Collaborative Testing Services, Inc.

Fasteners & Metals Interlaboratory Testing Program

Summary Report Cycle 122, 2nd Qtr 2018

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ABOUT THE FASTENERS & METALS PROGRAM

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

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

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

ABOUT CTS

Founded in 1971, CTS is a privately-owned company that specializes in interlaboratory tests for a wide variety of industries, including rubber, plastics, fasteners and metals, containerboard, paper, color, and wine as well as proficiency tests for forensic laboratories. All of the tests are designed to assist organizations in achieving and maintaining quality control objectives. Labs from the U.S., as well as more than 50 countries, currently participate in the CTS programs.
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Key for Fasteners & Metals Program Web Summary Report

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

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

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

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

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

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

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

Data Flags

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

Graph - For each laboratory, the Lab Mean for the second sample (y-axis) is plotted against the Lab Mean for the first sample (x-axis) with each point representing a laboratory. The horizontal and vertical cross-hairs are the Grand Means for each sample. When 20 or more laboratories are included in the statistics, an ellipse is also drawn so that 95% of the time a randomly selected laboratory will be included inside the ellipse. Plotted data flags are explained above. Labs not receiving a data flag appear as points on the plot.

		Sample X51			Sample X52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2CT44X		143.23	-0.78	-0.44	166.39	-0.99	-0.56
2GKEDW		143.45	-0.56	-0.32	165.14	-2.23	-1.26
2JND2A		144.85	0.84	0.48	166.38	-1.00	-0.57
49KVRJ		140.43	-3.58	-2.03	164.20	-3.18	-1.80
4EQE4Q	X	148.04	4.03	2.29	179.13	11.76	6.65
6DUF84		143.71	-0.30	-0.17	167.23	-0.15	-0.09
6EN4PY		143.30	-0.71	-0.40	165.56	-1.82	-1.03
6ENYDB	X	11,487	11,342.66	6,428.60	13,077	12,909.29	7,307.76
6WJUJ8		143.40	-0.61	-0.35	166.58	-0.80	-0.45
739LE8		143.97	-0.04	-0.02	170.23	2.85	1.62
743AVG		145.15	1.14	0.65	169.06	1.69	0.95
7CRZFN		144.57	0.56	0.32	168.63	1.25	0.71
7JGP6R		143.23	-0.78	-0.44	166.63	-0.75	-0.42
7Z2AVK		146.07	2.06	1.17	169.20	1.82	1.03
8283ZJ	X	145.41	1.40	0.79	163.72	-3.66	-2.07
8BDY8U		144.87	0.86	0.49	167.97	0.59	0.33
ACAWPU		141.77	-2.24	-1.27	166.34	-1.04	-0.59
AUZ7DN		145.20	1.19	0.67	169.83	2.45	1.39
BXKQLP		143.40	-0.61	-0.35	168.07	0.69	0.39
CT2ZPT		144.56	0.55	0.31	167.97	0.60	0.34
D7LTYL		143.91	-0.10	-0.06	168.35	0.97	0.55
DCV2BN		142.97	-1.04	-0.59	167.03	-0.35	-0.20
DPGDTZ		147.03	3.02	1.71	169.77	2.39	1.35
E4CW2B		143.20	-0.81	-0.46	166.36	-1.02	-0.58
EXAT6B		143.50	-0.51	-0.29	164.87	-2.51	-1.42
F8ATA2		144.52	0.51	0.29	165.59	-1.79	-1.01
FEAAK8		144.37	0.36	0.20	165.37	-2.01	-1.14
G2EHC9		142.37	-1.64	-0.93	166.88	-0.50	-0.28
GDV97C		142.57	-1.44	-0.82	168.03	0.65	0.37
GH3TYB		144.53	0.51	0.29	167.14	-0.24	-0.14
GYRT34		143.15	-0.86	-0.49	164.58	-2.80	-1.58
GZ4KW7		146.13	2.12	1.20	168.20	0.82	0.47
JJRL7E		144.87	0.86	0.49	166.90	-0.48	-0.27
JXRKXG		144.90	0.89	0.50	168.35	0.97	0.55
JZJGLB		141.24	-2.77	-1.57	167.11	-0.27	-0.15
K87784		143.67	-0.34	-0.19	168.33	0.95	0.54
KDN77H		144.53	0.52	0.30	166.87	-0.51	-0.29
L23FQJ		145.15	1.14	0.65	169.81	2.43	1.37
LKXYQD		145.25	1.24	0.70	168.90	1.52	0.86
MFEJ4Q		145.71	1.70	0.96	167.81	0.43	0.24
MKA2RH	X	146.58	2.57	1.46	174.19	6.81	3.85
MYRYN7		140.60	-3.41	-1.93	164.92	-2.46	-1.39
N3QPDH		142.38	-1.63	-0.92	165.20	-2.18	-1.24
NCEJPE		142.13	-1.88	-1.07	166.48	-0.90	-0.51
NFDYX3		141.55	-2.46	-1.39	166.69	-0.69	-0.39
NHYJ47		145.20	1.19	0.67	169.90	2.52	1.43
NY9JZG		141.36	-2.65	-1.50	166.23	-1.15	-0.65

		Sample X51			Sample X52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
PHFX8A		142.93	-1.08	-0.61	165.10	-2.28	-1.29
PUEWTE		144.27	0.26	0.15	166.07	-1.31	-0.74
Q8QTEZ	X	165.50	21.49	12.18	142.50	-24.88	-14.08
R8CGFV	X	173.33	29.32	16.62	149.33	-18.05	-10.22
RF7V99		142.53	-1.48	-0.84	166.17	-1.21	-0.69
RMHXCV		141.86	-2.15	-1.22	167.48	0.10	0.06
RRWH8N		144.17	0.16	0.09	167.20	-0.18	-0.10
T2VHFL	X	164.86	20.85	11.82	198.70	31.32	17.73
UTJWQH		147.09	3.08	1.74	168.90	1.53	0.86
VBTFX7	*	148.24	4.23	2.40	172.94	5.56	3.15
VZDDR8	*	149.44	5.43	3.08	172.08	4.70	2.66
WRKGJ4		144.17	0.16	0.09	167.00	-0.38	-0.21
XDH4T7	X	0.0836	-143.93	-81.57	0.0947	-167.28	-94.70
XDXP39		144.67	0.66	0.37	166.67	-0.71	-0.40
Y7DZ3Y		146.28	2.27	1.29	168.99	1.61	0.91
YPLAYP		145.38	1.37	0.77	166.67	-0.71	-0.40
Z9AWXJ	X	148.51	4.49	2.55	174.47	7.09	4.01
ZRCGBY		142.80	-1.21	-0.69	166.90	-0.48	-0.27
ZZHCZX		142.83	-1.18	-0.67	167.33	-0.05	-0.03

Summary Statistics

	Sample X51		Sample X52	
Grand Means	144.01	ksi	167.38	ksi
Stnd Dev Btwn Labs	1.76	ksi	1.77	ksi

Samples X51, X52 : 3/8-16 x 2 1/4, 3/8-16 x 2 1/4

Statistics based on 57 of 66 reporting participants

Comments on Assigned Data Flags for Test #115

4EQE4Q (X) - Data for sample X52 are high.

6ENYDB (X) - Extreme data. May have reported load instead of stress data.

8283ZJ (X) - Inconsistent in testing between samples.

MKA2RH (X) - Data for sample X52 are high.

Q8QTEZ (X) - Data appear to be transposed between samples.

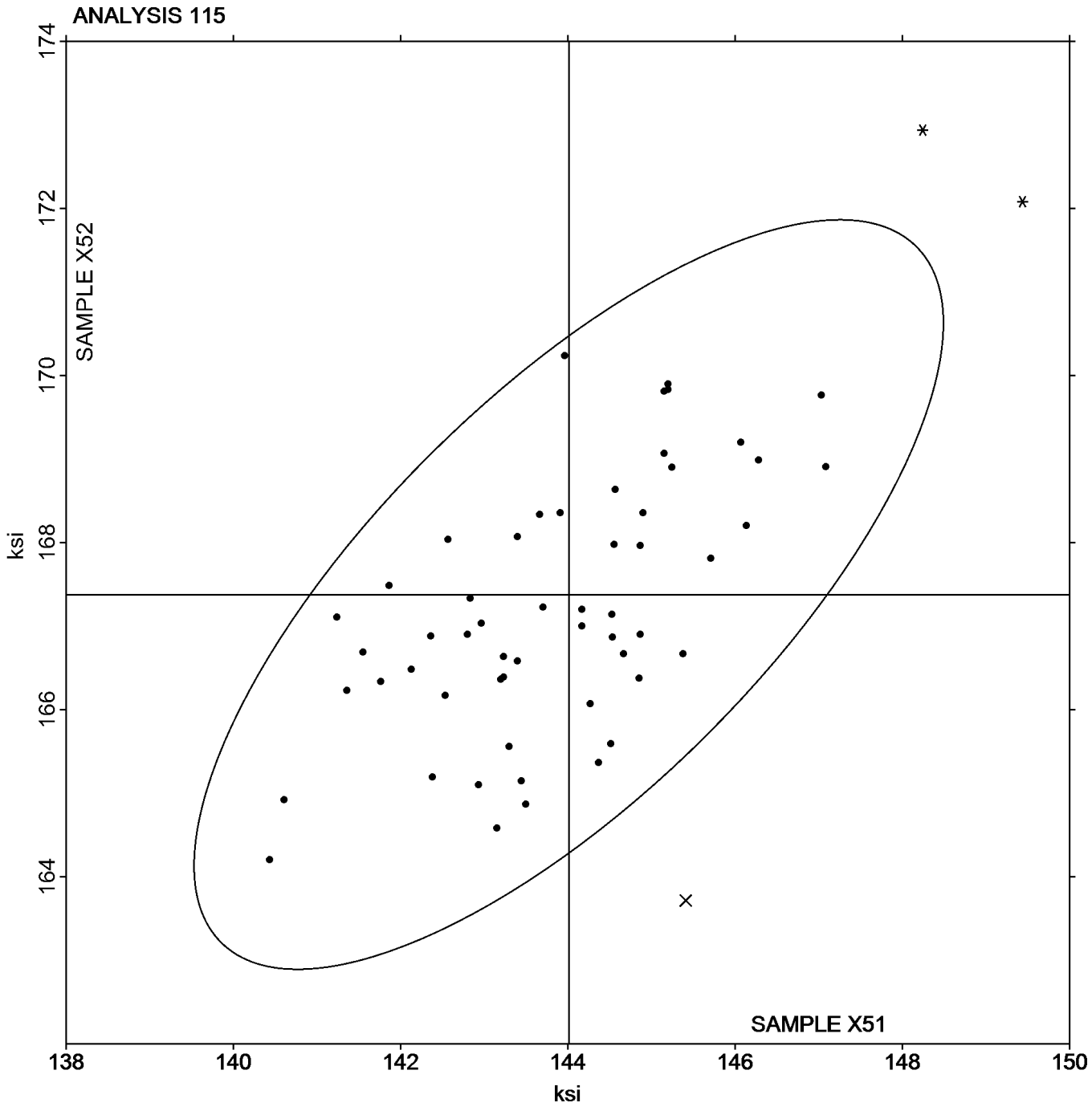
R8CGFV (X) - Data appear to be transposed between samples.

T2VHFL (X) - Data for both samples are high. Inconsistent within the determinations of sample X52.

XDH4T7 (X) - Extreme data.

Z9AWXJ (X) - Data for sample X52 are high.

SAMPLE X51	SAMPLE X52
144.01 ksi	167.38 ksi



		Sample Q51			Sample Q52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2CT44X		142.62	-1.62	-1.21	165.75	-1.97	-0.87
2F86ZP	X	144.23	-0.01	0.00	177.77	10.04	4.42
2JND2A		144.74	0.50	0.38	166.84	-0.89	-0.39
2ZDE6T	X	109.16	-35.08	-26.31	128.40	-39.32	-17.30
34QGMH	X	168.71	24.47	18.35	147.73	-19.99	-8.80
3XKKLC	X	153.18	8.95	6.71	183.10	15.37	6.76
49KVRJ	X	138.30	-5.94	-4.45	162.63	-5.09	-2.24
4JLGUB		146.67	2.43	1.82	168.60	0.88	0.39
66GGGY		144.50	0.26	0.20	169.52	1.80	0.79
6DUF84		144.25	0.01	0.01	167.23	-0.50	-0.22
6EN4PY		145.50	1.26	0.95	167.52	-0.20	-0.09
6ENYDB	X	11,550	11,405.76	8,553.76	13,077	12,908.94	5,679.16
6WJUJ8		142.37	-1.87	-1.40	166.75	-0.97	-0.43
743AVG		142.97	-1.27	-0.95	167.42	-0.30	-0.13
7BH2FN	X	155.70	11.46	8.59	183.51	15.78	6.94
7CRZFN		144.80	0.56	0.42	168.20	0.48	0.21
7D8FUP		145.23	0.99	0.75	165.50	-2.22	-0.98
8BDY8U		144.63	0.39	0.30	170.33	2.61	1.15
9YFJEB		143.63	-0.61	-0.45	166.00	-1.72	-0.76
CT2ZPT		143.09	-1.15	-0.86	167.05	-0.67	-0.30
D7LTYL		143.17	-1.07	-0.80	165.23	-2.49	-1.10
DCV2BN		141.87	-2.37	-1.78	166.57	-1.16	-0.51
DPGDTZ		146.47	2.23	1.67	170.03	2.31	1.02
E4CW2B		143.40	-0.84	-0.63	165.54	-2.18	-0.96
E7EYL7		144.06	-0.18	-0.13	168.87	1.15	0.50
EXAT6B		144.73	0.49	0.37	169.07	1.34	0.59
F888AF	X	103.90	-40.34	-30.25	122.10	-45.62	-20.07
F8ATA2		144.52	0.28	0.21	169.46	1.74	0.77
FEAAK8		142.73	-1.51	-1.13	165.93	-1.79	-0.79
FXLW92		143.37	-0.87	-0.65	166.90	-0.82	-0.36
GDV97C		142.90	-1.34	-1.00	167.17	-0.56	-0.24
GH3TYB		143.93	-0.31	-0.23	171.66	3.94	1.73
GZ4KW7		144.53	0.29	0.22	169.03	1.31	0.58
HHZF43		143.38	-0.86	-0.65	164.26	-3.46	-1.52
HPX8AB	*	143.57	-0.67	-0.50	172.67	4.94	2.18
JJRL7E		145.37	1.13	0.85	168.93	1.21	0.53
JWW2RA	X	149.47	5.23	3.92	188.52	20.79	9.15
JXRKXG		145.81	1.57	1.18	167.37	-0.36	-0.16
K87784		142.33	-1.91	-1.43	166.33	-1.39	-0.61
L23FQJ		145.28	1.04	0.78	169.16	1.44	0.63
MFEJ4Q		144.16	-0.08	-0.06	170.23	2.51	1.10
MKA2RH	X	150.79	6.55	4.91	175.69	7.96	3.50
MRRFR3		142.67	-1.57	-1.18	169.67	1.94	0.86
N3QPDH		142.84	-1.40	-1.05	165.47	-2.25	-0.99
NCEJPE		144.62	0.38	0.28	164.70	-3.02	-1.33
NFDYX3		142.98	-1.26	-0.94	163.07	-4.66	-2.05
NHYJ47		145.73	1.49	1.12	166.93	-0.79	-0.35

		Sample Q51			Sample Q52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
NY9JZG		143.60	-0.64	-0.48	167.47	-0.25	-0.11
PHFX8A		142.70	-1.54	-1.15	163.10	-4.62	-2.03
R888H4		145.39	1.15	0.87	167.68	-0.05	-0.02
RF7V99		141.87	-2.37	-1.78	163.87	-3.86	-1.70
RKA8ZU		144.52	0.28	0.21	166.09	-1.64	-0.72
RM3TKP		146.42	2.18	1.64	171.02	3.30	1.45
RMHXCV		144.35	0.11	0.08	166.89	-0.84	-0.37
RRWH8N		144.87	0.63	0.47	168.20	0.48	0.21
TT398C	X	153.00	8.76	6.57	174.67	6.94	3.06
U6QVAP		146.02	1.78	1.34	171.22	3.50	1.54
UUW9Q9		146.20	1.96	1.47	169.37	1.64	0.72
VDJEDP		143.42	-0.82	-0.62	170.73	3.00	1.32
VZDDR8	X	152.07	7.83	5.87	176.14	8.42	3.71
WRKGJ4		145.13	0.89	0.67	168.03	0.31	0.14
XNECCA		146.43	2.19	1.65	171.10	3.38	1.49
Y7DZ3Y		146.62	2.38	1.79	170.75	3.03	1.33
YW4GHF		145.89	1.65	1.24	170.20	2.48	1.09
Z9AWXJ	X	104.47	-39.77	-29.83	121.69	-46.04	-20.25
ZRCGBY		142.87	-1.37	-1.03	165.17	-2.56	-1.12
ZZHCZX		143.20	-1.04	-0.78	165.17	-2.56	-1.12

Summary Statistics

	Sample Q51		Sample Q52	
Grand Means	144.24	ksi	167.72	ksi
Stnd Dev Btwn Labs	1.33	ksi	2.27	ksi

Samples Q51, Q52 : 3/8-16 x 2 1/4, 3/8-16 x 2 1/4

Statistics based on 54 of 67 reporting participants

Comments on Assigned Data Flags for Test #116

2F86ZP (X) - Data for sample Q52 are high. Inconsistent within the determinations of sample Q52.

2ZDE6T (X) - Data for both samples are extremely low.

34QGMH (X) - Data appear to be transposed between samples.

3XKKLC (X) - Data for both samples are high.

49KVRJ (X) - Data for sample Q51 are low.

6ENYDB (X) - Extreme data. May have reported load instead of stress data.

7BH2FN (X) - Data for both samples are high. Inconsistent within the determinations of both samples.

F888AF (X) - Data for both samples are extremely low.

JWW2RA (X) - Data for both samples are high. Inconsistent within the determinations of both samples.

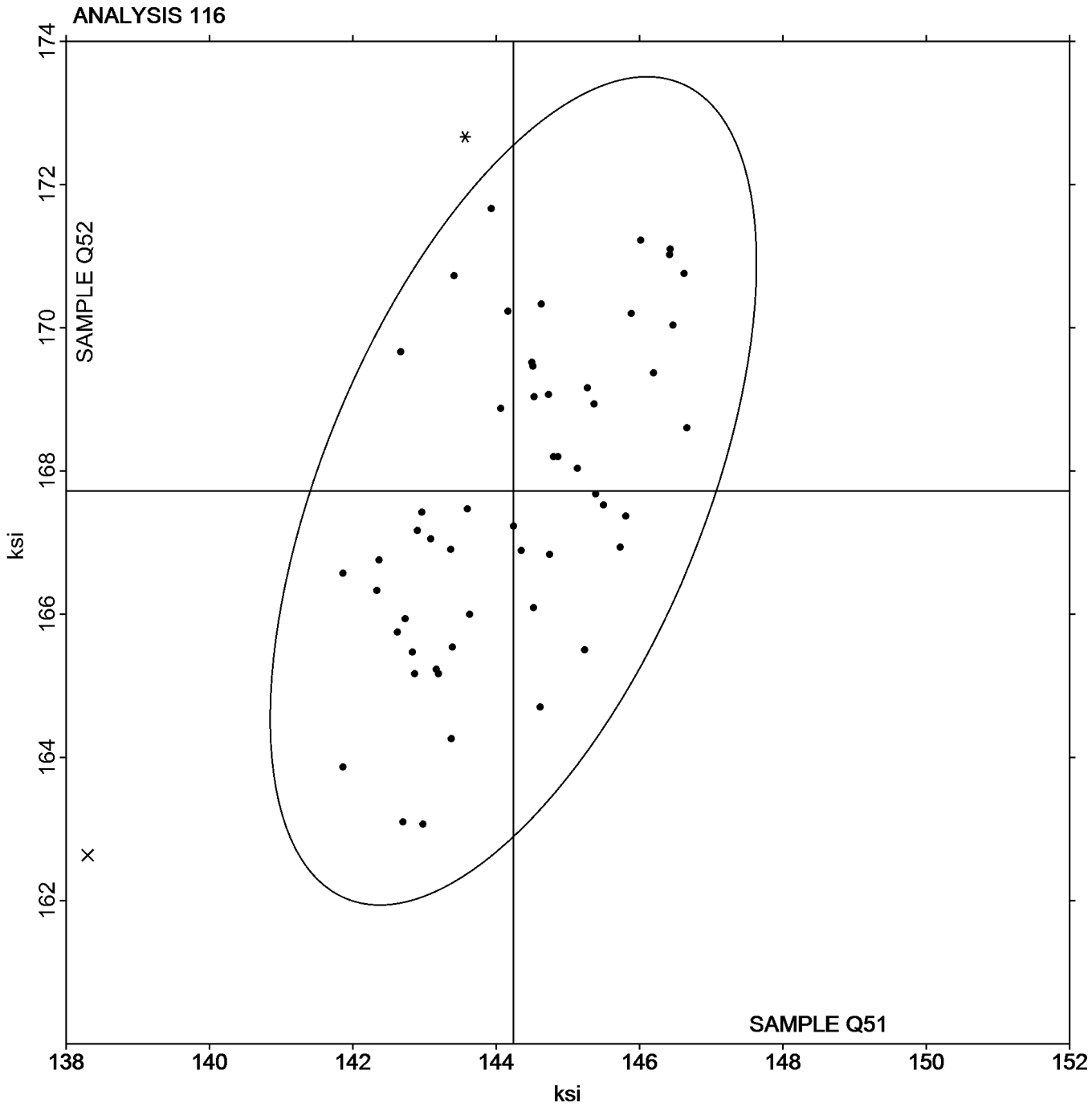
MKA2RH (X) - Data for both samples are high.

TT398C (X) - Data for both samples are high. Inconsistent within the determinations of sample Q52.

VZDDR8 (X) - Data for both samples are high.

Z9AWXJ (X) - Data for both samples are extremely low.

SAMPLE Q51	SAMPLE Q52
144.24 ksi	167.72 ksi



		Sample E51			Sample E52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
23Z3GT		60.72	0.88	1.79	54.48	1.20	2.37
2F86ZP		59.46	-0.38	-0.77	52.74	-0.54	-1.07
2Q7K69		59.80	-0.04	-0.08	53.26	-0.02	-0.04
2X4EXZ		60.12	0.28	0.57	53.60	0.32	0.63
3MJHEE		59.92	0.08	0.16	53.38	0.10	0.20
3QM3HE		59.94	0.10	0.21	53.52	0.24	0.47
4894VV		59.82	-0.02	-0.04	53.30	0.02	0.04
4FXVYF		60.08	0.24	0.49	53.26	-0.02	-0.04
4WQLXH		59.86	0.02	0.04	53.36	0.08	0.16
68ZGT9		60.20	0.36	0.73	53.58	0.30	0.59
6ENYDB		60.00	0.16	0.33	53.62	0.34	0.67
6JG439		59.08	-0.76	-1.54	52.75	-0.53	-1.04
6LML9G		59.22	-0.62	-1.26	52.24	-1.04	-2.05
6QFRGR		60.04	0.20	0.41	53.58	0.30	0.59
6RWVHY		59.82	-0.02	-0.04	53.36	0.08	0.16
6TGZJG		60.50	0.66	1.34	54.00	0.72	1.42
6WJUJ8		59.56	-0.28	-0.57	53.12	-0.16	-0.32
7D8FUP		59.64	-0.20	-0.40	52.82	-0.46	-0.91
7JU8XC	*	59.50	-0.34	-0.69	53.58	0.30	0.59
7U9BXG		59.44	-0.40	-0.81	52.92	-0.36	-0.71
7UA7LT		59.94	0.10	0.21	53.52	0.24	0.47
88EHUZ		59.80	-0.04	-0.08	53.20	-0.08	-0.16
8BDY8U	X	58.96	-0.88	-1.78	51.68	-1.60	-3.16
8HDDTW		59.18	-0.66	-1.34	52.56	-0.72	-1.42
8NGYMY		59.28	-0.56	-1.14	52.74	-0.54	-1.07
8QURXM		60.19	0.36	0.72	53.44	0.16	0.32
8TD4D4	X	58.80	-1.04	-2.11	53.00	-0.28	-0.55
8XAJZ7	*	59.00	-0.84	-1.70	53.00	-0.28	-0.55
8YLCV8		59.50	-0.34	-0.69	53.08	-0.20	-0.39
98V6KU		59.84	0.00	0.00	52.92	-0.36	-0.71
9LDTWD		59.60	-0.24	-0.49	53.28	0.00	0.00
9YFJEB		59.60	-0.24	-0.49	53.20	-0.08	-0.16
A4RL3T		59.36	-0.48	-0.97	52.60	-0.68	-1.34
AX4GED		59.74	-0.10	-0.20	53.00	-0.28	-0.55
B2WN4K		60.44	0.60	1.22	53.34	0.06	0.12
B7PRRH	*	61.08	1.24	2.52	54.62	1.34	2.64
BB43AT		60.22	0.38	0.77	54.08	0.80	1.58
BEZW23		59.30	-0.54	-1.09	53.06	-0.22	-0.43
BMY8KD		60.12	0.28	0.57	53.62	0.34	0.67
BQYK2C		59.36	-0.48	-0.97	52.56	-0.72	-1.42
BUFWV8		59.48	-0.36	-0.73	53.02	-0.26	-0.51
BYUM69		59.54	-0.30	-0.61	52.86	-0.42	-0.83
CHZJVH		60.76	0.92	1.87	54.34	1.06	2.09
CQQ6WA		60.16	0.32	0.65	53.64	0.36	0.71
CX2V4N		60.24	0.40	0.81	53.68	0.40	0.79
DFPUC7		59.22	-0.62	-1.26	52.44	-0.84	-1.66
DPGDTZ		59.86	0.02	0.04	53.46	0.18	0.36

		Sample E51			Sample E52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
DTZ9PQ		59.78	-0.06	-0.12	53.16	-0.12	-0.24
DZCLB3	X	58.68	-1.16	-2.35	52.96	-0.32	-0.63
E27Q62		59.68	-0.16	-0.32	53.16	-0.12	-0.24
E3YHG8		59.58	-0.26	-0.53	53.38	0.10	0.20
EDH2Q7		60.84	1.00	2.03	54.00	0.72	1.42
ERF4E6		59.74	-0.10	-0.20	53.48	0.20	0.39
EXAT6B		59.84	0.00	0.00	53.18	-0.10	-0.20
F8ATA2		60.02	0.18	0.37	53.20	-0.08	-0.16
FCFLZQ		60.37	0.53	1.07	53.88	0.60	1.18
FGYG66	*	58.34	-1.50	-3.04	51.96	-1.32	-2.60
FNF4TE	*	61.18	1.34	2.72	54.56	1.28	2.53
FRRCRX		59.48	-0.36	-0.73	53.00	-0.28	-0.55
G9EZME		59.74	-0.10	-0.20	53.10	-0.18	-0.36
GFXCFL	X	53.02	-6.82	-13.85	59.32	6.04	11.92
GKAXTY		59.96	0.12	0.25	53.40	0.12	0.24
HLHUB9		58.86	-0.98	-1.99	52.54	-0.74	-1.46
HP6ZGY		59.80	-0.04	-0.08	52.72	-0.56	-1.11
JBD3LE		60.20	0.36	0.73	53.80	0.52	1.03
JDGX3W		59.98	0.14	0.29	53.42	0.14	0.28
JK79JL		60.10	0.26	0.53	53.34	0.06	0.12
JQMQV9		59.08	-0.76	-1.54	52.36	-0.92	-1.82
JZCGDU		60.24	0.40	0.81	53.12	-0.16	-0.32
KDN77H		59.68	-0.16	-0.32	53.32	0.04	0.08
KERUC8		59.44	-0.40	-0.81	52.92	-0.36	-0.71
KV3HL2		59.74	-0.10	-0.20	52.84	-0.44	-0.87
KYETAP		59.68	-0.16	-0.32	53.00	-0.28	-0.55
M42BMR		59.38	-0.46	-0.93	52.58	-0.70	-1.38
MBLDR9		60.04	0.20	0.41	53.12	-0.16	-0.32
MHL67R		59.52	-0.32	-0.65	53.02	-0.26	-0.51
MPKUMW		59.86	0.02	0.04	52.86	-0.42	-0.83
MR6BQF		60.12	0.28	0.57	53.66	0.38	0.75
NCRRJU		59.94	0.10	0.21	53.38	0.10	0.20
P4XAXC		60.00	0.16	0.33	53.56	0.28	0.55
PHFX8A		59.67	-0.17	-0.35	53.42	0.14	0.28
PR29EF		59.70	-0.14	-0.28	53.40	0.12	0.24
QFKY92		59.88	0.04	0.08	53.18	-0.10	-0.20
QWTNP9		59.40	-0.44	-0.89	53.10	-0.18	-0.36
R8CGFV		60.00	0.16	0.33	53.26	-0.02	-0.04
RE7XFY		59.76	-0.08	-0.16	52.94	-0.34	-0.67
RLN3VE		59.52	-0.32	-0.65	52.72	-0.56	-1.11
RMHXCV		60.64	0.80	1.63	54.00	0.72	1.42
RQXFFY	*	58.40	-1.44	-2.92	52.20	-1.08	-2.13
RUZJ3E		59.66	-0.18	-0.36	53.18	-0.10	-0.20
RW8B6M		60.00	0.16	0.33	53.60	0.32	0.63
T2EFRL		59.76	-0.08	-0.16	53.54	0.26	0.51
T2VHFL		60.50	0.66	1.34	53.54	0.26	0.51
T7CYUK		59.70	-0.14	-0.28	53.16	-0.12	-0.24

WebCode	Data Flag	Sample E51 Lab Mean	Sample E51 Diff. from Grand Mean	Sample E51 CPV	Sample E52 Lab Mean	Sample E52 Diff. from Grand Mean	Sample E52 CPV
T9YKL8		60.00	0.16	0.33	53.66	0.38	0.75
TLHC32		60.78	0.94	1.91	54.46	1.18	2.33
TV9ZTX		60.00	0.16	0.33	53.10	-0.18	-0.36
TWAJ9L		59.44	-0.40	-0.81	52.76	-0.52	-1.03
U8JMNG		59.44	-0.40	-0.81	52.78	-0.50	-0.99
UBFC33		60.16	0.32	0.65	53.62	0.34	0.67
UFG79K		60.00	0.16	0.33	53.46	0.18	0.36
UMU96K		60.53	0.69	1.40	53.53	0.25	0.49
UN9NMT		59.96	0.12	0.25	53.26	-0.02	-0.04
UP3EP2		59.70	-0.14	-0.28	53.60	0.32	0.63
UPEF69		59.10	-0.74	-1.50	52.30	-0.98	-1.93
VVL22H		59.96	0.12	0.25	53.76	0.48	0.95
VYJK2V		59.88	0.04	0.08	53.62	0.34	0.67
W26LJN		59.46	-0.38	-0.77	52.88	-0.40	-0.79
WC3WJH		60.30	0.46	0.94	53.70	0.42	0.83
WMKCQR		59.41	-0.42	-0.86	53.24	-0.04	-0.08
WVWAGW		60.90	1.06	2.16	54.20	0.92	1.82
XCGF4F		60.50	0.66	1.34	54.00	0.72	1.42
XDB4MB	*	60.18	0.34	0.69	52.92	-0.36	-0.71
XDH4T7		59.06	-0.78	-1.58	52.92	-0.36	-0.71
Y6U3LT		60.78	0.94	1.91	54.30	1.02	2.01
YP8KXX		59.76	-0.08	-0.16	53.04	-0.24	-0.47
YPLAYP		60.20	0.36	0.73	53.84	0.56	1.11
ZRCGBY		59.70	-0.14	-0.28	53.00	-0.28	-0.55
ZZHCZX		59.94	0.10	0.21	53.26	-0.02	-0.04

Summary Statistics

	Sample E51		Sample E52	
Grand Means	59.84	HRC	53.28	HRC
Stnd Dev Btwn Labs	0.49	HRC	0.51	HRC

Samples E51, E52 : Steel, Steel

Statistics based on 115 of 119 reporting participants

Comments on Assigned Data Flags for Test #118

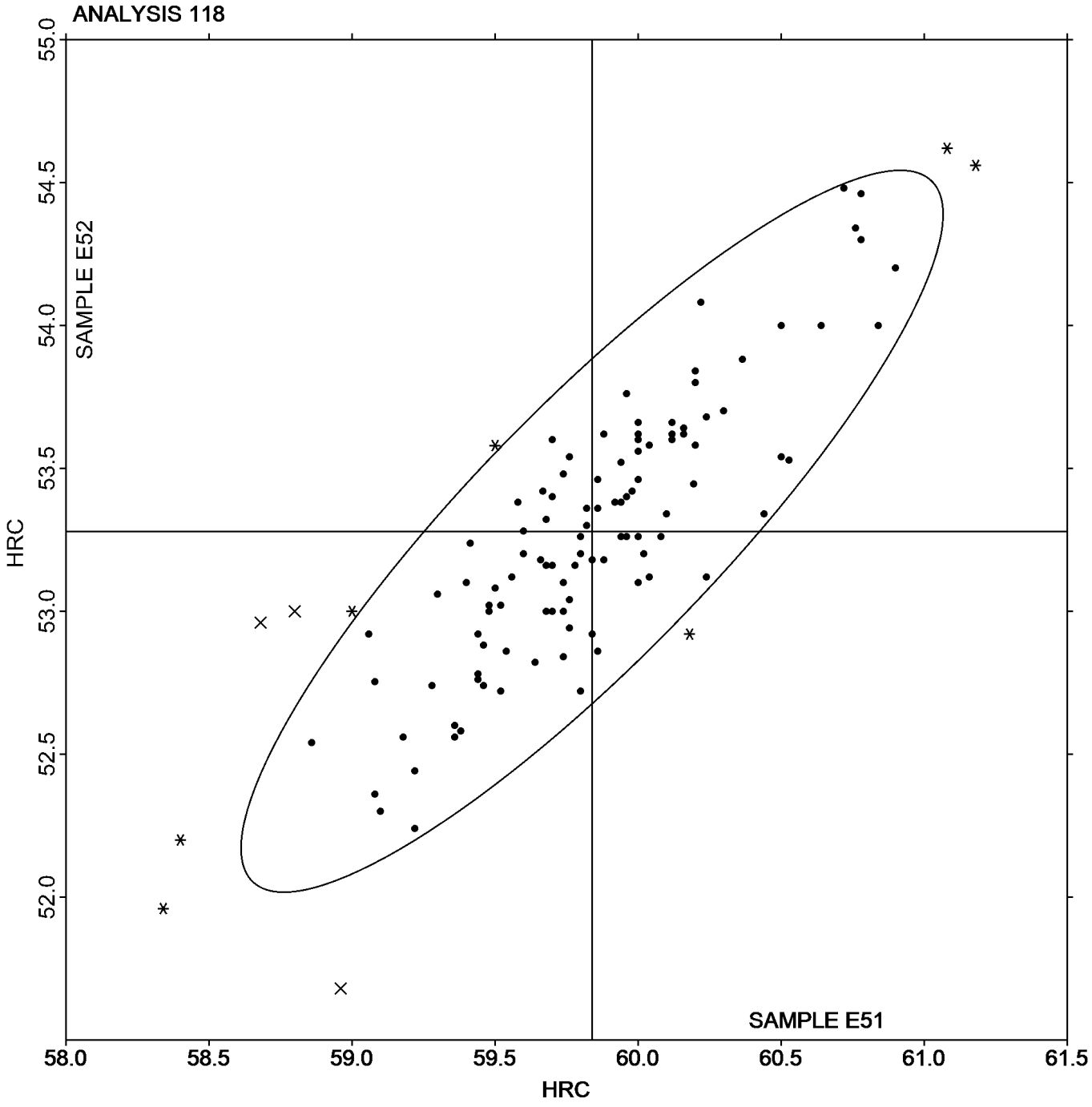
8BDY8U (X) - Data for sample E52 are low. Inconsistent within the determinations of sample E52.

8TD4D4 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample E51.

DZCLB3 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

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

SAMPLE E51	SAMPLE E52
59.84 HRC	53.28 HRC



		Sample E51			Sample E52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
3J6K9D		59.00	0.02	0.04	52.80	0.26	0.44
3KC8D6		58.28	-0.70	-1.12	52.00	-0.54	-0.93
4FXVYF		59.38	0.40	0.65	52.64	0.10	0.17
4H9P2U		58.42	-0.56	-0.89	51.88	-0.66	-1.14
4JZKQN		59.90	0.92	1.48	53.42	0.88	1.50
4TLXEL		59.04	0.06	0.10	52.68	0.14	0.23
6KQB62		59.22	0.24	0.39	52.64	0.10	0.17
6YPAYQ		59.20	0.22	0.36	53.22	0.68	1.16
7AQWN2		58.18	-0.80	-1.28	51.70	-0.84	-1.45
7BKL9H		59.60	0.62	1.00	53.04	0.50	0.85
7Z2AVK		58.48	-0.50	-0.80	52.28	-0.26	-0.45
8283ZJ		59.40	0.42	0.68	52.98	0.44	0.75
833UXB		57.98	-1.00	-1.60	52.04	-0.50	-0.86
8ALYQB		59.68	0.70	1.13	53.06	0.52	0.89
8CAG6P		58.44	-0.54	-0.86	52.14	-0.40	-0.69
8EDAZA		59.58	0.60	0.97	53.20	0.66	1.13
8F8WDD	*	59.69	0.72	1.15	52.46	-0.08	-0.14
99M283		59.00	0.02	0.04	52.20	-0.34	-0.59
ACAWPU		59.52	0.54	0.87	53.16	0.62	1.06
CBEJJC		58.96	-0.02	-0.03	52.52	-0.02	-0.04
CCWHVN		59.90	0.92	1.48	53.00	0.46	0.78
DLVQV7		58.36	-0.62	-0.99	52.06	-0.48	-0.83
ELB662		59.02	0.04	0.07	52.82	0.28	0.47
F4784G		59.02	0.04	0.06	52.77	0.22	0.38
F888AF		57.95	-1.03	-1.66	51.52	-1.03	-1.76
F9Z3U3		59.70	0.73	1.17	52.87	0.32	0.56
FXHJGX		59.36	0.38	0.61	53.14	0.60	1.02
G6XPL4		59.88	0.90	1.45	53.06	0.52	0.89
GCE3PA		60.02	1.04	1.67	53.70	1.16	1.98
GDV97C		58.08	-0.90	-1.44	51.44	-1.10	-1.89
GQYQNY		58.37	-0.61	-0.98	52.57	0.03	0.05
H4W4EV		58.62	-0.36	-0.57	52.18	-0.36	-0.62
HCQCYL		59.00	0.02	0.04	52.60	0.06	0.10
HUBWZY		59.94	0.96	1.55	53.44	0.90	1.54
JDPMKG		58.96	-0.02	-0.03	52.40	-0.14	-0.25
JJRL7E		58.74	-0.24	-0.38	52.16	-0.38	-0.66
JU7XZN		57.96	-1.02	-1.63	51.86	-0.68	-1.17
KZU39H		58.60	-0.38	-0.61	52.40	-0.14	-0.25
LDC2Q4		59.24	0.26	0.42	52.74	0.20	0.34
LE7CEY		58.52	-0.46	-0.73	52.02	-0.52	-0.90
LEL87D	X	57.28	-1.70	-2.72	51.96	-0.58	-1.00
LZQHEM		58.92	-0.06	-0.09	52.54	0.00	-0.01
MKA2RH		59.92	0.94	1.51	53.52	0.98	1.68
MKUMF2	*	57.52	-1.46	-2.34	51.00	-1.54	-2.65
MRRFR3		60.00	1.02	1.64	53.00	0.46	0.78
MTQHJR		59.52	0.54	0.87	52.92	0.38	0.65
NHYJ47		59.48	0.50	0.81	53.18	0.64	1.09

WebCode	Data Flag	Sample E51 Lab Mean	Sample E51 Diff. from Grand Mean	Sample E51 CPV	Sample E52 Lab Mean	Sample E52 Diff. from Grand Mean	Sample E52 CPV
NPGYRA		58.73	-0.25	-0.40	52.90	0.35	0.61
P8FKTU		59.58	0.60	0.97	53.14	0.60	1.02
PUEWTE		58.52	-0.46	-0.73	52.46	-0.08	-0.14
Q8QTEZ		58.50	-0.48	-0.77	52.22	-0.32	-0.56
QN4X62		58.70	-0.28	-0.44	52.14	-0.40	-0.69
QQ4C8X		58.16	-0.82	-1.31	51.90	-0.64	-1.10
QT93DD		59.20	0.22	0.36	52.40	-0.14	-0.25
R888H4		58.98	0.00	0.00	52.52	-0.02	-0.04
R9FLK4		59.12	0.14	0.23	53.10	0.56	0.95
RATXLT		59.46	0.48	0.77	52.86	0.32	0.54
RJZNBB		58.52	-0.46	-0.73	51.78	-0.76	-1.31
T6Z7WW		57.94	-1.04	-1.66	51.38	-1.16	-2.00
T8NJU8		59.70	0.72	1.16	53.22	0.68	1.16
TBJG3K		58.40	-0.58	-0.93	51.80	-0.74	-1.28
TEZY2G		60.42	1.44	2.32	53.99	1.44	2.48
TGQ6JT		59.40	0.42	0.68	52.74	0.20	0.34
TGTL3L		59.16	0.18	0.29	52.68	0.14	0.23
U4XZP2		59.24	0.26	0.42	53.08	0.54	0.92
UHY7RR		58.76	-0.22	-0.35	52.24	-0.30	-0.52
UKQKYV		58.94	-0.04	-0.06	52.38	-0.16	-0.28
UQAZVD		58.66	-0.32	-0.51	52.10	-0.44	-0.76
UTJWQH		58.54	-0.44	-0.70	52.06	-0.48	-0.83
VF83LJ		58.46	-0.52	-0.83	52.02	-0.52	-0.90
YBLA62		59.56	0.58	0.94	53.08	0.54	0.92
YW6EQP		58.18	-0.80	-1.28	52.04	-0.50	-0.86
ZL2NK9		58.14	-0.84	-1.34	51.86	-0.68	-1.17
ZNKL9Y		58.70	-0.28	-0.44	52.88	0.34	0.58
ZV7G62		59.10	0.12	0.20	52.30	-0.24	-0.42

Summary Statistics

	Sample E51		Sample E52	
Grand Means	58.98	HRC	52.54	HRC
Stnd Dev Btwn Labs	0.62	HRC	0.58	HRC

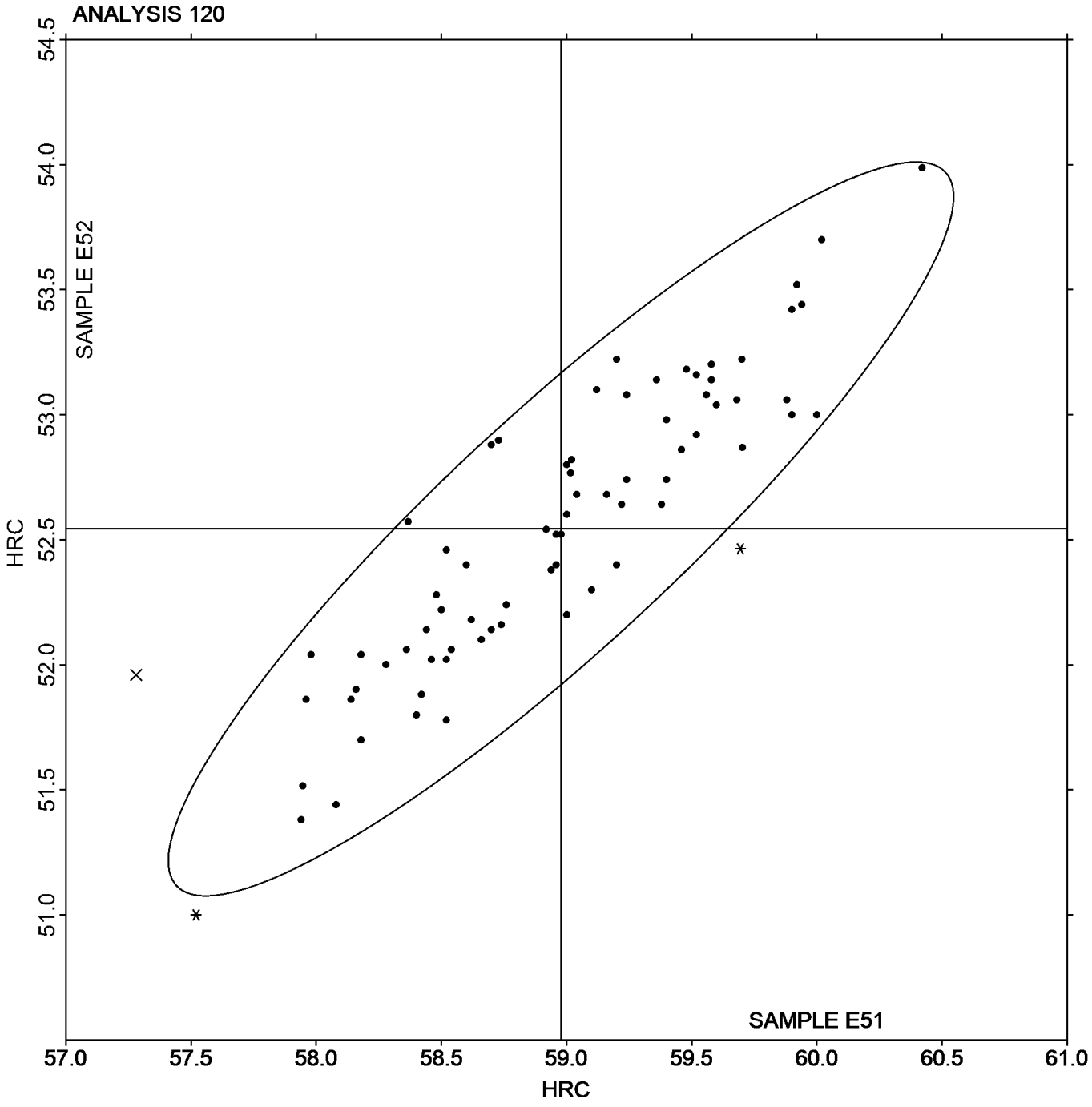
Samples E51, E52 : Steel, Steel

Statistics based on 74 of 75 reporting participants

Comments on Assigned Data Flags for Test #120

LEL87D (X) - Inconsistent in testing between samples.

SAMPLE E51	SAMPLE E52
58.98 HRC	52.54 HRC



		Sample G51			Sample G52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2CT44X		36.73	0.08	0.18	36.84	-0.30	-0.58
2PWRVR		36.91	0.26	0.61	37.11	-0.04	-0.07
2ZDE6T		36.69	0.04	0.09	36.42	-0.73	-1.38
3ZR2EU		37.00	0.35	0.83	37.50	0.35	0.67
49KVRJ		36.41	-0.24	-0.57	36.57	-0.58	-1.10
4B4UYL		36.62	-0.03	-0.07	37.32	0.17	0.32
4CHC3R		36.92	0.27	0.64	37.38	0.23	0.44
4EQE4Q		37.08	0.43	1.01	37.66	0.51	0.97
4JLGUB	X	36.05	-0.60	-1.42	34.35	-2.80	-5.31
4PAWQV		36.58	-0.07	-0.16	37.82	0.67	1.27
4WU2GB		36.74	0.10	0.22	36.91	-0.24	-0.46
622RHV		37.13	0.48	1.14	37.35	0.20	0.38
66GGGY		36.58	-0.07	-0.17	36.92	-0.23	-0.43
6EN4PY		37.02	0.37	0.87	37.27	0.12	0.23
6ENYDB		37.42	0.77	1.82	37.74	0.59	1.12
6FX4QY		36.81	0.16	0.39	37.51	0.36	0.69
6WJUJ8		36.50	-0.15	-0.35	37.15	0.00	0.00
739LE8		36.56	-0.09	-0.20	36.94	-0.21	-0.40
7BH2FN		37.01	0.36	0.86	37.28	0.13	0.25
7CRZFN	*	37.69	1.04	2.45	37.60	0.45	0.86
7D8FUP		36.41	-0.24	-0.56	36.45	-0.70	-1.32
7JGP6R	*	35.58	-1.07	-2.52	35.96	-1.19	-2.25
7UY62F		36.78	0.13	0.30	37.57	0.42	0.80
833JE2		36.32	-0.33	-0.78	37.10	-0.05	-0.09
8BDY8U		36.75	0.10	0.24	37.23	0.08	0.15
9YFJEB		36.13	-0.52	-1.24	37.25	0.10	0.19
9YYBGU		36.04	-0.60	-1.43	36.24	-0.91	-1.73
AUYHQJ	*	36.63	-0.02	-0.06	38.34	1.20	2.27
B2WN4K		36.22	-0.43	-1.02	37.02	-0.13	-0.24
BDQYDC		35.73	-0.92	-2.18	36.71	-0.44	-0.84
BXKQLP		36.73	0.08	0.18	37.28	0.13	0.25
CT2ZPT		36.85	0.20	0.48	37.63	0.49	0.92
CVQ9WA		36.29	-0.35	-0.84	36.70	-0.45	-0.85
CX2V4N		37.19	0.54	1.27	37.08	-0.07	-0.13
DCV2BN		37.06	0.41	0.96	36.77	-0.38	-0.72
DPGDTZ		36.09	-0.55	-1.31	36.41	-0.74	-1.41
E4CW2B		36.86	0.21	0.51	36.86	-0.29	-0.55
F888AF		36.32	-0.33	-0.79	37.32	0.17	0.32
FEAAK8	*	37.03	0.38	0.89	38.56	1.41	2.67
G2EHC9		36.07	-0.58	-1.37	36.11	-1.04	-1.96
GH3TYB		36.73	0.08	0.18	37.36	0.21	0.40
GZ4KW7		37.22	0.57	1.35	37.61	0.46	0.88
HF2TTC		36.62	-0.03	-0.07	37.63	0.48	0.92
HGBWBG		36.21	-0.44	-1.05	36.68	-0.47	-0.90
JWW2RA		36.82	0.17	0.40	37.49	0.34	0.64
JZJGLB		36.25	-0.40	-0.94	36.88	-0.27	-0.52
K87784		36.27	-0.38	-0.90	37.13	-0.02	-0.04

Fasteners and Metals Interlaboratory Testing Program

Analysis 125

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

Cycle 122
2nd Qtr
2018

		Sample G51			Sample G52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
L23FQJ		37.04	0.39	0.92	37.66	0.51	0.97
LKXYQD		36.33	-0.32	-0.76	36.39	-0.75	-1.43
LXGTTQ		36.91	0.26	0.61	37.14	0.00	-0.01
MRRFR3	X	46.94	10.29	24.31	47.38	10.23	19.40
MYRYN7		37.08	0.43	1.02	36.60	-0.55	-1.05
N3QPDH		36.56	-0.09	-0.20	37.28	0.13	0.25
NCEJPE		37.61	0.96	2.28	37.71	0.56	1.07
NY9JZG		36.48	-0.17	-0.40	37.42	0.27	0.51
PX7ZPY		36.70	0.05	0.12	37.41	0.26	0.50
R8CGFV		36.33	-0.32	-0.76	37.16	0.01	0.02
RM3TKP		37.66	1.01	2.38	37.74	0.59	1.12
RPP9C7		36.53	-0.12	-0.28	37.16	0.01	0.03
RRWH8N		37.16	0.51	1.20	37.58	0.43	0.81
T7AHAR		36.68	0.03	0.08	37.36	0.21	0.40
TPGPJY		36.23	-0.42	-0.99	36.18	-0.97	-1.83
UCUVNK		36.17	-0.48	-1.13	37.13	-0.02	-0.04
UTJWQH		36.20	-0.45	-1.06	36.69	-0.46	-0.87
UUW9Q9		36.73	0.08	0.20	37.61	0.46	0.87
VHVFG9		37.04	0.40	0.93	37.18	0.03	0.06
VZDDR8		36.30	-0.35	-0.82	36.55	-0.60	-1.13
WLRDGY		36.03	-0.62	-1.46	36.50	-0.65	-1.23
X8NE32	*	36.88	0.23	0.53	38.44	1.29	2.45
XDXP39		36.23	-0.42	-0.99	36.99	-0.15	-0.29
Y7DZ3Y		36.57	-0.08	-0.19	37.38	0.23	0.43
YAQR6K		36.16	-0.49	-1.16	36.24	-0.90	-1.71
YHMF94		36.54	-0.11	-0.26	37.61	0.46	0.88
YW4GHF		37.09	0.44	1.04	37.69	0.55	1.04
Z9AWXJ		36.78	0.13	0.31	36.69	-0.45	-0.86
ZZHCZX		36.46	-0.19	-0.44	36.82	-0.33	-0.62

Summary Statistics

	Sample G51		Sample G52	
Grand Means	36.65	HRC	37.15	HRC
Stnd Dev Btwn Labs	0.42	HRC	0.53	HRC

Samples G51, G52 : 1/2-20 2 1/2, 1/2-20 2 3/4

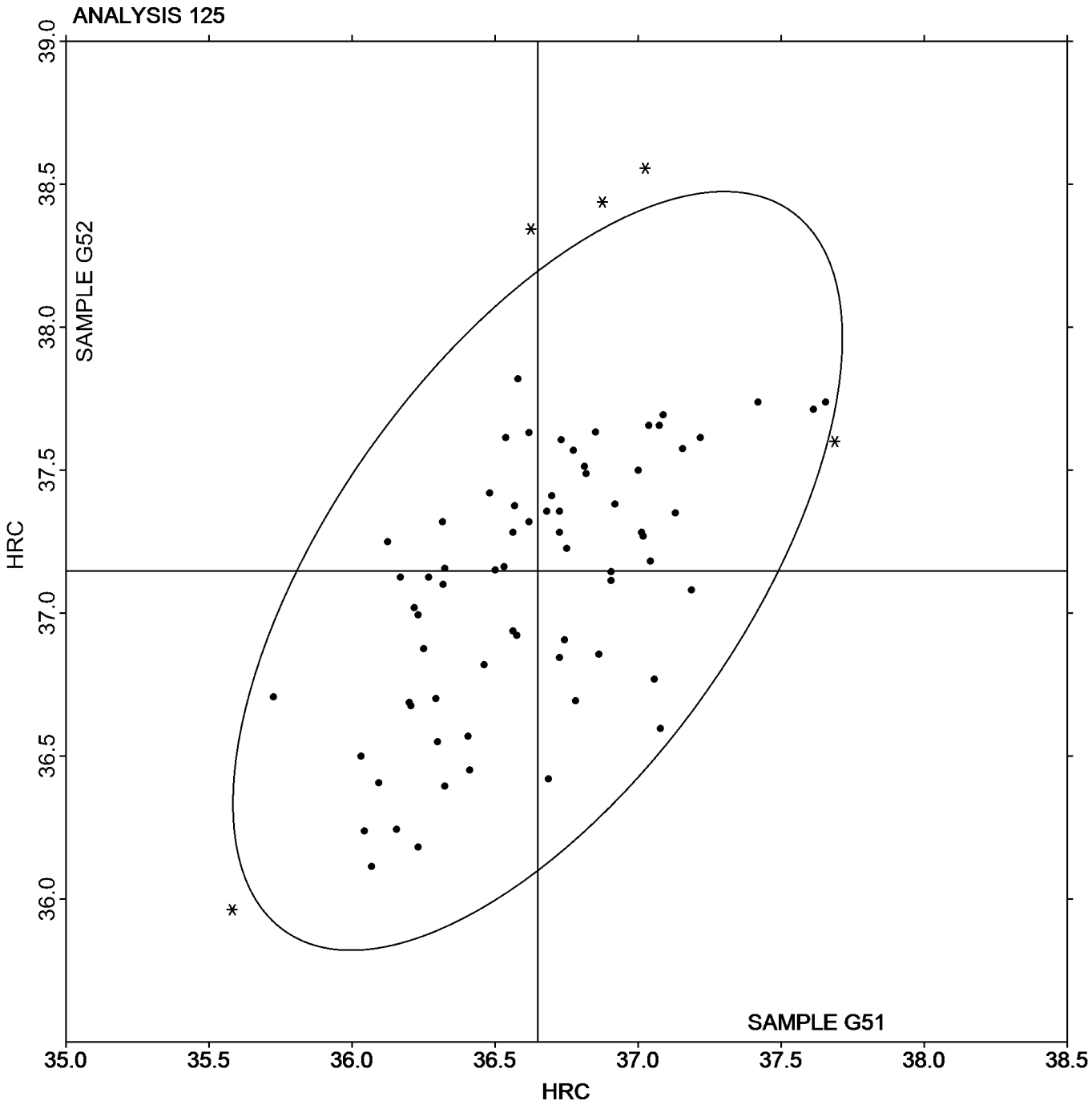
Statistics based on 74 of 76 reporting participants

Comments on Assigned Data Flags for Test #125

4JLGUB (X) - Data for sample G52 are low. Inconsistent within the determinations of sample G52.

MRRFR3 (X) - Data for both samples are extremely high.

SAMPLE G51	SAMPLE G52
36.65 HRC	37.15 HRC



		Sample V51			Sample V52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2R2ZJQ		360.49	-1.75	-0.37	364.10	-2.84	-0.46
2ZDE6T		364.13	1.89	0.41	368.94	2.00	0.32
3AZNB2		359.75	-2.49	-0.53	369.00	2.06	0.33
6LML9G		359.69	-2.55	-0.55	363.38	-3.56	-0.57
7G6N98	X	347.75	-14.49	-3.11	333.13	-33.81	-5.45
BEZW23		364.49	2.26	0.48	378.04	11.11	1.79
CTLJWL		365.69	3.45	0.74	367.44	0.50	0.08
DWWYXW		357.31	-4.92	-1.06	361.44	-5.50	-0.89
DZDJJC		360.37	-1.87	-0.40	364.70	-2.24	-0.36
E4CW2B		356.25	-5.99	-1.28	360.69	-6.25	-1.01
EXAT6B		363.13	0.89	0.19	367.38	0.44	0.07
F888AF		363.88	1.64	0.35	367.25	0.31	0.05
H2D63L		355.63	-6.61	-1.42	357.50	-9.44	-1.52
HCQCYL		362.75	0.51	0.11	363.94	-3.00	-0.48
J7J36X		358.38	-3.86	-0.83	364.50	-2.44	-0.39
JFRHAK		358.75	-3.49	-0.75	362.44	-4.50	-0.73
JK79JL		367.95	5.71	1.23	368.30	1.36	0.22
L23FQJ		365.44	3.20	0.69	372.31	5.38	0.87
MTQHJR		364.26	2.02	0.43	369.82	2.88	0.46
N3QPDH		362.48	0.24	0.05	375.71	8.78	1.42
NY9JZG		357.81	-4.42	-0.95	360.25	-6.69	-1.08
P322JZ		364.02	1.78	0.38	363.19	-3.75	-0.60
RBBV2Z		368.19	5.95	1.28	372.13	5.19	0.84
RF7V99		363.25	1.01	0.22	364.94	-2.00	-0.32
T8NJU8	*	376.27	14.03	3.01	385.09	18.16	2.93
VHVFG9		355.56	-6.67	-1.43	360.94	-6.00	-0.97

Summary Statistics

	Sample V51		Sample V52	
Grand Means	362.24	HV	366.94	HV
Stnd Dev Btwn Labs	4.66	HV	6.20	HV

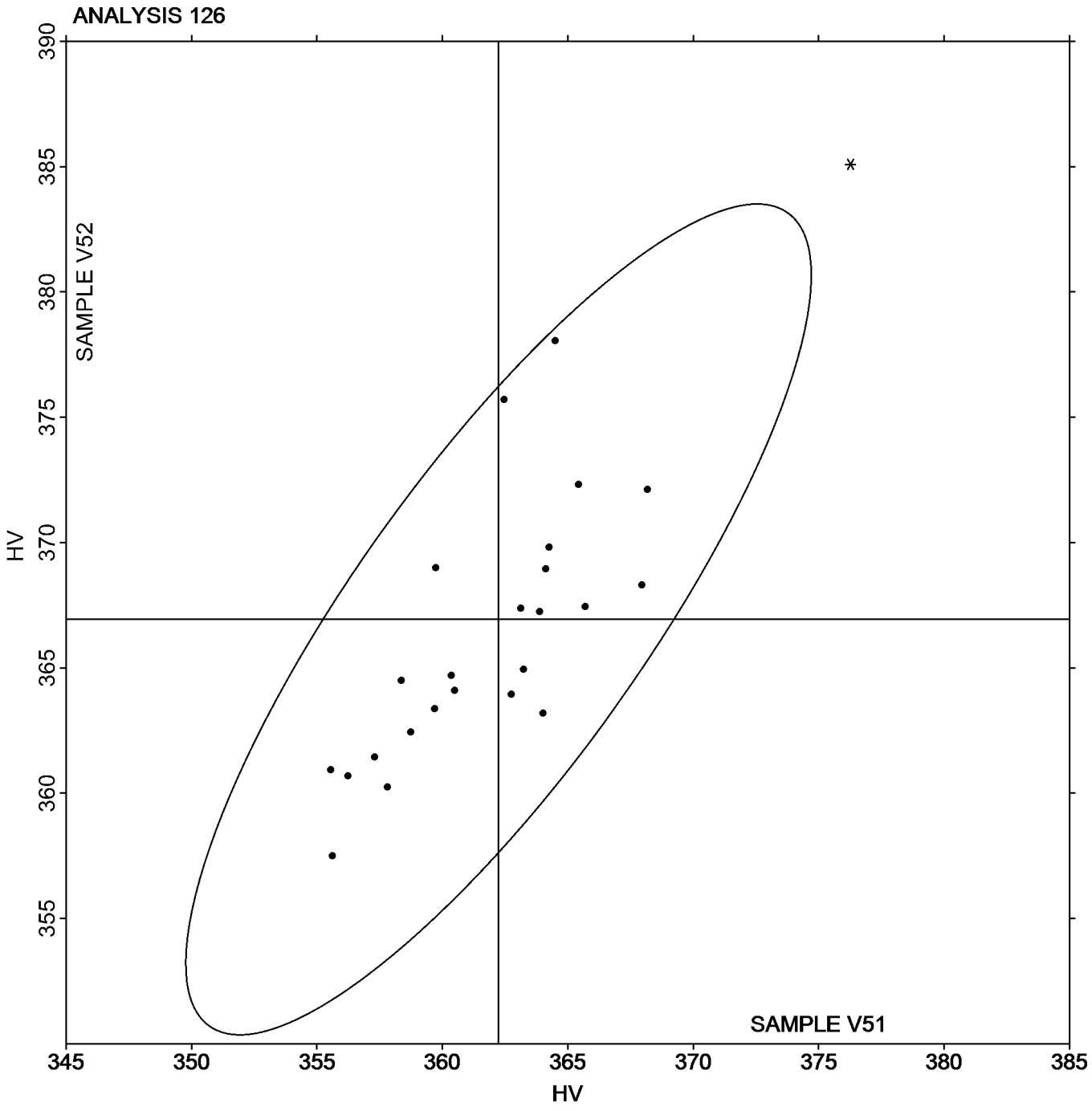
Samples V51, V52 : 1/2-20 2 1/2, 1/2-20 2 3/4

Statistics based on 25 of 26 reporting participants

Comments on Assigned Data Flags for Test #126

7G6N98 (X) - Data for both samples are low. Inconsistent within the determinations of both samples.

SAMPLE V51	SAMPLE V52
362.24 HV	366.94 HV



Fasteners and Metals Interlaboratory Testing Program

Analysis 127

Fastener Wedge Tensile (10 degree) - Metric
ASTM F606M

		Sample B51			Sample B52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
3AZNB2		1,124	-3	-0.43	1,154	-6	-0.87
4CHC3R		1,133	6	0.76	1,166	5	0.71
6FX4QY		1,125	-2	-0.22	1,152	-9	-1.24
6TKEEQ		1,142	15	2.01	1,168	7	0.98
7JU8XC		1,135	8	1.12	1,164	4	0.51
7UY62F		1,127	0	0.03	1,156	-5	-0.70
8BDY8U		1,132	5	0.64	1,163	2	0.27
BDQYDC		1,128	1	0.14	1,165	4	0.60
CTLJWL		1,120	-7	-0.88	1,161	1	0.10
CVQ9WA		1,124	-3	-0.39	1,173	12	1.68
CX2V4N		1,129	2	0.27	1,149	-12	-1.60
FXHJGX		1,131	4	0.49	1,161	1	0.10
H2D63L		1,118	-9	-1.23	1,164	4	0.51
J7J36X		1,126	-1	-0.17	1,165	5	0.65
JZJGLB		1,127	0	-0.04	1,155	-6	-0.80
L44K2J		1,122	-5	-0.66	1,148	-13	-1.74
R8CGFV		1,130	3	0.41	1,163	3	0.37
RRWH8N		1,141	14	1.92	1,173	13	1.77
TPGPJY		1,121	-6	-0.83	1,154	-7	-0.91
VBTFX7	X	1,212	85	11.27	1,237	77	10.55
VHVFG9		1,121	-6	-0.83	1,154	-6	-0.87
X8NE32		1,109	-18	-2.43	1,156	-4	-0.59
YHMF94		1,129	2	0.32	1,168	8	1.06

Summary Statistics

	Sample B51		Sample B52	
Grand Means	1,127	MPa	1,161	MPa
Stnd Dev Btwn Labs	8	MPa	7	MPa

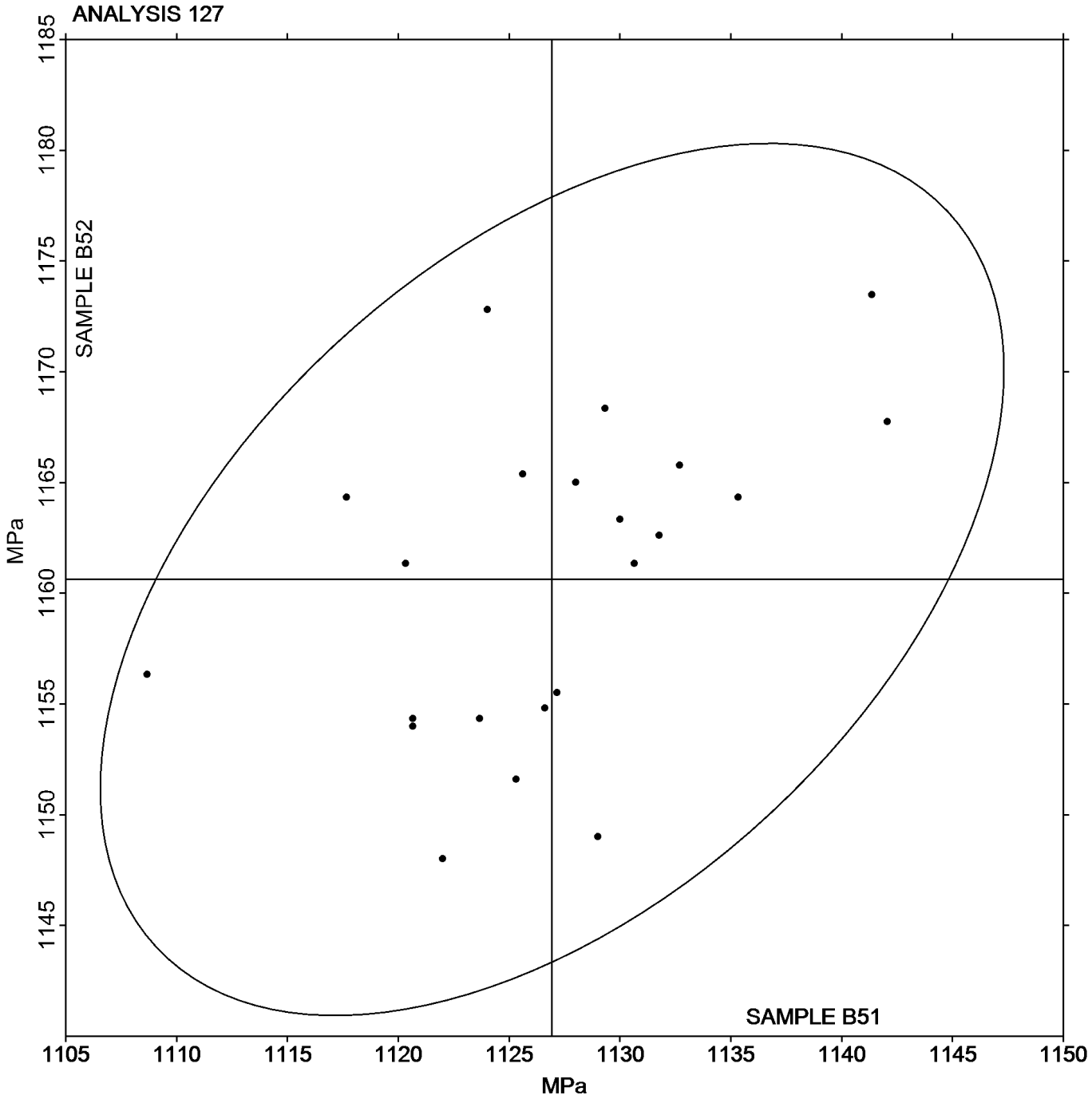
Samples B51, B52 : M10x1.5x65, M10x1.5x75

Statistics based on 22 of 23 reporting participants

Comments on Assigned Data Flags for Test #127

VBTFX7 (X) - Data for both samples are very high.

SAMPLE B51	SAMPLE B52
1,127 MPa	1,161 MPa



WebCode	Data Flag	Sample T51 Lab Mean	Sample T51 Diff. from Grand Mean	Sample T51 CPV	Sample T52 Lab Mean	Sample T52 Diff. from Grand Mean	Sample T52 CPV
42KQ33		1,137	21	0.34	1,177	33	0.46
622RHV		1,129	12	0.20	1,178	33	0.47
6FX4QY		1,127	11	0.17	1,153	8	0.12
6TKEEQ		1,142	25	0.41	1,168	24	0.34
9GVVZA		1,119	3	0.04	1,165	21	0.29
AUYHQJ	X	133.30	-983	-15.85	121.43	-1,023	-14.44
DRZCZ3		1,163	47	0.75	1,175	31	0.43
FDT8M8		1,144	28	0.45	1,153	8	0.12
GNB47J		1,119	2	0.04	1,154	10	0.14
H2D63L		1,139	22	0.36	1,155	10	0.14
HGBWBG		1,124	8	0.12	1,158	13	0.19
J7J36X		1,142	26	0.41	1,178	34	0.47
JZJGLB		1,113	-3	-0.05	1,153	9	0.13
NPGYRA	*	914.82	-202	-3.25	911.29	-233	-3.29

Summary Statistics

	Sample T51		Sample T52	
Grand Means	1,116	MPa	1,145	MPa
Stnd Dev Btwn Labs	62	MPa	71	MPa

Samples T51, T52 : M10x1.5x65, M10x1.5x75

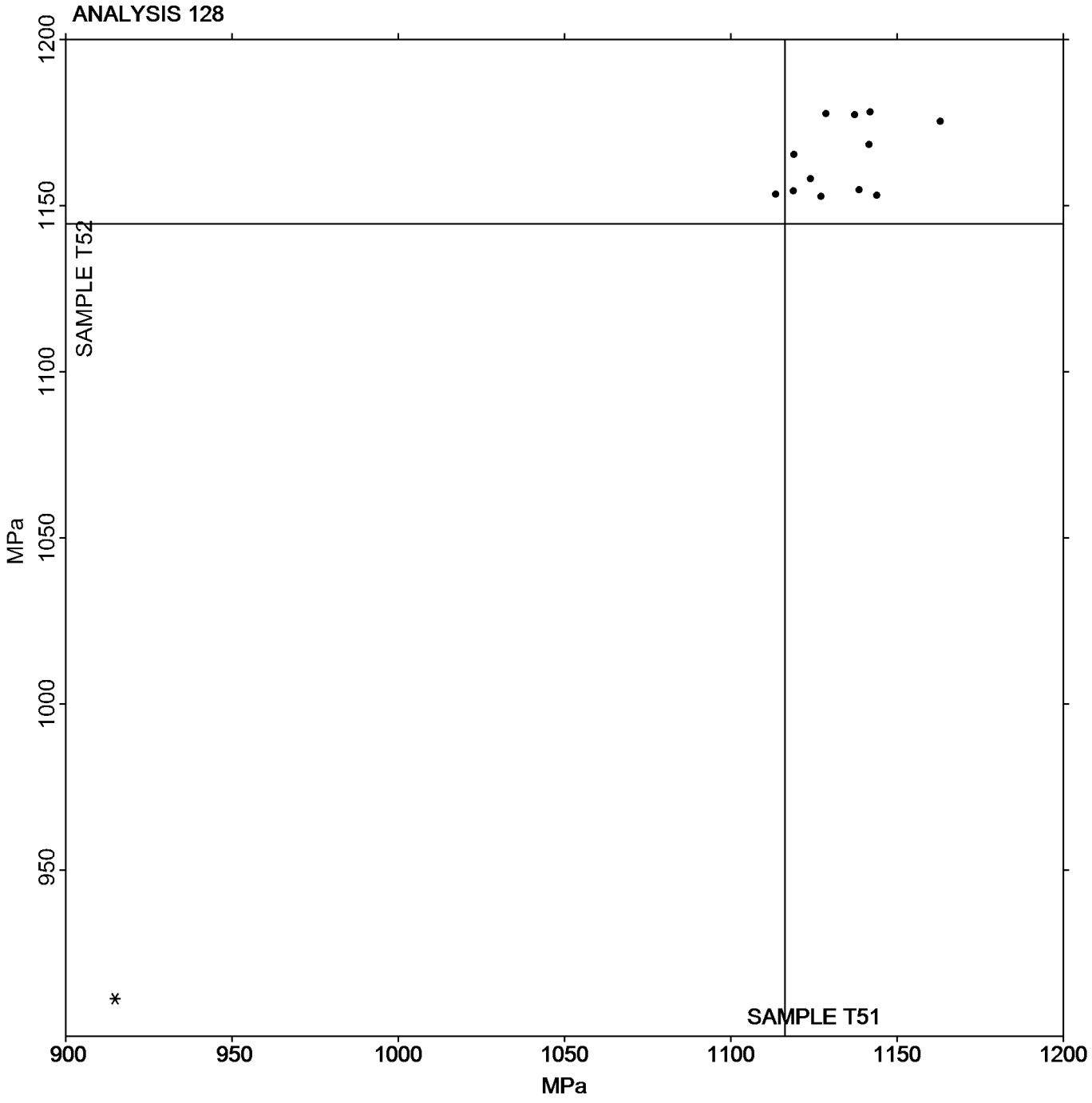
Statistics based on 13 of 14 reporting participants

Comments on Assigned Data Flags for Test #128

AUYHQJ (X) - Extreme data.

SAMPLE T51
1,116 MPa

SAMPLE T52
1,145 MPa



		Sample Z51			Sample Z52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2ZDE6T		18,954	-251	-0.96	21,431	-90	-0.20
34QGMH		19,407	203	0.77	22,094	574	1.25
4JLGUB		19,033	-171	-0.65	21,117	-404	-0.88
7BH2FN		19,344	140	0.53	21,672	151	0.33
7CRZFN		19,088	-116	-0.44	21,698	177	0.39
7D8FUP		19,163	-41	-0.16	21,433	-87	-0.19
CT2ZPT		18,895	-310	-1.18	21,465	-56	-0.12
CX2V4N		19,223	19	0.07	21,677	156	0.34
DPGDTZ		18,991	-214	-0.81	21,208	-313	-0.68
EXAT6B		19,396	192	0.73	21,732	211	0.46
F888AF		19,150	-54	-0.21	21,945	424	0.92
GZ4KW7		19,306	102	0.39	21,722	202	0.44
JJRL7E	*	19,148	-56	-0.21	20,365	-1,156	-2.52
KDN77H		18,794	-410	-1.56	21,429	-92	-0.20
MFEJ4Q	*	19,878	674	2.57	22,678	1,157	2.52
MRRFR3		18,991	-213	-0.81	21,075	-445	-0.97
RF7V99		19,134	-70	-0.27	21,681	160	0.35
RM3TKP		19,357	153	0.58	21,570	49	0.11
UUW9Q9		19,518	314	1.20	20,974	-547	-1.19
YPLAYP		19,000	-204	-0.78	21,233	-287	-0.63
Z9AWXJ		19,049	-156	-0.59	21,341	-179	-0.39
ZMD6XL		19,673	469	1.79	21,916	395	0.86

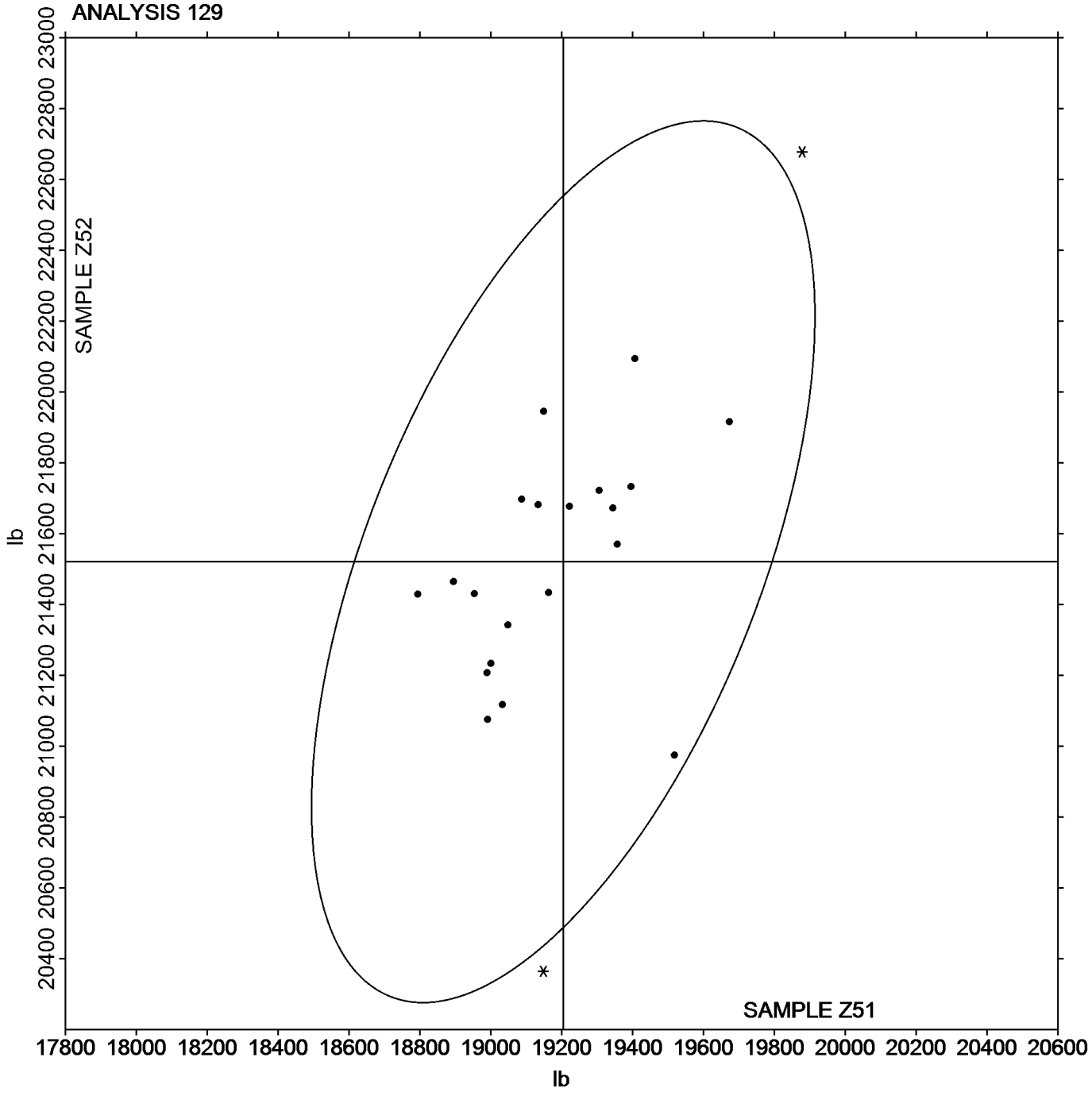
Summary Statistics

	Sample Z51		Sample Z52	
Grand Means	19,204	lb	21,521	lb
Stnd Dev Btwn Labs	262	lb	459	lb

Samples Z51, Z52 : 3/8-16 x 2 1/4, 3/8-16 x 2 1/4

Statistics based on 22 of 22 reporting participants

SAMPLE Z51	SAMPLE Z52
19,204 lb	21,521 lb



		Sample F51			Sample F52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
22QX46		46.90	0.03	0.04	44.50	0.06	0.07
28J24N		47.30	0.43	0.57	44.90	0.46	0.60
2JQ2PF		47.50	0.63	0.84	45.37	0.92	1.22
2LWX3C	X	46.40	-0.47	-0.62	45.70	1.26	1.66
2V7NZ2		47.60	0.73	0.97	45.31	0.87	1.15
3QN9ME	*	48.39	1.52	2.01	45.22	0.78	1.03
3W8BQB		46.60	-0.27	-0.36	44.24	-0.20	-0.27
44ND7C		47.18	0.31	0.41	44.74	0.30	0.40
47YYFL		47.10	0.23	0.30	44.62	0.17	0.23
4DWU6X		46.77	-0.10	-0.14	44.69	0.25	0.33
4E8LDE		46.40	-0.47	-0.62	44.25	-0.19	-0.26
4H9P2U		47.14	0.27	0.36	44.80	0.36	0.47
4REH8F	X	44.16	-2.71	-3.60	45.34	0.90	1.19
4XKC4W		48.50	1.63	2.17	46.01	1.57	2.07
4ZPZL8		48.20	1.33	1.77	46.00	1.56	2.06
68K6B3		47.70	0.83	1.10	44.50	0.06	0.07
6B4CFG		47.40	0.53	0.70	45.00	0.56	0.74
6KQB62		46.60	-0.27	-0.36	44.00	-0.44	-0.59
6QHDGE		46.27	-0.60	-0.80	44.06	-0.38	-0.50
6YPAYQ		45.80	-1.07	-1.42	43.80	-0.64	-0.85
79DEJB		47.10	0.23	0.31	44.30	-0.14	-0.19
7G6N98	X	47.43	0.56	0.74	46.27	1.82	2.41
7LDGWC		46.46	-0.41	-0.54	43.42	-1.02	-1.35
7V6M2W		46.63	-0.24	-0.32	44.58	0.14	0.19
833UXB		46.63	-0.24	-0.32	44.53	0.08	0.11
88EHUZ		47.65	0.78	1.04	45.47	1.03	1.36
88FE3B		47.80	0.93	1.24	45.60	1.16	1.53
8HDDTW		46.12	-0.75	-0.99	43.37	-1.08	-1.43
8QURXM		45.57	-1.30	-1.73	43.84	-0.60	-0.80
8XAJZ7		46.20	-0.67	-0.89	43.90	-0.54	-0.72
8YLCV8		45.90	-0.97	-1.29	43.90	-0.54	-0.72
9WTC4A	X	49.80	2.93	3.89	47.70	3.26	4.31
9YFJEB		46.50	-0.37	-0.49	44.00	-0.44	-0.59
AB6MFG		46.99	0.12	0.16	43.80	-0.64	-0.85
AC2D6V		46.78	-0.09	-0.13	44.54	0.10	0.13
ALV8UE	*	49.00	2.13	2.83	46.40	1.96	2.59
ANDK2V	X	44.60	-2.27	-3.01	41.70	-2.74	-3.63
AUZ7DN		45.80	-1.07	-1.42	42.80	-1.64	-2.18
AX4GED		46.90	0.03	0.04	44.40	-0.04	-0.06
B393TE		47.80	0.93	1.24	45.30	0.86	1.13
B8JBZB		46.00	-0.87	-1.15	43.80	-0.64	-0.85
BB43AT		46.60	-0.27	-0.36	43.50	-0.94	-1.25
BMNDWQ		46.30	-0.57	-0.76	43.86	-0.58	-0.77
BMXJUM		47.60	0.73	0.97	45.20	0.76	1.00
BR8WHD		46.73	-0.14	-0.18	44.35	-0.09	-0.12
C7KYM3		47.50	0.63	0.84	45.30	0.86	1.13
CLHGPZ		47.00	0.13	0.17	45.00	0.56	0.74

		Sample F51			Sample F52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
DGKKCT		48.45	1.58	2.10	45.70	1.26	1.66
DKFGWD		46.00	-0.87	-1.15	43.25	-1.19	-1.58
ERF4E6		45.25	-1.62	-2.15	43.08	-1.37	-1.81
F8ATA2		46.20	-0.67	-0.89	43.70	-0.74	-0.98
FA9DNL	X	48.32	1.45	1.93	44.11	-0.33	-0.44
FGYG66		47.45	0.58	0.77	45.41	0.96	1.27
FJYFX4		47.30	0.43	0.57	44.31	-0.13	-0.18
FMY8YU		46.71	-0.16	-0.21	44.13	-0.31	-0.42
FNX6H3	X	45.20	-1.67	-2.22	47.80	3.36	4.44
G47E23		47.34	0.47	0.63	45.54	1.10	1.45
GATCJX		45.70	-1.17	-1.55	43.90	-0.54	-0.72
GPL47K		47.30	0.43	0.57	44.40	-0.04	-0.06
GYNG6Z		47.94	1.07	1.42	45.37	0.92	1.22
H4W4EV		45.67	-1.20	-1.60	43.54	-0.91	-1.20
HLHUB9		47.14	0.27	0.36	44.82	0.37	0.49
HN4EGD		47.10	0.23	0.31	45.05	0.61	0.80
HZYKEH		46.90	0.03	0.04	44.40	-0.04	-0.06
J3FAAE		47.14	0.27	0.36	44.96	0.52	0.68
JBD3LE		45.80	-1.07	-1.42	43.40	-1.04	-1.38
JK79JL		46.99	0.12	0.16	44.38	-0.06	-0.08
K3Z97C		46.43	-0.44	-0.58	43.83	-0.61	-0.81
KJLTMW		48.51	1.64	2.17	45.89	1.45	1.92
KQ3ADK		46.58	-0.29	-0.39	44.24	-0.21	-0.28
LCGCQG		47.07	0.20	0.27	44.23	-0.21	-0.28
LGFNP3		46.12	-0.75	-1.00	43.19	-1.25	-1.66
MBLDR9		47.60	0.73	0.97	44.90	0.46	0.60
MPKUMW	X	46.82	-0.05	-0.07	36.97	-7.47	-9.89
N38QCD		47.54	0.67	0.89	45.59	1.15	1.52
NCA9RM		46.12	-0.75	-0.99	44.02	-0.43	-0.56
NEWRQY		47.01	0.14	0.18	44.61	0.17	0.22
NEYHXG		46.50	-0.37	-0.49	44.30	-0.14	-0.19
NFURDE	X	53.00	6.13	8.14	51.00	6.56	8.67
NRLPUH	X	48.50	1.63	2.17	44.90	0.46	0.60
NUDJZZ		46.94	0.07	0.09	43.83	-0.61	-0.81
P4XAXC		47.00	0.13	0.17	44.30	-0.14	-0.19
P8DPJW		46.20	-0.67	-0.89	43.80	-0.64	-0.85
PBCXRD		46.43	-0.44	-0.59	44.27	-0.18	-0.24
PR6NRG		47.10	0.23	0.31	44.50	0.06	0.07
PVZKC2		47.56	0.69	0.92	44.90	0.45	0.60
PY63GN		47.60	0.73	0.97	45.00	0.56	0.74
QF4MNB	*	46.65	-0.22	-0.29	45.33	0.89	1.17
QFKY92		46.25	-0.62	-0.82	43.83	-0.61	-0.81
QHRCVU		47.70	0.83	1.10	45.00	0.56	0.74
QU82WL		47.30	0.43	0.57	44.70	0.26	0.34
QWTNP9		46.50	-0.37	-0.49	44.24	-0.21	-0.27
RF7V99		46.00	-0.87	-1.15	43.50	-0.94	-1.25
RJL4J2		47.76	0.89	1.19	44.99	0.54	0.72

		Sample F51			Sample F52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
T2EFRL		45.98	-0.89	-1.18	43.80	-0.64	-0.85
TELEBT		45.90	-0.97	-1.29	43.40	-1.04	-1.38
TGTL3L		46.99	0.12	0.16	44.53	0.08	0.11
TT398C		47.86	0.99	1.32	45.11	0.66	0.88
TV9ZTX		47.30	0.43	0.57	45.00	0.56	0.74
TWAJ9L		45.40	-1.47	-1.95	42.60	-1.84	-2.44
U4ZLPN		47.50	0.63	0.84	45.40	0.96	1.26
V7LM8G		47.00	0.13	0.17	45.10	0.66	0.87
VJ7G99	X	60.60	13.73	18.24	45.20	0.76	1.00
VPWL7J		46.00	-0.87	-1.15	43.90	-0.54	-0.72
VVL22H		46.10	-0.77	-1.02	44.06	-0.38	-0.51
WAHXCF		45.90	-0.97	-1.29	43.60	-0.84	-1.12
WBQUZ6		46.51	-0.36	-0.48	43.71	-0.73	-0.97
WJPBXP		48.30	1.43	1.90	45.60	1.16	1.53
WMKCQR		46.99	0.12	0.16	44.24	-0.21	-0.27
WRKGJ4		47.00	0.13	0.17	45.10	0.66	0.87
WVWAGW		45.90	-0.97	-1.29	43.80	-0.64	-0.85
WWCKKV		46.20	-0.67	-0.89	44.60	0.16	0.21
WWUT74		47.00	0.13	0.17	44.60	0.16	0.21
X22NF7	*	46.70	-0.17	-0.22	43.37	-1.08	-1.43
XCGF4F	X	53.03	6.16	8.18	51.96	7.52	9.94
YRDXPX		46.10	-0.77	-1.02	43.80	-0.64	-0.85
YW6EQP		46.46	-0.41	-0.55	44.24	-0.21	-0.27
Z9CPU7		47.20	0.33	0.44	44.90	0.46	0.60
ZD42MG	M	No Data Reported			43.33	-1.11	-1.47
ZN9RMW	*	47.00	0.13	0.17	43.60	-0.84	-1.12

Summary Statistics

	Sample F51		Sample F52	
Grand Means	46.87	ksi	44.44	ksi
Stnd Dev Btwn Labs	0.75	ksi	0.76	ksi

Samples F51, F52 : AISI 1010 - 14G (T), AISI 1010 - 16G (X)

Statistics based on 107 of 120 reporting participants

Comments on Assigned Data Flags for Test #130

2LWX3C (X) - Inconsistent in testing between samples.

4REH8F (X) - Data for sample F51 are low.

7G6N98 (X) - Inconsistent in testing between samples.

9WTC4A (X) - Data for both samples are high. Possible Systematic Error.

ANDK2V (X) - Data for both samples are low. Possible Systematic Error.

FA9DNL (X) - Inconsistent in testing between samples.

FNX6H3 (X) - Data for sample F52 are high.

MPKUMW (X) - Data for sample F52 are low.

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

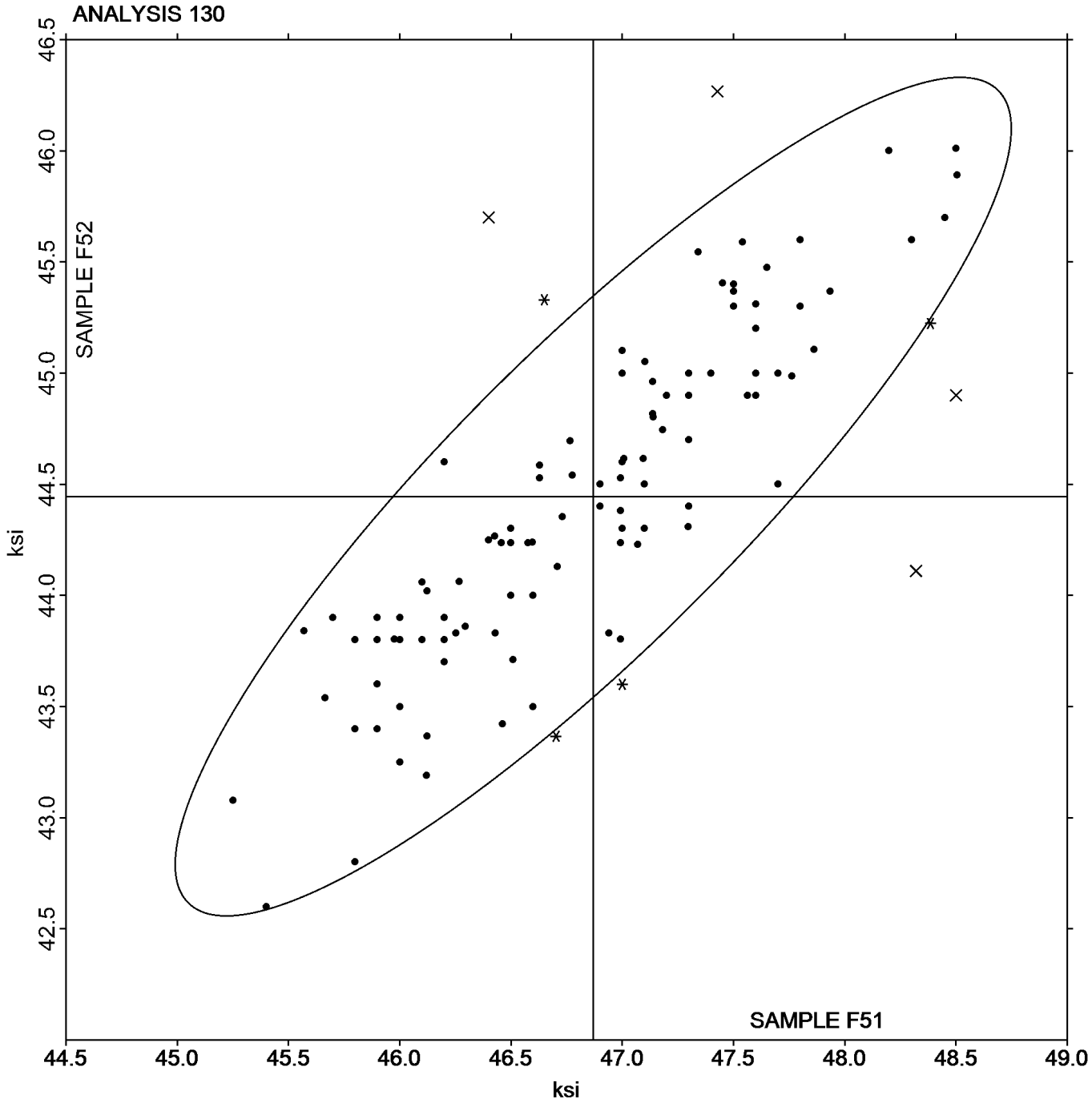
NRLPUH (X) - Inconsistent in testing between samples.

VJ7G99 (X) - Data for sample F51 are extremely high.

XCGF4F (X) - Data for both samples are very high. Possible Systematic Error.

ZD42MG (M) - Participant did not submit data for sample F51.

SAMPLE F51	SAMPLE F52
46.87 ksi	44.44 ksi



		Sample F51			Sample F52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
22QX46	*	28.60	2.53	2.87	25.60	2.58	2.50
28J24N		26.40	0.33	0.38	22.80	-0.22	-0.22
2JQ2PF		26.75	0.68	0.77	23.18	0.15	0.15
2LWX3C		25.90	-0.17	-0.19	23.20	0.18	0.17
2V7NZ2		27.24	1.17	1.33	24.92	1.89	1.84
3QN9ME	X	30.79	4.72	5.36	25.40	2.37	2.30
3W8BQB		25.94	-0.13	-0.15	23.00	-0.03	-0.02
44ND7C		26.11	0.04	0.04	22.83	-0.19	-0.19
47YYFL		25.51	-0.56	-0.63	22.60	-0.42	-0.41
4DWU6X		26.46	0.39	0.44	22.79	-0.23	-0.22
4E8LDE		26.35	0.28	0.32	22.60	-0.42	-0.41
4H9P2U		25.61	-0.45	-0.52	22.01	-1.01	-0.98
4REH8F	X	11.68	-14.39	-16.32	25.80	2.78	2.70
4ZPZL8		26.20	0.13	0.15	23.60	0.58	0.56
68K6B3	*	28.80	2.73	3.10	25.70	2.68	2.60
6B4CFG		25.70	-0.37	-0.42	22.60	-0.42	-0.41
6KQB62		24.40	-1.67	-1.89	21.40	-1.62	-1.57
6QHDGE		25.11	-0.96	-1.09	21.94	-1.08	-1.05
6YPAYQ		24.90	-1.17	-1.32	21.30	-1.72	-1.67
79DEJB		26.10	0.03	0.04	22.80	-0.22	-0.22
7G6N98		27.56	1.49	1.69	25.53	2.50	2.43
7LDGWC		25.51	-0.56	-0.64	21.92	-1.10	-1.07
7V6M2W		24.76	-1.31	-1.49	21.86	-1.17	-1.13
833UXB		25.53	-0.54	-0.61	22.63	-0.40	-0.39
88EHUZ		27.16	1.09	1.24	23.65	0.63	0.61
88FE3B	X	28.50	2.43	2.76	26.90	3.88	3.76
8HDDTW		24.95	-1.12	-1.27	21.90	-1.12	-1.09
8QURXM		26.25	0.18	0.21	23.44	0.42	0.40
8XAJZ7		25.60	-0.47	-0.53	22.20	-0.82	-0.80
8YLCV8		25.90	-0.17	-0.19	23.60	0.58	0.56
9WTC4A		27.40	1.33	1.51	25.40	2.38	2.31
9YFJEB		25.70	-0.37	-0.42	22.90	-0.12	-0.12
AB6MFG		25.67	-0.40	-0.45	22.34	-0.69	-0.67
AC2D6V		26.57	0.50	0.57	23.50	0.47	0.46
ALV8UE		28.00	1.93	2.19	24.90	1.88	1.82
ANDK2V		25.40	-0.67	-0.76	21.50	-1.52	-1.48
AUZ7DN		25.60	-0.47	-0.53	22.80	-0.22	-0.22
AX4GED		25.40	-0.67	-0.76	22.30	-0.72	-0.70
B393TE		25.50	-0.57	-0.64	22.40	-0.62	-0.60
B8JBZB	X	22.70	-3.37	-3.82	20.80	-2.22	-2.16
BB43AT		26.40	0.33	0.38	23.00	-0.02	-0.02
BMNDWQ		25.06	-1.01	-1.14	22.47	-0.56	-0.54
BMXJUM		26.20	0.13	0.15	23.20	0.18	0.17
BR8WHD		25.25	-0.82	-0.93	22.37	-0.66	-0.64
C7KYM3	*	24.40	-1.67	-1.89	22.70	-0.32	-0.31
CLHGPZ		25.00	-1.07	-1.21	23.00	-0.02	-0.02
DGKKCT	X	29.60	3.53	4.01	25.70	2.68	2.60

		Sample F51			Sample F52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
ERF4E6		25.82	-0.25	-0.28	23.06	0.04	0.04
F8ATA2		25.70	-0.37	-0.42	22.20	-0.82	-0.80
FGYG66		26.60	0.53	0.61	23.46	0.44	0.42
FJYFX4		25.60	-0.47	-0.53	23.35	0.33	0.32
FMY8YU		26.39	0.32	0.37	23.04	0.02	0.02
FNX6H3	X	26.70	0.63	0.72	28.30	5.28	5.12
G47E23	*	26.93	0.86	0.98	22.25	-0.78	-0.75
GATCJX		25.90	-0.17	-0.19	23.20	0.18	0.17
GPL47K		27.20	1.13	1.28	24.90	1.88	1.82
GYNG6Z		27.17	1.10	1.25	23.47	0.44	0.43
H4W4EV		24.89	-1.18	-1.33	22.35	-0.67	-0.65
HLHUB9		25.38	-0.69	-0.78	22.19	-0.83	-0.81
HN4EGD		25.84	-0.22	-0.25	22.84	-0.18	-0.17
HZYKEH		25.30	-0.77	-0.87	22.40	-0.62	-0.60
J3FAAE		26.40	0.33	0.37	23.79	0.76	0.74
JBD3LE		25.80	-0.27	-0.30	23.00	-0.02	-0.02
JK79JL		26.98	0.91	1.03	24.66	1.63	1.58
K3Z97C	X	28.72	2.65	3.01	28.54	5.52	5.35
KJLTMW		27.09	1.02	1.16	23.66	0.64	0.62
KQ3ADK	*	27.94	1.87	2.12	23.90	0.88	0.85
LCGCQG		26.69	0.62	0.71	24.70	1.68	1.63
LGFNP3		26.29	0.22	0.25	23.75	0.73	0.70
MBLDR9		26.40	0.33	0.38	23.00	-0.02	-0.02
MPKUMW	X	27.09	1.03	1.16	16.75	-6.27	-6.08
N38QCD		26.25	0.18	0.21	23.35	0.33	0.32
NCA9RM		25.27	-0.80	-0.91	22.06	-0.96	-0.93
NEWRQY		24.92	-1.15	-1.30	22.19	-0.83	-0.81
NEYHXG	*	27.90	1.83	2.08	23.70	0.68	0.66
NFURDE	X	49.00	22.93	26.00	44.00	20.98	20.35
NRLPUH	X	29.80	3.73	4.23	24.50	1.48	1.43
NUDJZZ		25.16	-0.91	-1.03	21.58	-1.44	-1.40
P4XAXC		25.90	-0.17	-0.19	22.80	-0.22	-0.22
P8DPJW		25.70	-0.37	-0.42	23.10	0.08	0.07
PBCXRD		24.86	-1.21	-1.37	21.58	-1.44	-1.40
PR6NRG		26.80	0.73	0.83	23.30	0.28	0.27
PVZKC2	X	29.29	3.23	3.66	26.30	3.28	3.18
PY63GN		25.80	-0.27	-0.30	21.80	-1.22	-1.19
QFKY92		27.48	1.42	1.61	24.44	1.42	1.37
QHRCVU	X	27.50	1.43	1.62	30.10	7.08	6.86
QU82WL		26.30	0.23	0.26	22.80	-0.22	-0.22
QWTNP9		26.35	0.29	0.32	22.92	-0.11	-0.10
RF7V99	*	25.20	-0.87	-0.98	20.60	-2.42	-2.35
RJL4J2		25.81	-0.26	-0.29	22.77	-0.26	-0.25
T2EFRL		26.34	0.27	0.31	23.24	0.21	0.21
TELEBT		26.00	-0.07	-0.08	22.90	-0.12	-0.12
TGTL3L		26.11	0.04	0.04	22.63	-0.40	-0.39
TT398C		26.25	0.18	0.21	23.64	0.62	0.60

Fasteners and Metals Interlaboratory Testing Program

Analysis 131

Yield Strength: Lab-Machined Flat Steel
ASTM E8

		Sample F51			Sample F52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
TV9ZTX		27.40	1.33	1.51	25.00	1.98	1.92
TWAJ9L		25.00	-1.07	-1.21	23.00	-0.02	-0.02
U4ZLPN		26.30	0.23	0.26	23.10	0.08	0.07
V7LM8G		26.10	0.03	0.04	24.40	1.38	1.34
VJ7G99	X	38.10	12.03	13.64	26.50	3.48	3.37
VPWL7J		25.50	-0.57	-0.64	23.60	0.58	0.56
VVL22H		24.64	-1.43	-1.62	21.21	-1.81	-1.76
WAHXCF		25.40	-0.67	-0.76	21.80	-1.22	-1.19
WBQUZ6		25.36	-0.71	-0.80	21.50	-1.52	-1.48
WJPBXP		27.10	1.03	1.17	25.30	2.28	2.21
WMKCQR		26.69	0.62	0.70	23.50	0.47	0.46
WRKGJ4		26.60	0.53	0.60	22.70	-0.32	-0.31
WVWAGW		24.80	-1.27	-1.44	21.70	-1.32	-1.28
WWCKKV		25.90	-0.17	-0.19	23.00	-0.02	-0.02
WWUT74		26.60	0.53	0.60	23.40	0.38	0.37
X22NF7		25.67	-0.40	-0.45	22.77	-0.25	-0.24
XCGF4F	X	33.50	7.43	8.43	31.40	8.38	8.13
YRDXPX		26.10	0.03	0.04	22.60	-0.42	-0.41
YW6EQP		25.16	-0.90	-1.02	22.26	-0.76	-0.74
Z9CPU7		26.40	0.33	0.38	23.50	0.48	0.46
ZD42MG	M	No Data Reported			23.49	0.46	0.45
ZN9RMW		26.60	0.53	0.60	24.10	1.08	1.04

Summary Statistics

	Sample F51		Sample F52	
Grand Means	26.07	ksi	23.02	ksi
Stnd Dev Btwn Labs	0.88	ksi	1.03	ksi

Samples F51, F52 : AISI 1010 - 14G (T), AISI 1010 - 16G (X)

Statistics based on 101 of 116 reporting participants

Comments on Assigned Data Flags for Test #131

3QN9ME (X) - Data for sample F51 are high.

4REH8F (X) - Data for sample F51 are very low.

88FE3B (X) - Data for sample F52 are high.

B8JBZB (X) - Data for sample F51 are low.

DGKKCT (X) - Data for sample F51 are high.

FNX6H3 (X) - Data for sample F52 are high.

K3Z97C (X) - Data for both samples are high.

MPKUMW (X) - Data for sample F52 are low.

NFURDE (X) - Data for both samples are extremely high.

NRLPUH (X) - Data for sample F51 are high.

PVZKC2 (X) - Data for both samples are high.

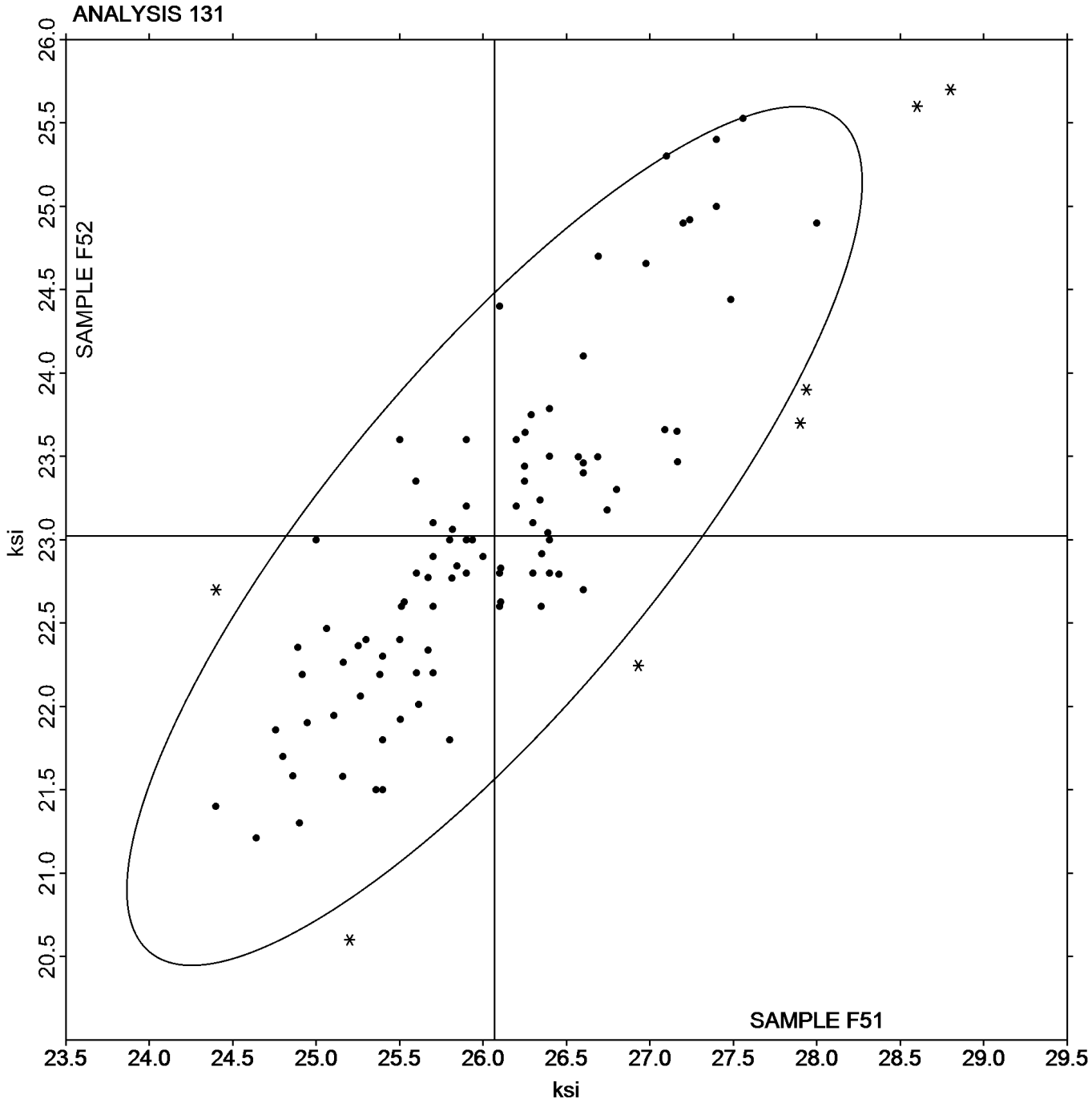
QHRCVU (X) - Data for sample F52 are high.

VJ7G99 (X) - Data for both samples are high.

XCGF4F (X) - Data for both samples are high.

ZD42MG (M) - Participant did not submit data for sample F51.

SAMPLE F51	SAMPLE F52
26.07 ksi	23.02 ksi



		Sample F51			Sample F52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
22QX46		42.50	-0.93	-0.38	43.50	-1.37	-0.54
28J24N		44.80	1.37	0.57	44.90	0.03	0.01
2JQ2PF		45.10	1.67	0.69	47.00	2.13	0.84
2LWX3C	X	41.00	-2.43	-1.00	38.00	-6.87	-2.72
2V7NZ2		40.90	-2.53	-1.05	41.90	-2.97	-1.17
3QN9ME		39.00	-4.43	-1.83	42.00	-2.87	-1.14
3W8BQB		40.96	-2.47	-1.02	42.58	-2.29	-0.91
44ND7C		45.00	1.57	0.65	46.90	2.03	0.80
47YYFL		43.70	0.27	0.11	46.20	1.33	0.53
4DWU6X		45.30	1.87	0.78	46.00	1.13	0.45
4E8LDE	X	38.45	-4.98	-2.06	32.40	-12.47	-4.93
4H9P2U		45.70	2.27	0.94	44.70	-0.17	-0.07
4REH8F	X	46.20	2.78	1.15	38.60	-6.27	-2.48
4XKC4W	*	46.67	3.24	1.34	44.17	-0.70	-0.28
4ZPZL8		44.00	0.57	0.24	46.80	1.93	0.76
68K6B3		43.40	-0.03	-0.01	42.80	-2.07	-0.82
6B4CFG		46.20	2.77	1.15	47.80	2.93	1.16
6KQB62		44.80	1.37	0.57	47.40	2.53	1.00
6QHDGE		42.70	-0.73	-0.30	45.40	0.53	0.21
6YPAYQ		46.20	2.77	1.15	48.60	3.73	1.48
79DEJB		44.10	0.67	0.28	47.50	2.63	1.04
7G6N98		44.00	0.57	0.24	43.00	-1.87	-0.74
7LDGWC		41.02	-2.41	-1.00	43.53	-1.34	-0.53
7V6M2W		44.90	1.47	0.61	45.40	0.53	0.21
833UXB		42.20	-1.23	-0.51	44.20	-0.67	-0.26
88EHUZ		42.70	-0.73	-0.30	44.20	-0.67	-0.26
88FE3B		43.90	0.47	0.20	45.20	0.33	0.13
8QURXM		47.49	4.06	1.68	49.95	5.08	2.01
8XAJZ7	X	47.10	3.67	1.52	53.30	8.43	3.33
8YLCV8		45.00	1.57	0.65	46.50	1.63	0.64
9WTC4A		44.80	1.37	0.57	45.10	0.23	0.09
9YFJEB		42.60	-0.83	-0.34	43.70	-1.17	-0.46
AB6MFG		46.40	2.97	1.23	48.20	3.33	1.32
AC2D6V		40.48	-2.95	-1.22	41.72	-3.15	-1.25
ALV8UE		40.70	-2.73	-1.13	42.60	-2.27	-0.90
ANDK2V		40.40	-3.03	-1.25	41.40	-3.47	-1.37
AUZ7DN		47.40	3.97	1.65	46.20	1.33	0.53
AX4GED		44.60	1.17	0.49	46.60	1.73	0.68
B393TE		40.10	-3.33	-1.38	42.10	-2.77	-1.10
B8JBZB		46.00	2.57	1.07	46.70	1.83	0.72
BB43AT		45.50	2.07	0.86	45.20	0.33	0.13
BMNDWQ	X	44.10	0.67	0.28	28.70	-16.17	-6.40
BMXJUM		43.00	-0.43	-0.18	43.60	-1.27	-0.50
BR8WHD		41.80	-1.63	-0.67	43.50	-1.37	-0.54
C7KYM3		41.50	-1.93	-0.80	43.50	-1.37	-0.54
CLHGPZ		45.00	1.57	0.65	48.00	3.13	1.24
DGKKCT	X	35.20	-8.23	-3.41	37.00	-7.87	-3.11

		Sample F51			Sample F52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
DKFGWD		39.70	-3.73	-1.54	42.00	-2.87	-1.14
ERF4E6		45.10	1.67	0.69	44.70	-0.17	-0.07
F8ATA2	*	50.00	6.57	2.72	50.00	5.13	2.03
FA9DNL	X	32.46	-10.97	-4.54	32.91	-11.96	-4.73
FGYG66		45.72	2.29	0.95	43.99	-0.88	-0.35
FJYFX4		46.00	2.57	1.07	46.30	1.43	0.57
FMY8YU		45.80	2.37	0.98	49.80	4.93	1.95
FNX6H3		44.00	0.57	0.24	43.00	-1.87	-0.74
G47E23		42.14	-1.29	-0.53	45.41	0.54	0.21
GATCJX		43.60	0.17	0.07	44.40	-0.47	-0.19
GPL47K		42.10	-1.33	-0.55	45.50	0.63	0.25
GYNG6Z		43.80	0.37	0.16	46.70	1.83	0.72
H4W4EV		42.50	-0.93	-0.38	44.00	-0.87	-0.34
HLHUB9		38.90	-4.53	-1.87	40.40	-4.47	-1.77
HN4EGD		44.10	0.67	0.28	45.90	1.03	0.41
HZYKEH		45.80	2.37	0.98	46.60	1.73	0.68
J3FAAE		46.80	3.37	1.40	45.80	0.93	0.37
JBD3LE		47.00	3.57	1.48	50.00	5.13	2.03
JK79JL		43.00	-0.43	-0.18	46.00	1.13	0.45
K3Z97C		42.63	-0.80	-0.33	44.68	-0.19	-0.07
KJLTMW		44.84	1.41	0.59	48.15	3.28	1.30
KQ3ADK		45.60	2.17	0.90	45.60	0.73	0.29
LCGCQG		43.20	-0.23	-0.09	46.00	1.13	0.45
LGFNP3		43.06	-0.37	-0.15	43.78	-1.09	-0.43
MBLDR9		42.50	-0.93	-0.38	43.50	-1.37	-0.54
MPKUMW		44.40	0.97	0.40	44.10	-0.77	-0.30
N38QCD		46.98	3.55	1.47	48.67	3.80	1.50
NCA9RM		44.20	0.77	0.32	45.80	0.93	0.37
NEWRQY		42.83	-0.60	-0.25	44.96	0.09	0.04
NEYHXG		40.80	-2.63	-1.09	43.50	-1.37	-0.54
NFURDE	*	37.00	-6.43	-2.66	40.00	-4.87	-1.93
NRLPUH	X	31.50	-11.93	-4.94	40.30	-4.57	-1.81
NUDJZZ		44.00	0.57	0.24	46.00	1.13	0.45
P4XAXC		43.90	0.47	0.20	46.30	1.43	0.57
P8DPJW	X	50.10	6.67	2.76	47.00	2.13	0.84
PBCXRD		44.20	0.77	0.32	45.76	0.89	0.35
PR6NRG		43.00	-0.43	-0.18	47.00	2.13	0.84
PVZKC2		39.13	-4.30	-1.78	41.05	-3.82	-1.51
PY63GN		39.30	-4.13	-1.71	41.20	-3.67	-1.45
QF4MNB		42.50	-0.93	-0.38	41.67	-3.20	-1.27
QFKY92		41.90	-1.53	-0.63	41.90	-2.97	-1.17
QHRCVU	*	42.10	-1.33	-0.55	39.90	-4.97	-1.97
QU82WL		39.70	-3.73	-1.54	42.10	-2.77	-1.10
QWTNP9		43.00	-0.43	-0.18	46.00	1.13	0.45
RF7V99		44.80	1.37	0.57	47.60	2.73	1.08
RJL4J2		45.00	1.57	0.65	49.00	4.13	1.63
T2EFRL		45.43	2.00	0.83	46.15	1.28	0.51

		Sample F51			Sample F52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
TELEBT		47.30	3.87	1.60	49.50	4.63	1.83
TGTL3L		38.80	-4.63	-1.91	40.80	-4.07	-1.61
TT398C		43.09	-0.34	-0.14	43.12	-1.75	-0.69
TV9ZTX		40.10	-3.33	-1.38	41.00	-3.87	-1.53
TWAJ9L		39.10	-4.33	-1.79	41.50	-3.37	-1.33
U4ZLPN		44.80	1.37	0.57	47.60	2.73	1.08
V7LM8G		40.30	-3.13	-1.29	41.30	-3.57	-1.41
VJ7G99	X	34.00	-9.43	-3.90	34.90	-9.97	-3.94
VPWL7J		42.30	-1.13	-0.47	43.40	-1.47	-0.58
VVL22H		43.41	-0.02	-0.01	45.86	0.99	0.39
WAHXCF		48.00	4.57	1.89	49.00	4.13	1.63
WBQUZ6		44.17	0.74	0.31	46.67	1.80	0.71
WJPBXP		40.60	-2.83	-1.17	41.00	-3.87	-1.53
WMKCQR		38.60	-4.83	-2.00	38.90	-5.97	-2.36
WRKGJ4		42.00	-1.43	-0.59	43.00	-1.87	-0.74
WVWAGW		46.70	3.27	1.36	49.10	4.23	1.67
WWCKKV		44.50	1.07	0.44	45.00	0.13	0.05
WWUT74		43.00	-0.43	-0.18	46.00	1.13	0.45
X22NF7		42.46	-0.97	-0.40	42.78	-2.09	-0.83
XCGF4F		42.13	-1.30	-0.54	43.56	-1.31	-0.52
YRDXPX		43.40	-0.03	-0.01	45.10	0.23	0.09
YW6EQP		43.20	-0.23	-0.09	44.00	-0.87	-0.34
Z9CPU7		46.40	2.97	1.23	47.60	2.73	1.08
ZD42MG	M	No Data Reported			41.30	-3.57	-1.41
ZN9RMW		41.00	-2.43	-1.00	43.00	-1.87	-0.74

Summary Statistics

	Sample F51		Sample F52	
Grand Means	43.43	Percent	44.87	Percent
Stnd Dev Btwn Labs	2.42	Percent	2.53	Percent

Samples F51, F52 : AISI 1010 - 14G (T), AISI 1010 - 16G (X)

Statistics based on 108 of 119 reporting participants

Comments on Assigned Data Flags for Test #132

2LWX3C (X) - Inconsistent in testing between samples.

4E8LDE (X) - Data for sample F52 are low.

4REH8F (X) - Inconsistent in testing between samples.

8XAJZ7 (X) - Data for sample F52 are high.

BMNDWQ (X) - Data for sample F52 are low.

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

FA9DNL (X) - Data for both samples are low. Possible Systematic Error.

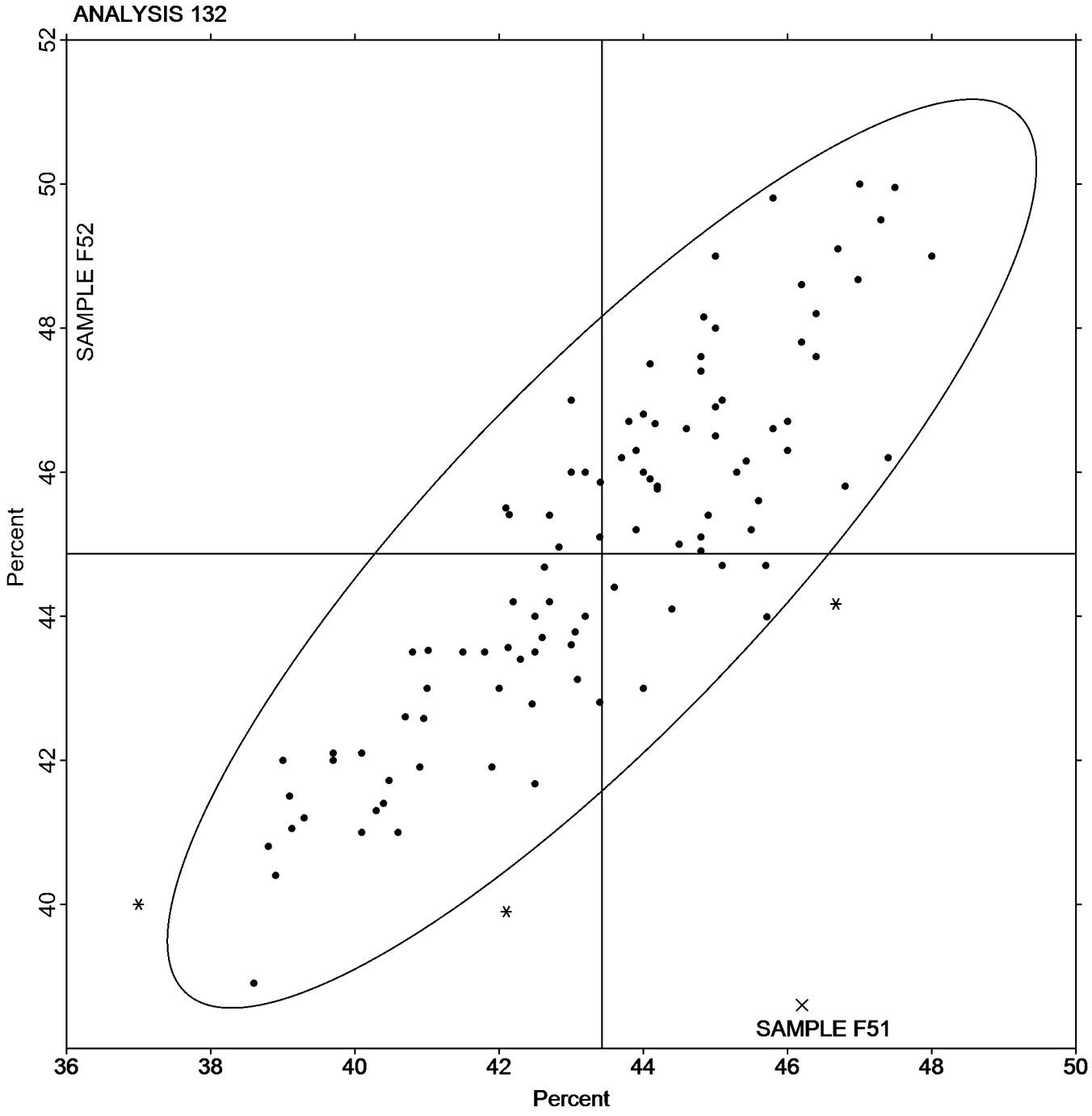
NRLPUH (X) - Data for sample F51 are low.

P8DPJW (X) - Data for sample F51 are high.

VJ7G99 (X) - Data for both samples are low. Possible Systematic Error.

ZD42MG (M) - Participant did not submit data for sample F51.

SAMPLE F51	SAMPLE F52
43.43 Percent	44.87 Percent



		Sample F51			Sample F52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
28J24N		1.760	0.070	0.57	1.930	0.051	0.34
2JQ2PF		1.610	-0.080	-0.64	1.830	-0.049	-0.33
3QN9ME	X	0.8500	-0.840	-6.75	5.470	3.591	24.29
3W8BQB		1.460	-0.230	-1.85	1.550	-0.329	-2.23
44ND7C		1.730	0.040	0.32	1.850	-0.029	-0.20
47YYFL		1.703	0.013	0.11	1.969	0.090	0.61
4DWU6X		1.660	-0.030	-0.24	1.810	-0.069	-0.47
4H9P2U	X	69.90	68.210	548.26	65.50	63.621	430.45
4REH8F	X	0.2367	-1.453	-11.68	0.2290	-1.650	-11.17
4ZPZL8		1.760	0.070	0.57	2.110	0.231	1.56
6QHDGE		1.620	-0.070	-0.56	1.790	-0.089	-0.61
79DEJB		1.570	-0.120	-0.96	1.750	-0.129	-0.88
7LDGWC	X	0.7650	-0.925	-7.43	0.7490	-1.130	-7.65
88FE3B	X	-5.466300	-7.156	-57.52	-5.466300	-7.346	-49.70
8QURXM		1.942	0.252	2.03	2.045	0.166	1.12
AC2D6V	X	-0.358000	-2.048	-16.46	-0.367000	-2.246	-15.20
AX4GED		1.690	0.000	0.00	1.950	0.071	0.48
BB43AT		1.845	0.155	1.25	1.820	-0.059	-0.40
C7KYM3		1.720	0.030	0.24	2.090	0.211	1.42
FGYG66		1.370	-0.320	-2.57	1.590	-0.289	-1.96
FJYFX4		1.860	0.170	1.37	2.030	0.151	1.02
FNX6H3	X	-5.466300	-7.156	-57.52	-5.466300	-7.346	-49.70
G47E23		1.460	-0.230	-1.85	1.690	-0.189	-1.28
GYNG6Z		1.760	0.070	0.57	2.160	0.281	1.90
HN4EGD		1.732	0.042	0.34	1.890	0.011	0.07
J3FAAE		1.700	0.010	0.08	1.800	-0.079	-0.54
JBD3LE		1.670	-0.020	-0.16	2.020	0.141	0.95
JK79JL		1.673	-0.017	-0.13	1.841	-0.038	-0.26
KJLTMW		1.732	0.042	0.34	1.828	-0.051	-0.35
PR6NRG		1.730	0.040	0.32	1.860	-0.019	-0.13
PVZKC2		1.660	-0.030	-0.24	1.930	0.051	0.34
PY63GN		1.627	-0.063	-0.50	1.838	-0.041	-0.28
QFKY92		1.787	0.097	0.78	2.018	0.139	0.94
U4ZLPN		1.560	-0.130	-1.04	1.710	-0.169	-1.15
VJ7G99	X	0.5020	-1.188	-9.55	0.5020	-1.377	-9.32
WAHXCF		1.780	0.090	0.73	1.800	-0.079	-0.54
Z9CPU7		1.830	0.140	1.13	2.006	0.127	0.86

Summary Statistics

	Sample F51	Sample F52
Grand Means	1.690	1.879
Stnd Dev Btwn Labs	0.124	0.148

Samples F51, F52 : AISI 1010 - 14G (T), AISI 1010 - 16G (X)

Statistics based on 29 of 37 reporting participants

Comments on Assigned Data Flags for Test #133

3QN9ME (X) - Data for sample F51 are low and data for sample F52 are extremely high.

4H9P2U (X) - Extreme data.

4REH8F (X) - Data for both samples are very low.

7LDGWC (X) - Data for both samples are low.

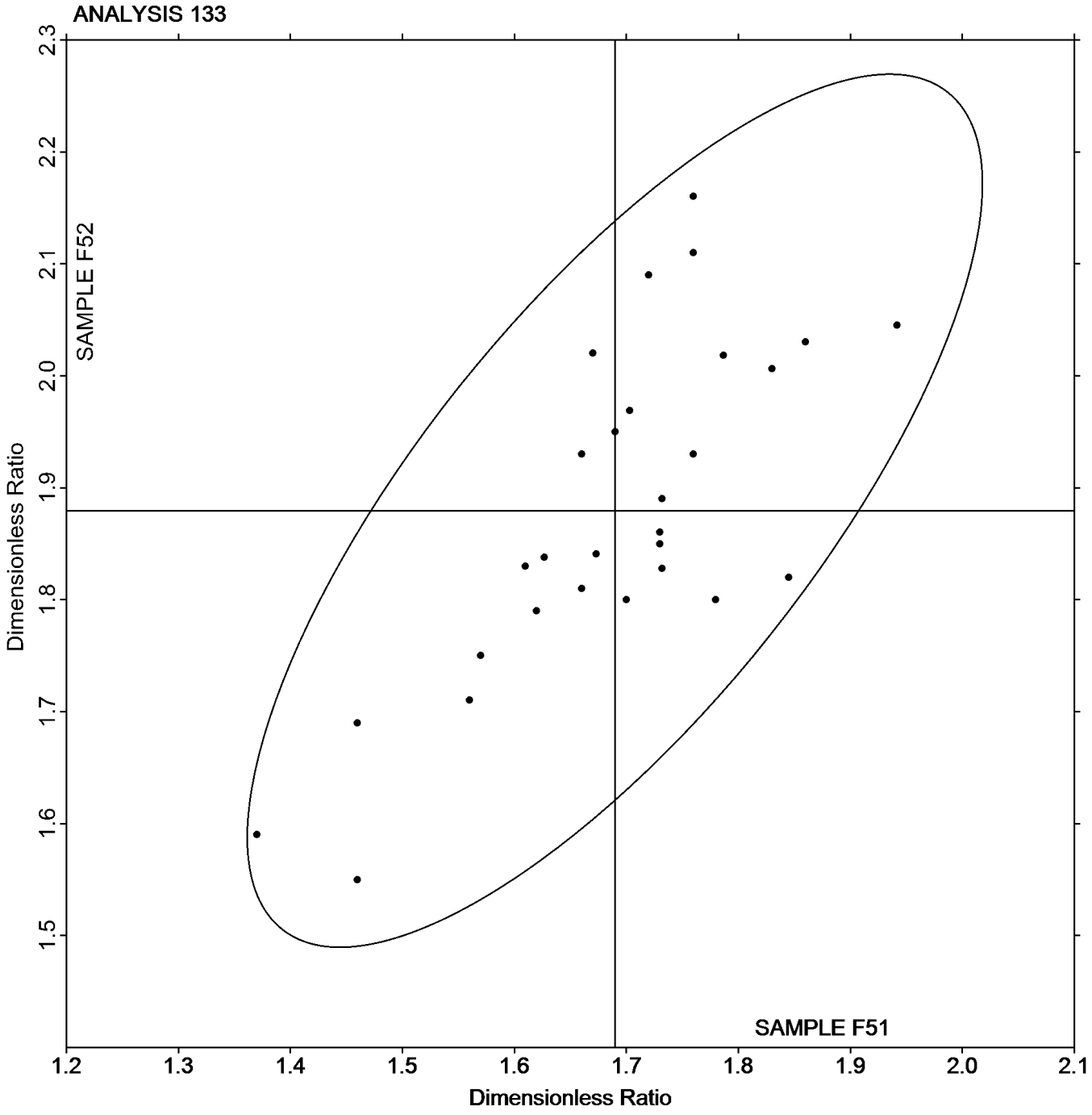
88FE3B (X) - Extreme data.

AC2D6V (X) - Data for both samples are very low.

FNX6H3 (X) - Extreme data.

VJ7G99 (X) - Data for both samples are low.

SAMPLE F51	SAMPLE F52
1.690	1.879



		Sample F51			Sample F52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
28J24N		0.2140	-0.0067	-0.68	0.2230	-0.0071	-0.53
2JQ2PF		0.2300	0.0093	0.94	0.2430	0.0129	0.95
3W8BQB	X	0.2075	-0.0132	-1.33	0.2380	0.0079	0.58
44ND7C		0.2190	-0.0017	-0.17	0.2270	-0.0031	-0.23
47YYFL		0.2290	0.0083	0.84	0.2400	0.0099	0.73
4DWU6X		0.2140	-0.0067	-0.68	0.2210	-0.0091	-0.67
4ZPZL8		0.2180	-0.0027	-0.27	0.2230	-0.0071	-0.53
6QHDGE		0.2150	-0.0057	-0.58	0.2250	-0.0051	-0.38
79DEJB		0.2130	-0.0077	-0.78	0.2210	-0.0091	-0.67
7LDGWC		0.2280	0.0073	0.74	0.2390	0.0089	0.66
88FE3B		0.2057	-0.0150	-1.52	0.2135	-0.0166	-1.23
8QURXM	X	0.1850	-0.0357	-3.61	0.2120	-0.0181	-1.34
AB6MFG	*	0.2500	0.0293	2.96	0.2700	0.0399	2.95
AC2D6V		0.2130	-0.0077	-0.78	0.2210	-0.0091	-0.67
ALV8UE		0.2140	-0.0067	-0.68	0.2210	-0.0091	-0.67
AX4GED		0.2180	-0.0027	-0.27	0.2260	-0.0041	-0.30
BB43AT	X	0.2040	-0.0167	-1.69	0.2220	-0.0081	-0.60
BMNDWQ		0.2190	-0.0017	-0.17	0.2230	-0.0071	-0.53
BR8WHD		0.2220	0.0013	0.13	0.2280	-0.0021	-0.16
C7KYM3		0.2160	-0.0047	-0.47	0.2250	-0.0051	-0.38
CLHGPZ		0.2260	0.0053	0.54	0.2390	0.0089	0.66
ERF4E6	*	0.2130	-0.0077	-0.78	0.2300	-0.0001	-0.01
FGYG66		0.2360	0.0153	1.55	0.2500	0.0199	1.47
FJYFX4		0.2200	-0.0007	-0.07	0.2300	-0.0001	-0.01
FNX6H3	*	0.2061	-0.0146	-1.47	0.2004	-0.0297	-2.20
G47E23		0.2360	0.0153	1.55	0.2500	0.0199	1.47
GPL47K		0.2080	-0.0127	-1.28	0.2080	-0.0221	-1.64
GYNG6Z		0.2270	0.0063	0.64	0.2420	0.0119	0.88
HLHUB9		0.2285	0.0078	0.79	0.2408	0.0107	0.79
HN4EGD		0.2186	-0.0021	-0.22	0.2275	-0.0026	-0.19
J3FAAE		0.2120	-0.0087	-0.88	0.2210	-0.0091	-0.67
JBD3LE		0.2280	0.0073	0.74	0.2370	0.0069	0.51
JK79JL		0.2210	0.0003	0.03	0.2300	-0.0001	-0.01
KJLTMW		0.2240	0.0033	0.33	0.2380	0.0079	0.58
LCGCQG		0.2305	0.0098	0.99	0.2361	0.0060	0.44
MPKUMW	X	0.2090	-0.0117	-1.18	0.2660	0.0359	2.65
NCA9RM		0.2170	-0.0037	-0.37	0.2250	-0.0051	-0.38
P4XAXC		0.2320	0.0113	1.14	0.2423	0.0122	0.90
PR6NRG		0.2110	-0.0097	-0.98	0.2190	-0.0111	-0.82
PVZKC2		0.2030	-0.0177	-1.79	0.2130	-0.0171	-1.27
PY63GN		0.2160	-0.0047	-0.47	0.2270	-0.0031	-0.23
QFKY92		0.2210	0.0003	0.03	0.2310	0.0009	0.06
QHRCVU	X	0.2289	0.0082	0.83	0.1592	-0.0709	-5.24
QU82WL		0.2260	0.0053	0.54	0.2380	0.0079	0.58
T2EFRL	*	0.2450	0.0243	2.46	0.2680	0.0379	2.80
TGTL3L		0.2200	-0.0007	-0.07	0.2300	-0.0001	-0.01
TV9ZTX	X	0.1900	-0.0307	-3.10	0.2100	-0.0201	-1.49

		Sample F51			Sample F52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
U4ZLPN		0.2240	0.0033	0.33	0.2310	0.0009	0.06
V7LM8G		0.2280	0.0073	0.74	0.2340	0.0039	0.29
VJ7G99	X	0.5020	0.2813	28.44	0.5020	0.2719	20.09
WAHXCF	*	0.2210	0.0003	0.03	0.2410	0.0109	0.80
WJPBXP		0.2191	-0.0016	-0.16	0.2216	-0.0085	-0.63
WMKCQR		0.2000	-0.0207	-2.09	0.2000	-0.0301	-2.23
WWUT74		0.2120	-0.0087	-0.88	0.2230	-0.0071	-0.53
YRDXPX		0.2260	0.0053	0.54	0.2390	0.0089	0.66
YW6EQP		0.2280	0.0073	0.74	0.2340	0.0039	0.29
Z9CPU7		0.2130	-0.0077	-0.78	0.2200	-0.0101	-0.75

Summary Statistics

	Sample F51	Sample F52
Grand Means	0.2207	0.2301
Stnd Dev Btwn Labs	0.0099	0.0135

Samples F51, F52 : AISI 1010 - 14G (T), AISI 1010 - 16G (X)

Statistics based on 50 of 57 reporting participants

Comments on Assigned Data Flags for Test #134

3W8BQB (X) - Inconsistent in testing between samples.

8QURXM (X) - Data for sample F51 are low.

BB43AT (X) - Inconsistent in testing between samples.

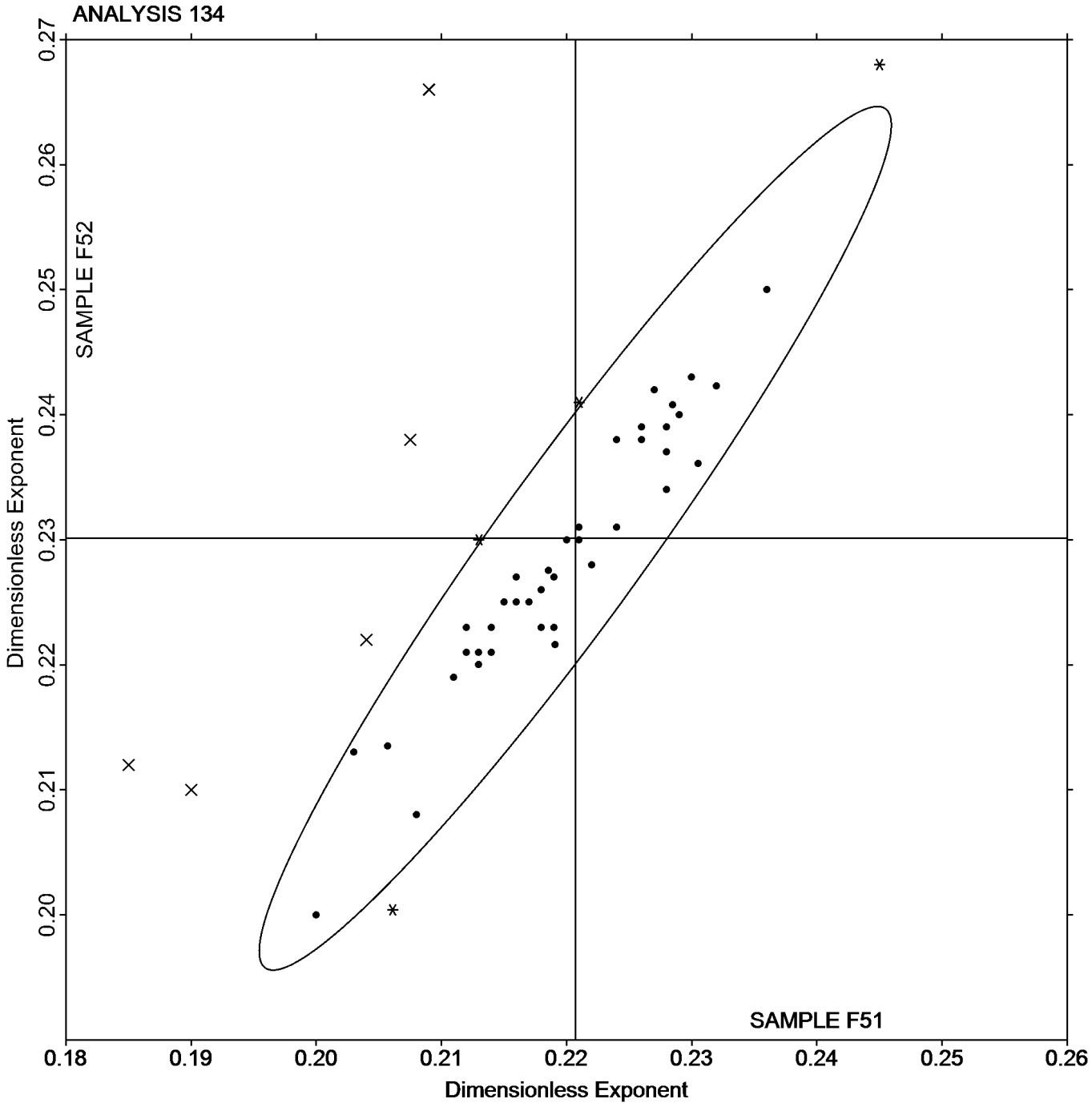
MPKUMW (X) - Inconsistent in testing between samples.

QHRCVU (X) - Data for sample F52 are low.

TV9ZTX (X) - Data for sample F51 are low.

VJ7G99 (X) - Data for both samples are extremely high.

SAMPLE F51	SAMPLE F52
0.2207	0.2301



		Sample E51			Sample E52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2GKEDW		77.22	0.33	0.71	70.70	-0.52	-1.22
4TLXEL		76.58	-0.31	-0.67	70.84	-0.38	-0.89
6LML9G	X	75.82	-1.07	-2.32	71.66	0.44	1.01
6WJUJ8		76.52	-0.37	-0.80	70.98	-0.24	-0.57
743AVG		77.12	0.23	0.50	70.78	-0.44	-1.03
7CEBBQ		77.44	0.55	1.19	71.72	0.50	1.15
7D8FUP		76.12	-0.77	-1.67	70.60	-0.62	-1.45
7Z2AVK		76.20	-0.69	-1.49	71.10	-0.12	-0.29
9LDTWD		76.92	0.03	0.06	71.18	-0.04	-0.10
9YFJEB		77.18	0.29	0.63	71.52	0.30	0.69
B2WN4K		76.54	-0.35	-0.76	71.00	-0.22	-0.52
BDP263		76.76	-0.13	-0.28	71.06	-0.16	-0.38
BDQYDC		77.06	0.17	0.37	71.04	-0.18	-0.43
CX2V4N		77.26	0.37	0.80	71.40	0.18	0.41
F4784G		77.31	0.42	0.90	71.87	0.65	1.50
FEAAK8	X	71.00	-5.89	-12.74	76.00	4.78	11.07
FXLW92		77.66	0.77	1.67	72.02	0.80	1.85
GKAXTY		77.34	0.45	0.97	71.56	0.34	0.78
GQYQNY		76.67	-0.22	-0.47	71.46	0.23	0.54
MBLDR9		77.28	0.39	0.84	71.48	0.26	0.59
NPGYRA		77.11	0.22	0.48	71.37	0.14	0.33
P4XAXC		77.26	0.37	0.80	71.50	0.28	0.64
PTDZB4		76.82	-0.07	-0.15	70.50	-0.72	-1.68
Q8QTEZ		76.90	0.01	0.02	70.90	-0.32	-0.75
QWTNP9		76.40	-0.49	-1.06	70.80	-0.42	-0.98
R888H4		77.64	0.75	1.62	72.10	0.88	2.03
R8CGFV		76.22	-0.67	-1.45	70.16	-1.06	-2.47
RF7V99		77.08	0.19	0.41	71.00	-0.22	-0.52
T2VHFL		76.58	-0.31	-0.67	71.50	0.28	0.64
T6Z7WW		76.42	-0.47	-1.02	70.70	-0.52	-1.22
T7CYUK		76.16	-0.73	-1.58	71.04	-0.18	-0.43
TL29E2		76.82	-0.07	-0.15	71.54	0.32	0.73
TPGPJY		77.32	0.43	0.93	71.74	0.52	1.20
TV9ZTX		77.00	0.11	0.24	71.46	0.24	0.55
TWAJ9L		76.54	-0.35	-0.76	70.66	-0.56	-1.31
U8JMNG		76.54	-0.35	-0.76	71.48	0.26	0.59
UMU96K		77.26	0.37	0.79	71.47	0.24	0.57
UN9NMT		77.38	0.49	1.06	71.80	0.58	1.34
UP3EP2		77.00	0.11	0.24	71.20	-0.02	-0.06
VF83LJ		77.64	0.75	1.62	71.02	-0.20	-0.47
W26LJN		76.70	-0.19	-0.41	71.18	-0.04	-0.10
WMKCQR		76.63	-0.26	-0.57	71.14	-0.09	-0.20
WRKGJ4		77.38	0.49	1.06	71.84	0.62	1.43
YHMF94	*	75.66	-1.23	-2.66	70.92	-0.30	-0.71
ZZHCZX		76.64	-0.25	-0.54	71.32	0.10	0.22

Summary Statistics

	Sample E51		Sample E52	
Grand Means	76.89	HR30N	71.22	HR30N
Stnd Dev Btwn Labs	0.46	HR30N	0.43	HR30N

Samples E51, E52 : Steel, Steel

Statistics based on 43 of 45 reporting participants

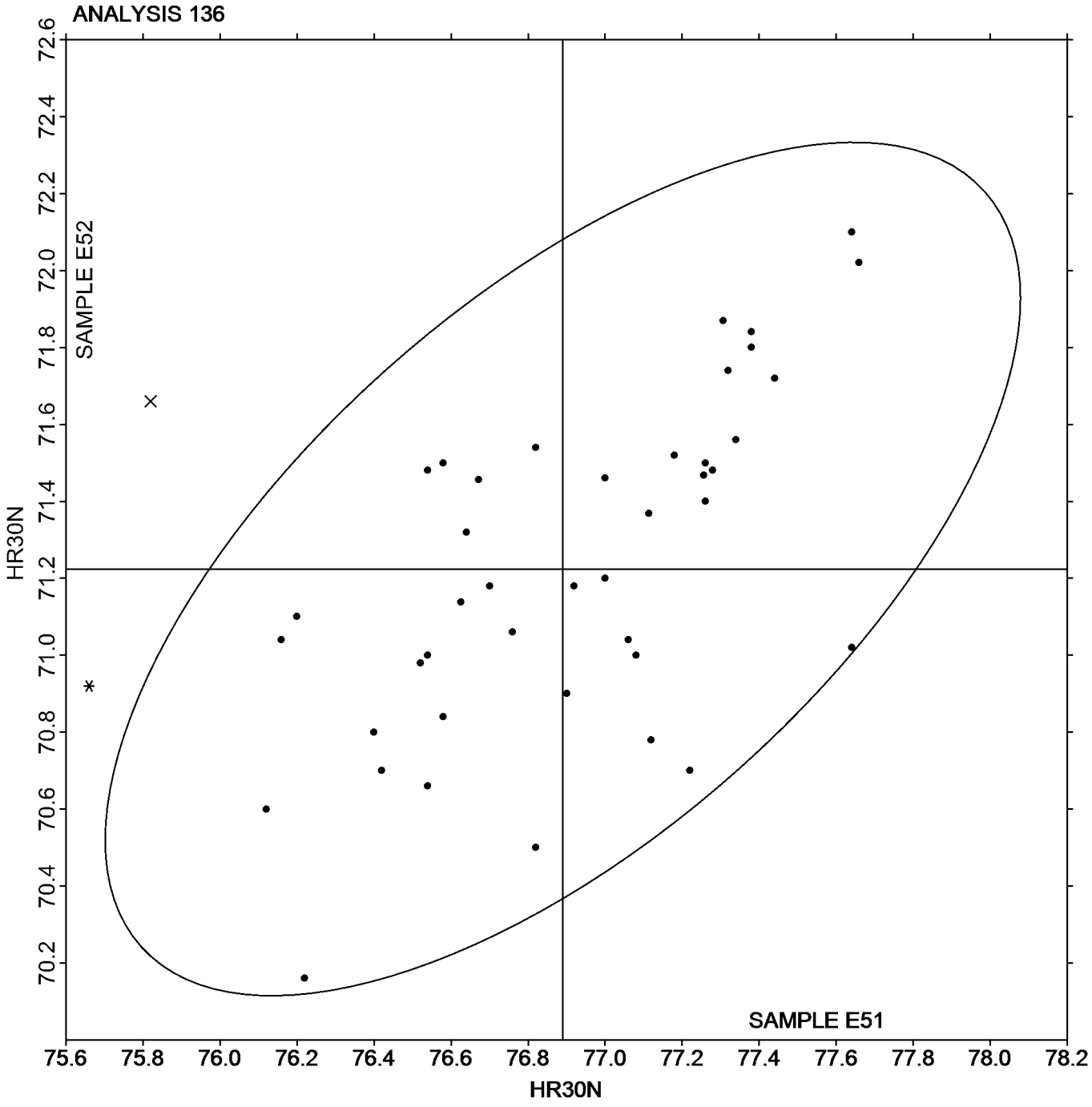
Comments on Assigned Data Flags for Test #136

6LML9G (X) - Inconsistent in testing between samples.

FEAAK8 (X) - Data appear to be transposed between samples.

SAMPLE E51
76.89 HR30N

SAMPLE E52
71.22 HR30N



WebCode	Data Flag	Sample W51 Lab Mean	Sample W51 Diff. from Grand Mean	Sample W51 CPV	Sample W52 Lab Mean	Sample W52 Diff. from Grand Mean	Sample W52 CPV
34QGMH		0.000278	-0.000052	-0.59	0.000149	-0.000017	-0.49
4JLGUB		0.000321	-0.000009	-0.10	0.000168	0.000002	0.06
6KQEDJ		0.000550	0.000220	2.49	0.000248	0.000082	2.31
7CRZFN		0.000300	-0.000030	-0.34	0.000176	0.000010	0.28
88B3FE		0.000428	0.000098	1.11	0.000168	0.000002	0.05
99M283		0.000330	0.000000	0.00	0.000145	-0.000022	-0.61
AX4GED		0.000327	-0.000003	-0.03	0.000136	-0.000031	-0.87
BXXAHF		0.000316	-0.000014	-0.16	0.000138	-0.000028	-0.80
EXAT6B		0.000300	-0.000030	-0.34	0.000200	0.000034	0.95
F6LJXF		0.000300	-0.000030	-0.34	0.000100	-0.000066	-1.87
FXLW92		0.000406	0.000076	0.86	0.000174	0.000008	0.22
JJRL7E		0.000164	-0.000166	-1.87	0.000180	0.000014	0.39
MHL67R	X	0.000242	-0.000088	-0.99	0.000423	0.000257	7.25
MRRFR3		0.000339	0.000009	0.10	0.000181	0.000015	0.42
P4XAXC		0.000360	0.000030	0.34	0.000220	0.000054	1.52
RATXLT		0.000326	-0.000004	-0.04	0.000162	-0.000004	-0.12
UFG79K		0.000410	0.000080	0.91	0.000164	-0.000002	-0.06
UUW9Q9		0.000332	0.000002	0.02	0.000200	0.000034	0.95
VYJK2V		0.000350	0.000020	0.23	0.000175	0.000009	0.25
YP8KXX		0.000364	0.000034	0.39	0.000148	-0.000018	-0.51
Z9AWXJ		0.000320	-0.000010	-0.11	0.000166	0.000000	-0.01
ZL2NK9		0.000105	-0.000225	-2.54	0.000093	-0.000073	-2.07

Summary Statistics

	Sample W51		Sample W52	
Grand Means	0.000330	inches	0.000166	inches
Stnd Dev Btwn Labs	0.000088	inches	0.000035	inches

Samples W51, W52 : Ti 6Al-4V, Ti CP2

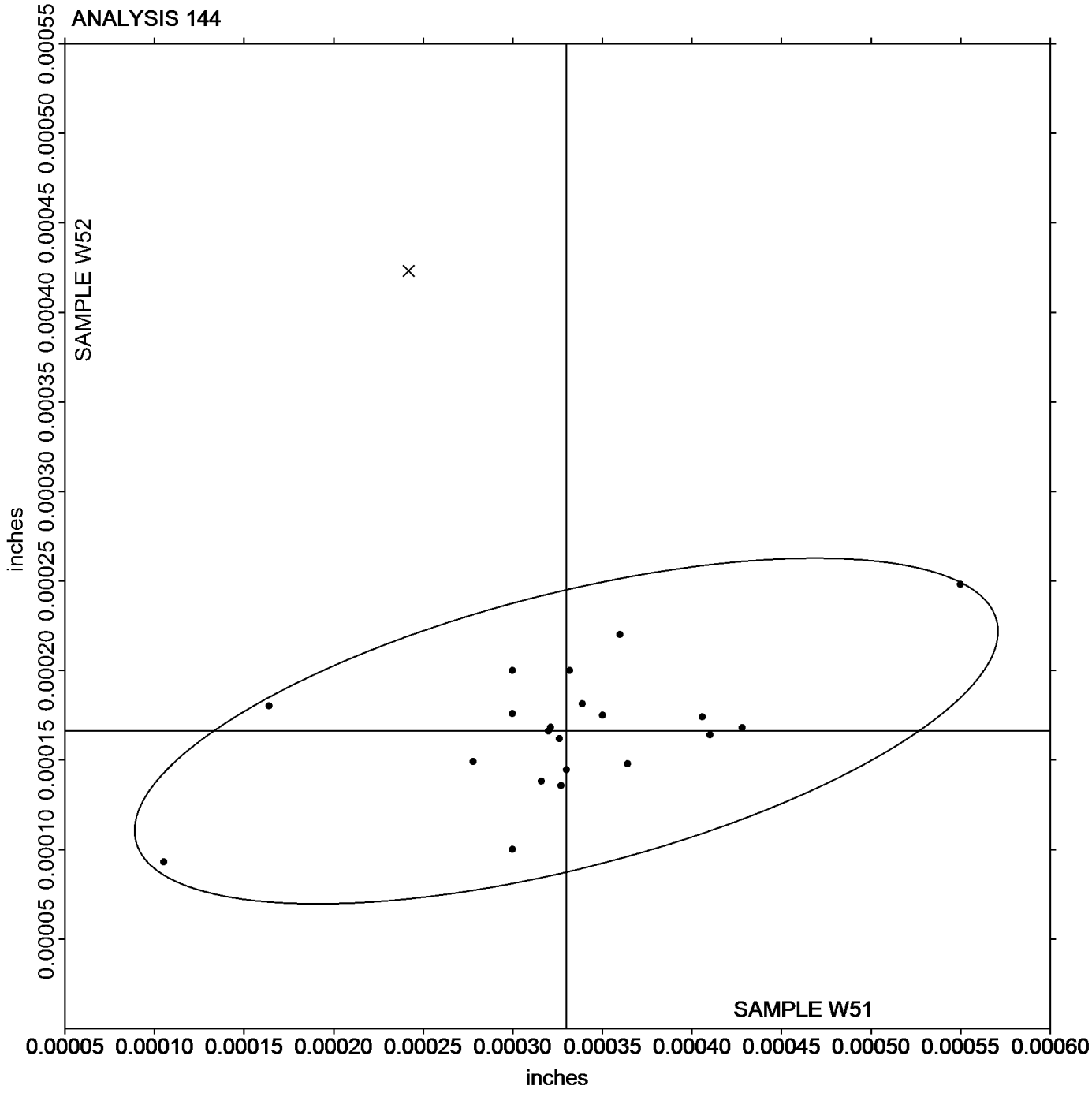
Statistics based on 21 of 22 reporting participants

Comments on Assigned Data Flags for Test #144

MHL67R (X) - Data for sample W52 are high. Inconsistent within the determinations of sample W52.

SAMPLE W51
0.00033 inches

SAMPLE W52
0.00017 inches



		Sample C51			Sample C52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2F86ZP		0.0220	-0.0046	-1.23	0.0288	-0.0037	-1.01
2GKEDW	*	0.0328	0.0062	1.65	0.0428	0.0103	2.77
3MJHEE		0.0240	-0.0026	-0.69	0.0286	-0.0040	-1.07
4894VV		0.0307	0.0041	1.09	0.0380	0.0055	1.48
6RWVHY		0.0187	-0.0079	-2.11	0.0275	-0.0051	-1.37
6TKEEQ		0.0317	0.0051	1.36	0.0357	0.0032	0.87
7JGP6R		0.0270	0.0004	0.10	0.0314	-0.0011	-0.31
8283ZJ		0.0264	-0.0002	-0.06	0.0358	0.0033	0.88
8BDY8U		0.0263	-0.0004	-0.10	0.0334	0.0009	0.23
8BEQ3G		0.0277	0.0011	0.30	0.0314	-0.0012	-0.31
8NLUAW		0.0278	0.0012	0.31	0.0338	0.0013	0.34
8TD4D4		0.0318	0.0052	1.38	0.0321	-0.0004	-0.11
8XAJZ7		0.0254	-0.0013	-0.34	0.0320	-0.0006	-0.15
8YYH6B		0.0335	0.0069	1.84	0.0375	0.0050	1.35
9LDTWD		0.0286	0.0020	0.53	0.0312	-0.0013	-0.36
AKULUT	X	0.0372	0.0106	2.82	0.0338	0.0013	0.34
AUEZPH		0.0343	0.0077	2.05	0.0386	0.0061	1.65
B2WN4K	X	0.0206	-0.0060	-1.61	0.0200	-0.0126	-3.39
DJCEGA		0.0244	-0.0022	-0.59	0.0276	-0.0049	-1.33
DPGDTZ		0.0280	0.0014	0.37	0.0310	-0.0015	-0.42
ERJLKG		0.0232	-0.0034	-0.91	0.0342	0.0017	0.45
FQVX66		0.0238	-0.0028	-0.76	0.0280	-0.0046	-1.24
G9EZME		0.0198	-0.0068	-1.81	0.0259	-0.0066	-1.79
GCE3PA		0.0262	-0.0004	-0.11	0.0356	0.0031	0.83
GFXCFL		0.0214	-0.0052	-1.39	0.0297	-0.0028	-0.77
GYRT34		0.0234	-0.0032	-0.86	0.0254	-0.0072	-1.93
HLHUB9		0.0220	-0.0047	-1.24	0.0288	-0.0038	-1.02
HPX8AB		0.0329	0.0063	1.69	0.0356	0.0031	0.83
JK79JL		0.0220	-0.0046	-1.24	0.0283	-0.0042	-1.15
JQMQV9		0.0298	0.0032	0.84	0.0369	0.0044	1.18
KERUC8		0.0313	0.0046	1.24	0.0385	0.0059	1.60
KZU39H		0.0290	0.0024	0.63	0.0340	0.0015	0.40
L23FQJ		0.0287	0.0021	0.57	0.0366	0.0041	1.10
NHYJ47		0.0247	-0.0019	-0.52	0.0308	-0.0017	-0.46
NY9JZG		0.0288	0.0022	0.57	0.0312	-0.0013	-0.36
P4XAXC	X	0.00426	-0.0224	-5.97	0.00712	-0.0254	-6.86
PYKJE3		0.0278	0.0012	0.32	0.0361	0.0036	0.96
Q8QTEZ		0.0270	0.0004	0.10	0.0330	0.0005	0.12
QWTNP9		0.0290	0.0024	0.64	0.0325	0.0000	-0.01
R9JYC7		0.0254	-0.0013	-0.34	0.0331	0.0005	0.14
RRWH8N		0.0230	-0.0036	-0.97	0.0304	-0.0021	-0.58
T6Z7WW		0.0248	-0.0018	-0.48	0.0312	-0.0014	-0.37
T7CYUK		0.0275	0.0009	0.23	0.0350	0.0025	0.67
T8NJU8		0.0222	-0.0044	-1.18	0.0318	-0.0007	-0.20
TGQ6JT		0.0236	-0.0030	-0.81	0.0294	-0.0031	-0.85
U8JMNG		0.0275	0.0009	0.24	0.0350	0.0025	0.67
UBFC33		0.0326	0.0060	1.59	0.0373	0.0048	1.30

WebCode	Data Flag	Sample C51 Lab Mean	Sample C51 Diff. from Grand Mean	Sample C51 CPV	Sample C52 Lab Mean	Sample C52 Diff. from Grand Mean	Sample C52 CPV
UKADP8		0.0280	0.0014	0.37	0.0296	-0.0029	-0.79
UP3EP2		0.0230	-0.0037	-0.98	0.0301	-0.0025	-0.67
VHVFG9		0.0301	0.0034	0.92	0.0327	0.0002	0.04
VYJK2V		0.0233	-0.0033	-0.88	0.0311	-0.0014	-0.38
WRKGJ4		0.0288	0.0022	0.58	0.0334	0.0009	0.23
YHMF94		0.0219	-0.0047	-1.26	0.0256	-0.0069	-1.88
YP8KXX		0.0247	-0.0019	-0.50	0.0341	0.0016	0.43
ZV7G62		0.0260	-0.0006	-0.17	0.0340	0.0015	0.39

Summary Statistics

	Sample C51		Sample C52	
Grand Means	0.0266	inches	0.0325	inches
Stnd Dev Btwn Labs	0.0037	inches	0.0037	inches

Samples C51, C52 : Steel, Steel

Statistics based on 52 of 55 reporting participants

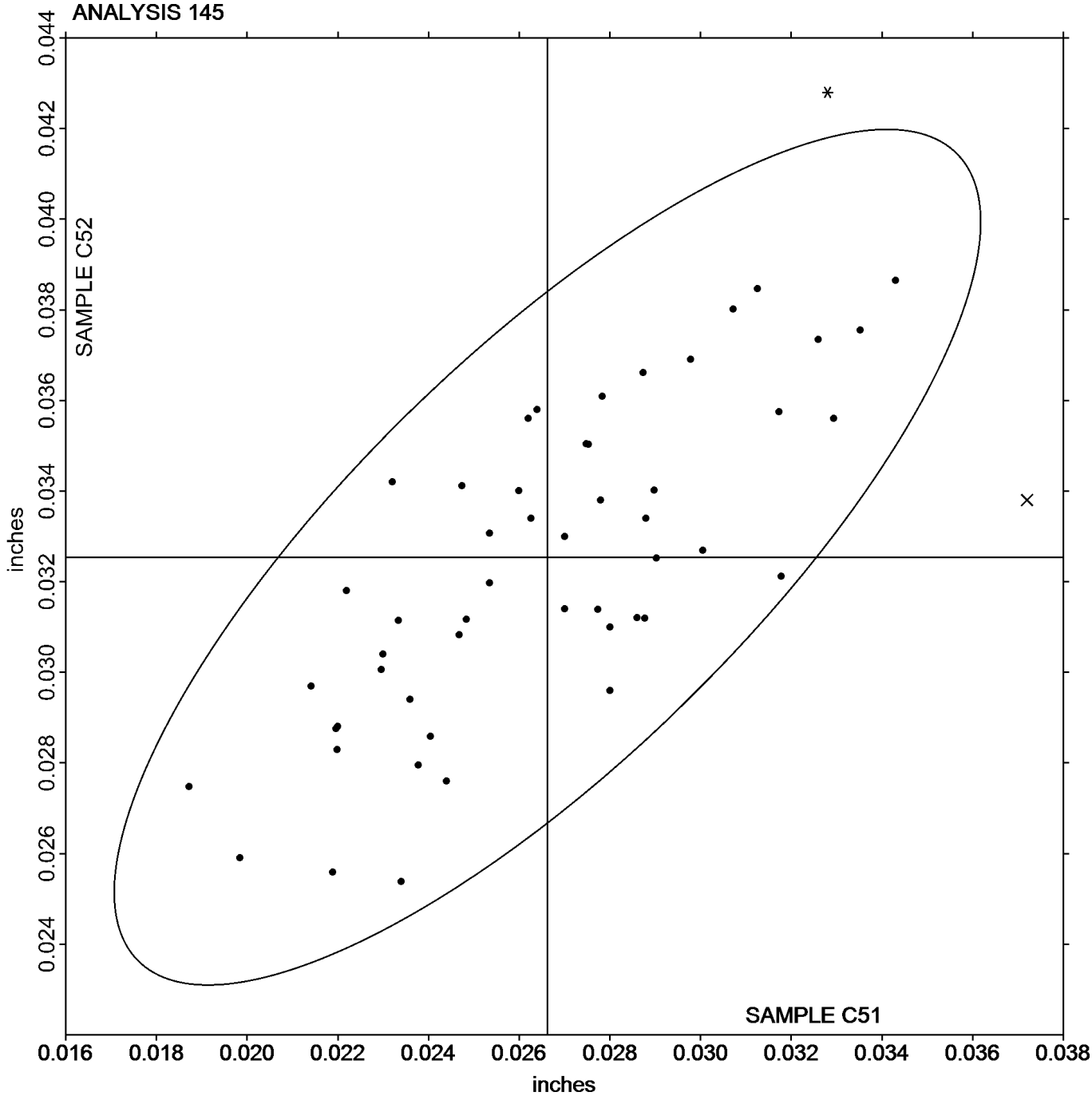
Comments on Assigned Data Flags for Test #145

AKULUT (X) - Data for sample C51 are high.

B2WN4K (X) - Data for sample C52 are low.

P4XAXC (X) - Data for both samples are low. Possible Systematic Error.

SAMPLE C51	SAMPLE C52
0.0266 inches	0.0325 inches



		Sample C51			Sample C52		
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV
2CT44X		0.0244	0.0004	0.28	0.0285	-0.0012	-0.81
2F86ZP		0.0232	-0.0008	-0.53	0.0300	0.0003	0.19
2GKEDW	X	0.0316	0.0076	5.08	0.0404	0.0107	7.14
3MJHEE		0.0230	-0.0010	-0.69	0.0273	-0.0025	-1.64
4894VV		0.0265	0.0025	1.64	0.0333	0.0035	2.36
6B46FB		0.0262	0.0022	1.49	0.0323	0.0026	1.71
6EN4PY		0.0238	-0.0002	-0.14	0.0288	-0.0009	-0.60
6LML9G		0.0216	-0.0024	-1.60	0.0280	-0.0017	-1.15
6RWVHY		0.0215	-0.0025	-1.67	0.0287	-0.0010	-0.65
6TKEEQ		0.0254	0.0014	0.91	0.0303	0.0006	0.40
8283ZJ		0.0246	0.0006	0.40	0.0284	-0.0013	-0.88
8BDY8U		0.0232	-0.0008	-0.53	0.0302	0.0005	0.32
8BEQ3G		0.0254	0.0014	0.94	0.0318	0.0021	1.39
8NLUAW		0.0248	0.0008	0.54	0.0300	0.0003	0.19
8TD4D4	X	0.0290	0.0050	3.34	0.0234	-0.0063	-4.22
8XAJZ7		0.0253	0.0013	0.86	0.0314	0.0017	1.14
8YYH6B		0.0248	0.0008	0.51	0.0290	-0.0007	-0.47
9LDTWD		0.0254	0.0014	0.94	0.0304	0.0007	0.46
9YFJEB	*	0.0210	-0.0030	-2.00	0.0294	-0.0003	-0.21
AKULUT	X	0.0294	0.0054	3.61	0.0244	-0.0053	-3.55
AUEZPH	X	0.0370	0.0130	8.69	0.0386	0.0089	5.92
B2WN4K		0.0264	0.0024	1.63	0.0306	0.0009	0.59
DPGDTZ		0.0250	0.0010	0.67	0.0296	-0.0001	-0.08
EDH2Q7	X	0.0274	0.0034	2.25	0.0255	-0.0042	-2.80
FQVX66		0.0250	0.0010	0.65	0.0300	0.0003	0.21
G9EZME		0.0229	-0.0011	-0.72	0.0265	-0.0032	-2.13
GCE3PA		0.0234	-0.0006	-0.40	0.0284	-0.0013	-0.88
GFXCFL		0.0257	0.0017	1.12	0.0304	0.0007	0.45
GYRT34	X	0.0280	0.0040	2.66	0.0368	0.0071	4.75
HLHUB9		0.0225	-0.0015	-0.99	0.0291	-0.0006	-0.41
HPX8AB		0.0244	0.0004	0.27	0.0288	-0.0009	-0.61
JJRL7E		0.0213	-0.0027	-1.80	0.0260	-0.0037	-2.48
JK79JL		0.0249	0.0009	0.63	0.0292	-0.0005	-0.33
JQMQV9		0.0243	0.0003	0.20	0.0307	0.0009	0.63
KERUC8		0.0235	-0.0005	-0.36	0.0304	0.0007	0.44
KZU39H		0.0257	0.0018	1.17	0.0302	0.0005	0.35
L23FQJ		0.0252	0.0012	0.80	0.0324	0.0026	1.76
MT8WPF		0.0249	0.0009	0.59	0.0303	0.0006	0.40
NHYJ47		0.0236	-0.0004	-0.27	0.0294	-0.0003	-0.21
NY9JZG		0.0225	-0.0015	-1.00	0.0282	-0.0015	-0.99
PYKJE3		0.0263	0.0023	1.54	0.0321	0.0023	1.56
Q8QTEZ		0.0250	0.0010	0.67	0.0320	0.0023	1.53
QWTNP9		0.0241	0.0001	0.09	0.0289	-0.0008	-0.52
R9JYC7		0.0243	0.0003	0.22	0.0311	0.0014	0.93
RRWH8N		0.0212	-0.0028	-1.87	0.0284	-0.0013	-0.88
T2VHFL		0.0250	0.0010	0.70	0.0299	0.0002	0.14
T6Z7WW		0.0230	-0.0010	-0.70	0.0301	0.0004	0.27

WebCode	Data Flag	Sample C51 Lab Mean	Sample C51 Diff. from Grand Mean	Sample C51 CPV	Sample C52 Lab Mean	Sample C52 Diff. from Grand Mean	Sample C52 CPV
T7CYUK		0.0206	-0.0034	-2.30	0.0275	-0.0022	-1.47
T8NJU8	*	0.0220	-0.0020	-1.33	0.0308	0.0011	0.72
TGQ6JT		0.0236	-0.0004	-0.27	0.0292	-0.0005	-0.35
U2DVCX		0.0242	0.0002	0.12	0.0307	0.0010	0.68
U8JMNG		0.0250	0.0010	0.70	0.0291	-0.0006	-0.39
UBFC33		0.0214	-0.0026	-1.73	0.0276	-0.0021	-1.41
UKADP8		0.0226	-0.0014	-0.93	0.0274	-0.0023	-1.55
UP3EP2		0.0222	-0.0018	-1.22	0.0293	-0.0004	-0.30
VHVFG9		0.0241	0.0001	0.04	0.0290	-0.0007	-0.47
VYJK2V		0.0241	0.0001	0.04	0.0316	0.0018	1.23
WRKGJ4		0.0254	0.0014	0.94	0.0306	0.0009	0.59
WWUT74		0.0243	0.0003	0.17	0.0294	-0.0003	-0.23
YHMF94		0.0241	0.0001	0.06	0.0300	0.0003	0.22
YP8KXX	X	0.0222	-0.0018	-1.20	0.0232	-0.0065	-4.35
Z6U8UA		0.0263	0.0023	1.54	0.0323	0.0026	1.71
Z7KQF8		0.0240	0.0000	0.01	0.0304	0.0007	0.49
ZNKL9Y		0.0245	0.0005	0.33	0.0289	-0.0008	-0.55
ZV7G62		0.0235	-0.0005	-0.36	0.0291	-0.0006	-0.41

Summary Statistics

	Sample C51		Sample C52	
Grand Means	0.0240	inches	0.0297	inches
Stnd Dev Btwn Labs	0.0015	inches	0.0015	inches

Samples C51, C52 : Steel, Steel

Statistics based on 58 of 65 reporting participants

Comments on Assigned Data Flags for Test #146

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

8TD4D4 (X) - Data for sample C51 are high and data for sample C52 are low.

AKULUT (X) - Data for sample C51 are high and data for sample C52 are low.

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

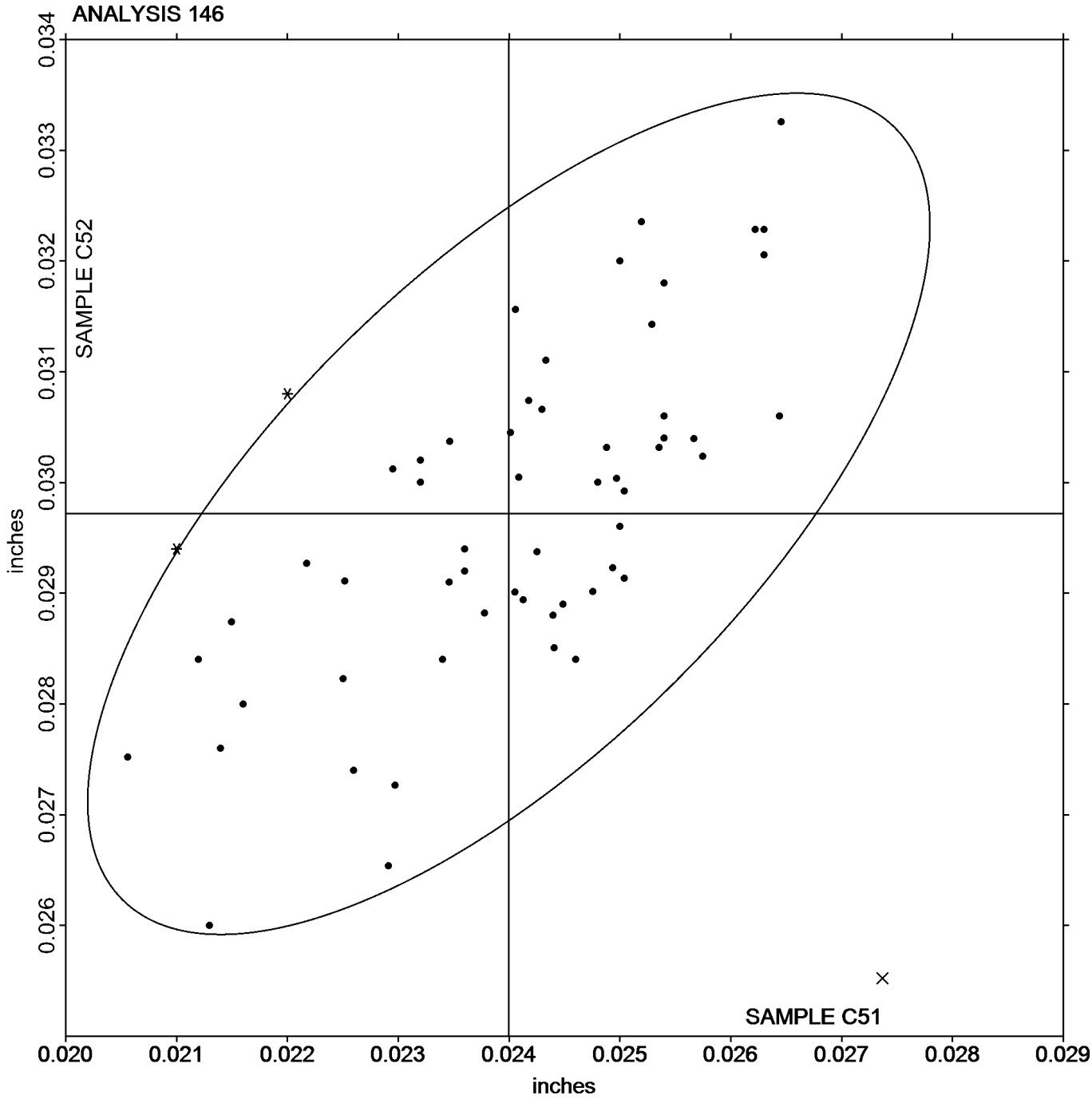
EDH2Q7 (X) - Data for sample C52 are low. Inconsistent within the determinations of both samples.

GYRT34 (X) - Data for sample C52 are high.

YP8KXX (X) - Data for sample C52 are low.

SAMPLE C51
0.0240 inches

SAMPLE C52
0.0297 inches



Fasteners and Metals Interlaboratory Testing Program

Analysis 147

Grain Size (Stainless Steel)
ASTM E112, ASTM E1382

Cycle 122
2nd Qtr
2018

Both the Y51 and Y52 samples exhibited higher variation in grain size than historically seen in this analysis. CTS instructed participants to limit their reporting to the core of the samples which tended to display a more uniform microstructure. This, along with the five replicates used in each sample's analysis, helped to mitigate the effect of the higher variation. As a result, the variation of the laboratory means does not differ significantly from previous cycles.
If you have any questions, please contact CTS.

		Sample Y51			Sample Y52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2DZNPD		5.00	-1.73	-1.65	7.00	-0.33	-0.34	Comparison Method
2F86ZP		6.50	-0.23	-0.22	6.60	-0.73	-0.75	Comparison Method
2ZDE6T		5.20	-1.53	-1.46	7.20	-0.13	-0.14	Comparison Method
4JZKQN		3.90	-2.83	-2.69	6.10	-1.23	-1.26	Comparison Method
6LML9G	M	No Data Reported			7.60	0.27	0.27	Comparison Method
6RWVHY		7.80	1.07	1.02	8.70	1.37	1.39	Comparison Method
7CRZFN		7.00	0.27	0.26	8.00	0.67	0.68	Comparison Method
833UXB		7.40	0.67	0.64	8.22	0.88	0.90	Automatic Image Analysis
8BEQ3G		7.20	0.47	0.45	7.60	0.27	0.27	Comparison Method
8TD4D4		7.00	0.27	0.26	7.60	0.27	0.27	Comparison Method
8XAJZ7		5.80	-0.93	-0.88	5.00	-2.33	-2.38	Comparison Method
9YFL2U		7.50	0.77	0.73	7.78	0.45	0.45	Automatic Image Analysis
AUEZPH		7.60	0.87	0.83	8.50	1.17	1.19	General Intercept
AX4GED		5.50	-1.23	-1.17	7.00	-0.33	-0.34	Comparison Method
BT2MM8		6.40	-0.33	-0.31	7.80	0.47	0.47	Comparison Method
BXXAHF		7.00	0.27	0.26	7.39	0.05	0.05	General Intercept
CQQ6WA		6.70	-0.03	-0.03	7.70	0.37	0.37	Comparison Method
CT2ZPT		5.20	-1.53	-1.46	5.60	-1.73	-1.77	Comparison Method
DPGA2A		6.56	-0.17	-0.16	7.56	0.23	0.23	Abrams Three-Circle
EGYA8J		7.40	0.67	0.64	7.50	0.17	0.17	Comparison Method
ERF4E6		8.30	1.57	1.50	8.80	1.47	1.49	Automatic Image Analysis
FGYG66		6.60	-0.13	-0.12	7.80	0.47	0.47	Comparison Method
FRRCRX		7.60	0.87	0.83	7.90	0.57	0.58	N/A
HUBWZY		7.30	0.57	0.54	5.60	-1.73	-1.77	Comparison Method
JQMQV9		6.40	-0.33	-0.31	7.84	0.51	0.51	Abrams Three-Circle
NCRRJU		7.20	0.47	0.45	6.50	-0.83	-0.85	General Intercept
P4XAXC		7.40	0.67	0.64	7.70	0.37	0.37	Comparison Method
P8DPJW		8.50	1.77	1.69	8.50	1.16	1.18	Automatic Image Analysis
PHFX8A		7.74	1.01	0.96	7.80	0.47	0.47	General Intercept
PR6NRG		6.40	-0.33	-0.31	6.50	-0.83	-0.85	Comparison Method
QFKY92		7.08	0.35	0.34	7.60	0.27	0.27	N/A
RPP9C7	M	6.84	0.11	0.11	No Data Reported			Abrams Three-Circle
T8NJU8		5.90	-0.83	-0.79	7.30	-0.03	-0.04	Comparison Method
T9YKL8		6.80	0.07	0.07	7.40	0.07	0.07	Comparison Method
TBJG3K		7.37	0.64	0.61	7.80	0.46	0.47	Abrams Three-Circle
U8JMNG		7.20	0.47	0.45	7.90	0.57	0.58	Comparison Method
UBFC33		7.00	0.27	0.26	7.00	-0.33	-0.34	Comparison Method
UQAZVD		4.20	-2.53	-2.41	5.60	-1.73	-1.77	Comparison Method
VGLB76		7.80	1.07	1.02	9.10	1.77	1.80	Comparison Method
VYJK2V		4.50	-2.23	-2.12	5.00	-2.33	-2.38	Comparison Method
W2LXZ9		7.20	0.47	0.45	7.60	0.27	0.27	Comparison Method

Fasteners and Metals Interlaboratory Testing Program

Analysis 147

Grain Size (Stainless Steel)
ASTM E112, ASTM E1382

Cycle 122
2nd Qtr
2018

Both the Y51 and Y52 samples exhibited higher variation in grain size than historically seen in this analysis. CTS instructed participants to limit their reporting to the core of the samples which tended to display a more uniform microstructure. This, along with the five replicates used in each sample's analysis, helped to mitigate the effect of the higher variation. As a result, the variation of the laboratory means does not differ significantly from previous cycles.
If you have any questions, please contact CTS.

		Sample Y51			Sample Y52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
XZ73T7		7.62	0.89	0.85	7.68	0.35	0.35	Heyn Linear Intercept
YP8KXX		6.90	0.17	0.16	7.90	0.57	0.58	Comparison Method
Z9AWXJ		6.30	-0.43	-0.41	5.80	-1.53	-1.56	Comparison Method
ZL2NK9		7.34	0.62	0.59	7.92	0.59	0.60	Abrams Three-Circle

Summary Statistics

	Sample Y51		Sample Y52	
Grand Means	6.73	ASTM Grain Size	7.33	ASTM Grain Size
Stnd Dev Btwn Labs	1.05	ASTM Grain Size	0.98	ASTM Grain Size

Samples Y51, Y52 : AISI 304L, AISI 316L

Statistics based on 43 of 45 reporting participants

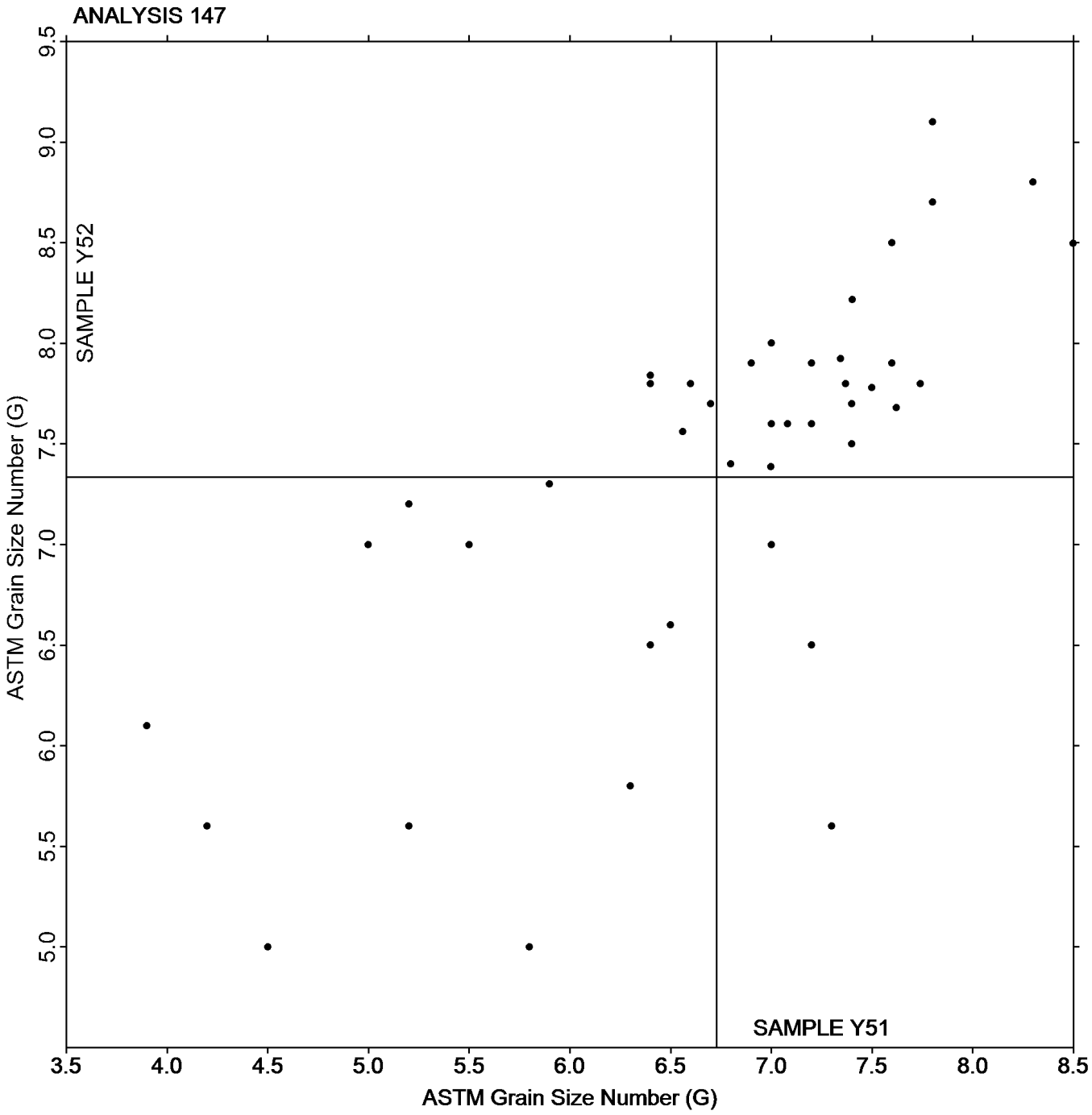
Comments on Assigned Data Flags for Test #147

6LML9G (M) - Participant did not submit data for sample Y51.

RPP9C7 (M) - Participant did not submit data for sample Y52.

SAMPLE Y51
6.73 ASTM Grain Size Number (G)

SAMPLE Y52
7.33 ASTM Grain Size Number (G)



WebCode	Data Flag	Sample K51 Lab Mean	Sample K51 Diff. from Grand Mean	Sample K51 CPV	Sample K52 Lab Mean	Sample K52 Diff. from Grand Mean	Sample K52 CPV
4FXVYF		0.000226	-0.000045	-0.34	0.000796	0.000279	1.55
6YPAYQ		0.000220	-0.000051	-0.38	0.000280	-0.000237	-1.32
FXLW92		0.000200	-0.000071	-0.53	0.000500	-0.000017	-0.09
JJRL7E		0.000532	0.000261	1.96	0.000552	0.000035	0.19
UFG79K		0.000280	0.000009	0.07	0.000378	-0.000139	-0.77
UUW9Q9		0.000168	-0.000103	-0.77	0.000596	0.000079	0.44

Summary Statistics

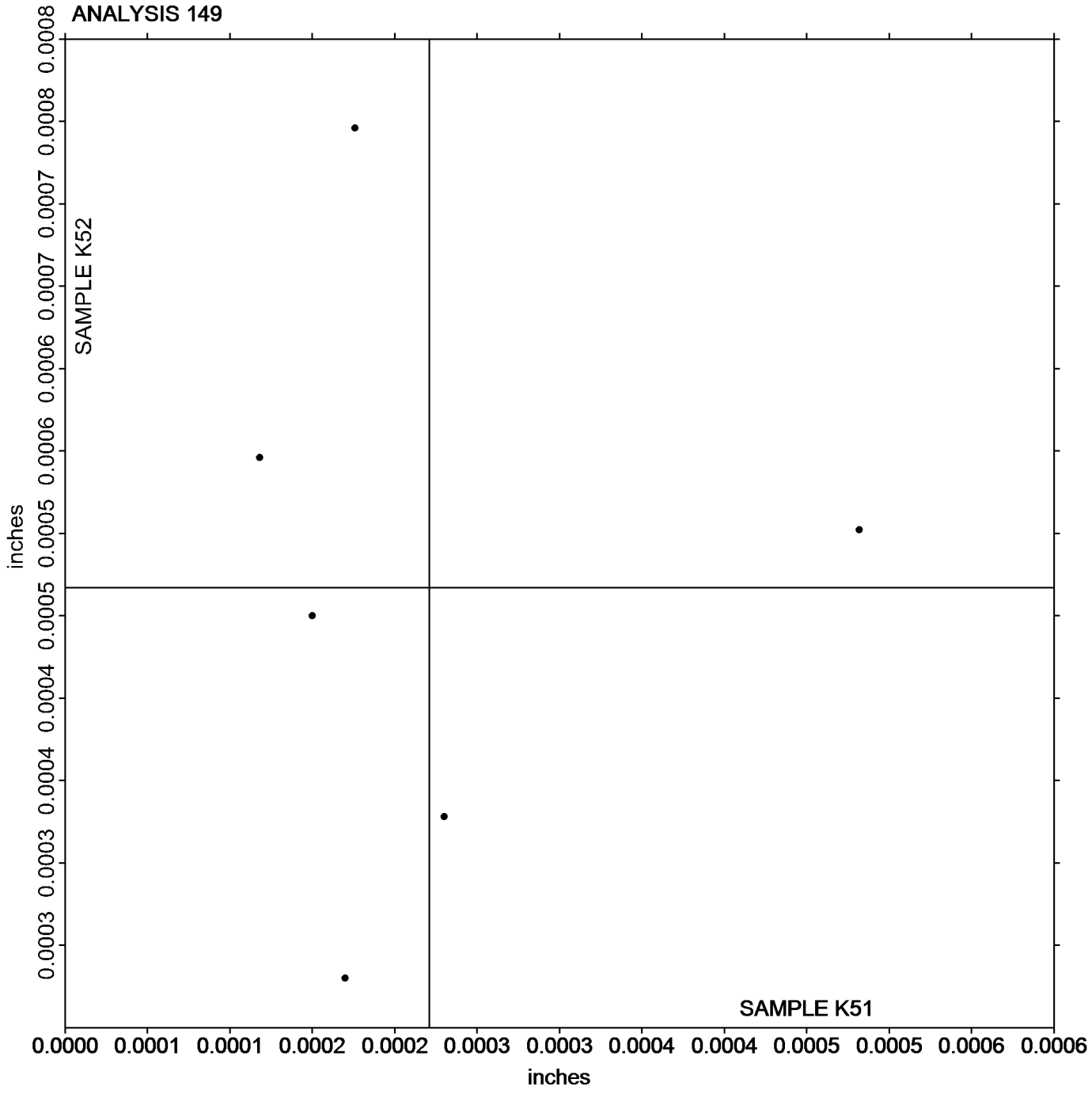
	Sample K51		Sample K52	
Grand Means	0.000271	inches	0.000517	inches
Stnd Dev Btwn Labs	0.000133	inches	0.000179	inches

Samples K51, K52 : Inco 718, Waspaloy

Statistics based on 6 of 6 reporting participants

SAMPLE K51
0.00027 inches

SAMPLE K52
0.00052 inches



Fasteners and Metals Interlaboratory Testing Program

Analysis 150

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

Cycle 122
2nd Qtr 2018

		Sample J51			Sample J52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2F86ZP		15.40	-0.09	-0.51	15.56	-0.22	-1.03	DR
3MJHEE		15.55	0.06	0.30	15.86	0.08	0.38	VO
6LML9G		15.43	-0.06	-0.33	15.76	-0.02	-0.09	OE
7D8FUP		15.53	0.04	0.21	15.83	0.06	0.27	OE
99M283	X	14.82	-0.68	-3.62	15.28	-0.50	-2.35	OE
ACAWPU		15.63	0.13	0.71	15.87	0.09	0.45	OE
AUEZPH	X	17.33	1.84	9.81	17.67	1.90	9.01	WD
C7KYM3		15.47	-0.02	-0.13	15.50	-0.28	-1.31	IC
DHYYRF		15.40	-0.10	-0.52	15.76	-0.02	-0.09	XR
DPGDTZ		15.50	0.01	0.05	15.82	0.04	0.21	OE
DTZ9PQ		15.47	-0.02	-0.13	15.65	-0.12	-0.58	OE
E2MMVF		15.57	0.07	0.39	15.81	0.03	0.16	IC
EUPXA6		15.53	0.04	0.19	15.75	-0.03	-0.13	IC
EXAT6B	X	16.78	1.29	6.87	17.17	1.40	6.63	OE
G397TJ		15.45	-0.04	-0.24	15.67	-0.10	-0.49	XX
GDV97C		15.48	-0.01	-0.08	15.87	0.09	0.43	OE
GT6ZVB		15.17	-0.32	-1.73	15.44	-0.34	-1.59	OE
GZ82GX		15.62	0.12	0.65	15.96	0.18	0.87	WD
K4BE3D		15.49	0.00	-0.02	15.82	0.05	0.22	WD
KERUC8	*	16.11	0.62	3.29	16.41	0.63	2.99	OE
LE7CEY		15.62	0.13	0.69	15.75	-0.02	-0.10	DR
N8G8L2		15.24	-0.25	-1.35	15.38	-0.40	-1.90	OE
NHYJ47		15.65	0.16	0.83	15.84	0.06	0.29	OE
PUEWTE		15.33	-0.16	-0.88	15.66	-0.12	-0.55	ED
QFKY92	X	13.31	-2.19	-11.68	13.43	-2.34	-11.12	WD
RMHXCV		15.73	0.24	1.27	16.00	0.22	1.05	OE
RUXQ8R		15.40	-0.09	-0.49	15.72	-0.06	-0.27	IC
T2VHFL		15.19	-0.31	-1.64	15.54	-0.24	-1.12	OE
T8NJU8		15.65	0.15	0.82	15.95	0.18	0.84	WD
T9YKL8		15.48	-0.01	-0.08	15.82	0.04	0.19	OE
TJVTWX		15.10	-0.40	-2.13	15.32	-0.45	-2.15	OE
TLNL89		15.40	-0.09	-0.50	15.87	0.09	0.43	GD
TPPHQN		15.54	0.04	0.23	15.85	0.08	0.36	XR
UQEQEC	X	14.64	-0.85	-4.56	14.59	-1.18	-5.62	OE
UTHH7Q		15.50	0.01	0.03	15.84	0.07	0.32	WD
UTJWQH		15.35	-0.15	-0.79	15.70	-0.08	-0.38	OE
VGLB76		15.68	0.18	0.97	16.14	0.36	1.71	GD
XRUN76		15.66	0.17	0.90	15.90	0.12	0.58	OE

Summary Statistics

	Sample J51		Sample J52	
Grand Means	15.49	Percent	15.78	Percent
Stnd Dev Btwn Labs	0.19	Percent	0.21	Percent

Samples J51, J52 : Alloy 600, Alloy 600

Statistics based on 33 of 38 reporting participants

Key to Method Codes Reported by Participants

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

Comments on Assigned Data Flags for Test #150

99M283 (X) - Data for sample J51 are low.

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

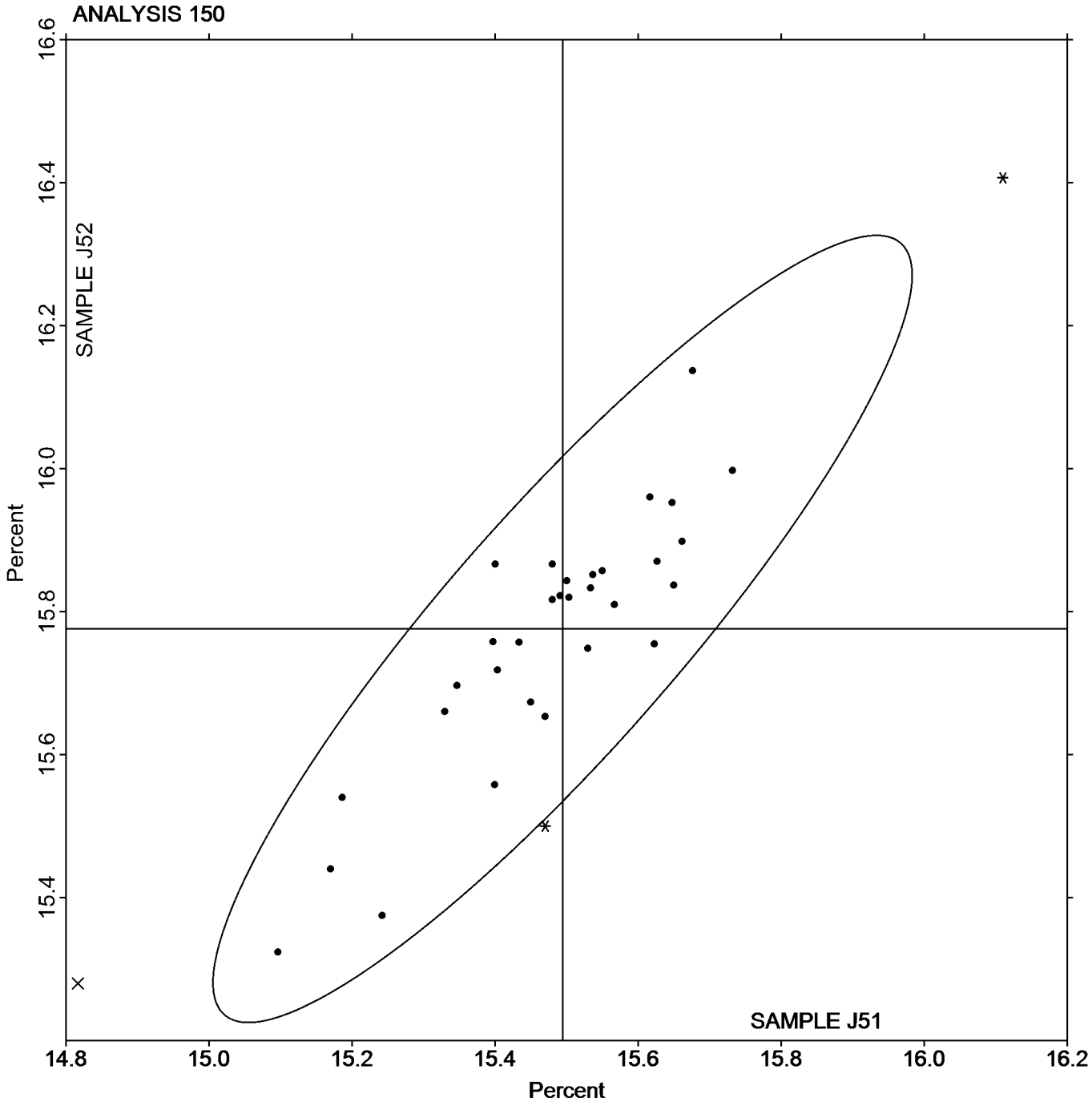
EXAT6B (X) - Data for both samples are high. Possible Systematic Error.

QFKY92 (X) - Data for both samples are low. Possible Systematic Error.

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

SAMPLE J51
15.49 Percent

SAMPLE J52
15.78 Percent



Fasteners and Metals Interlaboratory Testing Program

Analysis 151

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

Cycle 122
2nd Qtr
2018

		Sample J51			Sample J52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2F86ZP		0.2437	-0.0035	-0.16	0.2300	-0.0065	-0.30	DR
3MJHEE		0.2390	-0.0082	-0.37	0.2280	-0.0085	-0.39	IC
6LML9G		0.2380	-0.0092	-0.42	0.2273	-0.0092	-0.42	OE
6YPAYQ		0.2443	-0.0028	-0.13	0.2348	-0.0017	-0.08	IC
7D8FUP		0.2400	-0.0072	-0.33	0.2300	-0.0065	-0.30	OE
99M283	X	0.2283	-0.0188	-0.86	0.2067	-0.0298	-1.38	OE
ACAWPU		0.2450	-0.0022	-0.10	0.2340	-0.0025	-0.12	OE
AUEZPH		0.2713	0.0242	1.10	0.2593	0.0228	1.05	WD
C7KYM3		0.2390	-0.0082	-0.37	0.2273	-0.0092	-0.42	IC
DHYYRF		0.2353	-0.0118	-0.54	0.2260	-0.0105	-0.48	XR
DPGDTZ		0.2390	-0.0082	-0.37	0.2280	-0.0085	-0.39	OE
DTZ9PQ		0.2473	0.0002	0.01	0.2350	-0.0015	-0.07	OE
E2MMVF		0.2487	0.0015	0.07	0.2383	0.0018	0.08	IC
EUPXA6	*	0.2423	-0.0048	-0.22	0.2418	0.0053	0.24	IC
EXAT6B		0.2247	-0.0225	-1.03	0.2170	-0.0195	-0.90	OE
G397TJ		0.2400	-0.0072	-0.33	0.2290	-0.0075	-0.35	XX
GDV97C		0.2453	-0.0018	-0.08	0.2357	-0.0008	-0.04	OE
GT6ZVB	*	0.3057	0.0585	2.67	0.2957	0.0592	2.73	OE
GZ82GX		0.2407	-0.0065	-0.30	0.2303	-0.0062	-0.28	WD
K4BE3D		0.2380	-0.0092	-0.42	0.2273	-0.0092	-0.42	WD
KERUC8		0.1977	-0.0495	-2.26	0.1883	-0.0482	-2.22	OE
LE7CEY		0.2553	0.0082	0.37	0.2473	0.0108	0.50	DR
N8G8L2	*	0.3065	0.0593	2.71	0.2948	0.0583	2.69	OE
NHYJ47		0.2533	0.0062	0.28	0.2427	0.0062	0.28	OE
QFKY92		0.2450	-0.0022	-0.10	0.2340	-0.0025	-0.12	WD
RMHXCV		0.2477	0.0005	0.02	0.2347	-0.0018	-0.08	OE
RUXQ8R		0.2400	-0.0071	-0.33	0.2314	-0.0051	-0.24	IC
T2VHFL		0.2370	-0.0102	-0.46	0.2267	-0.0098	-0.45	OE
T8NJU8		0.2450	-0.0022	-0.10	0.2340	-0.0025	-0.12	WD
T9YKL8		0.2300	-0.0172	-0.78	0.2200	-0.0165	-0.76	OE
TJVTWX	*	0.3063	0.0592	2.70	0.2947	0.0582	2.68	XX
TLNL89	X	0.2400	-0.0072	-0.33	0.2380	0.0015	0.07	GD
TPPHQN		0.2393	-0.0079	-0.36	0.2282	-0.0083	-0.38	XR
UQEQEC	X	0.1950	-0.0522	-2.38	0.2003	-0.0362	-1.67	OE
UTHH7Q		0.2400	-0.0072	-0.33	0.2267	-0.0098	-0.45	WD
UTJWQH		0.2317	-0.0155	-0.71	0.2197	-0.0168	-0.78	OE
VGLB76		0.2420	-0.0052	-0.24	0.2317	-0.0048	-0.22	GD
XRUN76		0.2613	0.0142	0.65	0.2533	0.0168	0.78	OE

Summary Statistics

	Sample J51		Sample J52	
Grand Means	0.2472	Percent	0.2365	Percent
Stnd Dev Btwn Labs	0.0219	Percent	0.0217	Percent

Samples J51, J52 : Alloy 600, Alloy 600

Statistics based on 34 of 38 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 #151

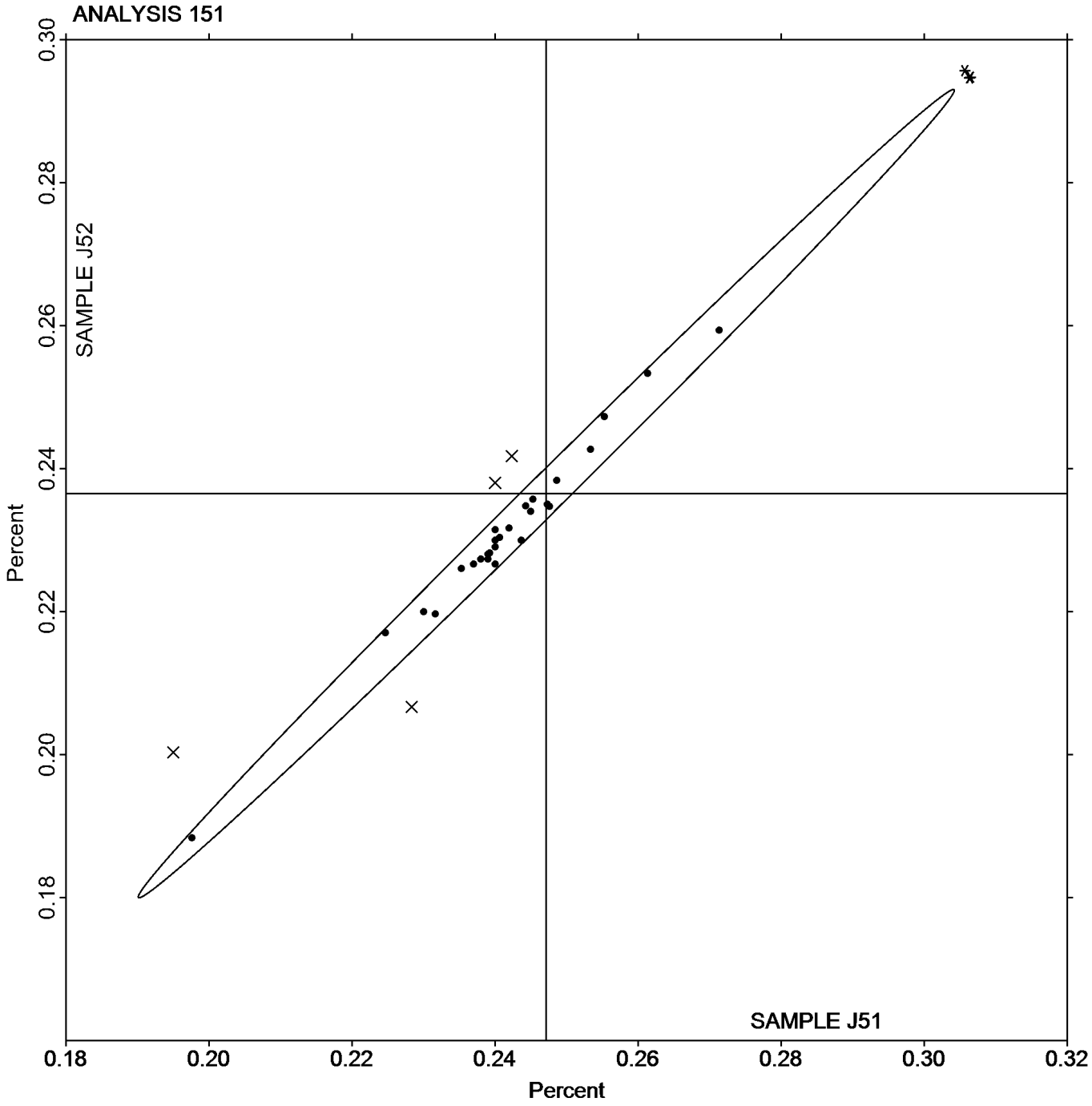
99M283 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

TLNL89 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

UQEQEC (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample J52.

SAMPLE J51
0.2472 Percent

SAMPLE J52
0.2365 Percent



Fasteners and Metals Interlaboratory Testing Program

Analysis 152

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

Cycle 122
2nd Qtr
2018

		Sample J51			Sample J52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2F86ZP		8.461	0.046	0.29	9.326	0.018	0.10	DR
6LML9G		8.286	-0.129	-0.82	9.033	-0.276	-1.56	OE
7D8FUP		8.500	0.084	0.54	9.300	-0.008	-0.05	OE
99M283	X	9.077	0.661	4.19	10.10	0.795	4.50	OE
ACAWPU		8.447	0.031	0.20	9.370	0.062	0.35	OE
AUEZPH	X	8.069	-0.347	-2.20	7.500	-1.808	-10.25	WD
C7KYM3		8.458	0.042	0.27	9.219	-0.089	-0.51	IC
DHYYRF		8.438	0.022	0.14	9.267	-0.041	-0.23	XR
DPGDTZ		8.357	-0.058	-0.37	9.341	0.033	0.19	OE
DTZ9PQ		8.522	0.107	0.68	9.373	0.065	0.37	OE
E2MMVF		8.492	0.076	0.48	9.401	0.093	0.53	IC
EUPXA6		8.464	0.049	0.31	9.478	0.170	0.96	IC
EXAT6B		8.469	0.054	0.34	9.367	0.059	0.33	OE
G397TJ		8.397	-0.019	-0.12	9.313	0.005	0.03	XX
GDV97C		8.470	0.054	0.34	9.367	0.058	0.33	OE
GT6ZVB		8.003	-0.412	-2.62	8.883	-0.425	-2.41	OE
GZ82GX		8.438	0.022	0.14	9.382	0.074	0.42	WD
K4BE3D		8.432	0.016	0.10	9.355	0.047	0.26	WD
KERUC8		8.293	-0.122	-0.78	9.120	-0.188	-1.07	OE
LE7CEY		8.503	0.087	0.55	9.502	0.194	1.10	DR
N8G8L2		8.006	-0.410	-2.60	8.907	-0.401	-2.27	OE
NHYJ47		8.483	0.068	0.43	9.390	0.082	0.46	OE
PUEWTE		8.390	-0.025	-0.16	9.295	-0.014	-0.08	ED
QFKY92	X	12.91	4.489	28.49	13.76	4.456	25.25	WD
RMHXCV		8.529	0.113	0.72	9.301	-0.007	-0.04	OE
RUXQ8R		8.342	-0.073	-0.46	9.282	-0.027	-0.15	IC
T2VHFL	X	7.041	-1.374	-8.72	7.571	-1.737	-9.85	OE
T8NJU8		8.637	0.222	1.41	9.563	0.254	1.44	WD
T9YKL8		8.653	0.238	1.51	9.620	0.312	1.77	OE
TJVTWX		8.013	-0.402	-2.55	8.917	-0.392	-2.22	XX
TLNL89	X	8.673	0.258	1.64	10.10	0.795	4.50	GD
TPPHQN		8.447	0.032	0.20	9.380	0.072	0.41	XR
UQEQEC	X	8.960	0.544	3.45	8.039	-1.270	-7.20	OE
UTHH7Q		8.483	0.068	0.43	9.420	0.112	0.63	WD
UTJWQH		8.420	0.004	0.03	9.343	0.035	0.20	OE
VGLB76		8.473	0.058	0.37	9.267	-0.042	-0.24	GD
XRUN76		8.575	0.160	1.01	9.479	0.170	0.96	OE

Summary Statistics

	Sample J51		Sample J52	
Grand Means	8.416	Percent	9.308	Percent
Stnd Dev Btwn Labs	0.158	Percent	0.176	Percent

Samples J51, J52 : Alloy 600, Alloy 600

Statistics based on 31 of 37 reporting participants

Key to Method Codes Reported by Participants

DR	Spectrometry - Direct Reading OE (DROES)	ED	X-Ray Fluorescence - Energy Dispersive (EDX)
GD	Spectrometry - Glow Discharge (GDS)	IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)	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 #152

99M283 (X) - Data for both samples are high. Possible Systematic Error.

AUEZPH (X) - Data for sample J52 are low.

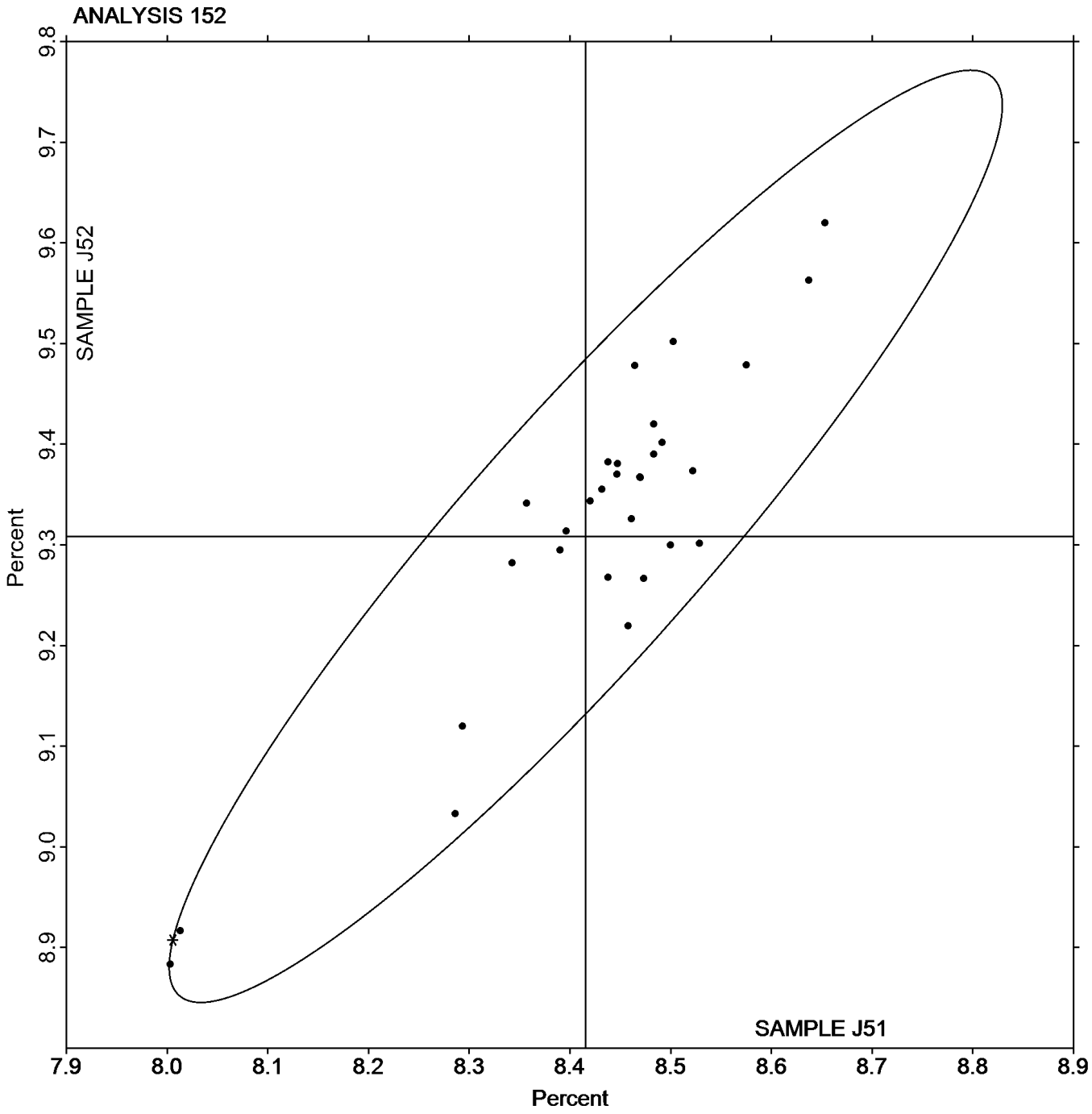
QFKY92 (X) - Data for both samples are extremely high. Possible Systematic Error.

T2VHFL (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample J51.

TLNL89 (X) - Data for sample J52 are high. Inconsistent within the determinations of sample J52.

UQEQEC (X) - Data for sample J51 are high and data for sample J52 are low. Inconsistent in testing between samples. Inconsistent within the determinations of sample J52.

SAMPLE J51	SAMPLE J52
8.416 Percent	9.308 Percent



		Sample J51			Sample J52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
3MJHEE		0.0700	-0.0065	-0.83	0.1500	-0.0223	-1.80	IC
6LML9G		0.0833	0.0068	0.86	0.1760	0.0037	0.30	OE
6YPAYQ		0.0758	-0.0007	-0.09	0.1807	0.0084	0.68	IC
7D8FUP		0.0600	-0.0165	-2.09	0.1667	-0.0056	-0.45	OE
99M283		0.0753	-0.0012	-0.15	0.1677	-0.0046	-0.37	OE
ACAWPU	M	0.0820	0.0055	0.69	No Data Reported			OE
AUEZPH	X	0.1490	0.0725	9.14	0.0717	-0.1006	-8.10	WD
C7KYM3		0.0713	-0.0052	-0.66	0.1650	-0.0073	-0.59	IC
DPGDTZ		0.0790	0.0025	0.31	0.1733	0.0010	0.08	OE
DTZ9PQ		0.0760	-0.0005	-0.07	0.1713	-0.0010	-0.08	OE
E2MMVF		0.0900	0.0135	1.70	0.1853	0.0130	1.05	IC
EUPXA6		0.0765	-0.0001	-0.01	0.1769	0.0046	0.37	IC
EXAT6B	X	0.0370	-0.0395	-4.99	0.0800	-0.0923	-7.43	OE
GDV97C		0.0793	0.0028	0.35	0.1677	-0.0046	-0.37	OE
GT6ZVB		0.0757	-0.0008	-0.10	0.1733	0.0010	0.08	OE
GZ82GX		0.0637	-0.0129	-1.62	0.1660	-0.0063	-0.51	WD
K4BE3D		0.0700	-0.0065	-0.83	0.1703	-0.0020	-0.16	WD
KERUC8	X	0.1137	0.0371	4.68	0.1920	0.0197	1.59	OE
LE7CEY		0.0860	0.0095	1.20	0.1932	0.0209	1.69	DR
N8G8L2		0.0765	-0.0001	-0.01	0.1733	0.0010	0.08	OE
NHYJ47		0.0913	0.0148	1.87	0.1893	0.0170	1.37	OE
QFKY92		0.0727	-0.0039	-0.49	0.1723	0.0000	0.00	WD
RMHXCV		0.0810	0.0045	0.56	0.1907	0.0184	1.48	OE
T2VHFL		0.0760	-0.0005	-0.07	0.1627	-0.0096	-0.78	OE
T8NJU8		0.0723	-0.0042	-0.53	0.1543	-0.0180	-1.45	WD
T9YKL8	X	0.0340	-0.0425	-5.37	0.0660	-0.1063	-8.56	OE
TJVTWX		0.0762	-0.0003	-0.04	0.1736	0.0013	0.11	XX
TPPHQN		0.0735	-0.0031	-0.39	0.1693	-0.0030	-0.24	XR
UQEQEC	X	0.1463	0.0698	8.81	0.0637	-0.1086	-8.75	OE
UTHH7Q		0.0700	-0.0065	-0.83	0.1700	-0.0023	-0.19	WD
UTJWQH		0.0679	-0.0087	-1.09	0.1487	-0.0236	-1.90	OE
VGLB76		0.0833	0.0068	0.86	0.2023	0.0300	2.42	GD
XRUN76		0.0939	0.0174	2.19	0.1620	-0.0103	-0.83	OE

Summary Statistics

	Sample J51		Sample J52	
Grand Means	0.0765	Percent	0.1723	Percent
Stnd Dev Btwn Labs	0.0079	Percent	0.0124	Percent

Samples J51, J52 : Alloy 600, Alloy 600

Statistics based on 27 of 33 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 #153

ACAWPU (M) - Participant did not submit data for sample J52.

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

EXAT6B (X) - Data for both samples are low.

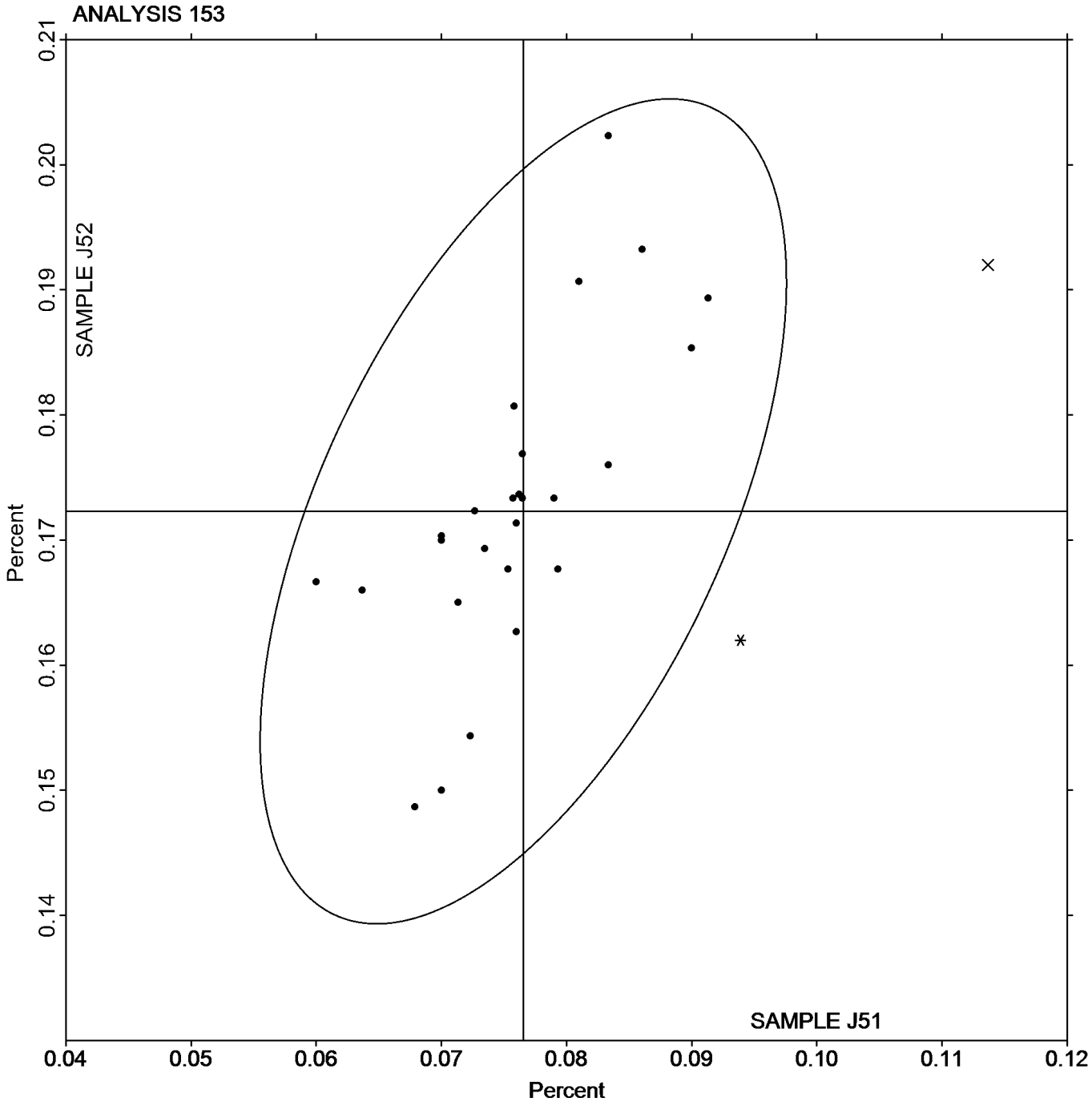
KERUC8 (X) - Data for sample J51 are high.

T9YKL8 (X) - Data for both samples are low.

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

SAMPLE J51
0.0765 Percent

SAMPLE J52
0.1723 Percent



		Sample J51			Sample J52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2F86ZP		0.1766	0.0141	0.52	0.2067	0.0217	0.79	DR
3MJHEE		0.1543	-0.0082	-0.31	0.1720	-0.0130	-0.47	IC
6LML9G		0.1687	0.0061	0.23	0.1910	0.0060	0.22	OE
6YPAYQ		0.1598	-0.0027	-0.10	0.1824	-0.0026	-0.09	IC
7D8FUP		0.1800	0.0175	0.65	0.2000	0.0150	0.55	OE
99M283		0.1473	-0.0152	-0.57	0.1633	-0.0217	-0.79	OE
ACAWPU		0.1770	0.0145	0.54	0.2030	0.0180	0.66	OE
AUEZPH	*	0.1780	0.0155	0.58	0.1533	-0.0317	-1.16	WD
C7KYM3		0.1687	0.0061	0.23	0.1907	0.0057	0.21	IC
DHYYRF		0.1597	-0.0029	-0.11	0.1807	-0.0043	-0.16	OE
DPGDTZ		0.1727	0.0101	0.38	0.1943	0.0093	0.34	OE
DTZ9PQ		0.1733	0.0108	0.40	0.1967	0.0117	0.43	OE
E2MMVF		0.1837	0.0211	0.79	0.2073	0.0223	0.82	IC
EUPXA6		0.1683	0.0058	0.21	0.1896	0.0046	0.17	IC
EXAT6B	*	0.0790	-0.0835	-3.12	0.1043	-0.0807	-2.95	OE
GDV97C		0.1717	0.0091	0.34	0.1933	0.0083	0.30	OE
GT6ZVB		0.1360	-0.0265	-0.99	0.1563	-0.0287	-1.05	OE
GZ82GX		0.1693	0.0068	0.25	0.1953	0.0103	0.38	WD
K4BE3D		0.2337	0.0711	2.65	0.2537	0.0687	2.51	WD
KERUC8		0.1583	-0.0042	-0.16	0.1783	-0.0067	-0.24	OE
LE7CEY		0.1842	0.0216	0.81	0.2076	0.0226	0.83	DR
N8G8L2		0.1354	-0.0271	-1.01	0.1570	-0.0280	-1.02	OE
NHYJ47		0.1817	0.0191	0.71	0.2047	0.0197	0.72	OE
RMHXCV		0.1620	-0.0005	-0.02	0.1787	-0.0063	-0.23	OE
RUXQ8R		0.1589	-0.0036	-0.14	0.1816	-0.0034	-0.13	IC
T2VHFL		0.1140	-0.0485	-1.81	0.1267	-0.0583	-2.13	OE
T8NJU8		0.1693	0.0068	0.25	0.1957	0.0107	0.39	WD
T9YKL8		0.1700	0.0075	0.28	0.2000	0.0150	0.55	OE
TJVTWX		0.1357	-0.0269	-1.00	0.1557	-0.0293	-1.07	XX
TLNL89		0.1520	-0.0105	-0.39	0.1777	-0.0073	-0.27	GD
TPPHQN		0.1652	0.0027	0.10	0.1844	-0.0006	-0.02	XR
UQEQEC	X	0.1957	0.0331	1.24	0.1490	-0.0360	-1.31	OE
UTHH7Q		0.1100	-0.0525	-1.96	0.1400	-0.0450	-1.64	OE
UTJWQH		0.1803	0.0178	0.66	0.2057	0.0207	0.75	OE
VGLB76		0.1913	0.0288	1.07	0.2143	0.0293	1.07	GD
XRUN76		0.1783	0.0158	0.59	0.2013	0.0163	0.60	OE

Summary Statistics

	Sample J51		Sample J52	
Grand Means	0.1625	Percent	0.1850	Percent
Stnd Dev Btwn Labs	0.0268	Percent	0.0274	Percent

Samples J51, J52 : Alloy 600, Alloy 600

Statistics based on 34 of 36 reporting participants

Key to Method Codes Reported by Participants

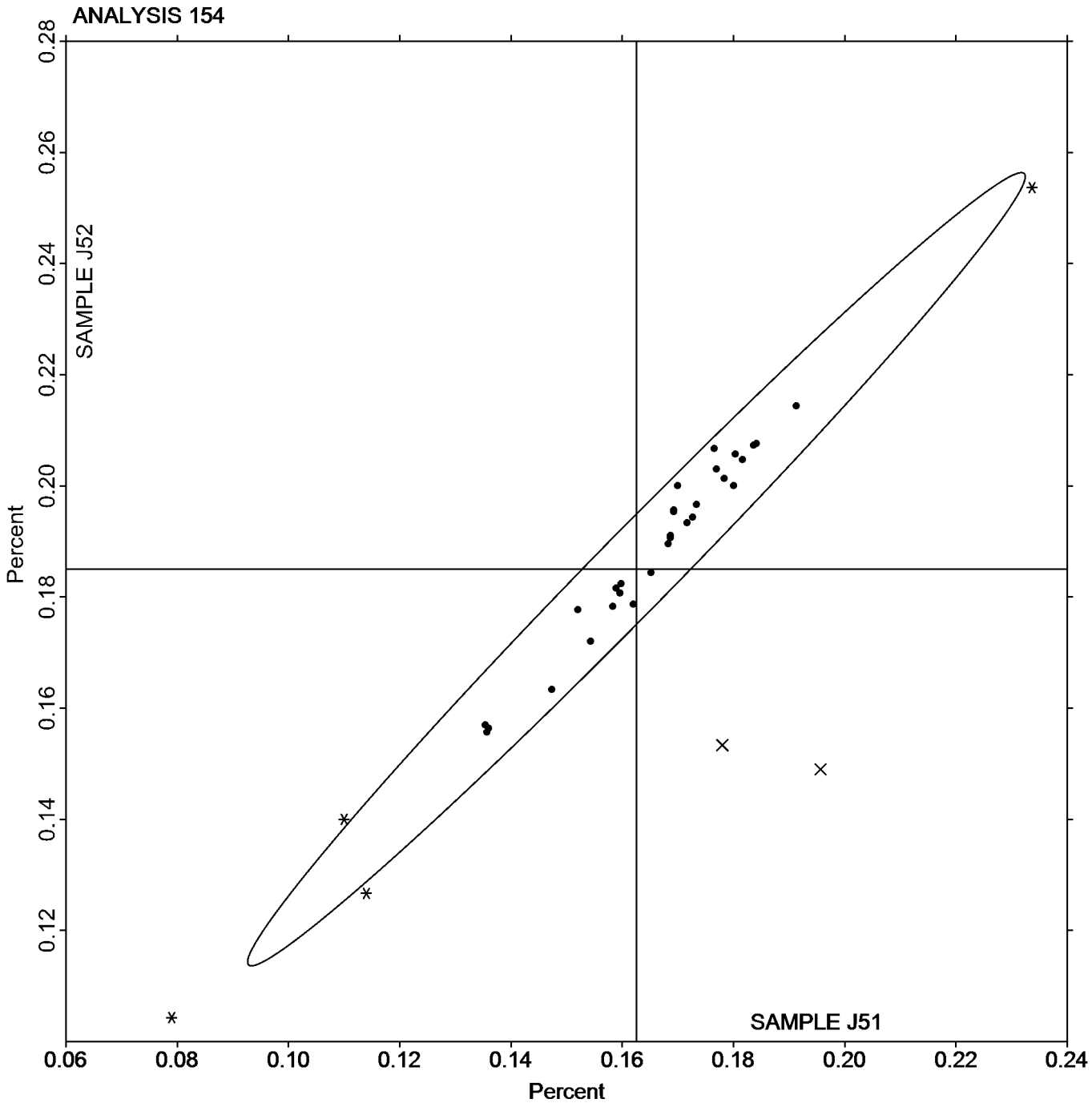
DR	Spectrometry - Direct Reading OE (DROES)	GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)	OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)	XR	X-Ray Fluorescence - ED or WD not specified
XX	Please Indicate Method Used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

Comments on Assigned Data Flags for Test #154

UQEQEC (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample J51.

SAMPLE J51
0.1625 Percent

SAMPLE J52
0.1850 Percent



Fasteners and Metals Interlaboratory Testing Program

Analysis 155

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

Cycle 122
2nd Qtr 2018

WebCode	Data Flag	Sample J51 Lab Mean	Sample J51 Diff. from Grand Mean	Sample J51 CPV	Sample J52 Lab Mean	Sample J52 Diff. from Grand Mean	Sample J52 CPV	Method
2F86ZP		0.2820	-0.0104	-0.51	0.0772	-0.0035	-0.17	DR
3MJHEE		0.2517	-0.0408	-2.01	0.0710	-0.0096	-0.47	IC
6LML9G		0.3230	0.0306	1.51	0.0459	-0.0347	-1.69	OE
6YPAYQ		0.3039	0.0115	0.57	0.0715	-0.0091	-0.44	IC
7D8FUP		0.3000	0.0076	0.37	0.0600	-0.0206	-1.01	OE
99M283		0.2827	-0.0098	-0.48	0.0987	0.0180	0.88	OE
ACAWPU	M	0.2803	-0.0121	-0.60	No Data Reported			OE
AUEZPH	X	0.1283	-0.1641	-8.10	0.3080	0.2274	11.09	WD
C7KYM3		0.3190	0.0266	1.31	0.0680	-0.0126	-0.62	IC
DHYYRF		0.2953	0.0029	0.14	0.0570	-0.0236	-1.15	WD
DPGDTZ		0.2950	0.0026	0.13	0.0660	-0.0146	-0.71	OE
DTZ9PQ		0.2990	0.0066	0.32	0.0850	0.0044	0.21	OE
E2MMVF		0.2750	-0.0174	-0.86	0.0753	-0.0053	-0.26	IC
EXAT6B		0.2670	-0.0254	-1.26	0.0800	-0.0006	-0.03	OE
G397TJ		0.2923	-0.0001	-0.01	0.1320	0.0514	2.51	XX
GDV97C		0.2790	-0.0134	-0.66	0.0803	-0.0003	-0.01	OE
GT6ZVB		0.3430	0.0506	2.50	0.1043	0.0237	1.16	OE
GZ82GX		0.2957	0.0032	0.16	0.0657	-0.0150	-0.73	OE
K4BE3D		0.2973	0.0049	0.24	0.0713	-0.0093	-0.45	WD
KERUC8		0.2900	-0.0024	-0.12	0.1250	0.0444	2.16	OE
LE7CEY		0.2861	-0.0063	-0.31	0.0866	0.0059	0.29	DR
N8G8L2	X	0.3473	0.0549	2.71	0.9989	0.9183	44.78	OE
NHYJ47		0.2700	-0.0224	-1.11	0.0727	-0.0080	-0.39	OE
QFKY92		0.2780	-0.0144	-0.71	0.0530	-0.0276	-1.35	WD
RMHXCV		0.2833	-0.0091	-0.45	0.0790	-0.0016	-0.08	OE
RUXQ8R	M	0.2613	-0.0312	-1.54	No Data Reported			IC
T2VHFL		0.2993	0.0069	0.34	0.0860	0.0054	0.26	OE
T8NJU8		0.3147	0.0222	1.10	0.1243	0.0437	2.13	WD
T9YKL8		0.3033	0.0109	0.54	0.0803	-0.0003	-0.01	OE
TJVTWX		0.3433	0.0509	2.51	0.1047	0.0240	1.17	XX
TLNL89		0.2637	-0.0288	-1.42	0.0578	-0.0228	-1.11	GD
TPPHQN		0.2848	-0.0076	-0.38	0.0860	0.0054	0.26	XR
UQEQEC	X	0.0583	-0.2341	-11.55	0.2090	0.1284	6.26	OE
UTHH7Q		0.2900	-0.0024	-0.12	0.0700	-0.0106	-0.52	WD
UTJWQH		0.2817	-0.0108	-0.53	0.0669	-0.0138	-0.67	OE
VGLB76		0.2810	-0.0114	-0.56	0.0943	0.0137	0.67	GD
XRUN76		0.2880	-0.0044	-0.22	0.0841	0.0035	0.17	OE

Summary Statistics

	Sample J51		Sample J52	
Grand Means	0.2924	Percent	0.0806	Percent
Stnd Dev Btwn Labs	0.0203	Percent	0.0205	Percent

Samples J51, J52 : Alloy 600, Alloy 600

Statistics based on 32 of 37 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 #155

ACAWPU (M) - Participant did not submit data for sample J52.

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

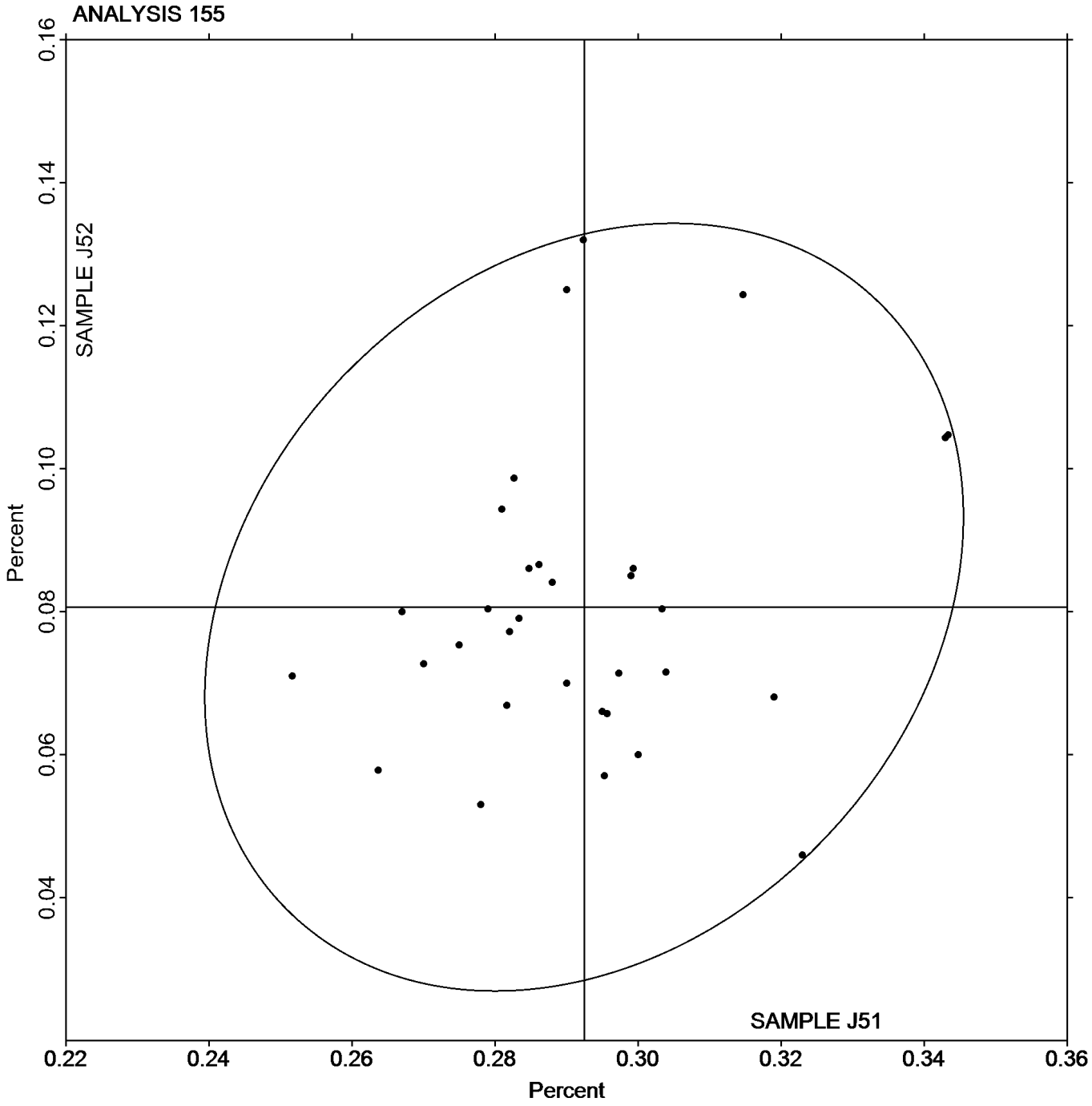
N8G8L2 (X) - Data for Sample J51 are high. Data for Sample J52 are extreme.

RUXQ8R (M) - Participant did not submit data for sample J52.

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

SAMPLE J51
0.2924 Percent

SAMPLE J52
0.0806 Percent



Fasteners and Metals Interlaboratory Testing Program

Analysis 156

Nickel-based Alloy, Element #7
NIOBIUM (Nb)

Cycle 122
2nd Qtr
2018

WebCode	Data Flag	Sample J51 Lab Mean	Sample J51 Diff. from Grand Mean	Sample J51 CPV	Sample J52 Lab Mean	Sample J52 Diff. from Grand Mean	Sample J52 CPV	Method
3MJHEE		0.2167	0.0360	0.73	0.0580	0.0219	1.65	IC
6LML9G		0.1953	0.0147	0.30	0.0476	0.0115	0.86	OE
6YPAYQ		0.2406	0.0599	1.22	0.0432	0.0071	0.53	IC
99M283		0.1057	-0.0750	-1.52	0.00200	-0.0341	-2.57	OE
AUEZPH	X	0.0880	-0.0927	-1.88	0.1860	0.1499	11.27	WD
C7KYM3		0.1987	0.0180	0.37	0.0409	0.0047	0.36	IC
DHYYRF		0.1827	0.0020	0.04	0.0330	-0.0031	-0.23	WD
DPGDTZ	*	0.1760	-0.0047	-0.09	0.0570	0.0209	1.57	OE
DTZ9PQ		0.2117	0.0310	0.63	0.0500	0.0139	1.04	OE
EUPXA6		0.2011	0.0204	0.41	0.0415	0.0054	0.41	IC
EXAT6B	*	0.0437	-0.1370	-2.78	0.0110	-0.0251	-1.89	OE
G397TJ		0.0923	-0.0883	-1.79	0.0320	-0.0041	-0.31	XX
GDV97C		0.1960	0.0153	0.31	0.0420	0.0059	0.44	OE
GT6ZVB		0.2080	0.0273	0.55	0.0357	-0.0004	-0.03	OE
GZ82GX		0.2027	0.0220	0.45	0.0391	0.0030	0.22	WD
K4BE3D		0.1880	0.0073	0.15	0.0293	-0.0068	-0.51	WD
KERUC8		0.1857	0.0050	0.10	0.0384	0.0022	0.17	OE
LE7CEY		0.1937	0.0130	0.26	0.0357	-0.0005	-0.03	DR
N8G8L2		0.2090	0.0283	0.57	0.0360	-0.0001	-0.01	OE
QFKY92		0.2117	0.0310	0.63	0.0417	0.0055	0.42	WD
RMHXCV		0.1617	-0.0190	-0.39	0.0253	-0.0108	-0.81	OE
T2VHFL		0.1940	0.0133	0.27	0.0293	-0.0068	-0.51	OE
T8NJU8		0.2073	0.0267	0.54	0.0393	0.0032	0.24	WD
T9YKL8		0.1900	0.0093	0.19	0.0480	0.0119	0.89	OE
TJVTWX		0.2087	0.0280	0.57	0.0357	-0.0005	-0.03	XX
TPPHQN		0.2049	0.0243	0.49	0.0448	0.0087	0.66	OE
UQEQEC	X	0.0390	-0.1417	-2.88	0.1600	0.1239	9.32	OE
UTHH7Q		0.2000	0.0193	0.39	0.0400	0.0039	0.29	WD
UTJWQH		0.1940	0.0133	0.27	0.0382	0.0021	0.16	OE
VGLB76	*	0.0320	-0.1487	-3.02	0.00100	-0.0351	-2.64	GD
XRUN76		0.1880	0.0073	0.15	0.0317	-0.0044	-0.33	OE

Summary Statistics

	Sample J51		Sample J52	
Grand Means	0.1807	Percent	0.0361	Percent
Stnd Dev Btwn Labs	0.0493	Percent	0.0133	Percent

Samples J51, J52 : Alloy 600, Alloy 600

Statistics based on 29 of 31 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)	XX	Please Indicate Method Used for Current Element

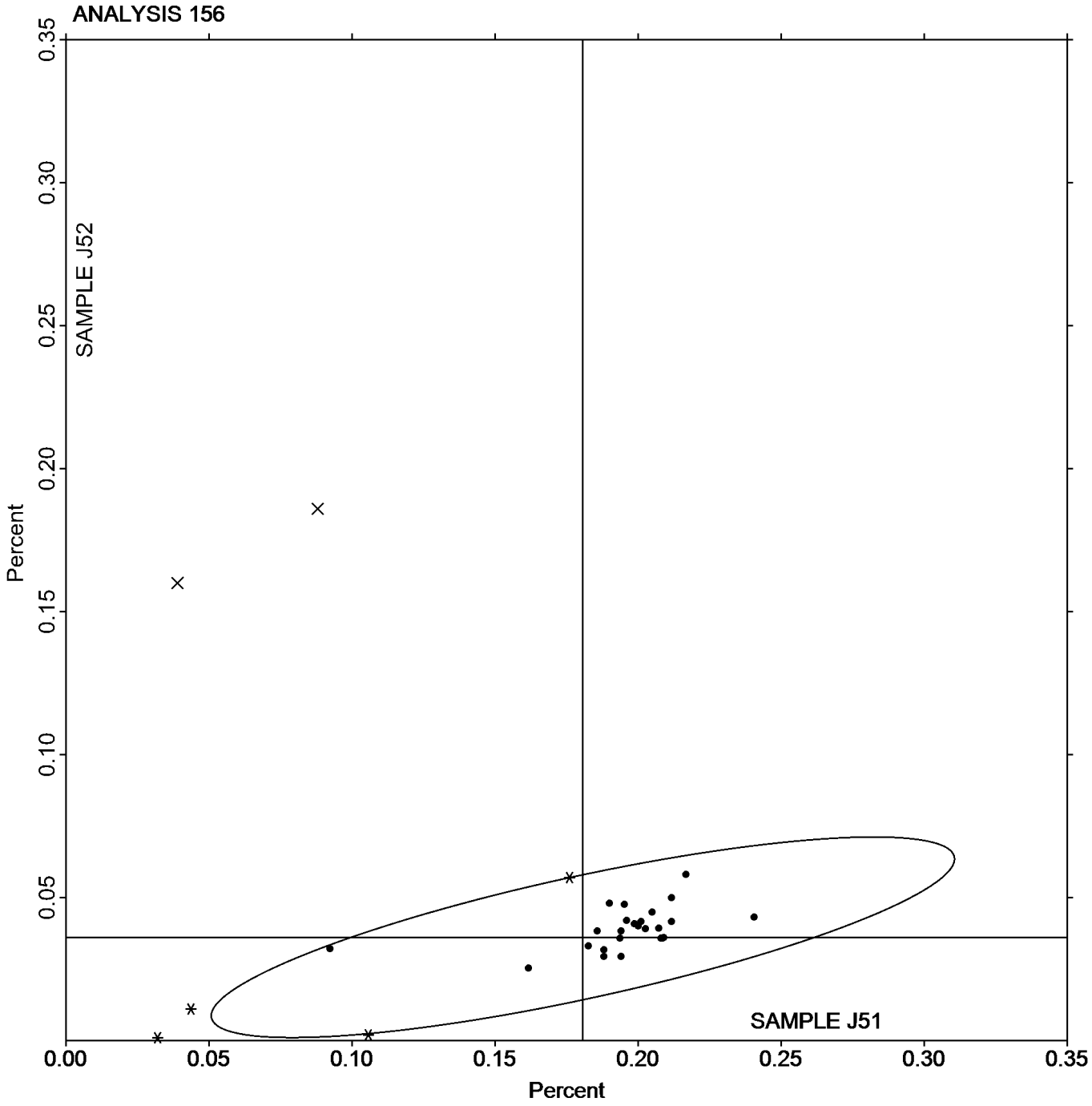
Comments on Assigned Data Flags for Test #156

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

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

SAMPLE J51
0.1807 Percent

SAMPLE J52
0.0361 Percent



		Sample J51			Sample J52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2F86ZP		0.2412	-0.0017	-0.14	0.2966	-0.0029	-0.20	DR
3MJHEE	*	0.2097	-0.0332	-2.72	0.2620	-0.0375	-2.59	IC
6LML9G		0.2373	-0.0056	-0.46	0.2957	-0.0038	-0.26	OE
6YPAYQ		0.2403	-0.0026	-0.21	0.2937	-0.0058	-0.40	IC
7D8FUP		0.2433	0.0004	0.04	0.2967	-0.0028	-0.19	OE
99M283		0.2517	0.0088	0.72	0.3037	0.0042	0.29	OE
ACAWPU		0.2407	-0.0022	-0.18	0.3003	0.0009	0.06	OE
AUEZPH	X	0.2167	-0.0262	-2.15	0.1743	-0.1251	-8.65	WD
C7KYM3		0.2500	0.0071	0.58	0.3033	0.0039	0.27	IC
DHYYRF		0.2253	-0.0176	-1.44	0.2817	-0.0178	-1.23	WD
DPGDTZ		0.2387	-0.0042	-0.35	0.2900	-0.0095	-0.65	OE
DTZ9PQ		0.2433	0.0004	0.04	0.2973	-0.0021	-0.15	OE
E2MMVF		0.2320	-0.0109	-0.89	0.2873	-0.0121	-0.84	IC
EUPXA6		0.2424	-0.0005	-0.04	0.2984	-0.0010	-0.07	IC
EXAT6B		0.2717	0.0288	2.35	0.3307	0.0312	2.16	OE
GDV97C		0.2433	0.0004	0.04	0.3010	0.0015	0.11	OE
GT6ZVB		0.2617	0.0188	1.54	0.3263	0.0269	1.86	OE
GZ82GX		0.2407	-0.0022	-0.18	0.2990	-0.0005	-0.03	WD
K4BE3D		0.2430	0.0001	0.01	0.3020	0.0025	0.18	WD
KERUC8		0.2207	-0.0222	-1.82	0.2723	-0.0271	-1.88	OE
LE7CEY	*	0.2688	0.0259	2.12	0.3131	0.0136	0.94	DR
N8G8L2		0.2612	0.0183	1.50	0.3207	0.0212	1.47	OE
NHYJ47		0.2297	-0.0132	-1.08	0.2870	-0.0125	-0.86	OE
PUEWTE	X	0.2227	-0.0202	-1.66	0.3000	0.0005	0.04	ED
QFKY92		0.2653	0.0224	1.84	0.3260	0.0265	1.83	WD
RMHXCV		0.2453	0.0024	0.20	0.2987	-0.0008	-0.06	OE
RUXQ8R		0.2347	-0.0082	-0.67	0.2944	-0.0051	-0.35	IC
T2VHFL		0.2487	0.0058	0.47	0.3093	0.0099	0.68	OE
T8NJU8		0.2367	-0.0062	-0.51	0.2850	-0.0145	-1.00	WD
T9YKL8		0.2500	0.0071	0.58	0.3067	0.0072	0.50	OE
TJVTWX		0.2597	0.0168	1.37	0.3220	0.0225	1.56	XX
TLNL89		0.2443	0.0014	0.12	0.3067	0.0072	0.50	GD
TPPHQN		0.2406	-0.0023	-0.19	0.2984	-0.0010	-0.07	OE
UQEQEC	X	0.3160	0.0731	5.98	0.2543	-0.0451	-3.12	OE
UTHH7Q		0.2400	-0.0029	-0.24	0.3000	0.0005	0.04	WD
UTJWQH		0.2393	-0.0036	-0.29	0.2930	-0.0065	-0.45	OE
VGLB76		0.2450	0.0021	0.17	0.3053	0.0059	0.41	GD
XRUN76		0.2410	-0.0019	-0.16	0.2907	-0.0088	-0.61	OE

Summary Statistics

	Sample J51		Sample J52	
Grand Means	0.2429	Percent	0.2995	Percent
Stnd Dev Btwn Labs	0.0122	Percent	0.0145	Percent

Samples J51, J52 : Alloy 600, Alloy 600

Statistics based on 34 of 38 reporting participants

Key to Method Codes Reported by Participants

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

Comments on Assigned Data Flags for Test #157

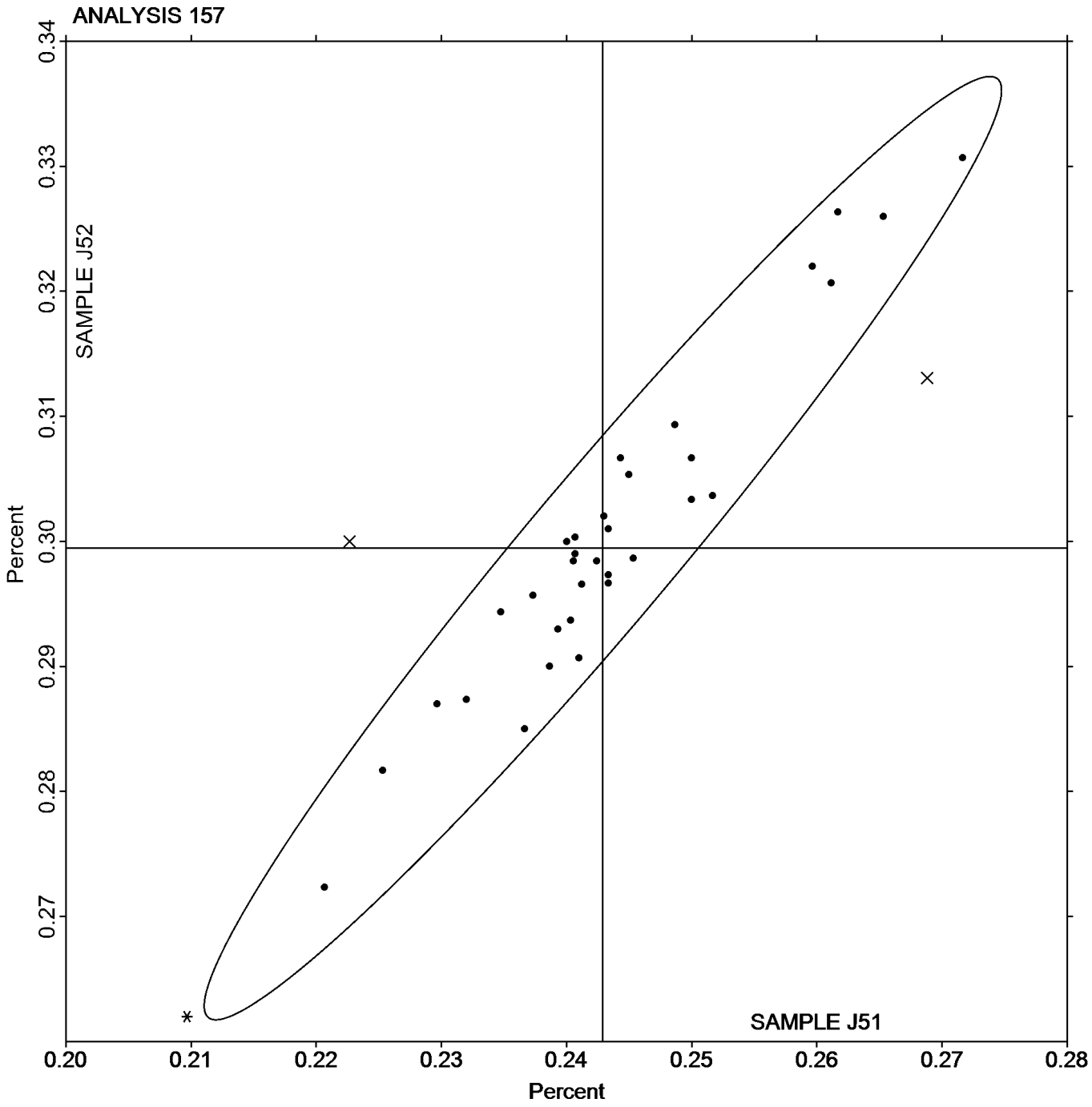
AUEZPH (X) - Data for sample J52 are low.

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

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

SAMPLE J51
0.2429 Percent

SAMPLE J52
0.2995 Percent



		Sample M51			Sample M52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
227EWC	*	0.0580	-0.0050	-1.83	0.0733	-0.0017	-0.54	CI
269BL7		0.0643	0.0013	0.48	0.0784	0.0034	1.08	CI
2F86ZP		0.0614	-0.0015	-0.56	0.0704	-0.0047	-1.49	CO
3MJHEE		0.0613	-0.0016	-0.60	0.0737	-0.0014	-0.43	CI
3W8BQB		0.0637	0.0007	0.28	0.0758	0.0007	0.24	OE
4H9P2U	X	0.0371	-0.0258	-9.52	0.0461	-0.0289	-9.24	OE
6RWVHY		0.0630	0.0000	0.01	0.0757	0.0006	0.21	CI
6TKEEQ		0.0600	-0.0030	-1.09	0.0700	-0.0050	-1.61	OE
7D8FUP		0.0647	0.0017	0.63	0.0770	0.0020	0.63	OE
7KPVDM		0.0612	-0.0018	-0.65	0.0751	0.0001	0.03	CI
7V6M2W		0.0627	-0.0003	-0.10	0.0748	-0.0002	-0.07	CI
8XAJZ7	*	0.0573	-0.0056	-2.07	0.0660	-0.0090	-2.88	GD
99M283	*	0.0707	0.0077	2.84	0.0840	0.0090	2.87	OE
AC2D6V		0.0627	-0.0003	-0.11	0.0743	-0.0007	-0.22	OE
ACAWPU		0.0670	0.0040	1.49	0.0783	0.0033	1.06	OE
AUEZPH		0.0613	-0.0016	-0.60	0.0730	-0.0020	-0.65	OE
BCYLA9		0.0630	0.0000	0.01	0.0740	-0.0010	-0.33	CI
BMXJUM		0.0650	0.0020	0.75	0.0767	0.0016	0.53	CI
CMQU6G		0.0598	-0.0032	-1.18	0.0699	-0.0051	-1.63	OE
DHYYRF		0.0603	-0.0026	-0.97	0.0717	-0.0034	-1.07	CI
DPGDTZ		0.0643	0.0014	0.51	0.0753	0.0003	0.10	CI
DTZ9PQ		0.0640	0.0010	0.38	0.0753	0.0003	0.10	OE
E2MMVF		0.0613	-0.0016	-0.60	0.0750	0.0000	-0.01	CO
EDH2Q7		0.0670	0.0041	1.50	0.0775	0.0025	0.79	OE
EXAT6B		0.0645	0.0015	0.55	0.0770	0.0020	0.64	OE
G397TJ		0.0613	-0.0016	-0.60	0.0707	-0.0044	-1.39	OE
GDV97C		0.0637	0.0007	0.26	0.0743	-0.0007	-0.22	OE
H4W4EV	X	0.0564	-0.0066	-2.42	0.0610	-0.0140	-4.47	OE
H69WBH	*	0.0624	-0.0005	-0.20	0.0784	0.0033	1.07	CI
HBKPN3		0.0633	0.0004	0.14	0.0753	0.0003	0.10	CI
HGBWBG		0.0680	0.0050	1.86	0.0783	0.0033	1.06	OE
HYMTHU		0.0623	-0.0006	-0.23	0.0747	-0.0004	-0.11	OE
J7J36X		0.0590	-0.0040	-1.46	0.0707	-0.0044	-1.39	XX
KDN77H		0.0677	0.0047	1.73	0.0803	0.0053	1.70	OE
KERUC8	X	0.0613	-0.0017	-0.61	0.0671	-0.0080	-2.54	OE
LYQCKU		0.0593	-0.0037	-1.36	0.0722	-0.0028	-0.89	OE
N8G8L2	M	No Data Reported			0.0647	-0.0104	-3.31	OE
NHYJ47		0.0613	-0.0016	-0.60	0.0730	-0.0020	-0.65	OE
NKPRA2		0.0647	0.0017	0.63	0.0773	0.0022	0.72	CI
QFKY92		0.0614	-0.0016	-0.59	0.0733	-0.0017	-0.55	CI
QWTNP9		0.0617	-0.0013	-0.48	0.0743	-0.0007	-0.22	OE
RYFP82		0.0622	-0.0008	-0.29	0.0759	0.0008	0.27	XX
T2VHFL	X	0.0763	0.0134	4.93	0.0847	0.0096	3.08	OE
T46QHE		0.0633	0.0003	0.11	0.0752	0.0002	0.06	CI
T7AHAR	X	0.0671	0.0041	1.52	0.0585	-0.0166	-5.30	OE
T8NJU8		0.0670	0.0040	1.49	0.0777	0.0026	0.85	CO
TDV6QR		0.0657	0.0027	1.00	0.0774	0.0024	0.76	CO

WebCode	Data Flag	Sample M51 Lab Mean	Sample M51 Diff. from Grand Mean	Sample M51 CPV	Sample M52 Lab Mean	Sample M52 Diff. from Grand Mean	Sample M52 CPV	Method
TLNL89		0.0652	0.0022	0.82	0.0773	0.0022	0.72	GD
TPPHQN		0.0619	-0.0011	-0.40	0.0755	0.0005	0.15	CO
UTJWQH		0.0651	0.0021	0.79	0.0789	0.0038	1.23	OE
WTBJBK		0.0627	-0.0003	-0.11	0.0761	0.0011	0.36	XX
WWUT74		0.0617	-0.0013	-0.48	0.0750	0.0000	-0.01	CI
ZA6KBM		0.0600	-0.0030	-1.09	0.0720	-0.0030	-0.97	OE

Summary Statistics

	Sample M51		Sample M52	
Grand Means	0.0630	Percent	0.0750	Percent
Stnd Dev Btwn Labs	0.0027	Percent	0.0031	Percent

Samples M51, M52 : AISI 309, AISI 309

Statistics based on 47 of 53 reporting participants

Key to Method Codes Reported by Participants

CI Combustion / IR
CO Combustion
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 #180

4H9P2U (X) - Data for both samples are low. Possible Systematic Error.

H4W4EV (X) - Data for sample M52 are low. Inconsistent within the determinations of sample M51.

KERUC8 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample M52.

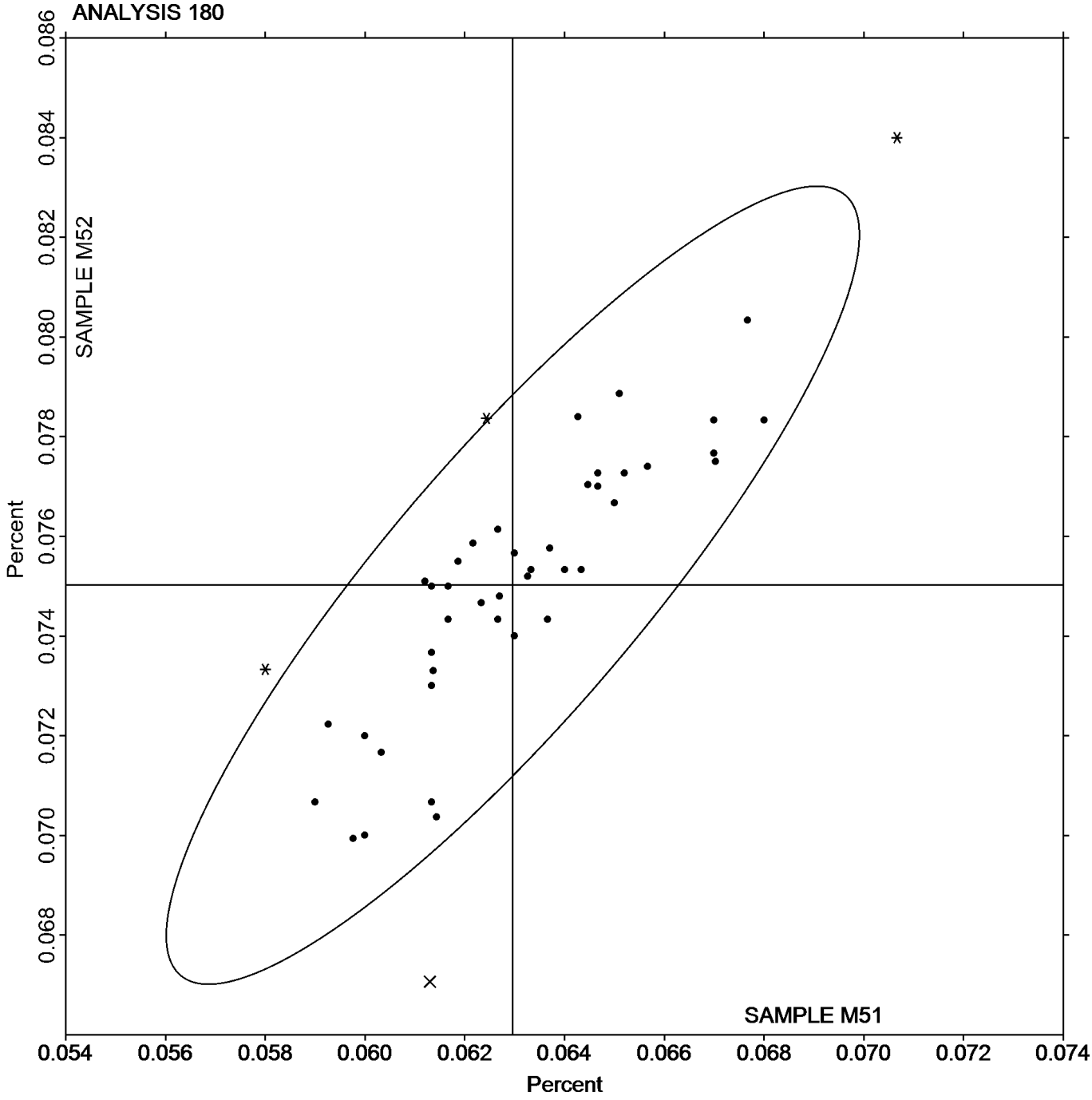
N8G8L2 (M) - Participant did not submit data for sample M51.

T2VHFL (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample M51.

T7AHAR (X) - Data for sample M52 are low. Inconsistent within the determinations of sample M52.

SAMPLE M51
0.0630 Percent

SAMPLE M52
0.0750 Percent



		Sample M51			Sample M52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
227EWC		1.909	-0.032	-1.13	1.740	-0.032	-1.34	IC
269BL7		1.936	-0.006	-0.20	1.760	-0.012	-0.49	XR
2F86ZP		1.898	-0.043	-1.52	1.752	-0.020	-0.84	DR
3MJHEE		1.958	0.016	0.57	1.772	0.000	-0.01	IC
3W8BQB		1.946	0.005	0.16	1.783	0.011	0.44	OE
4H9P2U		1.943	0.002	0.06	1.780	0.008	0.33	OE
6RWVHY		1.933	-0.008	-0.29	1.803	0.031	1.30	IC
6TKEEQ		1.883	-0.058	-2.04	1.727	-0.045	-1.88	OE
7D8FUP		1.963	0.022	0.76	1.793	0.021	0.89	OE
7KPVDM		1.979	0.037	1.30	1.802	0.030	1.23	WD
7V6M2W		1.953	0.011	0.40	1.787	0.015	0.61	WD
8XAJZ7	X	1.980	0.038	1.34	1.847	0.075	3.10	GD
99M283		1.963	0.022	0.76	1.807	0.035	1.44	OE
AC2D6V		1.950	0.008	0.29	1.770	-0.002	-0.08	WD
ACAWPU		1.970	0.028	0.99	1.770	-0.002	-0.08	OE
AUEZPH		1.944	0.003	0.09	1.785	0.013	0.54	XX
BCYLA9		1.940	-0.001	-0.05	1.769	-0.003	-0.11	OE
BMXJUM		1.883	-0.058	-2.04	1.723	-0.049	-2.02	IC
CMQU6G		1.966	0.025	0.86	1.790	0.018	0.76	WD
DHYYRF		1.929	-0.013	-0.44	1.757	-0.015	-0.61	WD
DPGDTZ		2.006	0.065	2.27	1.798	0.026	1.09	OE
DTZ9PQ		1.926	-0.016	-0.56	1.763	-0.009	-0.39	OE
E2MMVF		1.927	-0.014	-0.50	1.762	-0.010	-0.43	IC
EDH2Q7	*	2.013	0.072	2.51	1.758	-0.014	-0.56	OE
EXAT6B		1.959	0.017	0.59	1.787	0.015	0.63	OE
G397TJ		1.933	-0.008	-0.29	1.767	-0.005	-0.22	OE
GDV97C	X	2.348	0.406	14.22	1.755	-0.017	-0.70	OE
GT6ZVB		1.973	0.032	1.11	1.777	0.005	0.20	XX
H4W4EV		1.919	-0.022	-0.78	1.782	0.010	0.42	OE
HBKPN3		1.955	0.013	0.46	1.782	0.010	0.40	WD
HGBWBG		1.894	-0.047	-1.66	1.730	-0.042	-1.74	OE
HYMTHU		1.894	-0.047	-1.66	1.728	-0.044	-1.82	OE
J7J36X		2.017	0.075	2.63	1.830	0.058	2.41	XX
KDN77H		1.951	0.010	0.34	1.785	0.013	0.53	OE
KERUC8		1.970	0.028	0.99	1.800	0.028	1.16	OE
LYQCKU		1.969	0.027	0.94	1.797	0.025	1.02	OE
N8G8L2		1.937	-0.005	-0.17	1.763	-0.009	-0.36	OE
NHYJ47		1.924	-0.018	-0.62	1.761	-0.011	-0.45	OE
NKPRA2		1.908	-0.034	-1.19	1.729	-0.043	-1.77	OE
QFKY92		1.964	0.023	0.79	1.793	0.021	0.86	WD
QWTNP9		1.943	0.002	0.06	1.733	-0.039	-1.60	OE
RYFP82		1.945	0.003	0.12	1.769	-0.003	-0.11	XX
T2VHFL		1.928	-0.014	-0.48	1.762	-0.010	-0.40	OE
T46QHE		1.951	0.009	0.33	1.771	-0.001	-0.05	WD
T7AHAR		1.937	-0.004	-0.15	1.788	0.016	0.68	OE
T8NJU8		1.950	0.008	0.29	1.772	0.000	0.00	WD
TDV6QR		1.966	0.024	0.84	1.791	0.019	0.80	OE

Fasteners and Metals Interlaboratory Testing Program

Analysis 181

Corrosion Resistant Steel, Element #2

MANGANESE (Mn)

Cycle 122
2nd Qtr
2018

WebCode	Data Flag	Sample M51 Lab Mean	Sample M51 Diff. from Grand Mean	Sample M51 CPV	Sample M52 Lab Mean	Sample M52 Diff. from Grand Mean	Sample M52 CPV	Method
TJVTWX		1.970	0.028	0.99	1.780	0.008	0.33	OE
TLNL89		1.900	-0.042	-1.46	1.737	-0.035	-1.46	GD
TPPHQN		1.941	-0.001	-0.03	1.770	-0.002	-0.09	XR
UTJWQH		1.900	-0.042	-1.46	1.740	-0.032	-1.32	OE
WTBJBK		1.919	-0.023	-0.80	1.763	-0.009	-0.37	XX
WWUT74		1.961	0.019	0.68	1.785	0.013	0.54	IC
ZA6KBM		1.937	-0.005	-0.16	1.806	0.034	1.43	OE

Summary Statistics

	Sample M51		Sample M52	
Grand Means	1.942	Percent	1.772	Percent
Stnd Dev Btwn Labs	0.029	Percent	0.024	Percent

Samples M51, M52 : AISI 309, AISI 309

Statistics based on 51 of 54 reporting participants

Key to Method Codes Reported by Participants

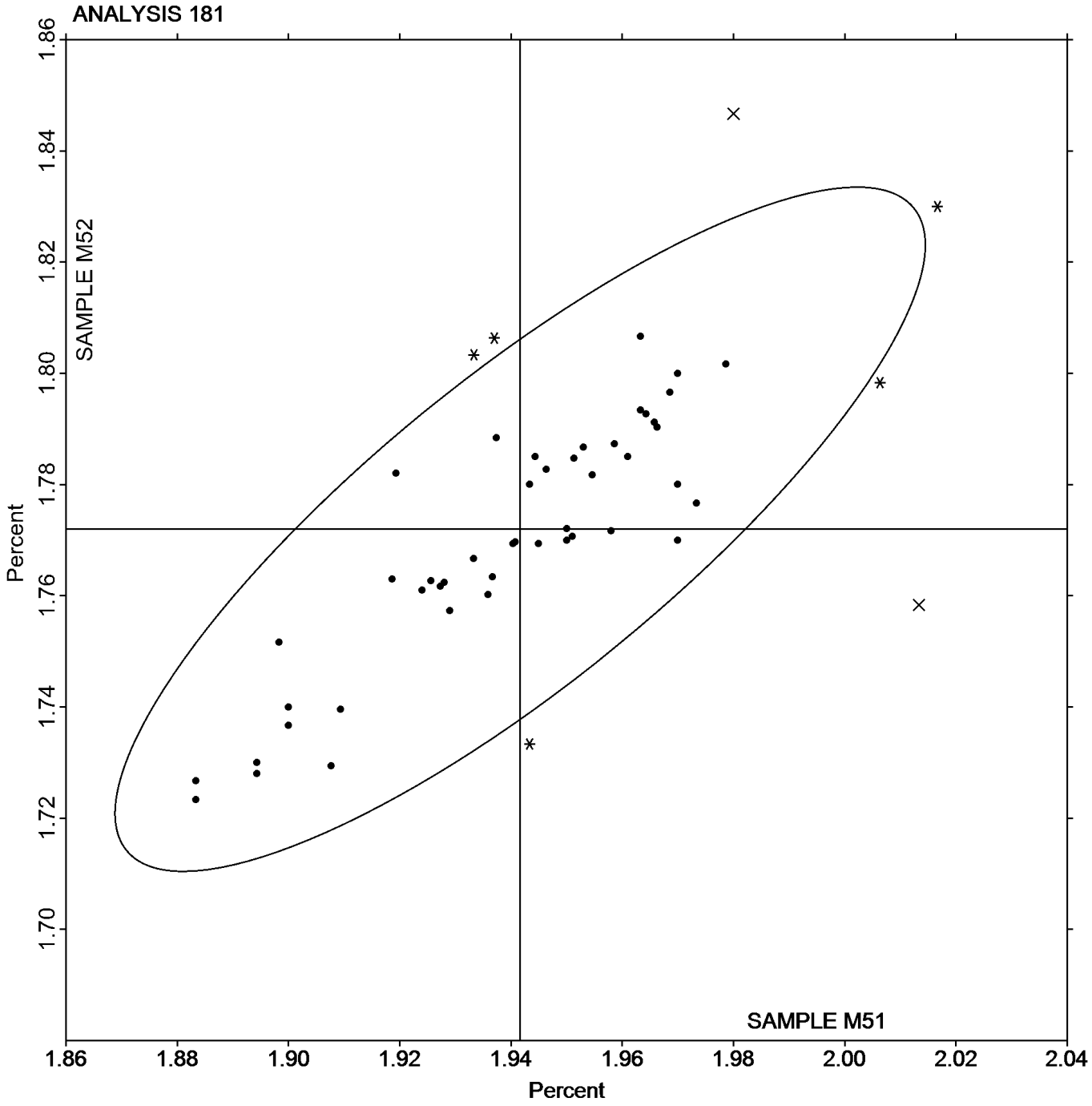
DR	Spectrometry - Direct Reading OE (DROES)	GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)	OE	Spectrometry - Optical Emission (OES)
WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)	XR	X-Ray Fluorescence - ED or WD not specified
XX	Please Indicate Method Used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

Comments on Assigned Data Flags for Test #181

8XAJZ7 (X) - Data for sample M52 are high. Inconsistent within the determinations of sample M51.

GDV97C (X) - Data for sample M51 are high.

SAMPLE M51	SAMPLE M52
1.942 Percent	1.772 Percent



		Sample M51			Sample M52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
227EWC		0.0213	-0.0002	-0.08	0.0269	-0.0005	-0.14	IC
269BL7	X	0.0334	0.0119	4.16	0.0340	0.0066	1.83	XR
3MJHEE		0.0220	0.0004	0.15	0.0280	0.0006	0.17	IC
3W8BQB		0.0206	-0.0010	-0.36	0.0255	-0.0019	-0.52	OE
4H9P2U		0.0201	-0.0014	-0.50	0.0286	0.0012	0.34	OE
6RWVHY		0.0223	0.0008	0.27	0.0297	0.0023	0.63	IC
6TKEEQ		0.0143	-0.0072	-2.53	0.0180	-0.0094	-2.60	OE
7D8FUP		0.0200	-0.0016	-0.55	0.0300	0.0026	0.72	OE
7KPVDM		0.0217	0.0002	0.06	0.0278	0.0004	0.12	WD
7V6M2W		0.0215	-0.0001	-0.03	0.0277	0.0003	0.09	WD
8XAJZ7		0.0203	-0.0012	-0.43	0.0220	-0.0054	-1.49	GD
99M283		0.0273	0.0058	2.02	0.0323	0.0049	1.37	OE
AC2D6V		0.0210	-0.0006	-0.20	0.0267	-0.0007	-0.20	WD
ACAWPU		0.0237	0.0021	0.74	0.0290	0.0016	0.45	OE
AUEZPH		0.0200	-0.0016	-0.55	0.0270	-0.0004	-0.11	XX
BCYLA9		0.0223	0.0008	0.27	0.0275	0.0001	0.04	OE
BMXJUM		0.0203	-0.0012	-0.43	0.0277	0.0003	0.08	IC
CMQU6G		0.0226	0.0010	0.35	0.0285	0.0011	0.30	WD
DHYYRF		0.0210	-0.0006	-0.20	0.0263	-0.0011	-0.29	WD
DPGDTZ		0.0186	-0.0030	-1.05	0.0259	-0.0015	-0.41	OE
DTZ9PQ		0.0241	0.0026	0.90	0.0303	0.0029	0.81	OE
EDH2Q7		0.0214	-0.0001	-0.05	0.0275	0.0001	0.04	OE
EXAT6B		0.0219	0.0003	0.11	0.0248	-0.0026	-0.71	OE
G397TJ		0.0237	0.0021	0.74	0.0290	0.0016	0.45	OE
GDV97C		0.0208	-0.0008	-0.28	0.0267	-0.0007	-0.19	OE
GT6ZVB		0.0155	-0.0061	-2.12	0.0184	-0.0090	-2.50	OE
H4W4EV		0.0245	0.0029	1.03	0.0299	0.0025	0.70	OE
HBKPN3		0.0218	0.0003	0.09	0.0282	0.0008	0.21	WD
HGBWBG	*	0.0125	-0.0091	-3.19	0.0176	-0.0098	-2.72	OE
HYMTHU		0.0223	0.0008	0.27	0.0277	0.0003	0.08	OE
J7J36X		0.0243	0.0028	0.97	0.0310	0.0036	1.00	XX
KDN77H		0.0222	0.0007	0.23	0.0274	0.0000	-0.01	OE
KERUC8		0.0257	0.0042	1.46	0.0351	0.0077	2.13	OE
LYQCKU		0.0199	-0.0017	-0.58	0.0251	-0.0023	-0.64	OE
N8G8L2		0.0167	-0.0049	-1.72	0.0217	-0.0057	-1.59	OE
NKPRA2		0.0234	0.0018	0.63	0.0291	0.0017	0.47	OE
QFKY92		0.0220	0.0004	0.15	0.0282	0.0008	0.21	WD
QWTNP9		0.0237	0.0021	0.74	0.0300	0.0026	0.72	OE
RYFP82		0.0216	0.0000	0.01	0.0275	0.0001	0.04	XX
T2VHFL		0.0206	-0.0010	-0.35	0.0256	-0.0018	-0.51	OE
T46QHE		0.0220	0.0004	0.14	0.0275	0.0001	0.04	WD
T7AHAR		0.0236	0.0020	0.70	0.0303	0.0029	0.82	OE
T8NJU8		0.0223	0.0008	0.27	0.0270	-0.0004	-0.11	WD
TDV6QR		0.0219	0.0003	0.11	0.0277	0.0003	0.09	OE
TLNL89		0.0212	-0.0004	-0.13	0.0264	-0.0010	-0.27	GD
TPPHQN		0.0217	0.0001	0.05	0.0271	-0.0003	-0.09	OE
UTJWQH	*	0.0290	0.0075	2.62	0.0377	0.0103	2.87	OE

WebCode	Data Flag	Sample M51 Lab Mean	Sample M51 Diff. from Grand Mean	Sample M51 CPV	Sample M52 Lab Mean	Sample M52 Diff. from Grand Mean	Sample M52 CPV	Method
WTBJBK		0.0239	0.0023	0.81	0.0282	0.0008	0.23	XX
ZA6KBM		0.0200	-0.0016	-0.55	0.0270	-0.0004	-0.11	OE

Summary Statistics

	Sample M51		Sample M52	
Grand Means	0.0216	Percent	0.0274	Percent
Stnd Dev Btwn Labs	0.0029	Percent	0.0036	Percent

Samples M51, M52 : AISI 309, AISI 309

Statistics based on 48 of 49 reporting participants

Key to Method Codes Reported by Participants

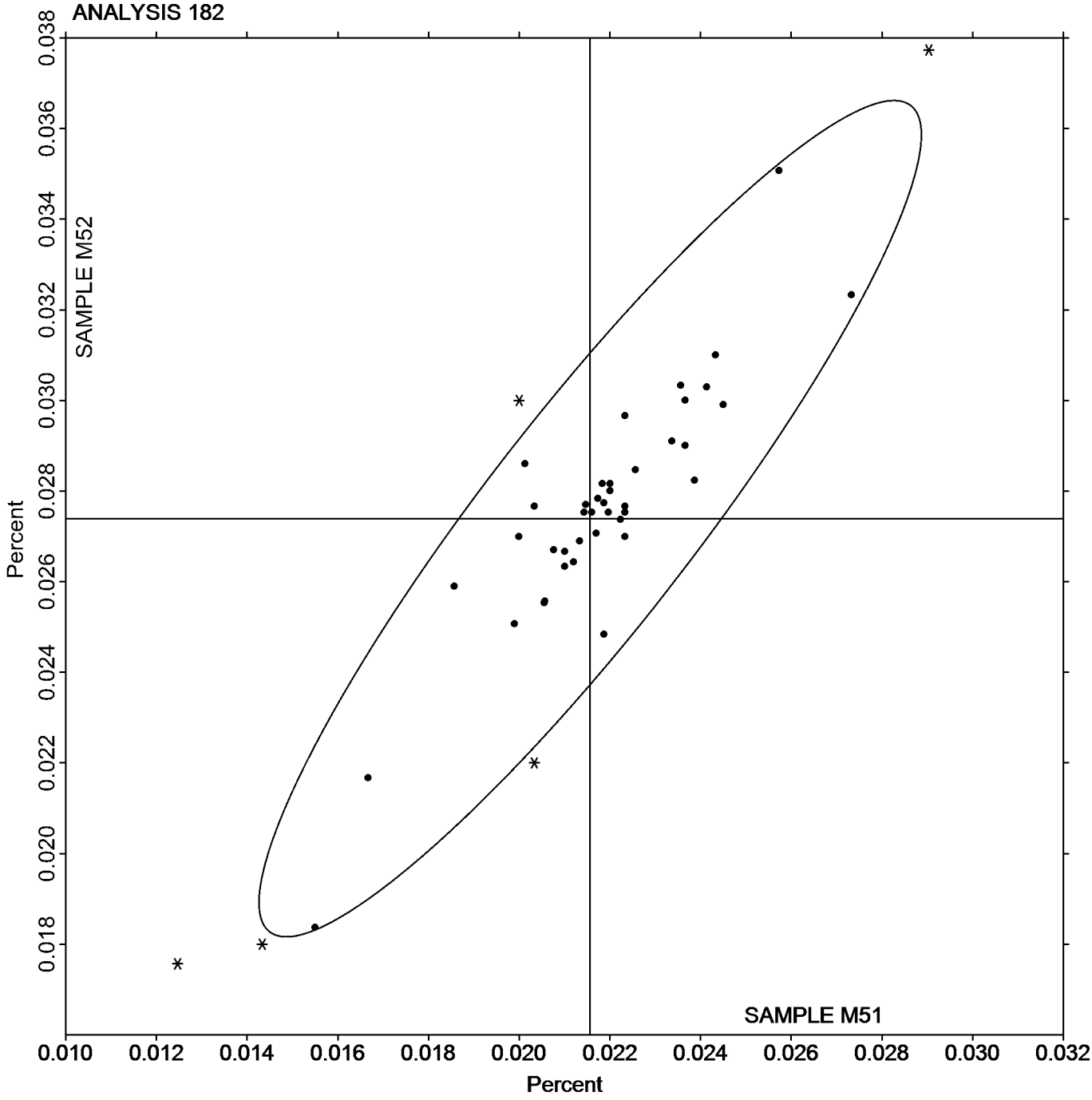
GD	Spectrometry - Glow Discharge (GDS)	IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)	WD	X-Ray Fluorescence - Wavelength Dispersive (WDX)
XR	X-Ray Fluorescence - ED or WD not specified	XX	Please Indicate Method Used for Current Element

Comments on Assigned Data Flags for Test #182

269BL7 (X) - Data for sample M51 are high.

SAMPLE M51
0.0216 Percent

SAMPLE M52
0.0274 Percent



Fasteners and Metals Interlaboratory Testing Program

Analysis 183

Corrosion Resistant Steel, Element #4

NITROGEN (N)

Cycle 122
2nd Qtr
2018

		Sample M51			Sample M52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
227EWC		0.0756	-0.0022	-0.60	0.0754	-0.0028	-0.72	CO
269BL7		0.0809	0.0030	0.81	0.0809	0.0027	0.68	CI
3W8BQB		0.0799	0.0021	0.56	0.0780	-0.0002	-0.06	OE
4H9P2U		0.0753	-0.0026	-0.70	0.0756	-0.0026	-0.67	OE
6RWVHY		0.0785	0.0007	0.18	0.0793	0.0011	0.27	CI
6TKEEQ		0.0740	-0.0039	-1.04	0.0750	-0.0032	-0.81	OE
7KPVDM		0.0765	-0.0013	-0.36	0.0780	-0.0002	-0.04	CI
7V6M2W		0.0778	0.0000	-0.01	0.0784	0.0002	0.06	CI
99M283		0.0703	-0.0075	-2.03	0.0697	-0.0085	-2.17	OE
AC2D6V	*	0.0893	0.0115	3.10	0.0910	0.0128	3.26	OE
AUEZPH	X	0.0917	0.0138	3.73	0.0650	-0.0132	-3.36	XX
BCYLA9		0.0803	0.0024	0.66	0.0820	0.0038	0.98	CI
CMQU6G		0.0782	0.0004	0.10	0.0787	0.0005	0.13	OE
DHYYRF		0.0787	0.0008	0.22	0.0793	0.0011	0.29	CI
DPGDTZ		0.0767	-0.0012	-0.32	0.0773	-0.0009	-0.22	XX
DTZ9PQ		0.0813	0.0035	0.94	0.0817	0.0035	0.88	OE
E2MMVF		0.0797	0.0018	0.49	0.0793	0.0011	0.29	CI
EXAT6B	X	0.0550	-0.0229	-6.18	0.0560	-0.0222	-5.65	OE
GDV97C		0.0770	-0.0009	-0.23	0.0740	-0.0042	-1.07	OE
GT6ZVB	X	0.1103	0.0325	8.78	0.1100	0.0318	8.09	OE
H4W4EV	X	0.0477	-0.0302	-8.15	0.0437	-0.0345	-8.78	OE
HBKPN3		0.0790	0.0011	0.31	0.0807	0.0025	0.63	CO
J7J36X		0.0770	-0.0009	-0.23	0.0767	-0.0015	-0.39	XX
KDN77H	*	0.0760	-0.0019	-0.50	0.0810	0.0028	0.71	OE
LYQCKU		0.0721	-0.0058	-1.56	0.0726	-0.0056	-1.42	OE
NHYJ47		0.0790	0.0011	0.31	0.0790	0.0008	0.20	OE
NKPRA2		0.0765	-0.0014	-0.37	0.0767	-0.0015	-0.38	CO
QFKY92		0.0807	0.0028	0.76	0.0819	0.0037	0.94	CO
QWTNP9		0.0693	-0.0085	-2.30	0.0710	-0.0072	-1.83	OE
RYFP82		0.0770	-0.0008	-0.22	0.0781	-0.0001	-0.03	XX
T46QHE		0.0785	0.0006	0.16	0.0792	0.0010	0.26	CI
T7AHAR	X	0.0591	-0.0188	-5.08	0.0605	-0.0177	-4.50	OE
T8NJU8		0.0793	0.0015	0.40	0.0790	0.0008	0.20	CO
TPPHQN		0.0793	0.0014	0.38	0.0797	0.0015	0.39	XX
WWUT74		0.0800	0.0021	0.58	0.0797	0.0015	0.37	CO
ZA6KBM	X	0.0780	0.0001	0.04	0.0703	-0.0079	-2.00	OE

Summary Statistics

	Sample M51		Sample M52	
Grand Means	0.0779	Percent	0.0782	Percent
Stnd Dev Btwn Labs	0.0037	Percent	0.0039	Percent

Samples M51, M52 : AISI 309, AISI 309

Statistics based on 29 of 36 reporting participants

Key to Method Codes Reported by Participants

CI	Combustion / IR	CO	Combustion
OE	Spectrometry - Optical Emission (OES)	XX	Please Indicate Method Used for Current Element

Comments on Assigned Data Flags for Test #183

AUEZPH (X) - Data for sample M51 are high and data for sample M52 are low. Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

EXAT6B (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample M52.

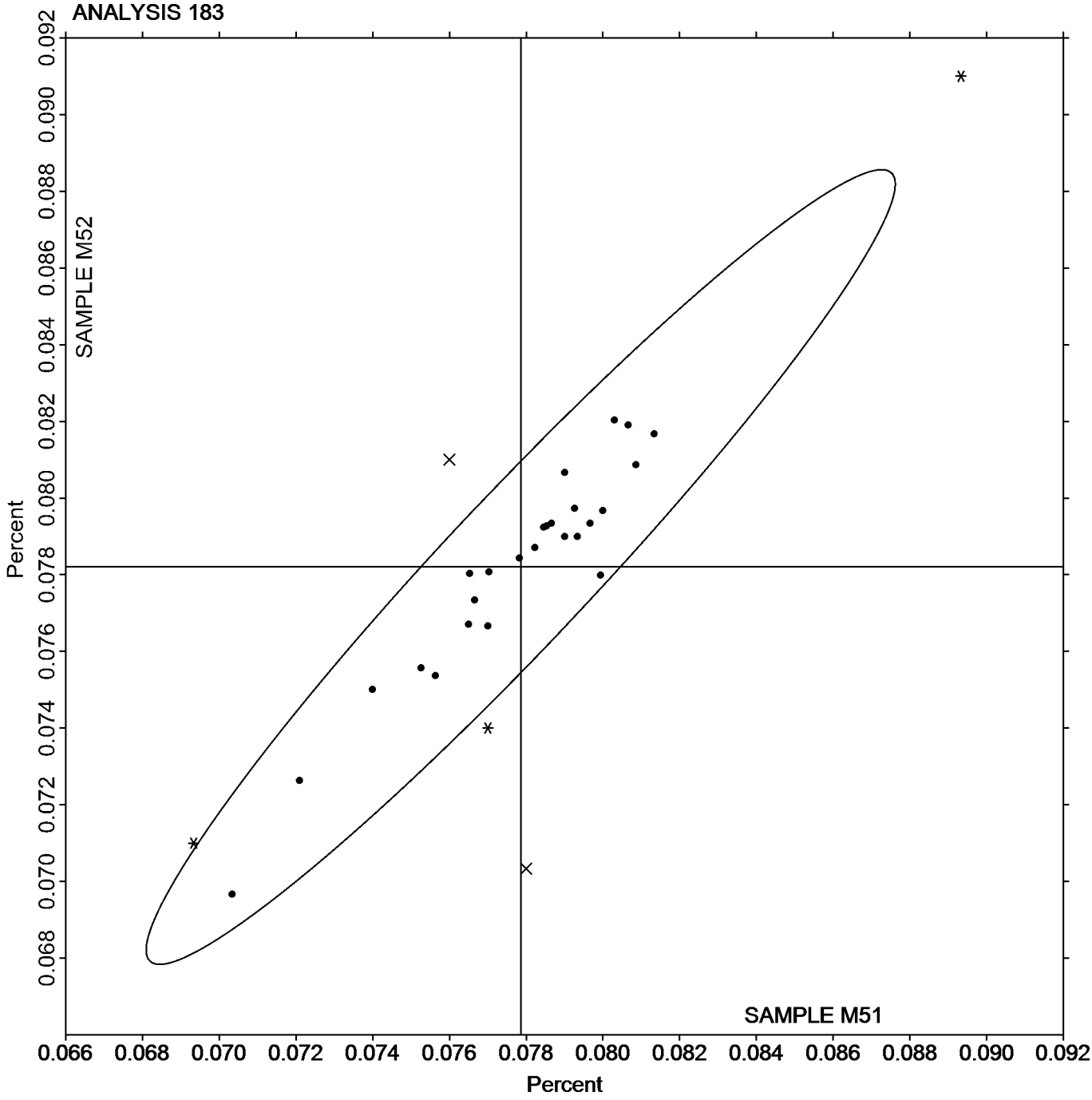
GT6ZVB (X) - Data for both samples are high. Possible Systematic Error.

H4W4EV (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample M51.

T7AHAR (X) - Data for both samples are low. Possible Systematic Error.

ZA6KBM (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample M52.

SAMPLE M51	SAMPLE M52
0.0779 Percent	0.0782 Percent



		Sample M51			Sample M52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
227EWC		0.3614	-0.0138	-1.16	0.3599	-0.0124	-1.08	IC
269BL7		0.3750	-0.0002	-0.02	0.3723	0.0000	0.00	OE
2F86ZP		0.3731	-0.0022	-0.18	0.3693	-0.0030	-0.26	DR
3MJHEE		0.3767	0.0014	0.12	0.3707	-0.0016	-0.14	IC
3W8BQB		0.4033	0.0281	2.36	0.3951	0.0228	2.00	OE
4H9P2U		0.3753	0.0001	0.01	0.3693	-0.0030	-0.26	OE
6RWVHY		0.3887	0.0134	1.13	0.3897	0.0174	1.52	IC
6TKEEQ		0.3693	-0.0059	-0.50	0.3667	-0.0056	-0.49	OE
7D8FUP		0.4000	0.0248	2.08	0.4000	0.0277	2.43	OE
7KPVDM		0.3647	-0.0106	-0.89	0.3637	-0.0086	-0.76	WD
7V6M2W		0.3780	0.0028	0.23	0.3760	0.0037	0.33	WD
8XAJZ7	X	0.4353	0.0601	5.05	0.4457	0.0734	6.44	GD
99M283	X	0.3990	0.0238	2.00	0.4063	0.0340	2.99	OE
AC2D6V		0.3800	0.0048	0.40	0.3800	0.0077	0.68	WD
ACAWPU		0.3800	0.0048	0.40	0.3800	0.0077	0.68	OE
AUEZPH	X	0.4253	0.0501	4.21	0.4170	0.0447	3.92	XX
BCYLA9		0.3773	0.0021	0.18	0.3733	0.0010	0.09	OE
BMXJUM		0.3700	-0.0052	-0.44	0.3667	-0.0056	-0.49	IC
CMQU6G	X	0.3432	-0.0321	-2.70	0.3341	-0.0382	-3.35	WD
DHYYRF		0.3713	-0.0039	-0.33	0.3680	-0.0043	-0.38	WD
DPGDTZ		0.3663	-0.0089	-0.75	0.3633	-0.0090	-0.79	OE
DTZ9PQ	X	0.3607	-0.0146	-1.22	0.3503	-0.0220	-1.93	OE
E2MMVF		0.3610	-0.0142	-1.20	0.3613	-0.0110	-0.96	IC
EDH2Q7		0.3700	-0.0052	-0.44	0.3670	-0.0053	-0.46	OE
EXAT6B		0.3712	-0.0040	-0.34	0.3662	-0.0061	-0.53	OE
G397TJ		0.3820	0.0068	0.57	0.3757	0.0034	0.30	OE
GDV97C		0.3667	-0.0086	-0.72	0.3650	-0.0073	-0.64	OE
GT6ZVB		0.3627	-0.0126	-1.06	0.3603	-0.0120	-1.05	OE
H4W4EV		0.3883	0.0130	1.10	0.3838	0.0115	1.01	OE
HBKPN3		0.3720	-0.0032	-0.27	0.3700	-0.0023	-0.20	WD
HGBWBG		0.3870	0.0118	0.99	0.3840	0.0117	1.03	OE
J7J36X		0.3750	-0.0002	-0.02	0.3730	0.0007	0.06	OE
KDN77H		0.3857	0.0104	0.88	0.3820	0.0097	0.85	OE
KERUC8	*	0.3733	-0.0019	-0.16	0.3640	-0.0083	-0.73	OE
LYQCKU		0.3896	0.0143	1.21	0.3868	0.0145	1.27	OE
N8G8L2		0.3633	-0.0119	-1.00	0.3600	-0.0123	-1.08	OE
NHYJ47		0.3587	-0.0166	-1.39	0.3543	-0.0180	-1.58	OE
NKPRA2		0.3733	-0.0019	-0.16	0.3701	-0.0022	-0.19	OE
QFKY92	*	0.3430	-0.0322	-2.71	0.3457	-0.0266	-2.34	WD
QWTNP9		0.3967	0.0214	1.80	0.3937	0.0214	1.88	OE
RYFP82		0.3703	-0.0049	-0.41	0.3660	-0.0063	-0.55	XX
T2VHFL		0.3713	-0.0039	-0.33	0.3667	-0.0056	-0.49	OE
T46QHE		0.3763	0.0011	0.09	0.3720	-0.0003	-0.03	WD
T7AHAR		0.3683	-0.0069	-0.58	0.3636	-0.0087	-0.76	OE
T8NJU8		0.3800	0.0048	0.40	0.3753	0.0030	0.27	WD
TDV6QR		0.3803	0.0050	0.42	0.3766	0.0043	0.38	OE
TJVTWX		0.3630	-0.0122	-1.03	0.3640	-0.0083	-0.73	OE

WebCode	Data Flag	Sample M51 Lab Mean	Sample M51 Diff. from Grand Mean	Sample M51 CPV	Sample M52 Lab Mean	Sample M52 Diff. from Grand Mean	Sample M52 CPV	Method
TLNL89		0.3617	-0.0136	-1.14	0.3630	-0.0093	-0.81	GD
TPPHQN		0.3800	0.0047	0.40	0.3754	0.0031	0.27	XR
UTJWQH		0.4013	0.0261	2.20	0.3980	0.0257	2.26	OE
WTBJBK		0.3779	0.0027	0.23	0.3777	0.0054	0.47	XX
ZA6KBM	*	0.3943	0.0191	1.61	0.4007	0.0284	2.49	OE

Summary Statistics

	Sample M51		Sample M52	
Grand Means	0.3752	Percent	0.3723	Percent
Stnd Dev Btwn Labs	0.0119	Percent	0.0114	Percent

Samples M51, M52 : AISI 309, AISI 309

Statistics based on 46 of 52 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 #184

8XAJZ7 (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.

99M283 (X) - Data for sample M52 are high.

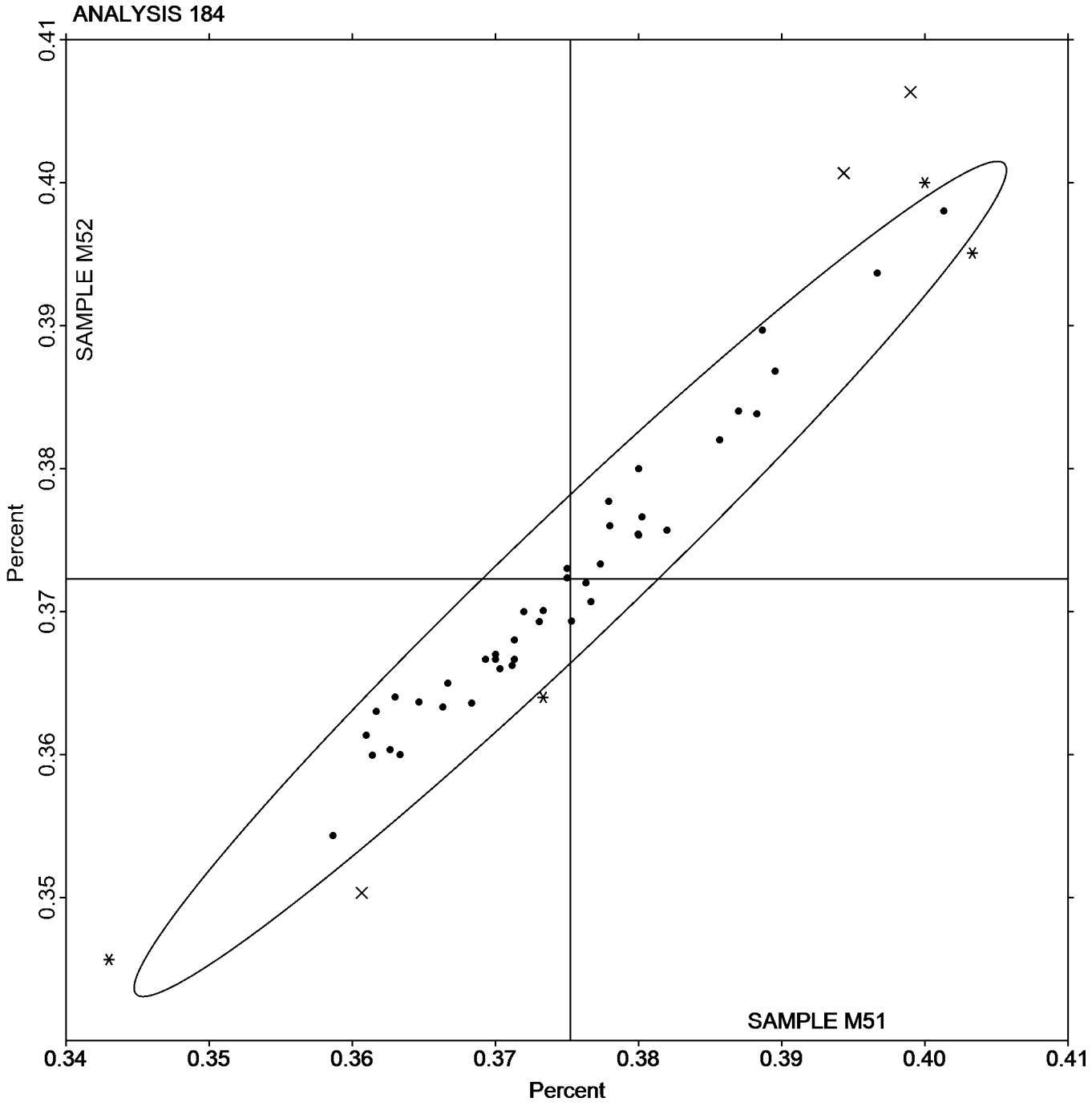
AUEZPH (X) - Data for both samples are high. Possible Systematic Error.

CMQU6G (X) - Data for sample M52 are low. Inconsistent within the determinations of sample M52.

DTZ9PQ (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample M52.

SAMPLE M51
0.3752 Percent

SAMPLE M52
0.3723 Percent



		Sample M51			Sample M52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
227EWC		0.1845	0.0011	0.12	0.0887	0.0024	0.46	IC
269BL7		0.1812	-0.0021	-0.22	0.0837	-0.0026	-0.52	XR
2F86ZP		0.1893	0.0059	0.64	0.0843	-0.0020	-0.39	DR
3MJHEE		0.1780	-0.0053	-0.57	0.0843	-0.0020	-0.39	IC
3W8BQB		0.1800	-0.0033	-0.36	0.0839	-0.0024	-0.48	OE
4H9P2U		0.1823	-0.0010	-0.11	0.0901	0.0038	0.75	OE
6RWVHY		0.1883	0.0050	0.54	0.0890	0.0027	0.53	IC
6TKEEQ		0.1753	-0.0080	-0.85	0.0893	0.0030	0.59	OE
7D8FUP	*	0.1563	-0.0270	-2.89	0.0770	-0.0093	-1.82	OE
7KPVDM		0.1697	-0.0137	-1.46	0.0810	-0.0053	-1.04	WD
7V6M2W		0.1920	0.0087	0.93	0.0851	-0.0012	-0.24	WD
8XAJZ7	*	0.1960	0.0127	1.36	0.1017	0.0154	3.01	GD
99M283		0.1777	-0.0057	-0.61	0.0903	0.0040	0.79	OE
AC2D6V		0.1800	-0.0033	-0.36	0.0820	-0.0043	-0.84	WD
ACAWPU		0.1853	0.0020	0.22	0.0860	-0.0003	-0.06	OE
AUEZPH	X	0.1587	-0.0247	-2.64	0.0667	-0.0196	-3.85	XX
BCYLA9		0.1700	-0.0133	-1.43	0.0800	-0.0063	-1.24	OE
BMXJUM		0.1800	-0.0033	-0.36	0.0860	-0.0003	-0.06	IC
CMQU6G		0.1804	-0.0029	-0.31	0.0886	0.0023	0.46	WD
DHYYRF		0.1847	0.0013	0.14	0.0843	-0.0020	-0.39	WD
DPGDTZ		0.1740	-0.0093	-1.00	0.0887	0.0024	0.46	OE
DTZ9PQ		0.1783	-0.0050	-0.53	0.0863	0.0000	0.01	OE
E2MMVF		0.1850	0.0017	0.18	0.0867	0.0004	0.07	IC
EDH2Q7		0.1893	0.0060	0.64	0.0960	0.0097	1.90	OE
EXAT6B		0.1768	-0.0065	-0.70	0.0830	-0.0033	-0.65	OE
GDV97C	X	0.1487	-0.0347	-3.71	0.0823	-0.0040	-0.78	OE
GT6ZVB	*	0.2087	0.0253	2.71	0.0943	0.0080	1.56	OE
H4W4EV		0.1770	-0.0064	-0.68	0.0834	-0.0029	-0.57	OE
HBKPN3		0.1797	-0.0037	-0.39	0.0797	-0.0066	-1.30	WD
HYMTHU		0.1760	-0.0073	-0.78	0.0777	-0.0086	-1.69	OE
J7J36X		0.1957	0.0123	1.32	0.0877	0.0014	0.27	XX
KDN77H		0.1833	0.0000	0.00	0.0900	0.0037	0.72	OE
KERUC8		0.1763	-0.0070	-0.75	0.0805	-0.0058	-1.13	OE
LYQCKU		0.1844	0.0011	0.12	0.0867	0.0004	0.08	OE
N8G8L2		0.1900	0.0067	0.71	0.0860	-0.0003	-0.06	XX
NHYJ47		0.1750	-0.0083	-0.89	0.0843	-0.0020	-0.39	OE
NKPRA2		0.1851	0.0018	0.19	0.0870	0.0007	0.13	OE
QFKY92		0.1860	0.0027	0.29	0.0873	0.0010	0.20	WD
QWTNP9	X	0.2163	0.0330	3.53	0.0860	-0.0003	-0.06	OE
RYFP82		0.1800	-0.0033	-0.36	0.0783	-0.0080	-1.56	XX
T2VHFL		0.1753	-0.0080	-0.85	0.0827	-0.0036	-0.71	OE
T46QHE		0.1861	0.0028	0.30	0.0868	0.0005	0.10	WD
T7AHAR		0.1849	0.0015	0.17	0.0857	-0.0006	-0.13	OE
T8NJU8		0.1963	0.0130	1.39	0.0937	0.0074	1.44	WD
TDV6QR		0.1773	-0.0061	-0.65	0.0838	-0.0025	-0.49	OE
TJVTWX	*	0.2087	0.0253	2.71	0.0943	0.0080	1.57	OE
TLNL89	*	0.1963	0.0130	1.39	0.0998	0.0135	2.64	GD

Fasteners and Metals Interlaboratory Testing Program

Analysis 185

Corrosion Resistant Steel, Element #6
COBALT (Co)

WebCode	Data Flag	Sample M51 Lab Mean	Sample M51 Diff. from Grand Mean	Sample M51 CPV	Sample M52 Lab Mean	Sample M52 Diff. from Grand Mean	Sample M52 CPV	Method
TPPHQN		0.1817	-0.0016	-0.17	0.0852	-0.0011	-0.21	XR
UTJWQH		0.1853	0.0020	0.22	0.0856	-0.0007	-0.15	OE
WTBJBK		0.1977	0.0144	1.54	0.0842	-0.0021	-0.41	XX
WWUT74		0.1840	0.0007	0.07	0.0847	-0.0016	-0.32	IC
ZA6KBM		0.1773	-0.0060	-0.64	0.0837	-0.0026	-0.52	OE

Summary Statistics

	Sample M51		Sample M52	
Grand Means	0.1833	Percent	0.0863	Percent
Stnd Dev Btwn Labs	0.0093	Percent	0.0051	Percent

Samples M51, M52 : AISI 309, AISI 309

Statistics based on 49 of 52 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 #185

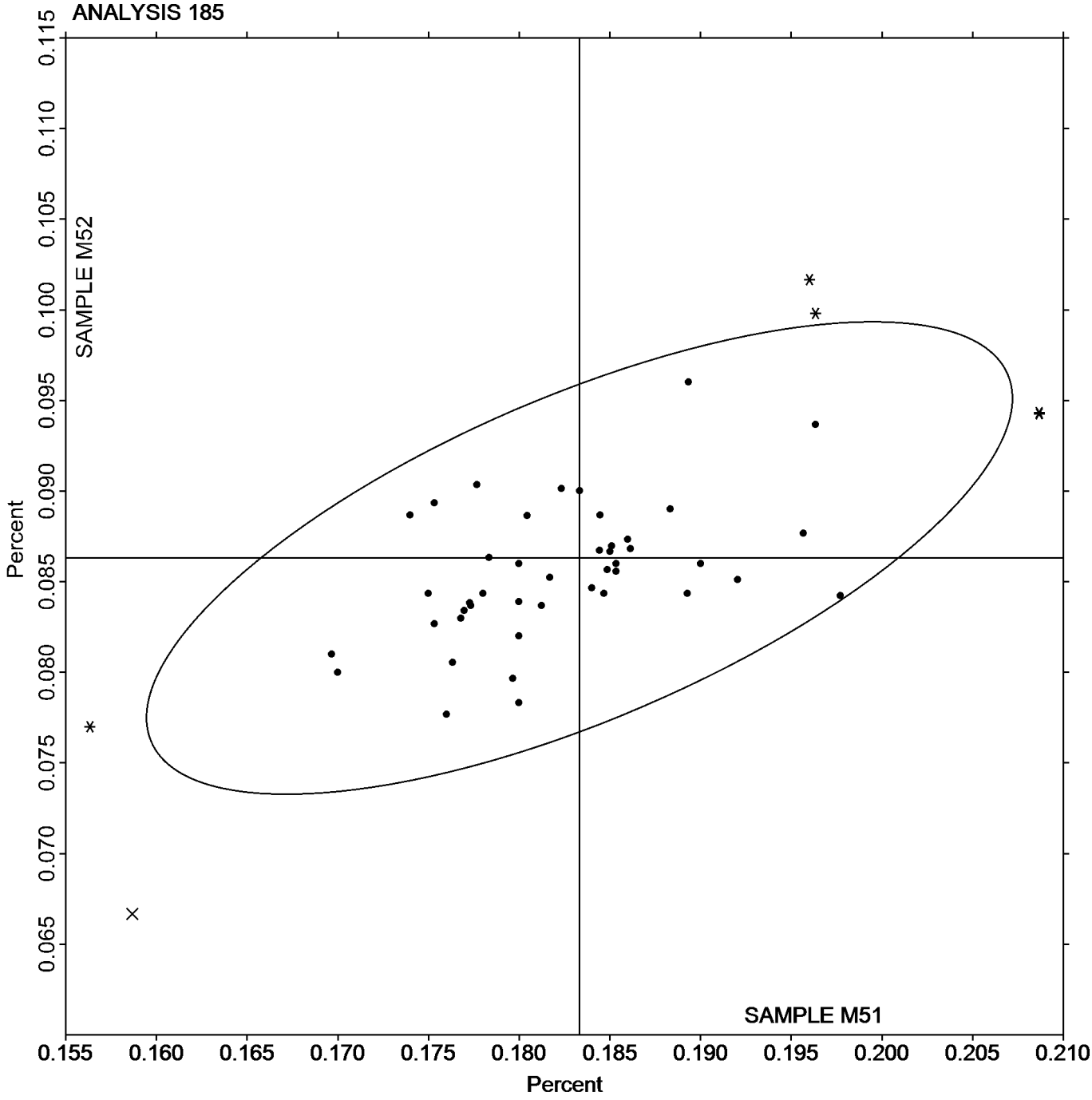
AUEZPH (X) - Data for sample M52 are low.

GDV97C (X) - Data for sample M51 are low.

QWTNP9 (X) - Data for sample M51 are high.

SAMPLE M51
0.1833 Percent

SAMPLE M52
0.0863 Percent



		Sample M51			Sample M52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
227EWC		13.29	-0.08	-0.65	13.79	-0.08	-0.57	IC
269BL7		13.32	-0.05	-0.38	13.83	-0.04	-0.29	XR
2F86ZP		13.37	0.00	-0.01	13.86	-0.01	-0.09	DR
2LF3WN		13.35	-0.02	-0.13	13.84	-0.03	-0.22	WC
3MJHEE		13.19	-0.17	-1.45	13.72	-0.15	-1.12	GR
4H9P2U	*	13.72	0.35	2.90	14.23	0.36	2.64	OE
6RWVHY	X	13.23	-0.13	-1.12	14.03	0.16	1.20	IC
6TKEEQ	*	13.07	-0.29	-2.45	13.49	-0.38	-2.81	OE
7D8FUP		13.37	0.00	0.02	13.87	0.00	-0.02	OE
7KPVDM		13.45	0.08	0.66	13.97	0.10	0.71	WD
7V6M2W		13.42	0.05	0.41	13.92	0.05	0.34	WD
8XAJZ7	X	12.97	-0.40	-3.34	13.83	-0.04	-0.26	GD
99M283	*	13.08	-0.29	-2.42	13.50	-0.37	-2.73	OE
AC2D6V		13.44	0.08	0.63	13.95	0.08	0.62	WD
ACAWPU		13.45	0.08	0.68	13.95	0.08	0.59	OE
AUEZPH		13.47	0.10	0.82	14.09	0.22	1.62	XX
BCYLA9		13.43	0.07	0.54	13.95	0.08	0.59	OE
BMXJUM		13.20	-0.17	-1.40	13.70	-0.17	-1.24	IC
CMQU6G		13.40	0.03	0.27	13.92	0.05	0.40	WD
DHYYRF		13.42	0.05	0.40	13.95	0.08	0.57	WD
DPGDTZ		13.36	-0.01	-0.07	13.87	0.00	-0.02	OE
DTZ9PQ		13.57	0.20	1.65	14.10	0.23	1.67	OE
E2MMVF		13.29	-0.08	-0.65	13.76	-0.11	-0.83	IC
EDH2Q7		13.30	-0.07	-0.59	13.81	-0.06	-0.41	OE
EXAT6B		13.24	-0.13	-1.07	13.70	-0.17	-1.27	OE
G397TJ		13.29	-0.07	-0.62	13.75	-0.12	-0.88	OE
GDV97C		13.23	-0.13	-1.12	13.69	-0.18	-1.32	OE
GT6ZVB		13.32	-0.05	-0.40	13.83	-0.04	-0.26	OE
H4W4EV		13.43	0.06	0.49	13.96	0.09	0.69	OE
HBKPN3		13.39	0.02	0.18	13.92	0.05	0.40	WD
HGBWBG		13.50	0.13	1.07	13.98	0.11	0.81	OE
J7J36X		13.42	0.05	0.40	13.90	0.03	0.22	XX
KDN77H		13.39	0.03	0.21	13.88	0.01	0.10	OE
KERUC8		13.43	0.06	0.49	13.92	0.05	0.35	OE
LYQCKU		13.44	0.07	0.56	13.93	0.06	0.43	OE
N8G8L2		13.32	-0.05	-0.40	13.83	-0.04	-0.26	OE
NHYJ47		13.36	0.00	-0.04	13.81	-0.06	-0.44	OE
NKPRA2		13.45	0.08	0.69	13.92	0.05	0.40	OE
PUEWTE		13.39	0.02	0.15	13.83	-0.04	-0.31	ED
QFKY92		13.27	-0.10	-0.82	13.72	-0.15	-1.07	WD
QWTNP9		13.52	0.15	1.24	14.06	0.19	1.42	OE
RYFP82		13.36	0.00	-0.03	13.92	0.05	0.34	XX
T2VHFL	X	12.75	-0.61	-5.11	13.23	-0.64	-4.71	OE
T46QHE		13.37	0.00	-0.02	13.86	-0.01	-0.07	WD
T7AHAR		13.27	-0.10	-0.82	13.85	-0.02	-0.13	OE
T8NJU8		13.41	0.04	0.37	13.90	0.03	0.19	WD
TDV6QR		13.33	-0.04	-0.33	13.83	-0.03	-0.25	OE

Fasteners and Metals Interlaboratory Testing Program

Analysis 186

Corrosion Resistant Steel, Element #7

NICKEL (Ni)

Cycle 122
2nd Qtr
2018

		Sample M51			Sample M52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
TJVTWX		13.21	-0.15	-1.29	13.80	-0.07	-0.51	OE
TLNL89		13.50	0.13	1.10	13.97	0.10	0.71	GD
TPPHQN		13.35	-0.01	-0.11	13.85	-0.02	-0.15	XR
UTJWQH	*	13.66	0.30	2.46	14.16	0.29	2.13	OE
WTBJBK		13.24	-0.12	-1.03	13.75	-0.12	-0.86	XX
WWUT74		13.35	-0.02	-0.15	13.85	-0.02	-0.17	IC
ZA6KBM		13.38	0.01	0.10	13.92	0.05	0.35	OE

Summary Statistics

	Sample M51		Sample M52	
Grand Means	13.37	Percent	13.87	Percent
Stnd Dev Btwn Labs	0.12	Percent	0.14	Percent

Samples M51, M52 : AISI 309, AISI 309

Statistics based on 51 of 54 reporting participants

Key to Method Codes Reported by Participants

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

Comments on Assigned Data Flags for Test #186

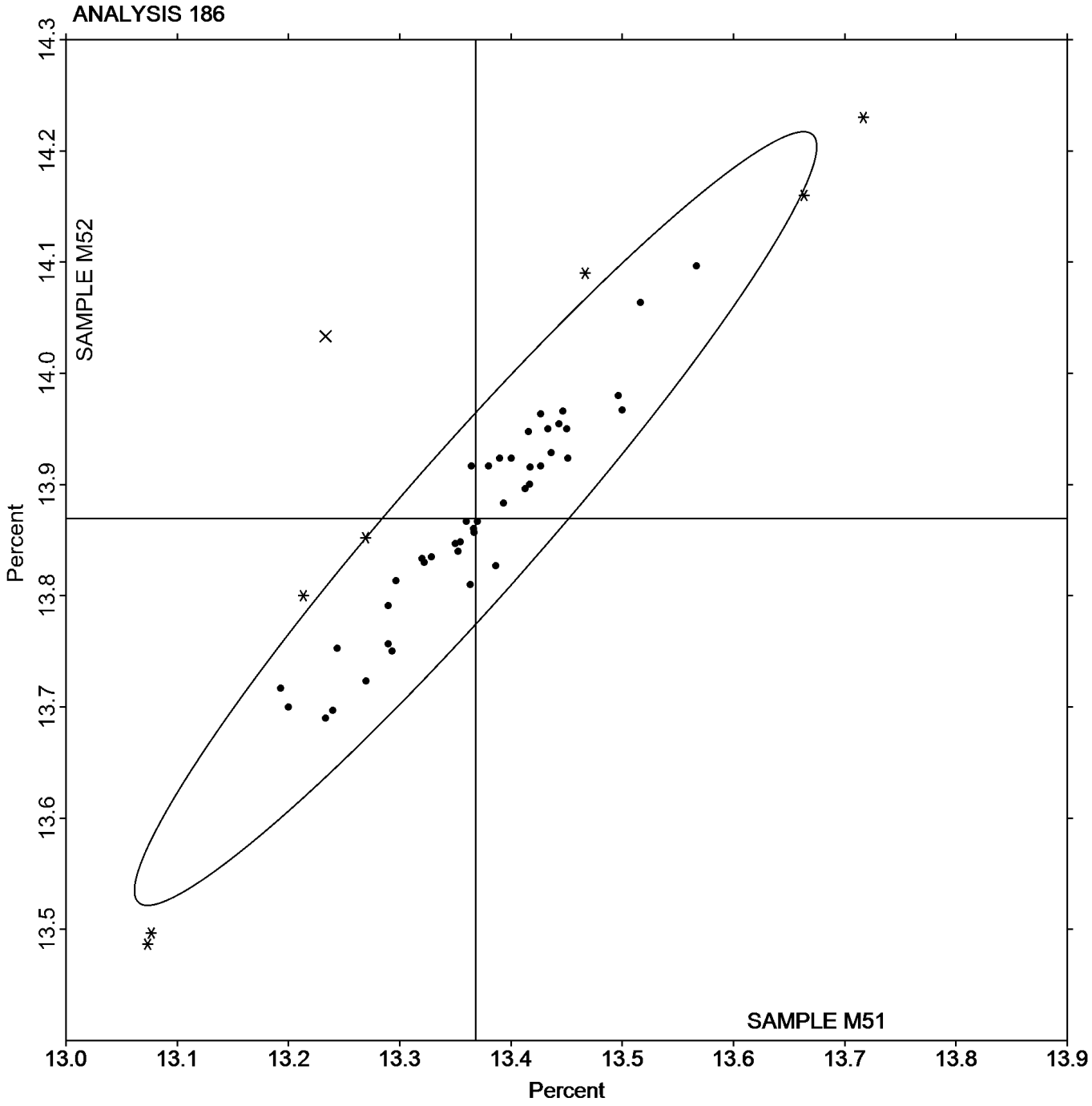
6RWVHY (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample M52.

8XAJZ7 (X) - Data for sample M51 are low. Inconsistent within the determinations of sample M52.

T2VHFL (X) - Data for both samples are low. Possible Systematic Error.

SAMPLE M51
13.37 Percent

SAMPLE M52
13.87 Percent



		Sample M51			Sample M52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
227EWC		22.74	0.10	0.80	22.83	0.06	0.49	IC
269BL7		22.60	-0.04	-0.28	22.67	-0.09	-0.71	XR
2F86ZP		22.69	0.05	0.43	22.84	0.07	0.57	DR
2LF3WN		22.62	-0.02	-0.12	22.81	0.05	0.37	WC
3MJHEE		22.65	0.01	0.11	22.73	-0.03	-0.26	TI
3W8BQB		22.63	-0.01	-0.10	22.89	0.12	0.94	OE
4H9P2U		22.46	-0.18	-1.44	22.60	-0.16	-1.23	OE
6RWVHY		22.61	-0.03	-0.21	22.62	-0.14	-1.10	TI
6TKEEQ	*	23.01	0.37	2.99	23.16	0.39	3.01	OE
7D8FUP		22.65	0.01	0.11	22.70	-0.06	-0.46	OE
7KPVDM		22.67	0.03	0.24	22.83	0.07	0.52	WD
7V6M2W		22.70	0.06	0.51	22.78	0.02	0.15	WD
8XAJZ7	X	22.20	-0.44	-3.52	22.13	-0.63	-4.83	GD
99M283	X	21.93	-0.71	-5.68	22.47	-0.29	-2.25	OE
AC2D6V		22.58	-0.06	-0.47	22.70	-0.07	-0.51	WD
ACAWPU		22.59	-0.05	-0.42	22.65	-0.11	-0.85	OE
AUEZPH		22.54	-0.10	-0.82	22.74	-0.02	-0.18	XX
BCYLA9		22.60	-0.04	-0.34	22.70	-0.06	-0.49	OE
BMXJUM	X	21.90	-0.74	-5.92	22.00	-0.76	-5.85	IC
CMQU6G		22.60	-0.04	-0.31	22.72	-0.04	-0.33	WD
DHYYRF		22.88	0.24	1.90	23.01	0.25	1.89	WD
DPGDTZ		22.77	0.13	1.07	22.90	0.14	1.04	OE
DTZ9PQ		22.70	0.06	0.48	22.85	0.08	0.63	OE
E2MMVF		22.67	0.03	0.22	22.76	-0.01	-0.05	IC
EDH2Q7		22.57	-0.07	-0.58	22.69	-0.07	-0.54	OE
EXAT6B		22.62	-0.02	-0.19	22.87	0.10	0.80	OE
G397TJ		22.57	-0.07	-0.56	22.79	0.03	0.20	OE
GDV97C		22.60	-0.04	-0.32	22.74	-0.03	-0.21	OE
GT6ZVB		22.57	-0.07	-0.53	22.69	-0.08	-0.59	OE
H4W4EV	X	23.17	0.53	4.28	23.07	0.31	2.35	OE
HBKPN3		22.65	0.01	0.11	22.85	0.09	0.66	WD
HGBWBG	X	21.54	-1.10	-8.78	21.64	-1.12	-8.58	OE
J7J36X		22.61	-0.03	-0.21	22.72	-0.05	-0.36	XX
KDN77H	*	22.24	-0.40	-3.17	22.38	-0.38	-2.91	OE
KERUC8		22.71	0.07	0.54	22.87	0.11	0.84	OE
LYQCKU		22.58	-0.06	-0.44	22.71	-0.05	-0.41	OE
N8G8L2		22.53	-0.11	-0.85	22.70	-0.07	-0.51	OE
NHYJ47		22.57	-0.07	-0.58	22.69	-0.07	-0.54	OE
NKPRA2		22.78	0.14	1.11	22.89	0.13	0.99	OE
PUEWTE		22.64	0.00	0.03	22.77	0.00	0.02	ED
QFKY92		22.71	0.07	0.54	22.83	0.07	0.52	WD
QWTNP9		22.67	0.03	0.27	22.91	0.15	1.12	OE
RYFP82		22.67	0.03	0.26	22.82	0.05	0.41	XX
T2VHFL	X	23.20	0.56	4.52	23.39	0.62	4.77	OE
T46QHE		22.66	0.02	0.15	22.76	0.00	-0.03	WD
T7AHAR		22.89	0.25	2.03	22.95	0.19	1.46	OE
T8NJU8		22.73	0.09	0.70	22.72	-0.04	-0.30	WD

Fasteners and Metals Interlaboratory Testing Program

Analysis 187

Corrosion Resistant Steel, Element #8
CHROMIUM (Cr)

Cycle 122
2nd Qtr
2018

		Sample M51			Sample M52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
TDV6QR		22.49	-0.15	-1.18	22.55	-0.21	-1.61	OE
TJVTWX		22.53	-0.11	-0.88	22.65	-0.12	-0.90	OE
TLNL89		22.40	-0.24	-1.92	22.50	-0.26	-2.02	GD
TPPHQN		22.60	-0.04	-0.28	22.68	-0.08	-0.62	XR
UTJWQH		22.58	-0.06	-0.48	22.73	-0.03	-0.23	OE
WTBJBK		22.86	0.22	1.74	22.92	0.16	1.20	XX
WWUT74		22.68	0.04	0.35	22.78	0.02	0.12	IC
ZA6KBM	X	22.32	-0.32	-2.56	22.20	-0.56	-4.32	OE

Summary Statistics

	Sample M51		Sample M52	
Grand Means	22.64	Percent	22.76	Percent
Stnd Dev Btwn Labs	0.12	Percent	0.13	Percent

Samples M51, M52 : AISI 309, AISI 309

Statistics based on 48 of 55 reporting participants

Key to Method Codes Reported by Participants

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

Comments on Assigned Data Flags for Test #187

8XAJZ7 (X) - Data for both samples are low. Possible Systematic Error.

99M283 (X) - Data for sample M51 are low.

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

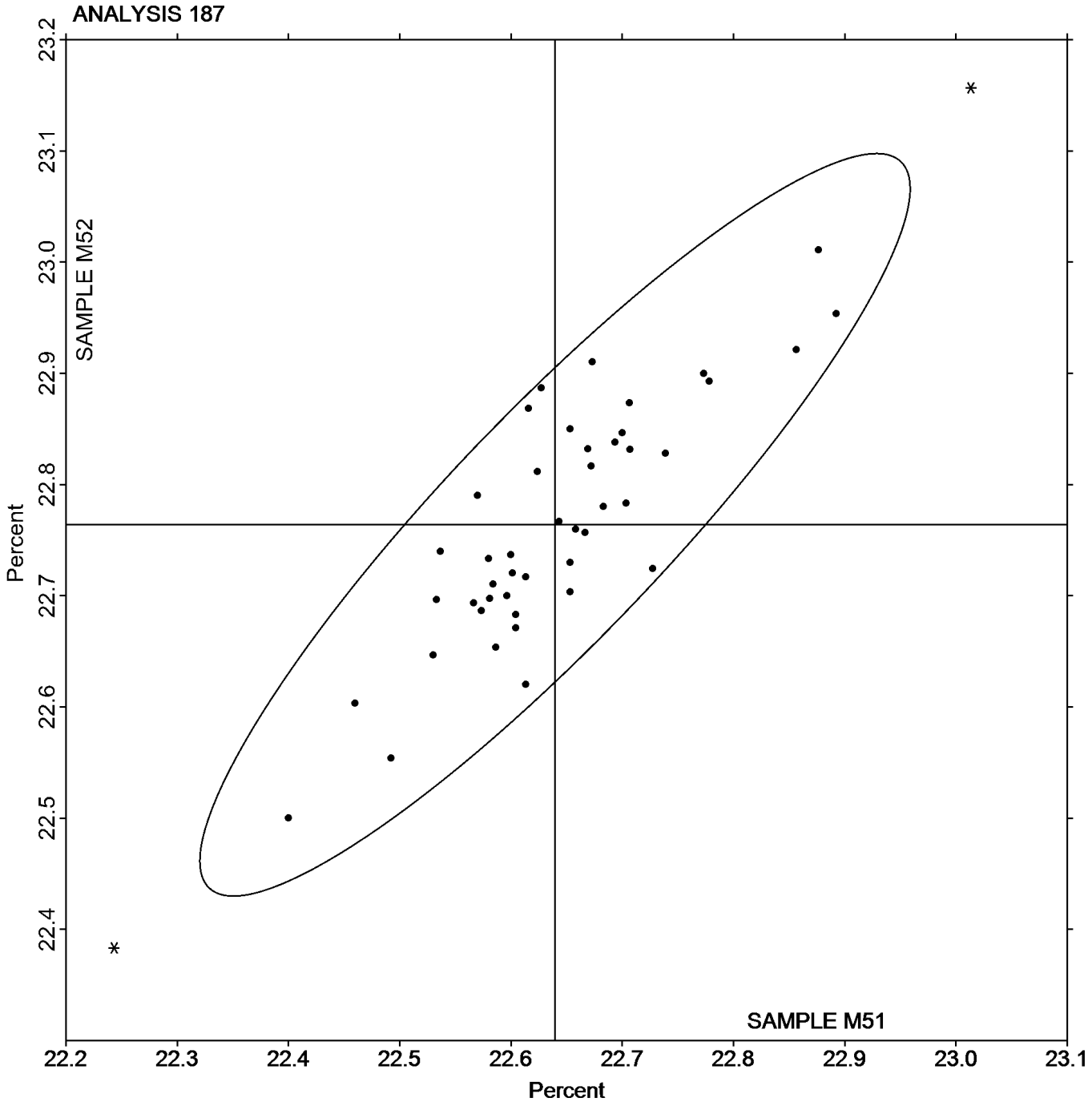
H4W4EV (X) - Data for sample M51 are high. Inconsistent within the determinations of sample M52.

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

T2VHFL (X) - Data for both samples are high. Possible Systematic Error.

ZA6KBM (X) - Data for sample M52 are low.

SAMPLE M51	SAMPLE M52
22.64 Percent	22.76 Percent



		Sample M51			Sample M52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
227EWC		0.1599	-0.0059	-0.98	0.2129	-0.0068	-1.02	IC
269BL7		0.1577	-0.0081	-1.34	0.2119	-0.0077	-1.17	XR
3MJHEE		0.1647	-0.0011	-0.18	0.2177	-0.0020	-0.30	IC
3W8BQB		0.1679	0.0021	0.35	0.2219	0.0022	0.34	OE
4H9P2U		0.1717	0.0059	0.98	0.2220	0.0024	0.36	OE
6RWVHY		0.1640	-0.0017	-0.29	0.2213	0.0017	0.26	IC
6TKEEQ		0.1553	-0.0104	-1.73	0.2030	-0.0166	-2.51	OE
7D8FUP	X	0.1720	0.0063	1.04	0.2467	0.0270	4.08	OE
7KPVDM		0.1647	-0.0011	-0.18	0.2210	0.0014	0.21	WD
7V6M2W		0.1640	-0.0017	-0.29	0.2207	0.0010	0.16	WD
8XAJZ7		0.1687	0.0029	0.49	0.2200	0.0004	0.06	GD
99M283	X	0.2113	0.0456	7.57	0.2627	0.0430	6.49	OE
AC2D6V		0.1523	-0.0134	-2.23	0.2077	-0.0120	-1.80	WD
ACAWPU	X	0.1497	-0.0161	-2.67	0.2237	0.0040	0.61	OE
AUEZPH		0.1670	0.0013	0.21	0.2093	-0.0103	-1.55	XX
BCYLA9		0.1657	-0.0001	-0.01	0.2223	0.0027	0.41	OE
BMXJUM		0.1600	-0.0057	-0.95	0.2100	-0.0096	-1.45	IC
CMQU6G		0.1601	-0.0056	-0.93	0.2150	-0.0046	-0.69	WD
DHYYRF		0.1677	0.0019	0.32	0.2233	0.0037	0.56	WD
DPGDTZ		0.1720	0.0063	1.04	0.2123	-0.0073	-1.10	OE
DTZ9PQ		0.1680	0.0023	0.37	0.2237	0.0040	0.61	OE
E2MMVF		0.1627	-0.0031	-0.51	0.2213	0.0017	0.26	IC
EDH2Q7		0.1810	0.0153	2.53	0.2273	0.0077	1.16	OE
EXAT6B		0.1737	0.0079	1.32	0.2210	0.0014	0.21	OE
G397TJ		0.1647	-0.0011	-0.18	0.2160	-0.0036	-0.55	OE
GDV97C		0.1710	0.0053	0.87	0.2203	0.0007	0.11	OE
GT6ZVB		0.1650	-0.0007	-0.12	0.2103	-0.0093	-1.40	OE
H4W4EV		0.1671	0.0014	0.23	0.2257	0.0061	0.92	OE
HBKPN3		0.1620	-0.0037	-0.62	0.2180	-0.0016	-0.24	WD
HGBWBG	X	0.1857	0.0199	3.31	0.2473	0.0277	4.18	OE
HYMTHU		0.1690	0.0033	0.54	0.2250	0.0054	0.81	OE
J7J36X		0.1697	0.0039	0.65	0.2267	0.0070	1.06	XX
KDN77H		0.1687	0.0029	0.49	0.2227	0.0030	0.46	OE
KERUC8		0.1663	0.0006	0.10	0.2203	0.0007	0.11	OE
LYQCKU		0.1662	0.0005	0.08	0.2259	0.0063	0.95	OE
N8G8L2	*	0.1500	-0.0157	-2.62	0.2100	-0.0096	-1.45	XX
NHYJ47		0.1700	0.0043	0.71	0.2163	-0.0033	-0.50	OE
NKPRA2		0.1619	-0.0038	-0.64	0.2141	-0.0055	-0.83	OE
PUEWTE		0.1633	-0.0024	-0.40	0.2253	0.0057	0.86	ED
QFKY92		0.1607	-0.0051	-0.84	0.2253	0.0057	0.86	WD
QWTNP9		0.1670	0.0013	0.21	0.2190	-0.0006	-0.09	OE
RYFP82		0.1643	-0.0014	-0.23	0.2193	-0.0003	-0.04	XX
T2VHFL		0.1777	0.0119	1.98	0.2303	0.0107	1.62	OE
T46QHE		0.1640	-0.0017	-0.29	0.2203	0.0007	0.11	WD
T7AHAR		0.1610	-0.0048	-0.79	0.2135	-0.0061	-0.92	OE
T8NJU8		0.1747	0.0089	1.48	0.2343	0.0147	2.22	WD
TDV6QR		0.1633	-0.0025	-0.41	0.2218	0.0022	0.33	OE

Fasteners and Metals Interlaboratory Testing Program

Analysis 188

Corrosion Resistant Steel, Element #9

MOLYBDENUM (Mo)

Cycle 122
2nd Qtr
2018

		Sample M51			Sample M52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
TJVTWX		0.1590	-0.0067	-1.12	0.2123	-0.0073	-1.10	OE
TLNL89		0.1690	0.0033	0.54	0.2210	0.0014	0.21	GD
TPPHQN		0.1660	0.0003	0.04	0.2200	0.0004	0.06	OE
UTJWQH	X	0.1890	0.0233	3.86	0.2353	0.0157	2.37	OE
WTBJBK		0.1688	0.0031	0.51	0.2271	0.0074	1.12	XX
WWUT74		0.1643	-0.0014	-0.23	0.2197	0.0000	0.01	IC
ZA6KBM		0.1783	0.0126	2.09	0.2350	0.0154	2.32	OE

Summary Statistics

	Sample M51		Sample M52	
Grand Means	0.1657	Percent	0.2196	Percent
Stnd Dev Btwn Labs	0.0060	Percent	0.0066	Percent

Samples M51, M52 : AISI 309, AISI 309

Statistics based on 49 of 54 reporting participants

Key to Method Codes Reported by Participants

ED	X-Ray Fluorescence - Energy Dispersive (EDX)	GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)	OE	Spectrometry - Optical Emission (OES)
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 #188

7D8FUP (X) - Data for sample M52 are high.

99M283 (X) - Data for both samples are high.

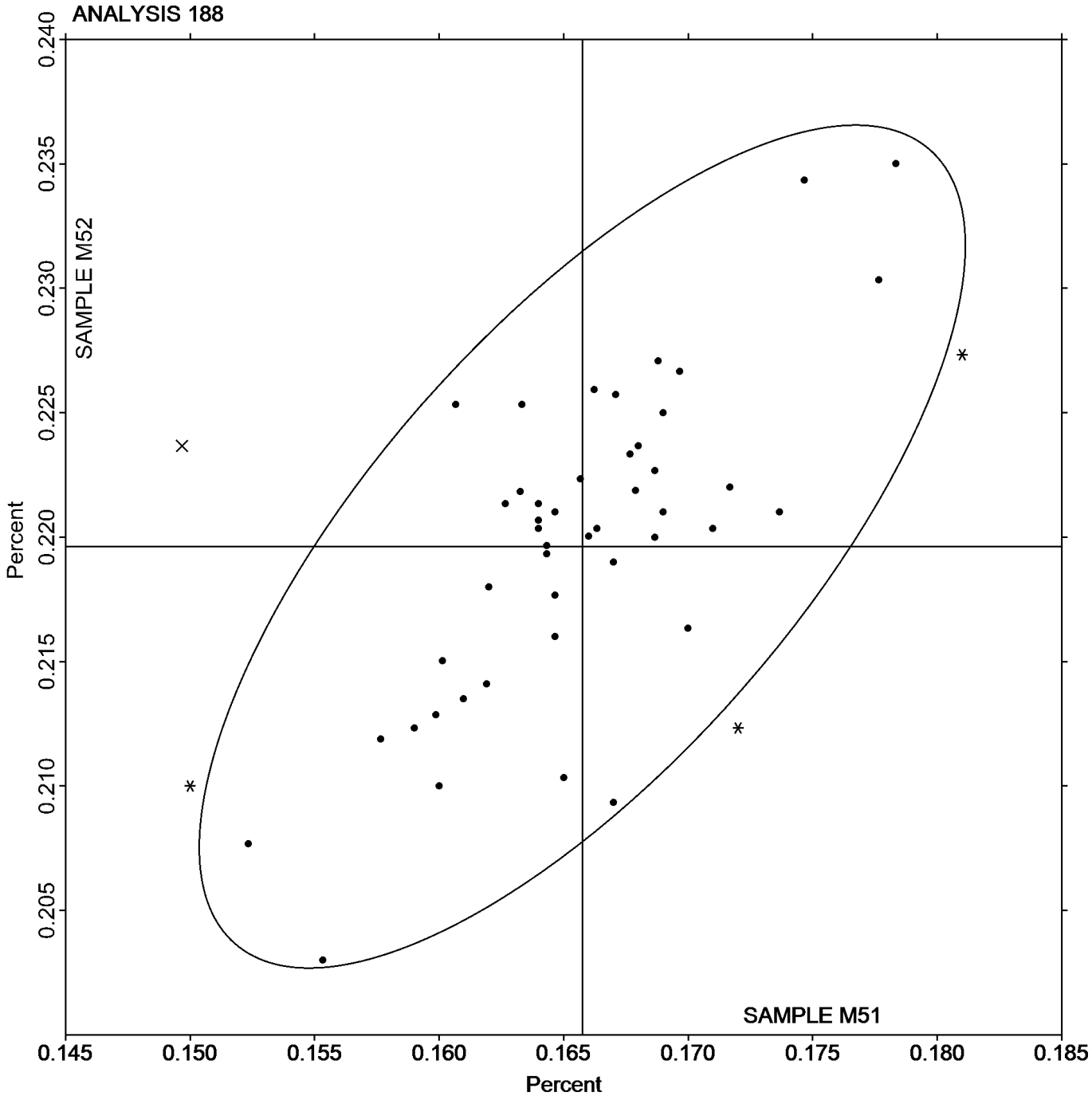
ACAWPU (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample M51.

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

UTJWQH (X) - Data for sample M51 are high.

SAMPLE M51
0.1657 Percent

SAMPLE M52
0.2196 Percent



		Sample M51			Sample M52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
227EWC		0.1220	-0.0015	-0.38	0.3220	-0.0009	-0.09	IC
269BL7		0.1240	0.0006	0.15	0.3276	0.0046	0.43	XR
2F86ZP		0.1250	0.0016	0.42	0.3064	-0.0165	-1.56	DR
3MJHEE		0.1253	0.0019	0.49	0.3210	-0.0020	-0.18	IC
3W8BQB		0.1262	0.0028	0.72	0.3190	-0.0040	-0.37	OE
4H9P2U		0.1273	0.0039	1.01	0.3313	0.0084	0.79	OE
6RWVHY		0.1247	0.0012	0.32	0.3263	0.0034	0.32	IC
6TKEEQ		0.1200	-0.0034	-0.89	0.3033	-0.0196	-1.85	OE
7D8FUP		0.1300	0.0066	1.70	0.3100	-0.0130	-1.22	OE
7KPVDM		0.1250	0.0016	0.41	0.3260	0.0030	0.29	WD
7V6M2W		0.1255	0.0021	0.54	0.3243	0.0014	0.13	WD
8XAJZ7		0.1137	-0.0098	-2.53	0.3187	-0.0043	-0.40	GD
99M283		0.1293	0.0059	1.53	0.3270	0.0040	0.38	OE
AC2D6V		0.1200	-0.0034	-0.89	0.3300	0.0070	0.66	WD
ACAWPU		0.1253	0.0019	0.49	0.3233	0.0004	0.04	OE
AUEZPH		0.1283	0.0049	1.27	0.3333	0.0104	0.98	XX
BCYLA9		0.1270	0.0036	0.93	0.3263	0.0034	0.32	OE
BMXJUM		0.1200	-0.0034	-0.89	0.3167	-0.0063	-0.59	IC
CMQU6G		0.1287	0.0052	1.36	0.3310	0.0081	0.76	WD
DHYYRF		0.1277	0.0042	1.10	0.3340	0.0110	1.04	WD
DPGDTZ		0.1167	-0.0068	-1.76	0.3260	0.0030	0.29	OE
DTZ9PQ		0.1257	0.0022	0.58	0.3243	0.0014	0.13	OE
E2MMVF		0.1270	0.0036	0.93	0.3323	0.0094	0.88	IC
EDH2Q7		0.1273	0.0039	1.01	0.3200	-0.0030	-0.28	OE
EXAT6B		0.1218	-0.0016	-0.41	0.3472	0.0242	2.28	OE
G397TJ		0.1173	-0.0061	-1.58	0.2997	-0.0233	-2.20	OE
GDV97C		0.1300	0.0066	1.70	0.3137	-0.0093	-0.88	OE
GT6ZVB		0.1177	-0.0058	-1.50	0.3020	-0.0210	-1.98	OE
H4W4EV	X	0.0721	-0.0513	-13.32	0.2487	-0.0742	-7.00	OE
HBKPN3		0.1223	-0.0011	-0.28	0.3257	0.0027	0.26	WD
HGBWBG		0.1167	-0.0068	-1.76	0.3440	0.0210	1.98	OE
HYMTHU		0.1233	-0.0001	-0.03	0.3243	0.0014	0.13	OE
J7J36X		0.1267	0.0032	0.84	0.3317	0.0087	0.82	XX
KDN77H		0.1260	0.0026	0.67	0.3380	0.0150	1.42	OE
KERUC8		0.1220	-0.0014	-0.37	0.3230	0.0000	0.00	OE
LYQCKU		0.1216	-0.0018	-0.48	0.3244	0.0014	0.13	OE
N8G8L2		0.1233	-0.0001	-0.03	0.3033	-0.0196	-1.85	OE
NHYJ47		0.1200	-0.0034	-0.89	0.3237	0.0007	0.07	OE
NKPRA2	X	0.1385	0.0150	3.90	0.3146	-0.0083	-0.78	OE
QFKY92		0.1253	0.0019	0.49	0.3333	0.0104	0.98	WD
QWTNP9		0.1267	0.0032	0.84	0.3237	0.0007	0.07	OE
RYFP82		0.1220	-0.0014	-0.37	0.3217	-0.0013	-0.12	XX
T2VHFL		0.1227	-0.0008	-0.20	0.3080	-0.0150	-1.41	OE
T46QHE		0.1277	0.0042	1.10	0.3207	-0.0023	-0.22	WD
T7AHAR		0.1226	-0.0008	-0.22	0.3300	0.0071	0.67	OE
T8NJU8		0.1240	0.0006	0.15	0.3350	0.0120	1.13	WD
TDV6QR		0.1180	-0.0055	-1.42	0.3210	-0.0019	-0.18	OE

WebCode	Data Flag	Sample M51 Lab Mean	Sample M51 Diff. from Grand Mean	Sample M51 CPV	Sample M52 Lab Mean	Sample M52 Diff. from Grand Mean	Sample M52 CPV	Method
TJVTWX		0.1200	-0.0034	-0.89	0.3000	-0.0230	-2.16	OE
TLNL89		0.1217	-0.0018	-0.46	0.3153	-0.0076	-0.72	GD
TPPHQN		0.1249	0.0015	0.39	0.3296	0.0066	0.63	XR
UTJWQH		0.1200	-0.0034	-0.89	0.3340	0.0110	1.04	OE
WTBJBK	X	0.1554	0.0320	8.30	0.3346	0.0117	1.10	XX
WWUT74		0.1213	-0.0021	-0.54	0.3213	-0.0016	-0.15	IC
ZA6KBM		0.1177	-0.0058	-1.50	0.3163	-0.0066	-0.62	OE

Summary Statistics

	Sample M51		Sample M52	
Grand Means	0.1234	Percent	0.3230	Percent
Stnd Dev Btwn Labs	0.0039	Percent	0.0106	Percent

Samples M51, M52 : AISI 309, AISI 309

Statistics based on 51 of 54 reporting participants

Key to Method Codes Reported by Participants

DR	Spectrometry - Direct Reading OE (DROES)	GD	Spectrometry - Glow Discharge (GDS)
IC	Spectrometry - Inductively Coupled Plasma (ICP)	OE	Spectrometry - Optical Emission (OES)
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 #189

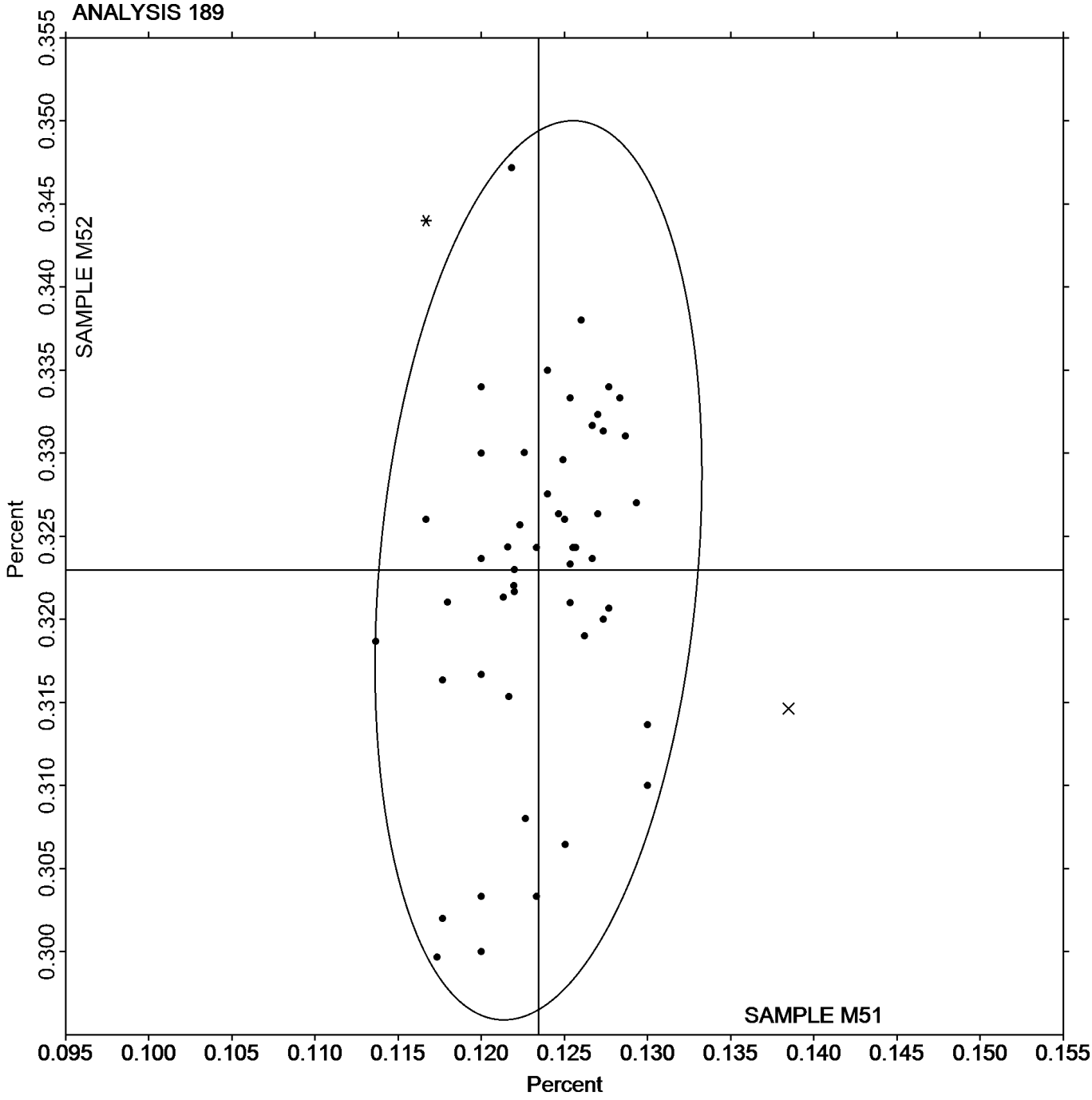
H4W4EV (X) - Data for both samples are low. Inconsistent within the determinations of sample M52.

NKPRA2 (X) - Data for sample M51 are high.

WTBJBK (X) - Data for sample M51 are high. Very inconsistent within the determinations of sample M51.

SAMPLE M51
0.1234 Percent

SAMPLE M52
0.3230 Percent



WebCode	Data Flag	Sample A51 Lab Mean	Sample A51 Diff. from Grand Mean	Sample A51 CPV	Sample A52 Lab Mean	Sample A52 Diff. from Grand Mean	Sample A52 CPV	Method
2DZNPD		0.1420	0.0074	1.18	0.1100	0.0064	1.18	OE
3MJHEE		0.1307	-0.0040	-0.63	0.0997	-0.0039	-0.71	IC
4E6ZDR		0.1400	0.0054	0.86	0.1100	0.0064	1.18	IC
7D8FUP		0.1320	-0.0026	-0.42	0.1003	-0.0032	-0.59	OE
7HWYPT		0.1353	0.0007	0.11	0.1033	-0.0002	-0.04	OE
7XBJD8		0.1355	0.0009	0.14	0.1066	0.0030	0.56	OE
8DXJHC		0.1324	-0.0023	-0.36	0.1005	-0.0030	-0.56	OE
8XAJZ7	*	0.1390	0.0044	0.70	0.1160	0.0124	2.28	GD
99M283		0.1197	-0.0150	-2.38	0.0917	-0.0119	-2.18	OE
9KXRUB		0.1329	-0.0017	-0.27	0.1020	-0.0015	-0.28	OE
BB43AT		0.1374	0.0028	0.45	0.1045	0.0009	0.17	OE
C4E8GM		0.1387	0.0040	0.64	0.1080	0.0044	0.81	OE
C7KYM3		0.1340	-0.0006	-0.10	0.1013	-0.0022	-0.41	OE
CXUG79		0.1267	-0.0080	-1.27	0.0960	-0.0076	-1.39	OE
EXAT6B		0.1400	0.0054	0.86	0.1070	0.0034	0.63	OE
F23BLA		0.1443	0.0097	1.55	0.1103	0.0067	1.24	OE
GFXCFL		0.1339	-0.0007	-0.11	0.1025	-0.0011	-0.20	OE
JTEGRU		0.1375	0.0029	0.46	0.1076	0.0041	0.75	IC
NCRRJU	*	0.1323	-0.0023	-0.36	0.1057	0.0021	0.39	OE
NVLX3Y		0.1380	0.0034	0.54	0.1073	0.0038	0.69	OE
QWTNP9		0.1383	0.0037	0.59	0.1080	0.0044	0.81	OE
T8NJU8		0.1353	0.0007	0.11	0.1033	-0.0002	-0.04	OE
T9YKL8	*	0.1167	-0.0180	-2.86	0.0887	-0.0149	-2.73	OE
UMEZ7H		0.1360	0.0014	0.22	0.1053	0.0018	0.33	OE
VJRPMJ		0.1300	-0.0046	-0.74	0.1000	-0.0036	-0.65	OE
X22NF7	X	0.4903	0.3557	56.65	0.3180	0.2144	39.35	OE
XRUN76		0.1373	0.0027	0.43	0.1050	0.0014	0.26	OE
Y2G83N		0.1437	0.0090	1.44	0.1110	0.0074	1.37	OE
ZG2GXP		0.1340	-0.0006	-0.09	0.1004	-0.0032	-0.59	OE
ZMUJ4B	X	0.1100	-0.0246	-3.92	0.0959	-0.0077	-1.41	OE

Summary Statistics

	Sample A51		Sample A52	
Grand Means	0.1346	Percent	0.1036	Percent
Stnd Dev Btwn Labs	0.0063	Percent	0.0054	Percent

Samples A51, A52 : AA6061, AA6061

Statistics based on 27 of 30 reporting participants

Key to Method Codes Reported by Participants

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

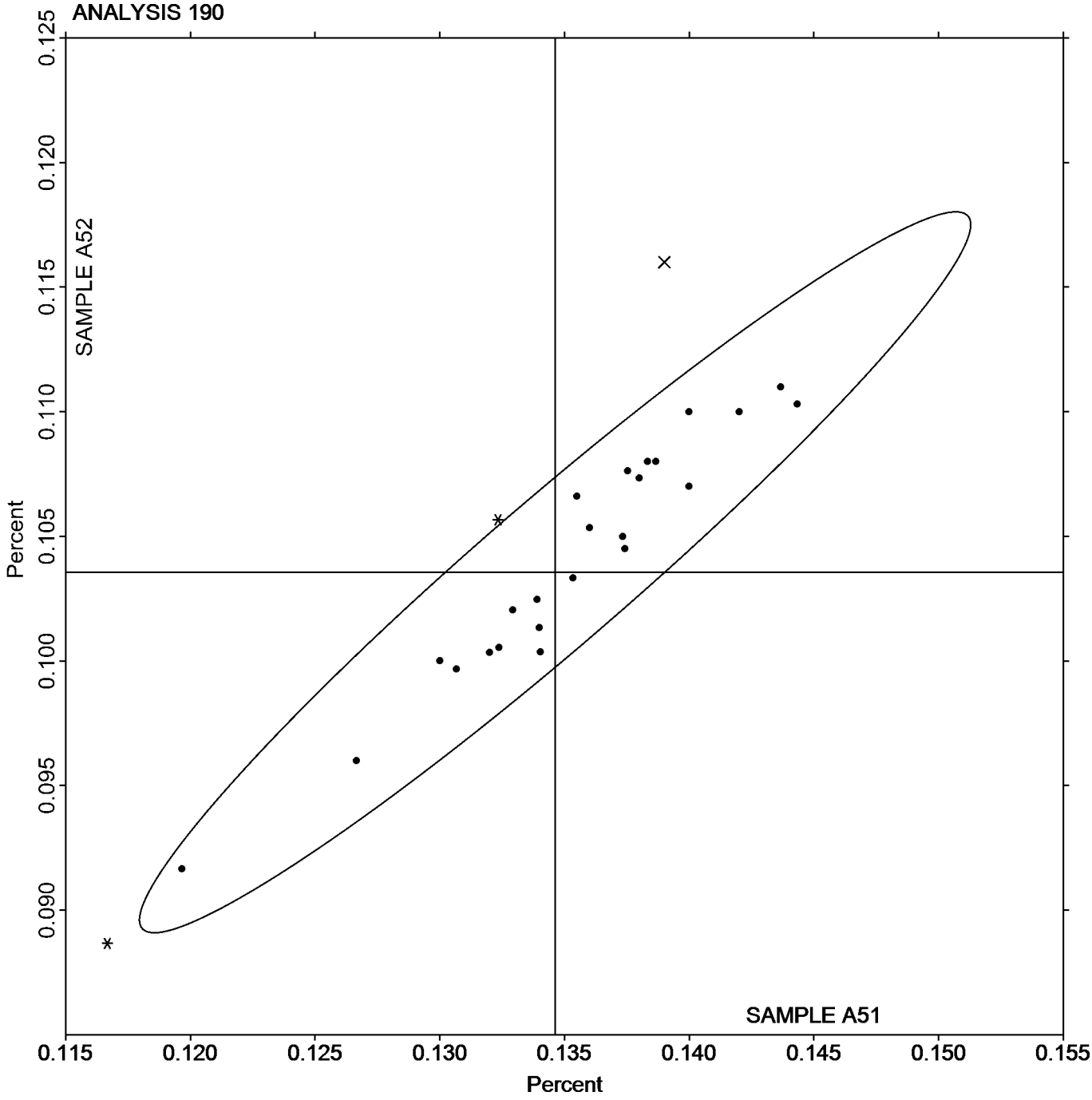
Comments on Assigned Data Flags for Test #190

X22NF7 (X) - Extreme data.

ZMUJ4B (X) - Data for sample A51 are low. Inconsistent within the determinations of sample A52.

SAMPLE A51
0.1346 Percent

SAMPLE A52
0.1036 Percent



Fasteners and Metals Interlaboratory Testing Program

Analysis 191

Aluminum, Element #2
COPPER (Cu)

Cycle 122
2nd Qtr 2018

		Sample A51			Sample A52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2DZNPD		0.1957	0.0004	0.07	0.2913	0.0066	0.84	OE
3MJHEE		0.1893	-0.0059	-0.90	0.2817	-0.0031	-0.39	IC
4E6ZDR		0.2000	0.0048	0.72	0.2867	0.0019	0.24	IC
7D8FUP		0.1917	-0.0036	-0.54	0.2830	-0.0018	-0.22	OE
7HWYPT		0.1903	-0.0049	-0.75	0.2797	-0.0051	-0.65	OE
7XBJD8	X	0.000767	-0.1945	-29.58	0.00117	-0.2836	-36.00	OE
8DXJHC		0.1945	-0.0007	-0.11	0.2741	-0.0106	-1.35	OE
8XAJZ7		0.1887	-0.0066	-1.00	0.2840	-0.0008	-0.10	GD
99M283		0.2083	0.0131	1.99	0.2987	0.0139	1.77	OE
9KXRUB		0.1977	0.0025	0.38	0.2819	-0.0029	-0.37	OE
BB43AT		0.2111	0.0158	2.41	0.2919	0.0072	0.91	OE
C4E8GM		0.2000	0.0048	0.72	0.2897	0.0049	0.62	OE
C7KYM3		0.1877	-0.0076	-1.15	0.2793	-0.0054	-0.69	OE
CXUG79		0.2017	0.0064	0.98	0.2773	-0.0074	-0.94	OE
EXAT6B		0.1973	0.0021	0.32	0.2933	0.0086	1.09	OE
F23BLA		0.2011	0.0059	0.90	0.2969	0.0122	1.54	OE
GFXCFL		0.1997	0.0045	0.68	0.2866	0.0018	0.23	OE
JTEGRU		0.1922	-0.0030	-0.46	0.2833	-0.0015	-0.19	IC
NCRRJU		0.1873	-0.0079	-1.20	0.2860	0.0012	0.16	OE
NVLX3Y		0.1973	0.0021	0.32	0.2947	0.0099	1.26	OE
QWTNP9		0.1973	0.0021	0.32	0.2950	0.0102	1.30	OE
T8NJU8		0.1927	-0.0026	-0.39	0.2823	-0.0024	-0.31	OE
T9YKL8		0.1833	-0.0119	-1.81	0.2700	-0.0148	-1.87	OE
UMEZ7H		0.1970	0.0018	0.27	0.2870	0.0022	0.29	OE
VJRPMJ		0.2000	0.0048	0.72	0.2900	0.0052	0.67	OE
X22NF7	X	1.737	1.5414	234.49	1.893	1.6086	204.18	OE
XRUN76		0.1893	-0.0059	-0.90	0.2793	-0.0054	-0.69	OE
Y2G83N		0.1860	-0.0092	-1.41	0.2687	-0.0161	-2.04	XX
ZG2GXP		0.1941	-0.0012	-0.18	0.2760	-0.0088	-1.11	OE
ZMUJ4B	X	0.2033	0.0081	1.23	0.3197	0.0349	4.43	OE

Summary Statistics

	Sample A51		Sample A52	
Grand Means	0.1952	Percent	0.2848	Percent
Stnd Dev Btwn Labs	0.0066	Percent	0.0079	Percent

Samples A51, A52 : AA6061, AA6061

Statistics based on 27 of 30 reporting participants

Key to Method Codes Reported by Participants

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

Comments on Assigned Data Flags for Test #191

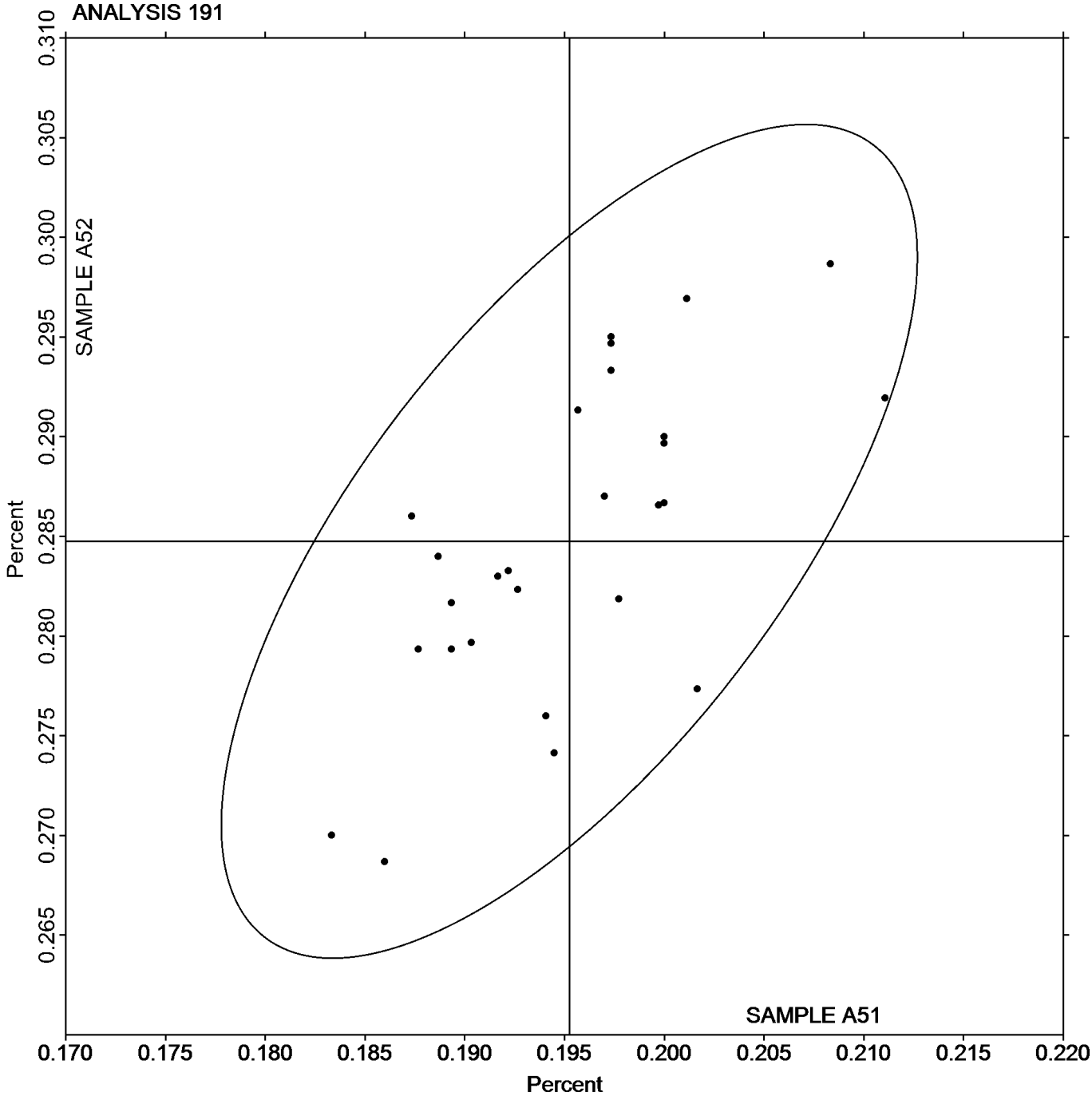
7XBJD8 (X) - Extreme data.

X22NF7 (X) - Extreme data.

ZMUJ4B (X) - Data for sample A52 are high. Inconsistent within the determinations of both samples.

SAMPLE A51
0.1952 Percent

SAMPLE A52
0.2848 Percent



Fasteners and Metals Interlaboratory Testing Program

Analysis 192

Aluminum, Element #3
IRON (Fe)

Cycle 122
2nd Qtr
2018

		Sample A51			Sample A52			
WebCode	Data Flag	Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	Method
2DZNPD		0.6200	0.0072	0.44	0.3703	0.0028	0.29	OE
3MJHEE		0.5773	-0.0355	-2.17	0.3540	-0.0135	-1.38	IC
4E6ZDR		0.6400	0.0272	1.66	0.3767	0.0092	0.93	IC
7D8FUP		0.6280	0.0152	0.93	0.3740	0.0065	0.66	OE
7HWYPT		0.5987	-0.0142	-0.87	0.3617	-0.0058	-0.59	OE
7XBJD8		0.6133	0.0005	0.03	0.3828	0.0153	1.56	OE
8DXJHC		0.6052	-0.0076	-0.47	0.3689	0.0014	0.14	OE
8XAJZ7		0.6087	-0.0042	-0.25	0.3563	-0.0112	-1.14	GD
99M283		0.6167	0.0038	0.24	0.3440	-0.0235	-2.40	OE
9KXRUB		0.6397	0.0268	1.64	0.3716	0.0041	0.42	OE
BB43AT		0.5901	-0.0227	-1.39	0.3683	0.0008	0.08	OE
C4E8GM	X	0.6267	0.0138	0.85	0.4380	0.0705	7.19	OE
C7KYM3		0.6083	-0.0045	-0.28	0.3677	0.0002	0.02	OE
CXUG79		0.6400	0.0272	1.66	0.3757	0.0082	0.83	OE
EXAT6B		0.6187	0.0058	0.36	0.3673	-0.0002	-0.02	OE
F23BLA		0.5996	-0.0132	-0.81	0.3583	-0.0092	-0.93	OE
GFXCFL		0.6378	0.0250	1.53	0.3833	0.0158	1.61	OE
JTEGRU		0.6121	-0.0007	-0.04	0.3764	0.0089	0.91	IC
NCRRJU		0.6070	-0.0058	-0.36	0.3667	-0.0008	-0.08	OE
NVLX3Y		0.6367	0.0238	1.46	0.3800	0.0125	1.27	OE
QWTNP9		0.5950	-0.0178	-1.09	0.3503	-0.0172	-1.75	OE
T8NJU8		0.6143	0.0015	0.09	0.3610	-0.0065	-0.66	OE
T9YKL8		0.6033	-0.0095	-0.58	0.3733	0.0058	0.59	OE
UMEZ7H		0.6063	-0.0065	-0.40	0.3707	0.0032	0.32	OE
VJRPMJ		0.6200	0.0072	0.44	0.3733	0.0058	0.59	OE
X22NF7	X	0.6500	0.0372	2.28	0.4833	0.1158	11.81	OE
XRUN76		0.6210	0.0082	0.50	0.3630	-0.0045	-0.46	OE
Y2G83N		0.5900	-0.0228	-1.40	0.3533	-0.0142	-1.44	OE
ZG2GXP		0.6053	-0.0075	-0.46	0.3669	-0.0006	-0.06	OE
ZMUJ4B		0.6060	-0.0068	-0.42	0.3740	0.0065	0.66	OE

Summary Statistics

	Sample A51		Sample A52	
Grand Means	0.6128	Percent	0.3675	Percent
Stnd Dev Btwn Labs	0.0163	Percent	0.0098	Percent

Samples A51, A52 : AA6061, AA6061

Statistics based on 28 of 30 reporting participants

Key to Method Codes Reported by Participants

GD Spectrometry - Glow Discharge (GDS)

IC Spectrometry - Inductively Coupled Plasma (ICP)

OE Spectrometry - Optical Emission (OES)

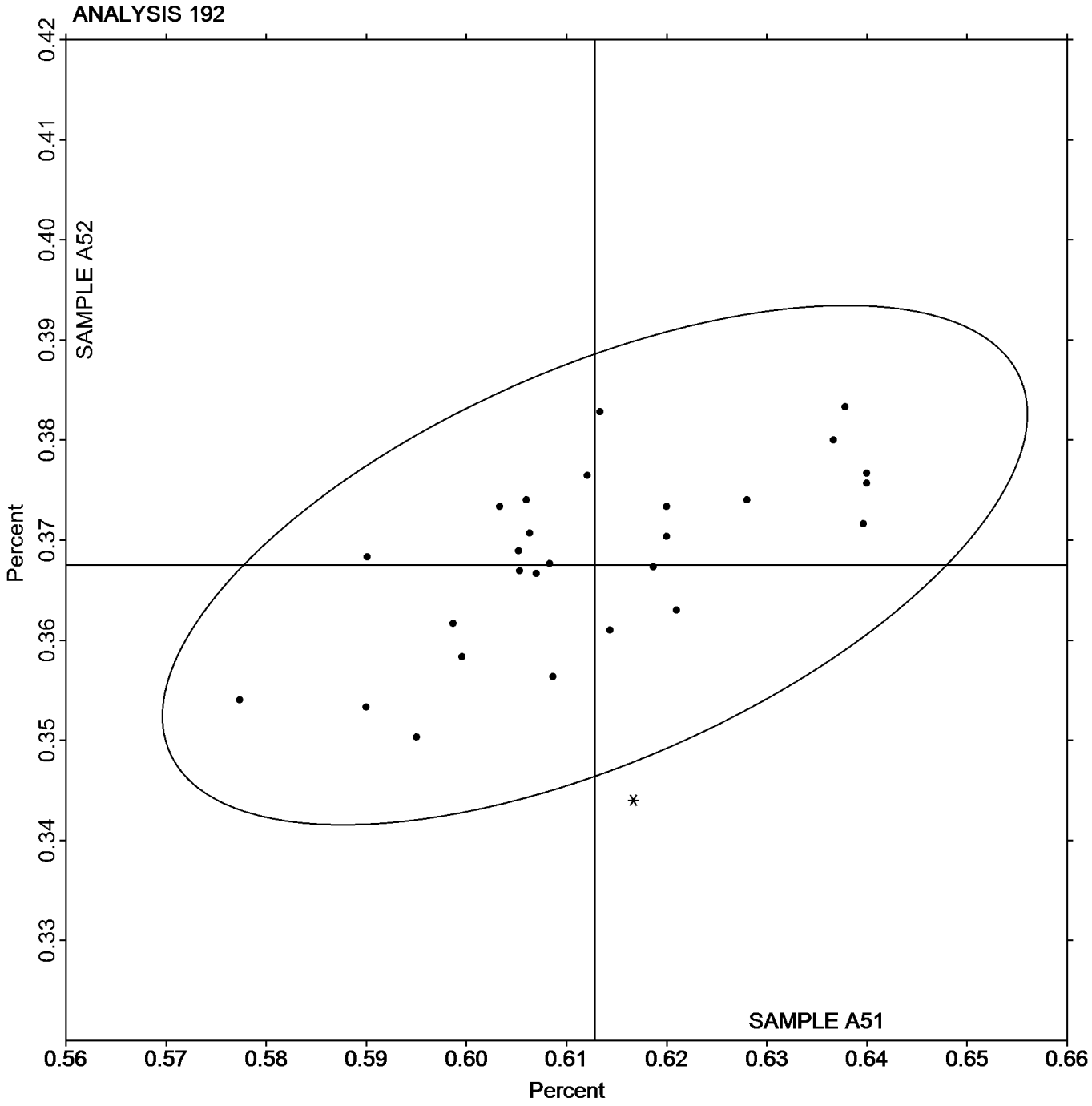
Comments on Assigned Data Flags for Test #192

C4E8GM (X) - Data for sample A52 are high.

X22NF7 (X) - Data for sample A52 are high. Inconsistent within the determinations of sample A52.

SAMPLE A51
0.6128 Percent

SAMPLE A52
0.3675 Percent



WebCode	Data Flag	Sample A51 Lab Mean	Sample A51 Diff. from Grand Mean	Sample A51 CPV	Sample A52 Lab Mean	Sample A52 Diff. from Grand Mean	Sample A52 CPV	Method
2DZNPD		0.7413	0.0035	0.19	0.7513	0.0030	0.14	OE
3MJHEE		0.7453	0.0075	0.42	0.7647	0.0163	0.79	IC
4E6ZDR		0.7300	-0.0079	-0.44	0.7400	-0.0084	-0.40	IC
7D8FUP		0.7550	0.0171	0.96	0.7620	0.0136	0.66	OE
7HWYPT		0.7317	-0.0062	-0.35	0.7407	-0.0077	-0.37	OE
7XBJD8	*	0.7867	0.0488	2.72	0.8113	0.0630	3.05	OE
8DXJHC		0.7350	-0.0028	-0.16	0.7377	-0.0106	-0.51	OE
8XAJZ7		0.7063	-0.0315	-1.76	0.7170	-0.0314	-1.52	GD
99M283		0.7633	0.0255	1.42	0.7833	0.0350	1.69	OE
9KXRUB		0.7332	-0.0046	-0.26	0.7425	-0.0058	-0.28	OE
BB43AT		0.7409	0.0030	0.17	0.7531	0.0047	0.23	OE
C4E8GM		0.7400	0.0021	0.12	0.7500	0.0016	0.08	OE
C7KYM3		0.7100	-0.0279	-1.55	0.7133	-0.0350	-1.69	OE
CXUG79	*	0.7537	0.0158	0.88	0.7357	-0.0127	-0.61	OE
EXAT6B		0.7372	-0.0007	-0.04	0.7415	-0.0068	-0.33	OE
F23BLA		0.7429	0.0050	0.28	0.7573	0.0090	0.43	OE
GFXCFL		0.7517	0.0138	0.77	0.7601	0.0117	0.57	OE
JTEGRU		0.7218	-0.0160	-0.89	0.7448	-0.0036	-0.17	IC
NCRRJU		0.7403	0.0025	0.14	0.7500	0.0016	0.08	OE
NVLX3Y		0.7333	-0.0045	-0.25	0.7433	-0.0050	-0.24	OE
QWTNP9		0.7497	0.0118	0.66	0.7483	0.0000	0.00	OE
T8NJU8		0.7477	0.0098	0.55	0.7540	0.0056	0.27	OE
T9YKL8		0.7333	-0.0045	-0.25	0.7400	-0.0084	-0.40	OE
UMEZ7H		0.7470	0.0091	0.51	0.7667	0.0183	0.89	OE
VJRPMJ		0.7500	0.0121	0.68	0.7567	0.0083	0.40	OE
X22NF7	X	3.040	2.3021	128.35	2.983	2.2350	108.13	OE
XRUN76		0.7307	-0.0072	-0.40	0.7483	0.0000	0.00	OE
Y2G83N	*	0.6900	-0.0479	-2.67	0.7000	-0.0484	-2.34	XX
ZG2GXP		0.7330	-0.0049	-0.27	0.7364	-0.0120	-0.58	OE
ZMUJ4B		0.7327	-0.0052	-0.29	0.7393	-0.0090	-0.44	OE

Summary Statistics

	Sample A51		Sample A52	
Grand Means	0.7379	Percent	0.7484	Percent
Stnd Dev Btwn Labs	0.0179	Percent	0.0207	Percent

Samples A51, A52 : AA6061, AA6061

Statistics based on 28 of 30 reporting participants

Key to Method Codes Reported by Participants

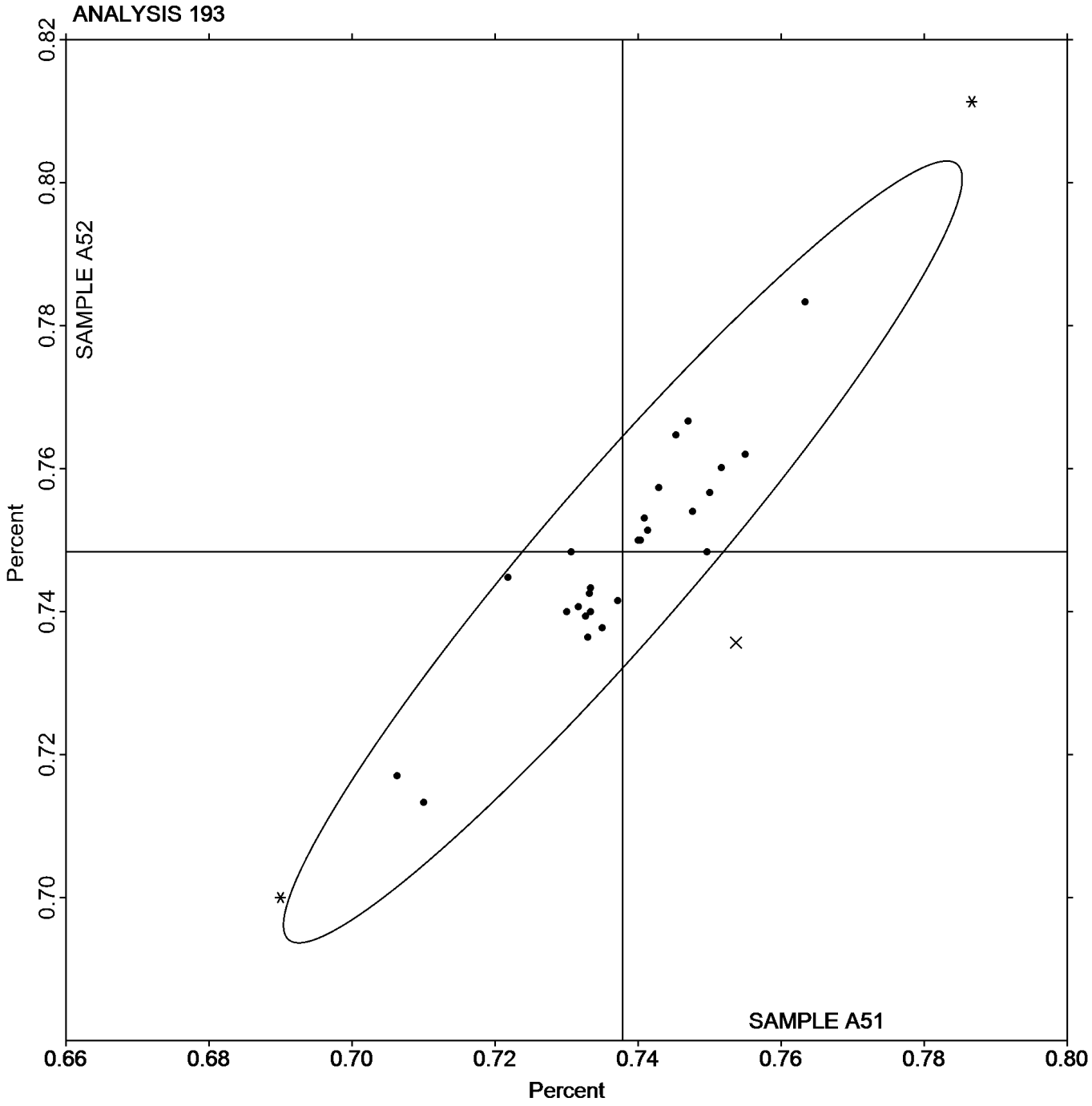
GD	Spectrometry - Glow Discharge (GDS)	IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)	XX	Please Indicate Method Used for Current Element

Comments on Assigned Data Flags for Test #193

X22NF7 (X) - Extreme data.

SAMPLE A51
0.7379 Percent

SAMPLE A52
0.7484 Percent



Fasteners and Metals Interlaboratory Testing Program

Analysis 194

Aluminum, Element #5
MANGANESE (Mn)

Cycle 122
2nd Qtr 2018

WebCode	Data Flag	Sample A51 Lab Mean	Sample A51 Diff. from Grand Mean	Sample A51 CPV	Sample A52 Lab Mean	Sample A52 Diff. from Grand Mean	Sample A52 CPV	Method
2DZNPD		0.1070	0.0029	0.63	0.0610	-0.0004	-0.13	OE
3MJHEE		0.1027	-0.0014	-0.30	0.0617	0.0003	0.11	IC
4E6ZDR		0.1100	0.0059	1.28	0.0667	0.0053	1.95	IC
7D8FUP		0.1020	-0.0021	-0.45	0.0600	-0.0014	-0.50	OE
7HWYPT		0.1020	-0.0021	-0.45	0.0593	-0.0020	-0.74	OE
7XBJD8		0.0980	-0.0061	-1.31	0.0591	-0.0023	-0.84	OE
8DXJHC		0.1024	-0.0017	-0.37	0.0601	-0.0013	-0.46	OE
8XAJZ7	*	0.1157	0.0116	2.50	0.0687	0.0073	2.69	GD
99M283	*	0.1177	0.0136	2.94	0.0680	0.0066	2.44	OE
9KXRUB		0.1035	-0.0006	-0.12	0.0612	-0.0002	-0.06	OE
BB43AT		0.0988	-0.0052	-1.13	0.0590	-0.0024	-0.88	OE
C4E8GM		0.1007	-0.0034	-0.73	0.0600	-0.0014	-0.50	OE
C7KYM3		0.1043	0.0003	0.06	0.0603	-0.0010	-0.38	OE
CXUG79		0.1040	-0.0001	-0.01	0.0597	-0.0017	-0.62	OE
EXAT6B	X	0.1003	-0.0037	-0.80	0.6000	0.5386	197.98	OE
F23BLA		0.1054	0.0013	0.28	0.0621	0.0007	0.27	OE
GFXCFL		0.1026	-0.0014	-0.31	0.0604	-0.0009	-0.34	OE
JTEGRU		0.1042	0.0002	0.04	0.0595	-0.0019	-0.69	IC
NCRRJU		0.1020	-0.0021	-0.45	0.0600	-0.0014	-0.50	OE
NVLX3Y		0.1083	0.0043	0.92	0.0640	0.0026	0.97	OE
QWTNP9		0.1040	-0.0001	-0.01	0.0620	0.0006	0.24	OE
T8NJU8		0.1030	-0.0011	-0.23	0.0610	-0.0004	-0.13	OE
T9YKL8		0.1000	-0.0041	-0.88	0.0600	-0.0014	-0.50	OE
UMEZ7H		0.1073	0.0033	0.71	0.0627	0.0013	0.48	OE
VJRPMJ		0.1000	-0.0041	-0.88	0.0600	-0.0014	-0.50	OE
X22NF7	X	0.1013	-0.0027	-0.59	0.0650	0.0036	1.34	OE
XRUN76		0.0985	-0.0056	-1.21	0.0568	-0.0045	-1.66	OE
Y2G83N		0.1027	-0.0014	-0.30	0.0627	0.0013	0.48	XX
ZG2GXP		0.1030	-0.0011	-0.24	0.0608	-0.0006	-0.20	OE
ZMUJ4B	X	0.0975	-0.0066	-1.42	0.0499	-0.0115	-4.22	OE

Summary Statistics

	Sample A51		Sample A52	
Grand Means	0.1041	Percent	0.0614	Percent
Stnd Dev Btwn Labs	0.0046	Percent	0.0027	Percent

Samples A51, A52 : AA6061, AA6061

Statistics based on 27 of 30 reporting participants

Key to Method Codes Reported by Participants

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

Comments on Assigned Data Flags for Test #194

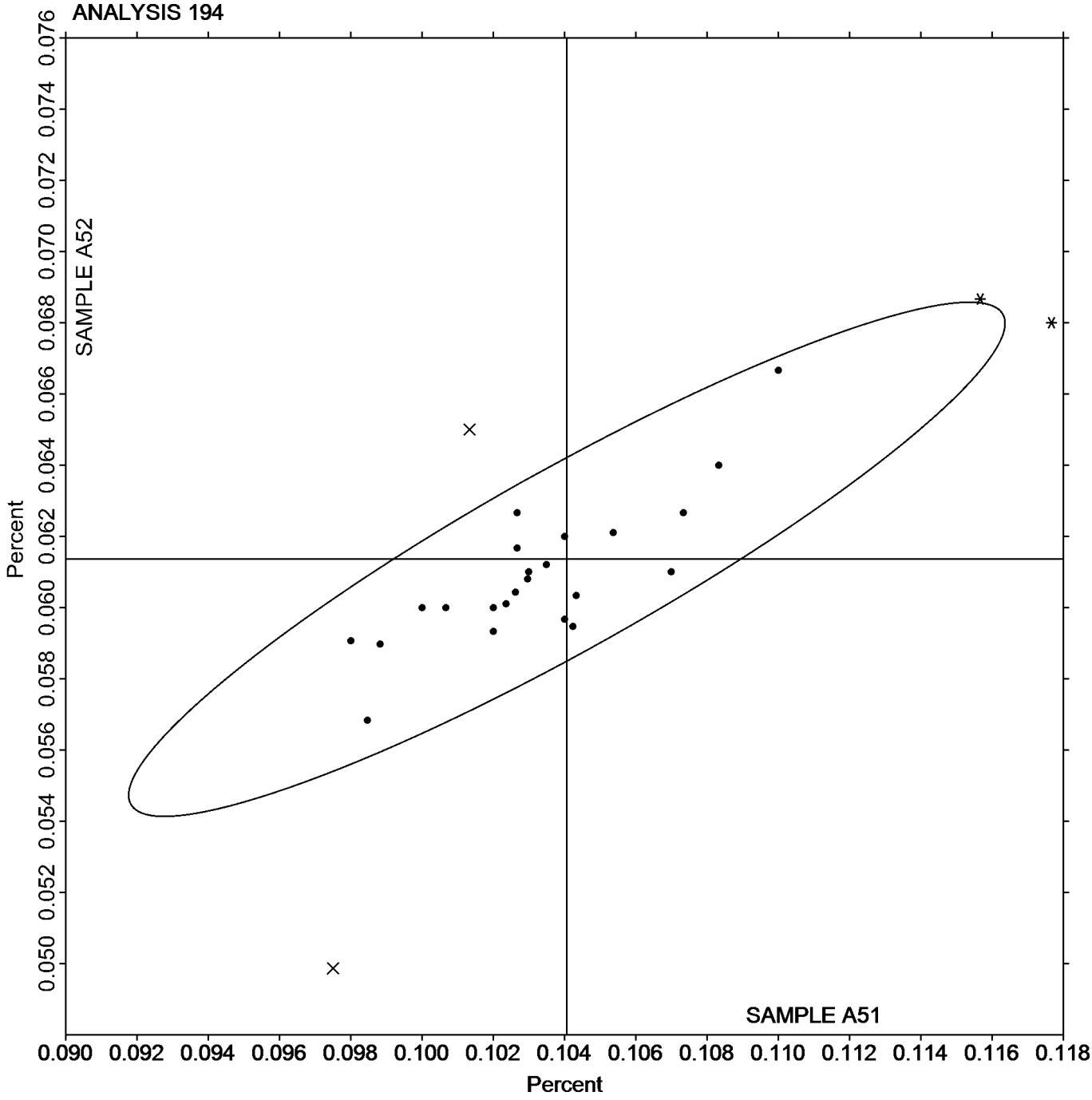
EXAT6B (X) - Data for sample A52 are extreme.

X22NF7 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample A51.

ZMUJ4B (X) - Data for sample A52 are low.

SAMPLE A51
0.1041 Percent

SAMPLE A52
0.0614 Percent



Fasteners and Metals Interlaboratory Testing Program

Analysis 195

Aluminum, Element #6
MAGNESIUM (Mg)

Cycle 122
2nd Qtr 2018

WebCode	Data Flag	Sample A51 Lab Mean	Sample A51 Diff. from Grand Mean	Sample A51 CPV	Sample A52 Lab Mean	Sample A52 Diff. from Grand Mean	Sample A52 CPV	Method
2DZNPD		0.9377	0.0126	0.75	0.9067	0.0005	0.03	OE
3MJHEE		0.9127	-0.0124	-0.73	0.8967	-0.0095	-0.47	IC
4E6ZDR		0.9200	-0.0051	-0.30	0.9033	-0.0028	-0.14	IC
7D8FUP		0.9430	0.0179	1.06	0.9230	0.0169	0.83	OE
7HWYPT		0.9223	-0.0027	-0.16	0.9070	0.0009	0.04	OE
7XBJD8		0.9010	-0.0241	-1.43	0.8941	-0.0120	-0.60	OE
8DXJHC		0.9229	-0.0022	-0.13	0.8846	-0.0215	-1.07	OE
8XAJZ7		0.9190	-0.0061	-0.36	0.8870	-0.0191	-0.95	GD
99M283		0.8867	-0.0384	-2.28	0.8733	-0.0328	-1.63	OE
9KXRUB		0.9118	-0.0133	-0.79	0.8891	-0.0170	-0.84	OE
BB43AT		0.9473	0.0222	1.32	0.9241	0.0180	0.89	XX
C4E8GM		0.9167	-0.0084	-0.50	0.9167	0.0105	0.52	XX
C7KYM3		0.9307	0.0056	0.33	0.8987	-0.0075	-0.37	OE
CXUG79		0.9183	-0.0067	-0.40	0.8603	-0.0458	-2.27	OE
EXAT6B		0.9223	-0.0027	-0.16	0.8907	-0.0155	-0.77	OE
F23BLA		0.9204	-0.0047	-0.28	0.9169	0.0107	0.53	OE
GFXCFL		0.9271	0.0021	0.12	0.9217	0.0156	0.77	OE
JTEGRU		0.9184	-0.0066	-0.39	0.9155	0.0094	0.47	IC
NCRRJU		0.9200	-0.0051	-0.30	0.9180	0.0119	0.59	OE
NVLX3Y		0.9410	0.0159	0.94	0.9150	0.0089	0.44	OE
QWTNP9		0.9660	0.0409	2.43	0.9527	0.0465	2.30	OE
T8NJU8		0.9473	0.0223	1.32	0.9273	0.0212	1.05	OE
T9YKL8		0.9633	0.0383	2.27	0.9300	0.0239	1.18	OE
UMEZ7H		0.9123	-0.0127	-0.75	0.8900	-0.0161	-0.80	OE
VJRPMJ		0.9233	-0.0017	-0.10	0.9133	0.0072	0.36	OE
X22NF7	X	1.250	0.3249	19.25	1.240	0.3339	16.54	OE
XRUN76		0.9193	-0.0057	-0.34	0.9110	0.0049	0.24	OE
Y2G83N		0.9113	-0.0137	-0.81	0.8890	-0.0171	-0.85	OE
ZG2GXP		0.9217	-0.0033	-0.20	0.8854	-0.0207	-1.03	OE
ZMUJ4B		0.9230	-0.0021	-0.12	0.9370	0.0309	1.53	OE

Summary Statistics

	Sample A51		Sample A52	
Grand Means	0.9251	Percent	0.9061	Percent
Stnd Dev Btwn Labs	0.0169	Percent	0.0202	Percent

Samples A51, A52 : AA6061, AA6061

Statistics based on 29 of 30 reporting participants

Key to Method Codes Reported by Participants

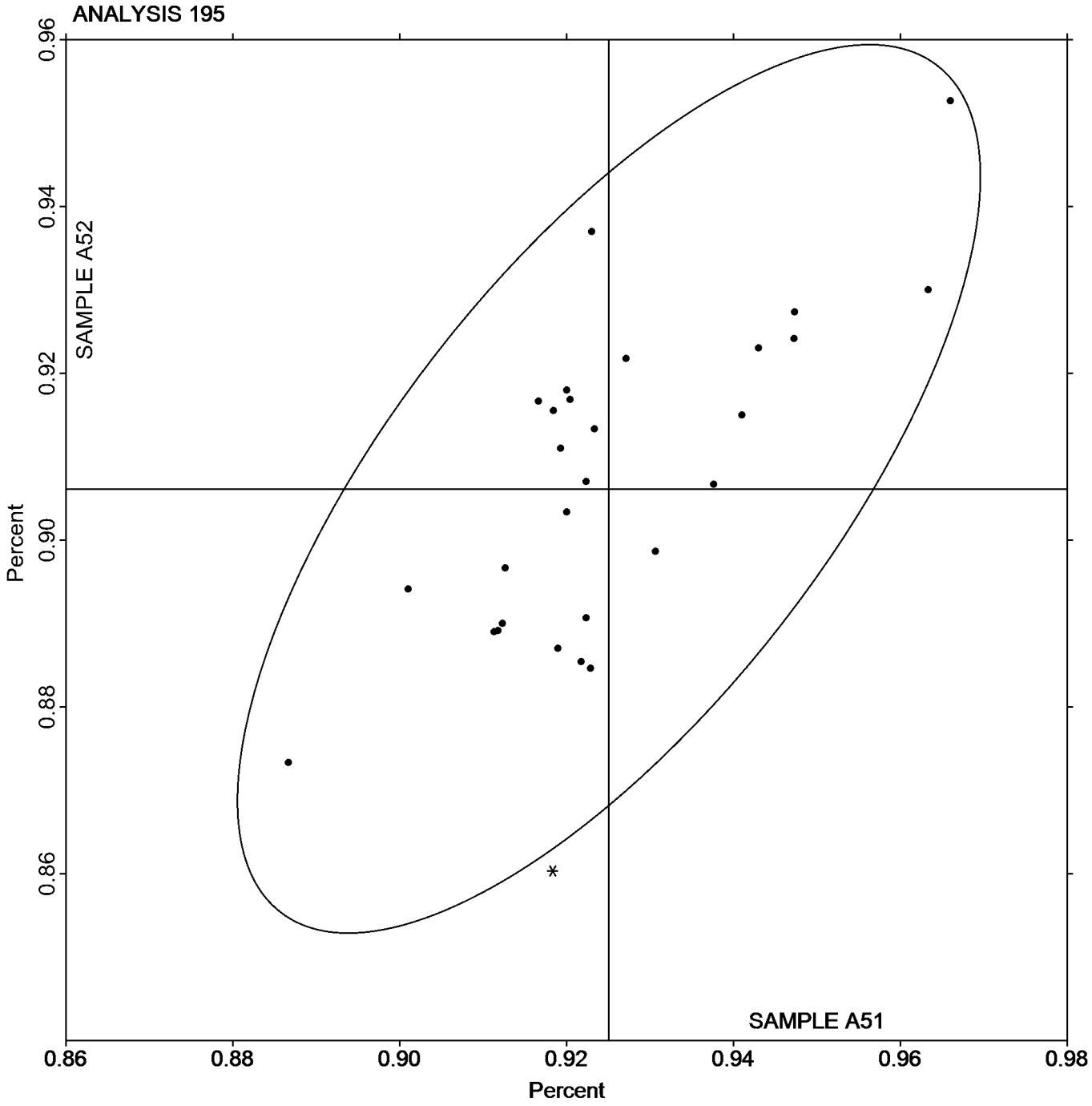
GD	Spectrometry - Glow Discharge (GDS)	IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)	XX	Please Indicate Method Used for Current Element

Comments on Assigned Data Flags for Test #195

X22NF7 (X) - Extreme data.

SAMPLE A51
0.9251 Percent

SAMPLE A52
0.9061 Percent



Fasteners and Metals Interlaboratory Testing Program

Analysis 196

Aluminum, Element #7
CHROMIUM (Cr)

Cycle 122
2nd Qtr 2018

WebCode	Data Flag	Sample A51 Lab Mean	Sample A51 Diff. from Grand Mean	Sample A51 CPV	Sample A52 Lab Mean	Sample A52 Diff. from Grand Mean	Sample A52 CPV	Method
2DZNPD		0.1510	0.0023	0.41	0.0530	0.0001	0.04	OE
3MJHEE		0.1460	-0.0027	-0.47	0.0510	-0.0019	-0.66	IC
4E6ZDR		0.1600	0.0113	2.00	0.0600	0.0071	2.50	IC
7D8FUP		0.1477	-0.0010	-0.18	0.0523	-0.0006	-0.19	OE
7HWYPT		0.1453	-0.0033	-0.59	0.0520	-0.0009	-0.31	OE
7XBJD8		0.1510	0.0024	0.42	0.0520	-0.0009	-0.31	OE
8DXJHC		0.1486	-0.0001	-0.01	0.0515	-0.0014	-0.50	OE
8XAJZ7		0.1520	0.0033	0.59	0.0547	0.0018	0.62	GD
99M283		0.1573	0.0087	1.53	0.0573	0.0044	1.56	OE
9KXRUB		0.1458	-0.0029	-0.51	0.0524	-0.0005	-0.16	OE
BB43AT		0.1526	0.0039	0.70	0.0542	0.0013	0.45	XX
C4E8GM		0.1467	-0.0020	-0.35	0.0523	-0.0006	-0.19	OE
C7KYM3		0.1490	0.0003	0.06	0.0523	-0.0006	-0.19	OE
CXUG79		0.1463	-0.0023	-0.41	0.0470	-0.0059	-2.07	OE
EXAT6B	X	0.1457	-0.0030	-0.53	0.5097	0.4568	160.37	OE
F23BLA		0.1439	-0.0048	-0.85	0.0519	-0.0010	-0.36	OE
GFXCFL		0.1436	-0.0051	-0.90	0.0517	-0.0012	-0.42	OE
JTEGRU		0.1515	0.0028	0.50	0.0519	-0.0010	-0.35	IC
NCRRJU		0.1470	-0.0017	-0.29	0.0520	-0.0009	-0.31	OE
NVLX3Y		0.1440	-0.0047	-0.83	0.0524	-0.0005	-0.16	OE
QWTNP9		0.1460	-0.0027	-0.47	0.0520	-0.0009	-0.31	OE
T8NJU8		0.1483	-0.0003	-0.06	0.0530	0.0001	0.04	OE
T9YKL8		0.1400	-0.0087	-1.53	0.0500	-0.0029	-1.01	OE
UMEZ7H		0.1500	0.0013	0.24	0.0557	0.0028	0.98	OE
VJRPMJ		0.1400	-0.0087	-1.53	0.0500	-0.0029	-1.01	OE
X22NF7	*	0.1667	0.0180	3.18	0.0617	0.0088	3.08	OE
XRUN76		0.1523	0.0037	0.65	0.0531	0.0002	0.06	OE
Y2G83N		0.1463	-0.0023	-0.41	0.0519	-0.0010	-0.34	OE
ZG2GXP		0.1494	0.0008	0.14	0.0517	-0.0012	-0.41	OE
ZMUJ4B		0.1430	-0.0057	-1.00	0.0527	-0.0002	-0.05	OE

Summary Statistics

	Sample A51		Sample A52	
Grand Means	0.1487	Percent	0.0529	Percent
Stnd Dev Btwn Labs	0.0057	Percent	0.0028	Percent

Samples A51, A52 : AA6061, AA6061

Statistics based on 29 of 30 reporting participants

Key to Method Codes Reported by Participants

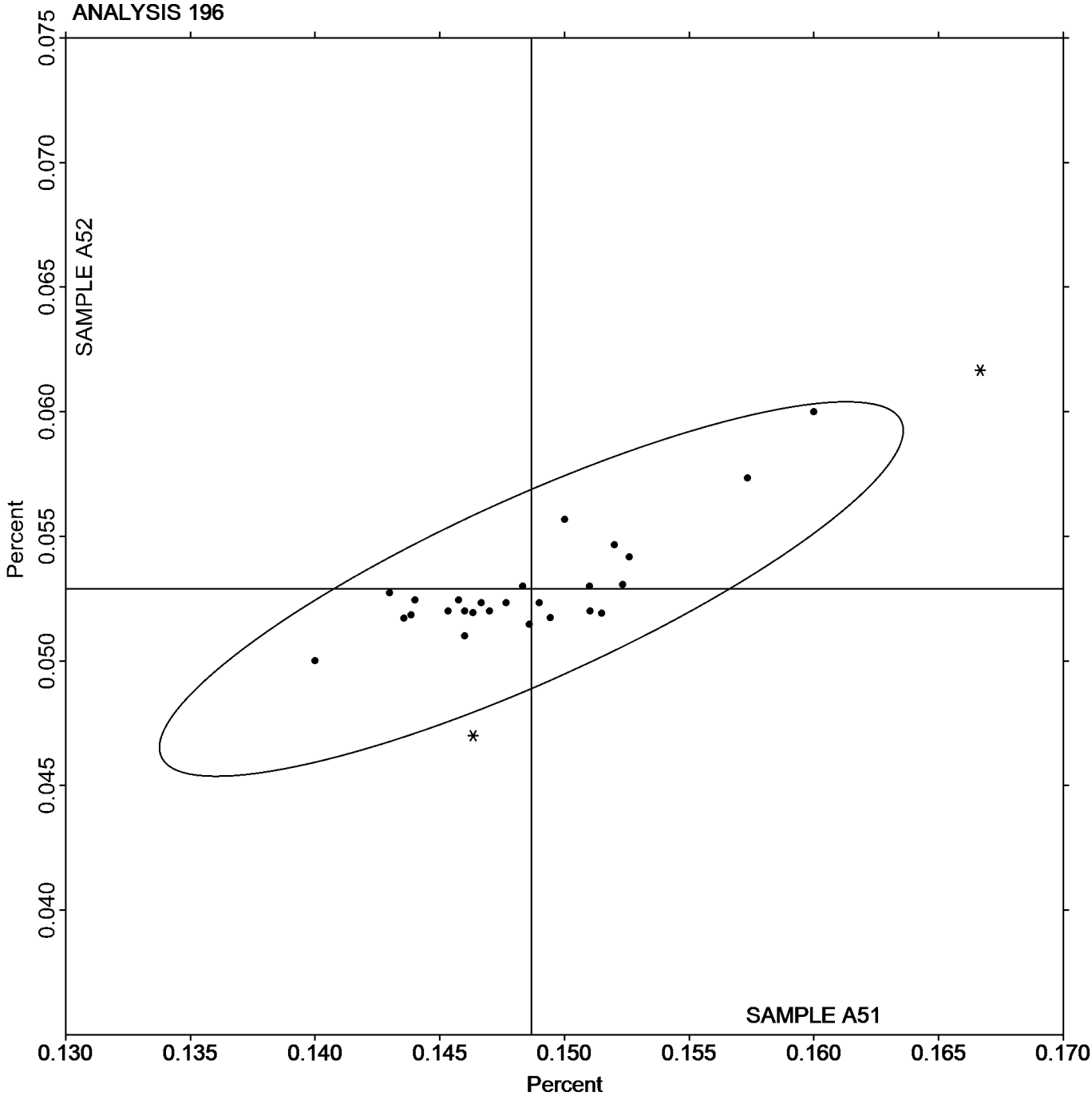
GD	Spectrometry - Glow Discharge (GDS)	IC	Spectrometry - Inductively Coupled Plasma (ICP)
OE	Spectrometry - Optical Emission (OES)	XX	Please Indicate Method Used for Current Element

Comments on Assigned Data Flags for Test #196

EXAT6B (X) - Data for sample A52 are extreme.

SAMPLE A51
0.1487 Percent

SAMPLE A52
0.0529 Percent



Fasteners and Metals Interlaboratory Testing Program

Analysis 197

Aluminum, Element #8
TITANIUM (Ti)

Cycle 122
2nd Qtr 2018

WebCode	Data Flag	Sample A51 Lab Mean	Sample A51 Diff. from Grand Mean	Sample A51 CPV	Sample A52 Lab Mean	Sample A52 Diff. from Grand Mean	Sample A52 CPV	Method
2DZNPD		0.0480	-0.0002	-0.13	0.0220	0.0005	0.62	OE
3MJHEE		0.0480	-0.0002	-0.13	0.0220	0.0005	0.62	IC
4E6ZDR		0.0500	0.0018	1.10	0.0200	-0.0015	-1.78	IC
7D8FUP		0.0473	-0.0009	-0.54	0.0215	0.0000	0.06	OE
7HWYPT		0.0475	-0.0007	-0.44	0.0216	0.0001	0.10	OE
7XBJD8		0.0503	0.0021	1.26	0.0229	0.0014	1.66	OE
8DXJHC		0.0492	0.0010	0.61	0.0220	0.0005	0.58	OE
8XAJZ7		0.0513	0.0031	1.92	0.0200	-0.0015	-1.78	GD
99M283		0.0477	-0.0005	-0.33	0.0200	-0.0015	-1.78	OE
9KXRUB		0.0476	-0.0006	-0.38	0.0217	0.0002	0.30	OE
BB43AT		0.0477	-0.0005	-0.31	0.0209	-0.0006	-0.70	XX
C4E8GM		0.0497	0.0015	0.89	0.0220	0.0005	0.62	XX
C7KYM3		0.0480	-0.0002	-0.13	0.0220	0.0005	0.62	OE
CXUG79		0.0447	-0.0035	-2.18	0.0213	-0.0002	-0.18	OE
EXAT6B		0.0478	-0.0004	-0.27	0.0225	0.0010	1.18	OE
F23BLA		0.0484	0.0002	0.13	0.0214	-0.0001	-0.08	OE
GFXCFL		0.0467	-0.0015	-0.95	0.0219	0.0004	0.54	OE
JTEGRU		0.0509	0.0027	1.65	0.0220	0.0005	0.62	IC
NCRRJU		0.0480	-0.0002	-0.13	0.0217	0.0002	0.22	OE
NVLX3Y		0.0473	-0.0009	-0.54	0.0220	0.0005	0.62	OE
QWTNP9		0.0492	0.0010	0.61	0.0202	-0.0013	-1.58	OE
T8NJU8		0.0483	0.0001	0.07	0.0217	0.0002	0.22	OE
T9YKL8		0.0460	-0.0022	-1.36	0.0223	0.0008	1.02	OE
UMEZ7H	X	0.0487	0.0005	0.28	0.0260	0.0045	5.42	OE
VJRPMJ		0.0500	0.0018	1.10	0.0200	-0.0015	-1.78	OE
X22NF7	X	0.0810	0.0328	20.14	0.0770	0.0555	66.67	OE
XRUN76		0.0493	0.0011	0.65	0.0218	0.0003	0.34	OE
Y2G83N		0.0447	-0.0035	-2.18	0.0203	-0.0012	-1.38	OE
ZG2GXP		0.0494	0.0012	0.75	0.0223	0.0008	0.94	OE
ZMUJ4B		0.0470	-0.0012	-0.74	0.0216	0.0001	0.18	OE

Summary Statistics

	Sample A51		Sample A52	
Grand Means	0.0482	Percent	0.0215	Percent
Stnd Dev Btwn Labs	0.0016	Percent	0.0008	Percent

Samples A51, A52 : AA6061, AA6061

Statistics based on 28 of 30 reporting participants

Key to Method Codes Reported by Participants

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

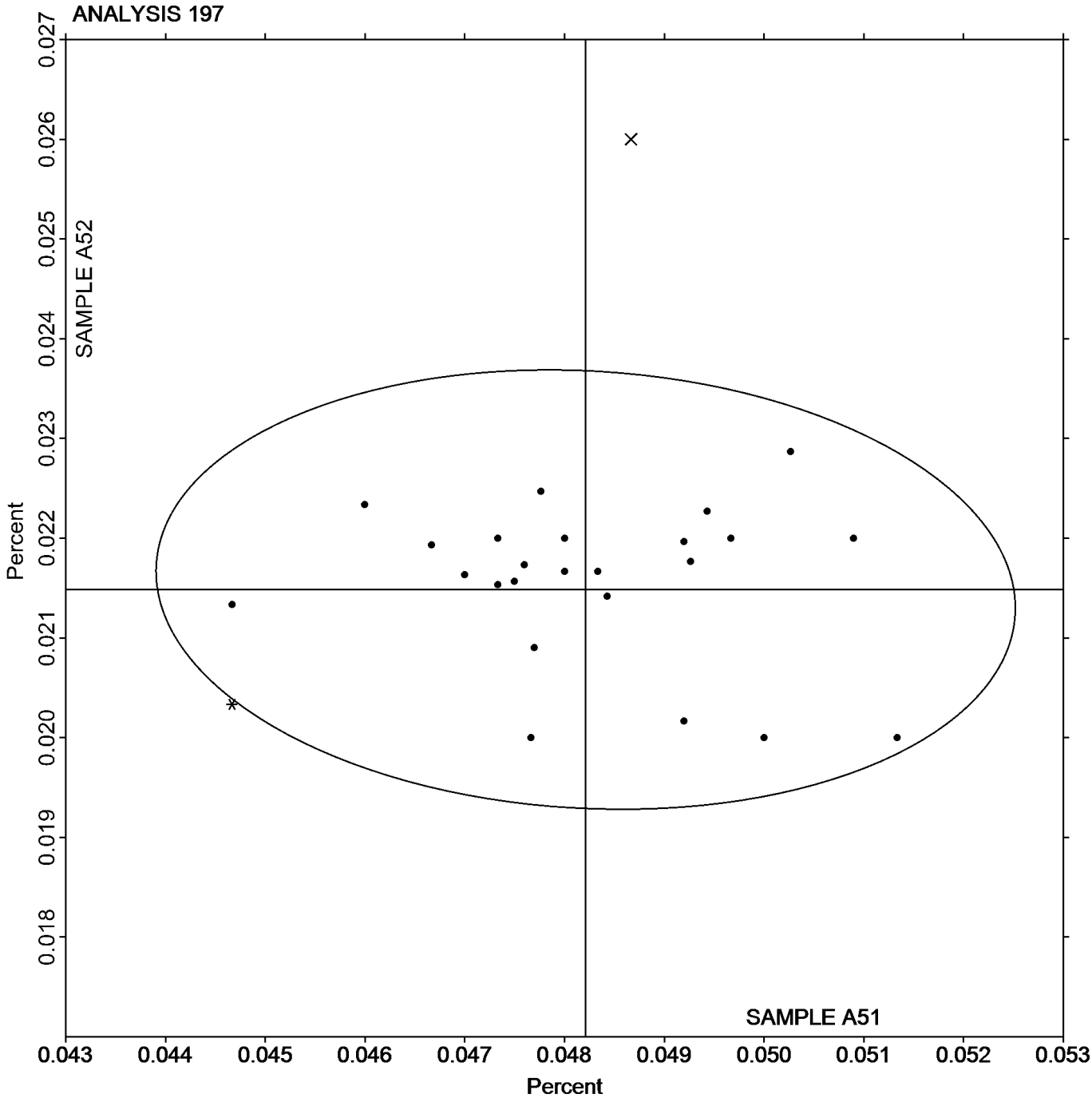
Comments on Assigned Data Flags for Test #197

UMEZ7H (X) - Data for sample A52 are high.

X22NF7 (X) - Extreme data.

SAMPLE A51
0.0482 Percent

SAMPLE A52
0.0215 Percent



-End of Report-

