	0.2427	0.0025	0.33	WD
KGT6RY		0.0848	-0.0019	-0.39	0.2513	0.0112	1.47	OE
KMVBC3	X	0.0740	-0.0127	-2.66	0.2023	-0.0378	-4.98	OE
LR8NKT		0.0859	-0.0008	-0.17	0.2427	0.0026	0.34	WD
MBQ2LV		0.0842	-0.0025	-0.52	0.2394	-0.0007	-0.09	OE
NBADPM		0.0830	-0.0037	-0.77	0.2400	-0.0001	-0.02	WD
P2CY9T	*	0.1020	0.0153	3.22	0.2530	0.0129	1.69	GD
QUYB6J		0.0910	0.0043	0.91	0.2430	0.0029	0.38	GD
RLY7RU		0.0839	-0.0028	-0.59	0.2543	0.0142	1.87	IC
UQ3YT3		0.0860	-0.0007	-0.14	0.2447	0.0045	0.60	OE
VQW2ZJ		0.0830	-0.0037	-0.77	0.2350	-0.0051	-0.68	OE
VRWYEK		0.0917	0.0050	1.05	0.2403	0.0002	0.03	OE
WD7G9U		0.0953	0.0087	1.82	0.2357	-0.0045	-0.59	GD
X8MJB Y		0.0910	0.0043	0.91	0.2430	0.0029	0.38	OE
YB7HK7		0.0838	-0.0028	-0.59	0.2409	0.0008	0.10	OE
ZQ6EQB		0.0866	0.0000	-0.01	0.2466	0.0065	0.86	OE



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1645

2nd Qtr

Corrosion Resistant Steel, COBALT (Co)

2021

COBALT (Co)

### Summary Statistics

	<u>Sample M75</u>		<u>Sample M76</u>	
<b>Grand Means</b>	0.0867	Percent	0.2401	Percent
<b>Stnd Dev Btwn Labs</b>	0.0048	Percent	0.0076	Percent

Samples M75, M76 : AISI 309, AISI 309

Statistics based on 39 of 42 reporting participants

### Key to Method Codes Reported by Participants

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

### Comments on Assigned Data Flags for Test #1645

- 3LX67J (X) - Data for sample M76 are high.
- DZ8FBA (X) - Data for sample M76 are high.
- KMVBC3 (X) - Data for sample M76 are low.







# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1646

2nd Qtr

Corrosion Resistant Steel, NICKEL (Ni)

2021

NICKEL (Ni)

WebCode	Data Flag	Sample M75			Sample M76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3LX67J	X	13.89	-0.03	-0.23	12.55	0.39	3.09	OE
4HE467		13.83	-0.09	-0.69	11.98	-0.17	-1.32	OE
4ZTVGM	X	13.51	-0.40	-3.06	11.40	-0.75	-5.90	IC
6LQJM9		13.92	0.00	0.01	12.11	-0.05	-0.36	WD
6XR9V3		13.93	0.02	0.12	12.28	0.12	0.98	OE
7BQJFM		13.91	-0.01	-0.08	12.08	-0.07	-0.57	WD
7FM22U		13.65	-0.26	-2.00	11.96	-0.19	-1.51	IC
7GC7HF		13.85	-0.07	-0.53	12.06	-0.10	-0.75	WD
7VXMFD		13.94	0.03	0.20	12.11	-0.05	-0.36	XR
83R2TX		13.86	-0.05	-0.41	12.20	0.05	0.38	OE
9RRYXT		13.73	-0.19	-1.44	12.01	-0.15	-1.14	OE
9WFQYU		13.92	0.00	0.02	12.09	-0.06	-0.47	WD
ABYJDT		14.19	0.27	2.06	12.34	0.19	1.47	ED
AKNGX8		14.05	0.13	1.00	12.14	-0.01	-0.09	OE
ALEKKM		13.83	-0.08	-0.64	12.09	-0.06	-0.46	OE
ALUZLG		13.99	0.07	0.52	12.15	-0.01	-0.05	OE
ALY4RE		13.79	-0.13	-0.99	12.12	-0.03	-0.23	OE
B3XPHE		13.73	-0.19	-1.42	12.12	-0.03	-0.23	OE
BEAY64		13.94	0.02	0.14	12.06	-0.09	-0.72	WD
CYGV6E		13.93	0.02	0.12	12.33	0.18	1.42	GR
DNRBDM		13.92	0.00	0.00	12.23	0.08	0.63	OE
DZ8FBA		13.88	-0.04	-0.28	12.08	-0.08	-0.59	OE
GEPMP7		13.97	0.05	0.37	12.26	0.11	0.87	OE
GJ9DHV	X	13.22	-0.70	-5.27	11.56	-0.59	-4.64	OE
GT989D		13.82	-0.10	-0.74	12.09	-0.06	-0.46	IC
H7UNR6		13.86	-0.06	-0.46	12.37	0.22	1.71	OE
HAUYX6	X	13.38	-0.54	-4.06	12.20	0.05	0.38	OE
HAVMBA		13.96	0.04	0.31	12.00	-0.15	-1.20	OE
JT746E		13.84	-0.07	-0.56	12.16	0.01	0.09	OE
KFDQH4		13.77	-0.15	-1.12	11.98	-0.17	-1.36	WD
KGT6RY		14.02	0.11	0.80	12.21	0.06	0.45	OE
KMVBC3		13.94	0.02	0.14	12.30	0.14	1.13	OE
LR8NKT		13.97	0.05	0.40	12.18	0.03	0.20	WD
MBQ2LV		13.90	-0.02	-0.13	12.06	-0.09	-0.73	OE
MN2DAB		13.95	0.03	0.25	12.46	0.30	2.39	XX
NBADPM		13.89	-0.03	-0.22	12.08	-0.07	-0.55	WD
P2CY9T		14.10	0.18	1.38	12.40	0.25	1.94	GD
P439B8		13.86	-0.06	-0.46	12.14	-0.01	-0.07	WC
QUYB6J		14.23	0.31	2.36	12.42	0.27	2.10	GD
RLY7RU		13.88	-0.03	-0.26	12.08	-0.07	-0.53	WD
UQ3YT3		14.01	0.10	0.72	12.14	-0.01	-0.09	OE
VHP3QG		13.95	0.03	0.25	12.07	-0.09	-0.67	XR
VQW2ZJ		13.99	0.08	0.57	12.14	-0.01	-0.11	OE
VRWYEK		13.93	0.01	0.09	12.05	-0.10	-0.77	OE
WD7G9U	*	14.33	0.42	3.14	12.37	0.21	1.68	GD
WV7QRQ		13.82	-0.10	-0.74	12.11	-0.04	-0.33	OE
X8MJBY		13.61	-0.31	-2.32	11.94	-0.21	-1.66	OE



**Fasteners and Metals Interlaboratory Testing Program**

**Cycle 134**

**Analysis 1646**

**2nd Qtr  
2021**

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

WebCode	Data Flag	Sample M75			Sample M76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
YB7HK7		14.01	0.09	0.67	12.14	-0.01	-0.12	OE
YBV938		13.97	0.05	0.40	12.24	0.09	0.72	OE
ZQ6EQB		13.85	-0.07	-0.54	12.07	-0.08	-0.64	OE

**Summary Statistics**

	Sample M75		Sample M76	
<b>Grand Means</b>	13.92	Percent	12.15	Percent
<b>Stnd Dev Btwn Labs</b>	0.13	Percent	0.13	Percent

Samples M75, M76 : AISI 309, AISI 309

Statistics based on 46 of 50 reporting participants

**Key to Method Codes Reported by Participants**

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

**Comments on Assigned Data Flags for Test #1646**

- 3LX67J (X) - Data for sample M76 are high.
- 4ZTVGM (X) - Data for both samples are low.
- GJ9DHV (X) - Data for both samples are low.
- HAUYX6 (X) - Data for sample M75 are low.





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1647

2nd Qtr  
2021

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

WebCode	Data Flag	Sample M75			Sample M76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3LX67J		22.81	0.07	0.57	22.52	0.07	0.53	OE
4HE467		22.53	-0.21	-1.80	22.27	-0.18	-1.31	OE
4ZTVGM	X	22.31	-0.43	-3.61	21.72	-0.72	-5.40	IC
6LQJM9		22.49	-0.24	-2.07	22.22	-0.23	-1.69	WD
6XR9V3		22.53	-0.21	-1.74	22.09	-0.35	-2.64	OE
7BQJFM		22.77	0.03	0.23	22.47	0.02	0.16	WD
7FM22U		22.56	-0.18	-1.55	22.14	-0.31	-2.29	TI
7GC7HF		22.82	0.08	0.64	22.52	0.08	0.56	WD
7VXMFD		22.86	0.12	1.01	22.52	0.07	0.56	XR
83R2TX		22.75	0.01	0.09	22.45	0.00	0.01	OE
9RRYXT		22.77	0.03	0.26	22.47	0.02	0.16	OE
9WFQYU		22.89	0.15	1.29	22.62	0.18	1.32	WD
ABYJDT		22.71	-0.03	-0.21	22.46	0.01	0.09	OE
AKNGX8	X	21.32	-1.42	-12.03	21.11	-1.34	-9.99	OE
ALEKKM		22.83	0.09	0.77	22.59	0.14	1.08	OE
ALUZLG		22.80	0.06	0.49	22.55	0.10	0.77	OE
ALY4RE		22.79	0.05	0.40	22.49	0.04	0.31	OE
B3XPHE		22.94	0.20	1.68	22.48	0.03	0.26	OE
BEAY64		22.69	-0.05	-0.44	22.36	-0.09	-0.67	WD
CYGV6E		22.77	0.03	0.23	22.37	-0.08	-0.59	TI
DNRBDM		22.76	0.03	0.21	22.32	-0.13	-0.97	OE
DZ8FBA		22.78	0.04	0.32	22.50	0.05	0.38	OE
GEPMP7		22.74	0.00	0.04	22.48	0.03	0.26	OE
GJ9DHV	X	23.42	0.68	5.77	23.00	0.55	4.15	OE
GT989D		22.78	0.04	0.38	22.46	0.01	0.08	IC
H7UNR6		22.79	0.05	0.43	22.33	-0.11	-0.84	OE
HAUYX6		22.85	0.11	0.94	22.48	0.03	0.26	OE
HAVMBA		22.79	0.05	0.44	22.51	0.07	0.49	OE
JT746E		23.03	0.29	2.47	22.72	0.27	2.03	OE
KFDQH4		22.69	-0.05	-0.43	22.41	-0.04	-0.27	WD
KGT6RY		22.74	0.00	-0.02	22.58	0.14	1.03	OE
KMVBC3		22.68	-0.06	-0.50	22.41	-0.04	-0.29	OE
LR8NKT		22.80	0.06	0.48	22.53	0.08	0.61	WD
MBQ2LV		22.66	-0.08	-0.65	22.24	-0.21	-1.55	OE
MN2DAB	X	22.64	-0.10	-0.81	22.73	0.28	2.13	IC
NBADPM		22.84	0.10	0.85	22.52	0.07	0.53	WD
P2CY9T		23.00	0.26	2.21	22.70	0.25	1.90	GD
P439B8		22.70	-0.03	-0.29	22.48	0.04	0.29	WC
QUYB6J	X	22.50	-0.24	-2.03	21.90	-0.55	-4.08	GD
RLY7RU		22.75	0.01	0.09	22.47	0.03	0.19	WD
UQ3YT3		22.55	-0.19	-1.60	22.28	-0.17	-1.27	OE
VHP3QG		22.67	-0.07	-0.58	22.37	-0.07	-0.54	XR
VQW2ZJ		22.75	0.01	0.07	22.48	0.04	0.28	OE
VRWYEK		22.58	-0.16	-1.38	22.36	-0.09	-0.67	OE
WD7G9U		22.63	-0.11	-0.90	22.60	0.15	1.15	GD
WV7QRQ		22.79	0.05	0.40	22.50	0.05	0.41	OE
X8MJBY		22.60	-0.14	-1.18	22.32	-0.13	-0.94	OE



**Fasteners and Metals Interlaboratory Testing Program**

**Cycle 134**

**Analysis 1647**

**2nd Qtr  
2021**

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

WebCode	Data Flag	Sample M75			Sample M76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
YB7HK7		22.71	-0.03	-0.21	22.50	0.05	0.40	XX
YBV938		22.58	-0.16	-1.32	22.33	-0.12	-0.89	XX
ZQ6EQB		22.72	-0.02	-0.13	22.62	0.18	1.33	OE

**Summary Statistics**

	Sample M75		Sample M76	
<b>Grand Means</b>	22.74	Percent	22.45	Percent
<b>Stnd Dev Btwn Labs</b>	0.12	Percent	0.13	Percent

Samples M75, M76 : AISI 309, AISI 309

Statistics based on 45 of 50 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)       | 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**

- 4ZTVGM (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample M76.
- AKNGX8 (X) - Data for both samples are low. Possible Systematic Error.
- GJ9DHV (X) - Data for both samples are high. Possible Systematic Error.
- MN2DAB (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample M76.
- QUYB6J (X) - Data for sample M76 are low.



Analysis 1647

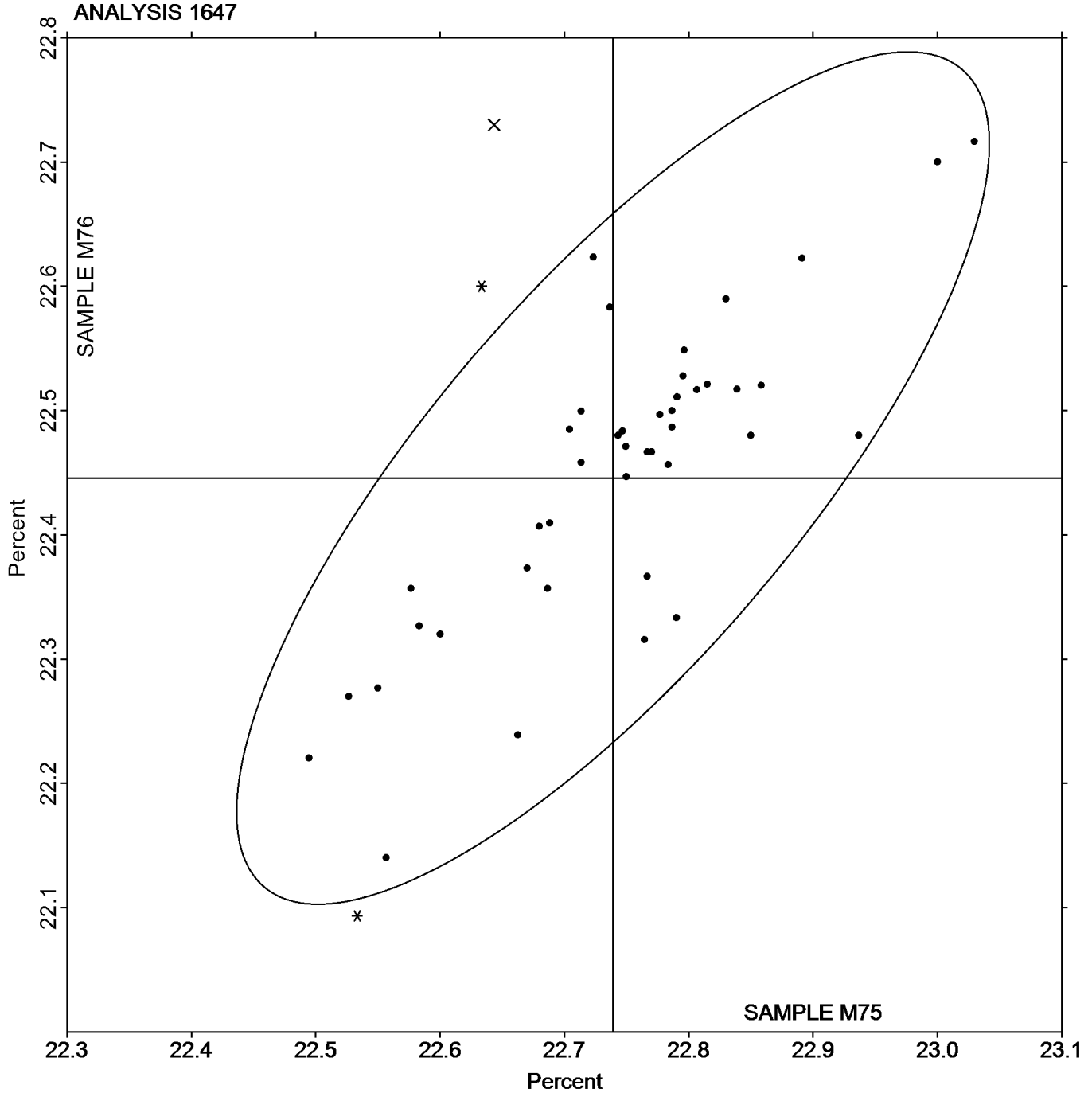
Corrosion Resistant Steel, CHROMIUM (Cr)  
CHROMIUM (Cr)

SAMPLE M75

22.74 Percent

SAMPLE M76

22.45 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1648

2nd Qtr  
2021

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

WebCode	Data Flag	Sample M75			Sample M76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3LX67J		0.2227	0.0017	0.31	0.3887	0.0276	2.02	OE
4HE467		0.2193	-0.0016	-0.29	0.3437	-0.0174	-1.28	OE
4ZTVGM		0.2229	0.0020	0.35	0.3699	0.0088	0.64	IC
6LQJM9		0.2132	-0.0078	-1.39	0.3517	-0.0094	-0.69	WD
6XRV93		0.2217	0.0007	0.13	0.3600	-0.0011	-0.08	OE
7BQJFM		0.2177	-0.0033	-0.58	0.3590	-0.0021	-0.15	WD
7FM22U		0.2150	-0.0059	-1.06	0.3550	-0.0061	-0.45	IC
7GC7HF		0.2243	0.0034	0.60	0.3673	0.0062	0.45	WD
7VXMFD		0.2184	-0.0025	-0.44	0.3611	0.0000	0.00	XR
83R2TX	X	0.2500	0.0291	5.18	0.3700	0.0089	0.65	OE
9WFQYU		0.2249	0.0039	0.70	0.3680	0.0069	0.50	WD
ABYJDT		0.2272	0.0063	1.12	0.3790	0.0179	1.31	OE
AKNGX8		0.2233	0.0024	0.43	0.3553	-0.0058	-0.42	OE
ALEKKM		0.2277	0.0067	1.20	0.3683	0.0072	0.53	OE
ALUZLG	X	0.1984	-0.0226	-4.02	0.3285	-0.0326	-2.38	OE
ALY4RE		0.2180	-0.0029	-0.52	0.3493	-0.0118	-0.86	OE
B3XPHE	X	0.2167	-0.0043	-0.76	0.4933	0.1322	9.67	OE
BEAY64		0.2130	-0.0079	-1.41	0.3483	-0.0128	-0.93	WD
CYGV6E		0.2233	0.0024	0.43	0.3567	-0.0044	-0.32	GR
DNRBDM		0.2306	0.0096	1.72	0.3824	0.0213	1.56	OE
DZ8FBA		0.2123	-0.0086	-1.53	0.3413	-0.0198	-1.45	OE
GEPMP7		0.2193	-0.0016	-0.29	0.3540	-0.0071	-0.52	OE
GJ9DHV		0.2340	0.0131	2.33	0.3760	0.0149	1.09	OE
GT989D		0.2203	-0.0006	-0.11	0.3487	-0.0124	-0.91	IC
H7UNR6		0.2213	0.0004	0.07	0.3560	-0.0051	-0.37	OE
HAUYX6		0.2100	-0.0109	-1.95	0.3400	-0.0211	-1.54	OE
HAVMBA		0.2194	-0.0015	-0.27	0.3652	0.0041	0.30	OE
KFDQH4		0.2210	0.0001	0.01	0.3617	0.0006	0.04	WD
KGT6RY		0.2200	-0.0009	-0.17	0.3403	-0.0208	-1.52	OE
KMVCB3	*	0.2273	0.0064	1.14	0.3980	0.0369	2.70	OE
LR8NKT		0.2197	-0.0013	-0.23	0.3620	0.0009	0.07	WD
MBQ2LV		0.2131	-0.0078	-1.40	0.3479	-0.0132	-0.97	OE
MN2DAB		0.2237	0.0027	0.49	0.3733	0.0122	0.90	IC
NBADPM		0.2200	-0.0009	-0.17	0.3610	-0.0001	-0.01	WD
P2CY9T		0.2130	-0.0079	-1.41	0.3510	-0.0101	-0.74	GD
QUYB6J		0.2350	0.0141	2.51	0.3830	0.0219	1.60	GD
RLY7RU		0.2197	-0.0013	-0.23	0.3640	0.0029	0.21	WD
UQ3YT3		0.2180	-0.0029	-0.52	0.3640	0.0029	0.21	OE
VHP3QG		0.2167	-0.0043	-0.76	0.3567	-0.0044	-0.32	XR
VQW2ZJ		0.2207	-0.0003	-0.05	0.3653	0.0042	0.31	OE
VRWYEK		0.2203	-0.0006	-0.11	0.3867	0.0256	1.87	OE
WD7G9U		0.2283	0.0074	1.32	0.3590	-0.0021	-0.15	GD
WV7QRQ		0.2267	0.0057	1.02	0.3473	-0.0138	-1.01	OE
X8MJB Y		0.2240	0.0031	0.55	0.3660	0.0049	0.36	OE
YB7HK7		0.2150	-0.0059	-1.06	0.3495	-0.0116	-0.85	OE
ZQ6EQB		0.2183	-0.0026	-0.46	0.3456	-0.0155	-1.14	OE





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1648

2nd Qtr

Corrosion Resistant Steel, MOLYBDENUM (Mo)

2021

MOLYBDENUM (Mo)

### Summary Statistics

	<u>Sample M75</u>		<u>Sample M76</u>	
<b>Grand Means</b>	0.2209	Percent	0.3611	Percent
<b>Std Dev Btwn Labs</b>	0.0056	Percent	0.0137	Percent

Samples M75, M76 : AISI 309, AISI 309

Statistics based on 43 of 46 reporting participants

### Key to Method Codes Reported by Participants

- |           |  |           |   |
|-----------|--|-----------|---|
| <b>GD</b> | Spectrometry - Glow Discharge (GDS)              | <b>GR</b> | Gravimetry                                  |
| <b>IC</b> | Spectrometry - Inductively Coupled Plasma (ICP)  | <b>OE</b> | Spectrometry - Optical Emission (OES)       |
| <b>WD</b> | X-Ray Fluorescence - Wavelength Dispersive (WDX) | <b>XR</b> | X-Ray Fluorescence - ED or WD not specified |

### Comments on Assigned Data Flags for Test #1648

83R2TX (X) - Data for sample M75 are high.

ALUZLG (X) - Data for sample M75 are low.

B3XPHE (X) - Data for sample M76 are high.

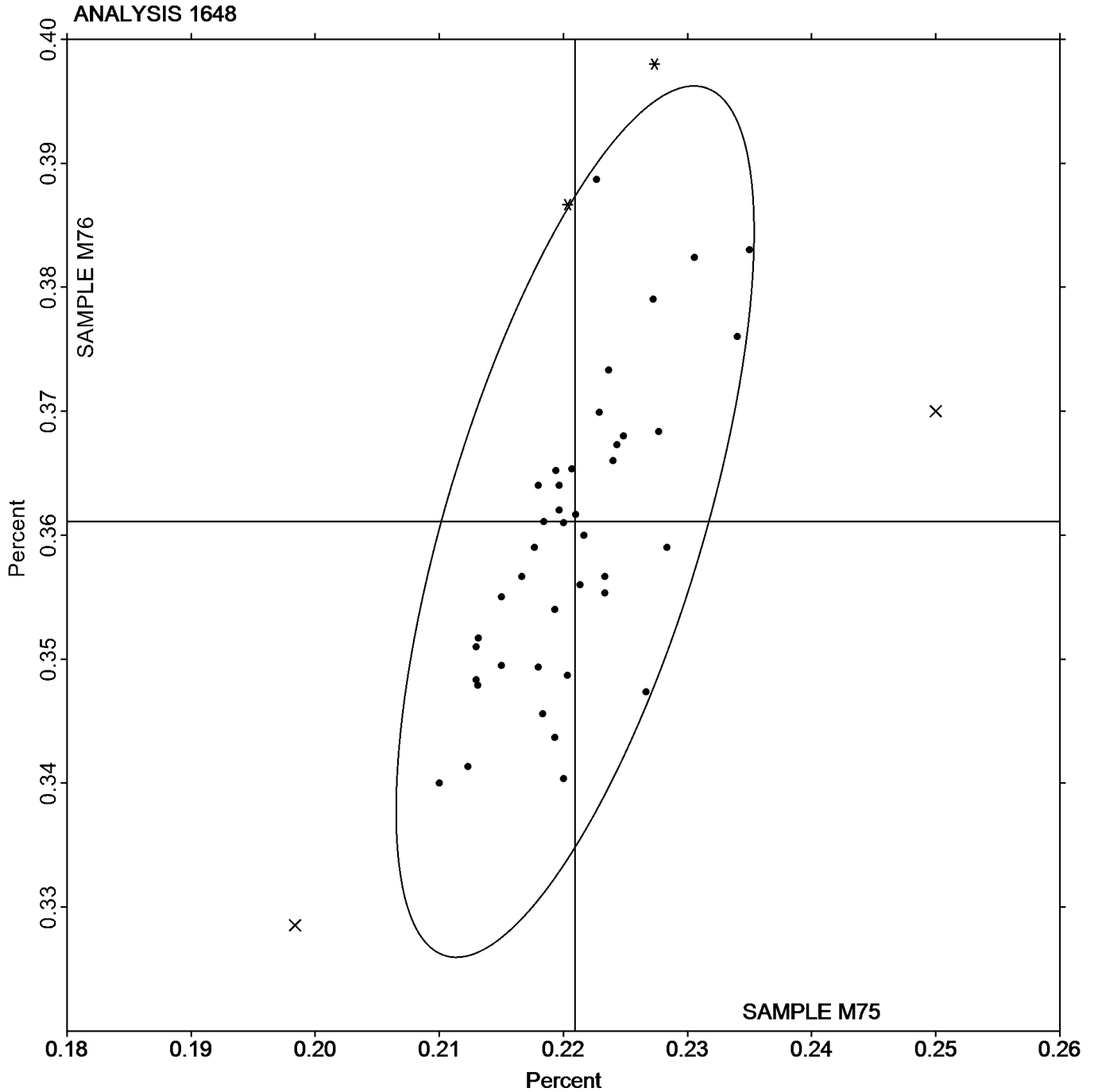


Analysis 1648

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

SAMPLE M75  
0.2209 Percent

SAMPLE M76  
0.3611 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1649

2nd Qtr  
2021

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

WebCode	Data Flag	Sample M75			Sample M76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3LX67J	X	0.3567	0.0324	2.76	0.4257	0.0020	0.15	OE
4HE467		0.3320	0.0077	0.66	0.4213	-0.0023	-0.17	OE
4ZTVGM		0.3393	0.0150	1.28	0.4337	0.0100	0.73	IC
6LQJM9		0.3379	0.0136	1.16	0.4399	0.0162	1.19	WD
6XRV93		0.3210	-0.0033	-0.28	0.4307	0.0070	0.51	OE
7BQJFM		0.3260	0.0017	0.15	0.4243	0.0007	0.05	WD
7FM22U		0.3320	0.0077	0.66	0.4327	0.0090	0.66	IC
7GC7HF		0.3314	0.0071	0.61	0.4266	0.0029	0.21	WD
7VXMFD		0.3348	0.0105	0.90	0.4309	0.0072	0.53	XR
83R2TX		0.3200	-0.0043	-0.37	0.4133	-0.0103	-0.76	OE
9WFQYU		0.3291	0.0048	0.41	0.4300	0.0063	0.46	WD
ABYJDT		0.2961	-0.0282	-2.40	0.4046	-0.0191	-1.40	OE
AKNGX8		0.3353	0.0110	0.94	0.4330	0.0093	0.68	OE
ALEKKM		0.3197	-0.0046	-0.39	0.4247	0.0010	0.07	OE
ALUZLG		0.3149	-0.0094	-0.80	0.4205	-0.0031	-0.23	OE
ALY4RE		0.3180	-0.0063	-0.54	0.4133	-0.0103	-0.76	OE
B3XPHE	X	0.3857	0.0614	5.23	0.5040	0.0803	5.89	OE
BEAY64		0.3233	-0.0010	-0.08	0.4213	-0.0023	-0.17	WD
CYGV6E	*	0.3220	-0.0023	-0.20	0.4020	-0.0217	-1.59	WC
DNRBDM		0.3018	-0.0225	-1.91	0.3914	-0.0323	-2.37	OE
DZ8FBA		0.3197	-0.0046	-0.39	0.4273	0.0037	0.27	OE
GEPMP7		0.3290	0.0047	0.40	0.4293	0.0057	0.42	OE
GJ9DHV		0.3090	-0.0153	-1.30	0.4050	-0.0187	-1.37	OE
GT989D		0.3180	-0.0063	-0.54	0.4147	-0.0090	-0.66	IC
H7UNR6		0.3210	-0.0033	-0.28	0.4303	0.0067	0.49	OE
HAUYX6	X	0.2700	-0.0543	-4.62	0.3600	-0.0637	-4.67	OE
HAVMBA		0.3318	0.0075	0.64	0.4337	0.0101	0.74	OE
JT746E		0.3267	0.0024	0.20	0.4280	0.0043	0.32	OE
KFDQH4		0.3297	0.0054	0.46	0.4277	0.0040	0.29	WD
KGT6RY		0.2933	-0.0310	-2.64	0.3887	-0.0350	-2.57	OE
KMVBC3		0.3133	-0.0110	-0.93	0.4177	-0.0060	-0.44	OE
LR8NKT		0.3197	-0.0046	-0.39	0.4170	-0.0067	-0.49	WD
MBQ2LV		0.3166	-0.0077	-0.66	0.4113	-0.0123	-0.91	OE
MN2DAB		0.3320	0.0077	0.66	0.4450	0.0213	1.56	IC
NBADPM		0.3400	0.0157	1.34	0.4400	0.0163	1.20	WD
P2CY9T		0.3360	0.0117	1.00	0.4430	0.0193	1.42	GD
QUYB6J		0.3340	0.0097	0.83	0.4340	0.0103	0.76	GD
RLY7RU		0.3237	-0.0006	-0.05	0.4177	-0.0060	-0.44	WD
UQ3YT3		0.3200	-0.0043	-0.37	0.4260	0.0023	0.17	OE
VHP3QG	X	0.3367	0.0124	1.05	0.4700	0.0463	3.40	XR
VQW2ZJ		0.3157	-0.0086	-0.73	0.4110	-0.0127	-0.93	OE
VRWYEK		0.3253	0.0010	0.09	0.4223	-0.0013	-0.10	OE
WD7G9U	*	0.3567	0.0324	2.76	0.4583	0.0347	2.54	GD
WV7QRQ		0.3350	0.0107	0.91	0.4357	0.0120	0.88	OE
X8MJBY		0.3230	-0.0013	-0.11	0.4220	-0.0017	-0.12	OE
YB7HK7		0.3150	-0.0093	-0.79	0.4120	-0.0117	-0.86	OE
ZQ6EQB		0.3260	0.0017	0.15	0.4260	0.0023	0.17	OE



# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1649

2nd Qtr  
2021

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

### Summary Statistics

	<u>Sample M75</u>		<u>Sample M76</u>	
<b>Grand Means</b>	0.3243	Percent	0.4237	Percent
<b>Std Dev Btwn Labs</b>	0.0117	Percent	0.0136	Percent

Samples M75, M76 : AISI 309, AISI 309

Statistics based on 43 of 47 reporting participants

### Key to Method Codes Reported by Participants

<b>GD</b>	Spectrometry - Glow Discharge (GDS)	<b>IC</b>	Spectrometry - Inductively Coupled Plasma (ICP)
<b>OE</b>	Spectrometry - Optical Emission (OES)	<b>WC</b>	Wet Chemistry
<b>WD</b>	X-Ray Fluorescence - Wavelength Dispersive (WDX)	<b>XR</b>	X-Ray Fluorescence - ED or WD not specified

### Comments on Assigned Data Flags for Test #1649

3LX67J (X) - Data for sample M75 are high. Inconsistent within the determinations of sample M75.

B3XPHE (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample M76.

HAUYX6 (X) - Data for both samples are low. Possible Systematic Error.

VHP3QG (X) - Data for sample M76 are high. Inconsistent within the determinations of both samples.

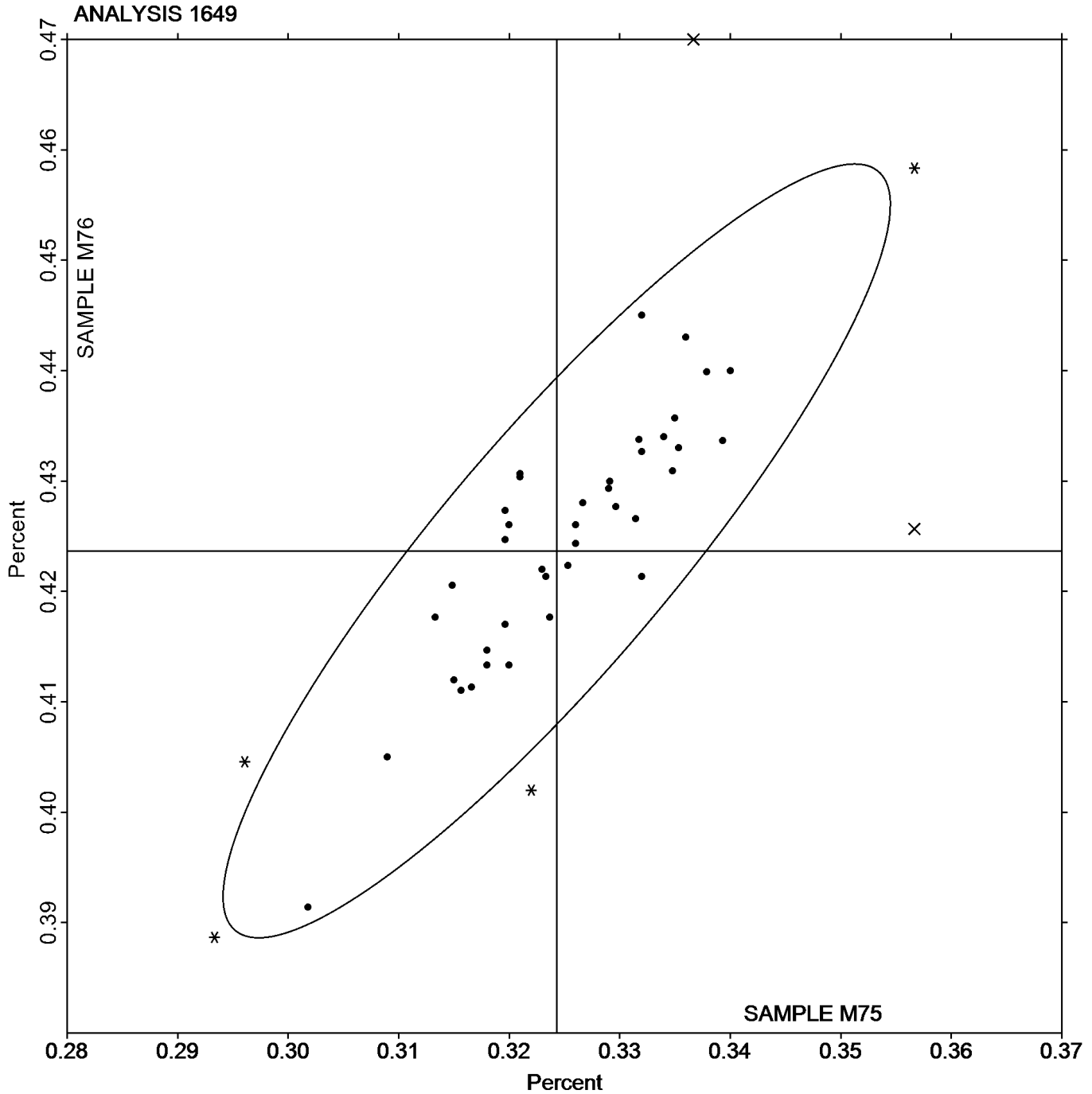


Analysis 1649

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

SAMPLE M75  
0.3243 Percent

SAMPLE M76  
0.4237 Percent





# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1650

2nd Qtr  
2021

### Corrosion Resistant Steel, NITROGEN (N) NITROGEN (N)

WebCode	Data Flag	Sample M75			Sample M76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
4ZTVGM	X	0.1019	0.0247	3.29	0.0865	0.0282	5.14	XX
6LQJM9		0.0751	-0.0021	-0.28	0.0557	-0.0026	-0.46	OE
6XRV93		0.0747	-0.0025	-0.33	0.0583	0.0001	0.01	OE
7BQJFM		0.0787	0.0015	0.20	0.0593	0.0011	0.20	CO
7GC7HF		0.0751	-0.0021	-0.27	0.0570	-0.0012	-0.22	CO
7VXMFD		0.0776	0.0005	0.06	0.0584	0.0001	0.02	CI
83R2TX		0.0807	0.0035	0.47	0.0630	0.0047	0.86	OE
9WFQYU		0.0802	0.0030	0.40	0.0604	0.0021	0.38	XX
ABYJDT	*	0.0534	-0.0237	-3.16	0.0416	-0.0167	-3.04	OE
ALUZLG		0.0736	-0.0036	-0.47	0.0553	-0.0029	-0.53	OE
BEAY64		0.0777	0.0005	0.07	0.0583	0.0001	0.01	XX
CYGV6E		0.0916	0.0145	1.93	0.0681	0.0099	1.80	CI
DNRBDM		0.0735	-0.0036	-0.48	0.0602	0.0020	0.36	OE
DZ8FBA		0.0810	0.0038	0.51	0.0623	0.0041	0.74	OE
GEPMP7		0.0713	-0.0059	-0.78	0.0567	-0.0015	-0.28	OE
GJ9DHV		0.0790	0.0018	0.25	0.0610	0.0027	0.50	CO
GT989D		0.0809	0.0037	0.49	0.0617	0.0035	0.63	CI
H7UNR6		0.0780	0.0008	0.11	0.0584	0.0001	0.03	CO
HAVMBA		0.0798	0.0026	0.35	0.0593	0.0011	0.20	OE
JT746E		0.0787	0.0015	0.20	0.0590	0.0007	0.14	CO
KFDQH4		0.0776	0.0004	0.05	0.0575	-0.0008	-0.14	CO
KMVBC3		0.0780	0.0008	0.11	0.0623	0.0041	0.74	OE
LR8NKT		0.0763	-0.0008	-0.11	0.0598	0.0016	0.29	WD
MBQ2LV		0.0957	0.0185	2.47	0.0650	0.0067	1.22	OE
NBADPM		0.0719	-0.0053	-0.70	0.0533	-0.0050	-0.90	OE
RLY7RU		0.0804	0.0032	0.43	0.0606	0.0023	0.42	CO
UQ3YT3		0.0790	0.0018	0.25	0.0640	0.0057	1.05	OE
VQW2ZZ		0.0791	0.0019	0.26	0.0583	0.0000	0.00	XX
VRWYEK	*	0.0590	-0.0182	-2.42	0.0431	-0.0152	-2.76	OE
X8MJB Y		0.0790	0.0018	0.25	0.0510	-0.0073	-1.32	OE
YB7HK7		0.0783	0.0012	0.16	0.0586	0.0003	0.06	CO

#### Summary Statistics

	Sample M75		Sample M76	
<b>Grand Means</b>	0.0772	Percent	0.0583	Percent
<b>Stnd Dev Btwn Labs</b>	0.0075	Percent	0.0055	Percent

Samples M75, M76 : AISI 309, AISI 309

Statistics based on 30 of 31 reporting participants

#### Key to Method Codes Reported by Participants

- CI Combustion / IR
- OE Spectrometry - Optical Emission (OES)
- XX Please Indicate Method Used for Current Element
- CO Combustion
- WD X-Ray Fluorescence - Wavelength Dispersive (WDX)



**Comments on Assigned Data Flags for Test #1650**

4ZTVGM (X) - Data for both samples are high.

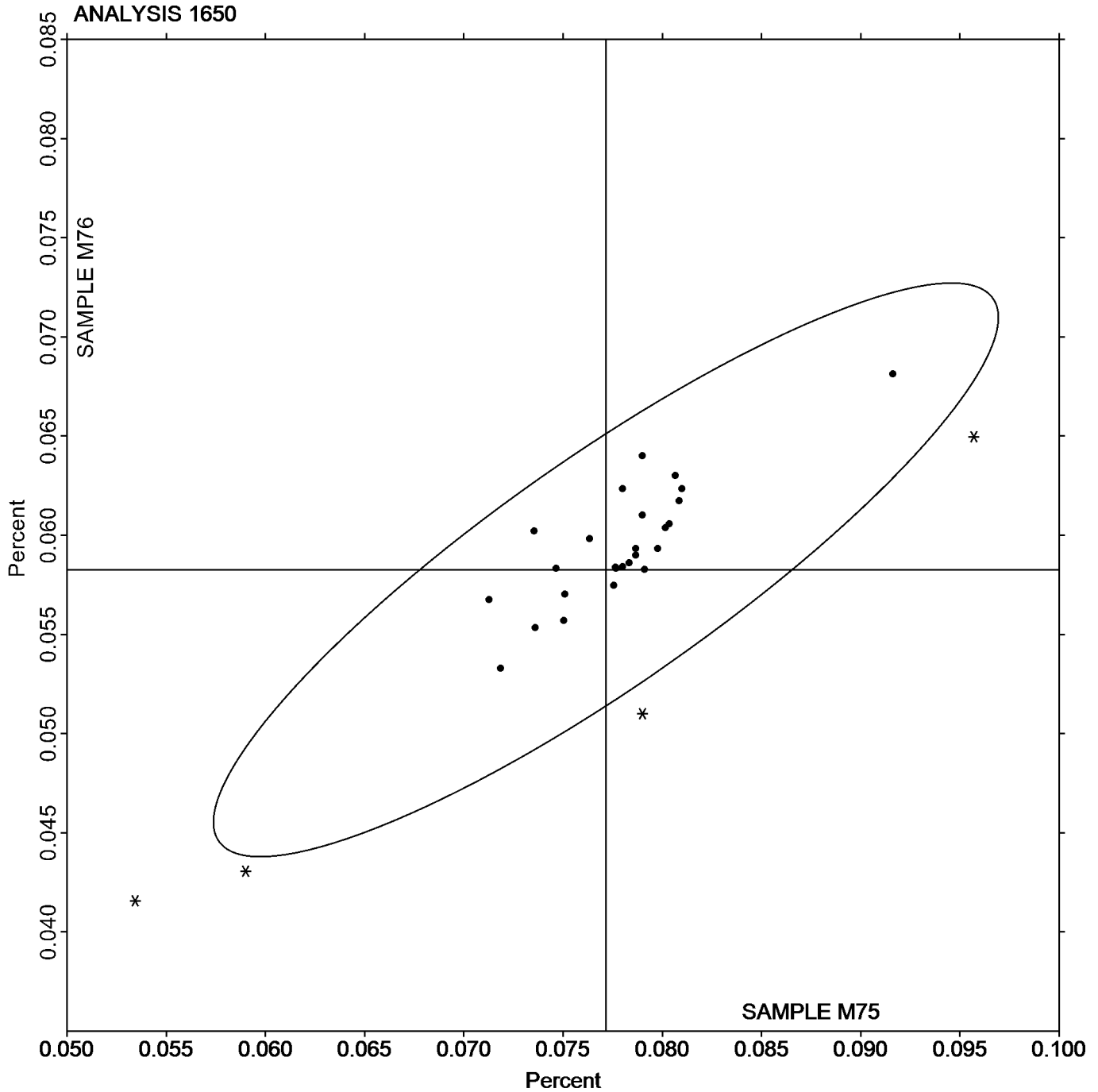


Analysis 1650

Corrosion Resistant Steel, NITROGEN (N)  
NITROGEN (N)

SAMPLE M75  
0.0772 Percent

SAMPLE M76  
0.0583 Percent







# Fasteners and Metals Interlaboratory Testing Program

Cycle 134

## Analysis 1651

2nd Qtr  
2021

### Corrosion Resistant Steel, TUNGSTEN (W) TUNGSTEN (W)

WebCode	Data Flag	Sample M75			Sample M76			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3LX67J		0.0385	-0.0043	-0.46	0.0573	-0.0069	-0.65	OE
4HE467		0.0389	-0.0039	-0.42	0.0628	-0.0015	-0.14	OE
4ZTVGM		0.0352	-0.0075	-0.81	0.0604	-0.0038	-0.36	IC
6XRV93		0.0530	0.0102	1.10	0.0763	0.0121	1.15	OE
7BQJFM		0.0567	0.0139	1.49	0.0757	0.0114	1.08	WD
7FM22U	X	0.0640	0.0212	2.27	0.0600	-0.0042	-0.40	IC
7GC7HF		0.0409	-0.0018	-0.20	0.0654	0.0011	0.11	WD
7VXMFD		0.0407	-0.0021	-0.23	0.0679	0.0037	0.35	OE
9WFQYU		0.0491	0.0064	0.68	0.0761	0.0119	1.13	WD
ABYJDT		0.0490	0.0063	0.67	0.0664	0.0022	0.21	OE
ALEKKM		0.0443	0.0016	0.17	0.0673	0.0031	0.29	OE
ALUZLG		0.0419	-0.0008	-0.09	0.0614	-0.0028	-0.26	OE
B3XPHE	X	0.0110	-0.0318	-3.41	0.0150	-0.0492	-4.66	OE
BEAY64		0.0363	-0.0064	-0.69	0.0650	0.0008	0.07	WD
CYGV6E		0.0520	0.0092	0.99	0.0697	0.0054	0.52	WC
DNRBDM		0.0382	-0.0045	-0.49	0.0604	-0.0038	-0.36	OE
DZ8FBA		0.0347	-0.0080	-0.86	0.0479	-0.0163	-1.54	OE
GEPMP7		0.0273	-0.0154	-1.66	0.0514	-0.0128	-1.21	OE
GJ9DHV		0.0510	0.0082	0.88	0.0730	0.0088	0.83	OE
GT989D		0.0597	0.0169	1.81	0.0830	0.0188	1.78	IC
H7UNR6		0.0367	-0.0061	-0.66	0.0513	-0.0129	-1.22	OE
HAUYX6		0.0200	-0.0228	-2.44	0.0400	-0.0242	-2.29	OE
HAVMBA		0.0493	0.0066	0.70	0.0720	0.0078	0.74	OE
KFDQH4		0.0447	0.0019	0.20	0.0697	0.0054	0.52	WD
KGT6RY	*	0.0189	-0.0238	-2.56	0.0326	-0.0317	-3.00	OE
KMVCB3		0.0409	-0.0019	-0.20	0.0643	0.0001	0.01	OE
MBQ2LV		0.0640	0.0212	2.27	0.0723	0.0081	0.76	OE
NBADPM		0.0385	-0.0042	-0.46	0.0583	-0.0059	-0.56	OE
P2CY9T		0.0454	0.0026	0.28	0.0631	-0.0011	-0.11	GD
QUYB6J		0.0480	0.0052	0.56	0.0710	0.0068	0.64	GD
RLY7RU		0.0387	-0.0040	-0.43	0.0654	0.0012	0.11	IC
UQ3YT3		0.0442	0.0014	0.15	0.0498	-0.0145	-1.37	OE
VHP3QG		0.0433	0.0006	0.06	0.0667	0.0024	0.23	XR
VQW2ZJ		0.0480	0.0052	0.56	0.0660	0.0018	0.17	XX
VRWYEK		0.0415	-0.0012	-0.13	0.0670	0.0028	0.26	OE
X8MJB Y		0.0479	0.0051	0.55	0.0790	0.0148	1.40	OE
YB7HK7		0.0388	-0.0039	-0.42	0.0659	0.0017	0.16	OE
ZQ6EQB		0.0436	0.0009	0.09	0.0703	0.0060	0.57	OE

#### Summary Statistics

	Sample M75		Sample M76	
<b>Grand Means</b>	0.0428	Percent	0.0642	Percent
<b>Std Dev Btwn Labs</b>	0.0093	Percent	0.0106	Percent

Samples M75, M76 : AISI 309, AISI 309

Statistics based on 36 of 38 reporting participants



**Key to Method Codes Reported by Participants**

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

**Comments on Assigned Data Flags for Test #1651**

7FM22U (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample M75.

B3XPHE (X) - Data for both samples are low. Possible Systematic Error.





**Fasteners and Metals Interlaboratory Testing Program**

**Cycle 134**

**Analysis 1651**

**2nd Qtr**

**Corrosion Resistant Steel, TUNGSTEN (W)**

**2021**

**TUNGSTEN (W)**

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-End of Report-