



Fasteners & Metals Interlaboratory Testing Program

Summary Report Cycle 149, 1st Qtr 2025

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Analysis	Test Group
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Dimensional Tests	
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1001	Dimensional: Outside Diameter of Plain Plug Gage
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Tensile Tests	
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1101	Tensile Strength: Lab-Machined Flat Aluminum
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1102	Yield Strength: Lab-Machined Flat Aluminum
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1103	Elongation: Lab-Machined Flat Aluminum
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1111	Tensile Strength: Pre-Machined Round Steel
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1112	Yield Strength: Pre-Machined Round Steel
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1113	Elongation: Pre-Machined Round Steel
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1121	Tensile Strength: Lab-Machined Round Steel
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1122	Yield Strength: Lab-Machined Round Steel
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1302	Rockwell Hardness: B Scale
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1321	Microhardness: Knoop Indenters (500 gf)
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1600 - 1613	Chemical Analysis: Carbon & Low Alloy Steel
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ABOUT THE FASTENERS & METALS PROGRAM

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

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

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

ABOUT CTS

Founded in 1971, CTS is a privately-owned company that specializes in interlaboratory tests for a wide variety of industries including rubber, plastics, fasteners and metals, containerboard, paper, color, hemp, 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 100 countries, currently participate in the CTS programs.

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Key for Fasteners & Metals Program Web Summary Report

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

- Lab Mean** - The average of the test results obtained by the participant.

- Grand Mean** - The average of the LAB MEANS for all included participants. Laboratories flagged with an X or an M (see DATA FLAG column) are excluded from the GRAND MEAN.

- Between-Lab Standard Deviation** - An indication of the precision of measurement between the laboratories. The greater the spread of the LAB MEANS about the GRAND MEAN, the larger the BETWEEN-LAB STANDARD DEVIATION (and vice versa).

- Comparative Performance Value (CPV)** - An indication of how well a laboratory's results agree with the other participants. The CPV is a ratio indicating the number of standard deviations from the GRAND MEAN. $CPV = (LAB\ MEAN - GRAND\ MEAN) / BETWEEN-LAB\ STANDARD\ DEVIATION$. The closer a laboratory's COMPARATIVE PERFORMANCE VALUE is to zero, the more consistent its results are with the other participants' data (and vice versa).

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

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

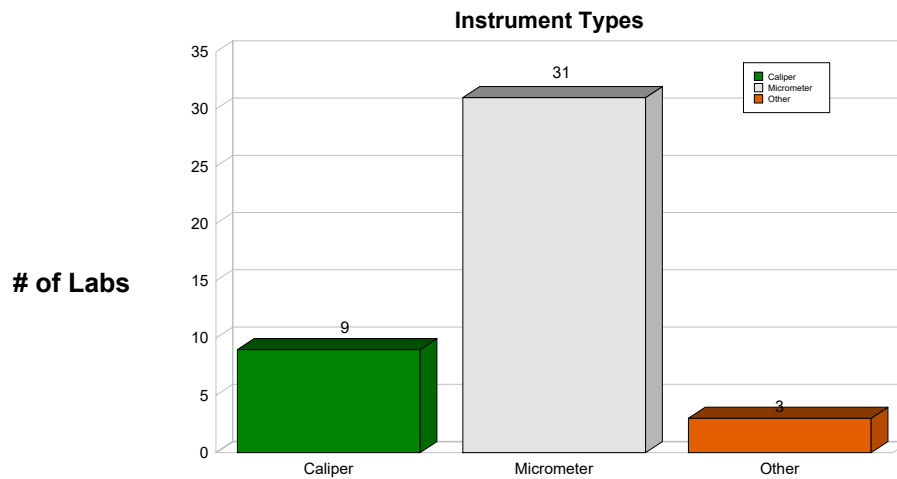
Data Flags

Data Flag Type	Statistically Included/Excluded	ACTION REQUIRED
*	INCLUDED	CAUTION - review testing procedure and monitor future results. Results fall outside the drawn 95% ellipse but within a 99% ellipse that is calculated but not drawn. Labs flagged with an * do not typically receive a specific note regarding the flag. If this error is repeated in future rounds, however, a lab may need to stop and review its testing procedures. The initial data flag is not cause for alarm.
X	EXCLUDED	STOP - immediate review of data and/or testing procedure is required (all tests except Chemical Analyses). Results fall outside the 99% ellipse. See the specific note following the data for more information on why the data are excluded. For Chemical Analyses see an additional Memo.
M	EXCLUDED	PROCEED - lab was unable to report data for at least one sample. However, a lab receiving two or more M flags for a test may need to stop and review its testing procedures.
Graph		- For each laboratory, the Lab Mean for the second sample (y-axis) is plotted against the Lab Mean for the first sample (x-axis) with each point representing a laboratory. The horizontal and vertical cross-hairs are the Grand Means for each sample. When 20 or more laboratories are included in the statistics, an ellipse is also drawn so that 95% of the time a randomly selected laboratory will be included inside the ellipse. Plotted data flags are explained above. Labs not receiving a data flag appear as points on the plot.



Dimensional: Outside Diameter of Plain Plug Gage
ISO GUM

During Cycle 149, CTS conducted the Analysis #1001 - Round Dimensional. For this test all participants received two samples I07 and I08 with nominal diameters; 0.4996 in. and 0.5000 in. Each sample is an English Class X gage pin with 0.00002 in roundness limit made from 52100 bearing steel, hardened to 60-62 Rockwell C. Laboratories were asked to determine the outside diameter of the pins. 43 laboratories that subscribed for this test reported testing results. The graph below shows a breakdown of the types of instruments used.



Analysis of the Results

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

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

Where the assigned value, X_{ref} , is determined in a reference laboratory, U_{ref} is the expanded uncertainty of X_{ref} , and U_{lab} is the **Expanded Uncertainty** of a participant's result, X_{lab} . E_n is not calculated for Labs who did not report their Expanded Uncertainty.

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

H and **L** flags are applied when the Expanded Uncertainty data are unusual. These flags do not indicate that the U_{lab} is invalid. Circumstances particular to a laboratory may lead to unusual uncertainty estimates that are a true reflection of testing. However, the validity of the performance statistics calculated by CTS is directly tied to the validity of the reported expanded uncertainty. If an **H** or **L** flag is applied to a U_{lab} , CTS recommends a review of the uncertainty budget to ensure its accuracy.

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

X_{ref} and U_{ref} were determined by the gage pin manufacturer. The manufacturer is ISO 9001 Certified and an ISO 17025 Accredited company. All master gages used in checking the plug gages are calibrated with standards traceable to NIST.



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1001

1st Qtr 2025

Dimensional: Outside Diameter of Plain Plug Gage ISO GUM

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

Xref1 = 0.4996 in.

Xref2 = 0.5000 in.

Sample I07

Sample I08

WebCode	Data Flag (if assigned)	Reference Uncertainty (Uref)	Expanded Uncertainty (Ulab)		Lab Mean (Xlab)	Performance Statistic (En1)	Lab Mean (Xlab)	Performance Statistic (En2)	Instrument
2BYBL9	X	0.00004	0.00001	L	0.49958	-0.41	0.50007	1.69	Micrometer
2DL8UY		0.00004	0.00400	H	0.49957	-0.01	0.49993	-0.02	Micrometer
2K4FEP		0.00004	0.00014		0.49948	-0.85	0.49998	-0.14	Micrometer
2TUB6R		0.00004	0.00014		0.49957	-0.21	0.49996	-0.28	Micrometer
2Z3KMM		0.00004	0.20000	H	0.49965	0.00	0.49993	0.00	Micrometer
449YZ3		0.00004	0.00018		0.49953	-0.38	0.49995	-0.27	Micrometer
4BUTHU	X	0.00004	0.00012		0.49936	-1.87	0.49966	-2.65	Micrometer
62KKCT		0.00004	0.00014		0.49960	0.00	0.50000	0.00	Micrometer
66GJFQ		0.00004	0.00187	H	0.49908	-0.28	0.49950	-0.27	Caliper
7P3KYW		0.00004	0.00176	H	0.49896	-0.36	0.49930	-0.40	Caliper
7VUM6G		0.00004	0.00030		0.49946	-0.46	0.49990	-0.33	Micrometer
AGYFXQ	X	0.00004	0.00015		0.49936	-1.55	0.49984	-1.03	Micrometer
AH77F7		0.00004	0.00038		0.49952	-0.21	0.49979	-0.54	Other
APWAT4		0.00004	0.00030		0.49964	0.13	0.49994	-0.20	Micrometer
AQPXEK		0.00004	0.00022		0.49955	-0.22	0.49990	-0.45	Micrometer
BKCNCF		0.00004	0.00018		0.49963	0.17	0.50002	0.13	Micrometer
CBQTZ8		0.00004	0.00018		0.49965	0.29	0.49994	-0.30	Micrometer
CFH37Y		0.00004	0.00020		0.49960	0.00	0.50000	0.00	Micrometer
DTYHNP		0.00004	0.00005		0.49960	0.00	0.50000	0.00	Micrometer
DYPRYM		0.00004	0.00039		0.49954	-0.15	0.49995	-0.13	Micrometer
EPW2QL		0.00004	1,400.00000	H	0.49970	0.00	0.49970	0.00	Caliper
EXRYEN		0.00004	0.00010		0.49962	0.15	0.49998	-0.15	Micrometer
G6LNAH		0.00004	0.00011		0.49958	-0.14	0.49994	-0.52	Micrometer
GU3CWK		0.00004	0.00110	H	0.49963	0.03	0.50003	0.03	Micrometer
HPMZGV		0.00004	0.00060		0.49956	-0.07	0.49995	-0.08	Micrometer
JG6CXD		0.00004	0.00050		0.49940	-0.40	0.49970	-0.60	Micrometer
JME949		0.00004	0.00010		0.49959	-0.09	0.50000	0.00	Micrometer
K9PTDE		0.00004	0.00008		0.49961	0.16	0.50002	0.27	Micrometer
KVZ37V		0.00004	0.00059		0.49988	0.48	0.50032	0.53	Other
M8QAKB	M	0.00004	Not Reported		0.50000		0.50000		Caliper
MYBU88		0.00004	0.00038		0.49950	-0.26	0.49990	-0.26	Micrometer
RBNNP3		0.00004	0.00030		0.49950	-0.33	0.50000	0.00	Caliper
T6KW7W	M	0.00004	Not Reported		0.49950		0.50000		Caliper



**Fasteners and Metals Interlaboratory Testing Program
Analysis 1001**

**Cycle 149
1st Qtr 2025**

**Dimensional: Outside Diameter of Plain Plug Gage
ISO GUM**

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

Xref1 = 0.4996 in.

Xref2 = 0.5000 in.

Sample I07

Sample I08

<u>WebCode</u>	<u>Data Flag</u> (if assigned)	<u>Reference</u> <u>Uncertainty</u> (Uref)	<u>Expanded</u> <u>Uncertainty</u> (Ulab)	<u>Lab Mean</u> (Xlab)	<u>Performance</u> <u>Statistic (En1)</u>	<u>Lab Mean</u> (Xlab)	<u>Performance</u> <u>Statistic (En2)</u>	<u>Instrument</u>
T6YGUZ		0.00004	0.00034	0.49958	-0.06	0.49995	-0.15	Other
TBACU4	X	0.00004	0.00061	0.49961	0.01	0.49528	-7.72	Caliper
TVF6G3		0.00004	0.00019	0.49950	-0.52	0.49990	-0.52	Micrometer
UL63V2		0.00004	0.00260	H 0.49980	0.08	0.50000	0.00	Caliper
UQVERJ		0.00004	0.00060	0.49959	-0.02	0.49997	-0.05	Micrometer
UQX7HE		0.00004	0.00034	0.49940	-0.58	0.49981	-0.55	Micrometer
XAH3Q4		0.00004	0.00059	0.49960	0.00	0.49998	-0.03	Micrometer
Y47J2A		0.00004	0.00009	0.49954	-0.61	0.49991	-0.91	Micrometer
ZLNU9U		0.00004	0.12000	H 0.49960	0.00	0.50000	0.00	Micrometer
ZP7WFY		0.00004	0.00094	0.49961	0.01	0.50000	0.00	Caliper

Summary Statistics

	Sample I07		Sample I08	
Grand Means	0.4996	inch	0.4999	inch
Std Dev Btwn Labs	0.0001	inch	0.0001	inch

Samples I07, I08 : 52100 Steel, 52100 Steel

Statistics based on 36 of 43 reporting participants

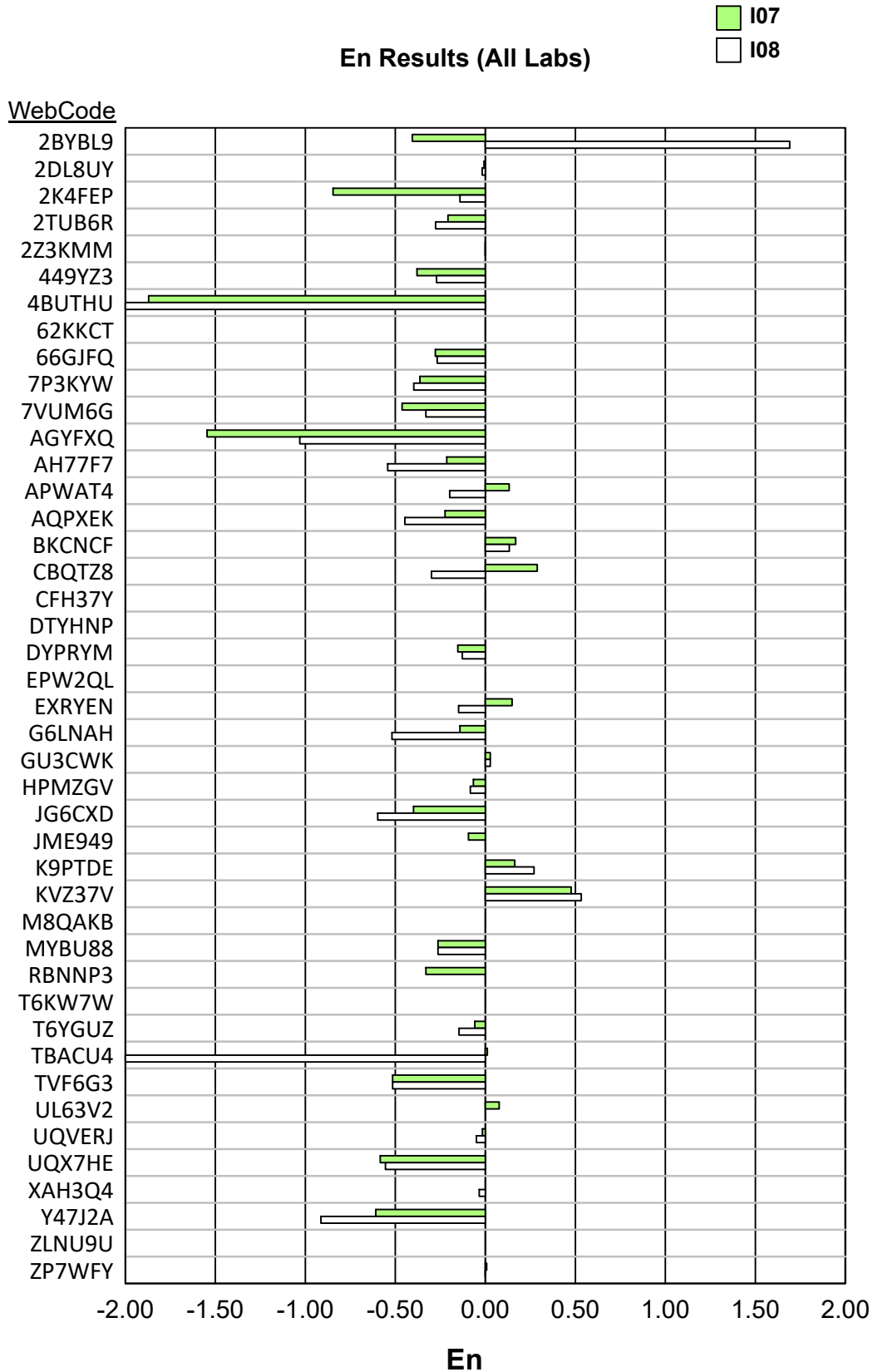
Comments on Assigned Data Flags for Test #1001

- 2BYBL9 (X) - En value for sample I08 was high.
- 4BUTHU (X) - En value for both samples was low.
- AGYFXQ (X) - En value for both samples was low.
- M8QAKB (M) - Valid expanded uncertainty data not reported
- T6KW7W (M) - Expanded uncertainty data not reported
- TBACU4 (X) - En value for sample I08 was low.



Analysis 1001

Dimensional: Outside Diameter of Plain Plug Gage
ISO GUM





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1101

1st Qtr 2025

Tensile Strength: Lab-Machined Flat Aluminum ASTM B557

WebCode	Data Flag	Sample R07			Sample R08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2R7PJW	X	50.80	1.45	2.53	50.10	1.58	4.13
2TUB6R		49.20	-0.15	-0.26	48.20	-0.32	-0.83
36PPVG		49.90	0.55	0.96	48.70	0.18	0.48
489XRV		49.40	0.05	0.09	49.20	0.68	1.78
4XMQVR		49.50	0.15	0.26	48.30	-0.22	-0.57
6HMK4T		48.90	-0.45	-0.78	48.30	-0.22	-0.57
6L329Q		49.81	0.46	0.80	48.82	0.30	0.79
6LMHPU		48.60	-0.75	-1.30	47.70	-0.82	-2.13
6RBHQR		49.50	0.15	0.26	48.40	-0.12	-0.31
78M99R		48.76	-0.59	-1.02	48.04	-0.48	-1.26
7N9LWR		49.49	0.14	0.25	48.56	0.04	0.11
9A4FLJ		49.30	-0.05	-0.08	48.30	-0.22	-0.57
9G3RRN		49.60	0.25	0.44	48.50	-0.02	-0.05
9PZC4H		49.79	0.44	0.77	48.82	0.30	0.79
9V2UEM		49.10	-0.25	-0.43	48.60	0.08	0.21
A3ZKCJ		48.40	-0.95	-1.65	47.90	-0.62	-1.61
A8TP7M		49.40	0.05	0.09	48.50	-0.02	-0.05
AMY9GK	X	46.50	-2.85	-4.96	47.60	-0.92	-2.40
BMWQ3L		49.90	0.55	0.96	48.80	0.28	0.74
CDA2WL		49.60	0.25	0.44	48.60	0.08	0.21
EPK3WC		49.46	0.11	0.19	48.30	-0.22	-0.57
ETCHWJ		49.30	-0.05	-0.08	49.10	0.58	1.52
F6QQHB	X	47.90	-1.45	-2.52	23.80	-24.72	-64.51
FTBTHE		49.69	0.34	0.60	48.78	0.26	0.68
GELKRQ		49.00	-0.35	-0.61	48.10	-0.42	-1.09
GFHT2V		48.80	-0.55	-0.95	48.20	-0.32	-0.83
GYBNQC		48.80	-0.55	-0.95	48.00	-0.52	-1.35
HCX73G	X	52.30	2.95	5.14	49.70	1.18	3.09
HFVWZF		48.70	-0.65	-1.13	49.00	0.48	1.26
HWZ4FG		48.70	-0.65	-1.13	48.50	-0.02	-0.05
J8YE2W	*	50.82	1.47	2.56	49.12	0.60	1.57
JE47H8		50.70	1.35	2.35	48.70	0.18	0.48
K36RVF		50.10	0.75	1.31	49.30	0.78	2.04
KGKX39		49.23	-0.12	-0.21	48.39	-0.13	-0.35
LE8RUC		49.60	0.25	0.44	48.50	-0.02	-0.05
LXQC44		49.60	0.25	0.44	48.40	-0.12	-0.31
M4LX7M		49.41	0.06	0.10	48.18	-0.34	-0.88
MH4N6P		49.10	-0.25	-0.43	48.70	0.18	0.48
PAQGHK	X	47.19	-2.16	-3.76	44.85	-3.67	-9.57
PB2YY6		49.02	-0.33	-0.57	48.30	-0.22	-0.57
PNLMN9		48.50	-0.85	-1.48	48.30	-0.22	-0.57
Q4GHN7	*	48.00	-1.35	-2.35	48.80	0.28	0.74
R9RN2R		49.90	0.55	0.96	48.80	0.28	0.74
U87XM4		49.60	0.25	0.44	48.90	0.38	1.00
U9TLX6		49.00	-0.35	-0.61	49.00	0.48	1.26
VEHJ3L		49.40	0.05	0.09	48.07	-0.45	-1.18
VHHWL6	X	50.91	1.56	2.72	52.36	3.84	10.03



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1101

1st Qtr 2025

Tensile Strength: Lab-Machined Flat Aluminum ASTM B557

WebCode	Data Flag	Sample R07			Sample R08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
VNJ9G2		48.60	-0.75	-1.30	48.50	-0.02	-0.05
VYL8RW		49.10	-0.25	-0.43	48.10	-0.42	-1.09
W8V4XE		48.95	-0.40	-0.69	48.01	-0.51	-1.33
WBXTE3		48.60	-0.75	-1.30	48.50	-0.02	-0.05
WRHKD2		50.15	0.80	1.39	48.75	0.23	0.60
WXQWHE		50.60	1.25	2.18	48.70	0.18	0.48
XAZ3KT		49.20	-0.15	-0.26	47.80	-0.72	-1.87
XTTR7M		49.80	0.45	0.79	48.70	0.18	0.48
XVCZ3Z		50.00	0.65	1.13	49.33	0.81	2.12
Y46TNZ		49.30	-0.05	-0.08	48.10	-0.42	-1.09
YX2LBH		49.10	-0.25	-0.43	48.90	0.38	1.00
ZTJWDQ		49.50	0.15	0.26	48.40	-0.12	-0.31

Summary Statistics

	Sample R07		Sample R08	
Grand Means	49.35	ksi	48.52	ksi
Std Dev Btwn Labs	0.57	ksi	0.38	ksi

Samples R07, R08 : 16G 6061-T6 (A), 14G 6061-T6 (B)

Statistics based on 53 of 59 reporting participants

Comments on Assigned Data Flags for Test #1101

- 2R7PJW (X) - Data for sample R08 are high.
- AMY9GK (X) - Data for sample R07 are low.
- F6QQHB (X) - Data for sample R08 are extreme.
- HCX73G (X) - Data for both samples are high.
- PAQGHK (X) - Data for both samples are low.
- VHHWL6 (X) - Data for both samples are high.



Analysis 1101

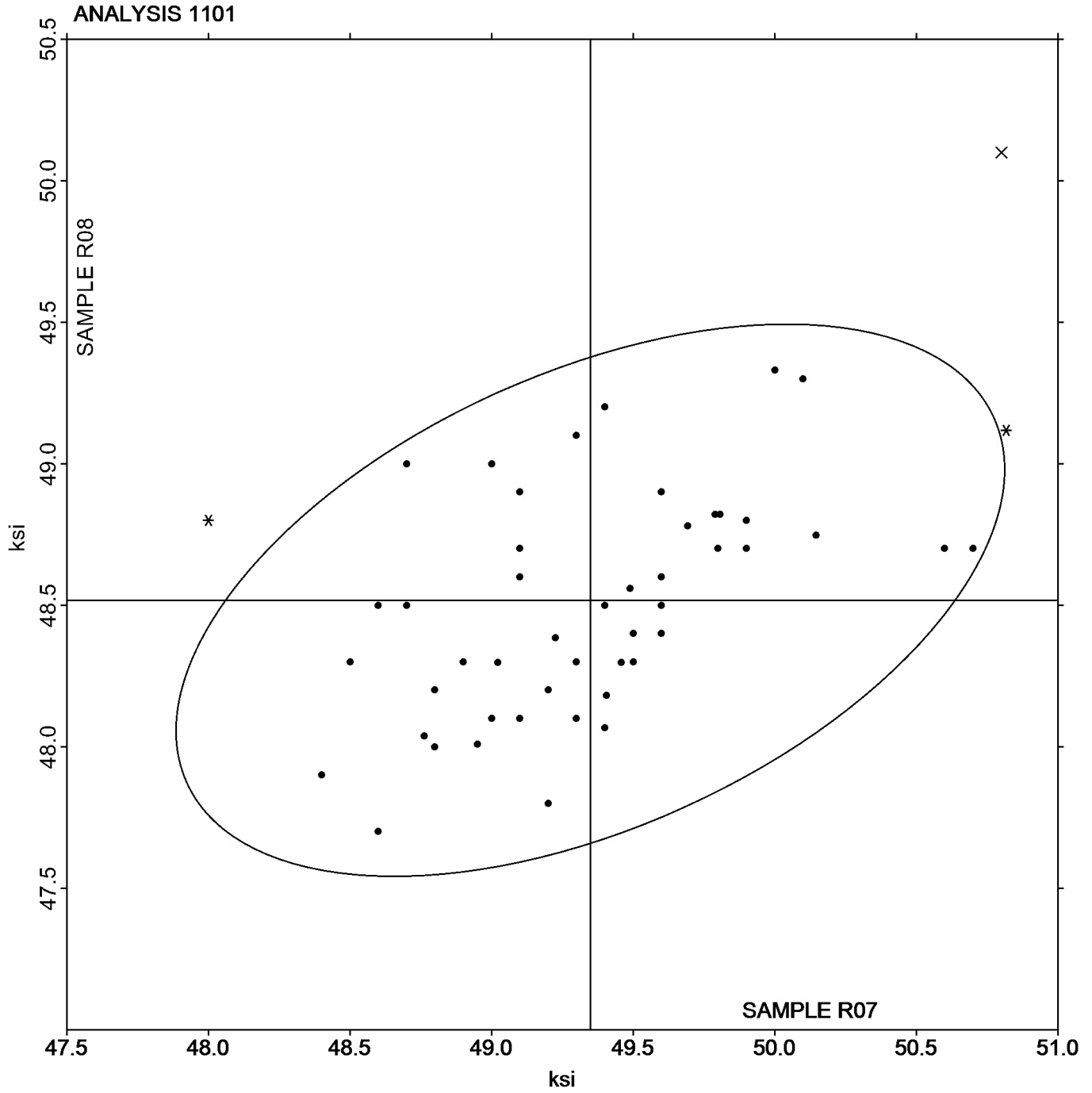
Tensile Strength: Lab-Machined Flat Aluminum
ASTM B557

SAMPLE R07

SAMPLE R08

49.35 ksi

48.52 ksi





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1102

1st Qtr 2025

Yield Strength: Lab-Machined Flat Aluminum ASTM B557

WebCode	Data Flag	Sample R07			Sample R08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2R7PJW		42.60	1.28	1.90	41.40	0.57	1.29
2TUB6R	*	41.00	-0.32	-0.48	41.80	0.97	2.20
36PPVG		42.10	0.78	1.15	41.00	0.17	0.38
489XRV		41.50	0.18	0.26	41.30	0.47	1.06
4XMQVR		41.60	0.28	0.41	40.80	-0.03	-0.08
6HMK4T		40.80	-0.52	-0.78	40.40	-0.43	-0.99
6L329Q		41.79	0.46	0.69	41.18	0.34	0.78
6LMHPU		40.80	-0.52	-0.78	40.20	-0.63	-1.44
6RBHQR		41.30	-0.02	-0.04	40.80	-0.03	-0.08
78M99R		39.99	-1.34	-1.99	39.99	-0.85	-1.93
7N9LWR		41.40	0.08	0.11	40.89	0.06	0.13
9A4FLJ		41.30	-0.02	-0.04	40.60	-0.23	-0.53
9G3RRN		41.60	0.28	0.41	40.80	-0.03	-0.08
9PZC4H		41.75	0.43	0.63	41.10	0.27	0.60
9V2UEM		41.00	-0.32	-0.48	41.10	0.27	0.60
A3ZKCJ		40.50	-0.82	-1.23	40.20	-0.63	-1.44
A8TP7M		41.30	-0.02	-0.04	40.80	-0.03	-0.08
AMY9GK		41.60	0.28	0.41	40.10	-0.73	-1.67
BMWQ3L		41.60	0.28	0.41	41.00	0.17	0.38
CDA2WL		41.60	0.28	0.41	40.90	0.07	0.15
EPK3WC		41.63	0.30	0.45	40.76	-0.08	-0.18
ETCHWJ		41.00	-0.32	-0.48	41.00	0.17	0.38
F6QQHB	X	40.40	-0.92	-1.38	19.90	-20.93	-47.60
FTBTHE		41.24	-0.09	-0.13	41.00	0.16	0.37
GELKRQ		41.30	-0.02	-0.04	40.60	-0.23	-0.53
GFHT2V		40.50	-0.82	-1.23	40.30	-0.53	-1.21
GYBNQC		40.40	-0.92	-1.38	39.90	-0.93	-2.12
HCX73G	*	43.30	1.98	2.94	41.00	0.17	0.38
HFVWZF		40.80	-0.52	-0.78	41.30	0.47	1.06
HWZ4FG		41.10	-0.22	-0.33	40.80	-0.03	-0.08
J8YE2W	*	42.98	1.66	2.46	41.73	0.90	2.05
JE47H8		42.60	1.28	1.90	40.90	0.07	0.15
K36RVF		41.40	0.08	0.11	40.80	-0.03	-0.08
KGKX39		41.12	-0.21	-0.31	40.65	-0.18	-0.41
LE8RUC		41.70	0.38	0.56	40.80	-0.03	-0.08
LXQC44		41.60	0.28	0.41	40.80	-0.03	-0.08
M4LX7M	X	36.53	-4.79	-7.13	39.11	-1.73	-3.92
MH4N6P		40.90	-0.42	-0.63	40.80	-0.03	-0.08
PAQGHK	X	38.80	-2.52	-3.76	38.39	-2.44	-5.56
PB2YY6	*	39.60	-1.73	-2.57	40.47	-0.37	-0.84
PNLMN9		40.70	-0.62	-0.93	40.70	-0.13	-0.30
Q4GHN7	*	40.50	-0.82	-1.23	41.50	0.67	1.51
R9RN2R		42.20	0.88	1.30	41.30	0.47	1.06
U87XM4		42.00	0.68	1.00	41.90	1.07	2.42
U9TLX6		41.00	-0.32	-0.48	41.30	0.47	1.06
VEHJ3L		41.55	0.23	0.34	40.67	-0.17	-0.38
VHHWL6	X	44.24	2.91	4.33	44.82	3.98	9.06



**Fasteners and Metals Interlaboratory Testing Program
Analysis 1102**

**Cycle 149
1st Qtr 2025**

**Yield Strength: Lab-Machined Flat Aluminum
ASTM B557**

WebCode	Data Flag	Sample R07			Sample R08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
VNJ9G2		40.70	-0.62	-0.93	40.80	-0.03	-0.08
VYL8RW		41.10	-0.22	-0.33	40.50	-0.33	-0.76
W8V4XE		40.90	-0.42	-0.63	40.25	-0.59	-1.33
WBXTE3		40.60	-0.72	-1.08	40.80	-0.03	-0.08
WRHKD2		41.83	0.50	0.74	41.00	0.16	0.37
WXQWHE		41.60	0.28	0.41	40.50	-0.33	-0.76
XAZ3KT		41.00	-0.32	-0.48	40.10	-0.73	-1.67
XTTR7M		41.50	0.18	0.26	40.80	-0.03	-0.08
XVCZ3Z		41.70	0.38	0.56	41.40	0.57	1.29
Y46TNZ		41.20	-0.12	-0.19	40.40	-0.43	-0.99
YX2LBH		41.00	-0.32	-0.48	41.20	0.37	0.83
ZTJWDQ		41.50	0.18	0.26	40.80	-0.03	-0.08

Summary Statistics		Sample R07		Sample R08	
Grand Means		41.32	ksi	40.83	ksi
Std Dev Btwn Labs		0.67	ksi	0.44	ksi

Samples R07, R08 : 16G 6061-T6 (A), 14G 6061-T6 (B)

Statistics based on 55 of 59 reporting participants

Comments on Assigned Data Flags for Test #1102

- F6QQHB (X) - Data for sample R08 are extreme.
- M4LX7M (X) - Data for both samples are low.
- PAQGHK (X) - Data for both samples are low.
- VHHWL6 (X) - Data for both samples are high.



Analysis 1102

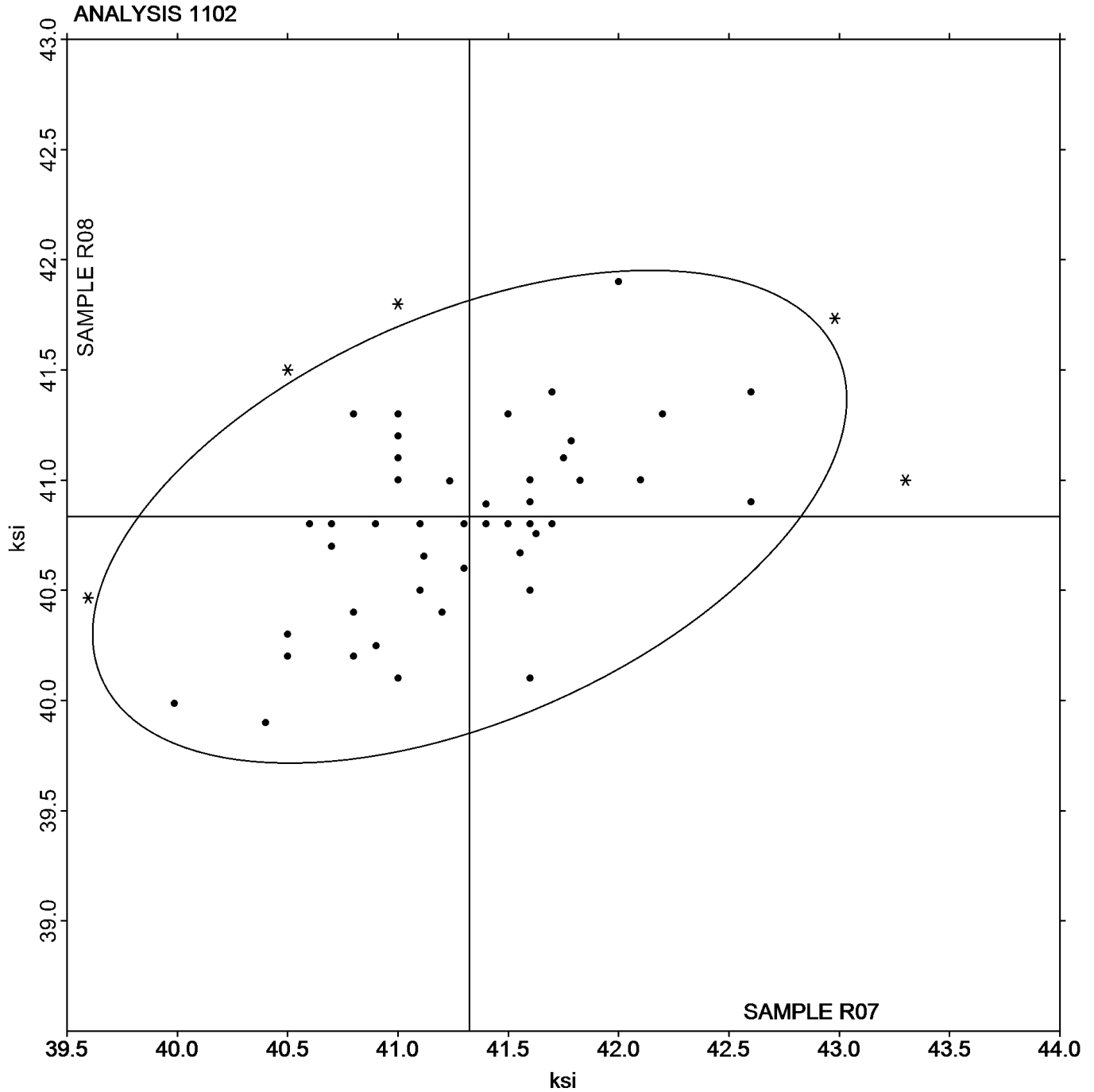
Yield Strength: Lab-Machined Flat Aluminum
ASTM B557

SAMPLE R07

SAMPLE R08

41.32 ksi

40.83 ksi





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1103

1st Qtr 2025

Elongation: Lab-Machined Flat Aluminum ASTM B557

WebCode	Data Flag	Sample R07			Sample R08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2R7PJW		14.00	-1.35	-1.22	14.50	-0.82	-0.77
2TUB6R		15.20	-0.15	-0.14	15.30	-0.02	-0.02
36PPVG		15.00	-0.35	-0.32	15.00	-0.32	-0.30
489XRV		14.50	-0.85	-0.77	15.00	-0.32	-0.30
4XMQVR		13.80	-1.55	-1.40	13.70	-1.62	-1.51
6HMK4T		14.30	-1.05	-0.95	14.50	-0.82	-0.77
6L329Q		15.00	-0.35	-0.32	14.50	-0.82	-0.77
6LMHPU		16.50	1.15	1.04	16.50	1.18	1.09
6RBHQR		16.70	1.35	1.22	16.90	1.58	1.46
78M99R		16.30	0.95	0.86	15.90	0.58	0.53
7N9LWR		14.91	-0.44	-0.40	14.58	-0.74	-0.69
9A4FLJ		15.10	-0.25	-0.23	15.90	0.58	0.53
9G3RRN		16.00	0.65	0.59	15.00	-0.32	-0.30
9PZC4H		14.85	-0.50	-0.45	14.50	-0.82	-0.77
9V2UEM		15.10	-0.25	-0.23	15.00	-0.32	-0.30
A3ZKCJ		16.80	1.45	1.31	16.50	1.18	1.09
A8TP7M		15.50	0.15	0.13	16.00	0.68	0.63
AMY9GK	X	11.50	-3.85	-3.47	15.00	-0.32	-0.30
BMWQ3L		16.10	0.75	0.68	15.70	0.38	0.35
CDA2WL		15.00	-0.35	-0.32	15.50	0.18	0.16
EPK3WC		14.90	-0.45	-0.41	14.50	-0.82	-0.77
ETCHWJ		16.00	0.65	0.59	16.00	0.68	0.63
F6QQHB		14.40	-0.95	-0.86	15.30	-0.02	-0.02
FTBTHE	X	18.10	2.75	2.48	18.90	3.58	3.32
GELKRQ	X	18.00	2.65	2.39	16.00	0.68	0.63
GFHT2V		17.00	1.65	1.49	17.00	1.68	1.56
GYBNQC		13.30	-2.05	-1.85	13.60	-1.72	-1.60
HCX73G		13.80	-1.55	-1.40	14.60	-0.72	-0.67
HFVWZF		15.00	-0.35	-0.32	15.00	-0.32	-0.30
HWZ4FG		14.50	-0.85	-0.77	14.50	-0.82	-0.77
J8YE2W		14.40	-0.95	-0.86	14.20	-1.12	-1.04
JE47H8		15.80	0.45	0.41	15.80	0.48	0.44
K36RVF	*	18.30	2.95	2.66	17.20	1.88	1.74
KGKX39		15.70	0.35	0.32	16.50	1.18	1.09
LE8RUC		15.00	-0.35	-0.32	14.50	-0.82	-0.77
LXQC44		14.20	-1.15	-1.04	14.30	-1.02	-0.95
M4LX7M	X	5.396	-9.95	-8.97	5.510	-9.81	-9.11
MH4N6P	X	18.00	2.65	2.39	16.00	0.68	0.63
PAQGHK		14.31	-1.04	-0.94	13.70	-1.62	-1.51
PB2YY6	*	17.00	1.65	1.49	18.00	2.68	2.48
PNLMN9		14.50	-0.85	-0.77	14.00	-1.32	-1.23
Q4GHN7		16.10	0.75	0.68	16.20	0.88	0.81
R9RN2R		15.00	-0.35	-0.32	15.50	0.18	0.16
U87XM4		15.20	-0.15	-0.14	15.10	-0.22	-0.21
U9TLX6		14.50	-0.85	-0.77	15.00	-0.32	-0.30
VEHJ3L		17.60	2.25	2.03	17.10	1.78	1.65
VHHWL6		18.00	2.65	2.39	18.00	2.68	2.48



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1103

1st Qtr 2025

**Elongation: Lab-Machined Flat Aluminum
ASTM B557**

WebCode	Data Flag	Sample R07			Sample R08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
VNJ9G2		15.00	-0.35	-0.32	15.00	-0.32	-0.30
VYL8RW		16.80	1.45	1.31	16.30	0.98	0.91
W8V4XE		14.35	-1.00	-0.90	14.15	-1.17	-1.09
WBXTE3		15.00	-0.35	-0.32	15.00	-0.32	-0.30
WRHKD2		15.40	0.05	0.04	15.60	0.28	0.26
WXQWHE		16.60	1.25	1.13	16.30	0.98	0.91
XAZ3KT		15.80	0.45	0.41	15.80	0.48	0.44
XTTR7M		14.60	-0.75	-0.68	14.60	-0.72	-0.67
XVCZ3Z		14.50	-0.85	-0.77	14.20	-1.12	-1.04
Y46TNZ		16.00	0.65	0.59	16.00	0.68	0.63
YX2LBH		16.00	0.65	0.59	15.00	-0.32	-0.30
ZTJWDQ		13.70	-1.65	-1.49	13.50	-1.82	-1.69

Summary Statistics					
Sample R07			Sample R08		
Grand Means	15.35	Percent	15.32	Percent	
Stnd Dev Btwn Labs	1.11	Percent	1.08	Percent	

Samples R07, R08 : 16G 6061-T6 (A), 14G 6061-T6 (B)

Statistics based on 54 of 59 reporting participants

Comments on Assigned Data Flags for Test #1103

- AMY9GK (X) - Data for sample R07 are low.
- FTBTHE (X) - Data for sample R08 are high.
- GELKRQ (X) - Inconsistent in testing between samples.
- M4LX7M (X) - Data for both samples are low. Possible Systematic Error.
- MH4N6P (X) - Inconsistent in testing between samples.



Analysis 1103

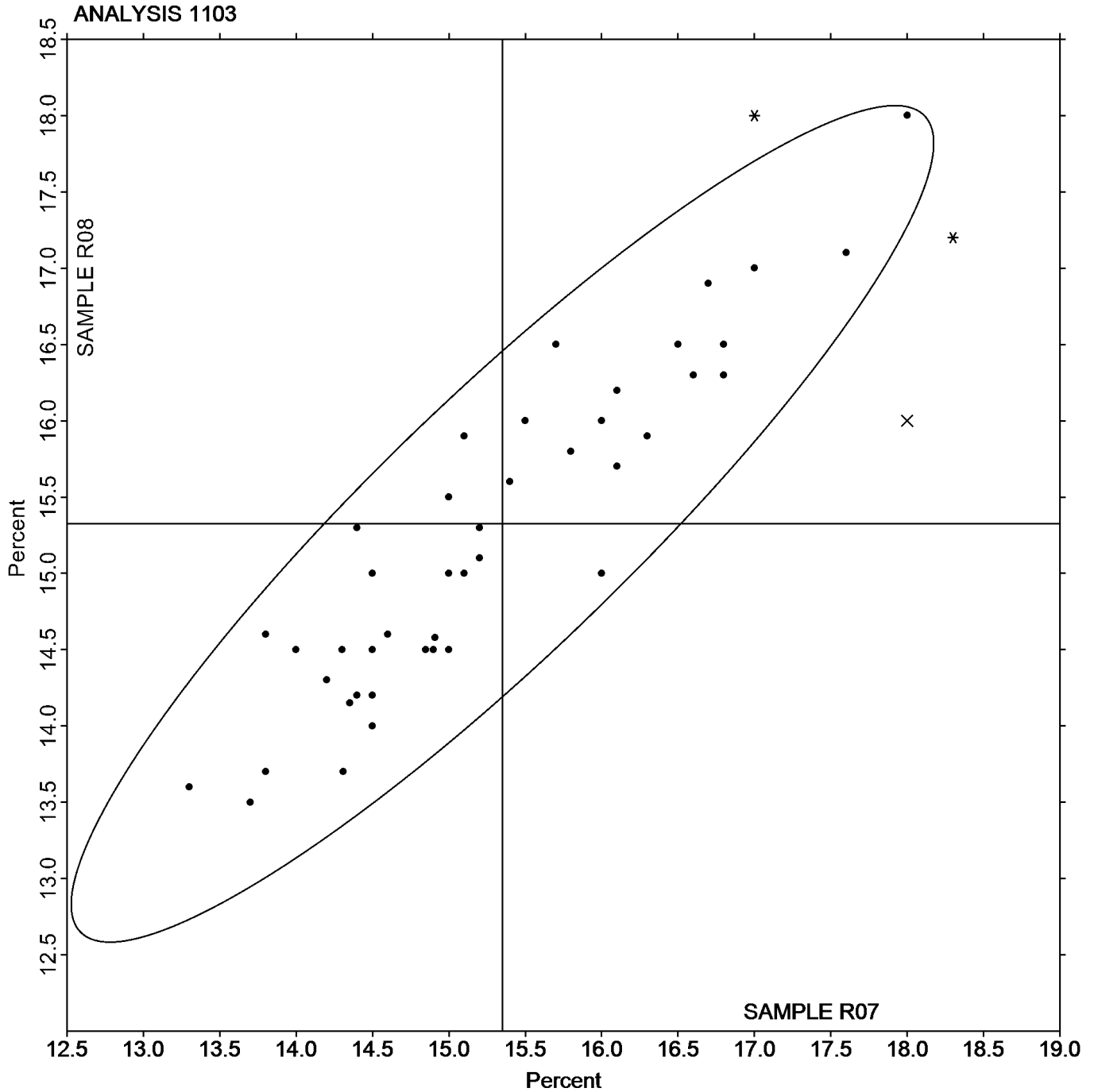
Elongation: Lab-Machined Flat Aluminum
ASTM B557

SAMPLE R07

15.35 Percent

SAMPLE R08

15.32 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1111

1st Qtr 2025

Tensile Strength: Pre-Machined Round Steel ASTM E8

WebCode	Data Flag	Sample A07			Sample A08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
26UUQT		72.90	-1.32	-1.39	72.10	-1.33	-1.56
2BE24R	*	76.90	2.68	2.81	75.50	2.07	2.44
2D8LHC		73.70	-0.52	-0.55	72.60	-0.83	-0.97
2K4FEP	X	77.36	3.14	3.30	73.30	-0.12	-0.14
2RRZLC		74.31	0.08	0.09	72.95	-0.47	-0.56
2TUB6R		75.30	1.08	1.13	74.70	1.27	1.50
36PPVG		73.80	-0.42	-0.44	73.50	0.07	0.09
42489P	M	No Data Reported			73.24	-0.19	-0.22
62KKCT		74.60	0.38	0.40	73.90	0.47	0.56
66GJFQ	X	74.01	-0.22	-0.23	71.21	-2.21	-2.60
69YQRW		73.50	-0.72	-0.76	73.00	-0.43	-0.50
74JFC8	*	76.90	2.68	2.81	75.80	2.37	2.79
7C2P24		74.37	0.15	0.16	73.25	-0.17	-0.21
7JWURK		74.70	0.48	0.50	74.00	0.57	0.67
7P3KYW		74.53	0.31	0.32	73.39	-0.04	-0.05
83LGPT		73.80	-0.42	-0.44	72.90	-0.53	-0.62
9TZLEJ		74.70	0.48	0.50	73.90	0.47	0.56
AZDYQN		74.09	-0.13	-0.14	73.04	-0.39	-0.45
BMLMXB		74.74	0.52	0.54	73.69	0.27	0.31
BQHD22		75.50	1.28	1.34	74.00	0.57	0.67
CP47CD		74.00	-0.22	-0.23	72.80	-0.63	-0.74
D7PABE		74.00	-0.22	-0.23	73.00	-0.43	-0.50
DV8JMG		73.36	-0.87	-0.91	72.73	-0.69	-0.81
E6NKJ3		73.10	-1.12	-1.18	72.95	-0.47	-0.56
FDHD62		74.10	-0.12	-0.13	74.20	0.77	0.91
GVW2ZD		73.10	-1.12	-1.18	72.60	-0.83	-0.97
LBBWJQ		74.00	-0.22	-0.23	73.40	-0.03	-0.03
MPPJ9E		75.00	0.78	0.82	74.00	0.57	0.67
N6ZKKV		73.60	-0.62	-0.65	73.17	-0.25	-0.30
QFQ6NQ		72.90	-1.32	-1.39	72.30	-1.13	-1.32
R9RN2R		74.00	-0.22	-0.23	73.00	-0.43	-0.50
RYYQM4		75.03	0.81	0.85	73.91	0.48	0.57
TEPY99		73.39	-0.83	-0.88	72.71	-0.72	-0.85
TW4FB2		72.40	-1.82	-1.92	71.90	-1.53	-1.80
UCDPRV		74.50	0.28	0.29	73.50	0.07	0.09
V8FKGN	*	75.30	1.08	1.13	75.10	1.67	1.97
V9CP76		73.30	-0.92	-0.97	72.30	-1.13	-1.32
VHHWL6	X	71.94	-2.28	-2.40	73.10	-0.33	-0.38
VN3VDY	X	79.89	5.67	5.95	76.55	3.12	3.67
VY8TAE		74.52	0.30	0.32	73.24	-0.18	-0.22
XLBNUD		75.13	0.91	0.95	73.97	0.54	0.64
YLQ8EB		74.00	-0.22	-0.23	73.70	0.27	0.32
Z2ZD2U		73.69	-0.53	-0.56	73.25	-0.18	-0.21
ZGRB8V		74.10	-0.12	-0.13	73.30	-0.13	-0.15
ZW226U		74.04	-0.19	-0.20	73.81	0.38	0.45



Summary Statistics

	<u>Sample A07</u>		<u>Sample A08</u>	
Grand Means	74.22	ksi	73.43	ksi
Std Dev Btwn Labs	0.95	ksi	0.85	ksi

Samples A07, A08 : AISI 1018 (S), AISI 1018 (L)

Statistics based on 40 of 45 reporting participants

Comments on Assigned Data Flags for Test #1111

- 2K4FEP (X) - Data for sample A07 are high.
- 42489P (M) - Participant did not submit data for sample A07.
- 66GJFQ (X) - Inconsistent in testing between samples.
- VHHWL6 (X) - Inconsistent in testing between samples.
- VN3VDY (X) - Data for both samples are high. Possible Systematic Error.



Analysis 1111

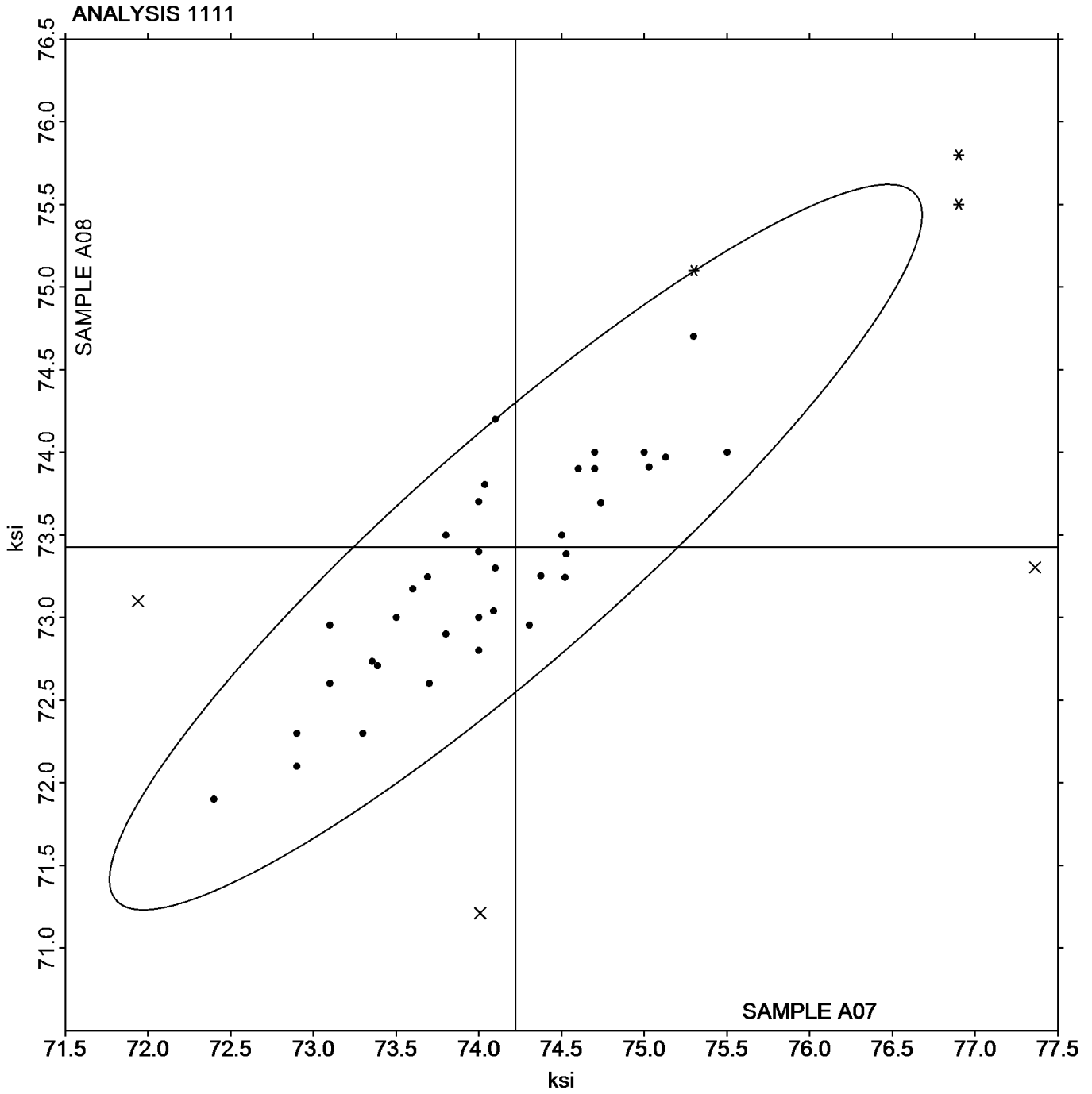
Tensile Strength: Pre-Machined Round Steel
ASTM E8

SAMPLE A07

SAMPLE A08

74.22 ksi

73.43 ksi





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1112

1st Qtr 2025

Yield Strength: Pre-Machined Round Steel ASTM E8

WebCode	Data Flag	Sample A07			Sample A08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
26UUQT		47.60	-2.44	-0.97	46.00	-3.14	-1.05
2BE24R		49.00	-1.04	-0.41	47.90	-1.24	-0.42
2D8LHC		50.40	0.36	0.14	48.50	-0.64	-0.21
2K4FEP	X	63.19	13.15	5.21	64.54	15.40	5.14
2RRZLC		48.05	-1.99	-0.79	46.22	-2.93	-0.98
2TUB6R		53.40	3.36	1.33	50.10	0.96	0.32
36PPVG		53.90	3.86	1.53	53.20	4.06	1.35
42489P	M	No Data Reported			43.55	-5.59	-1.87
62KKCT		49.30	-0.74	-0.29	49.40	0.26	0.09
66GJFQ		48.58	-1.46	-0.58	46.72	-2.42	-0.81
69YQRW	*	54.50	4.46	1.77	58.00	8.86	2.96
74JFC8	X	73.31	23.27	9.22	50.12	0.98	0.33
7C2P24		46.91	-3.12	-1.24	46.37	-2.77	-0.93
7JWURK		48.90	-1.14	-0.45	47.10	-2.04	-0.68
7P3KYW		47.97	-2.06	-0.82	48.23	-0.91	-0.31
83LGPT		51.10	1.06	0.42	48.50	-0.64	-0.21
9TZLEJ		54.10	4.06	1.61	53.00	3.86	1.29
AZDYQN		48.83	-1.21	-0.48	47.99	-1.15	-0.39
BMLMXB		49.37	-0.67	-0.26	49.53	0.39	0.13
BQHD22		53.00	2.96	1.17	49.90	0.76	0.25
CP47CD		49.70	-0.34	-0.13	46.80	-2.34	-0.78
D7PABE		48.30	-1.74	-0.69	47.90	-1.24	-0.42
DV8JMG		48.58	-1.46	-0.58	47.33	-1.82	-0.61
E6NKJ3		46.85	-3.19	-1.26	46.56	-2.59	-0.86
FDHD62		48.40	-1.64	-0.65	49.10	-0.04	-0.01
GVW2ZD		47.70	-2.34	-0.93	46.80	-2.34	-0.78
LBBWJQ		51.10	1.06	0.42	51.80	2.66	0.89
MPPJ9E		48.90	-1.14	-0.45	47.80	-1.34	-0.45
N6ZKKV		49.46	-0.58	-0.23	48.59	-0.55	-0.19
QFQ6NQ		51.50	1.46	0.58	52.90	3.76	1.25
R9RN2R		54.50	4.46	1.77	54.00	4.86	1.62
RYYQM4		48.38	-1.66	-0.66	47.93	-1.21	-0.41
TEPY99		49.14	-0.90	-0.36	49.91	0.77	0.26
TW4FB2		46.70	-3.34	-1.32	46.60	-2.54	-0.85
UCDPRV		48.20	-1.84	-0.73	46.80	-2.34	-0.78
V8FKGN	*	56.20	6.16	2.44	57.00	7.86	2.62
V9CP76		51.10	1.06	0.42	46.10	-3.04	-1.02
VHHWL6		48.73	-1.30	-0.52	49.89	0.75	0.25
VN3VDY	*	55.17	5.14	2.04	50.55	1.40	0.47
VY8TAE		48.63	-1.41	-0.56	47.03	-2.12	-0.71
XLBNUD		50.18	0.15	0.06	47.86	-1.28	-0.43
YLQ8EB		53.80	3.76	1.49	55.70	6.56	2.19
Z2ZD2U		48.12	-1.92	-0.76	46.77	-2.37	-0.79
ZGRB8V		48.80	-1.24	-0.49	47.50	-1.64	-0.55
ZW226U		48.48	-1.56	-0.62	48.13	-1.01	-0.34



Summary Statistics

	<u>Sample A07</u>		<u>Sample A08</u>	
Grand Means	50.04	ksi	49.14	ksi
Std Dev Btwn Labs	2.52	ksi	2.99	ksi

Samples A07, A08 : AISI 1018 (S), AISI 1018 (L)

Statistics based on 42 of 45 reporting participants

Comments on Assigned Data Flags for Test #1112

2K4FEP (X) - Data for both samples are high.

42489P (M) - Participant did not submit data for sample A07.

74JFC8 (X) - Data for sample A07 are high.



Analysis 1112

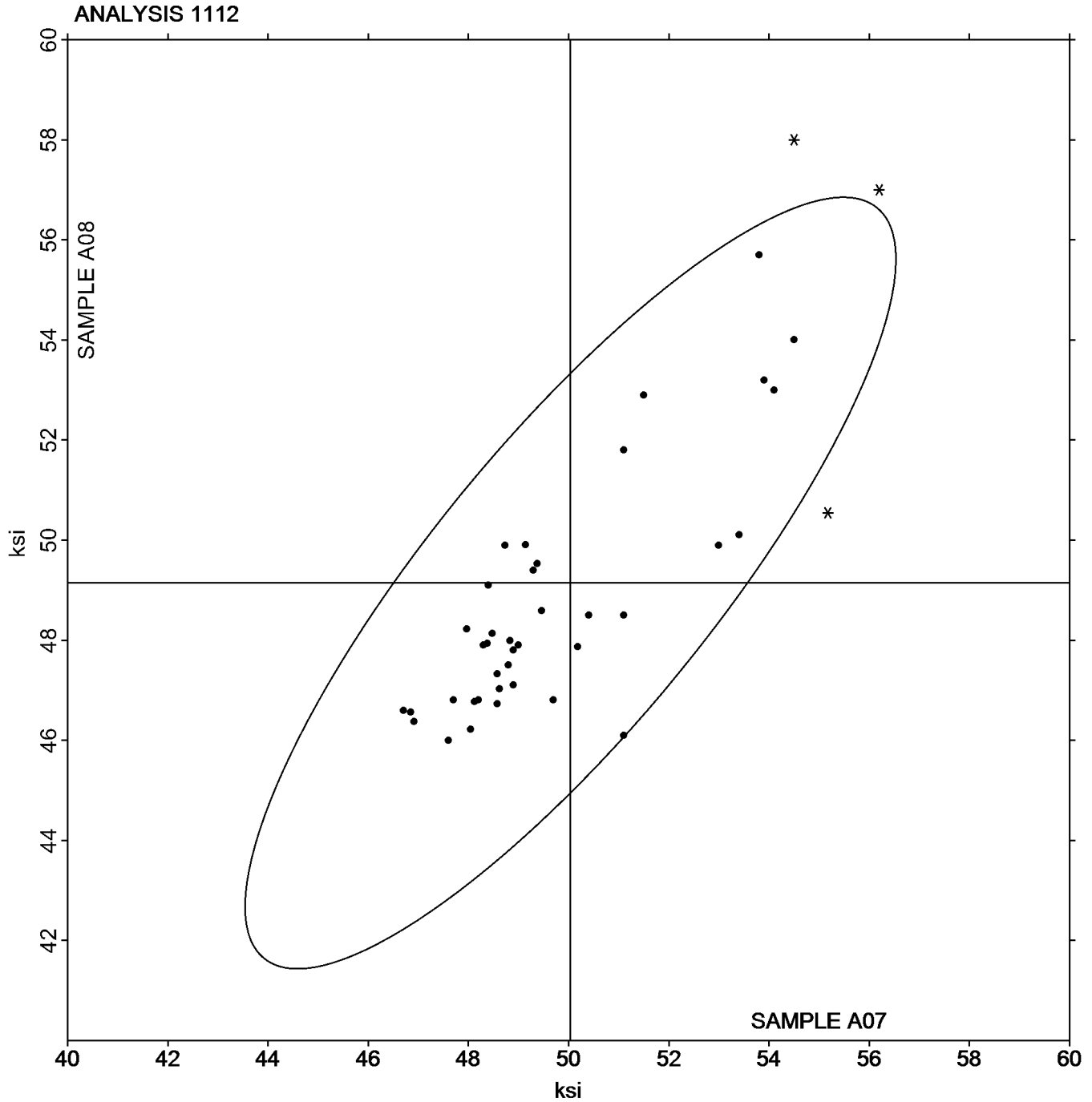
Yield Strength: Pre-Machined Round Steel
ASTM E8

SAMPLE A07

SAMPLE A08

50.04 ksi

49.14 ksi





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1113

1st Qtr 2025

Elongation: Pre-Machined Round Steel ASTM E8

WebCode	Data Flag	Sample A07			Sample A08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
26UUQT		37.10	2.87	2.24	35.20	1.46	1.38
2BE24R	X	27.00	-7.23	-5.64	32.50	-1.24	-1.17
2D8LHC		33.50	-0.73	-0.57	32.50	-1.24	-1.17
2K4FEP		32.00	-2.23	-1.74	32.00	-1.74	-1.64
2RRZLC		36.50	2.27	1.77	35.00	1.26	1.19
2TUB6R		33.50	-0.73	-0.57	32.70	-1.04	-0.98
36PPVG		35.00	0.77	0.60	34.00	0.26	0.25
42489P	M	No Data Reported			34.00	0.26	0.25
62KKCT		33.70	-0.53	-0.41	33.60	-0.14	-0.13
66GJFQ		32.95	-1.28	-1.00	34.32	0.58	0.55
69YQRW		35.00	0.77	0.60	35.00	1.26	1.19
74JFC8		34.00	-0.23	-0.18	33.10	-0.64	-0.60
7C2P24		33.16	-1.07	-0.83	32.76	-0.98	-0.92
7JWURK		31.60	-2.63	-2.05	33.40	-0.34	-0.32
7P3KYW		35.45	1.22	0.95	35.45	1.71	1.61
83LGPT		35.50	1.27	0.99	34.10	0.36	0.34
9TZLEJ		33.30	-0.93	-0.72	34.10	0.36	0.34
AZDYQN		35.29	1.06	0.83	34.40	0.66	0.62
BMLMXB		33.10	-1.13	-0.88	32.90	-0.84	-0.79
BQHD22		35.00	0.77	0.60	34.00	0.26	0.25
CP47CD		33.40	-0.83	-0.65	32.60	-1.14	-1.08
D7PABE		34.00	-0.23	-0.18	34.00	0.26	0.25
DV8JMG	*	35.15	0.92	0.72	36.37	2.63	2.48
E6NKJ3	X	37.00	2.77	2.16	38.00	4.26	4.02
EEFEHK		33.50	-0.73	-0.57	32.50	-1.24	-1.17
FDHD62		32.50	-1.73	-1.35	33.10	-0.64	-0.60
GVW2ZD		36.20	1.97	1.54	34.80	1.06	1.00
LBBWJQ		33.80	-0.43	-0.33	34.00	0.26	0.25
MPPJ9E		34.80	0.57	0.45	33.00	-0.74	-0.70
N6ZKKV		33.36	-0.87	-0.68	31.58	-2.16	-2.04
QFQ6NQ		33.90	-0.33	-0.26	33.70	-0.04	-0.04
R9RN2R		34.00	-0.23	-0.18	34.00	0.26	0.25
RYYQM4		33.33	-0.90	-0.70	33.64	-0.10	-0.09
TEPY99		35.20	0.97	0.76	34.70	0.96	0.91
TW4FB2		36.30	2.07	1.62	35.00	1.26	1.19
UCDPRV		32.45	-1.78	-1.39	33.44	-0.30	-0.28
V8FKGN		34.50	0.27	0.21	32.80	-0.94	-0.89
V9CP76		34.40	0.17	0.14	34.90	1.16	1.09
VHHWL6		37.00	2.77	2.16	35.00	1.26	1.19
VN3VDY	X	25.77	-8.46	-6.60	24.76	-8.98	-8.47
VY8TAE		33.88	-0.35	-0.27	32.24	-1.50	-1.42
XLBNUD		33.52	-0.71	-0.55	34.28	0.54	0.51
YLQ8EB	X	36.50	2.27	1.77	31.50	-2.24	-2.11
Z2ZD2U		34.15	-0.08	-0.06	32.90	-0.84	-0.79
ZGRB8V		34.30	0.07	0.06	33.67	-0.07	-0.07
ZW226U		34.02	-0.21	-0.16	32.60	-1.14	-1.07



Summary Statistics

	<u>Sample A07</u>		<u>Sample A08</u>	
Grand Means	34.23	Percent	33.74	Percent
Std Dev Btwn Labs	1.28	Percent	1.06	Percent

Samples A07, A08 : AISI 1018 (S), AISI 1018 (L)

Statistics based on 41 of 46 reporting participants

Comments on Assigned Data Flags for Test #1113

- 2BE24R (X) - Data for sample A07 are low.
- 42489P (M) - Participant did not submit data for sample A07.
- E6NKJ3 (X) - Data for sample A08 are high.
- VN3VDY (X) - Data for both samples are low.
- YLQ8EB (X) - Inconsistent in testing between samples.



Analysis 1113

Elongation: Pre-Machined Round Steel

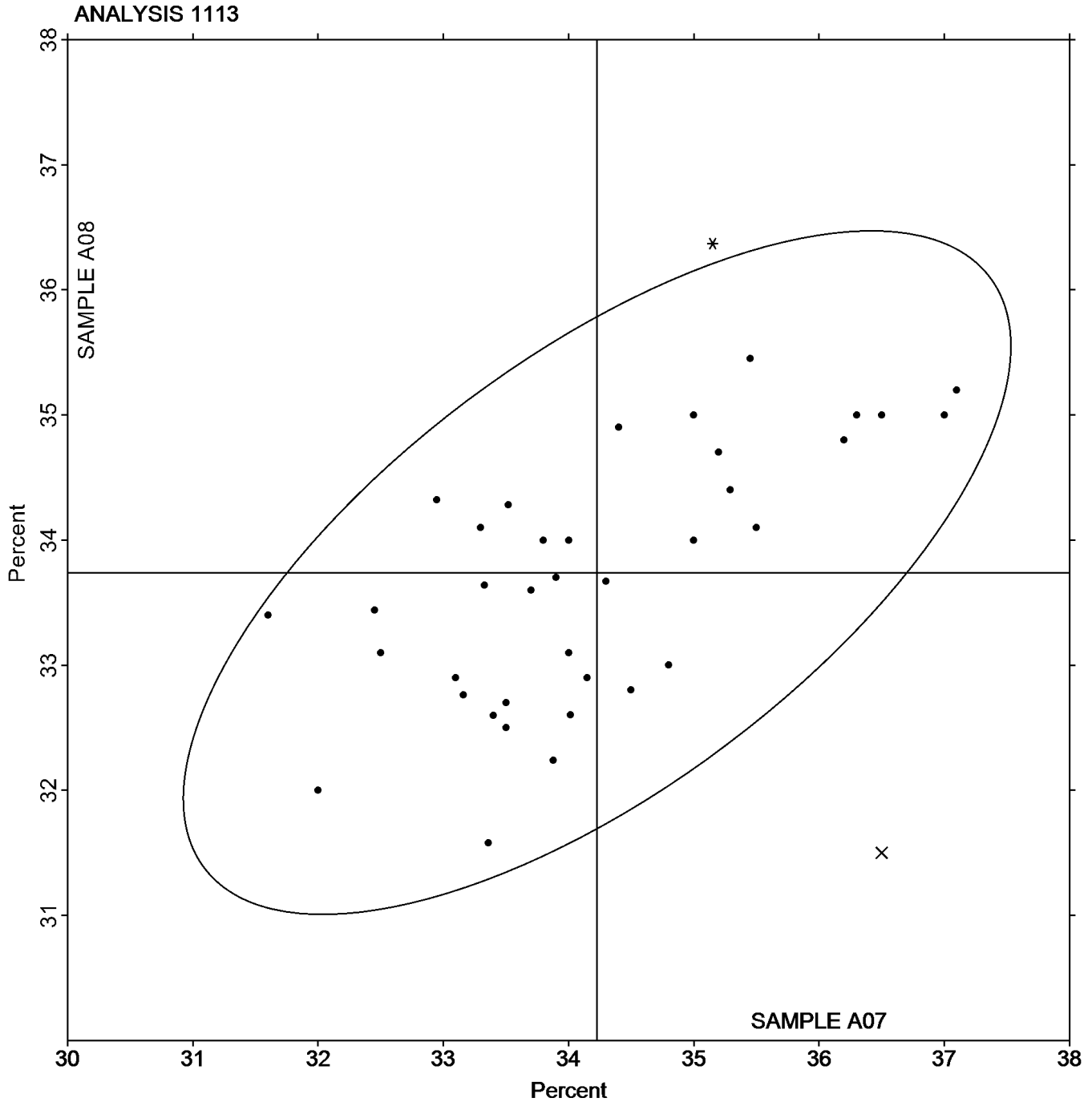
ASTM E8

SAMPLE A07

SAMPLE A08

34.23 Percent

33.74 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1114

1st Qtr 2025

Reduction of Area: Pre-Machined Round Steel ASTM E8

WebCode	Data Flag	Sample A07			Sample A08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
26UUQT		68.70	0.94	0.81	65.90	1.04	1.21
2BE24R		66.80	-0.96	-0.83	64.00	-0.86	-1.00
2D8LHC		67.00	-0.76	-0.66	65.40	0.54	0.63
2K4FEP	*	68.00	0.24	0.21	63.00	-1.86	-2.16
2RRZLC		68.02	0.26	0.23	65.60	0.75	0.87
2TUB6R		68.10	0.34	0.29	65.30	0.44	0.51
36PPVG		69.00	1.24	1.07	65.00	0.14	0.17
42489P	M	No Data Reported			64.95	0.10	0.11
62KKCT		69.20	1.44	1.25	65.80	0.94	1.10
66GJFQ		68.26	0.50	0.43	63.88	-0.98	-1.14
69YQRW		68.00	0.24	0.21	64.00	-0.86	-1.00
74JFC8		67.30	-0.46	-0.40	64.20	-0.66	-0.76
7C2P24		68.11	0.35	0.30	64.88	0.02	0.03
7JWURK		66.19	-1.57	-1.36	63.32	-1.54	-1.79
7P3KYW		67.51	-0.25	-0.22	64.62	-0.24	-0.28
83LGPT		69.30	1.54	1.33	65.60	0.74	0.86
9TZLEJ		67.20	-0.56	-0.49	64.90	0.04	0.05
AZDYQN		67.57	-0.19	-0.16	65.04	0.18	0.21
BMLMXB		67.50	-0.26	-0.23	64.80	-0.06	-0.07
BQHD22		66.00	-1.76	-1.52	65.00	0.14	0.17
CP47CD		67.20	-0.56	-0.49	63.70	-1.16	-1.35
D7PABE		68.00	0.24	0.21	65.00	0.14	0.17
DV8JMG		68.61	0.85	0.74	66.50	1.64	1.91
E6NKJ3	X	60.00	-7.76	-6.72	68.00	3.14	3.65
EEFEHK	*	64.33	-3.43	-2.97	63.12	-1.74	-2.02
FDHD62		68.40	0.64	0.55	65.30	0.44	0.51
GVW2ZD		69.70	1.94	1.68	65.00	0.14	0.17
LBBWJQ		69.00	1.24	1.07	65.70	0.84	0.98
MPPJ9E		67.90	0.14	0.12	64.60	-0.26	-0.30
N6ZKKV		68.63	0.87	0.75	64.63	-0.23	-0.26
QFQ6NQ		67.30	-0.46	-0.40	65.10	0.24	0.28
R9RN2R		69.00	1.24	1.07	66.00	1.14	1.33
RYYQM4		65.84	-1.92	-1.66	64.86	0.00	0.00
TEPY99		68.60	0.84	0.73	65.20	0.34	0.40
TW4FB2		65.80	-1.96	-1.70	64.50	-0.36	-0.42
UCDPRV		67.01	-0.75	-0.65	64.86	0.00	0.00
V8FKGN		68.40	0.64	0.55	65.20	0.34	0.40
V9CP76		68.20	0.44	0.38	65.50	0.64	0.75
VHHWL6	X	18.00	-49.76	-43.09	31.00	-33.86	-39.37
VN3VDY	X	42.46	-25.30	-21.91	40.50	-24.36	-28.33
VY8TAE	*	65.40	-2.36	-2.04	62.52	-2.34	-2.72
XLBNUD		67.96	0.20	0.17	65.40	0.54	0.63
YLQ8EB	X	67.60	-0.16	-0.14	61.70	-3.16	-3.67
Z2ZD2U		68.79	1.03	0.89	65.60	0.74	0.86
ZGRB8V		68.69	0.93	0.81	65.64	0.78	0.91
ZW226U		67.65	-0.11	-0.10	64.97	0.12	0.13



Summary Statistics

	<u>Sample A07</u>		<u>Sample A08</u>	
Grand Means	67.76	Percent	64.86	Percent
Std Dev Btwn Labs	1.15	Percent	0.86	Percent

Samples A07, A08 : AISI 1018 (S), AISI 1018 (L)

Statistics based on 41 of 46 reporting participants

Comments on Assigned Data Flags for Test #1114

42489P (M) - Participant did not submit data for sample A07.

E6NKJ3 (X) - Data for sample A07 are low and data for sample A08 are high.

VHHWL6 (X) - Extreme data.

VN3VDY (X) - Extreme data.

YLQ8EB (X) - Data for sample A08 are low.



Analysis 1114

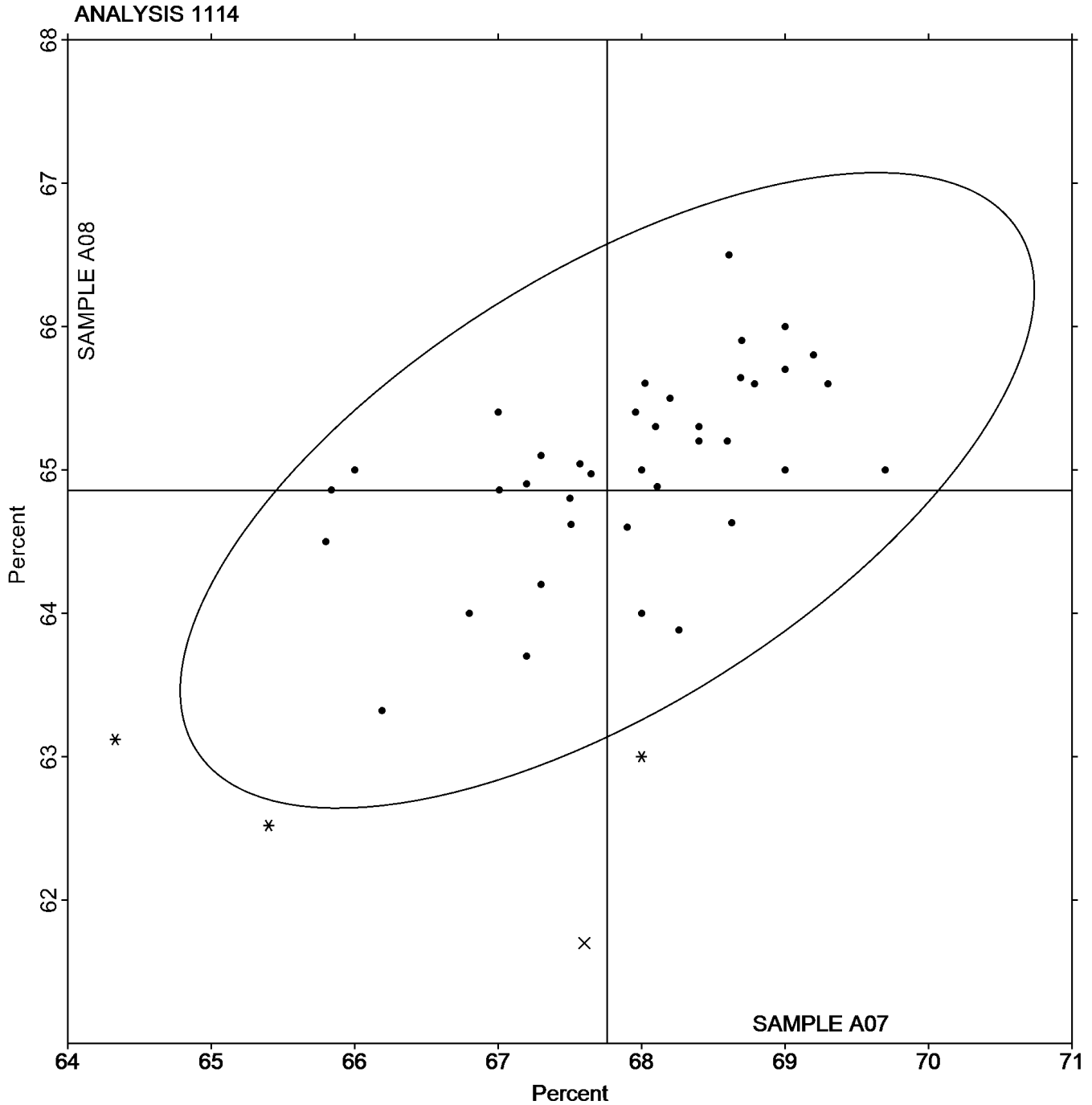
Reduction of Area: Pre-Machined Round Steel
ASTM E8

SAMPLE A07

67.76 Percent

SAMPLE A08

64.86 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1121

1st Qtr 2025

Tensile Strength: Lab-Machined Round Steel ASTM E8

WebCode	Data Flag	Sample P07			Sample P08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2BYBL9		74.60	0.05	0.06	73.30	-0.52	-0.57
2TUB6R		74.60	0.05	0.06	74.90	1.08	1.18
2UU487		73.50	-1.05	-1.16	73.30	-0.52	-0.57
2VRCHB		74.70	0.15	0.17	73.90	0.08	0.08
3BE9UQ	*	77.20	2.65	2.92	76.29	2.47	2.69
3Q8QZN	X	75.98	1.43	1.58	76.55	2.73	2.98
4678B8		75.20	0.65	0.72	74.80	0.98	1.07
4ZPUKT		76.10	1.55	1.71	75.60	1.78	1.94
77RQ8P		73.70	-0.85	-0.94	72.90	-0.92	-1.01
78M99R		73.59	-0.96	-1.06	73.00	-0.82	-0.90
86UHWK		74.25	-0.30	-0.33	73.72	-0.11	-0.12
8EZPCK		73.82	-0.73	-0.81	72.87	-0.96	-1.04
8FWXMP		75.30	0.75	0.83	74.00	0.18	0.19
8KN68J		74.30	-0.25	-0.28	74.60	0.78	0.85
8ZVDWL		74.07	-0.48	-0.53	73.55	-0.27	-0.30
9JPBWT		74.10	-0.45	-0.50	73.70	-0.12	-0.13
9ZEG6L		73.46	-1.09	-1.20	72.97	-0.85	-0.93
BDQYPK		73.82	-0.73	-0.81	73.05	-0.77	-0.84
BMER2H		76.20	1.65	1.82	75.60	1.78	1.94
BP4VUP		73.92	-0.63	-0.70	72.81	-1.02	-1.11
BYE9XE	X	73.93	-0.62	-0.68	71.12	-2.70	-2.95
C6W8HJ		74.60	0.05	0.06	73.90	0.08	0.08
CQDBRM		75.86	1.31	1.44	74.84	1.02	1.11
D4DJX4		75.57	1.02	1.12	73.72	-0.10	-0.11
D8ZBXD		72.52	-2.03	-2.24	71.79	-2.03	-2.21
DCERPP		73.80	-0.75	-0.83	73.70	-0.12	-0.13
DKZ2NJ	X	74.48	-0.07	-0.08	75.55	1.73	1.89
DMCR4E		74.90	0.35	0.39	73.60	-0.22	-0.24
DQTTWWH		73.40	-1.15	-1.27	73.20	-0.62	-0.68
DXBE7J		75.10	0.55	0.61	74.60	0.78	0.85
EDHQD4		75.37	0.82	0.90	75.46	1.64	1.78
EG4NU7		73.60	-0.95	-1.05	73.20	-0.62	-0.68
EKKVDZ		74.50	-0.05	-0.05	73.20	-0.62	-0.68
EYMNHG		73.00	-1.55	-1.71	72.00	-1.82	-1.99
FAZ43V		74.90	0.35	0.39	75.20	1.38	1.50
FEVXZW		76.00	1.45	1.60	75.00	1.18	1.28
FF6RUB		73.50	-1.05	-1.16	72.40	-1.42	-1.55
FTBTHE	*	76.27	1.72	1.90	74.56	0.73	0.80
FVFNIV		75.10	0.55	0.61	74.00	0.18	0.19
GQ7P6H		74.14	-0.41	-0.45	73.13	-0.69	-0.76
H3QLJK		74.40	-0.15	-0.16	73.70	-0.12	-0.13
HL3DHG		75.45	0.90	0.99	74.81	0.99	1.08
J8YE2W		74.24	-0.31	-0.34	74.00	0.18	0.20
J9WFDG		74.45	-0.10	-0.11	73.23	-0.59	-0.65
JNATTT	*	77.19	2.64	2.91	75.95	2.13	2.32
JUV4K3		73.30	-1.25	-1.38	72.90	-0.92	-1.01
JZ4AF9		74.42	-0.13	-0.14	73.82	-0.01	-0.01



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1121

1st Qtr 2025

Tensile Strength: Lab-Machined Round Steel ASTM E8

WebCode	Data Flag	Sample P07			Sample P08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
K36RVF		74.00	-0.55	-0.61	73.50	-0.32	-0.35
KF84M9		73.68	-0.87	-0.97	72.96	-0.87	-0.95
KFQ8YF		74.30	-0.25	-0.28	73.70	-0.12	-0.13
KKK2WG		73.80	-0.75	-0.83	73.50	-0.32	-0.35
KPWXEB		74.40	-0.15	-0.16	74.10	0.28	0.30
L6N4AC		73.80	-0.75	-0.83	72.70	-1.12	-1.22
L7HW4A		74.10	-0.45	-0.50	73.60	-0.22	-0.24
M6LWJ4		75.34	0.79	0.87	74.02	0.20	0.22
MH4N6P		75.20	0.65	0.72	73.90	0.08	0.08
MPPJ9E		75.00	0.45	0.50	74.40	0.58	0.63
MW8UH9		73.80	-0.75	-0.83	73.00	-0.82	-0.90
N6ZKKV		74.41	-0.14	-0.16	73.39	-0.43	-0.47
NKTC3B		74.29	-0.26	-0.29	73.29	-0.53	-0.58
NUFF74		74.30	-0.25	-0.27	73.57	-0.25	-0.28
NXER34		74.22	-0.33	-0.37	73.64	-0.18	-0.20
PGN72A		74.50	-0.05	-0.05	74.80	0.98	1.07
Q76UJ7		73.90	-0.65	-0.72	73.10	-0.72	-0.79
RVY79K		75.30	0.75	0.83	73.90	0.08	0.08
T6KW7W		74.40	-0.15	-0.16	73.90	0.08	0.08
TF7WZ9		75.10	0.55	0.61	75.10	1.28	1.39
U9F2EU		74.10	-0.45	-0.50	73.30	-0.52	-0.57
UABJGW		74.17	-0.38	-0.42	72.68	-1.14	-1.25
UAUCBE		73.20	-1.35	-1.49	72.40	-1.42	-1.55
UFFKE6		74.58	0.03	0.03	73.52	-0.30	-0.33
VB26MR		74.55	0.00	0.00	73.53	-0.29	-0.31
VHHWL6	X	73.97	-0.58	-0.64	77.02	3.19	3.48
VUTDH2		74.94	0.39	0.43	74.29	0.47	0.51
WEE86G		74.50	-0.05	-0.05	73.80	-0.02	-0.02
X7CNWH		75.50	0.95	1.05	75.40	1.58	1.72
XCLMQW		75.70	1.15	1.27	74.80	0.98	1.07
YYF2Q6		75.28	0.73	0.80	74.84	1.02	1.11
Z2ZD2U		74.25	-0.30	-0.33	73.33	-0.49	-0.54
ZTJWDQ		73.70	-0.85	-0.94	73.00	-0.82	-0.90
ZTJYZA		76.00	1.45	1.60	74.60	0.78	0.85

Summary Statistics

	Sample P07		Sample P08	
Grand Means	74.55	ksi	73.82	ksi
Std Dev Btwn Labs	0.91	ksi	0.92	ksi

Samples P07, P08 : AISI 1018 (E), AISI 1018 (F)

Statistics based on 77 of 81 reporting participants



Comments on Assigned Data Flags for Test #1121

- 3Q8QZN (X) - Data for sample P08 are high.
- BYE9XE (X) - Data for sample P08 are low.
- DKZ2NJ (X) - Inconsistent in testing between samples.
- VHHWL6 (X) - Data for sample P08 are high.



Analysis 1121

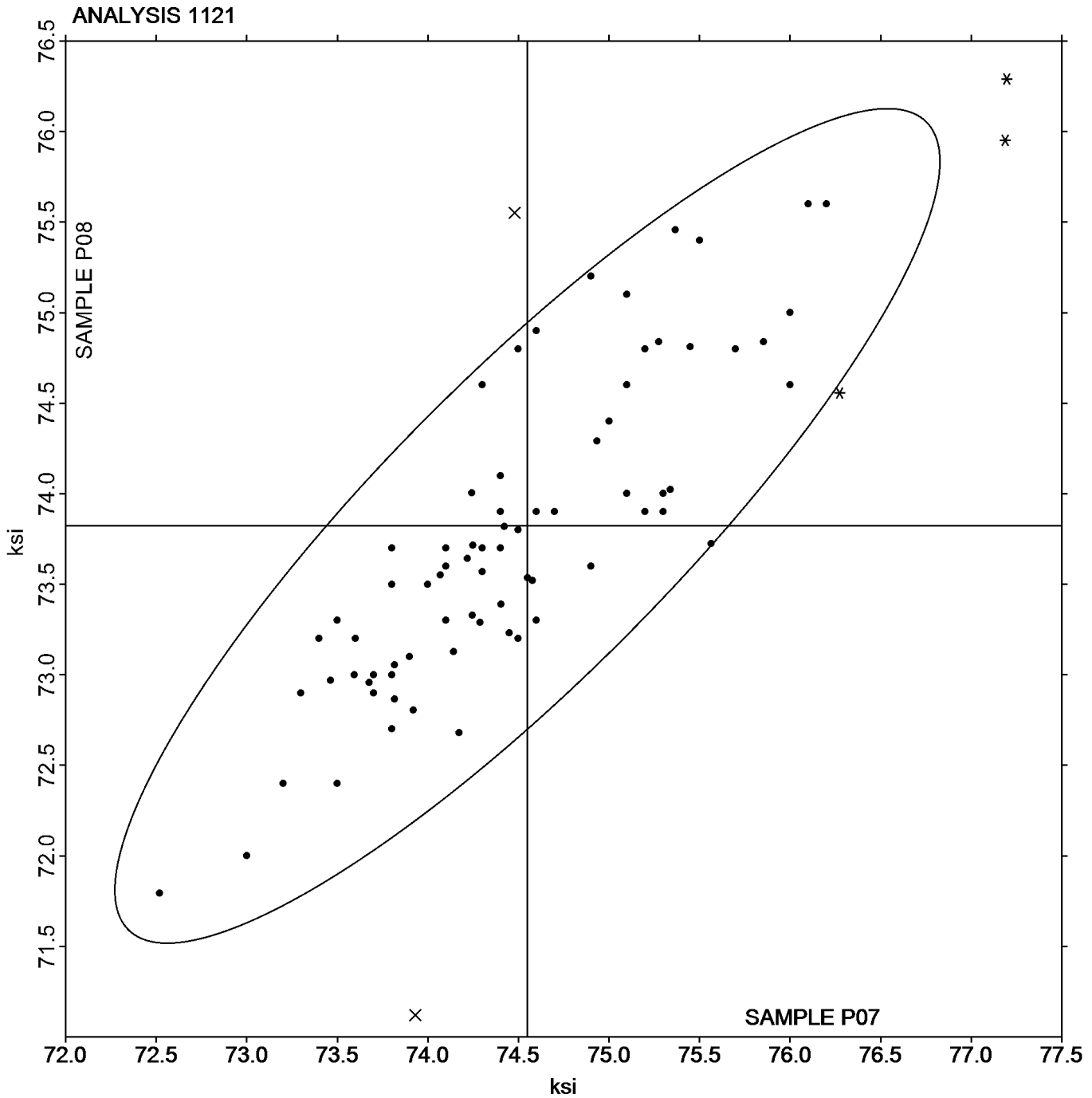
Tensile Strength: Lab-Machined Round Steel
ASTM E8

SAMPLE P07

SAMPLE P08

74.55 ksi

73.82 ksi





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1122

1st Qtr 2025

Yield Strength: Lab-Machined Round Steel ASTM E8

WebCode	Data Flag	Sample P07			Sample P08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2BYBL9	*	50.70	0.81	0.33	45.70	-3.69	-1.38
2TUB6R		51.20	1.31	0.53	53.30	3.91	1.46
2UU487		48.30	-1.59	-0.64	47.80	-1.59	-0.59
2VRCHB		51.00	1.11	0.45	51.30	1.91	0.71
3BE9UQ		50.71	0.82	0.33	50.69	1.29	0.48
3Q8QZN		54.98	5.09	2.06	54.56	5.17	1.93
4678B8		52.00	2.11	0.85	48.80	-0.59	-0.22
4ZPUKT		49.28	-0.61	-0.25	49.80	0.41	0.15
77RQ8P		48.40	-1.49	-0.60	46.70	-2.69	-1.00
78M99R		49.68	-0.22	-0.09	48.60	-0.79	-0.29
86UHWK		54.89	5.00	2.02	53.58	4.18	1.56
8EZPCK		53.75	3.86	1.56	52.79	3.39	1.27
8FWXMP	X	56.10	6.21	2.51	50.40	1.01	0.38
8KN68J		49.60	-0.29	-0.12	49.60	0.21	0.08
8ZVDWL		47.97	-1.92	-0.78	47.23	-2.16	-0.81
9JPBWT		48.20	-1.69	-0.68	48.30	-1.09	-0.41
9ZEG6L		47.79	-2.10	-0.85	47.12	-2.27	-0.85
BDQYPK		49.09	-0.80	-0.32	47.54	-1.85	-0.69
BMER2H	*	53.60	3.71	1.50	49.20	-0.19	-0.07
BP4VUP		49.78	-0.12	-0.05	48.55	-0.84	-0.31
BYE9XE		47.27	-2.62	-1.06	45.21	-4.18	-1.56
C6W8HJ		53.90	4.01	1.62	54.50	5.11	1.90
CQDBRM	X	33.36	-16.53	-6.69	31.91	-17.48	-6.52
D4DJX4		50.21	0.32	0.13	47.09	-2.30	-0.86
D8ZBXD		47.43	-2.46	-1.00	49.02	-0.37	-0.14
DCERPP		47.80	-2.09	-0.85	44.80	-4.59	-1.71
DKZ2NJ		48.60	-1.29	-0.52	49.01	-0.38	-0.14
DMCR4E		48.40	-1.49	-0.60	48.70	-0.69	-0.26
DQTTWWH		48.20	-1.69	-0.68	47.10	-2.29	-0.85
DXBE7J		47.00	-2.89	-1.17	48.10	-1.29	-0.48
EDHQD4		50.85	0.95	0.39	51.12	1.73	0.65
EG4NU7		47.90	-1.99	-0.81	47.30	-2.09	-0.78
EKKVDZ		52.30	2.41	0.97	50.00	0.61	0.23
EYMNHG		46.40	-3.49	-1.41	45.90	-3.49	-1.30
FAZ43V		51.40	1.51	0.61	52.90	3.51	1.31
FEVXZW		51.00	1.11	0.45	52.00	2.61	0.97
FF6RUB		48.20	-1.69	-0.68	47.30	-2.09	-0.78
FTBTHE		50.93	1.04	0.42	50.94	1.54	0.58
FVFNYV		52.00	2.11	0.85	50.50	1.11	0.41
GQ7P6H		50.46	0.57	0.23	53.59	4.20	1.57
H3QLJK		51.20	1.31	0.53	52.00	2.61	0.97
HL3DHG		49.90	0.01	0.00	47.91	-1.48	-0.55
J8YE2W		47.42	-2.48	-1.00	47.76	-1.63	-0.61
J9WFDG		50.81	0.91	0.37	50.33	0.94	0.35
JNATTT		47.87	-2.02	-0.82	46.62	-2.78	-1.03
JUV4K3		47.90	-1.99	-0.81	47.50	-1.89	-0.71
JZ4AF9		53.49	3.59	1.45	52.61	3.22	1.20



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1122

1st Qtr 2025

Yield Strength: Lab-Machined Round Steel ASTM E8

WebCode	Data Flag	Sample P07			Sample P08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
K36RVF		52.00	2.11	0.85	49.70	0.31	0.11
KF84M9		53.10	3.21	1.30	53.48	4.09	1.52
KFQ8YF		48.80	-1.09	-0.44	48.50	-0.89	-0.33
KKK2WG		45.10	-4.79	-1.94	46.50	-2.89	-1.08
KPWXE8		55.70	5.81	2.35	54.70	5.31	1.98
L6N4AC		45.60	-4.29	-1.74	46.20	-3.19	-1.19
L7HW4A		46.80	-3.09	-1.25	48.40	-0.99	-0.37
M6LWJ4		47.39	-2.50	-1.01	48.78	-0.61	-0.23
MH4N6P		54.70	4.81	1.94	55.00	5.61	2.09
MPPJ9E		47.20	-2.69	-1.09	48.70	-0.69	-0.26
MW8UH9		48.30	-1.59	-0.64	45.30	-4.09	-1.53
N6ZKKV		50.04	0.15	0.06	49.60	0.21	0.08
NKTC3B		50.39	0.49	0.20	49.01	-0.38	-0.14
NUFF74		53.49	3.60	1.45	53.79	4.40	1.64
NXER34		54.19	4.30	1.74	53.70	4.31	1.61
PGN72A		46.30	-3.59	-1.45	46.20	-3.19	-1.19
Q76UJ7		47.60	-2.29	-0.93	46.50	-2.89	-1.08
RVY79K	*	48.00	-1.89	-0.77	51.60	2.21	0.82
T6KW7W		46.60	-3.29	-1.33	46.20	-3.19	-1.19
TF7WZ9		49.50	-0.39	-0.16	48.50	-0.89	-0.33
U9F2EU		48.90	-0.99	-0.40	48.30	-1.09	-0.41
UAUCBE		49.20	-0.69	-0.28	47.60	-1.79	-0.67
UFFKE6		51.31	1.42	0.58	50.87	1.47	0.55
VB26MR		48.88	-1.01	-0.41	48.88	-0.51	-0.19
VHHWL6	X	45.83	-4.06	-1.64	51.92	2.53	0.94
VUTDH2		51.55	1.66	0.67	50.45	1.06	0.39
WEE86G		51.20	1.31	0.53	48.30	-1.09	-0.41
X7CNWH		49.80	-0.09	-0.04	50.70	1.31	0.49
XCLMQW		49.50	-0.39	-0.16	48.00	-1.39	-0.52
YYF2Q6		48.30	-1.59	-0.64	48.15	-1.24	-0.46
Z2ZD2U		50.04	0.15	0.06	47.60	-1.79	-0.67
ZTJWDQ		54.90	5.01	2.03	56.00	6.61	2.46
ZTJYZA		47.60	-2.29	-0.93	47.00	-2.39	-0.89

Summary Statistics

	Sample P07		Sample P08	
Grand Means	49.89	ksi	49.39	ksi
Std Dev Btrn Labs	2.47	ksi	2.68	ksi

Samples P07, P08 : AISI 1018 (E), AISI 1018 (F)

Statistics based on 77 of 80 reporting participants

Comments on Assigned Data Flags for Test #1122

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

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

VHHWL6 (X) - Inconsistent in testing between samples.



Analysis 1122

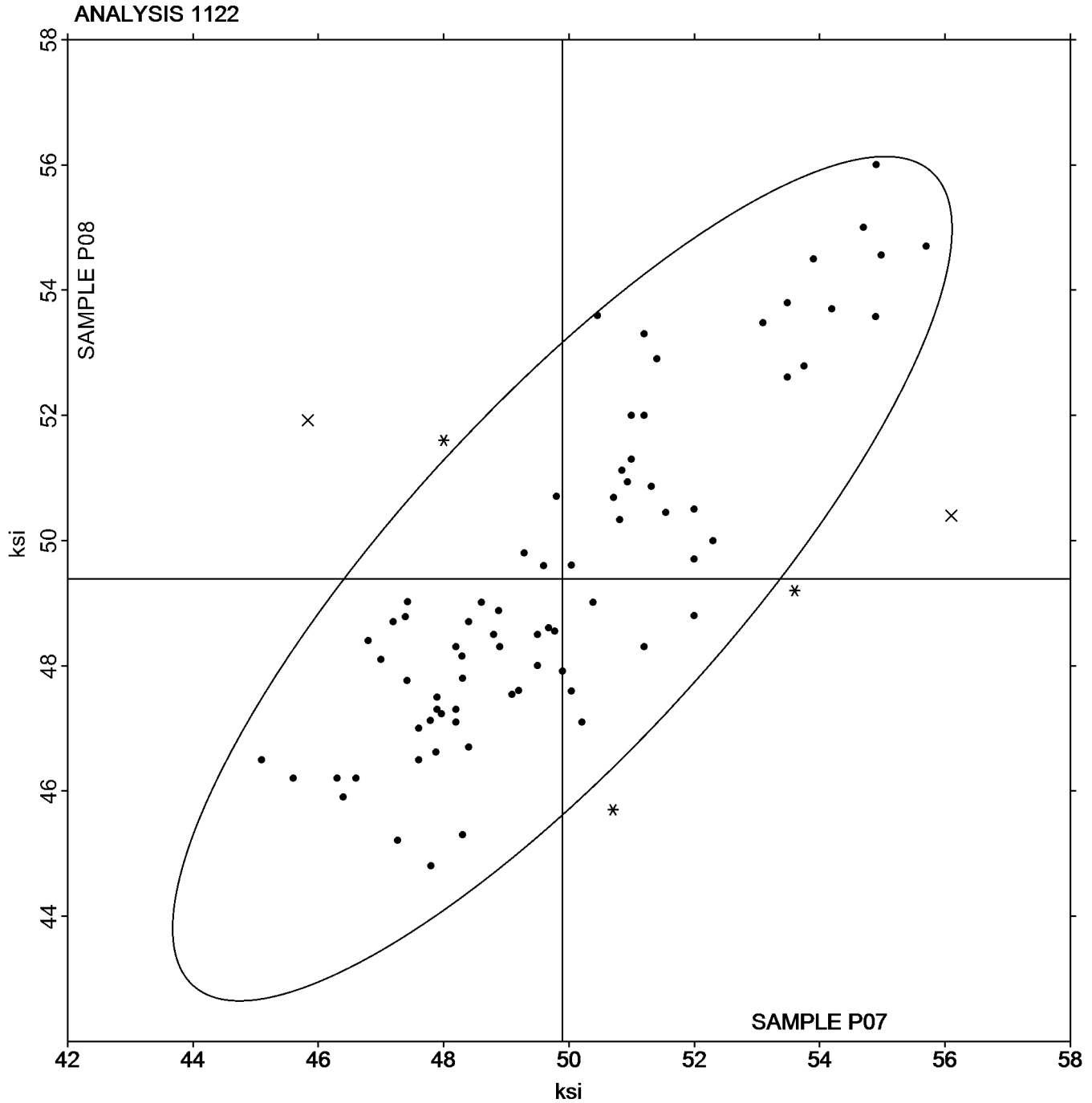
Yield Strength: Lab-Machined Round Steel
ASTM E8

SAMPLE P07

49.89 ksi

SAMPLE P08

49.39 ksi





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1123

1st Qtr 2025

Elongation: Lab-Machined Round Steel ASTM E8

WebCode	Data Flag	Sample P07			Sample P08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2BYBL9		33.50	-0.49	-0.24	33.80	0.13	0.06
2TUB6R		34.80	0.81	0.40	32.70	-0.97	-0.46
2UU487		34.30	0.31	0.15	34.20	0.53	0.25
2VRCHB		35.00	1.01	0.50	35.00	1.33	0.63
3BE9UQ		32.60	-1.39	-0.68	34.50	0.83	0.39
3Q8QZN		34.64	0.65	0.32	32.40	-1.27	-0.61
4678B8		30.50	-3.49	-1.72	31.00	-2.67	-1.27
4ZPUKT		31.00	-2.99	-1.47	30.00	-3.67	-1.75
77RQ8P		33.60	-0.39	-0.19	34.00	0.33	0.16
78M99R		35.00	1.01	0.50	36.00	2.33	1.11
86UHWK		33.00	-0.99	-0.49	32.00	-1.67	-0.80
8EZPCK		33.00	-0.99	-0.49	32.00	-1.67	-0.80
8FWXMP		33.00	-0.99	-0.49	33.00	-0.67	-0.32
8KN68J		32.50	-1.49	-0.73	33.00	-0.67	-0.32
8ZVDWL		33.10	-0.89	-0.44	34.60	0.93	0.44
9JPBWT		34.90	0.91	0.45	34.60	0.93	0.44
9ZEG6L	X	35.50	1.51	0.75	39.00	5.33	2.53
BDQYPK		37.00	3.01	1.49	36.00	2.33	1.11
BMER2H		32.80	-1.19	-0.59	33.00	-0.67	-0.32
BP4VUP		37.15	3.16	1.56	38.10	4.43	2.10
BYE9XE		35.30	1.31	0.65	36.60	2.93	1.39
C6W8HJ		35.00	1.01	0.50	34.00	0.33	0.16
CQDBRM	X	30.00	-3.99	-1.97	33.00	-0.67	-0.32
D4DJX4		30.10	-3.89	-1.92	29.70	-3.97	-1.89
D8ZBXD		38.90	4.91	2.42	38.10	4.43	2.10
DCERPP		33.70	-0.29	-0.14	33.80	0.13	0.06
DKZ2NJ		37.56	3.57	1.76	36.20	2.53	1.20
DMCR4E		35.00	1.01	0.50	34.00	0.33	0.16
DQTWWH		35.70	1.71	0.85	37.10	3.43	1.63
DXBE7J		36.40	2.41	1.19	36.00	2.33	1.11
EDHQD4		32.05	-1.94	-0.96	31.89	-1.78	-0.85
EG4NU7		36.80	2.81	1.39	34.40	0.73	0.35
EKKVDZ		32.00	-1.99	-0.98	31.00	-2.67	-1.27
EYMNHG	X	52.00	18.01	8.89	53.00	19.33	9.19
FAZ43V	*	29.00	-4.99	-2.46	30.00	-3.67	-1.75
FEVXZW		33.00	-0.99	-0.49	33.00	-0.67	-0.32
FF6RUB		32.00	-1.99	-0.98	33.00	-0.67	-0.32
FTBTHE		35.00	1.01	0.50	33.00	-0.67	-0.32
FVFNYV		33.10	-0.89	-0.44	32.50	-1.17	-0.56
GQ7P6H		34.50	0.51	0.25	36.10	2.43	1.15
H3QLJK		33.00	-0.99	-0.49	33.50	-0.17	-0.08
HL3DHG		34.20	0.21	0.11	33.60	-0.07	-0.04
J8YE2W	*	34.05	0.06	0.03	30.90	-2.77	-1.32
J9WFDG		35.80	1.81	0.89	35.50	1.83	0.87
JNATTT		34.60	0.61	0.30	34.10	0.43	0.20
JUV4K3	*	39.70	5.71	2.82	38.00	4.33	2.06
JZ4AF9		33.00	-0.99	-0.49	32.00	-1.67	-0.80



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1123

1st Qtr 2025

Elongation: Lab-Machined Round Steel ASTM E8

WebCode	Data Flag	Sample P07			Sample P08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
K36RVF		34.80	0.81	0.40	34.20	0.53	0.25
KF84M9		33.00	-0.99	-0.49	32.00	-1.67	-0.80
KFQ8YF		36.50	2.51	1.24	37.50	3.83	1.82
KKK2WG		33.90	-0.09	-0.04	32.90	-0.77	-0.37
KPWXEB		34.50	0.51	0.25	35.00	1.33	0.63
L6N4AC		33.30	-0.69	-0.34	34.20	0.53	0.25
L7HW4A	X	40.70	6.71	3.31	35.00	1.33	0.63
M6LWJ4		30.00	-3.99	-1.97	30.00	-3.67	-1.75
MH4N6P	X	31.00	-2.99	-1.47	36.00	2.33	1.11
MPPJ9E		34.80	0.81	0.40	33.10	-0.57	-0.27
MW8UH9		37.10	3.11	1.54	37.90	4.23	2.01
N6ZKKV		31.91	-2.08	-1.02	32.06	-1.61	-0.77
NKTC3B		36.30	2.31	1.14	36.10	2.43	1.15
NUFF74		33.00	-0.99	-0.49	32.00	-1.67	-0.80
NXER34		32.50	-1.49	-0.73	32.00	-1.67	-0.80
PGN72A		31.15	-2.84	-1.40	30.30	-3.37	-1.60
Q76UJ7		35.00	1.01	0.50	35.70	2.03	0.96
RVY79K		34.30	0.31	0.15	34.70	1.03	0.49
T6KW7W		34.00	0.01	0.01	34.00	0.33	0.16
TF7WZ9		30.80	-3.19	-1.57	29.10	-4.57	-2.17
U9F2EU		36.60	2.61	1.29	34.80	1.13	0.54
UABJGW		34.35	0.36	0.18	33.50	-0.17	-0.08
UAUCBE		35.00	1.01	0.50	34.10	0.43	0.20
UFFKE6		35.00	1.01	0.50	35.10	1.43	0.68
VB26MR		32.50	-1.49	-0.73	32.00	-1.67	-0.80
VHHWL6	X	36.00	2.01	0.99	39.00	5.33	2.53
VUTDH2		33.85	-0.14	-0.07	32.60	-1.07	-0.51
WEE86G		31.00	-2.99	-1.47	32.00	-1.67	-0.80
X7CNWH		34.50	0.51	0.25	35.00	1.33	0.63
XCLMQW		32.90	-1.09	-0.54	32.80	-0.87	-0.42
YYF2Q6		32.00	-1.99	-0.98	31.00	-2.67	-1.27
Z2ZD2U	X	26.55	-7.44	-3.67	33.50	-0.17	-0.08
ZTJWDQ		33.90	-0.09	-0.04	33.90	0.23	0.11
ZTJYZA		35.70	1.71	0.85	34.40	0.73	0.35

Summary Statistics

	Sample P07		Sample P08	
Grand Means	33.99	Percent	33.67	Percent
Std Dev Btwn Labs	2.03	Percent	2.10	Percent

Samples P07, P08 : AISI 1018 (E), AISI 1018 (F)

Statistics based on 74 of 81 reporting participants



Comments on Assigned Data Flags for Test #1123

9ZEG6L (X) - Inconsistent in testing between samples.

CQDBRM (X) - Inconsistent in testing between samples.

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

L7HW4A (X) - Data for sample P07 are high.

MH4N6P (X) - Inconsistent in testing between samples.

VHHWL6 (X) - Inconsistent in testing between samples.

Z2ZD2U (X) - Data for sample P07 are low.



Analysis 1123

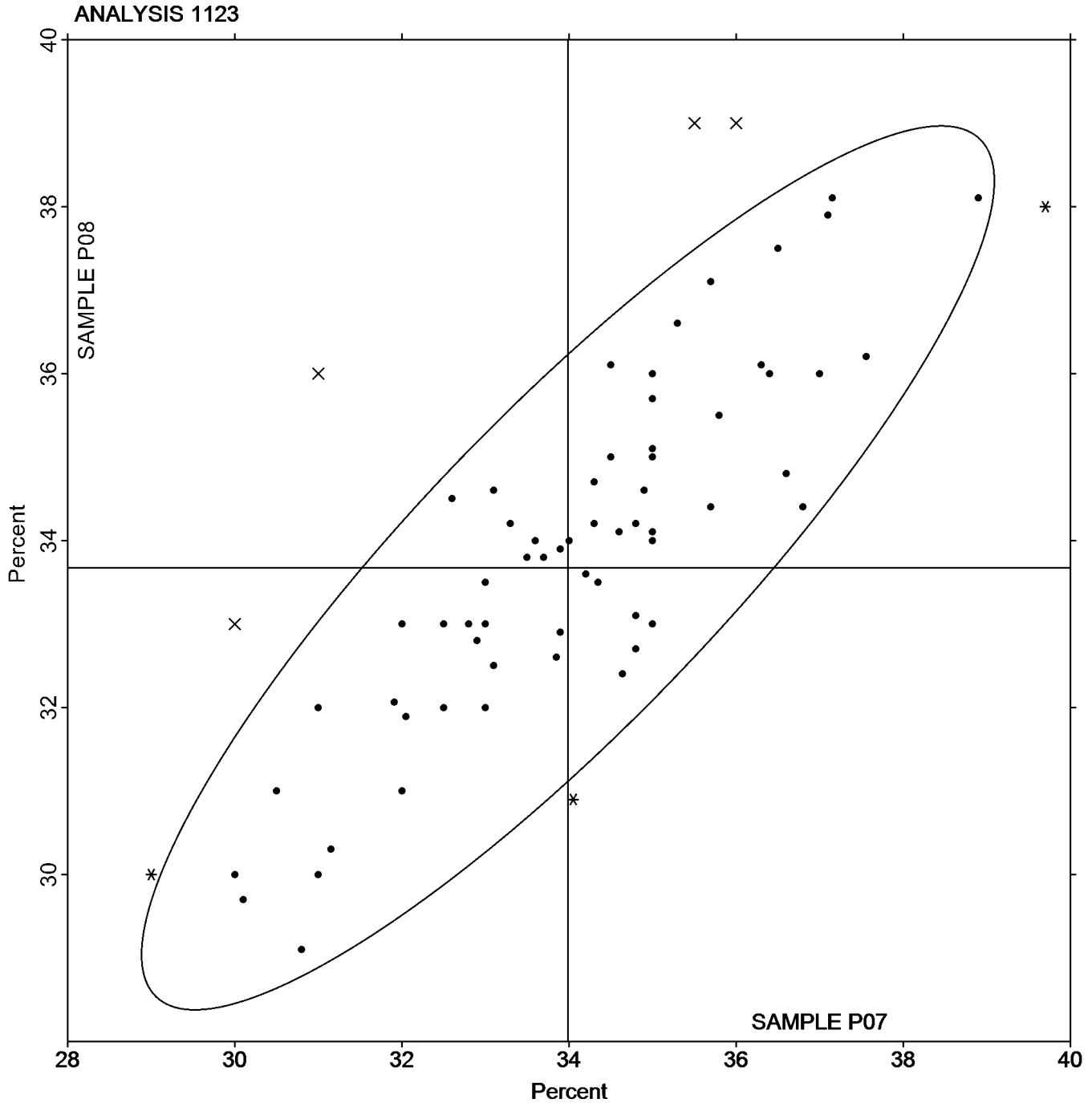
Elongation: Lab-Machined Round Steel
ASTM E8

SAMPLE P07

33.99 Percent

SAMPLE P08

33.67 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1124

1st Qtr 2025

Reduction of Area: Lab-Machined Round Steel ASTM E8

WebCode	Data Flag	Sample P07			Sample P08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2BYBL9		67.80	0.29	0.30	65.20	0.31	0.26
2TUB6R	*	69.90	2.39	2.45	65.60	0.71	0.60
2UU487		68.00	0.49	0.50	64.90	0.01	0.00
2VRCHB		68.00	0.49	0.50	65.50	0.61	0.52
3BE9UQ		68.36	0.85	0.87	66.19	1.30	1.11
3Q8QZN	*	65.23	-2.28	-2.33	64.28	-0.61	-0.52
4ZPUKT	X	64.20	-3.31	-3.38	64.00	-0.89	-0.76
77RQ8P		65.50	-2.01	-2.05	64.90	0.01	0.00
78M99R	X	65.50	-2.01	-2.05	66.30	1.41	1.20
86UHWK		68.10	0.59	0.61	65.00	0.11	0.09
8EZPCK		67.70	0.19	0.20	65.00	0.11	0.09
8FWXMP		67.00	-0.51	-0.52	64.00	-0.89	-0.76
8KN68J		65.80	-1.71	-1.74	64.40	-0.49	-0.42
8ZVDWL		67.40	-0.11	-0.11	65.80	0.91	0.77
9JPBWT		67.40	-0.11	-0.11	63.10	-1.79	-1.53
9ZEG6L		66.60	-0.91	-0.93	65.70	0.81	0.69
BDQYPK		69.00	1.49	1.53	66.00	1.11	0.94
BMER2H		67.10	-0.41	-0.42	64.70	-0.19	-0.17
BP4VUP		67.93	0.42	0.43	65.27	0.38	0.32
BYE9XE	X	64.70	-2.81	-2.87	66.90	2.01	1.71
C6W8HJ		68.20	0.69	0.71	64.00	-0.89	-0.76
CQDBRM	X	71.00	3.49	3.57	70.00	5.11	4.36
D4DJX4		66.30	-1.21	-1.23	64.70	-0.19	-0.17
D8ZBXD		67.50	-0.01	-0.01	65.70	0.81	0.69
DCERPP		66.90	-0.61	-0.62	65.10	0.21	0.18
DKZ2NJ		69.88	2.37	2.42	66.90	2.01	1.71
DMCR4E		67.20	-0.31	-0.31	65.00	0.11	0.09
EDHQD4		66.20	-1.31	-1.34	63.30	-1.59	-1.36
EG4NU7		67.60	0.09	0.10	65.40	0.51	0.43
EKKVDZ	X	63.20	-4.31	-4.40	67.70	2.81	2.39
EYMNHG		67.00	-0.51	-0.52	66.00	1.11	0.94
FAZ43V		67.00	-0.51	-0.52	65.00	0.11	0.09
FEVXZW	*	65.00	-2.51	-2.56	62.00	-2.89	-2.47
FF6RUB		67.00	-0.51	-0.52	65.00	0.11	0.09
FTBTHE		66.00	-1.51	-1.54	64.00	-0.89	-0.76
FVFNYV		67.30	-0.21	-0.21	64.20	-0.69	-0.59
GQ7P6H		66.50	-1.01	-1.03	62.00	-2.89	-2.47
H3QLJK		67.50	-0.01	-0.01	64.60	-0.29	-0.25
HL3DHG		68.40	0.89	0.91	65.70	0.81	0.69
J8YE2W		68.10	0.59	0.61	64.70	-0.19	-0.17
J9WFDG		67.00	-0.51	-0.52	65.30	0.41	0.35
JNATTT	X	60.10	-7.41	-7.57	59.60	-5.29	-4.52
JUV4K3		68.20	0.69	0.71	67.40	2.51	2.14
JZ4AF9		68.00	0.49	0.50	64.00	-0.89	-0.76
K36RVF		68.40	0.89	0.91	64.70	-0.19	-0.17
KF84M9		68.40	0.89	0.91	65.20	0.31	0.26
KFQ8YF		67.10	-0.41	-0.42	65.60	0.71	0.60



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1124

1st Qtr 2025

Reduction of Area: Lab-Machined Round Steel ASTM E8

WebCode	Data Flag	Sample P07			Sample P08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
KKK2WG		68.20	0.69	0.71	64.20	-0.69	-0.59
KPWxEB		68.10	0.59	0.61	65.20	0.31	0.26
L6N4AC		65.90	-1.61	-1.64	62.40	-2.49	-2.13
M6LWJ4		68.00	0.49	0.50	65.00	0.11	0.09
MH4N6P		67.80	0.29	0.30	65.80	0.91	0.77
MPPJ9E		67.50	-0.01	-0.01	65.00	0.11	0.09
N6ZKKV		67.12	-0.39	-0.40	64.96	0.07	0.06
NKTC3B		67.50	-0.01	-0.01	65.50	0.61	0.52
NUFF74		68.00	0.49	0.50	64.70	-0.19	-0.17
NXER34		67.60	0.09	0.10	64.60	-0.29	-0.25
PGN72A		66.95	-0.56	-0.57	63.47	-1.42	-1.22
RVY79K		69.50	1.99	2.04	67.40	2.51	2.14
T6KW7W		66.30	-1.21	-1.23	62.50	-2.39	-2.04
TF7WZ9		67.10	-0.41	-0.42	63.40	-1.49	-1.27
U9F2EU		67.90	0.39	0.40	65.60	0.71	0.60
UABJGW		66.94	-0.57	-0.58	65.25	0.36	0.30
UAUCBE		68.20	0.69	0.71	65.30	0.41	0.35
UFFKE6		67.30	-0.21	-0.21	65.20	0.31	0.26
VB26MR		68.00	0.49	0.50	66.00	1.11	0.94
VHHWL6	X	33.00	-34.51	-35.26	37.00	-27.89	-23.80
VUTDH2	*	67.47	-0.04	-0.04	61.93	-2.96	-2.53
WEE86G		69.10	1.59	1.63	65.70	0.81	0.69
X7CNWH		69.00	1.49	1.53	67.50	2.61	2.22
XCLMQW		67.50	-0.01	-0.01	63.70	-1.19	-1.02
YYF2Q6		68.00	0.49	0.50	65.00	0.11	0.09
Z2ZD2U		67.18	-0.33	-0.33	65.66	0.77	0.65
ZTJWDQ		67.90	0.39	0.40	65.00	0.11	0.09
ZTJYZA		66.90	-0.61	-0.62	65.80	0.91	0.77

Summary Statistics

	Sample P07		Sample P08	
Grand Means	67.51	Percent	64.89	Percent
Std Dev Btwn Labs	0.98	Percent	1.17	Percent

Samples P07, P08 : AISI 1018 (E), AISI 1018 (F)

Statistics based on 68 of 75 reporting participants

Comments on Assigned Data Flags for Test #1124

- 4ZPUKT (X) - Data for sample P07 are low.
- 78M99R (X) - Inconsistent in testing between samples.
- BYE9XE (X) - Data for sample P07 are low.
- CQDBRM (X) - Data for both samples are high.
- EKKVDZ (X) - Data for sample P07 are low.
- JNATTT (X) - Data for both samples are low.
- VHHWL6 (X) - Extreme data.



Analysis 1124

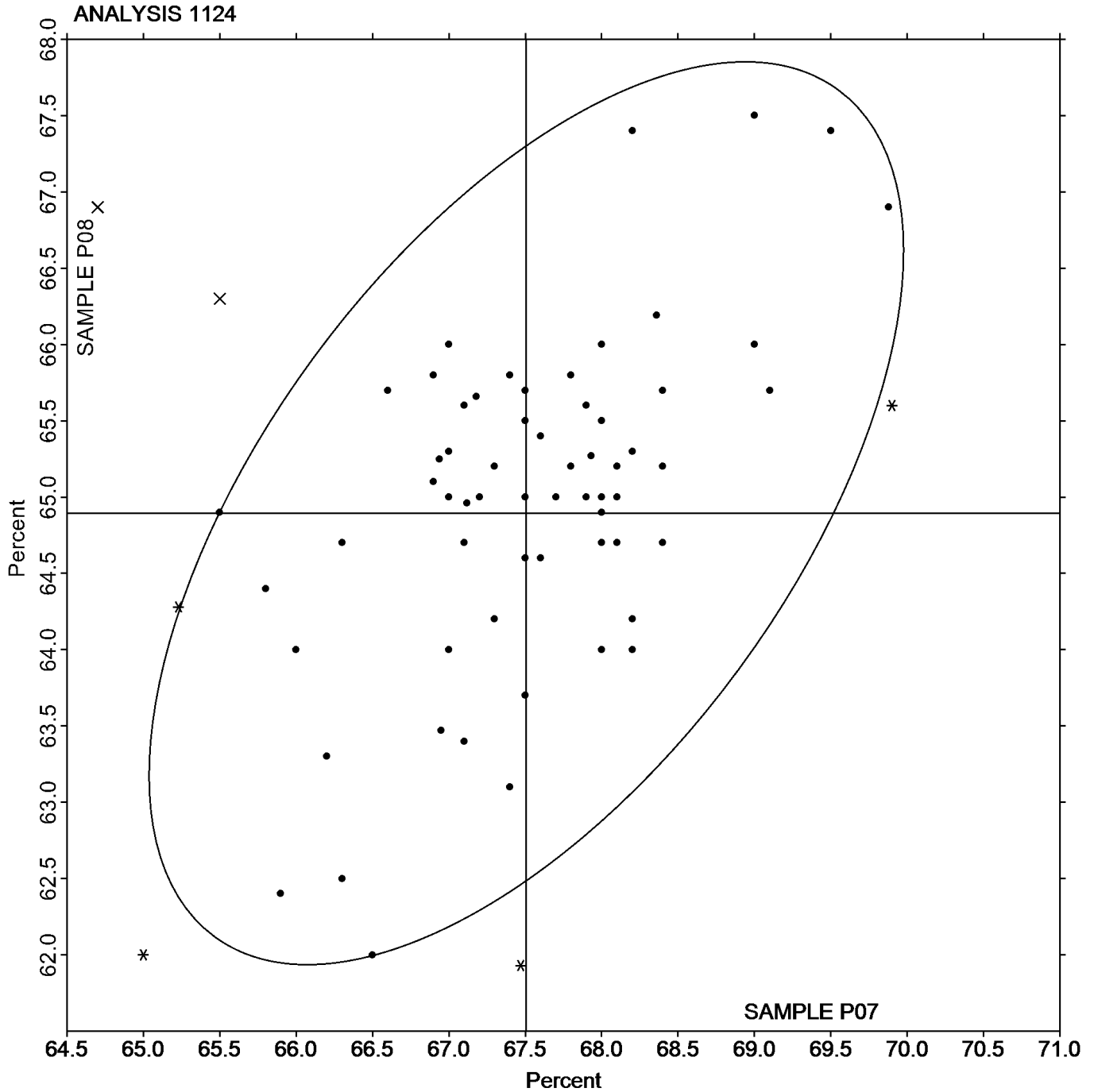
Reduction of Area: Lab-Machined Round Steel
ASTM E8

SAMPLE P07

67.51 Percent

SAMPLE P08

64.89 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1302

1st Qtr 2025

Rockwell Hardness: B Scale
ASTM E18

WebCode	Data Flag	Sample N07			Sample N08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2D8LHC	X	89.52	1.07	1.88	94.44	-1.42	-3.48
4BUTHU	X	87.96	-0.49	-0.87	94.22	-1.64	-4.02
6A9KLB		88.32	-0.13	-0.23	96.22	0.36	0.88
6J6ARF		87.94	-0.51	-0.90	95.66	-0.20	-0.49
6RBHQR		88.72	0.27	0.48	96.10	0.24	0.58
74JFC8		87.74	-0.71	-1.25	95.90	0.04	0.09
77RQ8P		88.78	0.33	0.58	96.16	0.30	0.73
7C2P24	X	85.58	-2.87	-5.06	95.64	-0.22	-0.54
82BR92		89.03	0.58	1.02	96.67	0.80	1.97
9TZLEJ		88.72	0.27	0.47	95.74	-0.12	-0.30
A3ZKCJ		89.06	0.61	1.07	96.06	0.20	0.49
AGYFXQ		87.64	-0.81	-1.43	95.20	-0.66	-1.62
ALCMUN		88.88	0.43	0.75	96.18	0.32	0.78
BP4VUP		89.20	0.75	1.32	95.68	-0.18	-0.45
BQHD22		89.00	0.55	0.97	96.00	0.14	0.34
C6W8HJ		88.42	-0.03	-0.06	95.78	-0.08	-0.20
C7TEDH	*	88.82	0.37	0.65	95.20	-0.66	-1.62
CQDBRM		88.82	0.37	0.65	95.90	0.04	0.09
CYWGQE		87.34	-1.11	-1.96	95.26	-0.60	-1.47
EJLWQK		87.88	-0.57	-1.01	95.86	0.00	0.00
F4DDHL		88.74	0.29	0.51	95.90	0.04	0.09
GELKRQ		87.76	-0.69	-1.22	95.54	-0.32	-0.79
GVDDK6		88.62	0.17	0.30	95.84	-0.02	-0.05
HDPAMB		87.82	-0.63	-1.11	95.24	-0.62	-1.52
HL3DHG		88.10	-0.35	-0.62	95.42	-0.44	-1.08
HL7TX3		88.74	0.29	0.51	95.88	0.02	0.04
JE47H8		89.30	0.85	1.49	96.30	0.44	1.07
KFQ8YF	X	90.00	1.55	2.73	95.20	-0.66	-1.62
KUM9NA	X	86.58	-1.87	-3.29	95.62	-0.24	-0.59
M23K68		89.56	1.11	1.95	95.86	0.00	0.00
M6LWJ4		88.60	0.15	0.26	96.10	0.24	0.58
MM26J6		88.34	-0.11	-0.20	96.50	0.64	1.56
NT4ENC		88.54	0.09	0.16	95.50	-0.36	-0.89
PZKA67		87.90	-0.55	-0.97	95.82	-0.04	-0.10
QFBWN4		88.54	0.09	0.16	96.52	0.66	1.61
QKZ9M7		88.02	-0.43	-0.76	96.20	0.34	0.83
QM9FZ7		89.00	0.55	0.97	96.40	0.54	1.32
RBNNP3		89.00	0.55	0.97	96.31	0.45	1.11
RX49L3		87.60	-0.85	-1.50	95.60	-0.26	-0.64
TM4N93		89.00	0.55	0.97	96.20	0.34	0.83
TNEQV2		88.54	0.09	0.16	95.76	-0.10	-0.25
U7BD2Q		87.96	-0.49	-0.87	95.64	-0.22	-0.54
UQX7HE		88.20	-0.25	-0.44	95.50	-0.36	-0.89
UXVUF7		87.66	-0.79	-1.39	95.26	-0.60	-1.47
VEYNNQ		87.45	-1.00	-1.77	95.03	-0.84	-2.05
VUTDH2		88.28	-0.17	-0.30	96.28	0.42	1.03
W3PB66		88.58	0.13	0.23	95.72	-0.14	-0.35



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1302

1st Qtr 2025

Rockwell Hardness: B Scale
ASTM E18

WebCode	Data Flag	Sample N07			Sample N08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
W766JG		88.20	-0.25	-0.44	95.50	-0.36	-0.89
XCMTVX		88.78	0.33	0.58	96.08	0.22	0.53
YLQ8EB		87.94	-0.51	-0.90	95.52	-0.34	-0.84
YU6TLT	X	83.00	-5.45	-9.60	95.12	-0.74	-1.82
YZPZYR		89.67	1.22	2.15	96.66	0.79	1.95

Summary Statistics

	Sample N07		Sample N08	
Grand Means	88.45	HRB	95.86	HRB
Std Dev Btwn Labs	0.57	HRB	0.41	HRB

Samples N07, N08 : Brass, Steel

Statistics based on 46 of 52 reporting participants

Comments on Assigned Data Flags for Test #1302

- 2D8LHC (X) - Data for sample N08 are low. Inconsistent within the determinations of sample N07.
- 4BUTHU (X) - Data for sample N08 are low. Inconsistent within the determinations of sample N08.
- 7C2P24 (X) - Data for sample N07 are low. Inconsistent within the determinations of both samples.
- KFQ8YF (X) - Data for sample N07 are high. Inconsistent within the determinations of sample N08.
- KUM9NA (X) - Data for sample N07 are low. Inconsistent within the determinations of both samples.
- YU6TLT (X) - Data for sample N07 are low.



Analysis 1302

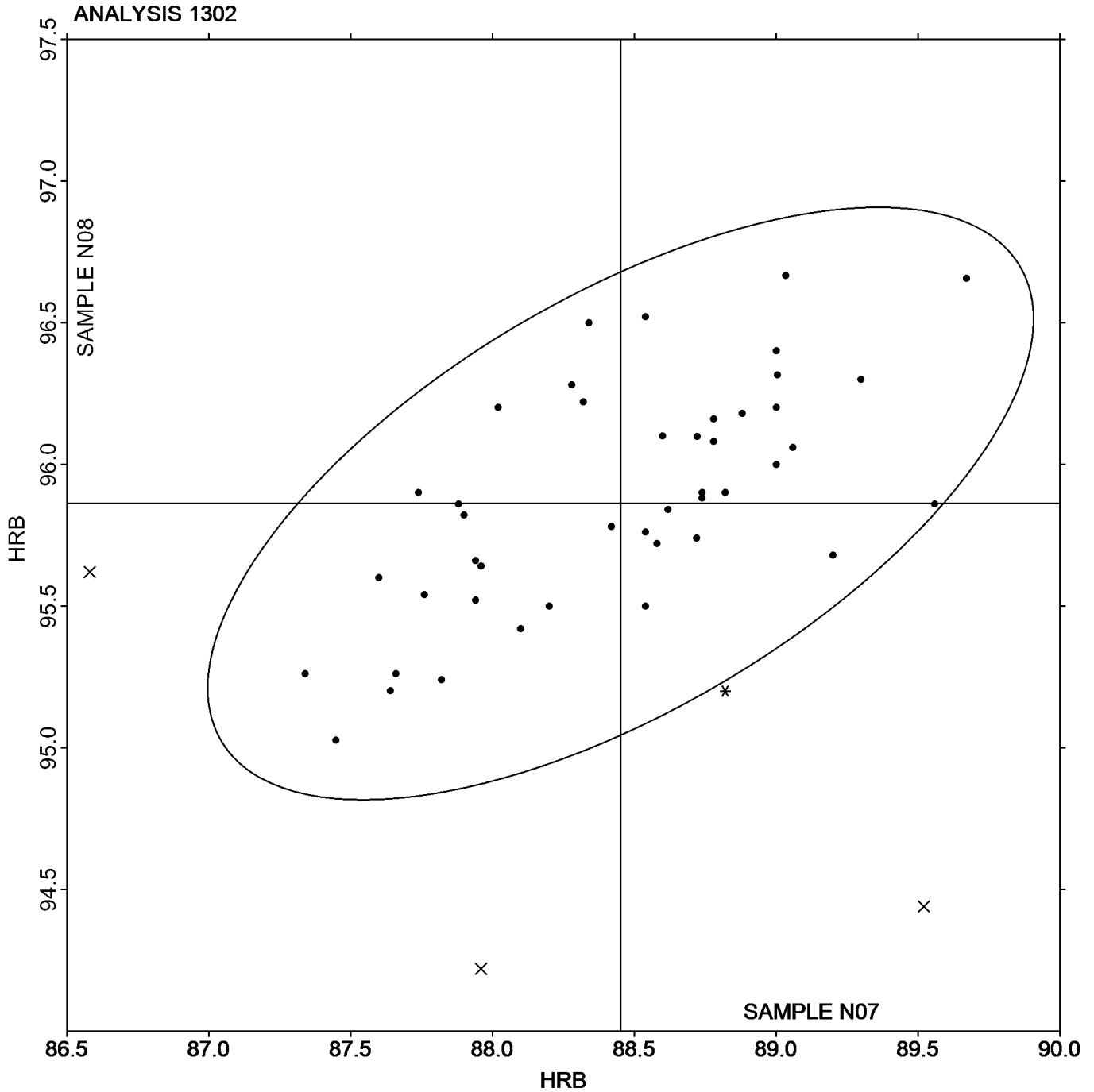
Rockwell Hardness: B Scale
ASTM E18

SAMPLE N07

SAMPLE N08

88.45 HRB

95.86 HRB





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1321

1st Qtr 2025

Microhardness: Knoop Indenters (500 gf)
ASTM E384

WebCode	Data Flag	Sample S07			Sample S08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2CAC98		420.40	-4.33	-0.32	496.60	-11.78	-0.84
2D8LHC		434.20	9.47	0.70	523.60	15.22	1.09
2WМУJD		424.80	0.07	0.01	489.66	-18.72	-1.34
6HMK4T		400.00	-24.73	-1.84	492.80	-15.58	-1.11
78M99R		421.20	-3.53	-0.26	488.60	-19.78	-1.41
9A4FLJ		409.40	-15.33	-1.14	492.20	-16.18	-1.16
A3ZKCJ		436.80	12.07	0.90	496.20	-12.18	-0.87
AEB7JJ		414.74	-9.99	-0.74	498.84	-9.54	-0.68
APCN2D		444.80	20.07	1.49	513.00	4.62	0.33
AVG6WT		405.18	-19.55	-1.45	492.46	-15.92	-1.14
B2KTPK		419.80	-4.93	-0.37	484.60	-23.78	-1.70
BBAGKM		436.80	12.07	0.90	538.80	30.42	2.17
BJMBZP		424.20	-0.53	-0.04	501.00	-7.38	-0.53
BQHD22		419.00	-5.73	-0.43	495.00	-13.38	-0.96
DUUZQQ		427.80	3.07	0.23	510.00	1.62	0.12
EPW2QL		425.80	1.07	0.08	509.20	0.82	0.06
FDZCBC		417.60	-7.13	-0.53	495.00	-13.38	-0.96
FEVXZW		449.11	24.38	1.81	526.26	17.88	1.28
FF6RUB	*	460.60	35.87	2.66	544.40	36.02	2.57
FTBTHE		417.40	-7.33	-0.54	504.00	-4.38	-0.31
G6LQZM		417.60	-7.13	-0.53	490.60	-17.78	-1.27
G7FG4F		414.40	-10.33	-0.77	497.60	-10.78	-0.77
GDE3VF	*	389.04	-35.69	-2.65	495.96	-12.42	-0.89
GFHT2V		421.40	-3.33	-0.25	522.60	14.22	1.02
GYXP9		427.60	2.87	0.21	517.60	9.22	0.66
HNQR7Q		408.00	-16.73	-1.24	493.00	-15.38	-1.10
J8YE2W		409.20	-15.53	-1.15	515.00	6.62	0.47
JME949		436.00	11.27	0.84	516.80	8.42	0.60
KFQ8YF		431.80	7.07	0.53	513.20	4.82	0.34
KNJH64		429.98	5.25	0.39	516.92	8.54	0.61
KUM9NA		436.20	11.47	0.85	508.54	0.16	0.01
LBCR83		439.32	14.59	1.08	515.54	7.16	0.51
LCPJXY		421.00	-3.73	-0.28	500.80	-7.58	-0.54
LF7L64		416.58	-8.15	-0.61	500.30	-8.08	-0.58
LM4FZG		423.40	-1.33	-0.10	505.00	-3.38	-0.24
NNPYWY		431.20	6.47	0.48	517.80	9.42	0.67
NVCNG9		424.00	-0.73	-0.05	507.60	-0.78	-0.06
NVPA34		423.20	-1.53	-0.11	513.80	5.42	0.39
NY9BAW		445.20	20.47	1.52	511.40	3.02	0.22
PB2YY6		420.44	-4.29	-0.32	516.31	7.93	0.57
Q4VV43		421.20	-3.53	-0.26	502.60	-5.78	-0.41
QZUXH3		420.00	-4.73	-0.35	513.60	5.22	0.37
R9RN2R		441.20	16.47	1.22	510.20	1.82	0.13
T6KW7W		428.80	4.07	0.30	523.00	14.62	1.04
TAXMLY		441.40	16.67	1.24	529.40	21.02	1.50
TBRF9V		403.40	-21.33	-1.58	496.00	-12.38	-0.88
TVF6G3		419.90	-4.83	-0.36	519.96	11.58	0.83



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1321

1st Qtr 2025

**Microhardness: Knoop Indenters (500 gf)
ASTM E384**

WebCode	Data Flag	Sample S07			Sample S08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
TW4FB2		413.40	-11.33	-0.84	498.00	-10.38	-0.74
U7UGAQ		437.00	12.27	0.91	524.20	15.82	1.13
UABJGW		454.58	29.85	2.22	536.67	28.30	2.02
UNU7N9		417.20	-7.53	-0.56	493.20	-15.18	-1.08
UQX7HE		420.60	-4.13	-0.31	519.40	11.02	0.79
V8FKGN		436.60	11.87	0.88	521.40	13.02	0.93
VB26MR		405.40	-19.33	-1.44	482.20	-26.18	-1.87
VFD24M		416.80	-7.93	-0.59	499.40	-8.98	-0.64
VHHWL6		428.40	3.67	0.27	508.40	0.02	0.00
W7LWW8		420.60	-4.13	-0.31	488.00	-20.38	-1.46
XAZ3KT		415.80	-8.93	-0.66	501.60	-6.78	-0.48
XCLMQW		437.24	12.51	0.93	515.56	7.18	0.51
YF2PZY		419.06	-5.67	-0.42	507.64	-0.74	-0.05
YZPZYR		436.00	11.27	0.84	515.00	6.62	0.47
ZP6Y64		426.58	1.85	0.14	517.30	8.92	0.64
ZTJWDQ		443.26	18.53	1.38	538.14	29.76	2.13
ZW226U		403.00	-21.73	-1.61	506.60	-1.78	-0.13

Summary Statistics

	Sample S07		Sample S08	
Grand Means	424.73	HK 500 gf	508.38	HK 500 gf
Stnd Dev Btrwn Labs	13.47	HK 500 gf	14.00	HK 500 gf

Samples S07, S08 : Steel, Steel

Statistics based on 64 of 64 reporting participants



Analysis 1321

Microhardness: Knoop Indenters (500 gf)

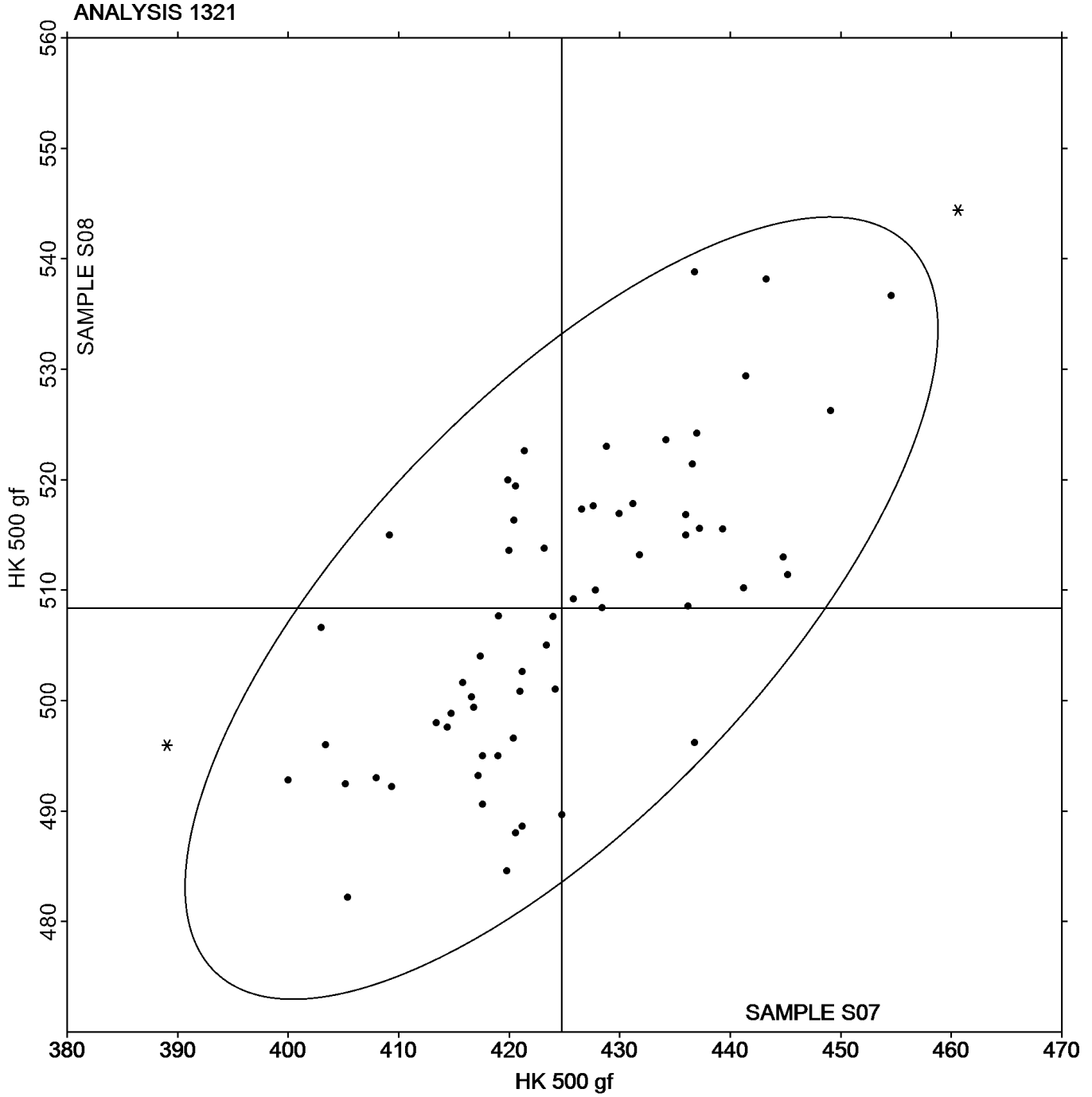
ASTM E384

SAMPLE S07

424.73 HK 500 gf

SAMPLE S08

508.38 HK 500 gf





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1322

1st Qtr 2025

Microhardness: Knoop Indenters (200 gf)
ASTM E384

WebCode	Data Flag	Sample S07			Sample S08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2CAC98		436.20	2.84	0.21	526.80	3.40	0.21
2D8LHC		447.80	14.44	1.06	539.00	15.60	0.96
2WМУJD		416.86	-16.50	-1.21	490.90	-32.50	-1.99
6HMK4T		408.00	-25.36	-1.86	493.80	-29.60	-1.81
78M99R		428.00	-5.36	-0.39	508.00	-15.40	-0.94
9A4FLJ		412.60	-20.76	-1.52	498.20	-25.20	-1.54
A3ZKCJ		419.60	-13.76	-1.01	510.20	-13.20	-0.81
AEB7JJ		420.28	-13.08	-0.96	501.20	-22.20	-1.36
AVG6WT		442.26	8.90	0.65	533.20	9.80	0.60
B2KTPK		431.00	-2.36	-0.17	510.40	-13.00	-0.80
BQHD22		424.00	-9.36	-0.69	504.00	-19.40	-1.19
FDZCBC		427.60	-5.76	-0.42	540.80	17.40	1.07
FF6RUB		448.40	15.04	1.10	555.20	31.80	1.95
FTBTHE		418.20	-15.16	-1.11	507.40	-16.00	-0.98
G7FG4F		426.40	-6.96	-0.51	518.80	-4.60	-0.28
GFHT2V		444.80	11.44	0.84	529.00	5.60	0.34
J8YE2W	*	406.40	-26.96	-1.98	518.20	-5.20	-0.32
KNJH64		441.44	8.08	0.59	535.26	11.86	0.73
KUM9NA		446.14	12.78	0.94	525.64	2.24	0.14
LBCR83		455.84	22.48	1.65	551.16	27.76	1.70
LCPJXY		433.60	0.24	0.02	511.40	-12.00	-0.73
LM4FZG		425.40	-7.96	-0.58	521.20	-2.20	-0.13
NNPYWY		443.00	9.64	0.71	528.20	4.80	0.29
NVCNG9		434.20	0.84	0.06	521.40	-2.00	-0.12
PB2YY6		432.01	-1.35	-0.10	522.36	-1.04	-0.06
Q4VV43		425.00	-8.36	-0.61	506.40	-17.00	-1.04
QZUXH3		428.60	-4.76	-0.35	509.40	-14.00	-0.86
R9RN2R		453.00	19.64	1.44	541.00	17.60	1.08
T6KW7W		441.60	8.24	0.60	539.60	16.20	0.99
TAXMLY		459.20	25.84	1.90	554.80	31.40	1.92
TBRF9V	*	403.20	-30.16	-2.21	518.60	-4.80	-0.29
TVF6G3		425.28	-8.08	-0.59	526.70	3.30	0.20
TW4FB2		423.40	-9.96	-0.73	531.60	8.20	0.50
U7UGAQ		460.20	26.84	1.97	547.80	24.40	1.49
UABJGW		453.09	19.72	1.45	535.17	11.77	0.72
UQX7HE		425.40	-7.96	-0.58	529.00	5.60	0.34
V8FKGN		433.40	0.04	0.00	534.20	10.80	0.66
VB26MR		432.00	-1.36	-0.10	516.20	-7.20	-0.44
VFD24M		431.80	-1.56	-0.11	519.20	-4.20	-0.26
VHHWL6		437.00	3.64	0.27	522.40	-1.00	-0.06
W7LWW8	*	427.00	-6.36	-0.47	487.00	-36.40	-2.23
XAZ3KT		440.00	6.64	0.49	531.60	8.20	0.50
YZPZYR		440.60	7.24	0.53	523.00	-0.40	-0.02
ZLNU9U		439.42	6.06	0.44	528.00	4.60	0.28
ZP6Y64		435.12	1.76	0.13	532.28	8.88	0.54
ZTJWDQ		450.28	16.92	1.24	540.82	17.42	1.07



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1322

1st Qtr 2025

**Microhardness: Knoop Indenters (200 gf)
ASTM E384**

Summary Statistics

	<u>Sample S07</u>		<u>Sample S08</u>	
Grand Means	433.36	HK 200 gf	523.40	HK 200 gf
Stnd Dev Btwn Labs	13.63	HK 200 gf	16.33	HK 200 gf

Samples S07, S08 : Steel, Steel

Statistics based on 46 of 46 reporting participants



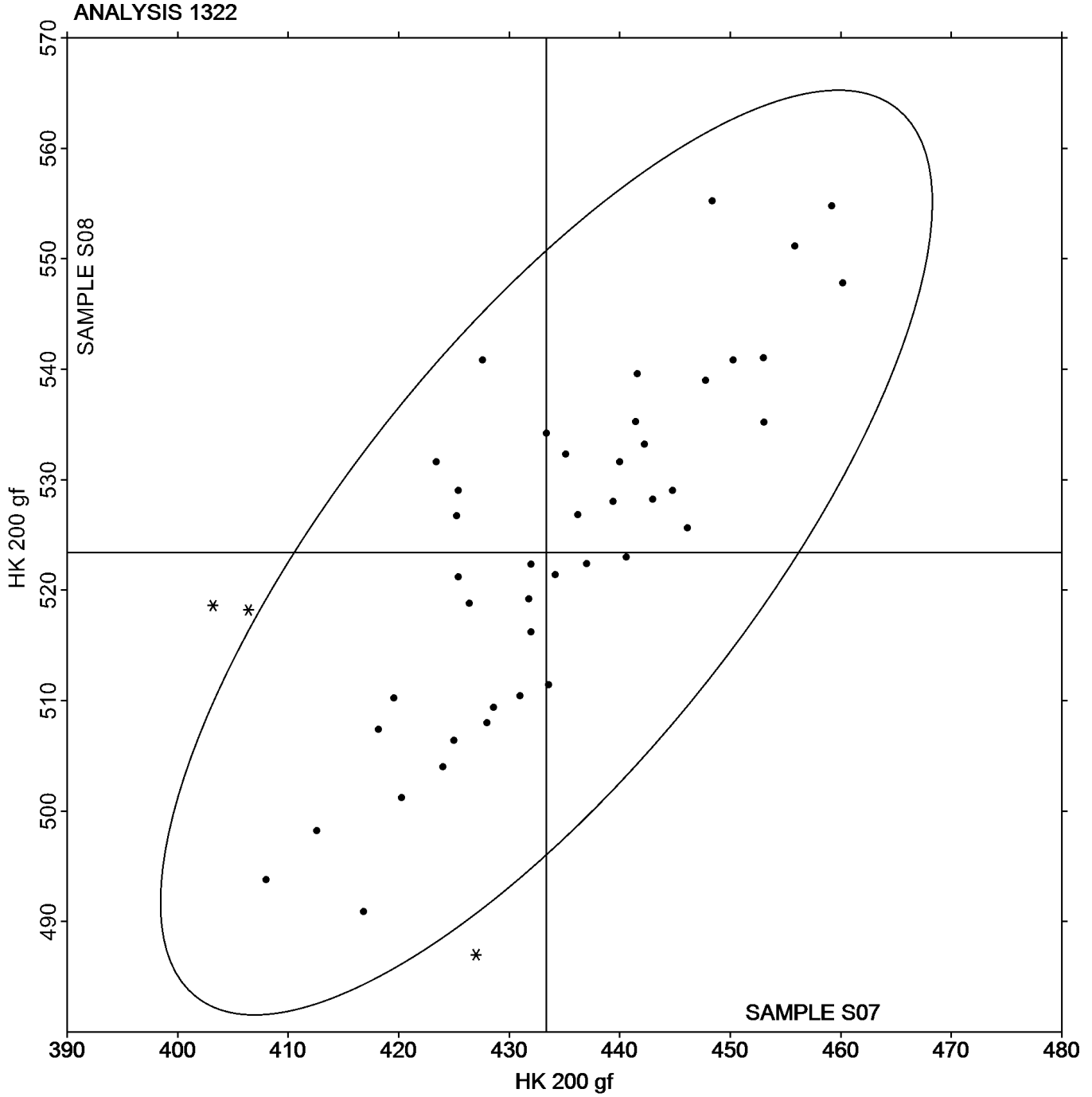
Analysis 1322

Microhardness: Knoop Indenters (200 gf)

ASTM E384

SAMPLE S07
433.36 HK 200 gf

SAMPLE S08
523.40 HK 200 gf





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1323

1st Qtr 2025

Microhardness: Vickers Indenters (500 gf)
ASTM E384

WebCode	Data Flag	Sample S07			Sample S08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
24Z2XV		416.40	14.74	1.58	510.20	18.81	1.59
2CAC98		398.00	-3.66	-0.39	494.40	3.01	0.25
2D8LHC		408.40	6.74	0.72	505.80	14.41	1.22
2VRCHB		407.40	5.74	0.62	492.60	1.21	0.10
2WMUJD		398.80	-2.86	-0.31	484.60	-6.79	-0.57
2Z3KMM		392.00	-9.66	-1.04	480.20	-11.19	-0.95
3663BD		408.56	6.90	0.74	493.08	1.69	0.14
3BE9UQ		404.00	2.34	0.25	495.60	4.21	0.36
449YZ3		397.56	-4.10	-0.44	493.12	1.73	0.15
4VZ69V		401.34	-0.32	-0.03	493.72	2.33	0.20
62KKCT		421.44	19.78	2.13	503.52	12.13	1.03
6HMK4T		383.40	-18.26	-1.96	470.00	-21.39	-1.81
74JFC8		405.00	3.34	0.36	499.80	8.41	0.71
78M99R		393.80	-7.86	-0.84	473.00	-18.39	-1.56
7P3KYW		401.20	-0.46	-0.05	491.00	-0.39	-0.03
7VUM6G		405.10	3.44	0.37	486.66	-4.73	-0.40
9A4FLJ		396.60	-5.06	-0.54	478.80	-12.59	-1.07
9TZLEJ		403.80	2.14	0.23	488.40	-2.99	-0.25
A3ZKCJ		391.60	-10.06	-1.08	479.20	-12.19	-1.03
AHT9QN	*	388.00	-13.66	-1.47	460.33	-31.06	-2.63
APCN2D		409.00	7.34	0.79	486.60	-4.79	-0.41
AZDYQN		393.40	-8.26	-0.89	479.40	-11.99	-1.01
B2KTPK		391.60	-10.06	-1.08	487.80	-3.59	-0.30
BBAGKM		393.40	-8.26	-0.89	490.80	-0.59	-0.05
BP4VUP		422.94	21.28	2.29	506.14	14.75	1.25
BQHD22		383.00	-18.66	-2.01	483.00	-8.39	-0.71
CCEJVK		396.16	-5.50	-0.59	476.60	-14.79	-1.25
CFHZJF		410.20	8.54	0.92	498.60	7.21	0.61
CQDBRM		408.40	6.74	0.72	494.62	3.23	0.27
DMCR4E		409.14	7.48	0.80	499.86	8.47	0.72
DV8JMG		408.40	6.74	0.72	508.40	17.01	1.44
E4H9Q8		394.80	-6.86	-0.74	493.20	1.81	0.15
EEFEHK		401.54	-0.12	-0.01	501.54	10.15	0.86
EJLWQK		397.60	-4.06	-0.44	482.60	-8.79	-0.74
FDZCBC		406.40	4.74	0.51	501.00	9.61	0.81
FF6RUB		399.00	-2.66	-0.29	491.40	0.01	0.00
FM9RDD		388.00	-13.66	-1.47	489.40	-1.99	-0.17
FTBTHE		403.44	1.78	0.19	500.52	9.13	0.77
G6LNAH		410.60	8.94	0.96	509.00	17.61	1.49
G7FG4F		400.60	-1.06	-0.11	493.20	1.81	0.15
GDE3VF		392.08	-9.58	-1.03	479.54	-11.85	-1.00
GFHT2V		397.60	-4.06	-0.44	485.20	-6.19	-0.52
GQ7P6H		417.80	16.14	1.73	518.40	27.01	2.28
GU3CWK		414.20	12.54	1.35	503.00	11.61	0.98
GYXP9	X	402.20	0.54	0.06	464.00	-27.39	-2.32
J8YE2W		398.80	-2.86	-0.31	488.00	-3.39	-0.29
JME949		396.60	-5.06	-0.54	495.60	4.21	0.36



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1323

1st Qtr 2025

Microhardness: Vickers Indenters (500 gf)
ASTM E384

WebCode	Data Flag	Sample S07			Sample S08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
JZZHQD		404.80	3.14	0.34	501.20	9.81	0.83
K36RVF		392.80	-8.86	-0.95	478.20	-13.19	-1.12
KFQ8YF		404.80	3.14	0.34	502.60	11.21	0.95
KNJH64		417.38	15.72	1.69	497.58	6.19	0.52
KUM9NA		394.36	-7.30	-0.78	489.12	-2.27	-0.19
LBCR83		398.34	-3.32	-0.36	485.38	-6.01	-0.51
LCPJXY		396.60	-5.06	-0.54	490.60	-0.79	-0.07
LM4FZG		404.20	2.54	0.27	494.20	2.81	0.24
LMRJTQ		403.60	1.94	0.21	495.40	4.01	0.34
LXQC44		400.60	-1.06	-0.11	480.72	-10.67	-0.90
N6ZKKV		400.64	-1.02	-0.11	500.58	9.19	0.78
NNPYWY		407.00	5.34	0.57	500.80	9.41	0.80
NVCNG9		397.00	-4.66	-0.50	486.20	-5.19	-0.44
NY9BAW		412.80	11.14	1.20	496.80	5.41	0.46
P43RZW	X	435.40	33.74	3.63	505.00	13.61	1.15
PB2YY6	*	393.25	-8.41	-0.90	501.43	10.03	0.85
Q4VV43		385.60	-16.06	-1.73	483.60	-7.79	-0.66
QCTEN8		390.90	-10.76	-1.16	473.48	-17.91	-1.52
QLWRP8		400.80	-0.86	-0.09	493.40	2.01	0.17
QZUXH3		391.80	-9.86	-1.06	472.20	-19.19	-1.62
R9RN2R	*	417.60	15.94	1.71	491.60	0.21	0.02
RBNNP3		408.40	6.74	0.72	505.80	14.41	1.22
RVY79K		405.00	3.34	0.36	504.40	13.01	1.10
T6KW7W		411.60	9.94	1.07	514.00	22.61	1.91
TAXMLY		419.60	17.94	1.93	516.60	25.21	2.13
TBACU4	X	355.68	-45.98	-4.94	419.56	-71.83	-6.08
TBRF9V		391.80	-9.86	-1.06	474.00	-17.39	-1.47
TBRLJ		400.30	-1.36	-0.15	485.90	-5.49	-0.46
TCHHCX		402.20	0.54	0.06	485.20	-6.19	-0.52
TW4FB2		387.40	-14.26	-1.53	481.60	-9.79	-0.83
TXHKAZ	*	421.40	19.74	2.12	499.40	8.01	0.68
U7UGAQ		402.00	0.34	0.04	491.60	0.21	0.02
U9F2EU		401.56	-0.10	-0.01	497.06	5.67	0.48
UABJGW		417.97	16.31	1.75	503.86	12.47	1.05
UAUCBE	X	446.80	45.14	4.85	491.20	-0.19	-0.02
UNU7N9		392.00	-9.66	-1.04	479.40	-11.99	-1.01
UQX7HE		412.60	10.94	1.18	515.60	24.21	2.05
V8FKGN		411.00	9.34	1.00	504.40	13.01	1.10
VB26MR		397.20	-4.46	-0.48	482.40	-8.99	-0.76
VFD24M		389.60	-12.06	-1.30	473.00	-18.39	-1.56
VHHWL6		387.40	-14.26	-1.53	475.00	-16.39	-1.39
VMART4		414.08	12.42	1.34	496.51	5.12	0.43
VWXT4L		399.40	-2.26	-0.24	480.60	-10.79	-0.91
VXQUUV		391.80	-9.86	-1.06	480.80	-10.59	-0.90
W7LWW8		407.20	5.54	0.60	483.00	-8.39	-0.71
W8V2AV	*	393.78	-7.88	-0.85	463.06	-28.33	-2.40
XAZ3KT		405.60	3.94	0.42	484.80	-6.59	-0.56



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1323

1st Qtr 2025

**Microhardness: Vickers Indenters (500 gf)
ASTM E384**

WebCode	Data Flag	Sample S07			Sample S08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
YZPZYR		400.60	-1.06	-0.11	491.80	0.41	0.03
ZP6Y64		404.90	3.24	0.35	492.48	1.09	0.09
ZTJWDQ		410.18	8.52	0.92	509.58	18.19	1.54
ZW226U		387.40	-14.26	-1.53	486.60	-4.79	-0.41

Summary Statistics

	Sample S07		Sample S08	
Grand Means	401.66	HV 500 gf	491.39	HV 500 gf
Stnd Dev Btwn Labs	9.30	HV 500 gf	11.82	HV 500 gf

Samples S07, S08 : Steel, Steel

Statistics based on 94 of 98 reporting participants

Comments on Assigned Data Flags for Test #1323

- GYYXP9 (X) - Inconsistent in testing between samples.
- P43RZW (X) - Data for sample S07 are high.
- TBACU4 (X) - Data for both samples are low.
- UAUCBE (X) - Data for sample S07 are high. Inconsistent within the determinations of both samples.

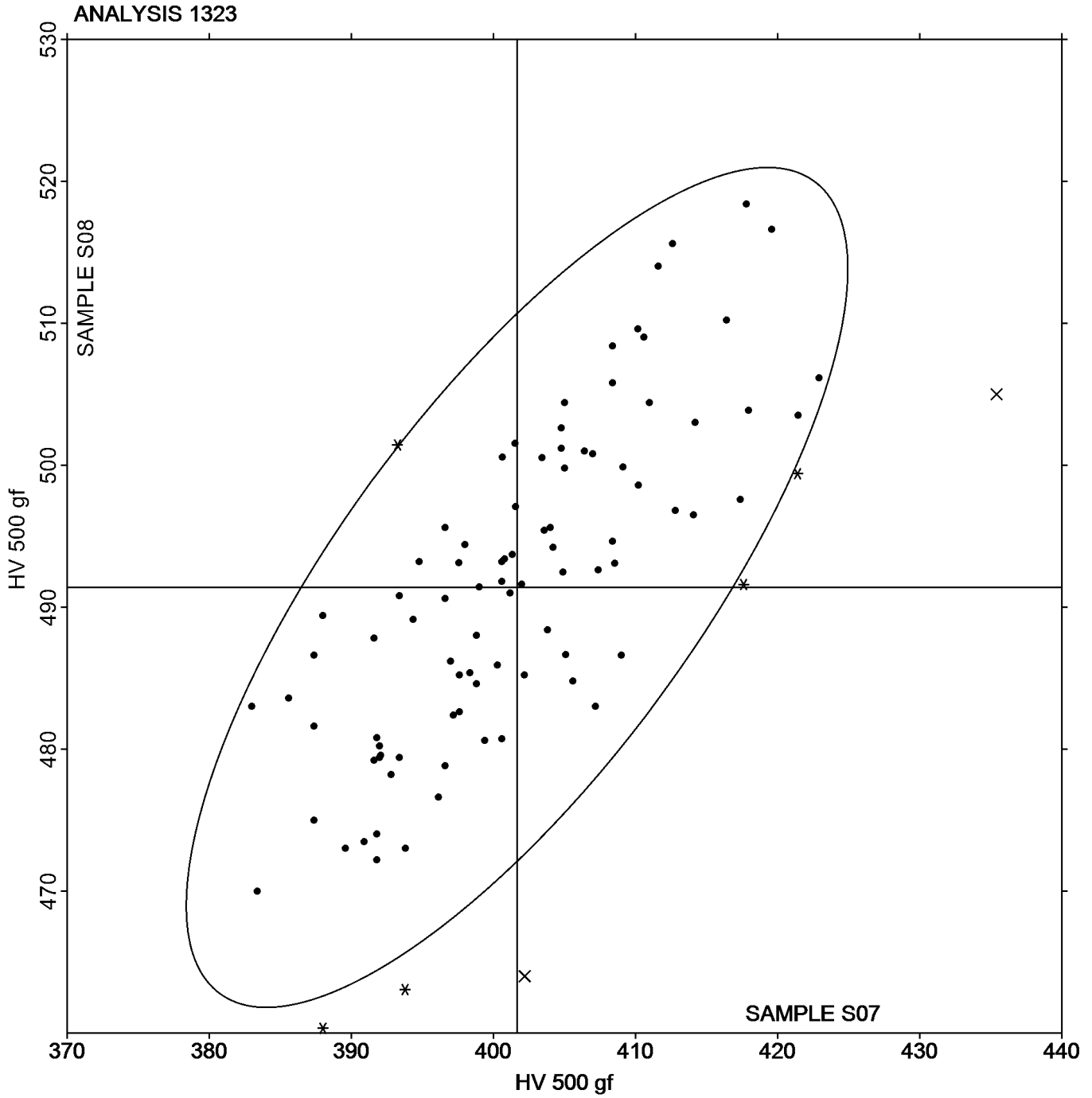


Analysis 1323

Microhardness: Vickers Indenters (500 gf)
ASTM E384

SAMPLE S07
401.66 HV 500 gf

SAMPLE S08
491.39 HV 500 gf





Fasteners and Metals Interlaboratory Testing Program
Analysis 1341
Brinell Hardness
ASTM E10

Cycle 149
1st Qtr 2025

WebCode	Data Flag	Sample D07			Sample D08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2CAC98		365.40	-2.93	-0.41	397.40	-5.44	-0.65
2D8LHC	*	389.00	20.67	2.90	414.80	11.96	1.43
2JTMDV		367.80	-0.53	-0.07	395.80	-7.04	-0.84
3663BD		361.80	-6.53	-0.92	388.00	-14.84	-1.78
3Q8QZN		357.20	-11.13	-1.56	390.40	-12.44	-1.49
4678B8		368.40	0.07	0.01	413.80	10.96	1.31
69YQRW	*	359.40	-8.93	-1.25	381.60	-21.24	-2.55
77RQ8P		368.60	0.27	0.04	400.40	-2.44	-0.29
78M99R		363.00	-5.33	-0.75	396.40	-6.44	-0.77
7YCRXK		364.00	-4.33	-0.61	405.00	2.16	0.26
AHT9QN	X	398.33	30.00	4.20	365.33	-37.51	-4.50
BC4ADK		366.80	-1.53	-0.21	401.40	-1.44	-0.17
BDQYPK		375.00	6.67	0.93	415.00	12.16	1.46
BP4VUP		363.00	-5.33	-0.75	390.00	-12.84	-1.54
CJFJKE		367.60	-0.73	-0.10	394.60	-8.24	-0.99
CQDBRM		367.60	-0.73	-0.10	396.40	-6.44	-0.77
DCERPP		363.60	-4.73	-0.66	401.00	-1.84	-0.22
DKZ2NJ		374.64	6.31	0.88	405.62	2.78	0.33
DQTTWWH		360.22	-8.11	-1.14	397.18	-5.66	-0.68
DXBE7J		362.20	-6.13	-0.86	399.40	-3.44	-0.41
E6NKJ3		372.88	4.55	0.64	410.30	7.46	0.89
EKKVDZ		368.00	-0.33	-0.05	400.40	-2.44	-0.29
FAZ43V		365.40	-2.93	-0.41	401.60	-1.24	-0.15
FTBTHE		363.00	-5.33	-0.75	403.80	0.96	0.12
GFHT2V		378.00	9.67	1.35	404.40	1.56	0.19
GUGVH3		382.60	14.27	2.00	412.60	9.76	1.17
GVW2ZD		374.40	6.07	0.85	406.60	3.76	0.45
GYBNQC		365.00	-3.33	-0.47	408.60	5.76	0.69
H3QLJK		363.00	-5.33	-0.75	409.40	6.56	0.79
HL3DHG		363.00	-5.33	-0.75	396.80	-6.04	-0.72
HY9D8E		375.11	6.78	0.95	411.96	9.12	1.09
JD497Q	*	388.00	19.67	2.76	415.00	12.16	1.46
JMEBRR		362.20	-6.13	-0.86	398.00	-4.84	-0.58
KFQ8YF		378.60	10.27	1.44	417.60	14.76	1.77
KGKX39		373.20	4.87	0.68	406.82	3.98	0.48
KZXGYC		361.60	-6.73	-0.94	393.60	-9.24	-1.11
L6N4AC		364.20	-4.13	-0.58	413.80	10.96	1.31
L7HW4A		359.56	-8.77	-1.23	393.18	-9.66	-1.16
LCPJXY		374.20	5.87	0.82	410.80	7.96	0.95
LEB333		369.20	0.87	0.12	402.80	-0.04	0.00
M6LWJ4		366.60	-1.73	-0.24	399.80	-3.04	-0.36
MH4N6P		363.00	-5.33	-0.75	401.00	-1.84	-0.22
MW8UH9		368.04	-0.29	-0.04	396.02	-6.82	-0.82
NFUZ36		367.65	-0.68	-0.10	399.40	-3.44	-0.41
NNPYWY		363.80	-4.53	-0.64	404.80	1.96	0.24
NPZRL8	X	342.20	-26.13	-3.66	376.60	-26.24	-3.15
PB2YY6		375.00	6.67	0.93	413.40	10.56	1.27



Fasteners and Metals Interlaboratory Testing Program
Analysis 1341
Brinell Hardness
ASTM E10

Cycle 149
1st Qtr 2025

WebCode	Data Flag	Sample D07			Sample D08		
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
Q4VV43		360.90	-7.43	-1.04	390.66	-12.18	-1.46
Q76UJ7		367.12	-1.21	-0.17	401.42	-1.42	-0.17
QM9FZ7		365.80	-2.53	-0.35	399.60	-3.24	-0.39
R9RN2R		363.00	-5.33	-0.75	390.00	-12.84	-1.54
RP9YL6		357.80	-10.53	-1.48	392.80	-10.04	-1.20
T6KW7W		370.60	2.27	0.32	405.00	2.16	0.26
T6YGUZ		372.18	3.85	0.54	397.88	-4.96	-0.59
TM4N93		374.40	6.07	0.85	407.60	4.76	0.57
TW4FB2		377.20	8.87	1.24	411.60	8.76	1.05
U9F2EU		381.40	13.07	1.83	417.00	14.16	1.70
UABJGW		367.80	-0.53	-0.07	403.00	0.16	0.02
VB26MR	X	373.12	4.79	0.67	374.30	-28.54	-3.42
VHHWL6	*	363.00	-5.33	-0.75	415.00	12.16	1.46
VMART4		380.20	11.87	1.66	413.20	10.36	1.24
W3PB66		372.60	4.27	0.60	412.20	9.36	1.12
WPEZFU	*	363.00	-5.33	-0.75	415.00	12.16	1.46
XCLMQW		358.40	-9.93	-1.39	391.00	-11.84	-1.42
XLBNUD		379.00	10.67	1.49	409.90	7.06	0.85
YYF2Q6		369.20	0.87	0.12	405.40	2.56	0.31
YZPZYR		357.68	-10.66	-1.49	390.16	-12.68	-1.52
Z2ZD2U		376.20	7.87	1.10	408.40	5.56	0.67
ZCWEJP		369.60	1.27	0.18	401.40	-1.44	-0.17
ZGRB8V		363.00	-5.33	-0.75	401.00	-1.84	-0.22
ZLNU9U		370.00	1.67	0.23	395.00	-7.84	-0.94
ZW226U		364.39	-3.94	-0.55	405.03	2.19	0.26

Summary Statistics				
	Sample D07		Sample D08	
Grand Means	368.33	HBW	402.84	HBW
Stnd Dev Btrwn Labs	7.14	HBW	8.34	HBW

Samples D07, D08 : Steel, Steel

Statistics based on 69 of 72 reporting participants

Samples D07, D08 are hardness test blocks made from steel. The blocks are heat treated to hardness levels specified by CTS.

Comments on Assigned Data Flags for Test #1341

- AHT9QN (X) - Data for sample D07 are high and data for sample D08 are low.
- NPZRL8 (X) - Data for both samples are low.
- VB26MR (X) - Data for sample D08 are low.



Analysis 1341

Brinell Hardness

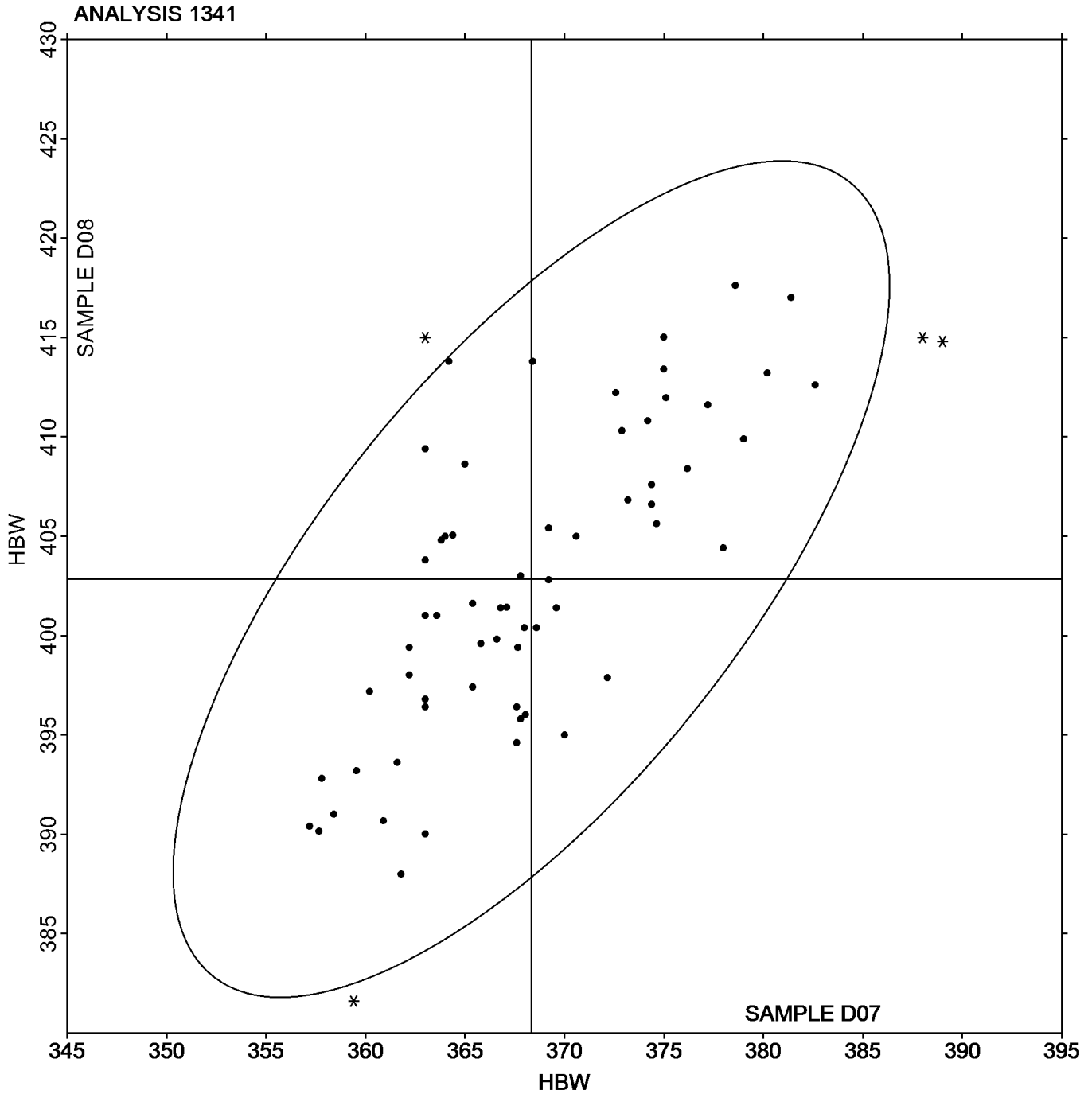
ASTM E10

SAMPLE D07

SAMPLE D08

368.33 HBW

402.84 HBW





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1600

1st Qtr 2025

Carbon & Low Alloy Steel, CARBON (C) CARBON (C)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
24Z2XV		0.4313	0.0099	1.29	0.4323	0.0120	1.48	OE
2ALXJX		0.4177	-0.0037	-0.49	0.4157	-0.0046	-0.57	DR
2CAC98		0.4167	-0.0047	-0.62	0.4143	-0.0060	-0.73	OE
2D8LHC		0.4347	0.0133	1.73	0.4340	0.0137	1.68	OE
2JTMDV		0.4230	0.0016	0.21	0.4210	0.0007	0.09	OE
2N8DMW		0.4143	-0.0071	-0.93	0.4148	-0.0055	-0.67	OE
2TUB6R	*	0.4263	0.0049	0.64	0.4133	-0.0070	-0.85	OE
3BE9UQ		0.4320	0.0106	1.38	0.4293	0.0090	1.10	XX
3RZRRX		0.4193	-0.0021	-0.27	0.4140	-0.0063	-0.77	OE
4VZ69V		0.4203	-0.0011	-0.14	0.4127	-0.0076	-0.93	OE
78M99R		0.4203	-0.0011	-0.14	0.4257	0.0054	0.66	OE
7C2P24	X	0.3973	-0.0241	-3.13	0.4040	-0.0163	-1.99	XX
7JWURK		0.4160	-0.0054	-0.70	0.4117	-0.0086	-1.06	OE
8Z39TE		0.4273	0.0059	0.77	0.4250	0.0047	0.58	OE
8ZVDWL		0.4277	0.0063	0.81	0.4253	0.0050	0.62	CO
9TYN23		0.4329	0.0115	1.49	0.4285	0.0082	1.01	OE
9TZLEJ		0.4237	0.0023	0.29	0.4200	-0.0003	-0.03	CI
AGYFXQ		0.4261	0.0047	0.61	0.4227	0.0024	0.30	OE
AZDYQN		0.4100	-0.0114	-1.48	0.4117	-0.0086	-1.06	OE
BMER2H		0.4183	-0.0031	-0.40	0.4237	0.0034	0.41	CI
BP4VUP		0.4183	-0.0031	-0.40	0.4167	-0.0036	-0.44	OE
BQHD22		0.4210	-0.0004	-0.05	0.4190	-0.0013	-0.16	OE
BQK6QW		0.4214	0.0000	0.00	0.4195	-0.0008	-0.10	XX
CFHZJF		0.4209	-0.0005	-0.07	0.4220	0.0017	0.21	CI
CP47CD		0.4253	0.0039	0.51	0.4260	0.0057	0.70	OE
D4DJX4		0.4077	-0.0137	-1.79	0.4057	-0.0146	-1.79	XX
DPY7TP		0.4308	0.0094	1.23	0.4337	0.0134	1.64	CI
DTYHNP		0.4223	0.0009	0.12	0.4277	0.0074	0.90	GD
DUBC7A		0.4276	0.0062	0.80	0.4273	0.0070	0.86	OE
EDHQD4		0.4167	-0.0047	-0.62	0.4100	-0.0103	-1.26	OE
EJLWQK	*	0.4367	0.0153	1.99	0.4213	0.0010	0.13	GD
EKKVDZ		0.4170	-0.0044	-0.57	0.4123	-0.0080	-0.97	OE
EML9LK		0.4317	0.0103	1.34	0.4336	0.0133	1.63	OE
EXRYEN		0.4216	0.0002	0.02	0.4182	-0.0021	-0.25	OE
FEVXZW		0.4313	0.0099	1.29	0.4213	0.0010	0.13	OE
FF6RUB	X	0.4480	0.0266	3.46	0.4437	0.0234	2.86	OE
FFMWCA		0.4209	-0.0005	-0.07	0.4147	-0.0056	-0.69	OE
FM9RDD		0.4363	0.0149	1.94	0.4350	0.0147	1.80	OE
FTBTHE		0.4330	0.0116	1.51	0.4327	0.0124	1.52	XX
G6LNAH		0.4139	-0.0076	-0.98	0.4078	-0.0125	-1.53	OE
G9LY7H		0.4237	0.0023	0.29	0.4263	0.0060	0.74	CO
GFHT2V		0.4247	0.0033	0.42	0.4237	0.0034	0.41	OE
GMXJEA		0.4267	0.0053	0.69	0.4272	0.0069	0.85	OE
GUGVH3		0.4130	-0.0084	-1.09	0.4147	-0.0056	-0.69	OE
GVW2ZD		0.4287	0.0073	0.94	0.4317	0.0114	1.39	CI
GYBNQC		0.4113	-0.0101	-1.31	0.4117	-0.0086	-1.06	OE
HDPAMB		0.4173	-0.0041	-0.53	0.4110	-0.0093	-1.14	OE



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1600

1st Qtr 2025

Carbon & Low Alloy Steel, CARBON (C) CARBON (C)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
HNP2UG		0.4276	0.0062	0.80	0.4230	0.0027	0.34	OE
HPNV68		0.4223	0.0009	0.12	0.4213	0.0010	0.13	CI
JAQ7HA		0.4273	0.0059	0.77	0.4297	0.0094	1.15	OE
JD497Q		0.4134	-0.0080	-1.04	0.4090	-0.0113	-1.38	OE
JDPGHF		0.4383	0.0169	2.20	0.4353	0.0150	1.84	OE
JMEBRR		0.4367	0.0153	1.99	0.4367	0.0164	2.01	OE
JUV4K3	X	0.3860	-0.0354	-4.61	0.4600	0.0397	4.86	OE
K36RVF		0.4257	0.0043	0.55	0.4280	0.0077	0.95	OE
K9PTDE		0.4101	-0.0113	-1.47	0.4172	-0.0031	-0.38	OE
KFQ8YF		0.4240	0.0026	0.34	0.4167	-0.0036	-0.44	OE
KWZQX8		0.4208	-0.0006	-0.08	0.4200	-0.0003	-0.03	OE
KY3RVJ		0.4193	-0.0021	-0.27	0.4217	0.0014	0.17	CO
KY4N7E		0.4243	0.0029	0.38	0.4210	0.0007	0.09	CI
LEB333		0.4171	-0.0043	-0.56	0.4189	-0.0014	-0.17	OE
MH4N6P		0.4187	-0.0027	-0.36	0.4210	0.0007	0.09	CO
MH6JT2		0.4147	-0.0067	-0.88	0.4127	-0.0076	-0.93	OE
MM26J6		0.4047	-0.0167	-2.18	0.4016	-0.0186	-2.28	OE
NARUN2		0.4267	0.0053	0.68	0.4200	-0.0003	-0.03	XX
NFUZ36		0.4307	0.0093	1.20	0.4343	0.0140	1.72	OE
NGT29W		0.4221	0.0007	0.09	0.4193	-0.0010	-0.12	OE
NJCA7B		0.4273	0.0059	0.77	0.4287	0.0084	1.03	OE
NKTC3B		0.4248	0.0034	0.44	0.4262	0.0059	0.73	CI
P3QWHB		0.4150	-0.0064	-0.83	0.4220	0.0017	0.21	CO
P43RZW		0.4233	0.0019	0.25	0.4177	-0.0026	-0.32	OE
PFEWBX		0.4181	-0.0033	-0.43	0.4159	-0.0044	-0.54	OE
PY3M43		0.4320	0.0106	1.38	0.4310	0.0107	1.31	OE
PZKA67		0.4257	0.0043	0.55	0.4287	0.0084	1.03	CI
Q4GHN7		0.4133	-0.0081	-1.05	0.4157	-0.0046	-0.57	XX
QKZ9M7		0.4140	-0.0074	-0.96	0.4140	-0.0063	-0.77	OE
QPUBMY		0.4133	-0.0081	-1.05	0.4033	-0.0170	-2.08	OE
QZUXH3		0.4357	0.0143	1.86	0.4317	0.0114	1.39	OE
RFJHL4		0.4224	0.0010	0.12	0.4212	0.0009	0.12	OE
RX49L3		0.4257	0.0043	0.55	0.4228	0.0025	0.31	OE
RYYQM4		0.4167	-0.0047	-0.61	0.4223	0.0020	0.24	OE
T6YGUZ		0.4210	-0.0004	-0.05	0.4173	-0.0030	-0.36	GD
T7XLBU		0.4100	-0.0114	-1.48	0.4060	-0.0143	-1.75	OE
TBRL LJ		0.4183	-0.0031	-0.40	0.4197	-0.0006	-0.08	OE
TUGNFY		0.4100	-0.0114	-1.48	0.4173	-0.0030	-0.36	CO
TW4FB2		0.4237	0.0023	0.29	0.4247	0.0044	0.54	CI
UCDPRV		0.4240	0.0026	0.34	0.4203	0.0000	0.01	OE
UXVUF7		0.4133	-0.0081	-1.05	0.4167	-0.0036	-0.44	GD
V8FKGN		0.4273	0.0059	0.77	0.4230	0.0027	0.33	OE
VB26MR		0.4220	0.0006	0.08	0.4220	0.0017	0.21	CO
VFD24M	X	0.3967	-0.0247	-3.22	0.4100	-0.0103	-1.26	CO
VFRTTX		0.4195	-0.0019	-0.24	0.4171	-0.0032	-0.39	OE
VHHWL6		0.4127	-0.0087	-1.14	0.4120	-0.0083	-1.01	OE
VLZZKM		0.4247	0.0033	0.42	0.4147	-0.0056	-0.68	OE



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1600

1st Qtr 2025

Carbon & Low Alloy Steel, CARBON (C) CARBON (C)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
VMART4		0.4307	0.0093	1.20	0.4293	0.0090	1.11	OE
VPZBGM		0.4184	-0.0030	-0.39	0.4172	-0.0031	-0.38	OE
VTYG8M	X	0.4517	0.0303	3.94	0.4490	0.0287	3.52	GD
VUTDH2		0.4117	-0.0097	-1.27	0.4130	-0.0073	-0.89	OE
W3PB66		0.4258	0.0044	0.57	0.4151	-0.0052	-0.63	OE
W766JG		0.4345	0.0131	1.70	0.4320	0.0117	1.43	OE
WTE9LP	X	0.3960	-0.0254	-3.31	0.4127	-0.0076	-0.93	CI
XCLMQW		0.4110	-0.0104	-1.35	0.4180	-0.0023	-0.28	OE
YDE7VV		0.4103	-0.0111	-1.45	0.4169	-0.0034	-0.42	OE
YLQ8EB		0.4063	-0.0151	-1.96	0.4047	-0.0156	-1.91	OE
YYF2Q6		0.4230	0.0016	0.21	0.4340	0.0137	1.68	XX
Z2ZD2U		0.4231	0.0017	0.22	0.4164	-0.0039	-0.48	OE
ZANFXV		0.4170	-0.0044	-0.57	0.4100	-0.0103	-1.26	OE
ZGRB8V	X	0.3800	-0.0414	-5.39	0.3800	-0.0403	-4.93	OE
ZHK4ZT		0.4100	-0.0114	-1.48	0.4183	-0.0020	-0.24	CI
ZJFM2U		0.4027	-0.0187	-2.44	0.3997	-0.0206	-2.52	CI

Summary Statistics

	Sample L07		Sample L08	
Grand Means	0.4214	Percent	0.4203	Percent
Std Dev Brwn Labs	0.0077	Percent	0.0082	Percent

Samples L07, L08 : AISI 4340, AISI 4340H

Statistics based on 102 of 110 reporting participants

Key to Method Codes Reported by Participants

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

Comments on Assigned Data Flags for Test #1600

7C2P24 (X) - Data for sample L07 are low.

FF6RUB (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.

JUV4K3 (X) - Data for sample L07 are low and data for sample L08 are high. Inconsistent in testing between samples.

VFD24M (X) - Data for sample L07 are low.

VTYG8M (X) - Data for both samples are high. Possible Systematic Error.

WTE9LP (X) - Data for sample L07 are low.

ZGRB8V (X) - Data for both samples are low. Possible Systematic Error.



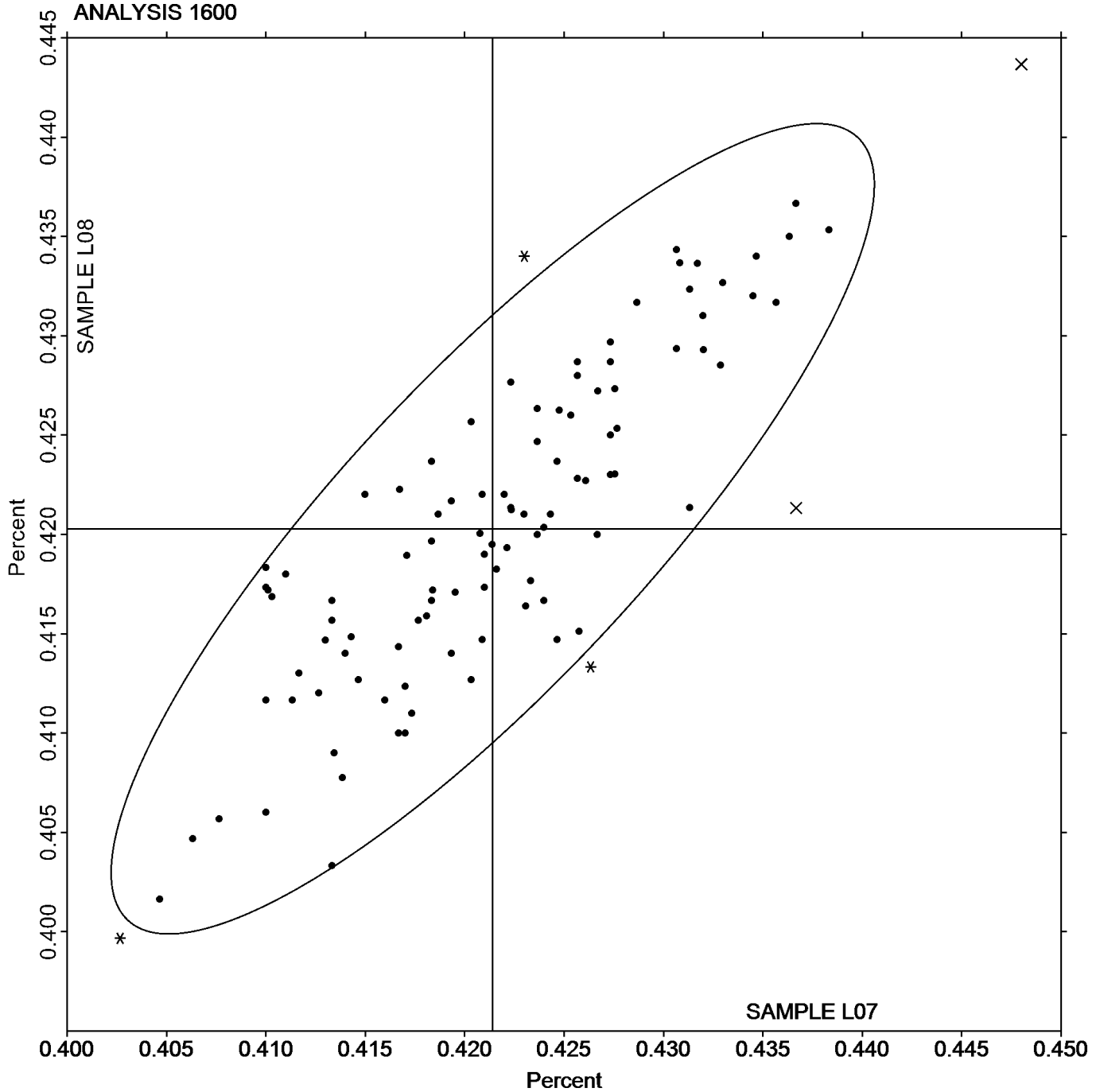
Analysis 1600

Carbon & Low Alloy Steel, CARBON (C)

CARBON (C)

SAMPLE L07
0.4214 Percent

SAMPLE L08
0.4203 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1601

1st Qtr 2025

Carbon & Low Alloy Steel, MANGANESE (Mn) MANGANESE (Mn)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
24Z2XV		0.7410	-0.0105	-1.11	0.7290	-0.0077	-0.85	OE
2ALXJX		0.7447	-0.0068	-0.72	0.7377	0.0009	0.10	DR
2CAC98		0.7510	-0.0005	-0.05	0.7300	-0.0067	-0.74	OE
2D8LHC		0.7537	0.0022	0.23	0.7427	0.0059	0.65	OE
2JTMDV		0.7565	0.0050	0.53	0.7411	0.0044	0.48	OE
2N8DMW		0.7430	-0.0085	-0.90	0.7319	-0.0048	-0.53	OE
2TUB6R		0.7317	-0.0198	-2.10	0.7167	-0.0201	-2.20	OE
3A8R3M		0.7583	0.0069	0.72	0.7363	-0.0004	-0.04	XX
3BE9UQ		0.7637	0.0122	1.29	0.7458	0.0091	1.00	XX
3RZRRX		0.7443	-0.0071	-0.76	0.7310	-0.0057	-0.63	OE
4VZ69V		0.7443	-0.0071	-0.76	0.7400	0.0033	0.36	OE
78M99R		0.7483	-0.0031	-0.33	0.7347	-0.0021	-0.23	OE
7C2P24	X	0.7163	-0.0351	-3.72	0.7090	-0.0277	-3.04	XX
7JWURK		0.7513	-0.0001	-0.02	0.7327	-0.0041	-0.45	OE
8Y6CTJ		0.7327	-0.0188	-1.99	0.7160	-0.0207	-2.27	XX
8Z39TE		0.7453	-0.0061	-0.65	0.7373	0.0006	0.07	OE
8ZVDWL		0.7613	0.0099	1.04	0.7470	0.0103	1.13	GD
9TYN23		0.7556	0.0042	0.44	0.7429	0.0062	0.68	OE
9TZLEJ		0.7383	-0.0131	-1.39	0.7250	-0.0117	-1.29	OE
AGYFXQ		0.7514	-0.0001	-0.01	0.7385	0.0018	0.19	OE
AZDYQN		0.7393	-0.0121	-1.29	0.7270	-0.0097	-1.07	OE
BMER2H		0.7583	0.0069	0.72	0.7393	0.0026	0.29	IC
BP4VUP		0.7683	0.0169	1.78	0.7510	0.0143	1.56	OE
BQHD22		0.7510	-0.0005	-0.05	0.7340	-0.0027	-0.30	OE
BQK6QW		0.7557	0.0042	0.45	0.7404	0.0036	0.40	XX
CFHZJF		0.7499	-0.0016	-0.17	0.7402	0.0035	0.38	IC
CP47CD		0.7447	-0.0068	-0.72	0.7287	-0.0081	-0.88	OE
D4DJX4		0.7533	0.0019	0.20	0.7420	0.0053	0.58	XX
DPY7TP		0.7598	0.0083	0.88	0.7446	0.0079	0.87	OE
DTYHNP		0.7737	0.0222	2.35	0.7613	0.0246	2.70	GD
DUBC7A		0.7587	0.0072	0.76	0.7378	0.0011	0.12	OE
EDHQD4		0.7500	-0.0015	-0.16	0.7233	-0.0134	-1.47	OE
EJLWQK		0.7457	-0.0058	-0.62	0.7213	-0.0154	-1.69	GD
EKKVDZ	*	0.7483	-0.0031	-0.33	0.7463	0.0096	1.05	OE
EML9LK		0.7415	-0.0099	-1.05	0.7297	-0.0070	-0.77	OE
EXRYEN		0.7480	-0.0035	-0.37	0.7363	-0.0005	-0.05	OE
FEVXZW		0.7580	0.0065	0.69	0.7400	0.0033	0.36	OE
FF6RUB		0.7273	-0.0241	-2.55	0.7170	-0.0197	-2.16	OE
FFMWCA		0.7538	0.0023	0.24	0.7338	-0.0029	-0.32	OE
FLRUKE		0.7467	-0.0048	-0.51	0.7300	-0.0067	-0.74	XX
FM9RDD		0.7713	0.0199	2.10	0.7587	0.0219	2.41	OE
FTBTHE		0.7570	0.0055	0.58	0.7387	0.0019	0.21	XX
G6LNAH		0.7376	-0.0139	-1.47	0.7258	-0.0109	-1.19	OE
G9LY7H		0.7490	-0.0025	-0.26	0.7353	-0.0014	-0.15	OE
GFHT2V		0.7493	-0.0021	-0.23	0.7407	0.0039	0.43	XR
GMXJEA		0.7474	-0.0041	-0.43	0.7429	0.0061	0.67	OE
GUGVH3		0.7423	-0.0091	-0.97	0.7327	-0.0041	-0.45	OE



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1601

1st Qtr 2025

Carbon & Low Alloy Steel, MANGANESE (Mn) MANGANESE (Mn)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
GYBNQC		0.7567	0.0052	0.55	0.7467	0.0099	1.09	OE
HDPAMB		0.7503	-0.0011	-0.12	0.7397	0.0029	0.32	XX
HNP2UG		0.7527	0.0012	0.13	0.7374	0.0006	0.07	OE
HPNV68		0.7510	-0.0005	-0.05	0.7353	-0.0014	-0.15	OE
JAQ7HA		0.7517	0.0002	0.02	0.7390	0.0023	0.25	OE
JD497Q		0.7531	0.0016	0.17	0.7338	-0.0029	-0.32	OE
JDPGHF		0.7677	0.0162	1.71	0.7530	0.0163	1.78	OE
JMEBRR	X	0.7833	0.0319	3.37	0.7733	0.0366	4.01	OE
JUV4K3		0.7540	0.0025	0.27	0.7240	-0.0127	-1.40	XX
K36RVF		0.7570	0.0055	0.58	0.7433	0.0066	0.72	OE
K9PTDE		0.7401	-0.0114	-1.20	0.7317	-0.0050	-0.55	OE
KFQ8YF		0.7573	0.0059	0.62	0.7350	-0.0017	-0.19	OE
KWZQX8		0.7565	0.0051	0.53	0.7403	0.0036	0.40	OE
KY3RVJ		0.7433	-0.0081	-0.86	0.7283	-0.0084	-0.92	OE
KY4N7E		0.7557	0.0042	0.44	0.7397	0.0029	0.32	IC
LEB333		0.7408	-0.0107	-1.13	0.7298	-0.0069	-0.76	OE
MH4N6P		0.7537	0.0022	0.23	0.7327	-0.0041	-0.45	IC
MH6JT2		0.7583	0.0069	0.72	0.7457	0.0089	0.98	OE
MM26J6	X	0.7989	0.0474	5.02	0.7746	0.0378	4.15	OE
NARUN2		0.7667	0.0152	1.61	0.7367	-0.0001	-0.01	XR
NFUZ36		0.7457	-0.0058	-0.62	0.7310	-0.0057	-0.63	OE
NGT29W		0.7519	0.0005	0.05	0.7392	0.0024	0.27	OE
NJCA7B		0.7630	0.0115	1.22	0.7537	0.0169	1.86	OE
NKTC3B		0.7506	-0.0009	-0.10	0.7368	0.0001	0.01	WD
P3QWHB		0.7490	-0.0025	-0.26	0.7390	0.0023	0.25	OE
P43RZW		0.7507	-0.0008	-0.09	0.7310	-0.0057	-0.63	OE
PFEWBX		0.7507	-0.0008	-0.08	0.7360	-0.0007	-0.08	OE
PY3M43		0.7510	-0.0005	-0.05	0.7303	-0.0064	-0.70	OE
PZKA67		0.7700	0.0186	1.96	0.7554	0.0187	2.05	OE
Q4GHN7		0.7443	-0.0071	-0.76	0.7320	-0.0047	-0.52	XX
QKZ9M7		0.7397	-0.0118	-1.25	0.7283	-0.0084	-0.92	OE
QPUBMY		0.7433	-0.0081	-0.86	0.7233	-0.0134	-1.47	OE
QZUXH3		0.7667	0.0152	1.61	0.7500	0.0133	1.46	OE
RFJHL4		0.7615	0.0100	1.06	0.7315	-0.0052	-0.57	OE
RX49L3		0.7589	0.0075	0.79	0.7491	0.0123	1.35	OE
RYYQM4		0.7432	-0.0082	-0.87	0.7336	-0.0031	-0.34	OE
T6YGUZ		0.7583	0.0069	0.72	0.7463	0.0096	1.05	GD
T7XLBU		0.7397	-0.0118	-1.25	0.7243	-0.0124	-1.36	OE
TBRLLJ		0.7613	0.0099	1.04	0.7437	0.0069	0.76	OE
TFZL62		0.7687	0.0172	1.82	0.7507	0.0139	1.53	XX
TUGNFY		0.7397	-0.0118	-1.25	0.7327	-0.0041	-0.45	OE
TW4FB2	*	0.7787	0.0272	2.88	0.7597	0.0229	2.52	OE
UCDPRV		0.7517	0.0002	0.02	0.7337	-0.0031	-0.34	OE
UXVUF7		0.7433	-0.0081	-0.86	0.7233	-0.0134	-1.47	GD
V8FKGN		0.7617	0.0102	1.08	0.7467	0.0099	1.09	OE
VB26MR		0.7450	-0.0065	-0.69	0.7310	-0.0057	-0.63	OE
VFRTTX		0.7493	-0.0022	-0.23	0.7296	-0.0071	-0.78	OE



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1601

1st Qtr 2025

Carbon & Low Alloy Steel, MANGANESE (Mn) MANGANESE (Mn)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
VHHWL6		0.7570	0.0055	0.58	0.7437	0.0069	0.76	OE
VLZZKM		0.7510	-0.0004	-0.05	0.7281	-0.0086	-0.94	OE
VMART4		0.7313	-0.0201	-2.13	0.7213	-0.0154	-1.69	OE
VPZBGM		0.7438	-0.0077	-0.82	0.7359	-0.0009	-0.09	OE
VTYG8M		0.7553	0.0039	0.41	0.7440	0.0073	0.80	GD
VUTDH2		0.7520	0.0005	0.05	0.7383	0.0016	0.18	OE
W3PB66		0.7517	0.0002	0.02	0.7399	0.0032	0.35	OE
W766JG		0.7600	0.0085	0.90	0.7435	0.0068	0.74	OE
WTE9LP	X	0.6983	-0.0531	-5.62	0.7163	-0.0204	-2.24	IC
XCLMQW		0.7460	-0.0055	-0.58	0.7390	0.0023	0.25	OE
YDE7VV		0.7557	0.0042	0.44	0.7360	-0.0008	-0.08	OE
YLQ8EB	X	0.7227	-0.0288	-3.05	0.7063	-0.0304	-3.33	OE
YYF2Q6		0.7467	-0.0048	-0.51	0.7293	-0.0074	-0.81	XX
Z2ZD2U		0.7554	0.0039	0.41	0.7379	0.0012	0.13	OE
ZANFXV		0.7607	0.0092	0.97	0.7443	0.0076	0.83	OE
ZGRB8V		0.7520	0.0005	0.05	0.7413	0.0046	0.51	OE
ZHK4ZT		0.7320	-0.0195	-2.06	0.7213	-0.0154	-1.69	IC

Summary Statistics

	Sample L07		Sample L08	
Grand Means	0.7515	Percent	0.7367	Percent
Stnd Dev Btrwn Labs	0.0095	Percent	0.0091	Percent

Samples L07, L08 : AISI 4340, AISI 4340H

Statistics based on 106 of 111 reporting participants

Key to Method Codes Reported by Participants

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

Comments on Assigned Data Flags for Test #1601

- 7C2P24 (X) - Data for both samples are low. Possible Systematic Error.
- JMEBRR (X) - Data for both samples are high. Possible Systematic Error.
- MM26J6 (X) - Data for both samples are high. Possible Systematic Error.
- WTE9LP (X) - Data for sample L07 are low.
- YLQ8EB (X) - Data for both samples are low. Possible Systematic Error.

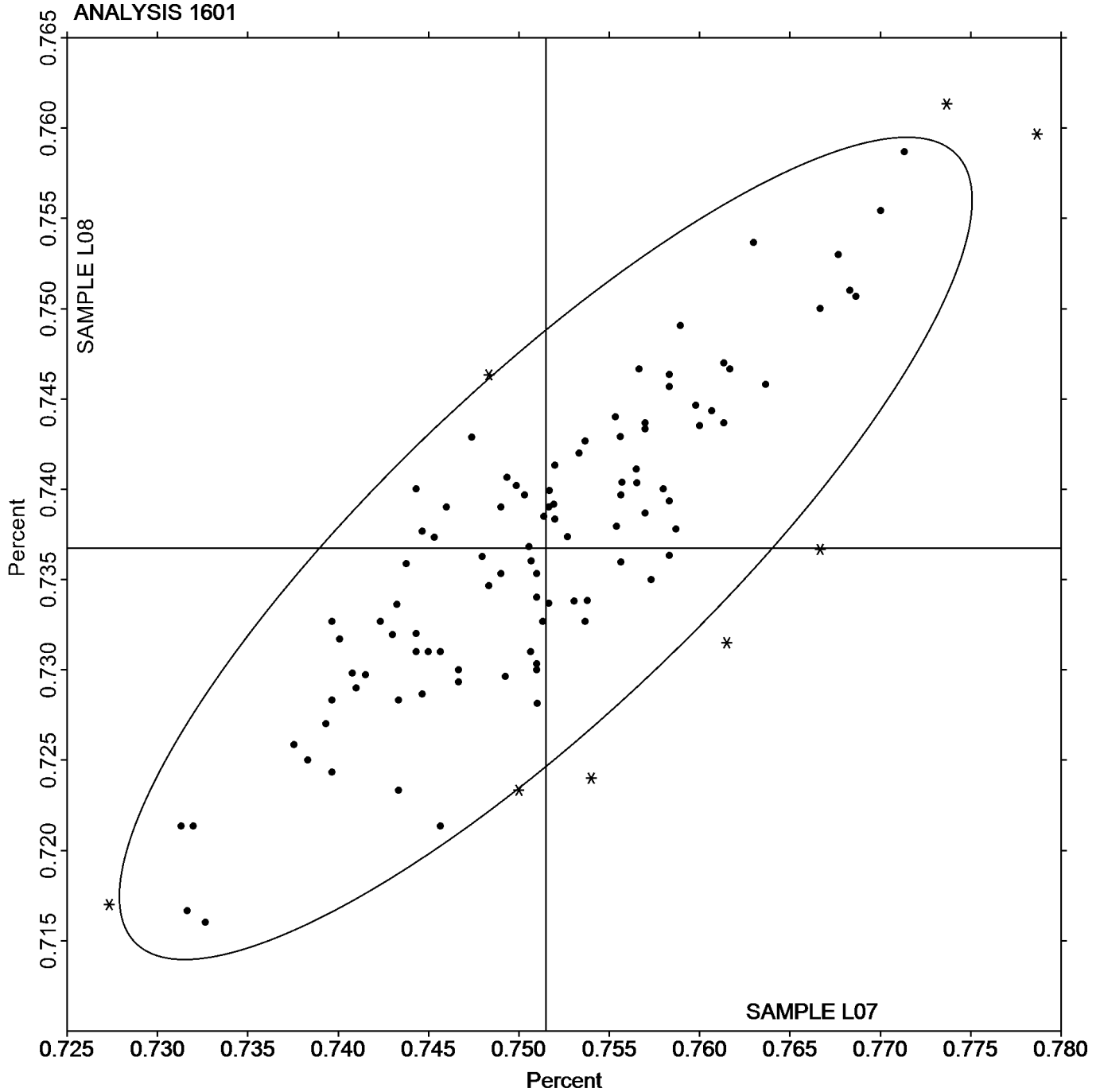


Analysis 1601

Carbon & Low Alloy Steel, MANGANESE (Mn)
MANGANESE (Mn)

SAMPLE L07
0.7515 Percent

SAMPLE L08
0.7367 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1602

1st Qtr 2025

Carbon & Low Alloy Steel, PHOSPHORUS (P) PHOSPHORUS (P)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
24Z2XV		0.0182	0.0016	1.26	0.0134	0.0025	2.09	OE
2ALXJX	*	0.0148	-0.0018	-1.36	0.0122	0.0012	1.01	DR
2CAC98		0.0167	0.0002	0.16	0.0114	0.0004	0.34	OE
2D8LHC		0.0176	0.0011	0.82	0.0113	0.0003	0.28	OE
2JTMDV		0.0160	-0.0006	-0.43	0.0109	0.0000	-0.03	OE
2N8DMW		0.0159	-0.0006	-0.46	0.0102	-0.0008	-0.65	OE
2TUB6R	X	0.0210	0.0045	3.44	0.0143	0.0034	2.85	OE
3A8R3M		0.0150	-0.0015	-1.18	0.0100	-0.0010	-0.82	XX
3BE9UQ		0.0168	0.0002	0.17	0.0117	0.0007	0.59	XX
3RZRRX		0.0139	-0.0027	-2.05	0.00867	-0.0023	-1.95	OE
4VZ69V		0.0165	0.0000	-0.02	0.0132	0.0023	1.92	OE
78M99R		0.0180	0.0015	1.13	0.0120	0.0010	0.87	OE
7C2P24		0.0140	-0.0025	-1.95	0.00830	-0.0027	-2.26	XX
7JWURK		0.0152	-0.0013	-1.00	0.00947	-0.0015	-1.27	OE
8Y6CTJ	X	0.0117	-0.0049	-3.74	0.00700	-0.0040	-3.36	XX
8Z39TE		0.0170	0.0005	0.36	0.0110	0.0000	0.03	OE
8ZVDWL		0.0166	0.0001	0.08	0.0115	0.0006	0.48	GD
9TYN23		0.0144	-0.0021	-1.64	0.00967	-0.0013	-1.10	OE
9TZLEJ		0.0175	0.0010	0.75	0.0119	0.0009	0.79	OE
AGYFXQ		0.0160	-0.0005	-0.41	0.00880	-0.0022	-1.84	OE
AZDYQN		0.0136	-0.0029	-2.23	0.00937	-0.0016	-1.36	OE
BMER2H		0.0162	-0.0003	-0.23	0.0106	-0.0004	-0.31	IC
BP4VUP	X	0.0228	0.0062	4.80	0.00923	-0.0017	-1.47	OE
BQHD22		0.0160	-0.0005	-0.41	0.0107	-0.0003	-0.23	OE
BQK6QW		0.0169	0.0004	0.28	0.0110	0.0000	0.03	XX
CFHZJF		0.0157	-0.0008	-0.61	0.0102	-0.0007	-0.62	IC
CP47CD		0.0167	0.0001	0.11	0.0106	-0.0003	-0.28	OE
D4DJX4		0.0171	0.0006	0.44	0.0113	0.0003	0.25	XX
DPY7TP		0.0139	-0.0027	-2.05	0.0101	-0.0008	-0.71	WD
DTYHNP		0.0172	0.0006	0.49	0.0116	0.0006	0.51	GD
DUBC7A		0.0159	-0.0006	-0.48	0.0102	-0.0008	-0.68	OE
EDHQD4		0.0187	0.0021	1.64	0.0133	0.0024	2.00	OE
EJLWQK	*	0.0201	0.0036	2.77	0.0138	0.0028	2.40	GD
EKKVDZ		0.0172	0.0007	0.52	0.0116	0.0006	0.51	OE
EML9LK		0.0160	-0.0005	-0.41	0.0104	-0.0005	-0.45	OE
EXRYEN		0.0169	0.0004	0.31	0.0110	0.0001	0.05	OE
FEVXZW		0.0156	-0.0009	-0.72	0.0108	-0.0001	-0.11	OE
FF6RUB		0.0147	-0.0019	-1.43	0.0117	0.0007	0.59	OE
FFMWCA		0.0177	0.0012	0.91	0.0113	0.0004	0.31	OE
FLRUKE		0.0170	0.0005	0.36	0.0107	-0.0003	-0.26	XX
FM9RDD		0.0172	0.0007	0.54	0.0121	0.0011	0.93	OE
FTBTHE		0.0192	0.0027	2.08	0.0130	0.0021	1.75	XX
G6LNAH		0.0180	0.0015	1.16	0.0125	0.0015	1.26	OE
G9LY7H		0.0160	-0.0005	-0.41	0.0100	-0.0010	-0.82	OE
GFHT2V		0.0174	0.0009	0.67	0.0107	-0.0002	-0.20	XR
GMXJEA		0.0169	0.0004	0.28	0.0111	0.0001	0.08	OE
GUGVH3		0.0150	-0.0015	-1.18	0.0107	-0.0003	-0.26	OE



Fasteners and Metals Interlaboratory Testing Program

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Analysis 1602

1st Qtr 2025

Carbon & Low Alloy Steel, PHOSPHORUS (P) PHOSPHORUS (P)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
GYBNQC		0.0147	-0.0019	-1.43	0.0113	0.0004	0.31	OE
HDPAMB		0.0163	-0.0003	-0.20	0.0107	-0.0003	-0.23	OE
HNP2UG		0.0172	0.0007	0.52	0.0107	-0.0003	-0.23	OE
HPNV68		0.0158	-0.0008	-0.59	0.0105	-0.0005	-0.42	XX
JAQ7HA		0.0167	0.0001	0.11	0.0110	0.0000	0.03	OE
JD497Q		0.0169	0.0004	0.31	0.0106	-0.0004	-0.31	OE
JDPGHF		0.0164	-0.0001	-0.10	0.0106	-0.0004	-0.34	OE
JMEBRR	*	0.0133	-0.0032	-2.46	0.00767	-0.0033	-2.79	OE
JUV4K3	X	0.0128	-0.0037	-2.87	0.00650	-0.0045	-3.78	XX
K36RVF		0.0194	0.0028	2.18	0.0121	0.0012	0.99	OE
K9PTDE		0.0154	-0.0012	-0.91	0.0108	-0.0001	-0.11	OE
KFQ8YF		0.0180	0.0015	1.13	0.0110	0.0000	0.03	OE
KWZQX8		0.0172	0.0007	0.52	0.0113	0.0004	0.31	OE
KY3RVJ		0.0172	0.0007	0.54	0.0109	0.0000	-0.03	OE
KY4N7E		0.0162	-0.0004	-0.28	0.00950	-0.0015	-1.24	IC
LEB333		0.0182	0.0017	1.29	0.0118	0.0009	0.73	OE
MH6JT2		0.0161	-0.0005	-0.36	0.0111	0.0001	0.08	OE
MM26J6		0.0172	0.0006	0.50	0.0103	-0.0006	-0.54	OE
NFUZ36		0.0157	-0.0009	-0.66	0.0100	-0.0010	-0.82	OE
NGT29W		0.0165	-0.0001	-0.05	0.0101	-0.0009	-0.74	OE
NJCA7B		0.0155	-0.0010	-0.77	0.00993	-0.0010	-0.88	OE
NKTC3B		0.0163	-0.0002	-0.15	0.0110	0.0000	0.03	WD
P3QWHB		0.0167	0.0001	0.11	0.0108	-0.0002	-0.14	OE
P43RZW		0.0163	-0.0002	-0.15	0.0101	-0.0008	-0.71	OE
PFEWBX		0.0176	0.0011	0.83	0.0127	0.0017	1.42	OE
PY3M43		0.0158	-0.0008	-0.59	0.0101	-0.0009	-0.76	OE
PZKA67		0.0161	-0.0005	-0.36	0.0105	-0.0004	-0.37	OE
Q4GHN7	X	0.1577	0.1411	108.64	0.00953	-0.0014	-1.21	XX
QKZ9M7		0.0170	0.0005	0.36	0.0110	0.0000	0.03	OE
QPUBMY		0.0190	0.0025	1.90	0.0137	0.0028	2.34	OE
QZUXH3		0.0167	0.0001	0.11	0.0113	0.0004	0.31	OE
RFJHL4		0.0166	0.0000	0.03	0.0109	-0.0001	-0.09	OE
RX49L3	X	0.0234	0.0069	5.31	0.00607	-0.0049	-4.15	OE
RYYQM4		0.0152	-0.0013	-1.02	0.0107	-0.0003	-0.23	OE
T6YGUZ		0.0163	-0.0002	-0.15	0.00967	-0.0013	-1.10	GD
T7XLBU		0.0173	0.0008	0.62	0.0118	0.0008	0.68	OE
TBRLJ		0.0153	-0.0012	-0.92	0.0120	0.0010	0.87	OE
TFZL62		0.0180	0.0015	1.13	0.0130	0.0020	1.72	XX
TUGNFY		0.0167	0.0001	0.11	0.0110	0.0000	0.03	OE
TW4FB2		0.0151	-0.0014	-1.08	0.00940	-0.0016	-1.33	OE
UCDPRV		0.0164	-0.0001	-0.07	0.0105	-0.0005	-0.42	OE
UXVUF7		0.0150	-0.0015	-1.18	0.00900	-0.0020	-1.67	GD
V8FKGN	X	0.0355	0.0190	14.60	0.0280	0.0171	14.44	OE
VB26MR		0.0171	0.0006	0.44	0.0112	0.0002	0.20	OE
VFRTTX		0.0177	0.0012	0.90	0.0115	0.0005	0.42	OE
VHHWL6		0.0160	-0.0005	-0.41	0.0120	0.0010	0.87	OE
VLZZKM		0.0170	0.0005	0.36	0.0106	-0.0004	-0.31	OE



Fasteners and Metals Interlaboratory Testing Program

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Analysis 1602

1st Qtr 2025

Carbon & Low Alloy Steel, PHOSPHORUS (P) PHOSPHORUS (P)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
VMART4		0.0164	-0.0002	-0.13	0.00977	-0.0012	-1.02	OE
VPZBGM		0.0171	0.0006	0.44	0.0117	0.0007	0.59	OE
VTYG8M		0.0177	0.0011	0.87	0.0123	0.0014	1.15	GD
VUTDH2		0.0192	0.0026	2.03	0.0134	0.0025	2.09	OE
W3PB66		0.0169	0.0004	0.28	0.0116	0.0007	0.56	OE
W766JG		0.0155	-0.0010	-0.79	0.00900	-0.0020	-1.67	OE
WTE9LP	X	0.00600	-0.0105	-8.11	0.00233	-0.0086	-7.31	IC
XCLMQW		0.0170	0.0005	0.36	0.0130	0.0020	1.72	OE
YDE7VV		0.0167	0.0002	0.13	0.0109	-0.0001	-0.06	OE
YLQ8EB		0.0164	-0.0002	-0.13	0.0102	-0.0008	-0.65	OE
YYF2Q6		0.0176	0.0011	0.85	0.0110	0.0000	0.03	XX
Z2ZD2U		0.0158	-0.0007	-0.56	0.0111	0.0002	0.14	OE
ZANFXV		0.0190	0.0024	1.88	0.0129	0.0019	1.61	OE
ZGRB8V		0.0141	-0.0025	-1.90	0.0100	-0.0009	-0.79	OE
ZHK4ZT		0.0147	-0.0019	-1.43	0.00967	-0.0013	-1.10	IC

Summary Statistics

	Sample L07		Sample L08	
Grand Means	0.0165	Percent	0.0110	Percent
Stnd Dev Btwn Labs	0.0013	Percent	0.0012	Percent

Samples L07, L08 : AISI 4340, AISI 4340H

Statistics based on 100 of 109 reporting participants

Key to Method Codes Reported by Participants

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

Comments on Assigned Data Flags for Test #1602

- 2TUB6R (X) - Data for both samples are high. Possible Systematic Error.
- 8Y6CTJ (X) - Data for both samples are low. Possible Systematic Error.
- BP4VUP (X) - Data for sample L07 are high. Inconsistent within the determinations of both samples.
- JUV4K3 (X) - Data for both samples are low. Possible Systematic Error.
- Q4GHN7 (X) - Data for sample L07 are extreme. Appear to be off by a factor of ten.
- RX49L3 (X) - Data for sample L07 are high and data for sample L08 are low. Inconsistent in testing between samples.
- V8FKGN (X) - Data for both samples are high. Possible Systematic Error.
- WTE9LP (X) - Data for both samples are low. Possible Systematic Error.

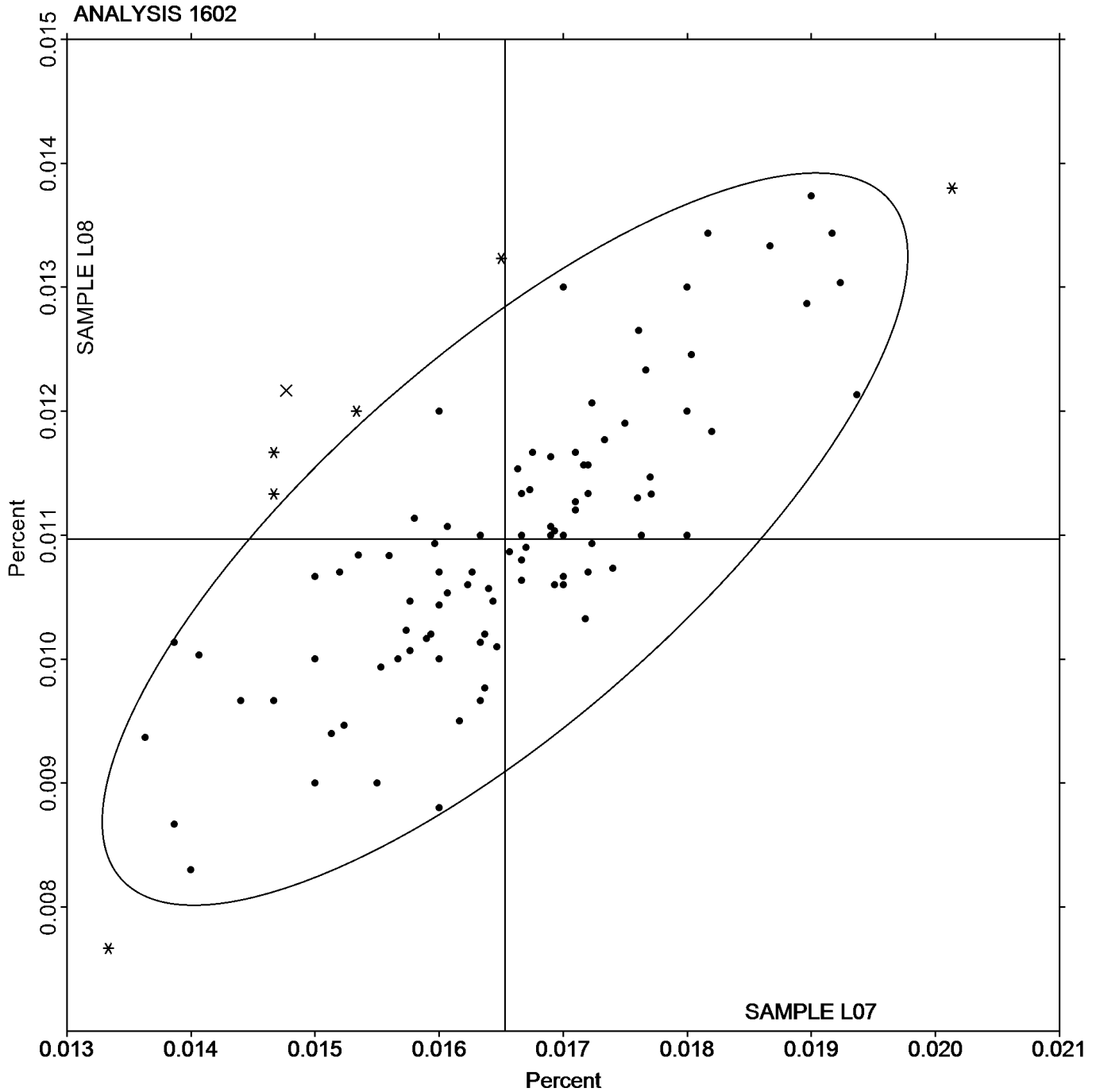


Analysis 1602

Carbon & Low Alloy Steel, PHOSPHORUS (P)
PHOSPHORUS (P)

SAMPLE L07
0.0165 Percent

SAMPLE L08
0.0110 Percent





Fasteners and Metals Interlaboratory Testing Program

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Analysis 1603

1st Qtr 2025

Carbon & Low Alloy Steel, SULFUR (S) SULFUR (S)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
24Z2XV		0.00810	0.00125	1.38	0.0196	0.0002	0.10	OE
2ALXJX		0.00663	-0.00022	-0.24	0.0178	-0.0016	-0.95	DR
2CAC98		0.00650	-0.00035	-0.39	0.0196	0.0002	0.10	OE
2D8LHC		0.00657	-0.00029	-0.32	0.0206	0.0012	0.68	OE
2JTMDV		0.00620	-0.00065	-0.72	0.0185	-0.0009	-0.54	OE
2N8DMW		0.00583	-0.00102	-1.13	0.0187	-0.0008	-0.46	OE
2TUB6R		0.00807	0.00121	1.34	0.0207	0.0012	0.70	OE
3A8R3M	*	0.00433	-0.00252	-2.79	0.0147	-0.0048	-2.78	XX
3BE9UQ		0.00672	-0.00013	-0.14	0.0208	0.0013	0.78	XX
3RZRRX	X	0.00530	-0.00155	-1.72	0.0128	-0.0066	-3.85	OE
4VZ69V		0.00690	0.00005	0.05	0.0168	-0.0027	-1.56	OE
78M99R		0.00867	0.00181	2.00	0.0219	0.0024	1.39	OE
7JWURK		0.00630	-0.00055	-0.61	0.0187	-0.0008	-0.46	OE
8Y6CTJ	*	0.00433	-0.00252	-2.79	0.0147	-0.0048	-2.78	XX
8Z39TE		0.00700	0.00015	0.16	0.0200	0.0005	0.31	OE
8ZVDWL		0.00667	-0.00019	-0.21	0.0227	0.0032	1.88	CO
9TYN23		0.00720	0.00035	0.38	0.0219	0.0025	1.43	OE
9TZLEJ		0.00593	-0.00092	-1.02	0.0180	-0.0015	-0.85	CI
AGYFXQ		0.00690	0.00005	0.05	0.0196	0.0001	0.08	OE
AZDYQN	M	No Data Reported			0.0152	-0.0043	-2.49	OE
BMER2H	M	No Data Reported			0.0161	-0.0033	-1.93	CI
BP4VUP	X	0.00467	-0.00219	-2.42	0.0210	0.0015	0.89	OE
BQHD22		0.00850	0.00165	1.82	0.0192	-0.0003	-0.15	OE
BQK6QW		0.00673	-0.00012	-0.13	0.0195	0.0001	0.04	XX
CFHZJF		0.00550	-0.00135	-1.50	0.0164	-0.0030	-1.76	CI
CP47CD		0.00673	-0.00012	-0.13	0.0206	0.0011	0.66	OE
D4DJX4		0.00740	0.00055	0.60	0.0228	0.0033	1.93	XX
DPY7TP		0.00717	0.00031	0.35	0.0198	0.0003	0.17	CI
DTYHNP		0.00650	-0.00035	-0.39	0.0192	-0.0003	-0.15	GD
DUBC7A		0.00597	-0.00089	-0.98	0.0198	0.0003	0.17	OE
EDHQD4	X	0.0100	0.00315	3.48	0.0170	-0.0025	-1.43	OE
EJLWQK		0.00827	0.00141	1.56	0.0199	0.0004	0.23	GD
EML9LK		0.00640	-0.00045	-0.50	0.0190	-0.0004	-0.25	OE
EXRYEN		0.00697	0.00011	0.13	0.0194	0.0000	-0.02	OE
FEVXZW		0.00757	0.00071	0.79	0.0173	-0.0021	-1.24	OE
FF6RUB		0.00733	0.00048	0.53	0.0187	-0.0008	-0.46	OE
FFMWCA		0.00751	0.00065	0.72	0.0194	-0.0001	-0.06	OE
FLRUKE		0.00800	0.00115	1.27	0.0210	0.0015	0.89	XX
FM9RDD		0.00700	0.00015	0.16	0.0196	0.0001	0.06	OE
FTBTHE		0.00576	-0.00109	-1.20	0.0198	0.0003	0.17	XX
G6LNAH		0.00879	0.00194	2.14	0.0236	0.0041	2.40	OE
G9LY7H		0.00733	0.00048	0.53	0.0180	-0.0015	-0.85	OE
GFHT2V		0.00657	-0.00029	-0.32	0.0190	-0.0005	-0.29	CO
GMXJEA		0.00683	-0.00002	-0.02	0.0192	-0.0003	-0.17	OE
GUGVH3		0.00667	-0.00019	-0.21	0.0183	-0.0011	-0.66	OE
GVW2ZD		0.00647	-0.00039	-0.43	0.0205	0.0011	0.62	CI
GYBNQC		0.00717	0.00031	0.35	0.0180	-0.0015	-0.85	OE



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1603

1st Qtr 2025

Carbon & Low Alloy Steel, SULFUR (S) SULFUR (S)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
HDPAMB		0.00760	0.00075	0.83	0.0225	0.0030	1.76	OE
HNP2UG		0.00623	-0.00062	-0.69	0.0188	-0.0006	-0.37	OE
HPNV68		0.00613	-0.00072	-0.80	0.0185	-0.0010	-0.58	CI
JAQ7HA		0.00800	0.00115	1.27	0.0213	0.0019	1.08	OE
JD497Q		0.00777	0.00091	1.01	0.0204	0.0010	0.56	OE
JDPGHF		0.00623	-0.00062	-0.69	0.0188	-0.0007	-0.41	OE
JMEBRR		0.00567	-0.00119	-1.31	0.0170	-0.0025	-1.43	OE
JUV4K3		0.00750	0.00065	0.71	0.0206	0.0011	0.66	XX
K36RVF		0.00820	0.00135	1.49	0.0193	-0.0001	-0.08	OE
K9PTDE		0.00677	-0.00009	-0.10	0.0185	-0.0010	-0.58	OE
KFQ8YF		0.00667	-0.00019	-0.21	0.0207	0.0012	0.70	OE
KWZQX8		0.00583	-0.00102	-1.13	0.0200	0.0005	0.29	OE
KY3RVJ		0.00607	-0.00079	-0.87	0.0182	-0.0013	-0.75	CO
KY4N7E		0.00693	0.00008	0.09	0.0189	-0.0005	-0.31	CI
LEB333		0.00760	0.00075	0.83	0.0210	0.0016	0.91	OE
MH4N6P		0.00780	0.00095	1.05	0.0203	0.0008	0.48	CO
MH6JT2		0.00867	0.00181	2.00	0.0212	0.0018	1.03	OE
NARUN2	X	0.0100	0.00315	3.48	0.0333	0.0139	8.04	XR
NFUZ36		0.00633	-0.00052	-0.57	0.0207	0.0012	0.70	OE
NGT29W		0.00710	0.00025	0.27	0.0221	0.0027	1.55	OE
NJCA7B		0.00613	-0.00072	-0.80	0.0201	0.0007	0.39	OE
NKTC3B		0.00643	-0.00042	-0.46	0.0192	-0.0003	-0.17	CI
P3QWHB		0.00680	-0.00005	-0.06	0.0181	-0.0014	-0.79	CO
P43RZW		0.00697	0.00011	0.13	0.0227	0.0032	1.86	OE
PFEWBX		0.00771	0.00086	0.95	0.0190	-0.0005	-0.26	OE
PY3M43		0.00633	-0.00052	-0.57	0.0174	-0.0021	-1.20	OE
PZKA67		0.00636	-0.00049	-0.54	0.0162	-0.0032	-1.87	CI
Q4GHN7	X	0.0118	0.00491	5.43	0.0800	0.0606	35.12	XX
QKZ9M7	X	0.00767	0.00081	0.90	0.0113	-0.0081	-4.72	OE
QPUBMY	X	0.0116	0.00475	5.25	0.0306	0.0111	6.46	OE
QZUXH3		0.00667	-0.00019	-0.21	0.0203	0.0009	0.50	OE
RYYQM4		0.00827	0.00141	1.56	0.0198	0.0004	0.21	OE
T6YGUZ		0.00600	-0.00085	-0.94	0.0187	-0.0008	-0.46	GD
T7XLBU	X	0.0107	0.00385	4.25	0.0225	0.0030	1.76	OE
TBRL LJ		0.00733	0.00048	0.53	0.0203	0.0009	0.50	OE
TFZL62		0.00700	0.00015	0.16	0.0220	0.0025	1.47	XX
TUGNFY		0.00490	-0.00195	-2.16	0.0150	-0.0045	-2.59	CO
TW4FB2		0.00677	-0.00009	-0.10	0.0215	0.0020	1.18	CI
UCDP RV		0.00687	0.00001	0.01	0.0198	0.0003	0.19	OE
UXVUF7		0.00600	-0.00085	-0.94	0.0167	-0.0028	-1.62	GD
V8FKGN	X	0.00950	0.00265	2.93	0.0254	0.0059	3.42	OE
VB26MR		0.00500	-0.00185	-2.05	0.0172	-0.0023	-1.31	CO
VFRTTX		0.00683	-0.00002	-0.02	0.0194	0.0000	-0.02	OE
VHHWL6	X	0.0117	0.00481	5.32	0.0220	0.0025	1.47	OE
VLZZKM		0.00810	0.00125	1.38	0.0207	0.0013	0.74	OE
VMART4		0.00780	0.00095	1.05	0.0196	0.0001	0.08	OE
VPZBGM		0.00783	0.00098	1.08	0.0210	0.0015	0.89	OE



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1603

1st Qtr 2025

Carbon & Low Alloy Steel, SULFUR (S) SULFUR (S)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
VTYG8M	X	0.0103	0.00348	3.85	0.0210	0.0015	0.89	GD
VUTDH2		0.00803	0.00118	1.30	0.0185	-0.0009	-0.54	OE
W3PB66		0.00737	0.00051	0.57	0.0187	-0.0008	-0.46	OE
W766JG		0.00520	-0.00165	-1.83	0.0176	-0.0019	-1.11	OE
WTE9LP		0.00600	-0.00085	-0.94	0.0180	-0.0015	-0.85	CI
XCLMQW		0.00700	0.00015	0.16	0.0190	-0.0005	-0.27	OE
YDE7VV		0.00653	-0.00032	-0.35	0.0193	-0.0002	-0.10	OE
YLQ8EB		0.00737	0.00051	0.57	0.0211	0.0016	0.93	OE
YYF2Q6		0.00627	-0.00059	-0.65	0.0201	0.0007	0.39	XX
Z2ZD2U		0.00703	0.00018	0.20	0.0208	0.0013	0.77	OE
ZANFXV		0.00763	0.00078	0.86	0.0211	0.0016	0.95	OE
ZGRB8V	X	0.00100	-0.00585	-6.47	0.0200	0.0005	0.31	OE
ZHK4ZT		0.00627	-0.00059	-0.65	0.0192	-0.0002	-0.13	CI
ZJFM2U		0.00633	-0.00052	-0.57	0.0195	0.0001	0.04	CI

Summary Statistics

	Sample L07		Sample L08	
Grand Means	0.00685	Percent	0.0195	Percent
Stnd Dev Btwn Labs	0.00090	Percent	0.0017	Percent

Samples L07, L08 : AISI 4340, AISI 4340H

Statistics based on 94 of 108 reporting participants

Key to Method Codes Reported by Participants

CI	Combustion / IR	CO	Combustion
DR	Spectrometry - Direct Reading OE (DROES)	GD	Spectrometry - Glow Discharge (GDS)
OE	Spectrometry - Optical Emission (OES)	XR	X-Ray Fluorescence - ED or WD not specified
XX	Please Indicate Method Used for Current Element		



Comments on Assigned Data Flags for Test #1603

- 3RZRRX (X) - Data for sample L08 are low.
- AZDYQN (M) - Participant did not submit data for sample L07.
- BMER2H (M) - Participant did not submit data for sample L07.
- BP4VUP (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample L07.
- EDHQD4 (X) - Data for sample L07 are high.
- NARUN2 (X) - Data for both samples are high. Inconsistent within the determinations of sample L08.
- Q4GHN7 (X) - Data for both samples are high. Inconsistent within the determinations of sample L07.
- QKZ9M7 (X) - Data for sample L08 are low.
- QPUBMY (X) - Data for both samples are high. Inconsistent within the determinations of both samples.
- T7XLBU (X) - Data for sample L07 are high.
- V8FKGN (X) - Data for both samples are high.
- VHHWL6 (X) - Data for sample L07 are high.
- VTYG8M (X) - Data for sample L07 are high.
- ZGRB8V (X) - Data for sample L07 are low.



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

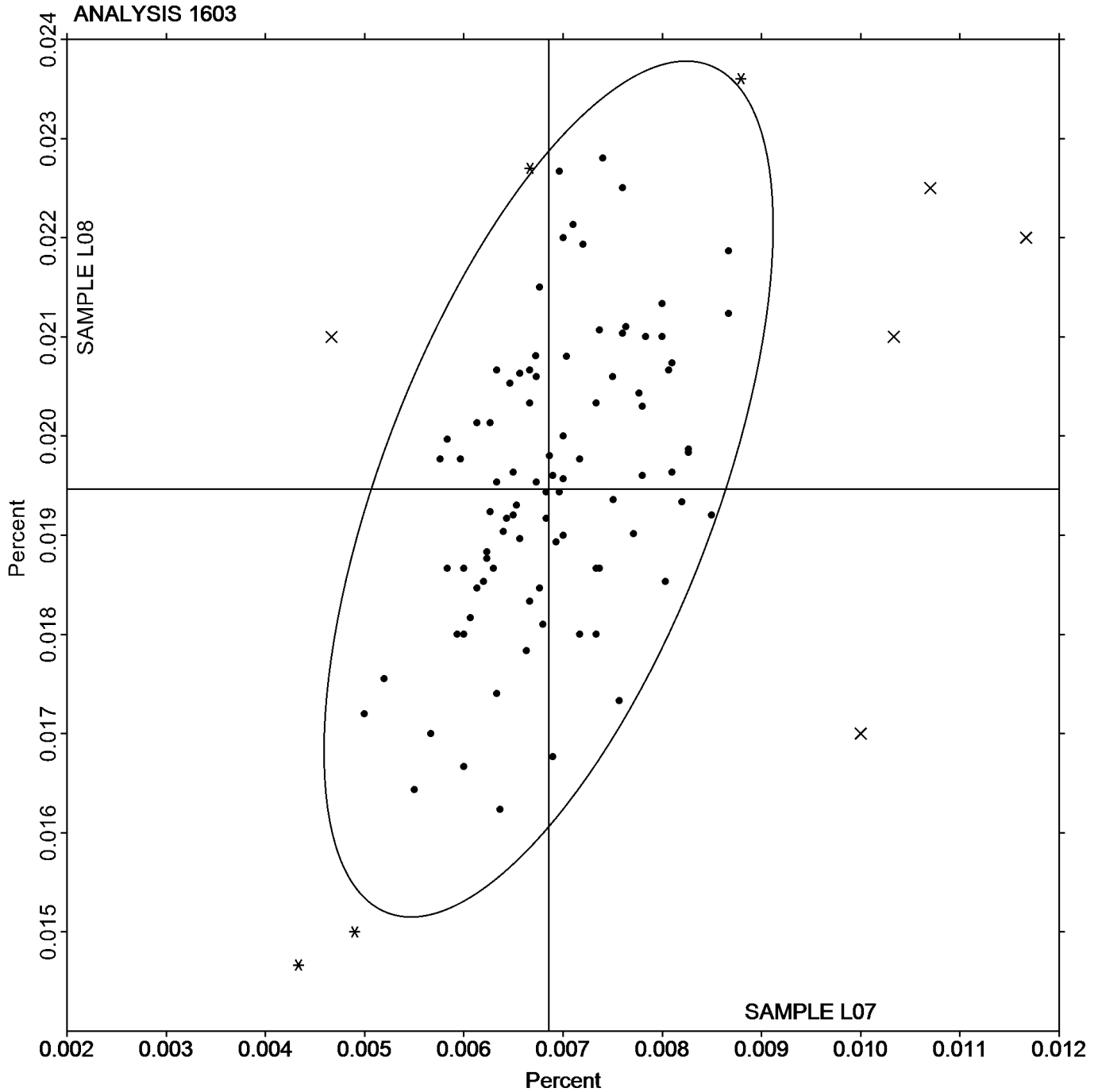
Analysis 1603

1st Qtr 2025

Carbon & Low Alloy Steel, SULFUR (S)
SULFUR (S)

SAMPLE L07
0.00685 Percent

SAMPLE L08
0.0195 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1604

1st Qtr 2025

Carbon & Low Alloy Steel, SILICON (Si) SILICON (Si)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
24Z2XV		0.2407	-0.0020	-0.39	0.2287	0.0013	0.27	OE
2ALXJX		0.2397	-0.0030	-0.58	0.2267	-0.0007	-0.15	DR
2CAC98		0.2423	-0.0004	-0.07	0.2217	-0.0057	-1.21	OE
2D8LHC		0.2493	0.0066	1.26	0.2313	0.0040	0.84	OE
2JTMDV		0.2430	0.0003	0.06	0.2270	-0.0004	-0.08	OE
2N8DMW		0.2337	-0.0090	-1.72	0.2195	-0.0079	-1.67	OE
2TUB6R		0.2503	0.0076	1.45	0.2317	0.0043	0.91	OE
3A8R3M		0.2457	0.0030	0.57	0.2300	0.0026	0.56	XX
3BE9UQ		0.2433	0.0006	0.12	0.2268	-0.0005	-0.11	XX
3RZRRX		0.2380	-0.0047	-0.90	0.2253	-0.0020	-0.43	OE
4VZ69V		0.2400	-0.0027	-0.51	0.2267	-0.0007	-0.15	OE
78M99R		0.2310	-0.0117	-2.23	0.2180	-0.0094	-1.99	OE
7C2P24		0.2467	0.0040	0.76	0.2337	0.0063	1.33	XX
7JWURK		0.2390	-0.0037	-0.71	0.2230	-0.0044	-0.93	OE
8Y6CTJ		0.2550	0.0123	2.34	0.2383	0.0110	2.32	XX
8Z39TE		0.2423	-0.0004	-0.07	0.2297	0.0023	0.48	OE
8ZVDWL		0.2503	0.0076	1.45	0.2300	0.0026	0.56	GD
9TYN23		0.2450	0.0023	0.44	0.2289	0.0016	0.33	OE
9TZLEJ		0.2417	-0.0010	-0.20	0.2270	-0.0004	-0.08	OE
AGYFXQ		0.2462	0.0035	0.67	0.2307	0.0033	0.70	OE
AZDYQN		0.2303	-0.0124	-2.36	0.2177	-0.0097	-2.06	OE
BMER2H		0.2407	-0.0020	-0.39	0.2260	-0.0014	-0.29	IC
BP4VUP	X	0.2627	0.0200	3.80	0.2360	0.0086	1.83	OE
BQHD22		0.2450	0.0023	0.44	0.2290	0.0016	0.34	OE
BQK6QW		0.2422	-0.0005	-0.09	0.2268	-0.0006	-0.12	XX
CFHZJF		0.2425	-0.0002	-0.04	0.2261	-0.0012	-0.26	GR
CP47CD		0.2433	0.0006	0.12	0.2250	-0.0024	-0.50	OE
D4DJX4		0.2430	0.0003	0.06	0.2287	0.0013	0.27	XX
DPY7TP		0.2355	-0.0072	-1.37	0.2201	-0.0072	-1.54	OE
DTYHNP		0.2367	-0.0060	-1.15	0.2227	-0.0047	-1.00	GD
DUBC7A	X	0.2264	-0.0163	-3.11	0.2261	-0.0013	-0.27	OE
EDHQD4	X	0.2300	-0.0127	-2.42	0.2100	-0.0174	-3.68	OE
EJLWQK	X	0.2660	0.0233	4.44	0.2490	0.0216	4.58	GD
EKKVDZ	*	0.2400	-0.0027	-0.51	0.2183	-0.0090	-1.92	OE
EML9LK		0.2480	0.0053	1.01	0.2338	0.0064	1.36	OE
EXRYEN		0.2427	0.0000	-0.01	0.2279	0.0005	0.10	OE
FEVXZW		0.2453	0.0026	0.50	0.2283	0.0010	0.20	XX
FF6RUB		0.2467	0.0040	0.76	0.2257	-0.0017	-0.36	OE
FFMWCA		0.2437	0.0010	0.18	0.2269	-0.0005	-0.11	OE
FLRUKE		0.2403	-0.0024	-0.45	0.2280	0.0006	0.13	XX
FM9RDD		0.2440	0.0013	0.25	0.2317	0.0043	0.91	OE
FTBTHE		0.2367	-0.0060	-1.15	0.2203	-0.0070	-1.49	XX
G6LNAH	X	0.2571	0.0144	2.74	0.2430	0.0156	3.31	OE
G9LY7H		0.2480	0.0053	1.01	0.2313	0.0040	0.84	OE
GFHT2V		0.2450	0.0023	0.44	0.2333	0.0060	1.26	XR
GMXJEA		0.2333	-0.0094	-1.79	0.2217	-0.0057	-1.21	OE
GUGVH3		0.2383	-0.0044	-0.83	0.2230	-0.0044	-0.93	OE



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1604

1st Qtr 2025

Carbon & Low Alloy Steel, SILICON (Si) SILICON (Si)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
GYBNQC		0.2337	-0.0090	-1.72	0.2233	-0.0040	-0.86	OE
HDPAMB		0.2503	0.0076	1.45	0.2347	0.0073	1.54	OE
HNP2UG		0.2525	0.0098	1.87	0.2346	0.0072	1.52	OE
HPNV68		0.2407	-0.0020	-0.39	0.2263	-0.0010	-0.22	XX
JAQ7HA		0.2417	-0.0010	-0.20	0.2257	-0.0017	-0.36	OE
JD497Q		0.2490	0.0063	1.20	0.2312	0.0039	0.82	OE
JDPGHF		0.2393	-0.0034	-0.64	0.2230	-0.0044	-0.93	OE
JMEBRR	X	0.2300	-0.0127	-2.42	0.2233	-0.0040	-0.86	OE
JUV4K3		0.2384	-0.0043	-0.82	0.2227	-0.0047	-0.99	XX
K36RVF		0.2463	0.0036	0.69	0.2260	-0.0014	-0.29	OE
K9PTDE		0.2389	-0.0038	-0.72	0.2264	-0.0010	-0.20	OE
KFQ8YF	X	0.00667	-0.2360	-44.98	0.0207	-0.2067	-43.79	OE
KWZQX8		0.2459	0.0032	0.62	0.2289	0.0015	0.32	OE
KY3RVJ		0.2387	-0.0040	-0.77	0.2240	-0.0034	-0.72	OE
KY4N7E		0.2353	-0.0074	-1.40	0.2207	-0.0067	-1.42	IC
LEB333		0.2519	0.0092	1.76	0.2367	0.0093	1.97	OE
MH4N6P		0.2503	0.0076	1.45	0.2323	0.0050	1.05	IC
MH6JT2	*	0.2563	0.0136	2.60	0.2410	0.0136	2.89	OE
MM26J6	X	0.2482	0.0055	1.05	0.2431	0.0157	3.32	OE
NARUN2	X	0.3100	0.0673	12.82	0.2867	0.0593	12.56	XR
NFUZ36		0.2403	-0.0024	-0.45	0.2250	-0.0024	-0.50	OE
NGT29W		0.2444	0.0017	0.32	0.2289	0.0016	0.33	OE
NJCA7B		0.2367	-0.0060	-1.15	0.2253	-0.0020	-0.43	OE
NKTC3B		0.2414	-0.0013	-0.25	0.2257	-0.0017	-0.36	WD
P3QWHB		0.2400	-0.0027	-0.51	0.2300	0.0026	0.56	OE
P43RZW		0.2413	-0.0014	-0.26	0.2260	-0.0014	-0.29	OE
PFEWBX	*	0.2371	-0.0056	-1.07	0.2358	0.0084	1.78	OE
PY3M43		0.2450	0.0023	0.44	0.2280	0.0006	0.13	OE
PZKA67		0.2496	0.0069	1.31	0.2329	0.0056	1.18	OE
Q4GHN7		0.2367	-0.0060	-1.15	0.2237	-0.0037	-0.79	XX
QKZ9M7		0.2380	-0.0047	-0.90	0.2227	-0.0047	-1.00	OE
QPUBMY		0.2450	0.0023	0.44	0.2323	0.0050	1.05	OE
QZUXH3		0.2500	0.0073	1.39	0.2300	0.0026	0.56	OE
RFJHL4		0.2449	0.0022	0.42	0.2319	0.0046	0.96	OE
RYYQM4		0.2430	0.0003	0.06	0.2264	-0.0010	-0.21	OE
T6YGUZ	X	0.2490	0.0063	1.20	0.2157	-0.0117	-2.48	GD
T7XLBU		0.2440	0.0013	0.25	0.2290	0.0016	0.34	OE
TBRLJ		0.2513	0.0086	1.65	0.2383	0.0110	2.32	OE
TFZL62		0.2377	-0.0050	-0.96	0.2240	-0.0034	-0.72	XX
TUGNFY	*	0.2277	-0.0150	-2.86	0.2180	-0.0094	-1.99	OE
TW4FB2		0.2373	-0.0054	-1.02	0.2230	-0.0044	-0.93	OE
UCDPRV		0.2443	0.0016	0.31	0.2267	-0.0007	-0.15	OE
UXVUF7		0.2400	-0.0027	-0.51	0.2200	-0.0074	-1.56	GD
V8FKGN		0.2420	-0.0007	-0.13	0.2287	0.0013	0.27	OE
VB26MR		0.2460	0.0033	0.63	0.2310	0.0036	0.77	OE
VFRTTX		0.2470	0.0043	0.83	0.2311	0.0037	0.78	OE
VHHWL6		0.2427	0.0000	-0.01	0.2237	-0.0037	-0.79	OE



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1604

1st Qtr 2025

Carbon & Low Alloy Steel, SILICON (Si)
SILICON (Si)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
VLZZKM		0.2412	-0.0015	-0.29	0.2213	-0.0061	-1.29	OE
VMART4		0.2350	-0.0077	-1.47	0.2210	-0.0064	-1.35	OE
VPZBGM		0.2415	-0.0012	-0.22	0.2285	0.0012	0.24	OE
VTYG8M		0.2403	-0.0024	-0.45	0.2267	-0.0007	-0.15	GD
VUTDH2		0.2443	0.0016	0.31	0.2297	0.0023	0.48	OE
W3PB66		0.2420	-0.0007	-0.13	0.2270	-0.0004	-0.08	OE
WTE9LP	*	0.2330	-0.0097	-1.85	0.2290	0.0016	0.34	IC
XCLMQW		0.2450	0.0023	0.44	0.2340	0.0066	1.40	OE
YDE7VV		0.2460	0.0033	0.62	0.2299	0.0025	0.53	OE
YLQ8EB	X	0.2240	-0.0187	-3.56	0.2103	-0.0170	-3.61	OE
YYF2Q6		0.2450	0.0023	0.44	0.2267	-0.0007	-0.15	XX
Z2ZD2U		0.2458	0.0031	0.60	0.2329	0.0056	1.18	OE
ZANFXV		0.2430	0.0003	0.06	0.2267	-0.0007	-0.15	OE
ZGRB8V		0.2460	0.0033	0.63	0.2307	0.0033	0.70	OE
ZHK4ZT		0.2440	0.0013	0.25	0.2267	-0.0007	-0.15	IC

Summary Statistics

	Sample L07		Sample L08	
Grand Means	0.2427	Percent	0.2274	Percent
Stnd Dev Btwn Labs	0.0052	Percent	0.0047	Percent

Samples L07, L08 : AISI 4340, AISI 4340H

Statistics based on 96 of 109 reporting participants

Key to Method Codes Reported by Participants

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



Comments on Assigned Data Flags for Test #1604

- BP4VUP (X) - Data for sample L07 are high. Inconsistent within the determinations of sample L08.
- DUBC7A (X) - Data for sample L07 are low.
- EDHQD4 (X) - Data for sample L08 are low.
- EJLWQK (X) - Data for both samples are high. Possible Systematic Error.
- G6LNAH (X) - Data for sample L08 are high.
- JMEBRR (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample L08.
- KFQ8YF (X) - Extreme data.
- MM26J6 (X) - Data for sample L08 are high.
- NARUN2 (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.
- T6YGUZ (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample L08.
- YLQ8EB (X) - Data for both samples are low. Possible Systematic Error.



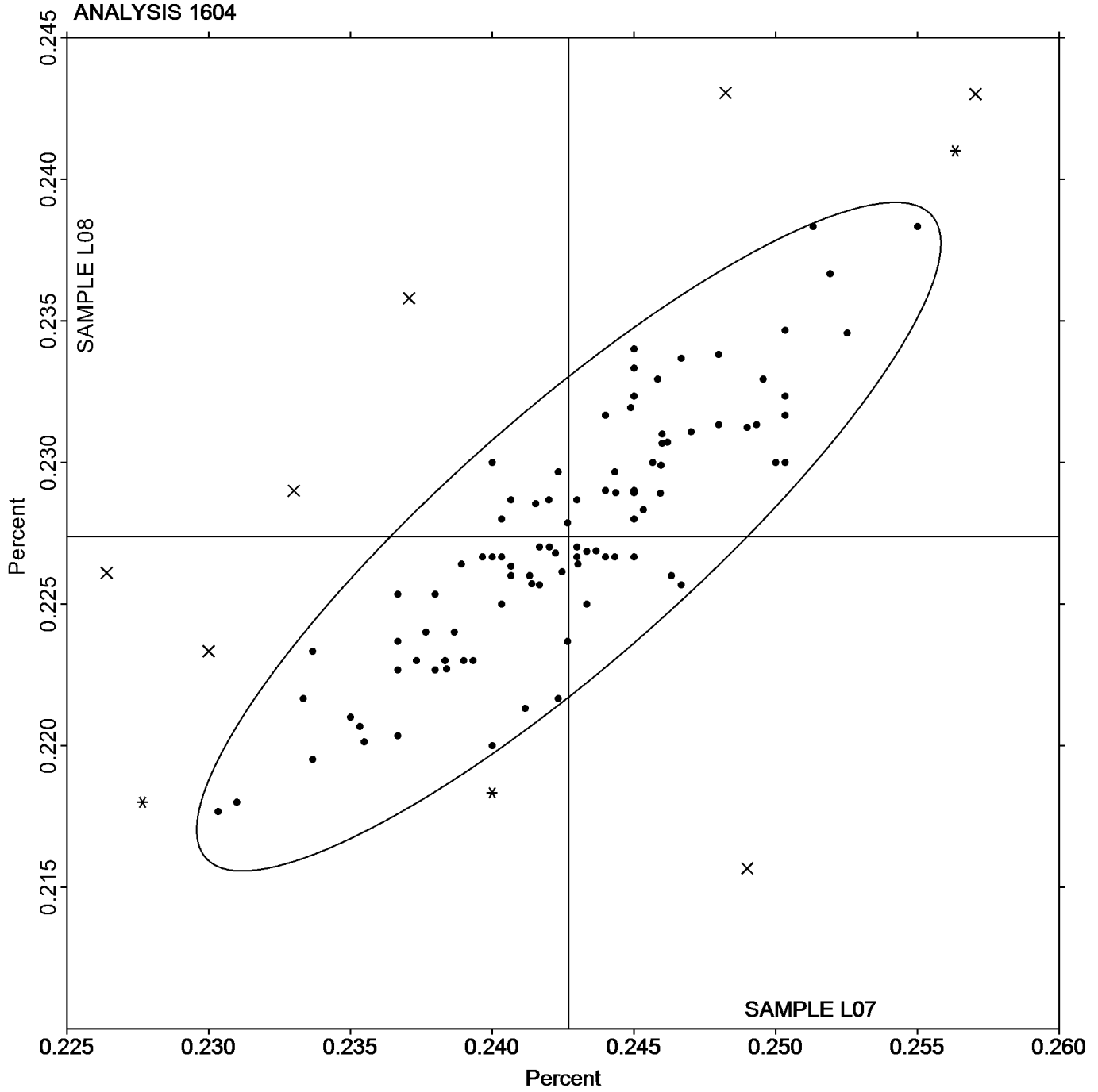
Analysis 1604

Carbon & Low Alloy Steel, SILICON (Si)

SILICON (Si)

SAMPLE L07
0.2427 Percent

SAMPLE L08
0.2274 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1605

1st Qtr 2025

Carbon & Low Alloy Steel, MOLYBDENUM (Mo) MOLYBDENUM (Mo)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
24Z2XV		0.2370	0.0025	0.52	0.2250	0.0045	1.04	OE
2ALXJX	*	0.2323	-0.0022	-0.46	0.2267	0.0062	1.42	DR
2CAC98		0.2373	0.0028	0.59	0.2217	0.0012	0.27	OE
2D8LHC		0.2423	0.0078	1.65	0.2280	0.0075	1.72	OE
2JTMDV		0.2340	-0.0005	-0.11	0.2210	0.0005	0.12	OE
2N8DMW		0.2216	-0.0129	-2.73	0.2112	-0.0092	-2.12	OE
2TUB6R	X	0.2207	-0.0138	-2.92	0.2057	-0.0148	-3.39	OE
3A8R3M		0.2303	-0.0042	-0.88	0.2183	-0.0021	-0.49	XX
3BE9UQ		0.2426	0.0081	1.71	0.2261	0.0057	1.29	XX
3RZRRX		0.2393	0.0048	1.02	0.2227	0.0022	0.50	OE
4VZ69V		0.2380	0.0035	0.73	0.2227	0.0022	0.50	OE
78M99R		0.2413	0.0068	1.44	0.2263	0.0059	1.34	OE
7C2P24		0.2290	-0.0055	-1.16	0.2167	-0.0038	-0.87	XX
7JWURK		0.2347	0.0002	0.03	0.2207	0.0002	0.04	OE
8Y6CTJ		0.2367	0.0022	0.45	0.2227	0.0022	0.50	XX
8Z39TE		0.2380	0.0035	0.73	0.2257	0.0052	1.19	OE
8ZVDWL		0.2287	-0.0058	-1.23	0.2150	-0.0055	-1.25	GD
9TYN23		0.2318	-0.0027	-0.58	0.2170	-0.0034	-0.79	OE
9TZLEJ		0.2363	0.0018	0.38	0.2220	0.0015	0.35	OE
AGYFXQ		0.2355	0.0010	0.21	0.2204	-0.0001	-0.02	OE
AZDYQN		0.2273	-0.0072	-1.51	0.2147	-0.0058	-1.33	OE
BMER2H		0.2350	0.0005	0.10	0.2203	-0.0001	-0.03	IC
BP4VUP		0.2327	-0.0018	-0.39	0.2173	-0.0031	-0.72	OE
BQHD22		0.2330	-0.0015	-0.32	0.2190	-0.0015	-0.34	OE
BQK6QW		0.2339	-0.0006	-0.14	0.2203	-0.0002	-0.04	XX
CFHZJF		0.2425	0.0080	1.68	0.2236	0.0031	0.71	IC
CP47CD		0.2363	0.0018	0.38	0.2207	0.0002	0.04	OE
D4DJX4		0.2287	-0.0058	-1.23	0.2160	-0.0045	-1.03	XX
DPY7TP		0.2362	0.0017	0.36	0.2225	0.0020	0.46	OE
DTYHNP		0.2363	0.0018	0.38	0.2247	0.0042	0.96	GD
DUBC7A	*	0.2276	-0.0069	-1.45	0.2217	0.0012	0.27	OE
EDHQD4	*	0.2367	0.0022	0.45	0.2167	-0.0038	-0.87	OE
EKKVDZ		0.2317	-0.0028	-0.60	0.2183	-0.0021	-0.49	OE
EML9LK		0.2276	-0.0069	-1.45	0.2147	-0.0057	-1.32	OE
EXRYEN		0.2335	-0.0010	-0.21	0.2197	-0.0008	-0.18	OE
FEVXZW		0.2363	0.0018	0.38	0.2217	0.0012	0.27	OE
FF6RUB	X	0.2073	-0.0272	-5.73	0.2003	-0.0201	-4.62	OE
FFMWCA		0.2359	0.0014	0.30	0.2187	-0.0018	-0.41	OE
FLRUKE		0.2273	-0.0072	-1.51	0.2150	-0.0055	-1.25	XX
FM9RDD	X	0.2537	0.0192	4.04	0.2403	0.0199	4.55	OE
FTBTHE		0.2350	0.0005	0.10	0.2200	-0.0005	-0.11	XX
G6LNAH		0.2323	-0.0022	-0.47	0.2184	-0.0020	-0.47	OE
G9LY7H		0.2373	0.0028	0.59	0.2213	0.0009	0.20	OE
GFHT2V		0.2340	-0.0005	-0.11	0.2257	0.0052	1.19	XR
GMXJEA		0.2430	0.0085	1.80	0.2317	0.0112	2.57	OE
GUGVH3		0.2360	0.0015	0.31	0.2223	0.0019	0.43	OE
GYBNQC		0.2347	0.0002	0.03	0.2253	0.0049	1.11	OE



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1605

1st Qtr 2025

Carbon & Low Alloy Steel, MOLYBDENUM (Mo) MOLYBDENUM (Mo)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
HDPAMB		0.2360	0.0015	0.31	0.2233	0.0029	0.65	OE
HNP2UG		0.2320	-0.0025	-0.54	0.2172	-0.0033	-0.75	OE
HPNV68		0.2387	0.0042	0.88	0.2247	0.0042	0.96	XX
JAQ7HA		0.2367	0.0022	0.45	0.2227	0.0022	0.50	OE
JD497Q		0.2305	-0.0040	-0.85	0.2149	-0.0055	-1.27	OE
JDPGHF		0.2463	0.0118	2.49	0.2297	0.0092	2.11	OE
JMEBRR	*	0.2200	-0.0145	-3.06	0.2100	-0.0105	-2.40	OE
JUV4K3		0.2440	0.0095	2.00	0.2240	0.0035	0.81	XX
K36RVF		0.2357	0.0012	0.24	0.2210	0.0005	0.12	OE
K9PTDE		0.2345	-0.0001	-0.01	0.2263	0.0058	1.33	OE
KFQ8YF		0.2407	0.0062	1.30	0.2237	0.0032	0.73	OE
KWZQX8		0.2358	0.0013	0.27	0.2213	0.0008	0.19	OE
KY3RVJ		0.2353	0.0008	0.17	0.2220	0.0015	0.35	OE
KY4N7E		0.2363	0.0018	0.38	0.2217	0.0012	0.27	IC
LEB333		0.2285	-0.0060	-1.26	0.2176	-0.0029	-0.66	OE
MH4N6P		0.2437	0.0092	1.93	0.2277	0.0072	1.65	IC
MH6JT2		0.2373	0.0028	0.59	0.2223	0.0019	0.43	OE
NARUN2		0.2400	0.0055	1.16	0.2267	0.0062	1.42	XR
NFUZ36		0.2340	-0.0005	-0.11	0.2193	-0.0011	-0.26	OE
NGT29W		0.2337	-0.0008	-0.17	0.2191	-0.0014	-0.32	OE
NJCA7B		0.2353	0.0008	0.17	0.2220	0.0015	0.35	OE
NKTC3B		0.2318	-0.0027	-0.57	0.2183	-0.0022	-0.50	WD
P3QWHB		0.2300	-0.0045	-0.95	0.2210	0.0005	0.12	OE
P43RZW		0.2340	-0.0005	-0.11	0.2170	-0.0035	-0.80	OE
PFEWBX		0.2325	-0.0020	-0.43	0.2185	-0.0020	-0.45	OE
PY3M43		0.2317	-0.0028	-0.60	0.2143	-0.0061	-1.41	OE
PZKA67		0.2414	0.0069	1.44	0.2262	0.0057	1.31	OE
Q4GHN7		0.2297	-0.0048	-1.02	0.2177	-0.0028	-0.64	XX
QKZ9M7	X	0.2370	0.0025	0.52	0.0207	-0.1998	-45.78	OE
QPUBMY	X	0.2020	-0.0325	-6.85	0.1913	-0.0291	-6.68	OE
QZUXH3		0.2390	0.0045	0.95	0.2233	0.0029	0.65	OE
RFJHL4		0.2399	0.0054	1.14	0.2294	0.0089	2.04	OE
RYYQM4		0.2434	0.0089	1.87	0.2282	0.0077	1.76	OE
T6YGUZ		0.2367	0.0022	0.45	0.2270	0.0065	1.49	GD
T7XLBU		0.2330	-0.0015	-0.32	0.2167	-0.0038	-0.87	OE
TBRL LJ		0.2373	0.0028	0.59	0.2240	0.0035	0.81	OE
TFZL62		0.2313	-0.0032	-0.67	0.2157	-0.0048	-1.10	XX
TUGNFY		0.2293	-0.0052	-1.09	0.2173	-0.0031	-0.72	OE
TW4FB2		0.2287	-0.0058	-1.23	0.2157	-0.0048	-1.10	OE
UCDPRV		0.2367	0.0022	0.45	0.2213	0.0009	0.20	OE
UXVUF7	*	0.2267	-0.0078	-1.65	0.2100	-0.0105	-2.40	GD
V8FKGN		0.2297	-0.0048	-1.02	0.2153	-0.0051	-1.18	OE
VB26MR		0.2330	-0.0015	-0.32	0.2180	-0.0025	-0.57	OE
VFRTTX		0.2335	-0.0010	-0.21	0.2206	0.0001	0.02	OE
VHHWL6		0.2343	-0.0002	-0.04	0.2213	0.0009	0.20	OE
VLZZKM		0.2304	-0.0041	-0.87	0.2124	-0.0081	-1.85	OE
VMART4		0.2347	0.0002	0.03	0.2230	0.0025	0.58	OE



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1605

1st Qtr 2025

Carbon & Low Alloy Steel, MOLYBDENUM (Mo) MOLYBDENUM (Mo)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
VPZBGM		0.2357	0.0012	0.24	0.2220	0.0016	0.36	OE
VTYG8M		0.2337	-0.0008	-0.18	0.2187	-0.0018	-0.41	GD
VUTDH2	X	0.2220	-0.0125	-2.64	0.1817	-0.0388	-8.89	OE
W3PB66		0.2378	0.0033	0.69	0.2201	-0.0004	-0.09	OE
W766JG		0.2325	-0.0020	-0.42	0.2175	-0.0030	-0.68	OE
WTE9LP	X	0.2177	-0.0168	-3.55	0.2160	-0.0045	-1.03	IC
XCLMQW		0.2310	-0.0035	-0.74	0.2220	0.0015	0.35	OE
YDE7VV		0.2249	-0.0096	-2.03	0.2118	-0.0087	-1.99	OE
YLQ8EB		0.2393	0.0048	1.02	0.2220	0.0015	0.35	OE
YYF2Q6		0.2350	0.0005	0.10	0.2200	-0.0004	-0.10	XX
Z2ZD2U		0.2343	-0.0002	-0.04	0.2193	-0.0012	-0.27	OE
ZANFXV		0.2337	-0.0008	-0.18	0.2203	-0.0001	-0.03	OE
ZGRB8V		0.2287	-0.0058	-1.23	0.2143	-0.0061	-1.41	OE
ZHK4ZT		0.2293	-0.0052	-1.09	0.2180	-0.0025	-0.57	IC

Summary Statistics

	Sample L07		Sample L08	
Grand Means	0.2345	Percent	0.2205	Percent
Std Dev Btwn Labs	0.0047	Percent	0.0044	Percent

Samples L07, L08 : AISI 4340, AISI 4340H

Statistics based on 99 of 108 reporting participants

Key to Method Codes Reported by Participants

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

Comments on Assigned Data Flags for Test #1605

2TUB6R (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample L08.

FF6RUB (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample L08.

FM9RDD (X) - Data for both samples are high. Possible Systematic Error.

KQZ9M7 (X) - Data for sample L08 are extreme. Appear to be off by a factor of ten.

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

VUTDH2 (X) - Data for sample L08 are low. Inconsistent within the determinations of sample L08.

WTE9LP (X) - Data for sample L07 are low.

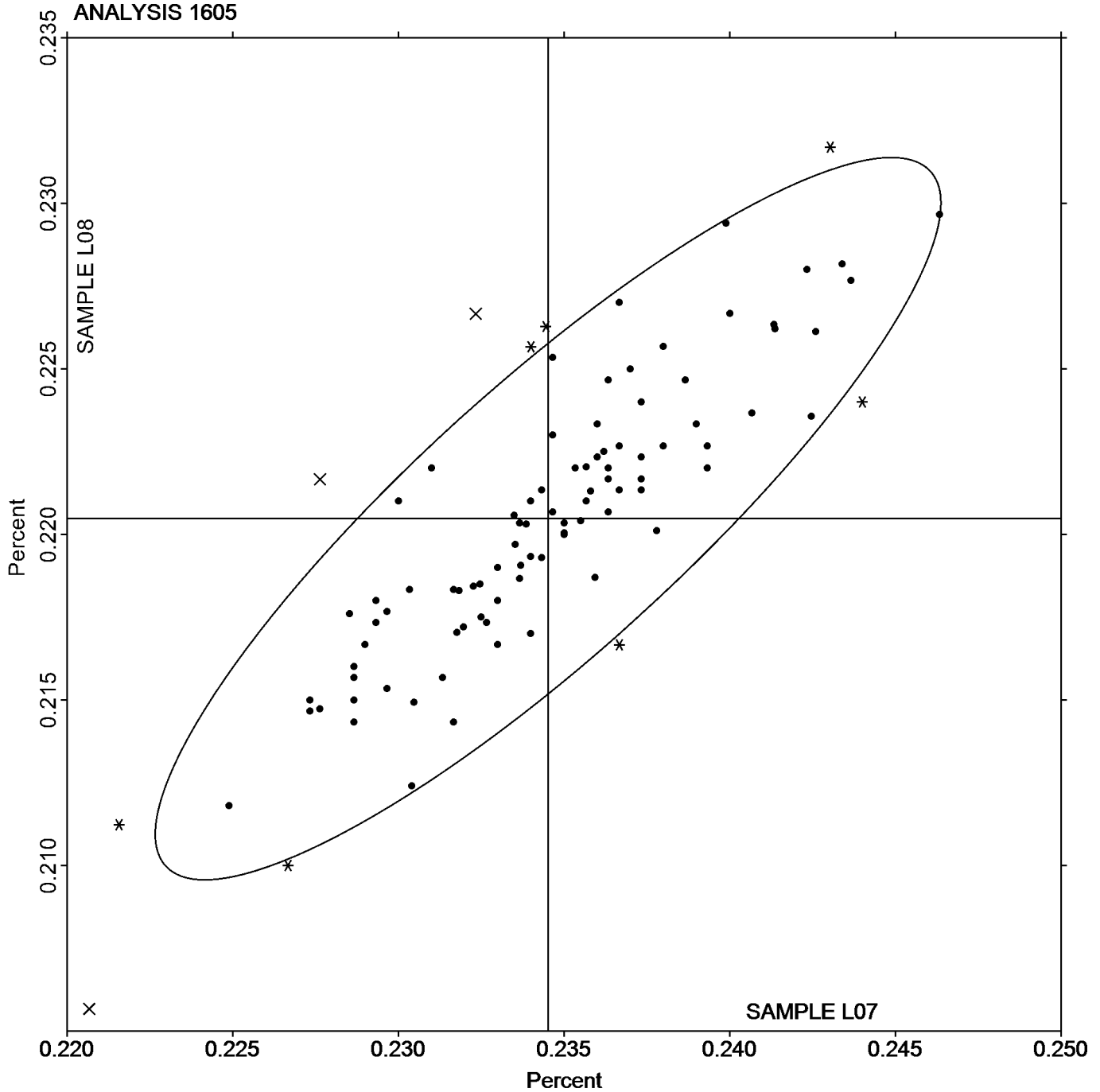


Analysis 1605

Carbon & Low Alloy Steel, MOLYBDENUM (Mo)
MOLYBDENUM (Mo)

SAMPLE L07
0.2345 Percent

SAMPLE L08
0.2205 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1606

1st Qtr 2025

Carbon & Low Alloy Steel, NICKEL (Ni)
NICKEL (Ni)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
24Z2XV		1.732	0.018	0.66	1.658	0.009	0.32	OE
2ALXJX		1.743	0.029	1.09	1.683	0.034	1.23	DR
2CAC98		1.730	0.016	0.61	1.636	-0.014	-0.51	OE
2D8LHC		1.783	0.069	2.55	1.721	0.071	2.60	OE
2JTMDV		1.711	-0.003	-0.11	1.650	0.000	0.01	OE
2N8DMW		1.705	-0.009	-0.33	1.635	-0.014	-0.53	OE
2TUB6R	X	1.422	-0.292	-10.83	1.401	-0.249	-9.06	OE
3BE9UQ		1.763	0.049	1.83	1.700	0.051	1.85	XX
3RZRRX		1.707	-0.007	-0.27	1.647	-0.003	-0.11	OE
4VZ69V		1.660	-0.054	-2.00	1.600	-0.050	-1.81	XX
78M99R		1.711	-0.003	-0.12	1.649	-0.001	-0.03	OE
7C2P24		1.697	-0.017	-0.64	1.633	-0.016	-0.59	XX
7JWURK		1.702	-0.012	-0.45	1.630	-0.019	-0.70	OE
8Z39TE		1.726	0.012	0.46	1.658	0.008	0.31	XX
8ZVDWL		1.690	-0.024	-0.89	1.637	-0.013	-0.47	GD
9TYN23		1.701	-0.013	-0.50	1.608	-0.042	-1.52	XX
9TZLEJ		1.714	0.000	0.01	1.645	-0.004	-0.16	OE
AGYFXQ		1.688	-0.026	-0.98	1.621	-0.028	-1.03	OE
AZDYQN		1.697	-0.017	-0.64	1.637	-0.013	-0.47	OE
BMER2H		1.744	0.030	1.11	1.670	0.020	0.74	IC
BP4VUP		1.674	-0.040	-1.47	1.599	-0.051	-1.84	OE
BQHD22		1.735	0.021	0.78	1.676	0.026	0.96	OE
BQK6QW		1.709	-0.005	-0.19	1.647	-0.002	-0.08	XX
CFHZJF		1.760	0.046	1.70	1.679	0.029	1.05	IC
CP47CD		1.743	0.029	1.06	1.667	0.017	0.62	OE
D4DJX4		1.742	0.028	1.05	1.700	0.050	1.84	XX
DPY7TP		1.732	0.018	0.68	1.672	0.022	0.82	WD
DTYHNP		1.750	0.036	1.34	1.680	0.030	1.11	GD
DUBC7A		1.719	0.005	0.17	1.649	0.000	-0.02	OE
EDHQD4		1.737	0.023	0.84	1.677	0.027	0.99	OE
EKKVDZ	*	1.713	-0.001	-0.03	1.680	0.030	1.11	OE
EML9LK		1.714	0.000	0.02	1.655	0.006	0.21	OE
EXRYEN		1.729	0.015	0.54	1.651	0.001	0.05	OE
FEVXZW		1.727	0.013	0.47	1.663	0.014	0.50	OE
FF6RUB	X	1.712	-0.002	-0.06	1.576	-0.074	-2.68	OE
FFMWCA		1.721	0.007	0.26	1.641	-0.009	-0.31	OE
FM9RDD		1.670	-0.044	-1.63	1.610	-0.040	-1.44	OE
FTBTHE		1.699	-0.015	-0.56	1.634	-0.015	-0.56	XX
G6LNAH		1.716	0.002	0.07	1.650	0.000	0.00	OE
GFHT2V		1.729	0.015	0.57	1.663	0.014	0.50	XR
GMXJEA		1.706	-0.008	-0.28	1.638	-0.011	-0.41	OE
GUGVH3		1.700	-0.014	-0.52	1.633	-0.016	-0.59	OE
GYBNQC		1.720	0.006	0.22	1.657	0.007	0.26	OE
HDPAMB		1.669	-0.045	-1.68	1.589	-0.060	-2.20	OE
HNP2UG		1.680	-0.034	-1.25	1.643	-0.006	-0.23	OE
HPNV68		1.721	0.007	0.27	1.660	0.010	0.37	XX
JAQ7HA		1.734	0.020	0.74	1.666	0.016	0.59	OE



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1606

1st Qtr 2025

Carbon & Low Alloy Steel, NICKEL (Ni)
NICKEL (Ni)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
JD497Q		1.709	-0.005	-0.19	1.645	-0.005	-0.18	OE
JDPGHF		1.745	0.031	1.16	1.679	0.029	1.06	OE
JMEBRR	X	1.700	-0.014	-0.52	1.670	0.020	0.74	OE
JUV4K3		1.683	-0.031	-1.15	1.637	-0.013	-0.46	XX
K36RVF		1.737	0.023	0.87	1.666	0.016	0.60	OE
K9PTDE		1.715	0.001	0.04	1.657	0.007	0.25	OE
KFQ8YF		1.679	-0.035	-1.29	1.606	-0.043	-1.58	OE
KWZQX8		1.704	-0.010	-0.36	1.653	0.004	0.13	OE
KY3RVJ		1.736	0.022	0.82	1.666	0.017	0.61	XX
KY4N7E		1.746	0.032	1.18	1.676	0.027	0.97	IC
LEB333		1.736	0.022	0.82	1.668	0.018	0.66	OE
MH4N6P	X	1.907	0.193	7.15	1.823	0.174	6.33	IC
MH6JT2		1.737	0.023	0.84	1.663	0.014	0.50	OE
NARUN2		1.703	-0.011	-0.40	1.623	-0.026	-0.96	XR
NFUZ36		1.721	0.007	0.27	1.672	0.022	0.82	OE
NGT29W		1.699	-0.015	-0.55	1.627	-0.023	-0.83	OE
NJCA7B		1.720	0.006	0.23	1.673	0.023	0.85	OE
NKTC3B		1.695	-0.019	-0.70	1.646	-0.003	-0.12	WD
P3QWHB		1.699	-0.015	-0.56	1.626	-0.024	-0.86	OE
P43RZW		1.690	-0.024	-0.89	1.610	-0.040	-1.44	OE
PFEWBX		1.726	0.012	0.46	1.659	0.010	0.35	OE
PY3M43		1.705	-0.009	-0.33	1.635	-0.015	-0.53	OE
PZKA67		1.709	-0.005	-0.19	1.636	-0.013	-0.48	OE
Q4GHN7		1.727	0.013	0.47	1.660	0.010	0.38	XX
QKZ9M7		1.715	0.001	0.05	1.651	0.001	0.04	OE
QPUBMY	X	1.957	0.243	9.01	1.863	0.214	7.79	OE
QZUXH3		1.733	0.019	0.72	1.677	0.027	0.99	OE
RX49L3		1.663	-0.051	-1.90	1.600	-0.049	-1.80	OE
RYYQM4		1.691	-0.023	-0.87	1.627	-0.022	-0.81	OE
T6YGUZ		1.700	-0.014	-0.52	1.640	-0.010	-0.35	GD
T7XLBU		1.663	-0.051	-1.88	1.597	-0.053	-1.93	OE
TBRLLJ		1.723	0.009	0.35	1.659	0.009	0.33	OE
TUGNFY	*	1.790	0.076	2.82	1.731	0.082	2.98	OE
TW4FB2		1.739	0.025	0.94	1.665	0.015	0.56	OE
UCDPRV		1.702	-0.012	-0.45	1.632	-0.018	-0.64	OE
UXVUF7	*	1.700	-0.014	-0.52	1.600	-0.050	-1.81	GD
V8FKGN		1.717	0.003	0.10	1.651	0.001	0.05	OE
VB26MR		1.750	0.036	1.34	1.692	0.042	1.55	OE
VFRTTX		1.680	-0.034	-1.25	1.619	-0.030	-1.11	OE
VHHWL6		1.717	0.003	0.12	1.668	0.018	0.66	OE
VLZZKM		1.778	0.064	2.37	1.705	0.056	2.03	OE
VMART4		1.683	-0.031	-1.14	1.640	-0.010	-0.35	OE
VPZBGM		1.715	0.001	0.03	1.645	-0.004	-0.15	OE
VTYG8M		1.693	-0.021	-0.77	1.637	-0.013	-0.47	GD
VUTDH2		1.710	-0.004	-0.15	1.640	-0.010	-0.35	OE
W3PB66		1.725	0.011	0.41	1.670	0.020	0.74	OE
WTE9LP	X	1.633	-0.081	-2.99	1.660	0.010	0.38	IC



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1606

1st Qtr 2025

**Carbon & Low Alloy Steel, NICKEL (Ni)
NICKEL (Ni)**

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
XCLMQW		1.701	-0.013	-0.48	1.650	0.000	0.01	OE
YDE7VV		1.746	0.032	1.20	1.681	0.031	1.13	OE
YLQ8EB		1.710	-0.004	-0.14	1.657	0.008	0.28	OE
YYF2Q6		1.706	-0.008	-0.28	1.644	-0.006	-0.20	XX
Z2ZD2U		1.708	-0.006	-0.21	1.638	-0.012	-0.44	OE
ZANFXV		1.655	-0.059	-2.18	1.600	-0.050	-1.82	OE
ZGRB8V		1.687	-0.027	-1.01	1.620	-0.030	-1.08	OE
ZHK4ZT		1.652	-0.062	-2.31	1.594	-0.056	-2.03	IC

Summary Statistics				
	Sample L07		Sample L08	
Grand Means	1.714	Percent	1.650	Percent
Std Dev Brwn Labs	0.027	Percent	0.027	Percent

Samples L07, L08 : AISI 4340, AISI 4340H

Statistics based on 95 of 102 reporting participants

Key to Method Codes Reported by Participants

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

Comments on Assigned Data Flags for Test #1606

- 2TUB6R (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of both samples.
- FF6RUB (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample L08.
- JMEBRR (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample L08.
- MH4N6P (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.
- QPUBMY (X) - Data for both samples are high. Possible Systematic Error.
- WTE9LP (X) - Data for sample L07 are low.



Analysis 1606

Carbon & Low Alloy Steel, NICKEL (Ni)

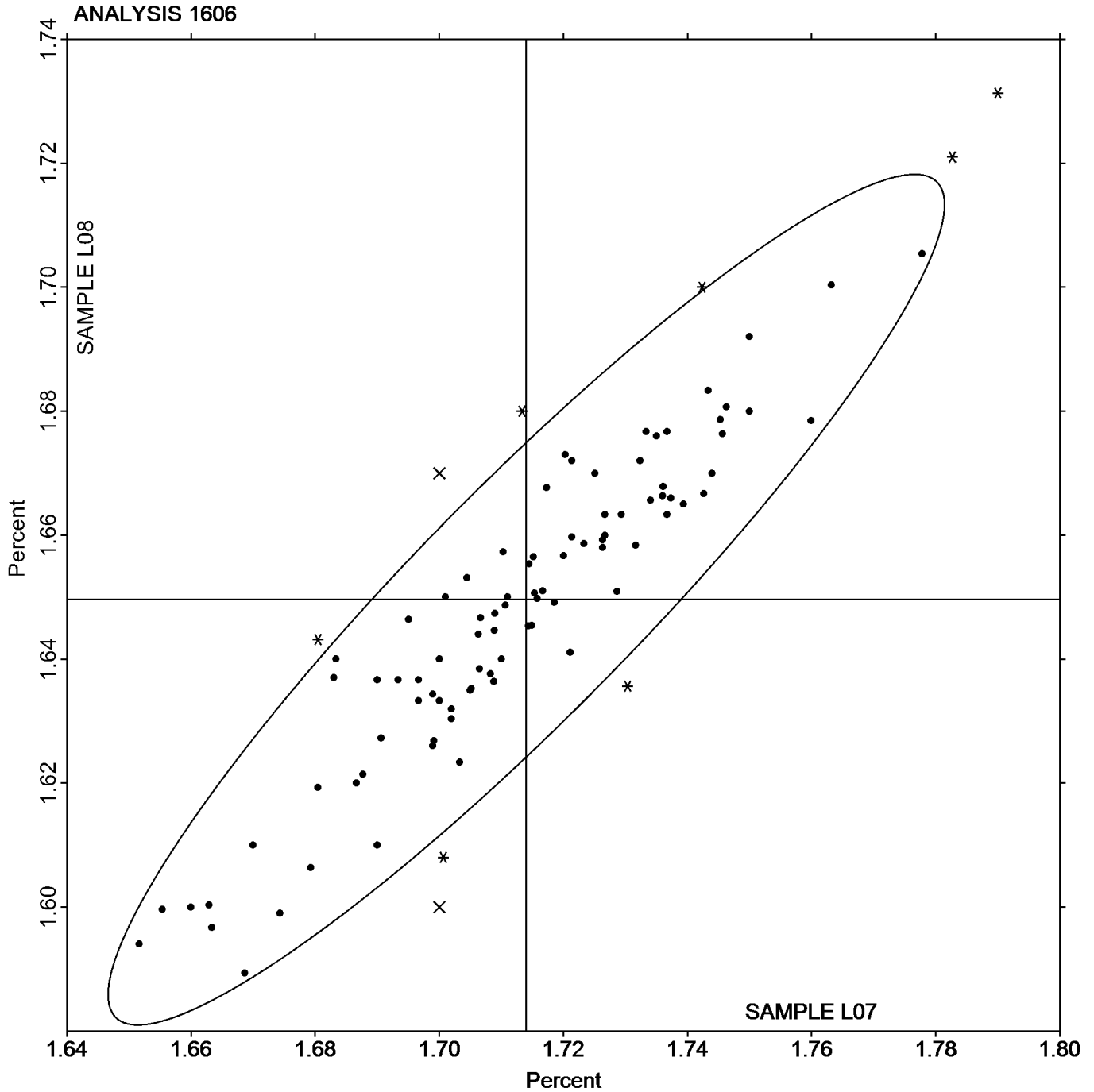
NICKEL (Ni)

SAMPLE L07

SAMPLE L08

1.714 Percent

1.650 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1607

1st Qtr 2025

Carbon & Low Alloy Steel, CHROMIUM (Cr) CHROMIUM (Cr)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
24Z2XV		0.8247	-0.0015	-0.13	0.7797	-0.0017	-0.15	OE
2ALXJX		0.8457	0.0195	1.72	0.8077	0.0263	2.31	DR
2CAC98		0.8147	-0.0115	-1.01	0.7637	-0.0177	-1.55	OE
2D8LHC	*	0.7937	-0.0325	-2.86	0.7470	-0.0344	-3.02	OE
2JTMDV		0.8263	0.0002	0.02	0.7810	-0.0004	-0.03	OE
2N8DMW		0.8189	-0.0072	-0.64	0.7744	-0.0070	-0.61	OE
2TUB6R		0.8500	0.0239	2.10	0.8037	0.0223	1.96	OE
3BE9UQ		0.8325	0.0064	0.56	0.7889	0.0075	0.66	XX
3RZRRX	X	0.8740	0.0479	4.22	0.7733	-0.0080	-0.71	OE
4VZ69V		0.8293	0.0032	0.28	0.7870	0.0056	0.49	XX
78M99R		0.8360	0.0099	0.87	0.8003	0.0190	1.67	OE
7C2P24		0.8347	0.0085	0.75	0.7950	0.0136	1.20	XX
7JWURK		0.8300	0.0039	0.34	0.7847	0.0033	0.29	OE
8Z39TE		0.8263	0.0002	0.02	0.7840	0.0026	0.23	OE
8ZVDWL		0.8200	-0.0061	-0.54	0.7853	0.0040	0.35	GD
9TYN23		0.8336	0.0075	0.66	0.7973	0.0160	1.40	OE
9TZLEJ		0.8223	-0.0038	-0.33	0.7800	-0.0014	-0.12	OE
AGYFXQ		0.8439	0.0178	1.57	0.7976	0.0162	1.43	OE
AZDYQN		0.8510	0.0249	2.19	0.8067	0.0253	2.22	OE
BMER2H		0.8263	0.0002	0.02	0.7740	-0.0074	-0.65	IC
BP4VUP		0.8243	-0.0018	-0.16	0.7787	-0.0027	-0.24	OE
BQHD22		0.8240	-0.0021	-0.19	0.7720	-0.0094	-0.82	OE
BQK6QW		0.8253	-0.0008	-0.07	0.7797	-0.0016	-0.14	XX
CFHZJF		0.8318	0.0057	0.50	0.7843	0.0029	0.25	IC
CP47CD		0.8167	-0.0095	-0.83	0.7713	-0.0100	-0.88	OE
D4DJX4	*	0.7940	-0.0321	-2.83	0.7553	-0.0260	-2.29	XX
DPY7TP		0.8217	-0.0045	-0.39	0.7777	-0.0037	-0.32	OE
DTYHNP		0.8343	0.0082	0.72	0.7860	0.0046	0.41	GD
DUBC7A	*	0.8033	-0.0229	-2.01	0.7838	0.0024	0.21	OE
EDHQD4		0.8333	0.0072	0.63	0.7800	-0.0014	-0.12	OE
EKKVDZ		0.8193	-0.0068	-0.60	0.7743	-0.0070	-0.62	OE
EML9LK		0.8241	-0.0020	-0.18	0.7795	-0.0018	-0.16	OE
EXRYEN		0.8247	-0.0014	-0.12	0.7788	-0.0025	-0.22	OE
FEVXZW		0.8300	0.0039	0.34	0.7877	0.0063	0.55	OE
FF6RUB		0.8193	-0.0068	-0.60	0.7643	-0.0170	-1.50	OE
FFMWCA		0.8358	0.0097	0.85	0.7863	0.0049	0.43	OE
FM9RDD		0.8377	0.0115	1.02	0.7937	0.0123	1.08	OE
FTBTHE	X	0.8647	0.0385	3.39	0.8150	0.0336	2.95	XX
G6LNAH	X	0.7124	-0.1137	-10.02	0.6761	-0.1052	-9.24	OE
G9LY7H		0.8177	-0.0085	-0.75	0.7733	-0.0080	-0.71	OE
GFHT2V		0.8297	0.0035	0.31	0.7930	0.0116	1.02	XR
GMXJEA	*	0.8332	0.0070	0.62	0.7762	-0.0052	-0.45	OE
GUGVH3		0.8117	-0.0145	-1.27	0.7723	-0.0090	-0.79	OE
GYBNQC		0.8367	0.0105	0.93	0.7967	0.0153	1.34	OE
HDPAMB		0.8183	-0.0078	-0.69	0.7770	-0.0044	-0.38	OE
HNP2UG		0.7990	-0.0271	-2.39	0.7549	-0.0265	-2.33	OE
HPNV68		0.8353	0.0092	0.81	0.7907	0.0093	0.82	XX



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1607

1st Qtr 2025

Carbon & Low Alloy Steel, CHROMIUM (Cr) CHROMIUM (Cr)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
JAQ7HA		0.8360	0.0099	0.87	0.7920	0.0106	0.93	OE
JD497Q		0.8159	-0.0102	-0.90	0.7672	-0.0142	-1.25	OE
JDPGHF		0.8213	-0.0048	-0.42	0.7757	-0.0057	-0.50	OE
JMEBRR		0.8300	0.0039	0.34	0.7900	0.0086	0.76	OE
JUV4K3	X	0.8820	0.0559	4.92	0.8160	0.0346	3.04	XX
K36RVF		0.8277	0.0015	0.14	0.7833	0.0020	0.17	OE
K9PTDE		0.8141	-0.0121	-1.06	0.7726	-0.0088	-0.77	OE
KFQ8YF		0.8350	0.0089	0.78	0.7880	0.0066	0.58	OE
KWZQX8		0.8340	0.0078	0.69	0.7873	0.0060	0.52	OE
KY3RVJ		0.8407	0.0145	1.28	0.7957	0.0143	1.26	OE
KY4N7E		0.8337	0.0075	0.66	0.7880	0.0066	0.58	IC
LEB333		0.8130	-0.0131	-1.16	0.7684	-0.0130	-1.14	OE
MH4N6P		0.8473	0.0212	1.87	0.7933	0.0120	1.05	IC
MH6JT2		0.8203	-0.0058	-0.51	0.7763	-0.0050	-0.44	OE
NARUN2		0.8100	-0.0161	-1.42	0.7767	-0.0047	-0.41	XR
NFUZ36		0.8443	0.0182	1.60	0.7970	0.0156	1.37	OE
NGT29W		0.8284	0.0023	0.20	0.7808	-0.0006	-0.05	OE
NJCA7B		0.8363	0.0102	0.90	0.7823	0.0010	0.08	OE
NKTC3B		0.8227	-0.0034	-0.30	0.7801	-0.0013	-0.11	WD
P3QWHB		0.8190	-0.0071	-0.63	0.7793	-0.0020	-0.18	OE
P43RZW		0.8240	-0.0021	-0.19	0.7793	-0.0020	-0.18	OE
PFEWBX		0.8120	-0.0141	-1.24	0.7660	-0.0153	-1.35	OE
PY3M43		0.8230	-0.0031	-0.28	0.7763	-0.0050	-0.44	OE
PZKA67		0.8340	0.0078	0.69	0.7902	0.0088	0.78	OE
Q4GHN7		0.8203	-0.0058	-0.51	0.7780	-0.0034	-0.30	XX
QKZ9M7		0.8150	-0.0111	-0.98	0.7707	-0.0107	-0.94	OE
QPUBMY		0.8400	0.0139	1.22	0.7900	0.0086	0.76	OE
QZUXH3		0.8233	-0.0028	-0.25	0.7767	-0.0047	-0.41	OE
RFJHL4	*	0.8151	-0.0111	-0.97	0.7862	0.0048	0.42	OE
RX49L3		0.8212	-0.0050	-0.44	0.7798	-0.0016	-0.14	OE
RYYQM4		0.8445	0.0184	1.62	0.7985	0.0171	1.50	OE
T6YGUZ		0.8103	-0.0158	-1.39	0.7600	-0.0214	-1.88	GD
T7XLBU		0.8143	-0.0118	-1.04	0.7783	-0.0030	-0.27	OE
TBRLJ		0.8270	0.0009	0.08	0.7813	0.0000	0.00	OE
TUGNFY		0.8407	0.0145	1.28	0.8003	0.0190	1.67	OE
TW4FB2		0.8307	0.0045	0.40	0.7833	0.0020	0.17	OE
UCDPRV		0.8233	-0.0028	-0.25	0.7763	-0.0050	-0.44	OE
UXVUF7		0.8300	0.0039	0.34	0.7867	0.0053	0.47	GD
V8FKGN		0.8270	0.0009	0.08	0.7797	-0.0017	-0.15	OE
VB26MR		0.7990	-0.0271	-2.39	0.7540	-0.0274	-2.40	OE
VFRTTX		0.8394	0.0132	1.17	0.7917	0.0103	0.90	OE
VHHWL6		0.8330	0.0069	0.61	0.7933	0.0120	1.05	OE
VLZZKM		0.8257	-0.0004	-0.04	0.7752	-0.0062	-0.54	OE
VMART4		0.8200	-0.0061	-0.54	0.7800	-0.0014	-0.12	OE
VPZBGM		0.8211	-0.0050	-0.44	0.7810	-0.0004	-0.04	OE
VTYG8M		0.8027	-0.0235	-2.07	0.7600	-0.0214	-1.88	GD
VUTDH2		0.8237	-0.0025	-0.22	0.7740	-0.0074	-0.65	OE



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1607

1st Qtr 2025

**Carbon & Low Alloy Steel, CHROMIUM (Cr)
CHROMIUM (Cr)**

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
W3PB66		0.8315	0.0054	0.48	0.7838	0.0025	0.22	OE
WTE9LP	X	0.7723	-0.0538	-4.74	0.7663	-0.0150	-1.32	IC
XCLMQW		0.8260	-0.0001	-0.01	0.7840	0.0026	0.23	OE
YDE7VV		0.8262	0.0001	0.01	0.7788	-0.0026	-0.23	OE
YLQ8EB		0.8360	0.0099	0.87	0.7903	0.0090	0.79	OE
YYF2Q6		0.8270	0.0009	0.08	0.7803	-0.0010	-0.09	XX
Z2ZD2U	*	0.8421	0.0159	1.40	0.7827	0.0013	0.11	OE
ZANFXV		0.8307	0.0045	0.40	0.7813	0.0000	0.00	OE
ZGRB8V		0.8267	0.0005	0.05	0.7800	-0.0014	-0.12	OE
ZHK4ZT		0.8113	-0.0148	-1.30	0.7763	-0.0050	-0.44	IC

Summary Statistics		Sample L07		Sample L08	
Grand Means		0.8261	Percent	0.7814	Percent
Stnd Dev Btwn Labs		0.0114	Percent	0.0114	Percent

Samples L07, L08 : AISI 4340, AISI 4340H

Statistics based on 96 of 104 reporting participants

Key to Method Codes Reported by Participants

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

Comments on Assigned Data Flags for Test #1607

- 3RZRRX (X) - Data for sample L07 are high.
- FTBTHE (X) - Data for both samples are high. Possible Systematic Error.
- G6LNAH (X) - Data for both samples are low. Possible Systematic Error.
- JUV4K3 (X) - Data for both samples are high. Possible Systematic Error.
- WTE9LP (X) - Data for sample L07 are low.



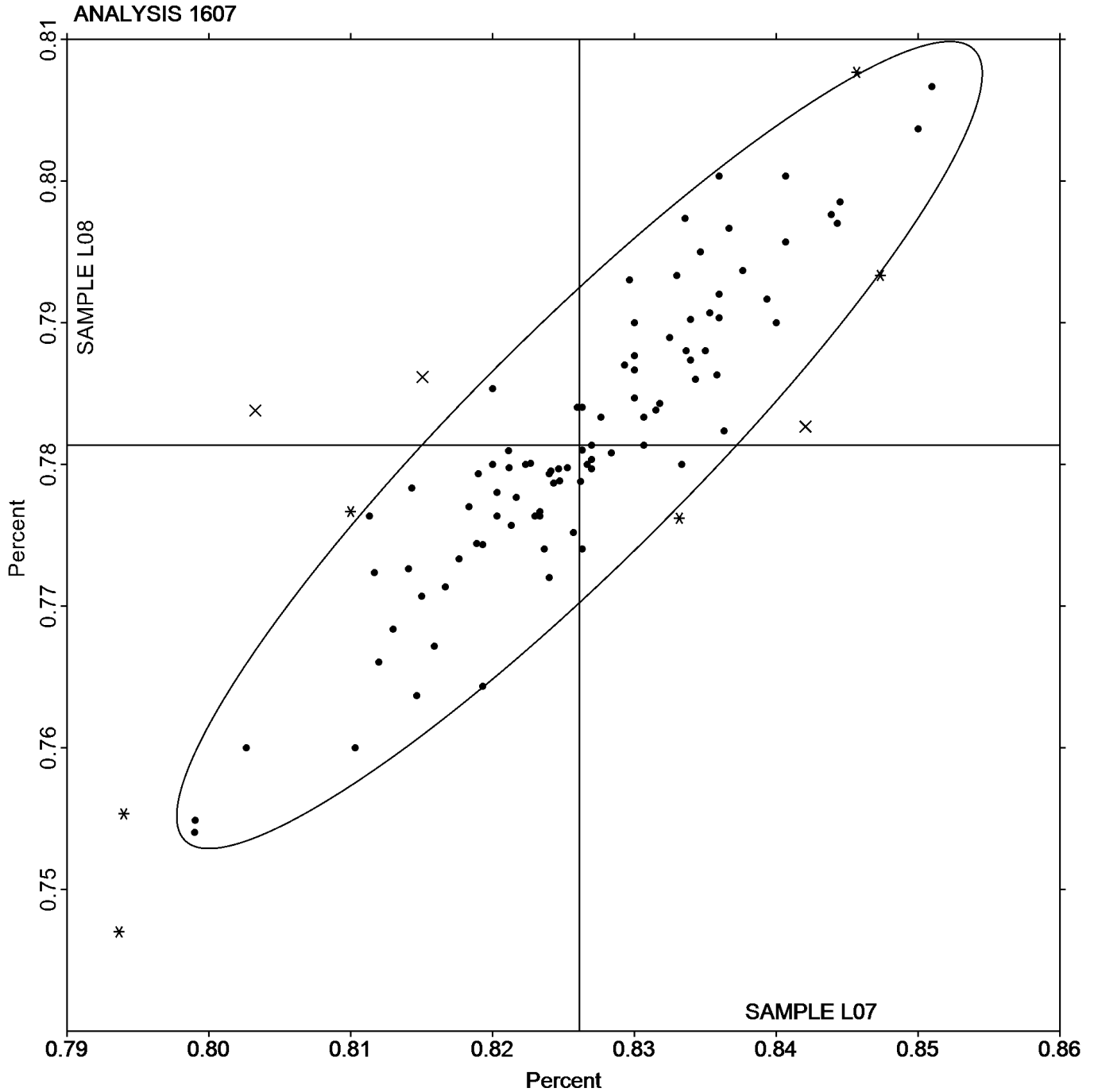
Analysis 1607

Carbon & Low Alloy Steel, CHROMIUM (Cr)

CHROMIUM (Cr)

SAMPLE L07
0.8261 Percent

SAMPLE L08
0.7814 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1608

1st Qtr 2025

Carbon & Low Alloy Steel, COPPER (Cu)
COPPER (Cu)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
24Z2XV		0.1607	0.0014	0.31	0.1430	0.0011	0.26	OE
2ALXJX		0.1640	0.0047	1.07	0.1497	0.0078	1.83	DR
2CAC98		0.1607	0.0014	0.31	0.1393	-0.0026	-0.60	OE
2D8LHC		0.1703	0.0111	2.49	0.1520	0.0101	2.37	OE
2JTMDV		0.1600	0.0007	0.16	0.1413	-0.0006	-0.13	OE
2N8DMW		0.1566	-0.0027	-0.60	0.1403	-0.0016	-0.37	OE
2TUB6R		0.1513	-0.0079	-1.79	0.1340	-0.0079	-1.86	OE
3A8R3M		0.1630	0.0037	0.84	0.1433	0.0014	0.34	XX
3BE9UQ		0.1605	0.0012	0.27	0.1421	0.0002	0.04	XX
3RZRRX		0.1570	-0.0023	-0.51	0.1390	-0.0029	-0.68	OE
4VZ69V		0.1620	0.0027	0.61	0.1417	-0.0002	-0.06	XX
78M99R		0.1610	0.0017	0.39	0.1420	0.0001	0.02	OE
7C2P24		0.1590	-0.0003	-0.06	0.1423	0.0004	0.10	XX
7JWURK		0.1640	0.0047	1.07	0.1447	0.0028	0.65	OE
8Y6CTJ	*	0.1547	-0.0046	-1.04	0.1443	0.0024	0.57	XX
8Z39TE		0.1623	0.0031	0.69	0.1453	0.0034	0.81	OE
8ZVDWL		0.1547	-0.0046	-1.04	0.1377	-0.0042	-1.00	GD
9TYN23		0.1566	-0.0027	-0.60	0.1401	-0.0018	-0.42	OE
9TZLEJ		0.1613	0.0021	0.46	0.1433	0.0014	0.34	OE
AGYFXQ		0.1596	0.0003	0.07	0.1421	0.0002	0.05	OE
AZDYQN		0.1583	-0.0009	-0.21	0.1417	-0.0002	-0.06	OE
BMER2H		0.1630	0.0037	0.84	0.1427	0.0008	0.18	IC
BP4VUP		0.1580	-0.0013	-0.29	0.1387	-0.0032	-0.76	OE
BQHD22		0.1600	0.0007	0.16	0.1430	0.0011	0.26	OE
BQK6QW		0.1592	0.0000	-0.01	0.1424	0.0005	0.12	XX
CFHZJF		0.1692	0.0099	2.24	0.1512	0.0093	2.19	IC
CP47CD		0.1563	-0.0029	-0.66	0.1403	-0.0016	-0.37	OE
D4DJX4	X	0.1743	0.0151	3.39	0.1543	0.0124	2.92	XX
DPY7TP		0.1692	0.0099	2.24	0.1520	0.0101	2.38	WD
DTYHNP		0.1620	0.0027	0.61	0.1453	0.0034	0.81	GD
DUBC7A	X	0.1621	0.0028	0.63	0.1653	0.0234	5.49	XX
EDHQD4	*	0.1600	0.0007	0.16	0.1500	0.0081	1.90	OE
EKKVDZ		0.1567	-0.0026	-0.59	0.1380	-0.0039	-0.92	OE
EML9LK		0.1594	0.0002	0.04	0.1424	0.0005	0.12	OE
EXRYEN		0.1599	0.0007	0.15	0.1423	0.0004	0.09	OE
FEVXZW		0.1607	0.0014	0.31	0.1417	-0.0002	-0.06	OE
FF6RUB		0.1507	-0.0086	-1.94	0.1350	-0.0069	-1.62	OE
FFMWCA		0.1562	-0.0031	-0.70	0.1387	-0.0032	-0.75	OE
FLRUKE		0.1577	-0.0016	-0.36	0.1423	0.0004	0.10	XX
FM9RDD		0.1600	0.0007	0.16	0.1430	0.0011	0.26	OE
FTBTHE		0.1547	-0.0046	-1.04	0.1367	-0.0052	-1.23	XX
G6LNAH	X	0.1899	0.0306	6.90	0.1688	0.0269	6.33	OE
G9LY7H		0.1573	-0.0019	-0.44	0.1397	-0.0022	-0.53	OE
GFHT2V		0.1570	-0.0023	-0.51	0.1373	-0.0046	-1.07	XR
GMXJEA	X	0.1669	0.0076	1.72	0.1592	0.0173	4.07	OE
GUGVH3		0.1580	-0.0013	-0.29	0.1410	-0.0009	-0.21	OE
GYBNQC		0.1560	-0.0033	-0.74	0.1390	-0.0029	-0.68	OE



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1608

1st Qtr 2025

Carbon & Low Alloy Steel, COPPER (Cu)
COPPER (Cu)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
HDPAMB		0.1647	0.0054	1.22	0.1480	0.0061	1.43	OE
HNP2UG		0.1563	-0.0030	-0.67	0.1369	-0.0050	-1.18	OE
HPNV68		0.1633	0.0041	0.91	0.1453	0.0034	0.81	XX
JAQ7HA		0.1573	-0.0019	-0.44	0.1417	-0.0002	-0.06	OE
JD497Q		0.1597	0.0004	0.09	0.1417	-0.0002	-0.06	OE
JDPGHF		0.1570	-0.0023	-0.51	0.1400	-0.0019	-0.45	XX
JMEBRR		0.1500	-0.0093	-2.09	0.1333	-0.0086	-2.01	OE
JUV4K3	X	0.1783	0.0190	4.29	0.1620	0.0201	4.72	XX
K36RVF		0.1573	-0.0019	-0.44	0.1403	-0.0016	-0.37	OE
K9PTDE		0.1624	0.0031	0.70	0.1468	0.0049	1.15	OE
KWZQX8		0.1576	-0.0016	-0.37	0.1401	-0.0018	-0.42	OE
KY3RVJ		0.1610	0.0017	0.39	0.1433	0.0014	0.34	OE
KY4N7E		0.1610	0.0017	0.39	0.1440	0.0021	0.49	IC
LEB333		0.1583	-0.0010	-0.22	0.1415	-0.0004	-0.09	OE
MH4N6P	X	0.2010	0.0417	9.40	0.1453	0.0034	0.81	IC
MH6JT2		0.1687	0.0094	2.12	0.1503	0.0084	1.98	OE
NARUN2		0.1533	-0.0059	-1.34	0.1367	-0.0052	-1.23	XR
NFUZ36		0.1533	-0.0059	-1.34	0.1383	-0.0036	-0.84	OE
NGT29W		0.1632	0.0039	0.88	0.1450	0.0031	0.74	OE
NJCA7B		0.1560	-0.0033	-0.74	0.1390	-0.0029	-0.68	OE
NKTC3B		0.1587	-0.0006	-0.13	0.1420	0.0001	0.03	WD
P3QWHB	*	0.1590	-0.0003	-0.06	0.1460	0.0041	0.96	OE
P43RZW		0.1603	0.0011	0.24	0.1417	-0.0002	-0.06	OE
PFEWBX		0.1576	-0.0016	-0.37	0.1411	-0.0008	-0.18	OE
PY3M43		0.1583	-0.0009	-0.21	0.1423	0.0004	0.10	OE
PZKA67	X	0.1735	0.0142	3.21	0.1507	0.0088	2.07	OE
Q4GHN7	X	0.1357	-0.0236	-5.32	0.1220	-0.0199	-4.68	XX
QKZ9M7		0.1603	0.0011	0.24	0.1427	0.0008	0.18	OE
QPUBMY		0.1550	-0.0043	-0.96	0.1400	-0.0019	-0.45	OE
RFJHL4	*	0.1501	-0.0091	-2.06	0.1440	0.0021	0.49	OE
RX49L3		0.1552	-0.0041	-0.93	0.1398	-0.0021	-0.50	OE
RYYQM4		0.1565	-0.0027	-0.62	0.1399	-0.0020	-0.47	OE
T6YGUZ		0.1560	-0.0033	-0.74	0.1373	-0.0046	-1.07	GD
T7XLBU	*	0.1713	0.0121	2.72	0.1547	0.0128	3.00	OE
TFZL62		0.1547	-0.0046	-1.04	0.1397	-0.0022	-0.53	XX
TUGNFY	*	0.1637	0.0044	0.99	0.1497	0.0078	1.83	OE
TW4FB2		0.1640	0.0047	1.07	0.1457	0.0038	0.88	OE
UCDPRV		0.1613	0.0021	0.46	0.1417	-0.0002	-0.06	OE
UXVUF7		0.1600	0.0007	0.16	0.1400	-0.0019	-0.45	GD
V8FKGN		0.1543	-0.0049	-1.11	0.1377	-0.0042	-1.00	OE
VB26MR		0.1620	0.0027	0.61	0.1430	0.0011	0.26	OE
VFRTTX		0.1621	0.0029	0.64	0.1440	0.0021	0.50	OE
VHHWL6		0.1697	0.0104	2.34	0.1520	0.0101	2.37	OE
VLZZKM		0.1668	0.0075	1.70	0.1496	0.0077	1.81	OE
VMART4		0.1610	0.0017	0.39	0.1440	0.0021	0.49	OE
VPZBGM		0.1604	0.0011	0.25	0.1435	0.0016	0.37	OE
VTYG8M		0.1573	-0.0019	-0.44	0.1410	-0.0009	-0.21	GD



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1608

1st Qtr 2025

Carbon & Low Alloy Steel, COPPER (Cu)
COPPER (Cu)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
VUTDH2		0.1513	-0.0079	-1.79	0.1350	-0.0069	-1.62	OE
W3PB66		0.1601	0.0009	0.19	0.1435	0.0016	0.38	OE
W766JG		0.1515	-0.0078	-1.75	0.1345	-0.0074	-1.74	OE
WTE9LP	X	0.0807	-0.0786	-17.71	0.0750	-0.0669	-15.72	IC
XCLMQW	*	0.1550	-0.0043	-0.96	0.1460	0.0041	0.96	OE
YDE7VV		0.1528	-0.0064	-1.45	0.1363	-0.0056	-1.32	OE
YLQ8EB		0.1617	0.0024	0.54	0.1437	0.0018	0.41	OE
YYF2Q6		0.1560	-0.0033	-0.74	0.1390	-0.0029	-0.68	XX
Z2ZD2U	*	0.1533	-0.0060	-1.35	0.1303	-0.0116	-2.73	OE
ZANFXV	X	0.1530	-0.0063	-1.41	0.1220	-0.0199	-4.68	OE
ZGRB8V		0.1570	-0.0023	-0.51	0.1393	-0.0026	-0.60	OE
ZHK4ZT		0.1530	-0.0063	-1.41	0.1370	-0.0049	-1.15	IC

Summary Statistics

	Sample L07		Sample L08	
Grand Means	0.1593	Percent	0.1419	Percent
Stnd Dev Btwn Labs	0.0044	Percent	0.0043	Percent

Samples L07, L08 : AISI 4340, AISI 4340H

Statistics based on 90 of 106 reporting participants

Key to Method Codes Reported by Participants

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

Comments on Assigned Data Flags for Test #1608

- D4DJX4 (X) - Data for both samples are high. Possible Systematic Error.
- DUBC7A (X) - Data for sample L08 are high. Inconsistent within the determinations of sample L07.
- G6LNAH (X) - Data for both samples are high. Possible Systematic Error.
- GMXJEA (X) - Data for sample L08 are high. Inconsistent within the determinations of both samples.
- JUV4K3 (X) - Data for both samples are high. Possible Systematic Error.
- MH4N6P (X) - Data for sample L07 are high. Inconsistent within the determinations of sample L07.
- PZKA67 (X) - Data for sample L07 are high. Inconsistent within the determinations of sample L07.
- Q4GHN7 (X) - Data for both samples are low. Possible Systematic Error.
- WTE9LP (X) - Data for both samples are low. Possible Systematic Error.
- ZANFXV (X) - Data for sample L08 are low.



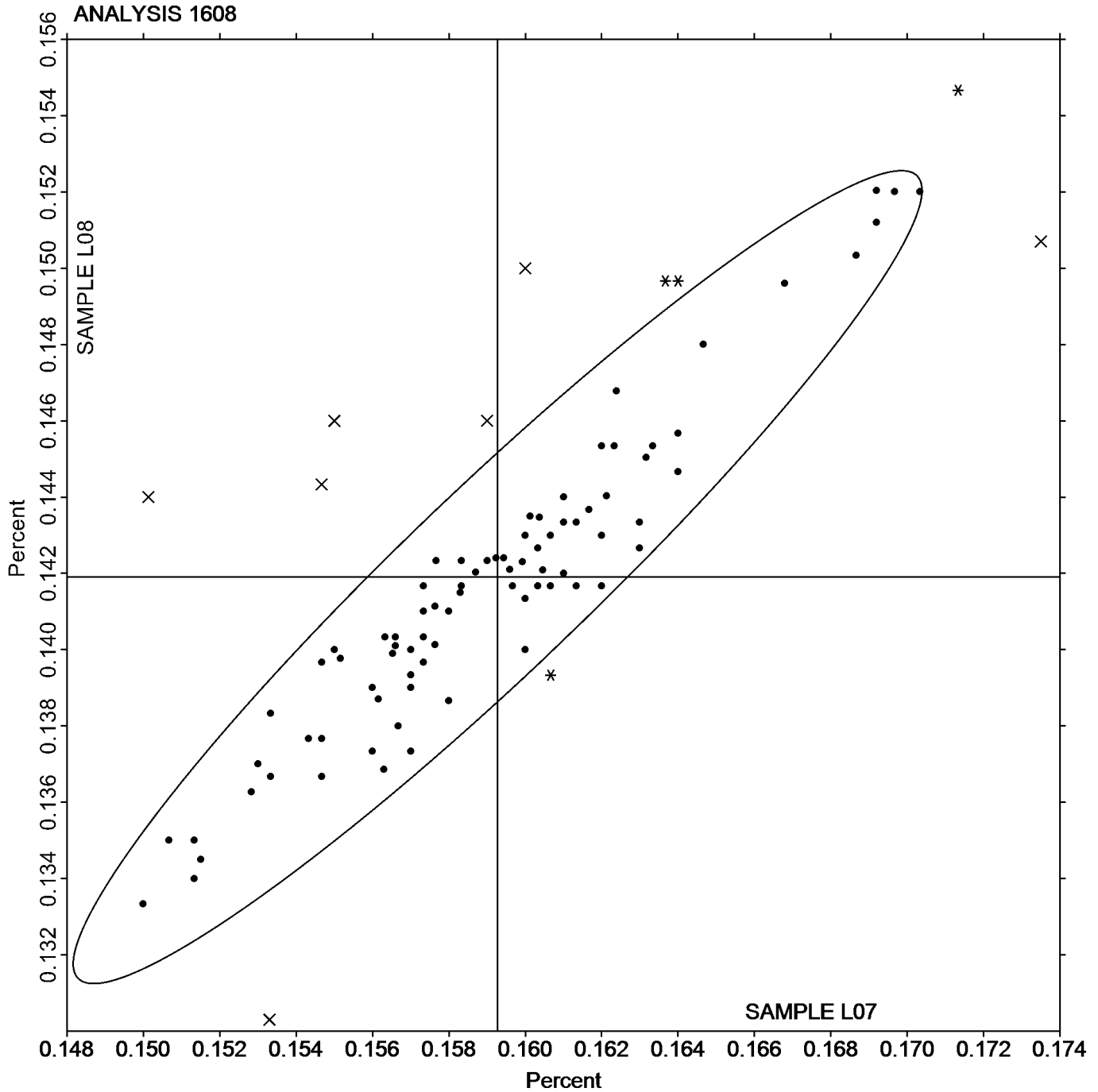
Analysis 1608

Carbon & Low Alloy Steel, COPPER (Cu)

COPPER (Cu)

SAMPLE L07
0.1593 Percent

SAMPLE L08
0.1419 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1613

1st Qtr 2025

Carbon & Low Alloy Steel, ALUMINUM (AI) ALUMINUM (AI)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2ALXJX		0.0166	-0.0034	-2.46	0.0172	-0.0032	-2.25	DR
2CAC98		0.0198	-0.0002	-0.11	0.0195	-0.0009	-0.61	OE
2D8LHC		0.0196	-0.0004	-0.28	0.0200	-0.0004	-0.27	OE
2JTMDV		0.0212	0.0012	0.87	0.0209	0.0005	0.34	OE
2N8DMW		0.0189	-0.0011	-0.81	0.0195	-0.0009	-0.63	OE
2TUB6R	X	0.0243	0.0043	3.11	0.0203	-0.0001	-0.04	OE
3A8R3M	*	0.0197	-0.0003	-0.23	0.0217	0.0013	0.92	XX
3BE9UQ		0.0198	-0.0002	-0.17	0.0203	-0.0001	-0.08	XX
3RZRRX		0.0201	0.0001	0.05	0.0207	0.0003	0.23	OE
4VZ69V		0.0203	0.0003	0.24	0.0213	0.0009	0.68	XX
78M99R		0.0205	0.0005	0.36	0.0206	0.0002	0.13	OE
7C2P24		0.0212	0.0012	0.84	0.0213	0.0009	0.68	XX
7JWURK		0.0196	-0.0004	-0.30	0.0197	-0.0007	-0.47	OE
8Y6CTJ		0.0190	-0.0010	-0.71	0.0200	-0.0004	-0.27	XX
8Z39TE		0.0207	0.0007	0.48	0.0213	0.0009	0.68	OE
8ZVDWL		0.0189	-0.0011	-0.78	0.0193	-0.0011	-0.75	GD
9TYN23		0.0203	0.0003	0.20	0.0206	0.0002	0.18	OE
AGYFXQ		0.0203	0.0003	0.22	0.0206	0.0002	0.15	OE
AZDYQN		0.0210	0.0010	0.72	0.0213	0.0009	0.68	OE
BMER2H		0.0203	0.0003	0.24	0.0207	0.0003	0.25	IC
BP4VUP		0.0200	0.0000	0.01	0.0203	-0.0001	-0.04	OE
BQHD22		0.0203	0.0003	0.22	0.0203	-0.0001	-0.06	OE
BQK6QW		0.0205	0.0005	0.36	0.0208	0.0004	0.32	XX
CFHZJF		0.0197	-0.0003	-0.19	0.0203	-0.0001	-0.06	IC
CP47CD		0.0205	0.0005	0.34	0.0206	0.0002	0.18	OE
D4DJX4		0.0191	-0.0009	-0.66	0.0184	-0.0020	-1.42	XX
DPY7TP		0.0176	-0.0024	-1.74	0.0183	-0.0021	-1.49	OE
DTYHNP		0.0190	-0.0010	-0.74	0.0197	-0.0007	-0.47	GD
DUBC7A		0.0201	0.0001	0.05	0.0205	0.0001	0.11	OE
EDHQD4		0.0207	0.0007	0.48	0.0210	0.0006	0.44	OE
EKKVDZ		0.0217	0.0017	1.22	0.0219	0.0015	1.06	OE
EML9LK		0.0221	0.0021	1.51	0.0223	0.0019	1.39	OE
EXRYEN		0.0199	-0.0001	-0.04	0.0208	0.0004	0.30	OE
FEVXZW		0.0208	0.0008	0.60	0.0212	0.0008	0.58	OE
FF6RUB	*	0.0207	0.0007	0.48	0.0200	-0.0004	-0.27	OE
FFMWCA		0.0208	0.0008	0.57	0.0215	0.0011	0.77	OE
FLRUKE		0.0183	-0.0017	-1.19	0.0187	-0.0017	-1.23	XX
FM9RDD		0.0211	0.0011	0.79	0.0220	0.0016	1.13	OE
FTBTHE	X	0.0193	-0.0007	-0.50	0.0184	-0.0020	-1.44	XX
G6LNAH	X	0.0111	-0.0089	-6.37	0.0113	-0.0091	-6.52	OE
G9LY7H		0.0203	0.0003	0.24	0.0210	0.0006	0.44	OE
GFHT2V		0.0202	0.0002	0.15	0.0208	0.0004	0.30	OE
GMXJEA		0.0226	0.0026	1.85	0.0238	0.0034	2.46	OE
GUGVH3		0.0207	0.0007	0.48	0.0210	0.0006	0.44	OE
GYBNQC		0.0213	0.0013	0.96	0.0220	0.0016	1.15	OE
HDPAMB		0.0173	-0.0027	-1.93	0.0175	-0.0029	-2.08	OE
HNP2UG		0.0231	0.0031	2.21	0.0230	0.0026	1.87	OE



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1613

1st Qtr 2025

Carbon & Low Alloy Steel, ALUMINUM (AI) ALUMINUM (AI)

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
HPNV68		0.0197	-0.0003	-0.21	0.0207	0.0003	0.23	XX
JAQ7HA		0.0207	0.0007	0.48	0.0210	0.0006	0.44	OE
JD497Q		0.0232	0.0032	2.30	0.0232	0.0028	1.99	OE
JDPGHF		0.0196	-0.0004	-0.28	0.0201	-0.0003	-0.20	XX
JMEBRR		0.0190	-0.0010	-0.71	0.0193	-0.0011	-0.75	OE
JUV4K3		0.0213	0.0013	0.94	0.0223	0.0019	1.37	XX
K36RVF		0.0200	0.0000	0.01	0.0203	-0.0001	-0.04	OE
K9PTDE		0.0182	-0.0018	-1.26	0.0193	-0.0011	-0.80	OE
KWZQX8		0.0205	0.0005	0.34	0.0207	0.0003	0.20	OE
KY3RVJ		0.0200	0.0000	-0.02	0.0206	0.0002	0.13	OE
KY4N7E		0.0205	0.0005	0.34	0.0204	0.0000	0.03	IC
LEB333		0.0213	0.0013	0.91	0.0223	0.0019	1.37	OE
MH4N6P	X	0.0276	0.0076	5.43	0.0211	0.0007	0.49	IC
MH6JT2	X	0.0247	0.0047	3.35	0.0249	0.0045	3.20	OE
NFUZ36		0.0193	-0.0007	-0.47	0.0200	-0.0004	-0.27	OE
NGT29W		0.0213	0.0013	0.91	0.0215	0.0011	0.82	OE
NJCA7B		0.0176	-0.0024	-1.74	0.0179	-0.0025	-1.80	OE
NKTC3B		0.0188	-0.0012	-0.88	0.0191	-0.0013	-0.89	IC
P3QWHB		0.0198	-0.0002	-0.11	0.0205	0.0001	0.06	OE
P43RZW		0.0183	-0.0017	-1.19	0.0180	-0.0024	-1.70	OE
PFEWBX		0.0198	-0.0002	-0.16	0.0205	0.0001	0.11	OE
PZKA67	*	0.0234	0.0034	2.44	0.0232	0.0028	2.04	OE
Q4GHN7		0.0189	-0.0011	-0.76	0.0193	-0.0011	-0.80	XX
QKZ9M7		0.0190	-0.0010	-0.71	0.0190	-0.0014	-0.99	OE
QPUBMY		0.0173	-0.0027	-1.93	0.0182	-0.0022	-1.58	OE
RFJHL4		0.0215	0.0015	1.08	0.0219	0.0015	1.08	OE
RYYQM4		0.0213	0.0013	0.91	0.0214	0.0010	0.73	OE
T6YGUZ		0.0203	0.0003	0.24	0.0210	0.0006	0.44	GD
T7XLBU		0.0168	-0.0032	-2.29	0.0173	-0.0031	-2.20	OE
TFZL62		0.0213	0.0013	0.96	0.0217	0.0013	0.92	XX
TUGNFY	X	0.0420	0.0220	15.78	0.0410	0.0206	14.73	OE
TW4FB2		0.0192	-0.0008	-0.57	0.0196	-0.0008	-0.54	OE
UCDPRV		0.0196	-0.0004	-0.26	0.0201	-0.0003	-0.18	OE
UXVUF7		0.0190	-0.0010	-0.71	0.0200	-0.0004	-0.27	GD
V8FKGN		0.0198	-0.0002	-0.16	0.0198	-0.0006	-0.39	OE
VB26MR		0.0196	-0.0004	-0.28	0.0199	-0.0005	-0.35	OE
VFRTTX		0.0184	-0.0016	-1.14	0.0184	-0.0020	-1.39	OE
VHHWL6	X	0.0210	0.0010	0.72	0.0200	-0.0004	-0.27	OE
VLZZKM		0.0174	-0.0026	-1.83	0.0172	-0.0032	-2.27	OE
VMART4		0.0216	0.0016	1.15	0.0218	0.0014	1.01	OE
VPZBGM		0.0201	0.0001	0.05	0.0211	0.0007	0.49	OE
VTYG8M		0.0173	-0.0027	-1.91	0.0180	-0.0024	-1.70	GD
VUTDH2		0.0180	-0.0020	-1.45	0.0181	-0.0023	-1.61	OE
W3PB66		0.0206	0.0006	0.44	0.0202	-0.0002	-0.16	OE
W766JG		0.0205	0.0005	0.36	0.0205	0.0001	0.08	OE
XCLMQW		0.0200	0.0000	0.01	0.0210	0.0006	0.44	OE
YDE7VV		0.0225	0.0025	1.82	0.0232	0.0028	2.01	OE



Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1613

1st Qtr 2025

**Carbon & Low Alloy Steel, ALUMINUM (Al)
ALUMINUM (Al)**

WebCode	Data Flag	Sample L07			Sample L08			Method
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
YLQ8EB		0.0180	-0.0020	-1.43	0.0186	-0.0018	-1.27	OE
YYF2Q6		0.0215	0.0015	1.06	0.0216	0.0012	0.87	XX
Z2ZD2U		0.0210	0.0010	0.75	0.0214	0.0010	0.70	OE
ZANFXV		0.0200	0.0000	0.01	0.0207	0.0003	0.23	OE
ZGRB8V		0.0193	-0.0007	-0.47	0.0200	-0.0004	-0.27	OE
ZHK4ZT		0.0210	0.0010	0.72	0.0207	0.0003	0.20	IC

Summary Statistics						
	Sample L07			Sample L08		
Grand Means	0.0200	Percent		0.0204	Percent	
Stnd Dev Btwn Labs	0.0014	Percent		0.0014	Percent	

Samples L07, L08 : AISI 4340, AISI 4340H

Statistics based on 92 of 100 reporting participants

Key to Method Codes Reported by Participants

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

Comments on Assigned Data Flags for Test #1613

- 2TUB6R (X) - Data for sample L07 are high. Inconsistent within the determinations of sample L07.
- FTBTHE (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample L07.
- G6LNAH (X) - Data for both samples are low. Possible Systematic Error.
- MH4N6P (X) - Data for sample L07 are high. Inconsistent within the determinations of both samples.
- MH6JT2 (X) - Data for both samples are high. Possible Systematic Error.
- TUGNFY (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.
- VHHWL6 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample L07.



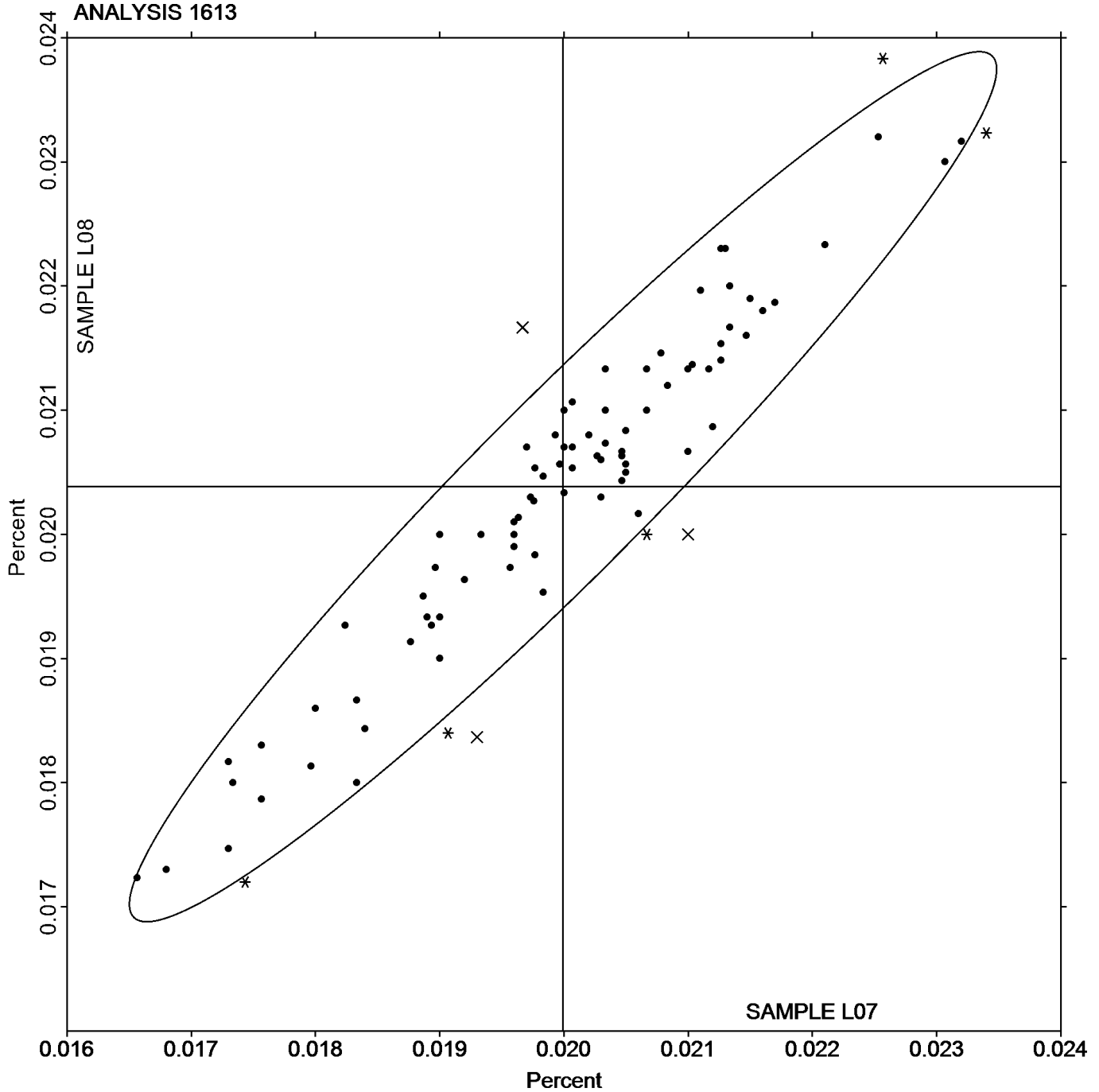
Analysis 1613

Carbon & Low Alloy Steel, ALUMINUM (Al)

ALUMINUM (Al)

SAMPLE L07
0.0200 Percent

SAMPLE L08
0.0204 Percent





Fasteners and Metals Interlaboratory Testing Program

Cycle 149

Analysis 1613

1st Qtr 2025

Carbon & Low Alloy Steel, ALUMINUM (AI)

ALUMINUM (AI)

-End of Report-