

Fasteners & Metals Testing Program

Summary Report # 96 - 4Q 2011

[About the Metals Program, About CTS](#)

[Key to Tables and Graphs](#)

Analysis

Analysis Name

Fasteners Tests

115	Fastener Wedge Tensile (10 degree)
116	Fastener Axial Tensile
125	Fasteners Hardness
126	Vickers Hardness
127	Fastener Wedge Tensile (10 deg) Metric
128	Fastener Axial Tensile - Metric
129	Fastener Double Shear

Tensile Tests

130	Tensile Strength (Flat Steel)
131	Yield Strength (Flat Steel)
132	Elongation (Flat Steel)

Hardness Tests

120	Rockwell Hardness (C Scale)
136	Rockwell Superficial Hardness (30N Scale)
145	Total Case Depth
146	Effective Case Depth

Chemical Analysis - Copper-Based Alloy

160	Chemical Analysis: Copper-based Alloy (Cu)
161	Chemical Analysis: Copper-based Alloy (Al)
162	Chemical Analysis: Copper-based Alloy (Fe)
163	Chemical Analysis: Copper-based Alloy (Mn)
164	Chemical Analysis: Copper-based Alloy (Ni)
165	Chemical Analysis: Copper-based Alloy (Si)
166	Chemical Analysis: Copper-based Alloy (Pb)
167	Chemical Analysis: Copper-based Alloy (Zn)

Chemical Analysis - Corrosion Resistant Steel

180	Chemical Analysis: Corrosion Resistant Steel (C)
181	Chemical Analysis: Corrosion Resistant Steel (Mn)
182	Chemical Analysis: Corrosion Resistant Steel (N)
183	Chemical Analysis: Corrosion Resistant Steel (Co)
184	Chemical Analysis: Corrosion Resistant Steel (Si)
185	Chemical Analysis: Corrosion Resistant Steel (Cu)
186	Chemical Analysis: Corrosion Resistant Steel (Ni)
187	Chemical Analysis: Corrosion Resistant Steel (Cr)
188	Chemical Analysis: Corrosion Resistant Steel (Mo)
189	Chemical Analysis: Corrosion Resistant Steel (V)

[Instrument and Method Code List](#)

ABOUT THE FASTENERS & METALS PROGRAM

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

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

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

ABOUT CTS

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

For further information contact:

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

Phone: (571) 434-1925
FAX: (571)434-1937
e-mail: metals@cts-interlab.com
www.collaborativetesting.com

Office Hours: 8:00 a.m. - 4:30 p.m. ET

Key for Fasteners & Metals Program Web Summary Report

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

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

Analysis 115

Fastener Wedge Tensile (10 deg) - ksi

ASTM F606

WebCode	Data Flag	Sample X97			Sample X98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
24TDBM		162.07	-2.30	-1.75	164.40	-1.54	-0.90	TO
26DENW		163.63	-0.74	-0.56	164.14	-1.81	-1.06	SH
2EW39W		161.77	-2.60	-1.98	164.67	-1.28	-0.75	TO
2LBE44		165.19	0.82	0.62	165.42	-0.52	-0.31	HT
2PHPGJ		165.77	1.40	1.06	166.90	0.96	0.56	SA
2YJPYC		164.13	-0.24	-0.18	162.40	-3.54	-2.08	SA
382A2G		164.30	-0.07	-0.05	163.33	-2.61	-1.53	TO
3CQWE9	X	174.03	9.66	7.34	177.10	11.16	6.54	TO
3NXRPX		163.23	-1.14	-0.86	165.00	-0.94	-0.55	TO
3TFN9M		164.10	-0.27	-0.21	167.67	1.72	1.01	TO
42CL4V		166.29	1.92	1.46	167.26	1.31	0.77	SA
4MMFBU		162.43	-1.94	-1.47	165.03	-0.91	-0.53	SA
4MML33		165.44	1.07	0.81	169.60	3.66	2.14	TO
6YCXWQ		163.40	-0.97	-0.74	165.00	-0.94	-0.55	SA
86AW3R	X	167.62	3.25	2.47	164.57	-1.37	-0.80	FI
8JKWDJ	X	170.54	6.17	4.68	175.27	9.33	5.47	TO
9EURCR		166.83	2.46	1.87	168.27	2.32	1.36	TO
9PT2YL		164.21	-0.16	-0.12	167.10	1.15	0.68	SA
BAAZBU		164.23	-0.14	-0.10	168.17	2.22	1.30	TO
BLJN62		165.33	0.96	0.73	167.68	1.74	1.02	HT
BQ28HN		164.42	0.05	0.04	167.32	1.37	0.81	IN
BTYXD2		164.90	0.53	0.40	166.20	0.26	0.15	TO
C2H8UB		165.17	0.80	0.60	164.00	-1.94	-1.14	SA
C2X499	X	177.53	13.16	9.99	178.04	12.10	7.09	TO
C4GQEW	X	168.43	4.06	3.09	171.47	5.52	3.24	TO
FJKR8T		165.10	0.73	0.55	167.47	1.52	0.89	IN
FRFUBQ		162.73	-1.64	-1.24	163.20	-2.74	-1.61	TO
FVRCZF		165.72	1.35	1.03	166.75	0.81	0.48	IN
GG94KU		165.65	1.28	0.97	166.87	0.93	0.54	TO
GVGMVV		164.10	-0.27	-0.21	167.00	1.06	0.62	FI
HANVXN	X	174.09	9.72	7.38	176.76	10.82	6.35	TO
HEKTG9		166.68	2.31	1.76	167.47	1.53	0.89	SH
HUWCA9		162.70	-1.67	-1.27	161.89	-4.05	-2.38	SA
HXVD4G		164.60	0.23	0.17	166.80	0.86	0.50	SA
JA778G		162.07	-2.30	-1.75	165.00	-0.94	-0.55	SA
JC8AY3		162.67	-1.70	-1.29	162.67	-3.28	-1.92	TO
JUUXKE		164.30	-0.07	-0.05	165.40	-0.54	-0.32	RI
K8ELL9		164.30	-0.07	-0.05	168.03	2.09	1.23	SA
KECTA4		163.31	-1.06	-0.80	164.04	-1.90	-1.12	SA
KKL3K7		166.07	1.70	1.29	166.50	0.56	0.33	BA
KU6GLM		162.93	-1.44	-1.09	164.80	-1.14	-0.67	MT
L7BVY7	X	136.13	-28.24	-21.45	137.13	-28.81	-16.90	UN
LC8DKC		165.17	0.80	0.60	167.73	1.79	1.05	BA
M8CAJY	X	170.80	6.43	4.88	172.03	6.09	3.57	TO
MN7RW2		165.34	0.97	0.74	167.08	1.14	0.67	FI

Analysis 115

Fastener Wedge Tensile (10 deg) - ksi

ASTM F606

WebCode	Data Flag	Sample X97			Sample X98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
MQWVZU		163.80	-0.57	-0.43	164.23	-1.71	-1.00	SA
N3RDYZ		164.80	0.43	0.33	163.37	-2.58	-1.51	ML
N43HCN		165.33	0.96	0.73	168.10	2.16	1.26	UN
NG8Q4E		163.05	-1.32	-1.00	165.68	-0.26	-0.15	XX
NJUZYK8		166.75	2.38	1.81	169.08	3.14	1.84	MT
NNJVNY		163.14	-1.24	-0.94	166.45	0.51	0.30	BA
NQAYUC		163.13	-1.24	-0.94	166.30	0.36	0.21	BA
NR6GTT		164.20	-0.17	-0.13	168.10	2.16	1.27	TO
PX9M7B		165.39	1.02	0.78	167.85	1.91	1.12	XX
QC4JU2		163.10	-1.27	-0.96	163.97	-1.98	-1.16	IN
R42EWW		165.79	1.42	1.08	165.36	-0.58	-0.34	XX
RADR4G		166.47	2.10	1.60	167.92	1.97	1.16	TO
RFJAR9		165.26	0.89	0.68	166.30	0.36	0.21	SA
RVWPPY	X	163.08	-1.30	-0.98	162.44	-3.50	-2.05	TO
U42LHU		165.20	0.83	0.63	166.03	0.09	0.05	TO
UK99YF		163.67	-0.70	-0.53	165.47	-0.48	-0.28	SA
UL9WRD		164.30	-0.07	-0.05	165.53	-0.41	-0.24	BA
UZ2APF		164.52	0.15	0.11	165.38	-0.57	-0.33	TO
V836HT		162.77	-1.60	-1.22	164.60	-1.34	-0.79	BA
V9NRCM	*	167.47	3.10	2.35	166.80	0.86	0.50	XX
VAME6Y		162.62	-1.75	-1.33	166.31	0.36	0.21	TO
VV63LW		164.07	-0.30	-0.23	165.50	-0.44	-0.26	SH
WFDKPZ		164.30	-0.07	-0.05	164.87	-1.08	-0.63	TO
WMMUWZ		164.70	0.33	0.25	164.20	-1.74	-1.02	XX
WUN7QC		163.33	-1.04	-0.79	164.33	-1.61	-0.94	XX
X4T46K	X	163.65	-0.72	-0.55	164.26	-1.68	-0.98	MT
XLDKJE		164.77	0.40	0.30	165.47	-0.48	-0.28	IN
XNWJBW		165.83	1.46	1.11	166.90	0.96	0.56	TO
Y99UHK		165.83	1.46	1.11	167.13	1.19	0.70	TO
YMRJDG		163.37	-1.00	-0.76	164.37	-1.58	-0.92	SH
YQERAW		164.38	0.01	0.01	167.33	1.38	0.81	SA
YUEJ6A		165.00	0.63	0.48	165.27	-0.68	-0.40	TO
YXLTV6		163.53	-0.84	-0.64	167.85	1.91	1.12	GA
YYHR3P		161.43	-2.94	-2.23	163.50	-2.44	-1.43	XX
ZQRRGQ	X	170.32	5.95	4.52	170.11	4.16	2.44	TO
ZZLWQK		164.34	-0.03	-0.02	168.21	2.27	1.33	TO

Summary Statistics

	Sample X97	Sample X98
Grand Means	164.370 ksi	165.940 ksi
Std Dev Btw Labs	1.317 ksi	1.705 ksi

Statistics based on 70 of 81 reporting participants

Samples X97 , X98 : Fastener size 3/8-16x2.25

Analysis 115

Fastener Wedge Tensile (10 deg) - ksi

ASTM F606

Comments on assigned Data Flags for Test #115

3CQWE9 (X) - Data for both samples are high.

86AW3R (X) - Inconsistent in testing between samples.

8JKWDJ (X) - Data were reported as load values, instead of tensile strength. Converted by CTS. Data for both samples are high.

C2X499 (X) - Data for both samples are high.

C4GQEW (X) - Data for both samples are high.

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

L7BVY7 (X) - Extreme data.

M8CAJY (X) - Data for both samples are high.

RVWPPY (X) - Data were reported as load values, instead of tensile strength. Data converted by CTS.

X4T46K (X) - Data were reported as load values, instead of tensile strength. Data converted by CTS.

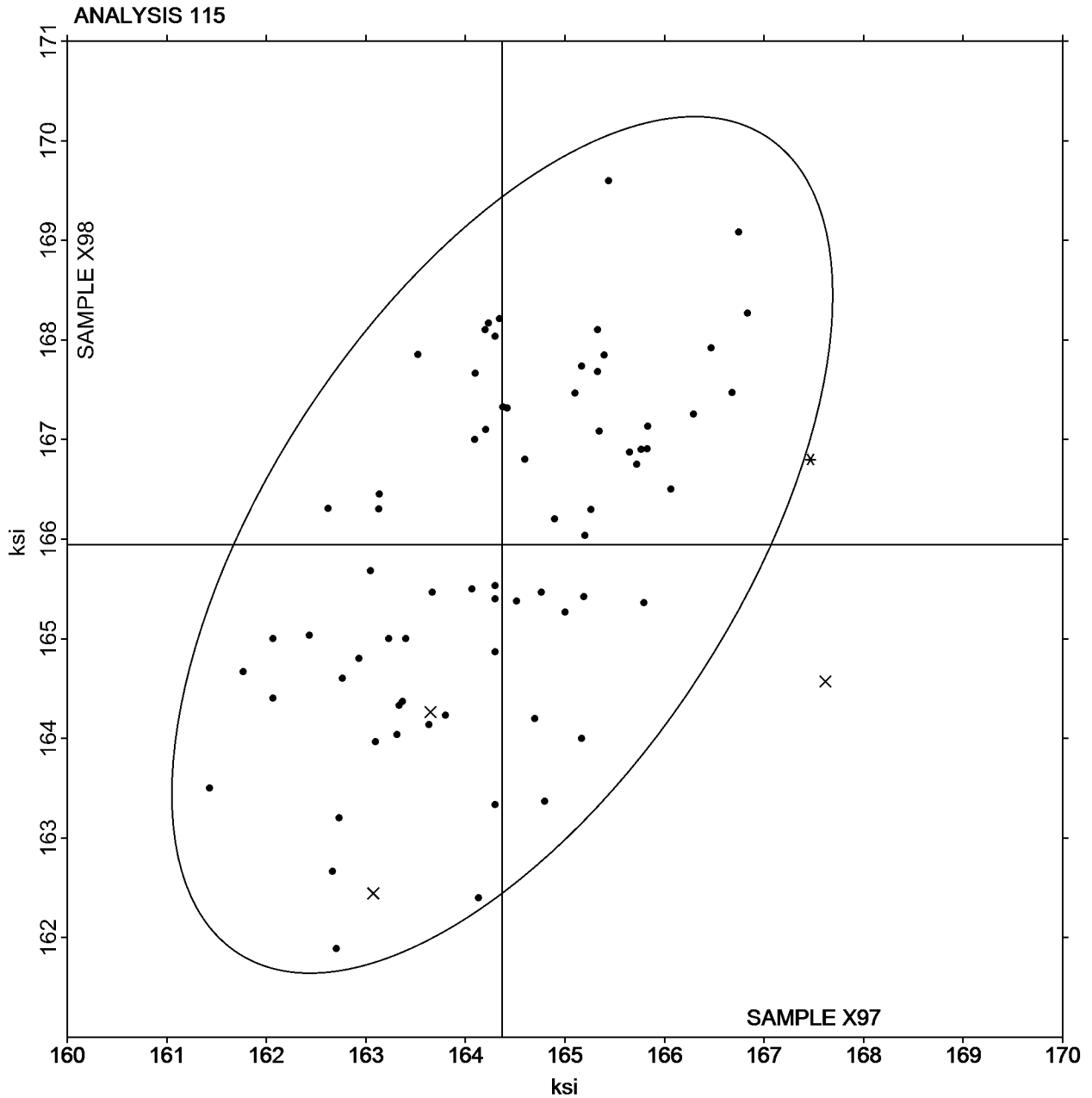
ZQRRGQ (X) - Data were reported as load values, instead of tensile strength. Converted by CTS. High data for sample 97. Inconsistent within the determinations for sample X97.

Analysis 115

Fastener Wedge Tensile (10 deg) - ksi
ASTM F606

SAMPLE X97 = 164.370 ksi

SAMPLE X98 = 165.940 ksi



Analysis 116

Fastener Axial Tensile - ksi

ASTM F606

WebCode	Data Flag	Sample Q97			Sample Q98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
248APK		165.78	0.78	0.42	169.55	2.67	1.12	FI
2DLZLX		163.37	-1.63	-0.87	166.97	0.08	0.04	TO
2MTVMH		166.45	1.45	0.78	166.71	-0.17	-0.07	TO
2QXFUG	X	119.63	-45.37	-24.27	119.13	-47.75	-20.00	BA
3LDQWW		163.46	-1.54	-0.83	163.37	-3.51	-1.47	SA
3RHW23		162.40	-2.60	-1.39	165.03	-1.85	-0.77	IN
3UYJJH		162.19	-2.81	-1.50	165.53	-1.35	-0.57	BA
4VE9N7		163.57	-1.43	-0.77	166.00	-0.88	-0.37	SA
4Z9RKH		164.23	-0.77	-0.41	168.27	1.38	0.58	SA
6237XF		165.50	0.50	0.27	168.27	1.38	0.58	SA
67AYQP		164.69	-0.31	-0.17	165.59	-1.29	-0.54	SA
78LT7Q		163.87	-1.13	-0.61	166.37	-0.52	-0.22	BA
7PBBNE		164.98	-0.02	-0.01	165.46	-1.42	-0.60	UN
7T4HMN		163.48	-1.52	-0.81	166.88	-0.01	0.00	SA
8A6NCA		162.33	-2.67	-1.43	165.23	-1.65	-0.69	SA
8FEDVN		162.93	-2.07	-1.11	163.37	-3.52	-1.47	SA
8GU6DT	*	169.17	4.17	2.23	174.30	7.42	3.11	TO
9E8RAG	X	155.71	-9.29	-4.97	173.03	6.14	2.57	UN
9FQ7UJ		167.37	2.37	1.27	168.20	1.32	0.55	BA
9XWR96		165.80	0.80	0.43	165.67	-1.22	-0.51	SH
AAD3MU		164.93	-0.07	-0.04	166.27	-0.62	-0.26	IN
AGLYY4		166.38	1.38	0.74	168.47	1.59	0.66	UN
AM8HRW	X	177.20	12.20	6.53	172.04	5.16	2.16	TO
AY7HVA		164.30	-0.70	-0.37	165.07	-1.82	-0.76	TO
BR9PCD	*	163.61	-1.39	-0.74	161.76	-5.12	-2.14	SA
BRJ86C		165.75	0.75	0.40	167.27	0.39	0.16	XX
CDHGUC		169.25	4.25	2.27	172.26	5.38	2.25	TO
CGQVTA		164.00	-1.00	-0.54	165.00	-1.88	-0.79	TO
CKQZMH		164.83	-0.17	-0.09	168.03	1.15	0.48	SA
CUQZGP		163.13	-1.87	-1.00	164.27	-2.62	-1.10	TO
D9T3Y4		165.17	0.17	0.09	167.60	0.72	0.30	XX
DAGMGT		162.40	-2.60	-1.39	165.07	-1.82	-0.76	TO
DCLWA6		166.02	1.02	0.55	169.02	2.14	0.90	TO
DCMYLA		166.96	1.96	1.05	168.97	2.09	0.87	SH
DJ4QGF	*	163.67	-1.33	-0.71	169.60	2.72	1.14	SA
DKKKY3		164.63	-0.37	-0.20	166.53	-0.35	-0.15	TO
F2HRHL		164.47	-0.53	-0.29	168.70	1.82	0.76	TO
F4V8H7	X	142.33	-22.67	-12.13	144.92	-21.96	-9.20	IN
FJP4UP		166.31	1.31	0.70	166.50	-0.38	-0.16	TO
FWP667		163.87	-1.13	-0.61	167.90	1.02	0.43	TO
GFQMAF		166.33	1.33	0.71	166.57	-0.32	-0.13	IN
GWUDWD	X	305.73	140.73	75.29	300.64	133.76	56.03	IN
H8C6AU		165.87	0.87	0.47	166.75	-0.14	-0.06	HT
HVLY9P	*	170.27	5.27	2.82	172.27	5.38	2.26	TO
JBHVGK		164.11	-0.89	-0.48	166.14	-0.75	-0.31	GA

Analysis 116

Fastener Axial Tensile - ksi

ASTM F606

WebCode	Data Flag	Sample Q97			Sample Q98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
L28N3B		164.67	-0.33	-0.18	166.40	-0.48	-0.20	XX
LAFULD		166.33	1.33	0.71	165.53	-1.35	-0.57	SA
LGU7EY		164.53	-0.47	-0.25	167.00	0.12	0.05	TO
LL8JJX		164.18	-0.82	-0.44	165.90	-0.99	-0.41	TO
LRCW6G		162.95	-2.05	-1.10	165.53	-1.35	-0.57	XX
M7D9BL		165.13	0.13	0.07	168.43	1.55	0.65	IN
MCFRKQ		164.53	-0.47	-0.25	165.93	-0.95	-0.40	SA
N8UUQ8		164.13	-0.87	-0.47	166.45	-0.43	-0.18	IN
NG6G8T	X	163.79	-1.21	-0.65	164.03	-2.86	-1.20	MT
NK29XE		164.57	-0.43	-0.23	165.71	-1.17	-0.49	HT
P6QLP9		162.20	-2.80	-1.50	163.33	-3.55	-1.49	SA
PG3FXA		168.27	3.27	1.75	168.16	1.28	0.53	SA
PY4D9H		165.97	0.97	0.52	167.71	0.83	0.35	fi
R4N74G		164.47	-0.53	-0.29	165.50	-1.38	-0.58	TO
RCGMP6		165.58	0.58	0.31	167.53	0.64	0.27	TO
RDEQKZ		164.37	-0.63	-0.34	166.20	-0.68	-0.29	XX
RDNM98		168.67	3.67	1.96	171.67	4.78	2.00	IN
RQ6KWU		165.03	0.03	0.02	167.42	0.54	0.23	IN
RTL9F		165.27	0.27	0.14	167.37	0.48	0.20	TO
TC24EC		163.17	-1.83	-0.98	166.30	-0.58	-0.24	TO
TXF4TY	X	1.37	-163.63	-87.54	1.37	-165.51	-69.33	UN
UC8JVC		162.78	-2.22	-1.19	164.09	-2.80	-1.17	TO
UCHXZ2		165.83	0.83	0.44	166.26	-0.62	-0.26	TO
UHTEUU	*	169.68	4.68	2.50	173.76	6.88	2.88	TO
UNPJZQ	*	170.53	5.53	2.96	172.20	5.32	2.23	TO
V9R7AG		166.01	1.01	0.54	167.23	0.35	0.15	FI
VRKVH4		163.67	-1.33	-0.71	162.97	-3.92	-1.64	TO
VX8W9G		165.79	0.79	0.42	167.50	0.62	0.26	TO
VZVDVV		165.72	0.72	0.39	168.82	1.94	0.81	SH
WFZDVA	X	167.40	2.40	1.28	169.73	2.85	1.19	XX
X92M7Y		162.53	-2.47	-1.32	162.97	-3.92	-1.64	IN
X94JQP		163.80	-1.20	-0.64	164.97	-1.92	-0.80	ML
XAURUY		165.63	0.63	0.34	166.63	-0.25	-0.10	XX
XB6LJ8		166.30	1.30	0.69	169.73	2.85	1.19	RI
XNJKP2		163.73	-1.27	-0.68	165.50	-1.38	-0.58	SA
Y436CY		167.60	2.59	1.39	167.63	0.74	0.31	XX
YGFZZB		163.70	-1.30	-0.70	167.40	0.52	0.22	MT
YWJ8LK		163.57	-1.43	-0.77	167.45	0.57	0.24	HT
Z4KHBV		163.85	-1.15	-0.62	165.25	-1.63	-0.68	SA
Z732BM		163.70	-1.30	-0.70	165.23	-1.65	-0.69	TO
ZG6VQB		164.07	-0.93	-0.50	162.40	-4.48	-1.88	TO
ZQC7X	X	168.70	3.70	1.98	166.03	-0.85	-0.36	BA
ZT22KA		164.73	-0.27	-0.14	166.88	0.00	0.00	TO

Analysis 116

Fastener Axial Tensile - ksi

ASTM F606

Summary Statistics

	Sample Q97	Sample Q98
Grand Means	165.001 ksi	166.880 ksi
Stnd Dev Btwn Labs	1.869 ksi	2.387 ksi
Statistics based on 79 of 88 reporting participants		

Samples Q97 , Q98 : Fastener size 3/8-16x2.25

Comments on assigned Data Flags for Test #116

2QXFUG (X) - Extreme data.

9E8RAG (X) - Low data for Sample Q97. Inconsistent within the determinations for sample Q97.

AM8HRW (X) - High data for Sample Q97.

F4V8H7 (X) - Extreme data.

GWUDWD (X) - Extreme data.

NG6G8T (X) - laboratory submitted data in incorrect units. Corrected by CTS.

TXF4TY (X) - Extreme data.

WFZDVA (X) - laboratory submitted data in incorrect units. Corrected by CTS.

ZQCN7X (X) - Inconsistent in testing between samples.

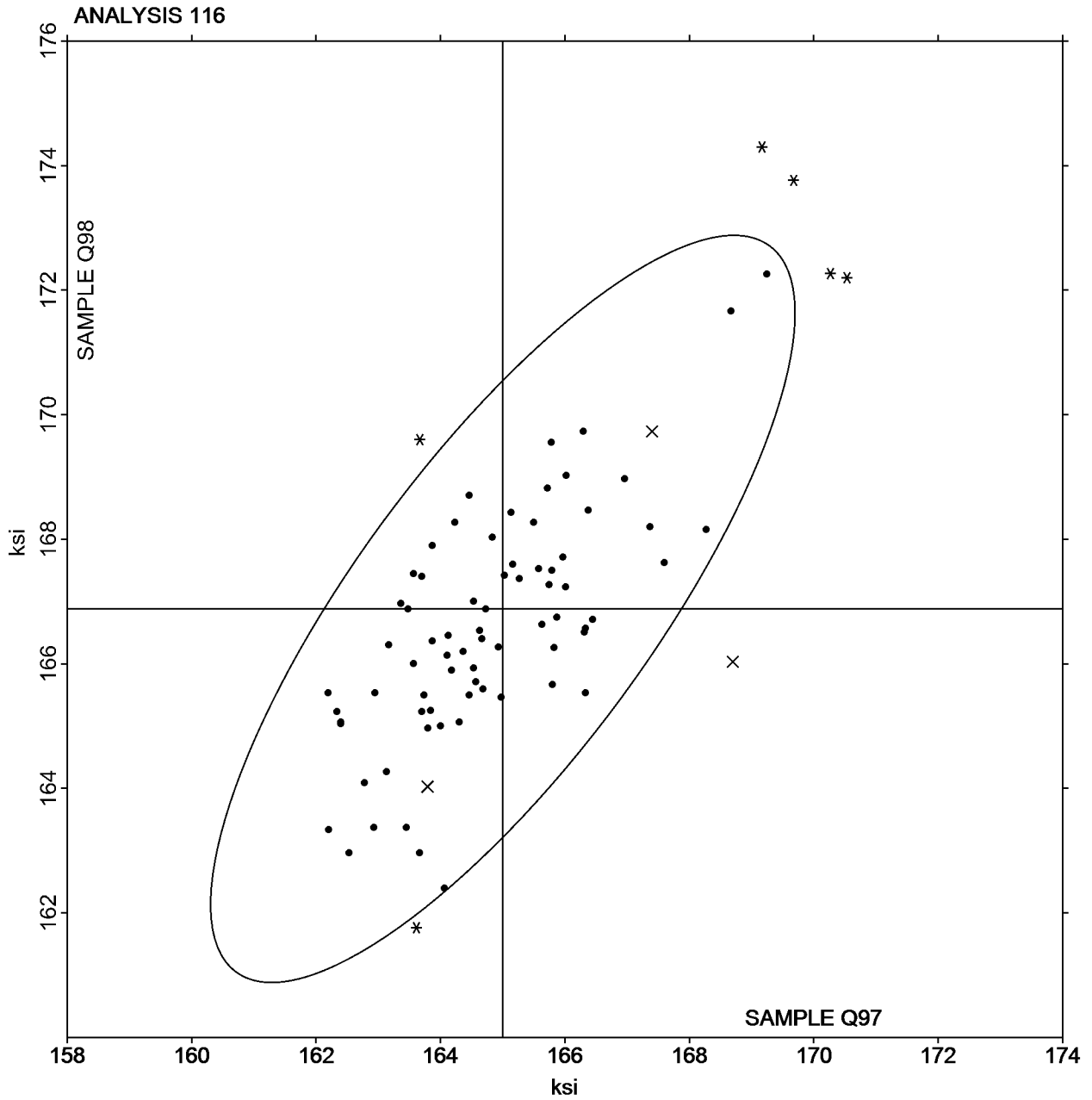
Analysis 116

Fastener Axial Tensile - ksi

ASTM F606

SAMPLE Q97 = 165.001 ksi

SAMPLE Q98 = 166.880 ksi



Analysis 125

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

WebCode	Data Flag	Sample G97			Sample G98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2AG6EA		37.25	0.62	1.11	37.39	0.38	0.65	XX
2EGRKQ	X	33.90	-2.73	-4.92	34.10	-2.91	-4.94	WI
2QVQCD		37.17	0.54	0.96	37.19	0.19	0.32	WI
32FATG		36.98	0.34	0.61	37.03	0.02	0.04	WI
3783WN	X	36.49	-0.15	-0.26	34.28	-2.73	-4.64	WI
3DM32U		37.00	0.37	0.66	38.00	0.99	1.69	SP
46JF8D		37.04	0.41	0.73	37.61	0.61	1.03	WI
49J6CL		36.40	-0.23	-0.42	36.89	-0.11	-0.19	WI
4Q6FQA		37.44	0.80	1.45	37.71	0.70	1.19	XX
4U9AMJ		36.43	-0.20	-0.36	37.16	0.15	0.25	AN
68TFAY		36.49	-0.14	-0.25	36.61	-0.40	-0.68	CL
7FXGXQ		36.86	0.23	0.41	37.58	0.57	0.97	XX
7HW9TY		37.31	0.68	1.22	37.03	0.02	0.04	WI
7W3XTQ	*	38.06	1.42	2.56	38.40	1.39	2.37	RS
88VYPR		36.11	-0.52	-0.94	36.76	-0.24	-0.42	NA
8MAMVL		37.15	0.52	0.93	37.09	0.08	0.14	UN
8PZP3V		36.69	0.06	0.11	37.00	-0.01	-0.01	UN
968FNU		36.79	0.15	0.28	36.79	-0.21	-0.36	UN
9AYPUL		36.82	0.19	0.33	37.37	0.36	0.61	WI
9BVAEZ	X	35.79	-0.85	-1.52	34.69	-2.32	-3.95	CL
9LBE8G		36.76	0.12	0.22	37.17	0.16	0.27	AK
9NHZDM		36.16	-0.48	-0.86	37.45	0.44	0.75	MI
AKW63M		36.60	-0.03	-0.05	36.51	-0.50	-0.85	FT
AMYHDN		35.87	-0.76	-1.38	36.01	-1.00	-1.70	WI
AQFBHG		37.37	0.74	1.32	37.73	0.72	1.22	BU
AYEWK3		35.71	-0.92	-1.66	36.18	-0.83	-1.41	UN
BFEAEB		37.54	0.90	1.63	38.09	1.09	1.85	XX
BWFUXZ		36.33	-0.30	-0.54	37.03	0.02	0.03	HT
BXJY3Z	X	34.69	-1.94	-3.49	35.54	-1.46	-2.49	UN
C2V2CW		37.43	0.80	1.44	38.01	1.01	1.71	NA
CFYT6A		36.93	0.29	0.52	36.97	-0.04	-0.07	WI
CNPQZ4		36.68	0.05	0.09	37.41	0.41	0.69	WI
D6UJ4W		36.11	-0.52	-0.94	36.83	-0.18	-0.30	FR
D7GGZ2		36.74	0.11	0.20	37.23	0.22	0.38	UN
DLHURK		36.83	0.19	0.34	37.39	0.38	0.65	XX
DZZ93C		36.29	-0.34	-0.61	36.19	-0.81	-1.38	UN
EYZUQ3		36.51	-0.12	-0.22	36.08	-0.93	-1.59	IN
FP6MGQ	*	38.16	1.52	2.74	37.99	0.99	1.68	WI
GGA9JH		36.43	-0.20	-0.36	36.94	-0.07	-0.12	WI
GJVA4W		36.48	-0.16	-0.29	36.71	-0.30	-0.51	WI
GNZATF		35.76	-0.87	-1.57	36.02	-0.99	-1.68	WI
GUJHVT		37.04	0.40	0.73	37.10	0.09	0.16	AF
H2RCLF		36.13	-0.50	-0.90	36.78	-0.23	-0.40	BU
HV4HFM		35.98	-0.66	-1.19	36.24	-0.77	-1.31	WI
J9JQCZ		36.04	-0.59	-1.06	36.71	-0.29	-0.50	UN

Analysis 125

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

WebCode	Data Flag	Sample G97			Sample G98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
JK9RRG		37.49	0.86	1.55	37.51	0.50	0.85	BU
JVQFKU		37.28	0.65	1.17	37.70	0.69	1.18	WI
KC3L6P		37.42	0.79	1.41	37.54	0.54	0.91	WI
KDT22E		36.16	-0.48	-0.86	36.34	-0.66	-1.13	WI
KYDVW7		36.30	-0.33	-0.60	36.81	-0.19	-0.33	WI
KZHYGB	*	36.58	-0.05	-0.09	36.02	-0.99	-1.68	WI
LGD28L		37.75	1.11	2.01	38.03	1.03	1.75	MI
LPJYK4		36.00	-0.63	-1.14	37.06	0.06	0.09	UN
M6BLG3		36.84	0.20	0.37	37.38	0.37	0.63	ML
MDPYLY	*	35.52	-1.11	-2.01	36.71	-0.29	-0.50	FT
N2DYLY		36.30	-0.33	-0.60	36.71	-0.30	-0.51	WO
NBRQKM		36.83	0.20	0.36	37.54	0.53	0.90	CL
NPHBKB		36.43	-0.20	-0.36	36.84	-0.17	-0.29	BU
NRNVAV		35.79	-0.85	-1.52	36.96	-0.04	-0.08	NA
NVVGF4	X	33.84	-2.79	-5.02	30.59	-6.41	-10.91	WI
P8YU2E		35.71	-0.93	-1.67	36.52	-0.49	-0.83	EM
PF9XRR		36.59	-0.05	-0.08	36.86	-0.15	-0.26	WI
PGH4UV		36.88	0.25	0.45	36.89	-0.12	-0.20	WI
PMNCJC		36.60	-0.03	-0.06	36.81	-0.20	-0.34	XX
PN6WYL		36.37	-0.27	-0.48	36.33	-0.68	-1.15	UN
PUBPQW		36.19	-0.44	-0.79	36.27	-0.74	-1.26	GR
PVM427		36.97	0.33	0.60	37.94	0.94	1.59	UN
Q9HYLC	X	37.04	0.40	0.73	35.91	-1.09	-1.86	WI
QMYWM7		36.63	-0.01	-0.02	36.86	-0.15	-0.26	RS
QPTW8G		37.59	0.96	1.73	37.50	0.49	0.84	UN
QWA4D8	X	34.24	-2.39	-4.30	36.35	-0.66	-1.12	WI
QYRRUT		36.00	-0.63	-1.14	36.00	-1.01	-1.71	CL
R89YC3		36.46	-0.18	-0.32	36.71	-0.30	-0.51	WO
R8DAE2		36.04	-0.59	-1.06	36.52	-0.49	-0.83	LE
RLRRV4		36.06	-0.57	-1.03	36.12	-0.89	-1.51	NA
RMZX4X		36.06	-0.57	-1.03	36.69	-0.32	-0.54	UN
RRX243		36.43	-0.20	-0.36	36.62	-0.39	-0.66	UN
T4XNJR		35.93	-0.71	-1.28	35.94	-1.06	-1.81	KF
TJJRGN		37.55	0.92	1.65	38.08	1.07	1.82	UN
TR9H2V		36.30	-0.33	-0.60	36.69	-0.32	-0.54	MI
U4AUA2		36.80	0.17	0.30	37.21	0.21	0.35	UN
UKE9C4		36.46	-0.17	-0.31	37.18	0.17	0.30	WI
ULAFLF	X	34.50	-2.13	-3.84	36.69	-0.32	-0.54	WI
UR8QHY		36.78	0.15	0.27	37.43	0.42	0.72	BU
UWHBFR		37.27	0.64	1.14	37.68	0.67	1.14	TG
V3YB2G		37.37	0.74	1.32	37.61	0.60	1.02	NA
VFB22P		36.34	-0.30	-0.53	36.90	-0.11	-0.18	WI
W2UXGM		36.43	-0.21	-0.38	36.58	-0.43	-0.72	MI
WMMKUN		37.24	0.60	1.09	37.28	0.27	0.47	WI
WY3CFC		36.67	0.04	0.06	37.22	0.21	0.36	NA

Analysis 125

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

WebCode	Data Flag	Sample G97			Sample G98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
XF2ABZ		36.29	-0.34	-0.61	36.81	-0.20	-0.34	UN
YB62AD		36.48	-0.15	-0.27	37.06	0.05	0.08	WO
YCJGRK		36.44	-0.20	-0.35	36.30	-0.71	-1.20	UN
YJGTHT		36.55	-0.08	-0.15	37.75	0.74	1.26	WI
YUHYUF		36.51	-0.13	-0.23	37.38	0.37	0.63	WI
YW2V2Y		37.21	0.57	1.03	37.48	0.47	0.81	WI
Z3BU84		36.04	-0.60	-1.07	36.83	-0.18	-0.31	WI
ZHKMV8		35.83	-0.81	-1.46	35.74	-1.27	-2.16	NA
ZNPULQ		36.10	-0.53	-0.96	35.96	-1.05	-1.79	CL
ZPY37B		36.60	-0.03	-0.06	37.47	0.46	0.78	BU

Summary Statistics

	Sample G97	Sample G98
Grand Means	36.634 HRC	37.010 HRC
Stnd Dev Btwn Labs	0.555 HRC	0.588 HRC

Statistics based on 92 of 100 reporting participants

Samples G97 , G98 : Fastener size 1/2-20x2.5, 1/2-20x2.75

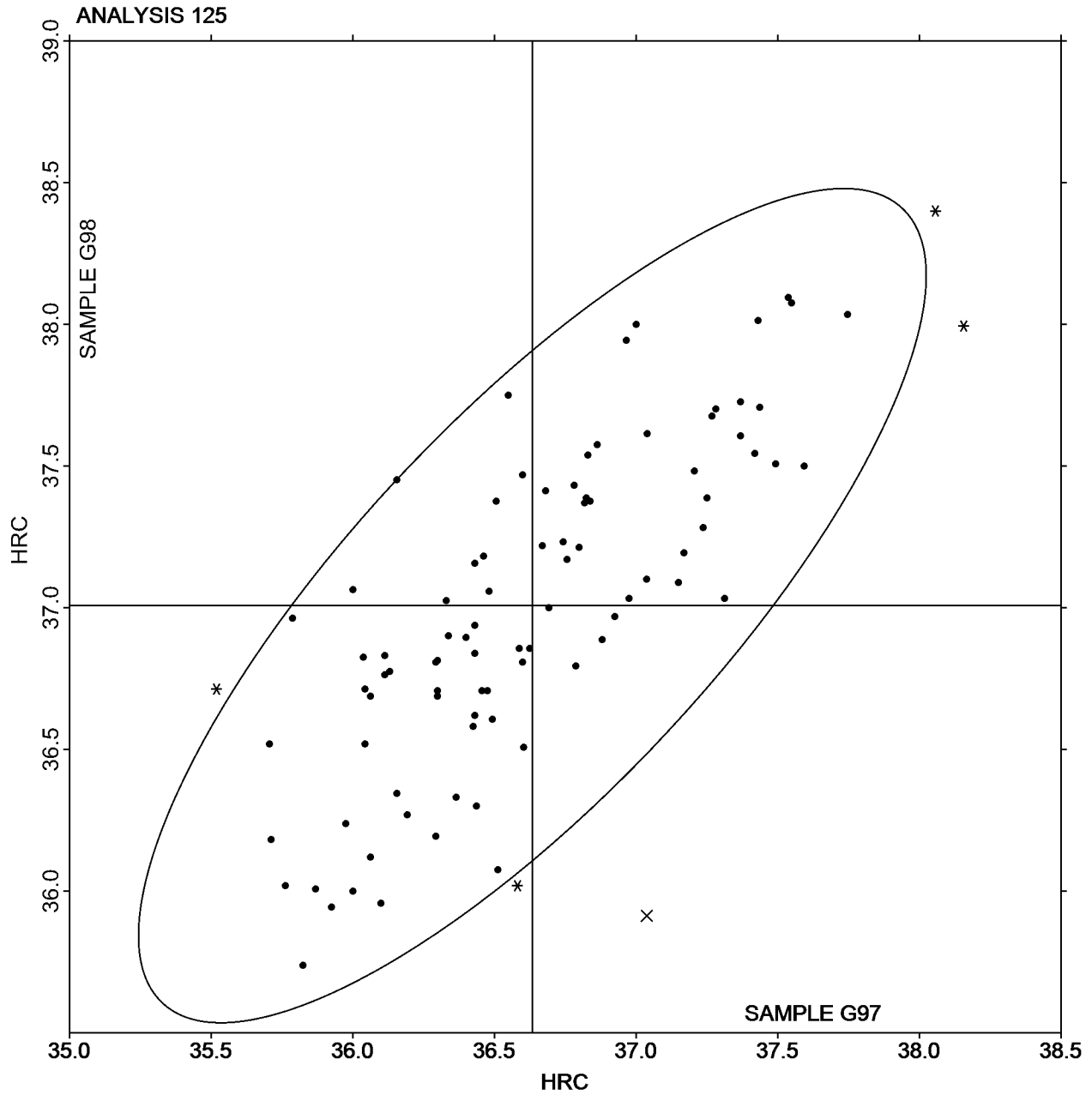
Comments on assigned Data Flags for Test #125

- 2EGRKQ (X) - Data for both samples are low and inconsistent within determinations for both samples.
 3783WN (X) - Inconsistent in testing between samples, data for Sample G98 are low and inconsistent within the determinations of both samples.
 9BVAEZ (X) - Low data for Sample G98 and inconsistent within the determinations for both samples.
 BXJY3Z (X) - Low data and inconsistent within the determinations for sample G97.
 NVVGF4 (X) - Extreme data.
 Q9HYLC (X) - Inconsistent in testing between samples.
 QWA4D8 (X) - Inconsistent in testing between samples and inconsistent within the determinations for Sample G97.
 ULAF LF (X) - Inconsistent in testing between samples, data for Sample G97 are low.

Analysis 125

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

SAMPLE G97 = 36.634 HRC SAMPLE G98 = 37.010 HRC



Analysis 126

Vickers Hardness of Externally Threaded Fasteners - Vickers Hardness Number

ASTM E384

WebCode	Data Flag	Sample V97			Sample V98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3XNJZW		361.75	0.05	0.01	369.25	5.14	1.18	XX
68VUPR		363.94	2.23	0.56	366.38	2.26	0.52	IN
9AGVWH		363.25	1.55	0.39	367.88	3.76	0.87	CL
ADXKRE		361.13	-0.58	-0.15	368.31	4.20	0.97	AK
BDQNU2		356.00	-5.70	-1.44	358.50	-5.61	-1.29	GN
BVRBED		361.79	0.09	0.02	361.29	-2.82	-0.65	BU
KJX9GC		356.91	-4.79	-1.21	357.39	-6.72	-1.54	FU
LPDYXG		361.13	-0.58	-0.15	366.56	2.45	0.56	WO
LQTRYX		365.13	3.42	0.86	367.75	3.64	0.84	AR
MW2RBU		365.00	3.30	0.83	364.88	0.76	0.18	AR
N9Y67C		366.56	4.86	1.23	369.69	5.58	1.28	AK
PZCMYU		359.56	-2.14	-0.54	362.25	-1.86	-0.43	XX
QHN6G9		355.46	-6.25	-1.58	355.99	-8.12	-1.87	XX
T926CU		356.56	-5.14	-1.30	362.69	-1.42	-0.33	LE
TMAMHU		366.06	4.36	1.10	366.75	2.64	0.61	LE
TNQHLF		365.81	4.11	1.04	368.69	4.58	1.05	WO
UBZ7MB		360.81	-0.89	-0.22	364.13	0.01	0.00	XX
URVBKX		357.13	-4.58	-1.16	358.06	-6.05	-1.39	XX
YFWBGP	*	368.38	6.67	1.69	361.69	-2.42	-0.56	SH

Summary Statistics

	Sample V97		Sample V98	
Grand Means	361.703	HV	364.110	HV
Stnd Dev Btwn Labs	3.958	HV	4.351	HV

Statistics based on 19 of 19 reporting participants

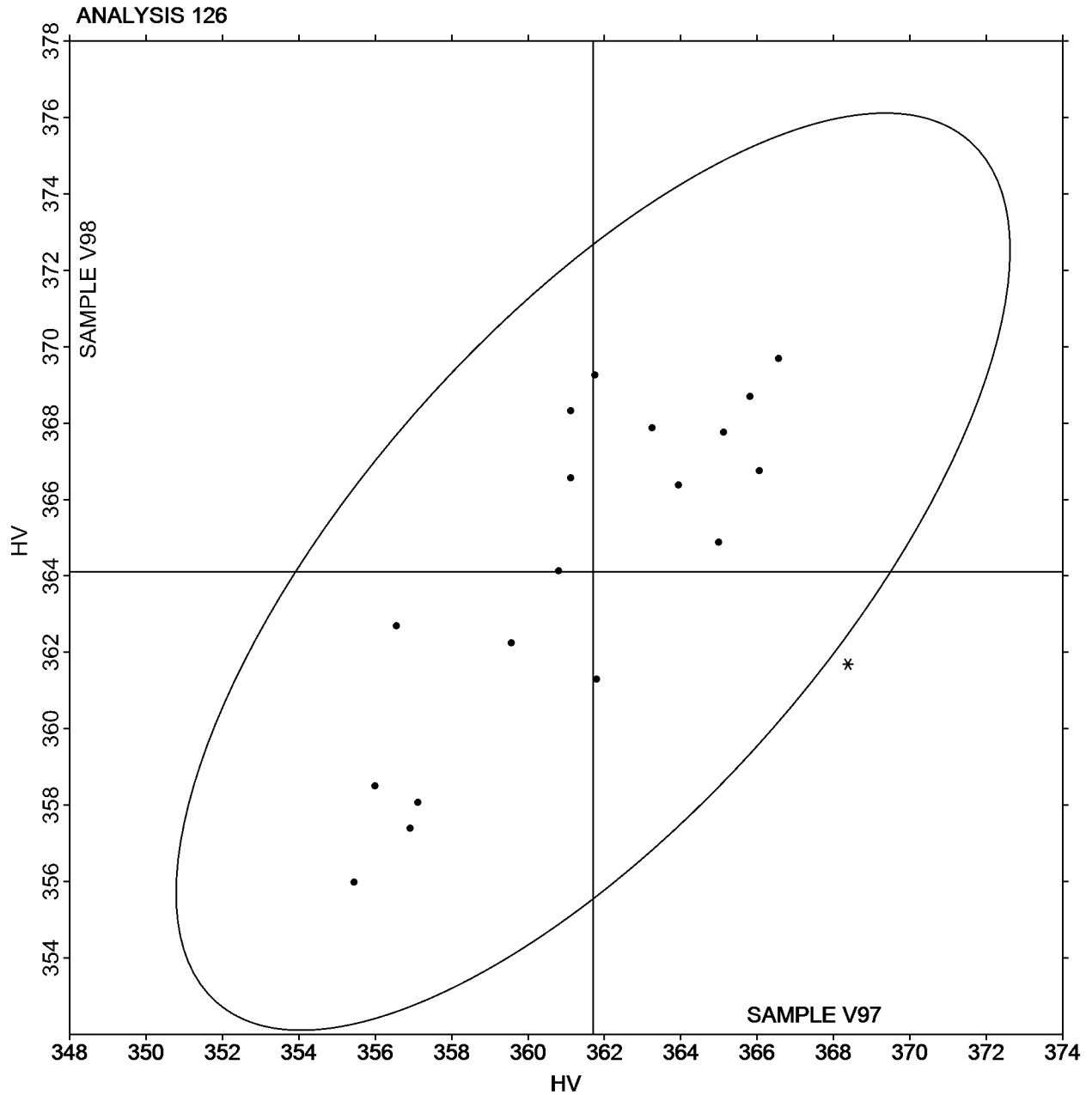
Samples V97 , V98 : Fastener size 1/2-20x2.5, 1/2-20x2.75

Analysis 126

Vickers Hardness of Externally Threaded Fasteners - Vickers Hardness Number
ASTM E384

SAMPLE V97 = 361.703 HV

SAMPLE V98 = 364.110 HV



Analysis 127

Fastener Wedge Tensile (10 deg) Metric - MPa

ASTM F606M

WebCode	Data Flag	Sample B97			Sample B98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3PY3KL		1,123.67	-11.04	-1.01	1,106.67	-7.57	-0.72	SA
462WDM		1,150.33	15.62	1.43	1,105.33	-8.91	-0.85	UN
6MZEYB		1,124.67	-10.04	-0.92	1,109.67	-4.57	-0.44	TO
7794ZR		1,130.33	-4.38	-0.40	1,114.67	0.43	0.04	SA
7C6GUG		1,123.33	-11.38	-1.04	1,113.67	-0.57	-0.05	UN
86NE2R		1,131.00	-3.71	-0.34	1,115.67	1.43	0.14	TO
B2HWCM		1,126.00	-8.71	-0.80	1,126.33	12.09	1.15	MF
BENTAZ		1,139.33	4.62	0.42	1,105.67	-8.57	-0.82	WZ
CZK4YE		1,135.00	0.29	0.03	1,124.00	9.76	0.93	UN
DNZ948		1,134.00	-0.71	-0.06	1,114.67	0.43	0.04	LO
EV49FM		1,129.67	-5.04	-0.46	1,120.00	5.76	0.55	SH
FNECTJ		1,120.24	-14.46	-1.32	1,118.94	4.70	0.45	XX
GPFKUU		1,119.03	-15.68	-1.43	1,103.13	-11.11	-1.06	WZ
HHJQYT		1,145.67	10.96	1.00	1,119.33	5.09	0.49	WZ
JRFNZR		1,142.00	7.29	0.67	1,100.33	-13.91	-1.33	WB
K73A6L		1,161.00	26.29	2.40	1,133.67	19.43	1.85	TO
KH69QT		1,159.67	24.96	2.28	1,133.33	19.09	1.82	XX
L6KE2Q		1,145.25	10.54	0.96	1,114.72	0.48	0.05	TO
LBPA4Y	X	1,132.00	-2.71	-0.25	1,098.67	-15.57	-1.49	TO
LVC3M9		1,140.49	5.78	0.53	1,132.62	18.38	1.75	RO
MAQK4B		1,131.67	-3.04	-0.28	1,112.00	-2.24	-0.21	MR
MKD83P		1,127.95	-6.76	-0.62	1,102.39	-11.85	-1.13	UN
NV3YY8		1,122.33	-12.38	-1.13	1,101.33	-12.91	-1.23	HP
P7H4P4		1,134.33	-0.38	-0.03	1,095.67	-18.57	-1.77	TO
VK3R7V		1,132.00	-2.71	-0.25	1,110.33	-3.91	-0.37	IN
XHRMPC		1,134.20	-0.51	-0.05	1,105.63	-8.61	-0.82	ST
Z7XQBA		1,131.97	-2.74	-0.25	1,119.03	4.79	0.46	TO
ZB4JVE		1,142.00	7.29	0.67	1,125.67	11.43	1.09	TO

Summary Statistics

	Sample B97	Sample B98
Grand Means	1,134.709 MPa	1,114.240 MPa
Std Dev Btwn Labs	10.947 MPa	10.476 MPa
Statistics based on 27 of 28 reporting participants		

Samples B97 , B98 : Fastener size M10 x 1.5 x 70

Comments on assigned Data Flags for Test #127

LBPA4Y (X) - Laboratory submitted data with incorrect units. Data was converted by CTS.

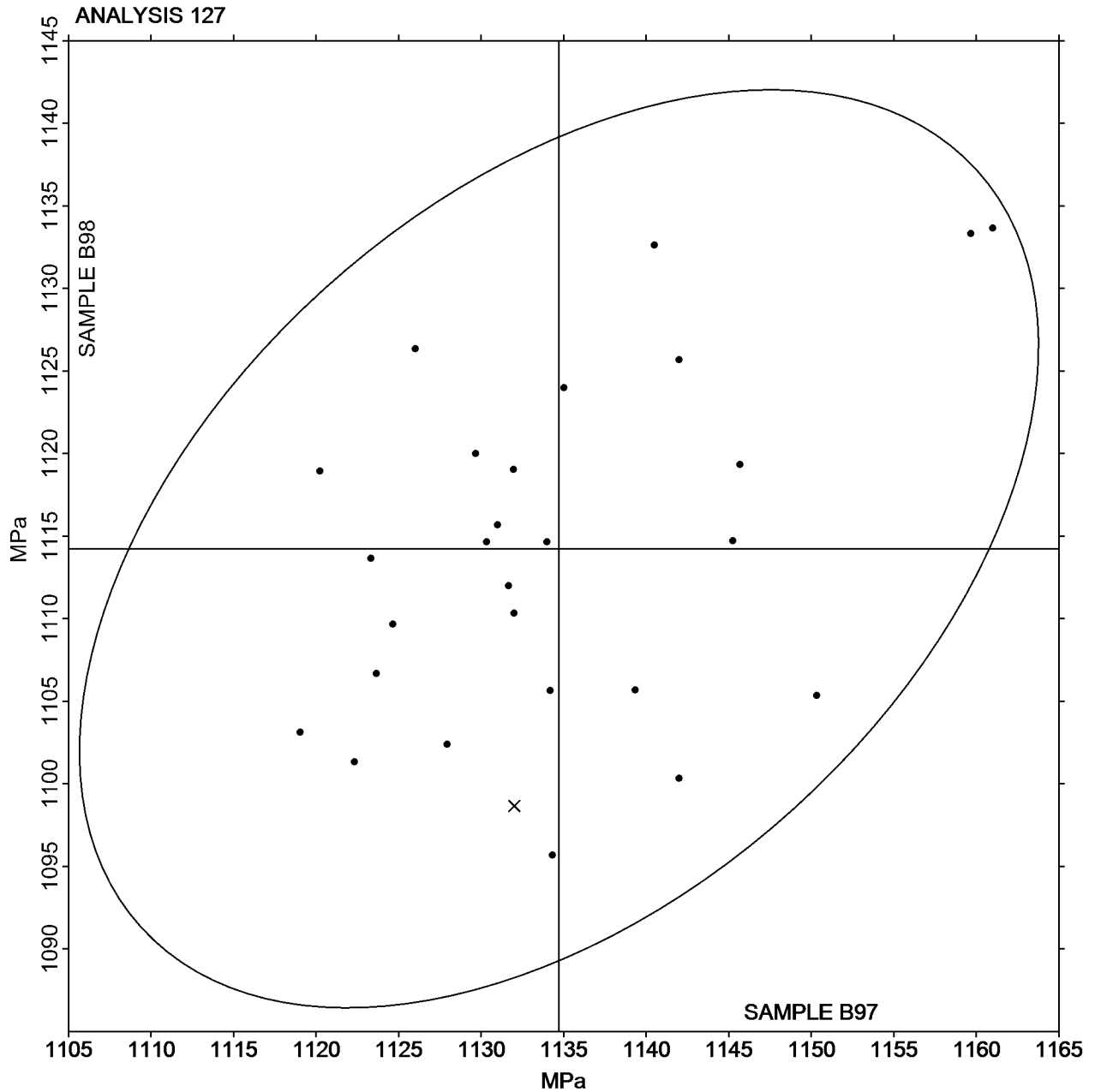
Analysis 127

Fastener Wedge Tensile (10 deg) Metric - MPa

ASTM F606M

SAMPLE B97 = 1,134.709 MPa

SAMPLE B98 = 1,114.240 MPa



Analysis 128

Fastener Axial Tensile Metric - MPa

ASTM F606M

WebCode	Data Flag	Sample T97			Sample T98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
4RWMNR		1,147.36	13.98	1.23	1,116.45	3.25	0.38	RO
7EGAM3		1,128.19	-5.19	-0.46	1,096.95	-16.24	-1.91	GA
9CLL2C		1,125.67	-7.71	-0.68	1,112.67	-0.53	-0.06	LO
AJF8CJ		1,137.67	4.29	0.38	1,108.33	-4.86	-0.57	TO
BDTMUN		1,134.00	0.62	0.05	1,120.00	6.80	0.80	TO
FE2HDG		1,122.21	-11.17	-0.98	1,109.13	-4.07	-0.48	XX
GV8UTD		1,112.60	-20.78	-1.83	1,101.70	-11.50	-1.35	ST
HNN7D3		1,144.67	11.29	0.99	1,120.00	6.80	0.80	TO
K6PQ9V		1,142.00	8.62	0.76	1,120.33	7.14	0.84	TO
K92MM6		1,124.00	-9.38	-0.83	1,113.00	-0.20	-0.02	IN
MAPVRQ		1,152.00	18.62	1.64	1,128.67	15.47	1.81	TO
UPBCDV		1,118.67	-14.71	-1.30	1,107.33	-5.86	-0.69	IN
UV8YL9		1,134.33	0.95	0.08	1,109.33	-3.86	-0.45	TO
UXT9N3		1,143.00	9.62	0.85	1,124.40	11.20	1.31	SH
Y44QYD		1,134.33	0.95	0.08	1,109.67	-3.53	-0.41	WB

Summary Statistics

	Sample T97	Sample T98
Grand Means	1,133.379 MPa	1,113.200 MPa
Std Dev Btwn Labs	11.354 MPa	8.524 MPa

Statistics based on 15 of 15 reporting participants

Samples T97 , T98 : Fastener size M10 x 1.5 x 70

Analysis 129

Fastener Double Shear - lb

NASM 1312-13

WebCode	Data Flag	Sample Z97			Sample Z98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
24YZCF		21,340.00	-166.94	-0.28	21,793.33	230.27	0.45	SA
2F9LCZ		21,757.00	250.06	0.42	21,917.00	353.94	0.69	XX
362H9N		21,213.67	-293.27	-0.50	21,131.67	-431.40	-0.84	SA
4EZ6QR		21,256.67	-250.27	-0.42	21,290.00	-273.06	-0.53	IN
4Q8KA6		21,660.67	153.73	0.26	21,894.33	331.27	0.65	SA
98A6G8		21,436.67	-70.27	-0.12	21,648.33	85.27	0.17	XX
9AGRBU		22,201.67	694.73	1.18	21,366.67	-196.40	-0.38	RI
9TT9FD		21,185.00	-321.94	-0.55	21,209.33	-353.73	-0.69	TO
BV9XNA		21,725.00	218.06	0.37	21,867.67	304.60	0.60	TO
E68TA3		21,200.00	-306.94	-0.52	21,433.33	-129.73	-0.25	TO
EFXPV9		21,000.00	-506.94	-0.86	21,116.67	-446.40	-0.87	XX
G3AMY8		21,399.67	-107.27	-0.18	21,540.67	-22.40	-0.04	SA
GMCAVQ		21,309.67	-197.27	-0.33	21,209.67	-353.40	-0.69	TO
JL67FY	*	23,126.67	1,619.73	2.75	22,400.00	836.94	1.64	BA
K6JCNF		21,693.00	186.06	0.32	21,789.67	226.60	0.44	SA
LWYEYE		21,800.00	293.06	0.50	22,266.67	703.60	1.38	TO
MPXKEK		20,864.00	-642.94	-1.09	21,342.00	-221.06	-0.43	IN
P49RHV		22,705.67	1,198.73	2.03	22,811.00	1,247.94	2.44	UN
QMHHQY		21,033.33	-473.60	-0.80	20,783.33	-779.73	-1.52	TO
R9JXQ7		20,800.00	-706.94	-1.20	21,033.33	-529.73	-1.04	RI
XKIFYNG		20,937.33	-569.60	-0.97	20,979.67	-583.40	-1.14	SA

Summary Statistics

	Sample Z97		Sample Z98	
Grand Means	21,506.937	lb	21,563.060	lb
Stnd Dev Btwn Labs	589.319	lb	511.663	lb

Statistics based on 21 of 21 reporting participants

Samples Z97 , Z98 : Fastener size 3/8-16x2.25

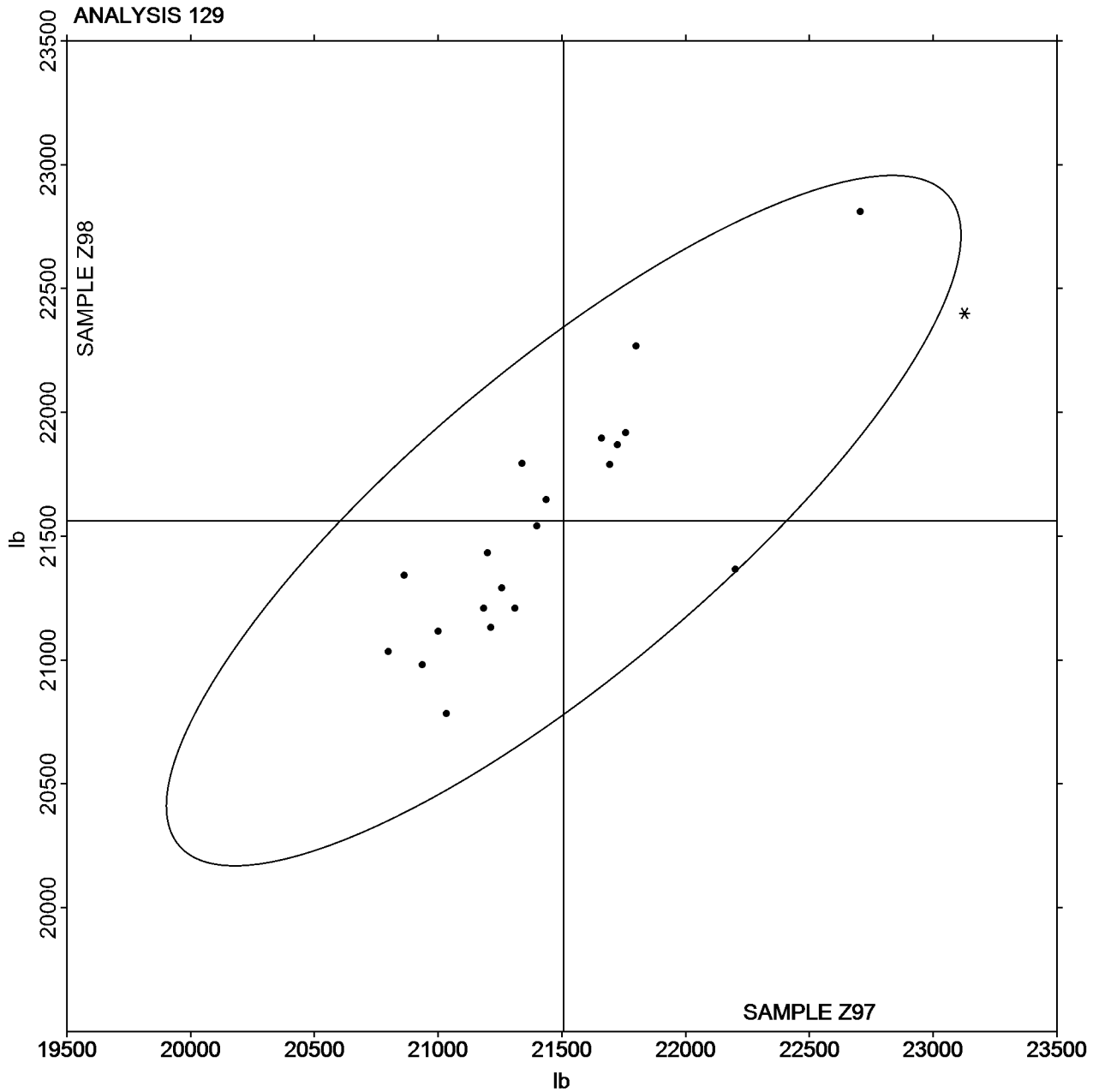
Analysis 129

Fastener Double Shear - lb

NASM 1312-13

SAMPLE Z97 = 21,506.937 lb

SAMPLE Z98 = 21,563.060 lb



Analysis 130

Tensile Strength (Flat Steel) - ksi

ASTM E8

WebCode	Data Flag	Sample F97			Sample F98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2AZA72		108.05	0.22	0.10	111.39	0.39	0.15	ZZ
33XQCV		103.60	-4.23	-1.83	108.90	-2.10	-0.82	ZZ
369UK7		107.70	-0.13	-0.06	112.40	1.40	0.55	ZZ
3JNKCZ		107.50	-0.33	-0.14	112.80	1.80	0.70	ZZ
3NZ64Y		107.40	-0.43	-0.18	110.19	-0.81	-0.32	ZZ
4KXZU7		107.52	-0.32	-0.14	108.63	-2.37	-0.93	ZZ
4NCKUZ		110.04	2.21	0.96	110.18	-0.82	-0.32	ZZ
4QXP6J		109.40	1.57	0.68	110.00	-1.00	-0.39	ZZ
678NV2		109.52	1.69	0.73	112.17	1.17	0.46	ZZ
6LDFFD	*	107.28	-0.55	-0.24	116.25	5.25	2.06	ZZ
6MFJAU		110.70	2.87	1.24	110.20	-0.80	-0.31	ZZ
6XYGCX		107.70	-0.13	-0.06	112.40	1.40	0.55	ZZ
7XQXQG		107.60	-0.23	-0.10	111.60	0.60	0.23	ZZ
869DZB		104.70	-3.13	-1.35	110.40	-0.60	-0.24	ZZ
89NM8M		107.05	-0.78	-0.34	109.61	-1.39	-0.55	ZZ
8KXJVX		106.30	-1.53	-0.66	112.70	1.70	0.67	ZZ
92R6EW		104.80	-3.03	-1.31	109.50	-1.50	-0.59	ZZ
9AVVNF		105.90	-1.93	-0.84	109.30	-1.70	-0.67	ZZ
9ER34N		108.90	1.07	0.46	114.00	3.00	1.17	ZZ
9K26G6	X	93.40	-14.43	-6.24	111.60	0.60	0.23	ZZ
9U82EG		110.06	2.22	0.96	113.30	2.30	0.90	ZZ
A3KHPF		107.19	-0.64	-0.28	111.22	0.22	0.08	ZZ
AD92G8		108.10	0.27	0.12	111.90	0.90	0.35	ZZ
AVYEGY		108.80	0.97	0.42	108.40	-2.60	-1.02	ZZ
AYHU6Q		110.40	2.57	1.11	112.70	1.70	0.67	ZZ
B8JDK8		109.60	1.77	0.76	109.20	-1.80	-0.71	ZZ
BADK34		110.00	2.17	0.94	112.70	1.70	0.67	ZZ
BZND9Z		110.53	2.70	1.17	110.45	-0.55	-0.22	ZZ
C8EAGU		109.74	1.90	0.82	113.12	2.12	0.83	ZZ
CLE4VA		105.00	-2.83	-1.22	109.40	-1.60	-0.63	ZZ
CMXRQC		107.60	-0.23	-0.10	115.90	4.90	1.92	ZZ
DH9MUE		107.10	-0.73	-0.32	115.20	4.20	1.65	ZZ
DTA3M6	X	104.50	-3.33	-1.44	72.90	-38.10	-14.92	ZZ
E88YDM		109.00	1.17	0.50	112.00	1.00	0.39	ZZ
EX6H7Q		109.00	1.17	0.50	110.20	-0.80	-0.31	ZZ
EYEKYG		104.79	-3.04	-1.31	105.53	-5.47	-2.14	ZZ
F7GKRN		105.30	-2.53	-1.09	109.40	-1.60	-0.63	ZZ
F8R8NH	X	107.50	-0.33	-0.14	112.50	1.50	0.59	ZZ
FCLRKT		109.40	1.57	0.68	108.60	-2.40	-0.94	ZZ
FNVHX2		109.60	1.77	0.76	112.60	1.60	0.63	ZZ
FPJ4HC		105.53	-2.30	-0.99	108.09	-2.91	-1.14	ZZ
FQC2LC		106.00	-1.83	-0.79	109.00	-2.00	-0.78	ZZ
FRVA2D	M				110.66	-0.34	-0.13	ZZ
G39FAF		105.60	-2.23	-0.96	109.70	-1.30	-0.51	ZZ
GRRRG2		111.10	3.27	1.41	111.24	0.24	0.10	ZZ

Analysis 130

Tensile Strength (Flat Steel) - ksi

ASTM E8

WebCode	Data Flag	Sample F97			Sample F98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
H6D248		110.48	2.64	1.14	113.13	2.13	0.83	ZZ
HAJHWM		103.60	-4.23	-1.83	108.30	-2.70	-1.06	ZZ
JUAUWQ	*	107.50	-0.33	-0.14	116.90	5.90	2.31	ZZ
JX9Q7D		105.30	-2.53	-1.09	107.30	-3.70	-1.45	ZZ
KK8DVZ	X	113.27	5.44	2.35	123.27	12.27	4.81	ZZ
KMNNQQ		109.43	1.60	0.69	113.61	2.61	1.02	ZZ
KYDW2D		106.40	-1.43	-0.62	110.20	-0.80	-0.31	ZZ
LAYV9F		103.49	-4.35	-1.88	110.03	-0.97	-0.38	ZZ
MBVG66		108.78	0.95	0.41	111.83	0.82	0.32	ZZ
MN7X4M		103.20	-4.63	-2.00	106.10	-4.90	-1.92	ZZ
MQUTTW		104.67	-3.16	-1.36	109.36	-1.64	-0.64	ZZ
MZ3DBH		108.00	0.17	0.07	113.00	2.00	0.78	ZZ
NAB84P		109.60	1.77	0.76	112.90	1.90	0.74	ZZ
NQR2BK		106.84	-1.00	-0.43	108.82	-2.18	-0.85	ZZ
P9MWHG		110.37	2.54	1.10	111.97	0.97	0.38	ZZ
PC6H9X		109.40	1.57	0.68	112.50	1.50	0.59	ZZ
PG7BQY		112.60	4.77	2.06	116.20	5.20	2.04	ZZ
PXQN2Z		109.36	1.53	0.66	110.81	-0.19	-0.07	ZZ
Q96JVB		108.40	0.57	0.25	111.20	0.20	0.08	ZZ
QDCVAG		112.68	4.85	2.09	112.38	1.38	0.54	ZZ
QKUP8U	*	111.06	3.22	1.39	118.58	7.58	2.97	ZZ
QPRJPA		111.00	3.17	1.37	112.00	1.00	0.39	ZZ
QVYAPU		109.20	1.37	0.59	110.10	-0.90	-0.35	ZZ
RCDWL3		109.40	1.57	0.68	112.20	1.20	0.47	ZZ
RH8D9Z		112.40	4.57	1.97	112.40	1.40	0.55	ZZ
RMCFK4		106.00	-1.83	-0.79	110.70	-0.30	-0.12	ZZ
RPBWFK		109.61	1.77	0.77	111.81	0.81	0.32	ZZ
RT2PFV		109.00	1.17	0.50	112.40	1.40	0.55	ZZ
TER7ML		109.61	1.78	0.77	112.50	1.50	0.59	ZZ
TFGVRU		108.60	0.77	0.33	108.90	-2.10	-0.82	ZZ
TGTDK4		104.20	-3.63	-1.57	109.20	-1.80	-0.71	ZZ
TLYWMR		108.80	0.97	0.42	110.30	-0.70	-0.27	ZZ
U3TUMD		104.00	-3.83	-1.66	109.00	-2.00	-0.78	ZZ
UQYBBT		107.00	-0.83	-0.36	108.70	-2.30	-0.90	ZZ
V74826		110.60	2.77	1.20	114.00	3.00	1.17	ZZ
VRYRGG		103.70	-4.13	-1.78	107.47	-3.53	-1.38	ZZ
W2LWE9		110.26	2.43	1.05	111.31	0.31	0.12	ZZ
W6JHNX		108.80	0.97	0.42	111.20	0.20	0.08	ZZ
W9TQNN		108.00	0.17	0.07	109.00	-2.00	-0.78	ZZ
WTRZ4Q		106.50	-1.33	-0.58	108.80	-2.20	-0.86	ZZ
X6ZJEC		107.80	-0.03	-0.01	108.70	-2.30	-0.90	ZZ
XKFZAF		105.70	-2.13	-0.92	110.00	-1.00	-0.39	ZZ
XP3EP4	*	108.36	0.53	0.23	116.90	5.90	2.31	ZZ
YRBDTF	*	104.90	-2.93	-1.27	103.60	-7.40	-2.90	ZZ
Z9VFWW		103.40	-4.43	-1.92	108.30	-2.70	-1.06	ZZ

Analysis 130

Tensile Strength (Flat Steel) - ksi

ASTM E8

WebCode	Data Flag	Sample F97			Sample F98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
ZA8AHN		104.85	-2.98	-1.29	111.55	0.55	0.22	ZZ
ZJWYFC		106.71	-1.13	-0.49	107.76	-3.24	-1.27	ZZ
ZMD7XK		108.63	0.80	0.34	111.63	0.63	0.25	ZZ

Summary Statistics

	Sample F97	Sample F98
Grand Means	107.833 ksi	111.000 ksi
Std Dev Btwn Labs	2.314 ksi	2.553 ksi

Statistics based on 88 of 93 reporting participants

Samples F97 , F98 : AISI 4130 steel**Comments on assigned Data Flags for Test #130**

9K26G6 (X) - Low data for Sample F97.

DTA3M6 (X) - Extreme data.

F8R8NH (X) - Laboratory reported data on incorrect data sheet. Lab reported yield strength instead of tensile strength. Corrected by CTS.

FRVA2D (M) - Laboratory did not submit data for Sample F97.

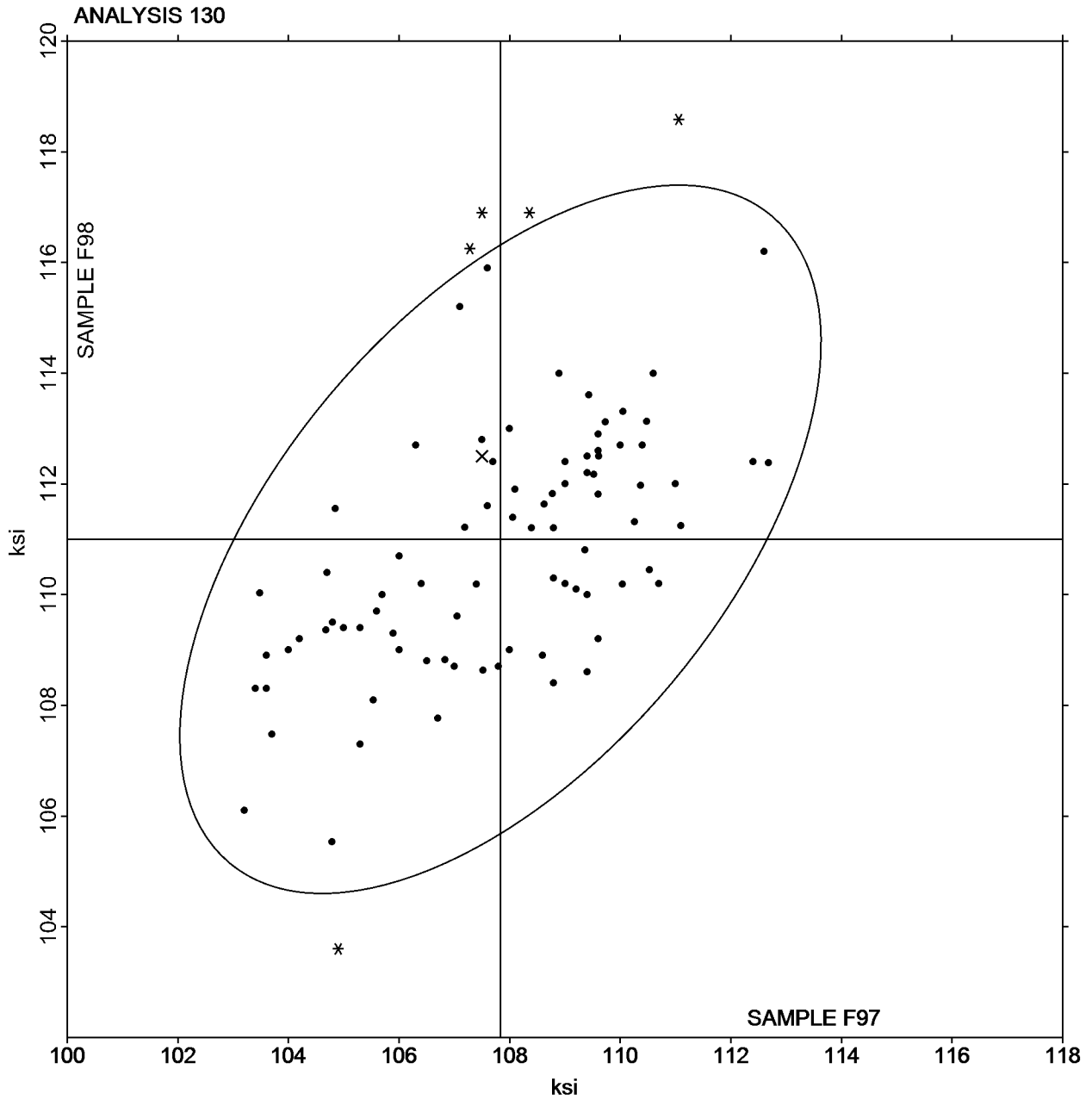
KK8DVZ (X) - High data for Sample F98.

Analysis 130

Tensile Strength (Flat Steel) - ksi
ASTM E8

SAMPLE F97 = 107.833 ksi

SAMPLE F98 = 111.000 ksi



Analysis 131

Yield Strength (Flat Steel) - ksi

ASTM E8

WebCode	Data Flag	Sample F97			Sample f98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
24A69Q		90.00	-5.01	-1.66	91.00	-1.88	-0.72	ZZ
2R6R7Y		96.00	0.99	0.33	90.40	-2.48	-0.94	ZZ
2U8QJC		93.60	-1.41	-0.47	90.20	-2.68	-1.02	ZZ
3639MJ		96.20	1.19	0.39	91.50	-1.38	-0.53	ZZ
3LPJET		94.10	-0.91	-0.30	89.50	-3.38	-1.29	ZZ
4P6FFN		93.02	-1.99	-0.66	90.32	-2.57	-0.98	ZZ
4VGEW9		93.12	-1.90	-0.63	88.87	-4.02	-1.53	ZZ
6CE2TZ		97.21	2.19	0.73	90.79	-2.10	-0.80	ZZ
6E77F6		97.39	2.38	0.79	95.10	2.22	0.84	ZZ
6QV46W		97.00	1.99	0.66	90.00	-2.88	-1.10	ZZ
6TMN2Y		90.20	-4.81	-1.59	91.50	-1.38	-0.53	ZZ
72F4LW		88.65	-6.36	-2.11	91.39	-1.49	-0.57	ZZ
78CRRW		96.45	1.44	0.48	93.55	0.67	0.25	ZZ
7R7HXN		94.10	-0.91	-0.30	89.60	-3.28	-1.25	ZZ
7WE8HC		94.60	-0.41	-0.14	93.80	0.92	0.35	ZZ
829WZA		93.50	-1.51	-0.50	93.90	1.02	0.39	ZZ
84AMLB		95.33	0.32	0.11	95.91	3.03	1.15	ZZ
8A6NBP		93.70	-1.31	-0.43	89.00	-3.88	-1.48	ZZ
8GFCJG		100.63	5.62	1.86	94.65	1.77	0.67	ZZ
9EM94A	*	100.95	5.94	1.97	100.95	8.06	3.07	ZZ
AJ88Z4		95.60	0.59	0.20	95.60	2.72	1.03	ZZ
B3RMCV		93.00	-2.01	-0.67	91.00	-1.88	-0.72	ZZ
B6GFAE		96.45	1.44	0.48	94.03	1.15	0.44	ZZ
CDCLVT		95.30	0.29	0.10	92.10	-0.78	-0.30	ZZ
CQECDR	*	87.10	-7.91	-2.62	90.60	-2.28	-0.87	ZZ
CUQCH6		89.40	-5.61	-1.86	88.20	-4.68	-1.78	ZZ
D4XBPL		96.40	1.39	0.46	93.70	0.82	0.31	ZZ
D7L42U		98.50	3.49	1.16	94.10	1.22	0.46	ZZ
DZPQG7		97.30	2.29	0.76	94.20	1.32	0.50	ZZ
EATFH9		96.80	1.79	0.59	95.10	2.22	0.84	ZZ
EUKLL8		97.47	2.46	0.82	93.27	0.39	0.15	ZZ
FMLMG4		93.70	-1.31	-0.43	90.80	-2.08	-0.79	ZZ
FZKNDT		98.30	3.29	1.09	92.30	-0.58	-0.22	ZZ
GBDQL7		96.00	0.99	0.33	93.10	0.22	0.08	ZZ
GDKCA7		95.60	0.59	0.20	90.20	-2.68	-1.02	ZZ
H6CBV4		100.30	5.29	1.75	93.77	0.89	0.34	ZZ
HCWHKN		97.69	2.68	0.89	93.84	0.96	0.36	ZZ
HQTLZ8	X	108.20	13.19	4.37	97.99	5.11	1.94	ZZ
HQTWHW	X	86.30	-8.71	-2.89	95.90	3.02	1.15	ZZ
HZE2CP		96.44	1.43	0.47	93.58	0.70	0.26	ZZ
HZXTHT		92.49	-2.52	-0.84	90.65	-2.23	-0.85	ZZ
J6LZAZ		100.46	5.45	1.81	93.91	1.03	0.39	ZZ
J8JJY		88.50	-6.51	-2.16	91.10	-1.78	-0.68	ZZ
JF84EE		89.80	-5.21	-1.73	91.40	-1.48	-0.56	ZZ
JUKGQK		96.30	1.29	0.43	90.90	-1.98	-0.75	ZZ

Analysis 131

Yield Strength (Flat Steel) - ksi

ASTM E8

WebCode	Data Flag	Sample F97			Sample F98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
JXC9B4		93.10	-1.91	-0.63	93.60	0.72	0.27	ZZ
K48QZZ		96.74	1.73	0.57	93.84	0.96	0.36	ZZ
L8TBKF		89.02	-5.99	-1.98	90.23	-2.65	-1.01	ZZ
L9884L		91.10	-3.91	-1.30	90.60	-2.28	-0.87	ZZ
LAVLNP		92.43	-2.58	-0.85	95.12	2.23	0.85	ZZ
MFZAPA		94.60	-0.41	-0.14	91.00	-1.88	-0.72	ZZ
MGAXVM		93.10	-1.91	-0.63	90.60	-2.28	-0.87	ZZ
MYAQWN		94.68	-0.33	-0.11	91.13	-1.75	-0.67	ZZ
NAPLPD		93.20	-1.81	-0.60	94.30	1.42	0.54	ZZ
NC69NT		92.17	-2.84	-0.94	91.84	-1.04	-0.40	ZZ
NFEP9P	*	92.70	-2.31	-0.77	86.50	-6.38	-2.43	ZZ
P7KA94	M				92.55	-0.34	-0.13	ZZ
PA6GCX		93.80	-1.21	-0.40	91.40	-1.48	-0.56	ZZ
PHNRC2		97.71	2.69	0.89	93.32	0.44	0.17	ZZ
QFJ3N4		95.40	0.39	0.13	93.60	0.72	0.27	ZZ
QPJEG7		93.90	-1.11	-0.37	93.60	0.72	0.27	ZZ
QQQ3U3		99.60	4.59	1.52	97.10	4.22	1.60	ZZ
QZQEKK	X	89.00	-6.01	-1.99	84.00	-8.88	-3.38	ZZ
R2ZKJ7		94.60	-0.41	-0.14	95.60	2.72	1.03	ZZ
R3XCTC		93.80	-1.21	-0.40	95.10	2.22	0.84	ZZ
R63ELH		97.05	2.04	0.67	93.32	0.44	0.17	ZZ
RHZJ49		97.94	2.93	0.97	98.37	5.48	2.09	ZZ
TFVMF4		97.10	2.09	0.69	90.90	-1.98	-0.75	ZZ
TT89Z4	X	94.30	-0.71	-0.24	96.50	3.62	1.38	ZZ
TV83FE		96.35	1.34	0.44	94.27	1.39	0.53	ZZ
UWAVLR	X	100.19	5.18	1.72	104.20	11.32	4.31	ZZ
UXWZUH		95.60	0.59	0.20	95.60	2.72	1.03	ZZ
VHFMRB		95.00	-0.01	0.00	96.00	3.12	1.19	ZZ
VKZLYD		95.10	0.09	0.03	97.40	4.52	1.72	ZZ
W2NLKQ		100.70	5.69	1.89	98.90	6.02	2.29	ZZ
W47GVQ	X	84.90	-10.11	-3.35	83.10	-9.78	-3.72	ZZ
WAWDC8		98.40	3.39	1.12	95.00	2.12	0.81	ZZ
WJQVDG		97.80	2.79	0.92	94.50	1.62	0.62	ZZ
WU78NM		95.10	0.09	0.03	88.71	-4.18	-1.59	ZZ
XAVRN8		96.47	1.46	0.48	94.01	1.13	0.43	ZZ
XDFJWN		91.30	-3.71	-1.23	91.70	-1.18	-0.45	ZZ
XE7PDE		95.15	0.14	0.05	90.02	-2.86	-1.09	ZZ
XHL97W		95.15	0.14	0.04	92.97	0.09	0.03	ZZ
XP6MW9		99.21	4.20	1.39	92.53	-0.35	-0.13	ZZ
XRCQYW		92.64	-2.37	-0.78	93.40	0.52	0.20	ZZ
Y9ZRG2		97.00	1.99	0.66	96.00	3.12	1.19	ZZ
YAJBL6		89.60	-5.41	-1.79	89.80	-3.08	-1.17	ZZ
YKLYMV	X	106.70	11.69	3.88	99.30	6.42	2.44	ZZ
YMYVMD		97.70	2.69	0.89	97.95	5.07	1.93	ZZ
YPUYQT		94.80	-0.21	-0.07	95.30	2.42	0.92	ZZ

Analysis 131

Yield Strength (Flat Steel) - ksi

ASTM E8

WebCode	Data Flag	Sample F97			Sample F98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
Z7Q4G2		94.40	-0.61	-0.20	94.80	1.92	0.73	ZZ
ZWCM8G	X	89.10	-5.91	-1.96	59.50	-33.38	-12.70	ZZ

Summary Statistics

	Sample F97	Sample F98
Grand Means	95.010 ksi	92.880 ksi
Std Dev Btwn Labs	3.017 ksi	2.629 ksi
Statistics based on 83 of 92 reporting participants		

Samples F97 , F98 : AISI 4130 steel**Comments on assigned Data Flags for Test #131**

HRTLZ8 (X) - High data for Sample F97.

HQTWHW (X) - High data for Sample F98.

P7KA94 (M) - High data for Sample F98.

QZQEKK (X) - Low data for Sample F98.

TT89Z4 (X) - Laboratory reported data on incorrect data sheet. Lab reported tensile strength instead of yield strength. Corrected by CTS.

UWAVLR (X) - High data for Sample F98.

W47GVQ (X) - Data for both samples are low.

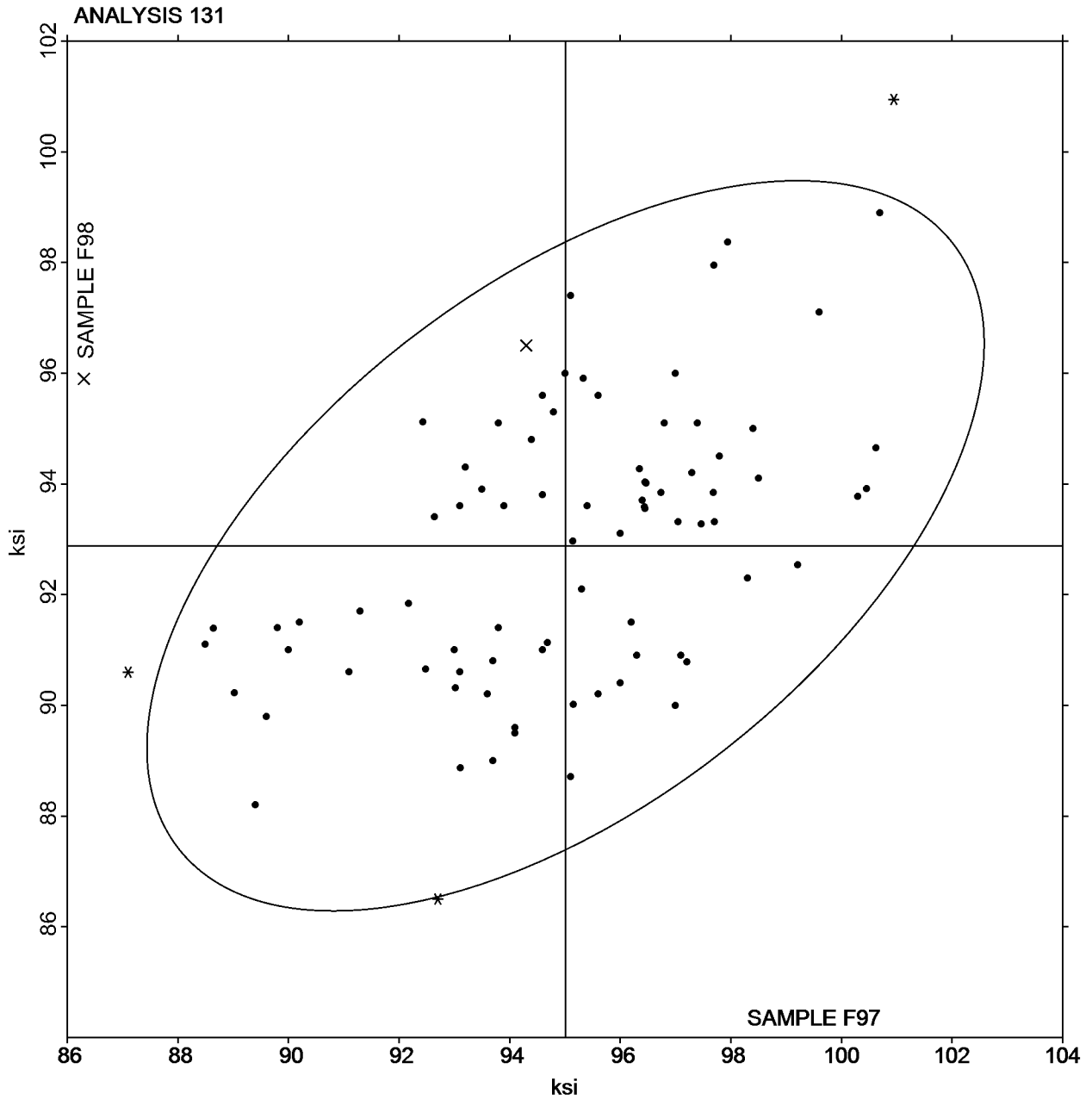
YKLYMV (X) - High data for Sample F97.

ZWCM8G (X) - Extreme data.

Analysis 131

Yield Strength (Flat Steel) - ksi
ASTM E8

SAMPLE F97 = 95.010 ksi SAMPLe F98 = 92.880 ksi



Interlaboratory Testing Program for Metals

Analysis 132

Elongation (Flat Steel) - Percent Increase

ASTM E8

WebCode	Data Flag	Sample F97			Sample F98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
26MKTJ		12.00	-0.68	-0.46	15.00	0.21	0.20	ZZ
2DLNZ9		10.20	-2.48	-1.69	15.20	0.41	0.39	ZZ
3KFLW6		12.20	-0.48	-0.33	15.10	0.31	0.29	ZZ
3QL78G		14.95	2.27	1.55	16.90	2.11	1.99	ZZ
3VZPLG		12.30	-0.38	-0.26	14.50	-0.29	-0.27	ZZ
48AXCE		14.10	1.42	0.97	14.60	-0.19	-0.18	ZZ
49J7E8		13.53	0.85	0.58	16.10	1.31	1.24	ZZ
4AQGZP		12.60	-0.08	-0.06	15.30	0.51	0.48	ZZ
62ZZHZ		10.56	-2.12	-1.44	13.52	-1.27	-1.20	ZZ
6MFKCF		11.00	-1.68	-1.14	14.00	-0.79	-0.75	ZZ
6ZNNWV		14.70	2.02	1.38	15.80	1.01	0.95	ZZ
7C8GGG		13.10	0.42	0.29	14.20	-0.59	-0.56	ZZ
7DTJBG		13.70	1.02	0.69	15.90	1.11	1.05	ZZ
7YLYPX		12.40	-0.28	-0.19	15.70	0.91	0.86	ZZ
8QR726		13.40	0.72	0.49	15.90	1.11	1.05	ZZ
8RWK3X		12.40	-0.28	-0.19	15.30	0.51	0.48	ZZ
926V7M		12.16	-0.52	-0.35	14.79	0.00	0.00	ZZ
944D3U		11.60	-1.08	-0.74	13.20	-1.59	-1.50	ZZ
98QNHM		11.23	-1.45	-0.99	15.70	0.91	0.86	ZZ
A4ANTY		12.50	-0.18	-0.12	14.00	-0.79	-0.75	ZZ
AADKQD		12.33	-0.35	-0.24	13.25	-1.54	-1.45	ZZ
AGVBRY		13.68	1.00	0.68	14.96	0.17	0.16	ZZ
BH8ZYH	X	13.00	0.32	0.22	19.00	4.21	3.97	ZZ
BPDMEQ	X	20.10	7.42	5.05	17.60	2.81	2.65	ZZ
BR34GC		13.42	0.74	0.50	15.31	0.52	0.49	ZZ
BRARXB	*	13.70	1.02	0.69	12.78	-2.01	-1.90	ZZ
C7LMRX		13.00	0.32	0.22	16.00	1.21	1.14	ZZ
CJT9FW		12.00	-0.68	-0.46	14.00	-0.79	-0.75	ZZ
CPEYD7		12.90	0.22	0.15	14.60	-0.19	-0.18	ZZ
D4WKFH		11.28	-1.40	-0.95	14.94	0.15	0.14	ZZ
DYZALN	M				16.00	1.21	1.14	ZZ
E8E48R		12.40	-0.28	-0.19	13.70	-1.09	-1.03	ZZ
EE67YW	*	15.88	3.20	2.18	14.66	-0.13	-0.12	ZZ
EJ7Q78		14.50	1.82	1.24	15.50	0.71	0.67	ZZ
ETE3VQ		11.30	-1.38	-0.94	14.00	-0.79	-0.75	ZZ
ETRP2J		13.90	1.22	0.83	16.10	1.31	1.24	ZZ
F98LZX	*	9.40	-3.28	-2.23	14.70	-0.09	-0.09	ZZ
FQMEPF		12.80	0.12	0.08	16.10	1.31	1.24	ZZ
FRVR6W		11.10	-1.58	-1.08	14.70	-0.09	-0.09	ZZ
G9EW2N		13.35	0.67	0.46	14.55	-0.24	-0.23	ZZ
GDDMRE		14.00	1.32	0.90	15.40	0.61	0.58	ZZ
GU2CRW		12.50	-0.18	-0.12	14.70	-0.09	-0.09	ZZ
HKRPCM		12.50	-0.18	-0.12	14.30	-0.49	-0.46	ZZ
HM82PC		12.20	-0.48	-0.33	13.75	-1.04	-0.98	ZZ
J32QHM		11.60	-1.08	-0.74	15.30	0.51	0.48	ZZ

Interlaboratory Testing Program for Metals

Analysis 132

Elongation (Flat Steel) - Percent Increase

ASTM E8

WebCode	Data Flag	Sample F97			Sample F98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
JD3PDL		12.60	-0.08	-0.06	15.30	0.51	0.48	ZZ
JHK8K		15.60	2.92	1.99	15.20	0.41	0.39	ZZ
KKM899		10.00	-2.68	-1.83	14.00	-0.79	-0.75	ZZ
KYVWTG		15.00	2.32	1.58	16.00	1.21	1.14	ZZ
KYZZXU		11.50	-1.18	-0.80	15.00	0.21	0.20	ZZ
L2FYKM		11.43	-1.25	-0.85	13.74	-1.05	-0.99	ZZ
L6Z3WQ		12.95	0.27	0.18	14.96	0.17	0.16	ZZ
L7U64L		14.00	1.32	0.90	14.00	-0.79	-0.75	ZZ
LA9QTV		15.30	2.62	1.78	15.10	0.31	0.29	ZZ
LH8PNW		12.00	-0.68	-0.46	13.50	-1.29	-1.22	ZZ
MBZ7GC	X	9.80	-2.88	-1.96	8.10	-6.69	-6.31	ZZ
MQWH9D		13.80	1.12	0.76	15.00	0.21	0.20	ZZ
MZ9G3N		11.30	-1.38	-0.94	12.90	-1.89	-1.78	ZZ
NALYVV		14.35	1.67	1.14	16.00	1.21	1.14	ZZ
ND96KN		13.00	0.32	0.22	16.00	1.21	1.14	ZZ
NRJZNX		13.00	0.32	0.22	17.00	2.21	2.09	ZZ
P8QVJY		15.50	2.82	1.92	15.50	0.71	0.67	ZZ
PEXJDC		12.80	0.12	0.08	14.30	-0.49	-0.46	ZZ
PHX6CP	X	16.00	3.32	2.26	19.00	4.21	3.97	ZZ
PJNXXD		13.00	0.32	0.22	16.00	1.21	1.14	ZZ
PKJX3X		11.90	-0.78	-0.53	15.10	0.31	0.29	ZZ
PWP32D		12.60	-0.08	-0.06	14.60	-0.19	-0.18	ZZ
Q4Z88X		11.54	-1.14	-0.78	14.99	0.19	0.18	ZZ
Q8C7WJ		10.97	-1.71	-1.17	14.93	0.14	0.13	ZZ
RERHDH		12.20	-0.48	-0.33	14.50	-0.29	-0.27	ZZ
T6LUF4		14.00	1.32	0.90	15.50	0.71	0.67	ZZ
TFTUJH		15.00	2.32	1.58	17.40	2.61	2.46	ZZ
THA6ZF		11.50	-1.18	-0.80	15.70	0.91	0.86	ZZ
TTY282		13.23	0.55	0.37	16.75	1.96	1.85	ZZ
U8CUBX	M	0.03	-12.65	-8.62				ZZ
UDTRLT		13.10	0.42	0.29	14.50	-0.29	-0.27	ZZ
VJ7XH4		16.00	3.32	2.26	16.10	1.31	1.24	ZZ
VY2LTW		13.76	1.08	0.73	15.34	0.55	0.52	ZZ
W3YXAZ		12.27	-0.41	-0.28	14.36	-0.43	-0.41	ZZ
WE9L2L		13.80	1.12	0.76	15.30	0.51	0.48	ZZ
WJDJAQ		12.40	-0.28	-0.19	14.08	-0.71	-0.67	ZZ
X4VNYF		10.40	-2.28	-1.55	12.90	-1.89	-1.78	ZZ
XLJR8U		11.40	-1.28	-0.87	14.00	-0.79	-0.75	ZZ
XMNU6K		12.00	-0.68	-0.46	14.50	-0.29	-0.27	ZZ
Y38BQM		15.00	2.32	1.58	14.50	-0.29	-0.27	ZZ
YBYCML		12.00	-0.68	-0.46	13.00	-1.79	-1.69	ZZ
YGVDBZ		9.50	-3.18	-2.17	12.80	-1.99	-1.88	ZZ
Z8KJJ6	*	11.00	-1.68	-1.14	12.00	-2.79	-2.63	ZZ
Z98QFG		10.90	-1.78	-1.21	13.80	-0.99	-0.93	ZZ
ZA7UJB		11.35	-1.33	-0.91	13.62	-1.17	-1.10	ZZ

Analysis 132

Elongation (Flat Steel) - Percent Increase
ASTM E8

WebCode	Data Flag	Sample F97			Sample F98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
ZK8C26		12.00	-0.68	-0.46	14.00	-0.79	-0.75	ZZ
ZTPU6L		14.91	2.23	1.52	15.97	1.18	1.11	ZZ
ZVBCUD		11.00	-1.68	-1.14	13.00	-1.79	-1.69	ZZ

Summary Statistics

	Sample F97		Sample F98	
Grand Means	12.681	Percent	14.790	Percent
Stnd Dev Btwn Labs	1.468	Percent	1.060	Percent
Statistics based on 87 of 93 reporting participants				

Samples F97 , F98 : AISI 4130 steel

Comments on assigned Data Flags for Test #132

BH8ZYH (X) - High data for Sample F98.

BPDMEQ (X) - High data for Sample F97

DYZALN (M) - Laboratory did not submit data for Sample F97.

MBZ7GC (X) - Extreme data for Sample F98.

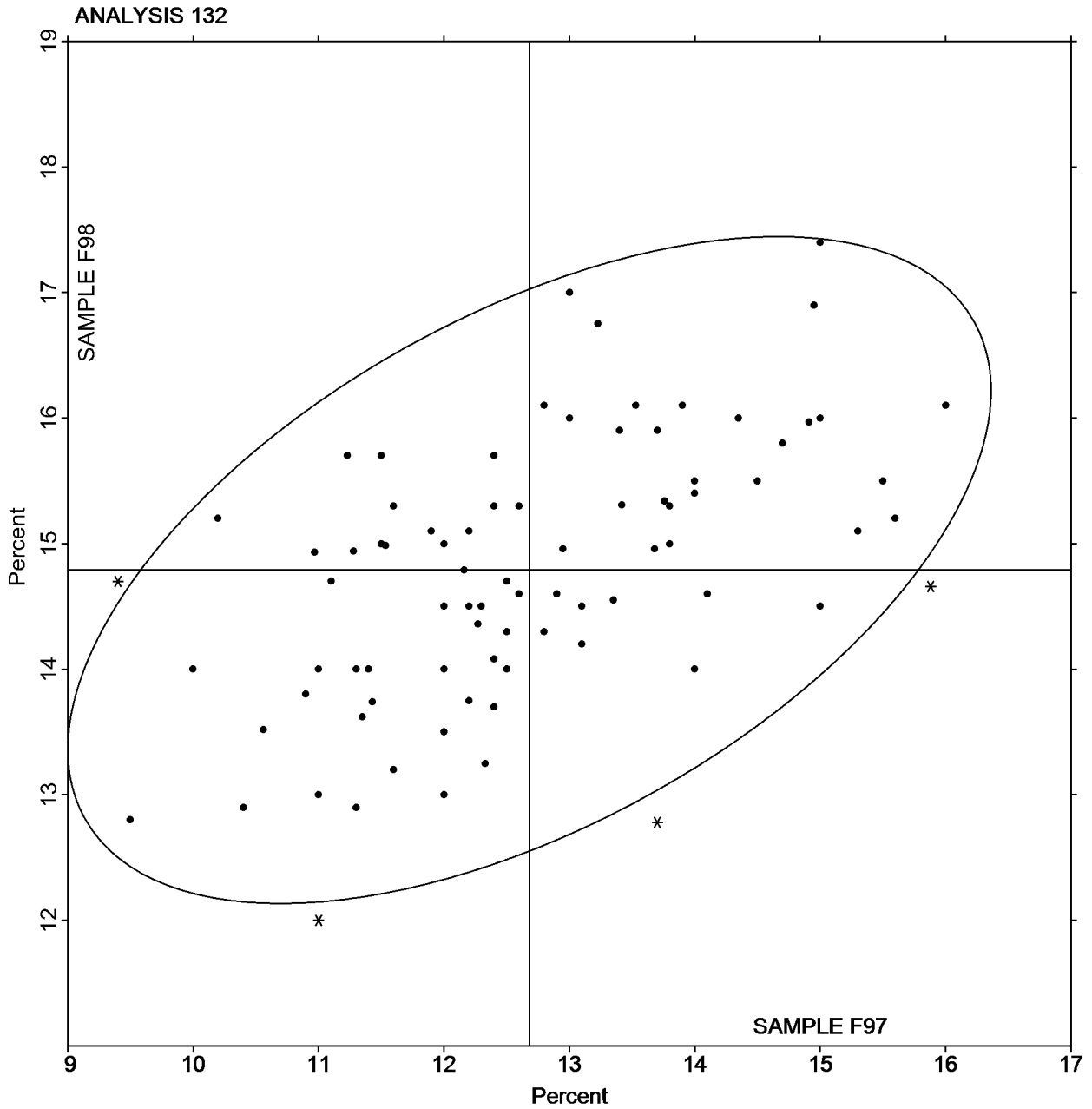
PHX6CP (X) - High data for Sample F98.

U8CUBX (M) - Extreme data for Sample 97. Laboratory did not submit data for sample F98.

Analysis 132

Elongation (Flat Steel) - Percent Increase
ASTM E8

SAMPLE F97 = 12.681 Percent SAMPLe F98 = 14.790 Percent



Interlaboratory Testing Program for Metals

Analysis 120

Rockwell Hardness (C Scale) - Rockwell Hardness Number

ASTM E18

WebCode	Data Flag	Sample E97			Sample E98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
236YYH		48.10	0.41	0.93	51.80	0.62	1.39	WI
3BDTTB		48.04	0.35	0.79	51.34	0.16	0.36	NA
3EUW7T		46.98	-0.71	-1.63	50.54	-0.64	-1.44	WI
4AKPTV	X	46.90	-0.79	-1.81	51.58	0.40	0.89	BU
4Z7HKZ	*	47.42	-0.27	-0.62	50.50	-0.68	-1.53	XX
69PYGK		48.26	0.57	1.29	51.94	0.76	1.70	WI
6B8DGL		48.20	0.51	1.16	51.68	0.50	1.12	WI
6C9K7F		47.22	-0.47	-1.08	50.84	-0.34	-0.77	MI
7FQ8AD		47.80	0.11	0.24	51.10	-0.08	-0.18	CL
83JXFG		47.88	0.19	0.43	51.44	0.26	0.58	NA
844M9M	*	46.58	-1.11	-2.54	50.00	-1.18	-2.65	WI
86NLYD		47.60	-0.09	-0.21	51.04	-0.14	-0.32	AK
8A4EAX		47.84	0.15	0.33	51.34	0.16	0.36	WI
8Q6ZEJ		47.64	-0.05	-0.12	51.32	0.14	0.31	WI
9A2LXP		47.64	-0.05	-0.12	51.08	-0.10	-0.23	LE
9BUEVU	*	48.24	0.55	1.25	52.12	0.94	2.11	BU
9CP38X		47.52	-0.17	-0.40	51.18	0.00	0.00	WO
9VNZZJ	X	46.50	-1.19	-2.72	50.58	-0.60	-1.35	XX
AF6XHT		47.14	-0.55	-1.26	50.74	-0.44	-0.99	WI
BTE929		48.00	0.31	0.70	51.48	0.30	0.67	WI
CCTHQU		47.16	-0.53	-1.22	50.72	-0.46	-1.04	WI
CT323Q		48.20	0.51	1.16	51.64	0.46	1.03	MI
CUECMW		47.80	0.11	0.24	51.32	0.14	0.31	CL
D89ULN	X	47.62	-0.07	-0.17	49.74	-1.44	-3.24	KD
DJ3VXA		47.70	0.01	0.02	51.14	-0.04	-0.09	EM
E8PYM4		47.90	0.21	0.47	51.02	-0.16	-0.36	WI
ENEYNC		47.10	-0.59	-1.35	50.48	-0.70	-1.57	BU
EVBDCD		47.58	-0.11	-0.26	51.14	-0.04	-0.09	WI
FKRUCJ		47.64	-0.05	-0.12	51.02	-0.16	-0.36	WI
FZL72M		47.44	-0.25	-0.58	51.04	-0.14	-0.32	WI
FZTE6A		47.80	0.11	0.24	51.20	0.02	0.04	MI
GRHDTY		47.68	-0.01	-0.03	50.98	-0.20	-0.45	MI
GWHVG8		47.70	0.01	0.02	51.18	0.00	0.00	WI
H38RZG	X	46.72	-0.97	-2.22	49.76	-1.42	-3.19	UN
HPHUXH		47.30	-0.39	-0.90	50.90	-0.28	-0.63	CL
HTT4N2		47.86	0.17	0.38	51.30	0.12	0.27	WI
JUXJCE		47.56	-0.13	-0.30	51.26	0.08	0.18	XX
JXV6M4		48.10	0.41	0.93	51.54	0.36	0.81	LE
K8PEEZ		47.68	-0.01	-0.03	51.38	0.20	0.45	EM
KQ67GM		47.94	0.25	0.56	51.36	0.18	0.40	WI
L7RH8G		47.48	-0.21	-0.49	51.16	-0.02	-0.05	NA
LDHVL A	*	48.12	0.43	0.97	52.06	0.88	1.97	CL
LQ37E8		47.96	0.27	0.61	51.40	0.22	0.49	CL
MWBHWD		47.06	-0.63	-1.44	50.62	-0.56	-1.26	CL
NPAP3A		47.24	-0.45	-1.03	50.68	-0.50	-1.13	CL

Analysis 120

Rockwell Hardness (C Scale) - Rockwell Hardness Number
ASTM E18

WebCode	Data Flag	Sample E97			Sample E98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
NQ97V6		48.30	0.61	1.38	51.66	0.48	1.07	IN
P7QGE7		48.04	0.35	0.79	51.42	0.24	0.54	WI
Q92KCG		47.60	-0.09	-0.21	51.11	-0.07	-0.16	UN
QCBXPV		48.00	0.31	0.70	51.36	0.18	0.40	MI
RDT63H		47.46	-0.23	-0.53	51.02	-0.16	-0.36	WI
RZJNTR		48.32	0.63	1.43	51.86	0.68	1.52	UN
TBENZJ		46.78	-0.91	-2.08	50.34	-0.84	-1.89	WI
UG3R9D		46.94	-0.75	-1.72	50.52	-0.66	-1.48	WI
UMDARL		47.51	-0.18	-0.41	50.85	-0.33	-0.74	WI
V4B2ZZ		47.78	0.09	0.20	51.30	0.12	0.27	NA
VK7T82		47.94	0.25	0.56	51.56	0.38	0.85	WI
VMRHPT		48.58	0.89	2.02	52.02	0.84	1.88	WI
VUNTNP		47.80	0.11	0.24	51.20	0.02	0.04	WI
W4PU8N		47.40	-0.29	-0.67	51.00	-0.18	-0.41	UN
W6JUEU	X	46.94	-0.75	-1.72	49.96	-1.22	-2.74	XX
WEHW9P		47.64	-0.05	-0.12	51.16	-0.02	-0.05	XX
WZVYL8		48.56	0.87	1.98	51.76	0.58	1.30	NA
Y6KTXY		47.98	0.29	0.65	51.32	0.14	0.31	MA
YCE7PL		48.36	0.67	1.52	51.82	0.64	1.43	FU
Z8EEUU		46.92	-0.77	-1.76	50.48	-0.70	-1.57	NA
ZC96AE		47.82	0.13	0.29	51.12	-0.06	-0.14	LE
ZPTB4M		47.00	-0.69	-1.58	50.58	-0.60	-1.35	WI
ZPZV8P		47.84	0.15	0.33	50.94	-0.24	-0.54	IN
ZWRV7J	X	45.30	-2.39	-5.46	49.90	-1.28	-2.88	PH

Summary Statistics

	Sample E97		Sample E98	
Grand Means	47.693	HRC	51.180	HRC
Std Dev Btwn Labs	0.438	HRC	0.445	HRC

Statistics based on 63 of 69 reporting participants

Samples E97 , E98 : steel (use C scale)

Comments on assigned Data Flags for Test #120

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

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

D89ULN (X) - Inconsistent in testing between samples, data for Sample E98 are low.

H38RZG (X) - Inconsistent in testing between samples, data for Sample E98 are low.

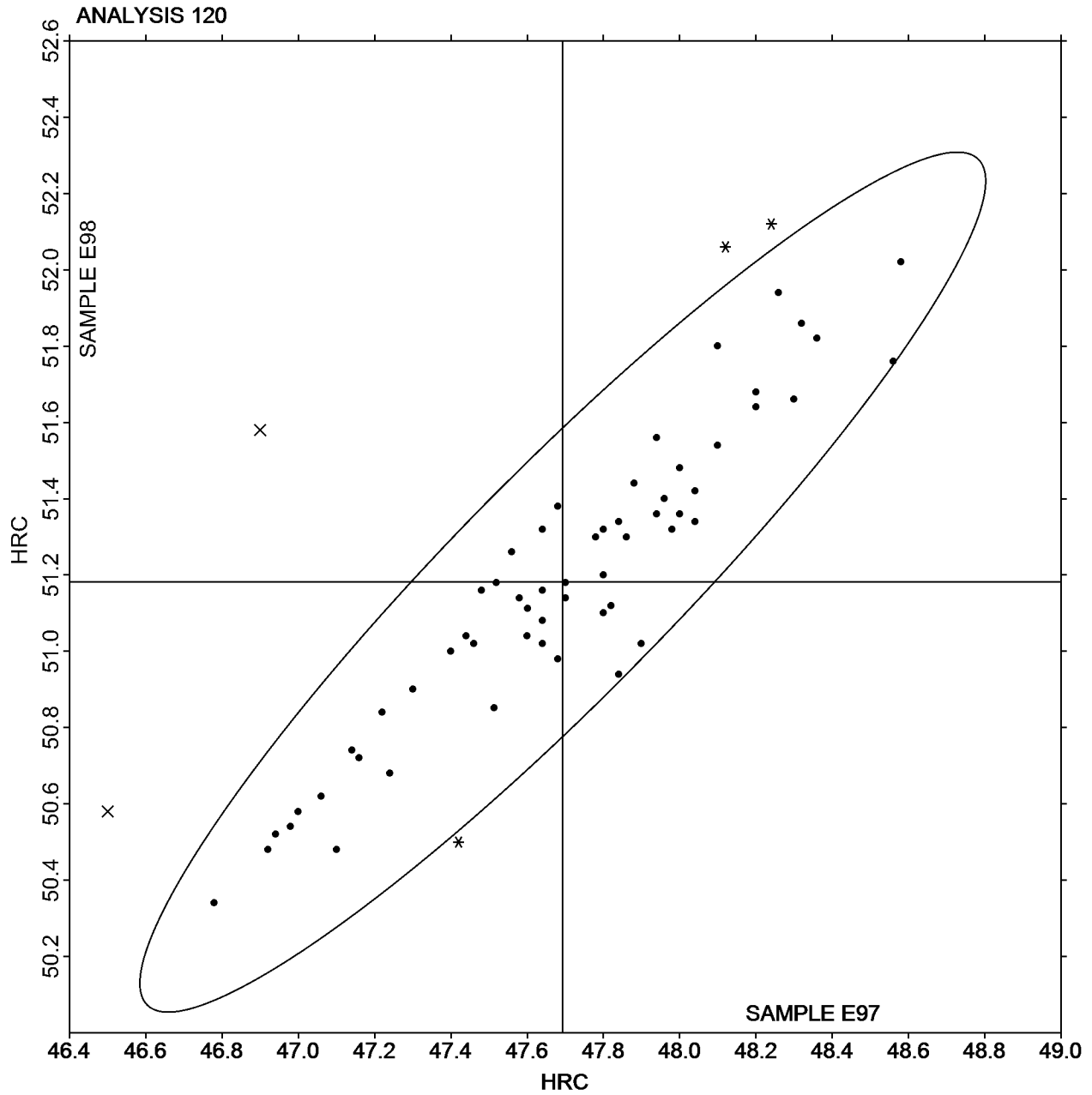
W6JUEU (X) - Inconsistent in testing between samples, data for Sample E98 are low.

ZWRV7J (X) - Data for both samples are low. Inconsistent within the determinations for sample E97.

Analysis 120

Rockwell Hardness (C Scale) - Rockwell Hardness Number
ASTM E18

SAMPLE E97 = 47.693 HRC SAMPLE E98 = 51.180 HRC



Analysis 136

Rockwell Superficial Hardness (30N Scale)

ASTM E18

WebCode	Data Flag	Sample E97			Sample E98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3GJLN7		65.96	0.12	0.26	70.74	0.28	0.56	WI
4ZNJLT		65.80	-0.04	-0.08	70.42	-0.04	-0.09	WI
6RRF6W		65.70	-0.14	-0.29	70.20	-0.26	-0.53	WI
6RZ8KK		64.94	-0.90	-1.89	69.38	-1.08	-2.18	UN
72PUBL		66.44	0.60	1.27	70.78	0.32	0.64	WI
96RDKR		64.86	-0.98	-2.06	69.46	-1.00	-2.02	WI
BCKKYA		65.74	-0.10	-0.20	70.48	0.02	0.04	MI
BUCVM8		65.44	-0.40	-0.84	70.30	-0.16	-0.33	WI
CPNZUL		66.00	0.16	0.34	70.40	-0.06	-0.13	XX
DAGMF8		65.60	-0.24	-0.50	70.36	-0.10	-0.21	WI
DW9M23	*	65.40	-0.44	-0.92	69.40	-1.06	-2.14	WI
DYKTQV		65.24	-0.60	-1.26	70.04	-0.42	-0.85	NA
DZY96W		66.56	0.72	1.52	71.28	0.82	1.65	WI
EAHTK9		65.60	-0.24	-0.50	70.20	-0.26	-0.53	WI
ET9XXZ		65.88	0.04	0.09	70.88	0.42	0.84	LE
ETKFE7	X	64.62	-1.22	-2.56	70.44	-0.02	-0.04	AN
EYDW86		65.42	-0.42	-0.88	70.34	-0.12	-0.25	WI
FDW9MQ		66.00	0.16	0.34	70.00	-0.46	-0.93	XX
GC38D2		65.50	-0.34	-0.71	70.40	-0.06	-0.13	WI
GEYQKM	X	64.90	-0.94	-1.97	69.36	-1.10	-2.22	WI
HB9UP2		65.34	-0.50	-1.05	70.16	-0.30	-0.61	WI
HN377K		65.90	0.06	0.13	70.78	0.32	0.64	NA
L4T3DJ		66.56	0.72	1.52	71.42	0.96	1.93	NA
LAN8QA		66.26	0.42	0.89	70.44	-0.02	-0.04	WI
NKPPHA		65.58	-0.26	-0.54	70.24	-0.22	-0.45	WI
NTJZPJ		65.70	-0.14	-0.29	70.18	-0.28	-0.57	XX
PN8L2X		66.12	0.28	0.60	70.78	0.32	0.64	UN
PYY2KM		65.80	-0.04	-0.08	70.78	0.32	0.64	WI
QPQ63W		65.46	-0.38	-0.79	70.16	-0.30	-0.61	MI
RNTYV8		65.62	-0.22	-0.46	70.16	-0.30	-0.61	CL
T2BN8C		65.70	-0.14	-0.29	70.80	0.34	0.68	NA
T3RWZR		66.36	0.52	1.10	71.02	0.56	1.12	BU
T696LQ		66.70	0.86	1.82	70.80	0.34	0.68	WI
TDVTZT		65.62	-0.22	-0.46	70.92	0.46	0.92	WI
UHHCNN		66.66	0.82	1.73	71.06	0.60	1.21	WI
UQGK29		66.32	0.48	1.02	70.96	0.50	1.00	CL
VKLPKF		66.06	0.22	0.47	70.68	0.22	0.44	XX
VW8K6F		65.78	-0.06	-0.12	70.40	-0.06	-0.13	NA
W8X8N9		65.84	0.00	0.01	70.40	-0.06	-0.13	WI
WBZH34		65.20	-0.64	-1.34	69.46	-1.00	-2.02	CL
XWT279	X	66.66	0.82	1.73	69.88	-0.58	-1.17	CL
Y49MNW		66.72	0.88	1.86	71.52	1.06	2.13	WI
Y6FLHK		65.70	-0.14	-0.29	70.44	-0.02	-0.04	WI
YEC6RT		66.64	0.80	1.69	70.64	0.18	0.36	XX
ZEYB4B		66.30	0.46	0.98	70.90	0.44	0.88	WI

Analysis 136

Rockwell Superficial Hardness (30N Scale)

ASTM E18

WebCode	Data Flag	Sample E97			Sample E98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
ZGKP4Z		65.26	-0.58	-1.22	70.14	-0.32	-0.65	WI
ZZUARU		65.54	-0.30	-0.63	70.04	-0.42	-0.85	UN

Summary Statistics

	Sample E97		Sample E98	
Grand Means	65.837	HR30N	70.460	HR30N
Std Dev Btwn Labs	0.475	HR30N	0.496	HR30N

Statistics based on 44 of 47 reporting participants

Samples E97 , E98 are hardness test blocks made from steel. The blocks are heat treated to hardness levels specified by CTS.

Comments on assigned Data Flags for Test #136

ETKFE7 (X) - Inconsistent in testing between samples.

GEYQKM (X) - Data appear to be transposed between samples. Corrected by CTS.

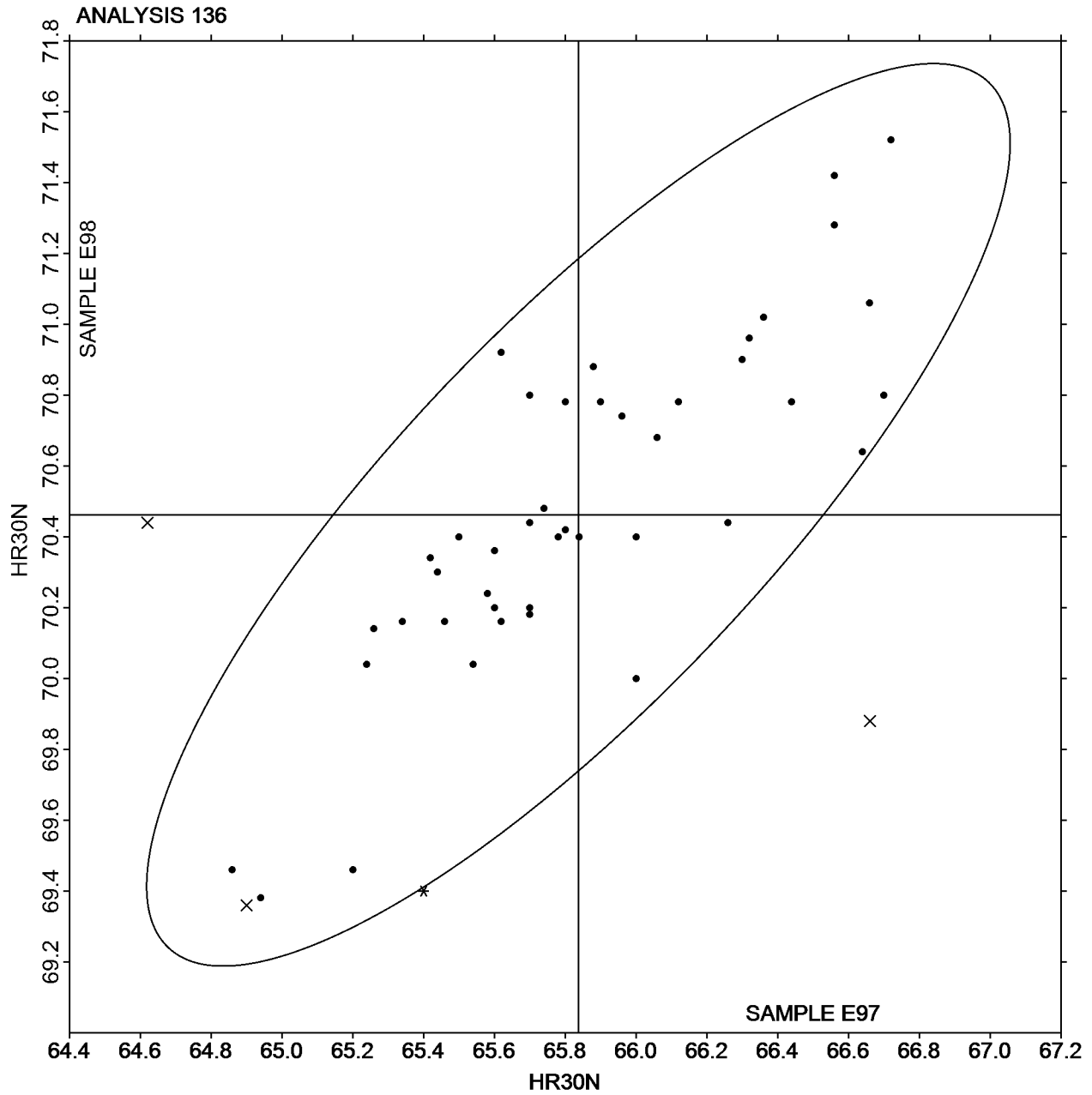
XWT279 (X) - Inconsistent in testing between samples.

Analysis 136

Rockwell Superficial Hardness (30N Scale)

ASTM E18

SAMPLE E97 = 65.837 HR30N SAMPLE E98 = 70.460 HR30N



Analysis 145

Total Case Depth - inch

SAE J423, SAE J78

WebCode	Data Flag	Sample C97			Sample C98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3GT2TL		0.0294	0.0019	0.36	0.0430	0.0048	0.70	ZA
4QF2P4		0.0371	0.0097	1.82	0.0508	0.0126	1.85	XX
6QE39L		0.0249	-0.0026	-0.49	0.0334	-0.0049	-0.71	OG
7AEJHW		0.0260	-0.0015	-0.27	0.0356	-0.0026	-0.38	LC
7MJDXU		0.0332	0.0057	1.08	0.0492	0.0110	1.61	XX
8233ZV		0.0222	-0.0053	-0.99	0.0292	-0.0090	-1.32	LE
9BAQFK		0.0248	-0.0027	-0.50	0.0364	-0.0018	-0.27	XX
9KZEEM		0.0320	0.0045	0.85	0.0460	0.0078	1.14	OG
9L7V9T		0.0265	-0.0010	-0.19	0.0367	-0.0015	-0.22	LE
ACHBV8		0.0269	-0.0006	-0.11	0.0390	0.0008	0.11	NE
AEGGMD		0.0328	0.0053	0.99	0.0439	0.0057	0.84	ZT
AFZMFV		0.0271	-0.0004	-0.07	0.0383	0.0000	0.01	LE
CFP9QE		0.0187	-0.0087	-1.65	0.0307	-0.0075	-1.10	OG
E244LZ		0.0264	-0.0011	-0.20	0.0362	-0.0020	-0.29	ZO
E7CT43		0.0256	-0.0019	-0.35	0.0381	-0.0001	-0.02	ON
ECMWD2		0.0249	-0.0026	-0.48	0.0377	-0.0005	-0.07	BU
FNTEFN		0.0234	-0.0041	-0.77	0.0396	0.0014	0.20	OL
GZVATY		0.0302	0.0027	0.51	0.0422	0.0040	0.58	NI
H2D4GL		0.0282	0.0007	0.14	0.0386	0.0003	0.05	NX
H769Y4		0.0235	-0.0039	-0.74	0.0315	-0.0067	-0.98	RP
HDQ72X		0.0232	-0.0043	-0.80	0.0356	-0.0026	-0.38	XX
HNMEHF		0.0269	-0.0006	-0.11	0.0396	0.0014	0.20	XX
JU8UNX		0.0263	-0.0012	-0.22	0.0367	-0.0015	-0.22	MA
JXLHT3		0.0341	0.0066	1.25	0.0491	0.0108	1.59	XX
K6EK8E		0.0334	0.0059	1.11	0.0385	0.0003	0.04	NI
LCFLE6	*	0.0250	-0.0025	-0.46	0.0270	-0.0112	-1.64	BU
LP7YRL	*	0.0350	0.0075	1.42	0.0403	0.0021	0.31	LE
LTJPV6		0.0276	0.0001	0.02	0.0370	-0.0012	-0.18	CL
LVBQZJ		0.0326	0.0051	0.97	0.0438	0.0056	0.82	ZA
MPRL8H		0.0196	-0.0079	-1.48	0.0294	-0.0088	-1.29	CM
P6QLRU		0.0238	-0.0037	-0.69	0.0318	-0.0064	-0.94	ZI
PNKWHW	*	0.0416	0.0141	2.66	0.0586	0.0204	2.98	XX
QMA83R		0.0268	-0.0007	-0.13	0.0409	0.0027	0.40	BR
QNYLJN	*	0.0128	-0.0147	-2.76	0.0164	-0.0218	-3.19	UT
QP426F		0.0276	0.0002	0.03	0.0367	-0.0016	-0.23	CM
RUYEUV		0.0317	0.0043	0.80	0.0408	0.0026	0.38	XX
RVFFWX		0.0180	-0.0095	-1.78	0.0280	-0.0102	-1.49	BU
T382WP		0.0214	-0.0061	-1.14	0.0362	-0.0020	-0.29	NI
THGF4R		0.0268	-0.0007	-0.13	0.0352	-0.0030	-0.44	WT
THUF43		0.0322	0.0047	0.89	0.0444	0.0062	0.90	ZT
TMTCYU		0.0330	0.0055	1.04	0.0458	0.0076	1.11	OL
UPG2ZL		0.0301	0.0026	0.50	0.0380	-0.0002	-0.03	NI
VCAZWL		0.0340	0.0065	1.23	0.0404	0.0022	0.32	OI
VLQPG2		0.0238	-0.0037	-0.69	0.0355	-0.0027	-0.40	ZX
VZGQJ9		0.0242	-0.0033	-0.62	0.0370	-0.0012	-0.18	BR

Analysis 145

Total Case Depth - inch

SAE J423, SAE J78

WebCode	Data Flag	Sample C97			Sample C98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
WGB8LH		0.0288	0.0013	0.25	0.0390	0.0008	0.11	RE
WPJD4L		0.0315	0.0041	0.76	0.0403	0.0021	0.31	ZI
WT7F6L		0.0224	-0.0051	-0.95	0.0320	-0.0062	-0.91	WT
X4LKYN		0.0306	0.0032	0.59	0.0447	0.0065	0.95	OB
Y8MPMU		0.0327	0.0053	0.99	0.0429	0.0047	0.68	XX
YFG2CV		0.0271	-0.0004	-0.07	0.0406	0.0023	0.34	XX
ZMZF48		0.0200	-0.0075	-1.41	0.0289	-0.0093	-1.36	OL

Summary Statistics

	Sample C97	Sample C98
Grand Means	0.02747 inch	0.03820 inch
Stnd Dev Btwn Labs	0.00531 inch	0.00684 inch
Statistics based on 52 of 52 reporting participants		

Samples C97 , C98 : AISI 8620

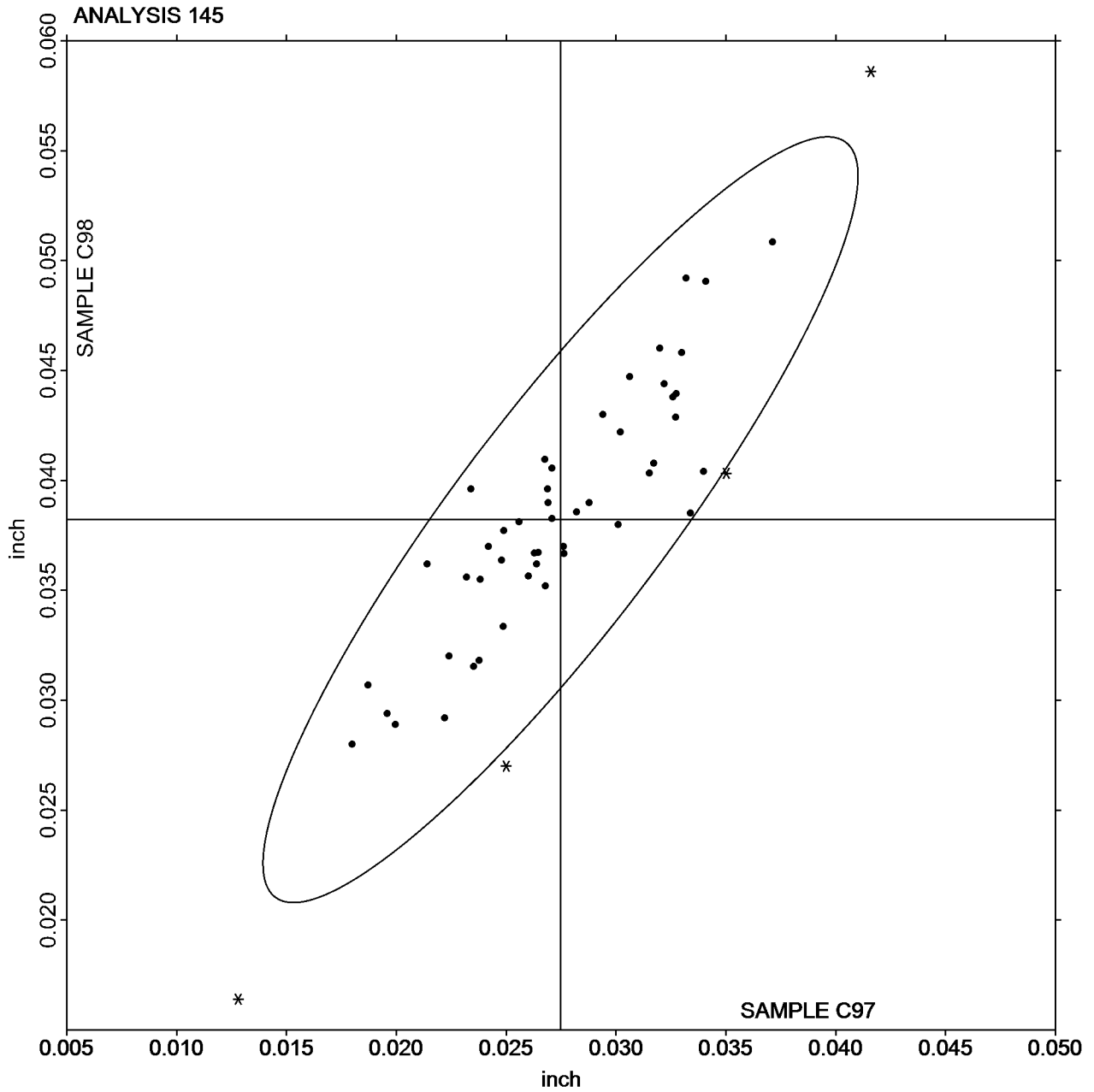
Analysis 145

Total Case Depth - inch

SAE J423, SAE J78

SAMPLE C97 = 0.02747 inch

SAMPLE C98 = 0.03820 inch



Analysis 146

Effective Case Depth - inch

SAE J423, SAE J78

WebCode	Data Flag	Sample C97			Sample C98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
26VVU4	X	0.0195	-0.0048	-3.42	0.0350	-0.0008	-0.33	CM
2J7NZV		0.0247	0.0003	0.23	0.0355	-0.0003	-0.11	LE
2KN3YB		0.0226	-0.0017	-1.23	0.0374	0.0016	0.70	BU
349QDV		0.0268	0.0025	1.77	0.0396	0.0038	1.63	XX
3UJYUJ		0.0238	-0.0005	-0.38	0.0322	-0.0036	-1.54	WT
4A9ZV3		0.0244	0.0001	0.04	0.0346	-0.0012	-0.51	CM
4FMXVG		0.0246	0.0002	0.16	0.0374	0.0016	0.70	MA
6C277D		0.0239	-0.0005	-0.34	0.0343	-0.0015	-0.66	MI
6LQ7WH		0.0249	0.0005	0.38	0.0358	0.0001	0.02	XX
6PE34F		0.0224	-0.0020	-1.40	0.0332	-0.0025	-1.10	LE
6Y9YFH		0.0236	-0.0008	-0.54	0.0351	-0.0007	-0.29	BU
7WH7XK		0.0270	0.0027	1.88	0.0370	0.0012	0.53	BU
83VZ7G		0.0278	0.0035	2.45	0.0390	0.0032	1.39	CL
86KP99		0.0249	0.0006	0.42	0.0366	0.0008	0.35	MI
8PVTQC		0.0262	0.0019	1.32	0.0374	0.0016	0.70	SH
93YJPJ		0.0246	0.0002	0.16	0.0354	-0.0004	-0.18	FU
AQEPTF		0.0246	0.0003	0.18	0.0376	0.0018	0.79	bu
AQK2C7		0.0224	-0.0019	-1.37	0.0336	-0.0022	-0.94	ST
BXUPQ6		0.0245	0.0001	0.09	0.0370	0.0012	0.53	LE
D9CU3M	*	0.0272	0.0029	2.02	0.0428	0.0070	3.04	XX
DUJXMB		0.0261	0.0018	1.28	0.0387	0.0030	1.28	ST
EMHGNV		0.0257	0.0014	0.98	0.0355	-0.0003	-0.13	BU
EPNMR3		0.0238	-0.0005	-0.38	0.0360	0.0002	0.10	BU
EZBYHT		0.0240	-0.0003	-0.24	0.0360	0.0002	0.10	SH
F6X3U4		0.0236	-0.0007	-0.51	0.0343	-0.0014	-0.62	NA
FDGGM2		0.0237	-0.0006	-0.45	0.0335	-0.0022	-0.96	MA
GFFMQQ		0.0239	-0.0005	-0.34	0.0348	-0.0010	-0.42	LE
J9KQAE		0.0210	-0.0033	-2.34	0.0316	-0.0042	-1.81	BU
JEFVHW		0.0249	0.0005	0.38	0.0352	-0.0006	-0.25	LE
JJKTRV		0.0257	0.0013	0.94	0.0363	0.0005	0.23	CL
KVRDXP		0.0236	-0.0007	-0.52	0.0352	-0.0006	-0.25	XX
LA2VJV		0.0240	-0.0003	-0.23	0.0337	-0.0021	-0.89	CM
LC6TQH		0.0243	0.0000	0.00	0.0348	-0.0010	-0.42	WT
LU4DGV		0.0240	-0.0003	-0.24	0.0334	-0.0024	-1.02	ST
R7TWBW	*	0.0256	0.0013	0.89	0.0412	0.0054	2.35	BU
RQZAUW		0.0238	-0.0005	-0.38	0.0374	0.0016	0.70	BU
T3RKCF		0.0242	-0.0001	-0.10	0.0356	-0.0002	-0.07	WT
TUGP7A		0.0258	0.0015	1.06	0.0369	0.0011	0.47	XX
U38XZY		0.0244	0.0001	0.05	0.0366	0.0008	0.36	LE
U42KG9		0.0236	-0.0007	-0.52	0.0344	-0.0014	-0.59	ST
UBHWWV	X	0.0184	-0.0059	-4.20	0.0246	-0.0112	-4.83	BU
URLR82		0.0250	0.0007	0.47	0.0374	0.0016	0.70	WT
W8BYCJ		0.0218	-0.0025	-1.80	0.0326	-0.0032	-1.37	BU
WKQ8R6		0.0238	-0.0005	-0.38	0.0318	-0.0040	-1.72	LE
WP2D2W		0.0248	0.0005	0.33	0.0360	0.0002	0.10	LE

Analysis 146

Effective Case Depth - inch

SAE J423, SAE J78

WebCode	Data Flag	Sample C97			Sample C98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
X4JCRJ		0.0236	-0.0007	-0.52	0.0376	0.0018	0.79	WT
XLAC3E		0.0230	-0.0013	-0.95	0.0332	-0.0026	-1.11	MI
Y6RCJN		0.0244	0.0001	0.05	0.0365	0.0008	0.33	WZ
Z3X6DH		0.0226	-0.0017	-1.23	0.0318	-0.0040	-1.72	WT
Z9UYZ6	*	0.0221	-0.0022	-1.57	0.0374	0.0017	0.72	WT
ZCBJN6		0.0264	0.0021	1.46	0.0366	0.0008	0.36	ST
ZUUMKR		0.0226	-0.0017	-1.23	0.0332	-0.0026	-1.11	LE
ZVPDJF	X	0.0073	-0.0170	-12.05	0.0105	-0.0253	-10.92	WT
ZWWQ43		0.0246	0.0003	0.18	0.0376	0.0018	0.79	CL

Summary Statistics

	Sample C97	Sample C98
Grand Means	0.02434 inch	0.03580 inch
Stnd Dev Btwn Labs	0.00141 inch	0.00232 inch

Statistics based on 51 of 54 reporting participants

Samples C97 , C98 : AISI 8620

Comments on assigned Data Flags for Test #146

26VVU4 (X) - Low data for Sample C98.

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

ZVPDJF (X) - Extreme data.

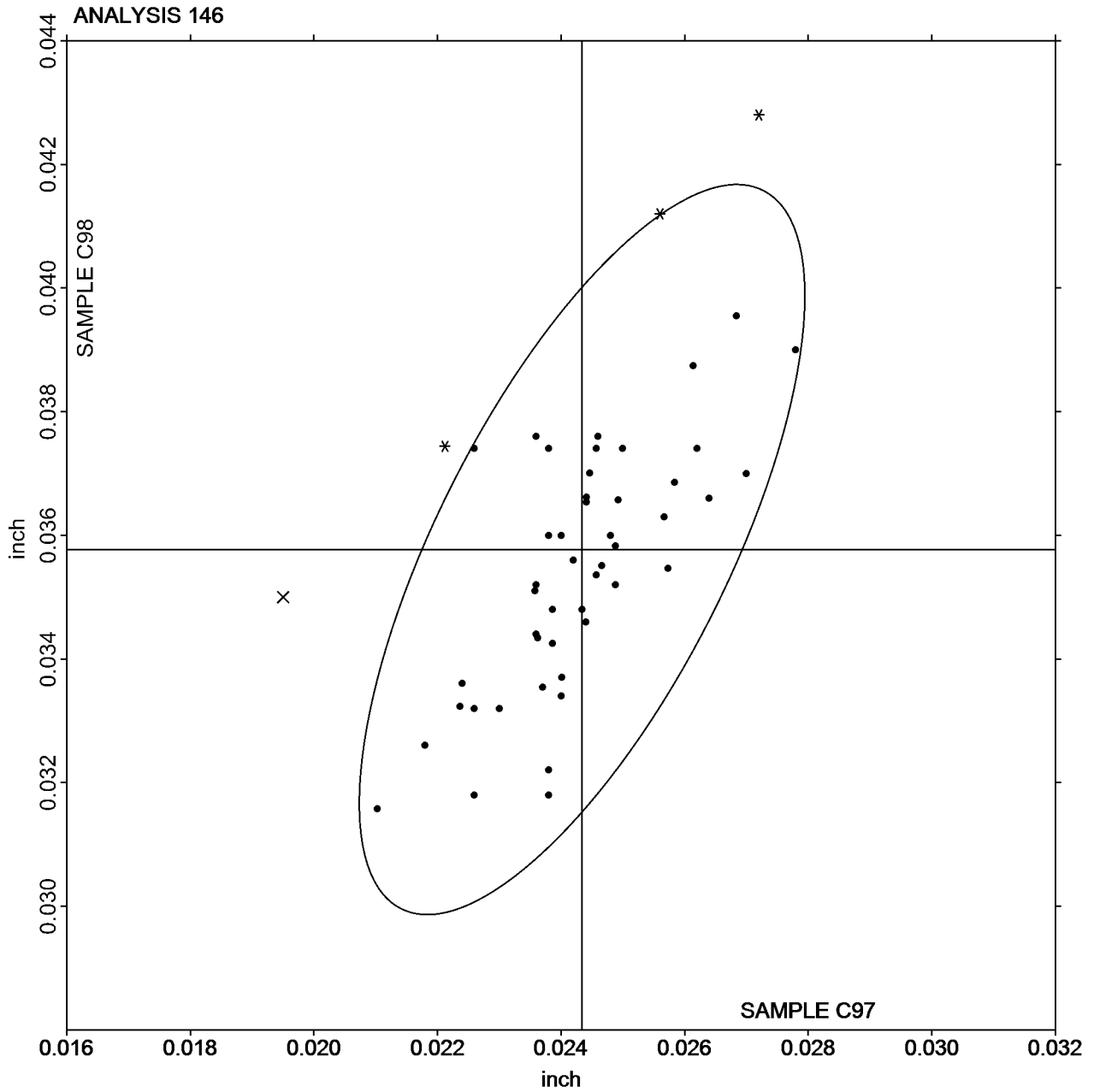
Analysis 146

Effective Case Depth - inch

SAE J423, SAE J78

SAMPLE C97 = 0.02434 inch

SAMPLE C98 = 0.03580 inch



Analysis 160

Chemical Analysis Element #1: Copper-based Alloy - Percent
COPPER (Cu)

WebCode	Data Flag	Sample K97			Sample k98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2EBD4G	*	80.10	-0.56	-2.02	80.22	-0.65	-2.66	OE
4VR6F7		80.71	0.05	0.19	80.91	0.04	0.14	XX
AGBVU3		80.29	-0.37	-1.33	80.93	0.06	0.24	GD
AUGHVR	X	83.94	3.28	11.85	84.15	3.28	13.29	XR
BRULZR	X	79.24	-1.42	-5.14	79.61	-1.26	-5.12	XX
C2BT8E		80.65	-0.01	-0.04	80.89	0.01	0.05	WC
CE92JB		80.73	0.08	0.27	80.60	-0.27	-1.11	XX
DAQKLJ	*	81.36	0.70	2.52	80.80	-0.07	-0.29	EL
DBDXEG		80.73	0.07	0.25	80.94	0.06	0.25	OE
DV76FY		80.53	-0.13	-0.45	80.93	0.06	0.24	BD
EKPFZE		80.57	-0.09	-0.33	80.97	0.09	0.37	OE
G89V9A		80.57	-0.09	-0.32	80.47	-0.40	-1.63	ED
GGVAFF		80.70	0.04	0.15	81.03	0.16	0.64	OE
HCVFYP		80.50	-0.16	-0.56	80.85	-0.03	-0.11	OE
HD4QK8		80.84	0.18	0.64	81.11	0.24	0.96	BD
LMGNU2	X	88.35	7.69	27.78	85.91	5.03	20.41	AA
NJMLND		80.49	-0.17	-0.62	80.85	-0.02	-0.09	OE
NR3LFN		80.41	-0.25	-0.89	80.74	-0.14	-0.56	OE
TJW8J9		80.52	-0.14	-0.49	80.73	-0.14	-0.57	OE
TRWUNB		81.26	0.60	2.16	81.37	0.50	2.01	OE
UCWZLL		80.57	-0.09	-0.33	80.80	-0.07	-0.30	OE
VD74WN		80.70	0.04	0.15	80.88	0.01	0.04	OE
XDTBP7		80.96	0.31	1.10	81.26	0.39	1.56	OE
YW9D6B		80.68	0.02	0.07	81.12	0.25	1.01	OE
ZZUAUE		80.62	-0.04	-0.13	80.82	-0.05	-0.21	WD

Summary Statistics

	Sample K97		Sample K98	
Grand Means	80.658	Percent	80.870	Percent
Std Dev Btw Labs	0.277	Percent	0.246	Percent

Statistics based on 22 of 25 reporting participants

Samples K97 , K98 : CDA 630, two different heats

Comments on assigned Data Flags for Test #160

AUGHVR (X) - Extreme data.

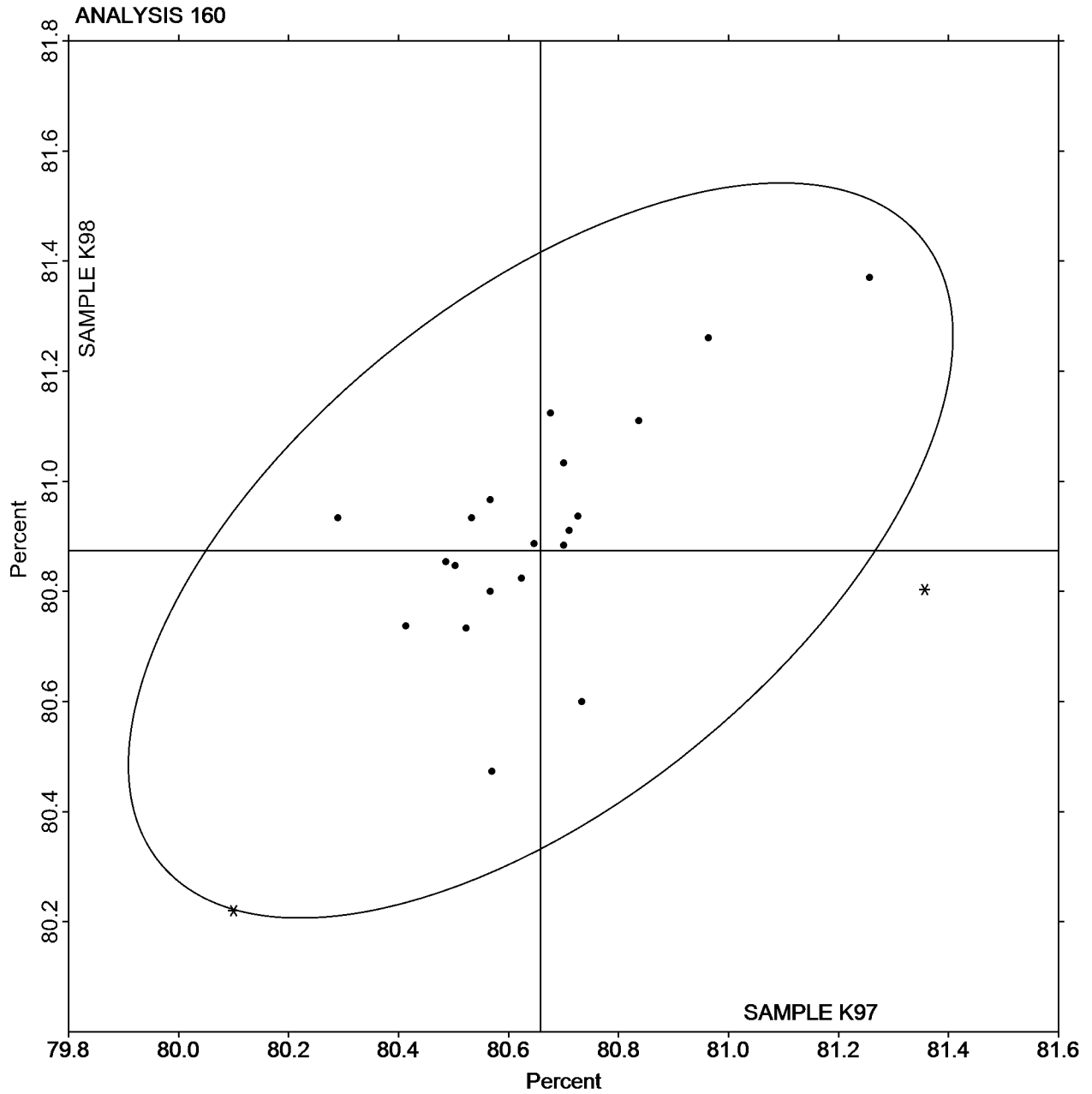
BRULZR (X) - Data for both samples are low.

LMGNU2 (X) - Extreme data.

Analysis 160

Chemical Analysis Element #1: Copper-based Alloy - Percent
COPPER (Cu)

SAMPLE K97 = 80.658 Percent SAMPLE K98 = 80.870 Percent



Analysis 161

Chemical Analysis Element #2: Copper-based Alloy - Percent

ALUMINUM (Al)

WebCode	Data Flag	Sample K97			Sample K98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
4GGLCR		10.00	-0.06	-0.54	9.82	-0.09	-0.91	OE
4JYVDC		10.04	-0.01	-0.11	9.85	-0.06	-0.63	WD
4QVULD		10.22	0.17	1.49	10.04	0.13	1.34	OE
4UVMFQ		10.12	0.06	0.57	9.92	0.01	0.14	CE
6DA93A		10.04	-0.02	-0.15	9.94	0.03	0.35	OE
7UC9NH	X	10.48	0.42	3.79	10.04	0.13	1.30	ED
84N79T		10.20	0.14	1.28	10.03	0.12	1.23	OE
9RF6LG		9.96	-0.10	-0.88	9.79	-0.12	-1.19	IC
CGV7V9		10.01	-0.05	-0.45	9.95	0.04	0.42	OE
DHJXJX		9.96	-0.09	-0.82	9.80	-0.11	-1.13	OE
FVAVVU		10.08	0.02	0.21	9.95	0.04	0.42	XX
GATF2D		10.00	-0.06	-0.51	9.80	-0.11	-1.08	OE
GNBLJK		10.06	0.00	0.03	9.92	0.01	0.14	XX
HCURCK		9.79	-0.27	-2.42	9.72	-0.19	-1.96	XR
HD6NNC		9.97	-0.09	-0.81	9.87	-0.04	-0.37	OE
KZ77VA		10.09	0.03	0.27	9.92	0.01	0.08	IC
MHXLZV		10.00	-0.06	-0.51	9.95	0.04	0.42	OE
RAGNUK		9.92	-0.14	-1.25	9.78	-0.13	-1.37	OE
RKLCRW		10.17	0.11	0.98	10.10	0.19	1.95	XX
RU7GNA		9.91	-0.14	-1.28	9.81	-0.10	-0.98	OE
UDZ9HD		10.02	-0.04	-0.36	9.89	-0.02	-0.22	OE
V846F8		10.20	0.14	1.28	10.02	0.11	1.10	OE
VRMQ2A		10.11	0.05	0.48	9.89	-0.02	-0.23	OC
WXAA2A	X	9.50	-0.56	-5.02	9.69	-0.22	-2.27	IC
XDT84G		10.21	0.15	1.34	10.07	0.16	1.64	WD
XG2L2U		10.01	-0.04	-0.38	9.91	0.00	-0.04	IC
Z2UHMD	*	10.26	0.21	1.85	9.97	0.06	0.62	GD
ZMAL7B		10.17	0.11	1.01	10.02	0.11	1.10	OE
ZXLJLT		10.02	-0.04	-0.33	9.83	-0.08	-0.84	OE

Summary Statistics

	Sample K97		Sample K98	
Grand Means	10.057	Percent	9.910	Percent
Stnd Dev Btw Labs	0.112	Percent	0.098	Percent

Statistics based on 27 of 29 reporting participants

Samples K97 , K98 : CDA 630, two different heats

Comments on assigned Data Flags for Test #161

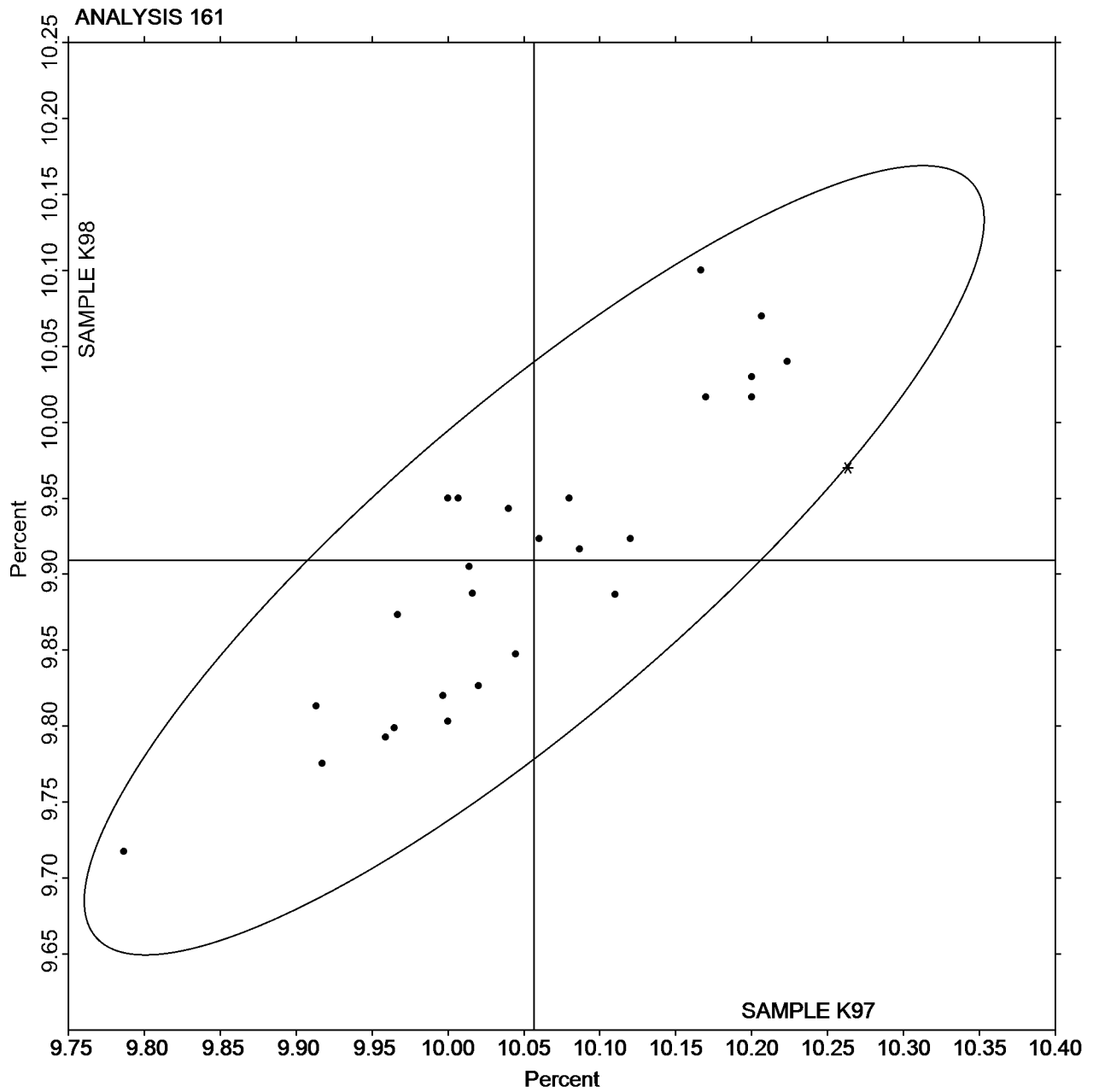
7UC9NH (X) - Inconsistent in testing between samples, data for Sample K97 are high. Inconsistent within the determinations for both samples.

WXAA2A (X) - Inconsistent in testing between samples, data for Sample K97 are low.

Analysis 161

Chemical Analysis Element #2: Copper-based Alloy - Percent
ALUMINUM (Al)

SAMPLE K97 = 10.057 Percent SAMPLE K98 = 9.910 Percent



Analysis 162

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

WebCode	Data Flag	Sample K97			Sample K98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3NY66K	X	3.240	-0.593	-7.88	3.208	-0.508	-5.89	AA
3PEHV3	X	3.350	-0.483	-6.42	3.523	-0.193	-2.23	IC
3XFUPY		3.697	-0.137	-1.81	3.510	-0.206	-2.39	OE
47HEQL		3.830	-0.003	-0.04	3.780	0.064	0.74	ED
6BM2XA		3.668	-0.166	-2.20	3.660	-0.056	-0.65	WD
6H4H6Q		3.880	0.047	0.62	3.723	0.007	0.09	OE
8YF9UZ		3.747	-0.087	-1.15	3.604	-0.112	-1.30	OE
9AK29Q		3.921	0.088	1.17	3.699	-0.017	-0.20	OE
9VUNMB		3.827	-0.007	-0.09	3.667	-0.049	-0.57	OE
BFWQKK		3.871	0.038	0.51	3.701	-0.015	-0.18	IC
CDZD8X		3.933	0.100	1.32	3.770	0.054	0.63	OE
D7PQGM		3.819	-0.014	-0.18	3.699	-0.017	-0.20	XX
DZF7ZN		3.975	0.142	1.89	3.892	0.176	2.05	XR
H9PUGC		3.890	0.056	0.75	3.804	0.088	1.02	OE
HC633Q		3.800	-0.033	-0.44	3.710	-0.006	-0.07	XX
HDULFJ		3.813	-0.020	-0.26	3.737	0.021	0.24	OE
KPXB2V		3.890	0.057	0.75	3.750	0.034	0.40	OE
LJMRAF		3.757	-0.077	-1.02	3.670	-0.046	-0.53	OE
MWEJ2P		3.751	-0.083	-1.10	3.636	-0.080	-0.92	WD
NQL6F		3.967	0.133	1.77	3.853	0.137	1.59	OE
PKHLEM		3.847	0.013	0.18	3.667	-0.049	-0.57	GD
PVQHTY	*	3.730	-0.103	-1.37	3.830	0.114	1.32	XX
Q4YXVK		3.829	-0.005	-0.06	3.586	-0.130	-1.51	OE
R8HNZ3		3.853	0.020	0.27	3.660	-0.056	-0.65	OE
RGHF94		3.833	0.000	0.00	3.697	-0.019	-0.22	OE
UR8T3W		3.845	0.011	0.15	3.757	0.041	0.48	IC
V74QPM		3.862	0.029	0.38	3.834	0.118	1.37	OE
VPDQQ2		3.867	0.033	0.44	3.807	0.091	1.05	OE
YAAH7Q		3.763	-0.070	-0.93	3.650	-0.066	-0.76	IC
ZB6R3J		3.868	0.034	0.46	3.694	-0.022	-0.25	OE

Summary Statistics

	Sample K97		Sample K98	
Grand Means	3.8332	Percent	3.7160	Percent
Std Dev Btwn Labs	0.0753	Percent	0.0862	Percent

Statistics based on 28 of 30 reporting participants

Samples K97 , K98 : CDA 630, two different heats

Comments on assigned Data Flags for Test #162

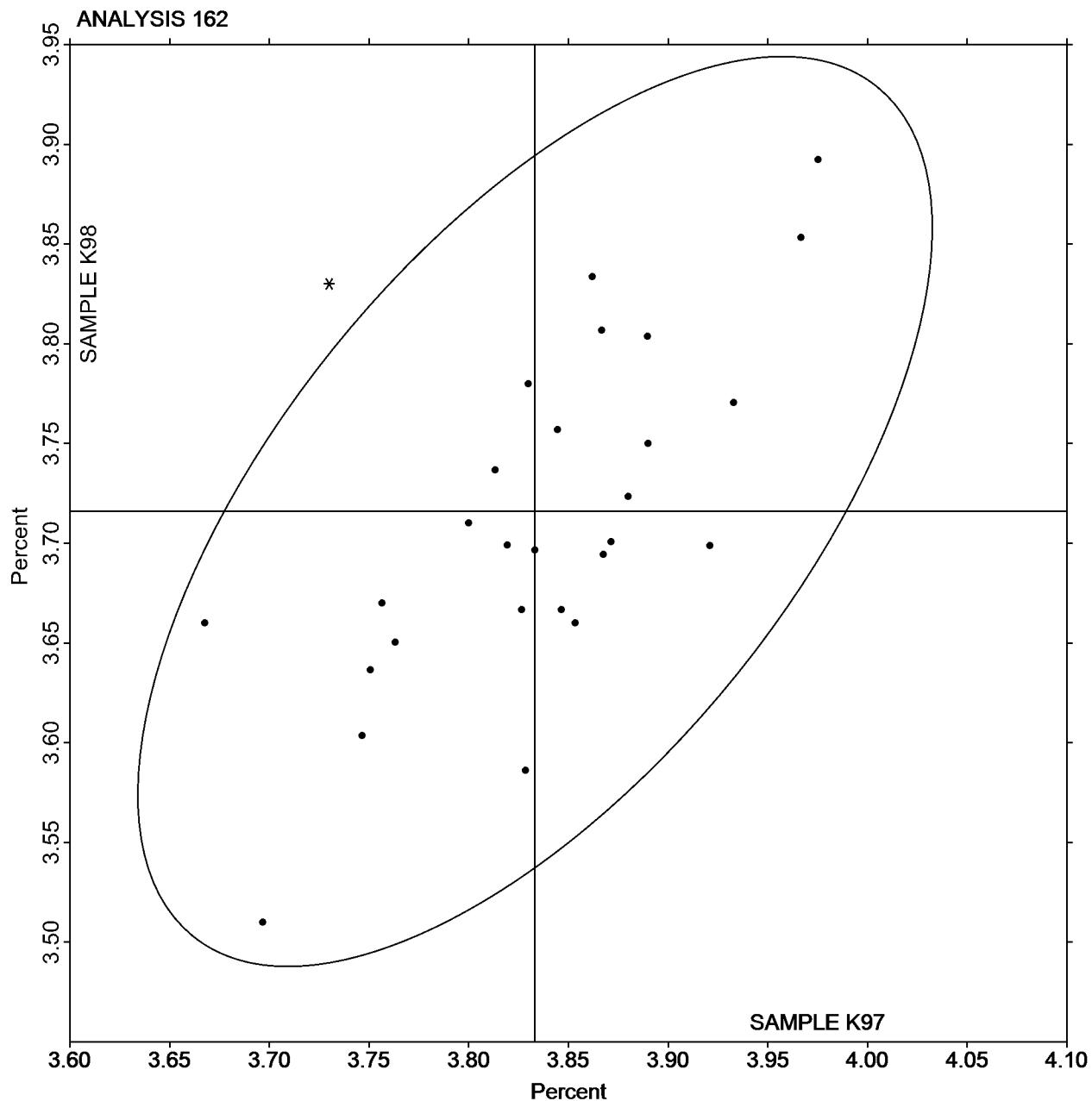
3NY66K (X) - Data for both samples are low. Inconsistent within the determinations for Sample K97.

3PEHV3 (X) - Low data for Sample 97.

Analysis 162

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

SAMPLE K97 = 3.8332 Percent SAMPLE K98 = 3.7160 Percent



Analysis 163

Chemical Analysis Element #4: Copper-based Alloy - Percent
MANGANESE (Mn)

WebCode	Data Flag	Sample K97			Sample K98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
39WXGQ		0.603	0.029	1.04	0.620	0.037	1.28	OE
3BDVE9	*	0.603	0.029	1.04	0.583	0.000	0.00	GD
3Q4GLF	*	0.495	-0.079	-2.88	0.501	-0.082	-2.86	OE
3TWHCH		0.608	0.033	1.20	0.617	0.033	1.16	OE
463QWR		0.510	-0.065	-2.35	0.517	-0.067	-2.33	OE
4X7FXV		0.615	0.040	1.45	0.636	0.053	1.84	OE
76WLLT		0.604	0.029	1.05	0.614	0.030	1.06	XX
8QEKTG	*	0.587	0.012	0.44	0.570	-0.013	-0.46	XX
8WNPV3		0.560	-0.015	-0.53	0.570	-0.013	-0.46	XX
8ZZPPU		0.544	-0.031	-1.12	0.549	-0.034	-1.20	XX
9AZQEJ		0.583	0.009	0.31	0.596	0.013	0.44	OE
9B6DV6		0.580	0.006	0.21	0.589	0.006	0.21	WD
9M63NR		0.547	-0.028	-1.00	0.558	-0.026	-0.90	XR
AC3H3V		0.567	-0.008	-0.29	0.578	-0.006	-0.20	IC
AF2A7G		0.570	-0.005	-0.17	0.571	-0.012	-0.43	IC
AKACTR		0.560	-0.015	-0.53	0.580	-0.003	-0.12	OE
B6F4QA	X	0.284	-0.291	-10.56	0.262	-0.321	-11.22	AA
BA8Y4W		0.576	0.001	0.05	0.592	0.009	0.30	OE
FCZAFY		0.597	0.023	0.82	0.598	0.015	0.52	WD
FU4U7V		0.595	0.020	0.73	0.606	0.022	0.78	OE
G7E9TY		0.560	-0.015	-0.53	0.577	-0.007	-0.23	OE
L27FP3		0.575	0.001	0.02	0.583	-0.001	-0.02	DR
M3LEW7		0.584	0.010	0.35	0.586	0.003	0.11	IC
M8GUE8		0.543	-0.031	-1.14	0.553	-0.030	-1.05	OE
UDQN4G		0.577	0.002	0.09	0.599	0.016	0.55	OE
WHCWCY		0.579	0.004	0.16	0.588	0.005	0.16	OE
XK2TK7		0.588	0.013	0.47	0.595	0.012	0.41	oe
YYCZWU		0.575	0.001	0.02	0.596	0.013	0.44	IC
Z6QUZJ		0.601	0.027	0.97	0.611	0.027	0.96	OE
ZYKUCU		0.578	0.003	0.12	0.584	0.001	0.04	OE

Summary Statistics

	Sample K97		Sample K98	
Grand Means	0.5747	Percent	0.5830	Percent
Std Dev Btwn Labs	0.0276	Percent	0.0286	Percent

Statistics based on 29 of 30 reporting participants

Samples K97 , K98 : CDA 630, two different heats

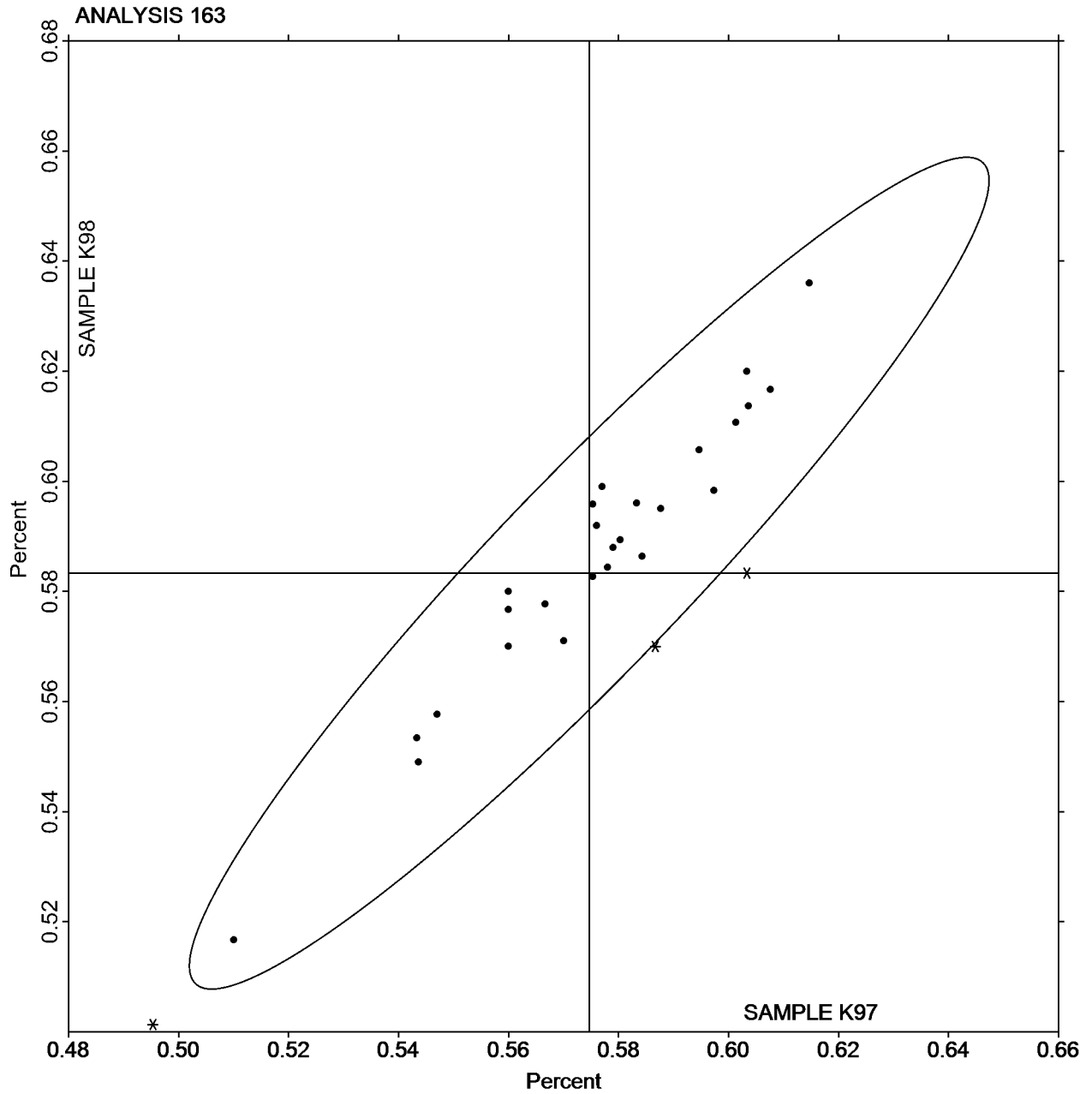
Comments on assigned Data Flags for Test #163

B6F4QA (X) - Extreme data.

Analysis 163

Chemical Analysis Element #4: Copper-based Alloy - Percent
MANGANESE (Mn)

SAMPLE K97 = 0.5747 Percent SAMPLE K98 = 0.5830 Percent



Analysis 164

Chemical Analysis Element #5: Copper-based Alloy - Percent
NICKEL (Ni)

WebCode	Data Flag	Sample K97			Sample K98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2N2F9R		4.700	-0.008	-0.10	4.711	0.031	0.49	OE
2N39HJ	X	5.673	0.965	13.15	5.510	0.830	12.84	XX
2RXRXH		4.657	-0.051	-0.70	4.603	-0.077	-1.18	OE
2X3NMA		4.683	-0.025	-0.34	4.629	-0.051	-0.79	OE
3C4W8R		4.707	-0.001	-0.01	4.643	-0.037	-0.57	IC
67VAPY		4.688	-0.020	-0.28	4.699	0.019	0.29	OE
67YMG2	X	4.507	-0.201	-2.74	4.720	0.040	0.62	IC
6BTPHF		4.643	-0.065	-0.88	4.626	-0.054	-0.84	OE
6MAJX8		4.701	-0.007	-0.10	4.674	-0.006	-0.09	WD
8VH682		4.660	-0.048	-0.65	4.660	-0.020	-0.31	XX
AE37BK		4.660	-0.048	-0.65	4.660	-0.020	-0.31	OE
C2AGB7	X	5.113	0.405	5.52	5.160	0.480	7.43	OE
FD2EC2		4.710	0.002	0.03	4.677	-0.003	-0.05	OE
FVT9JC		4.740	0.032	0.44	4.727	0.047	0.72	OE
G6986T		4.713	0.005	0.07	4.647	-0.033	-0.51	OE
G6RELP		4.707	-0.001	-0.01	4.684	0.004	0.06	OE
GC39FL		4.787	0.079	1.07	4.820	0.140	2.17	XX
LYXDT7		4.862	0.153	2.09	4.835	0.155	2.40	IC
NNBX2N	*	4.773	0.065	0.89	4.583	-0.097	-1.49	GD
NP4CG9		4.737	0.029	0.39	4.740	0.060	0.93	OE
PL87HL		4.703	-0.005	-0.06	4.717	0.037	0.57	XX
PLCTLZ		4.691	-0.017	-0.23	4.672	-0.008	-0.12	IC
Q2CXVB		4.740	0.032	0.44	4.667	-0.013	-0.20	OE
QKHYGA		4.789	0.081	1.10	4.750	0.070	1.08	XX
R64KT4		4.733	0.025	0.34	4.700	0.020	0.31	OE
RCHDX9	X	3.678	-1.030	-14.03	3.693	-0.987	-15.26	XR
VD9YFU	*	4.512	-0.196	-2.67	4.579	-0.101	-1.57	ED
VNNCDK		4.551	-0.157	-2.14	4.594	-0.086	-1.33	WD
ZAB4LA		4.735	0.027	0.36	4.642	-0.038	-0.59	OE
ZGBLYZ		4.826	0.118	1.61	4.740	0.060	0.94	OE

Summary Statistics

	Sample K97		Sample K98	
Grand Means	4.7080	Percent	4.6800	Percent
Std Dev Btwn Labs	0.0734	Percent	0.0647	Percent

Statistics based on 26 of 30 reporting participants

Samples K97 , K98 : CDA 630, two different heats

Comments on assigned Data Flags for Test #164

2N39HJ (X) - Extreme data.

67YMG2 (X) - Inconsistent in testing between samples, data for Sample K97 are low.

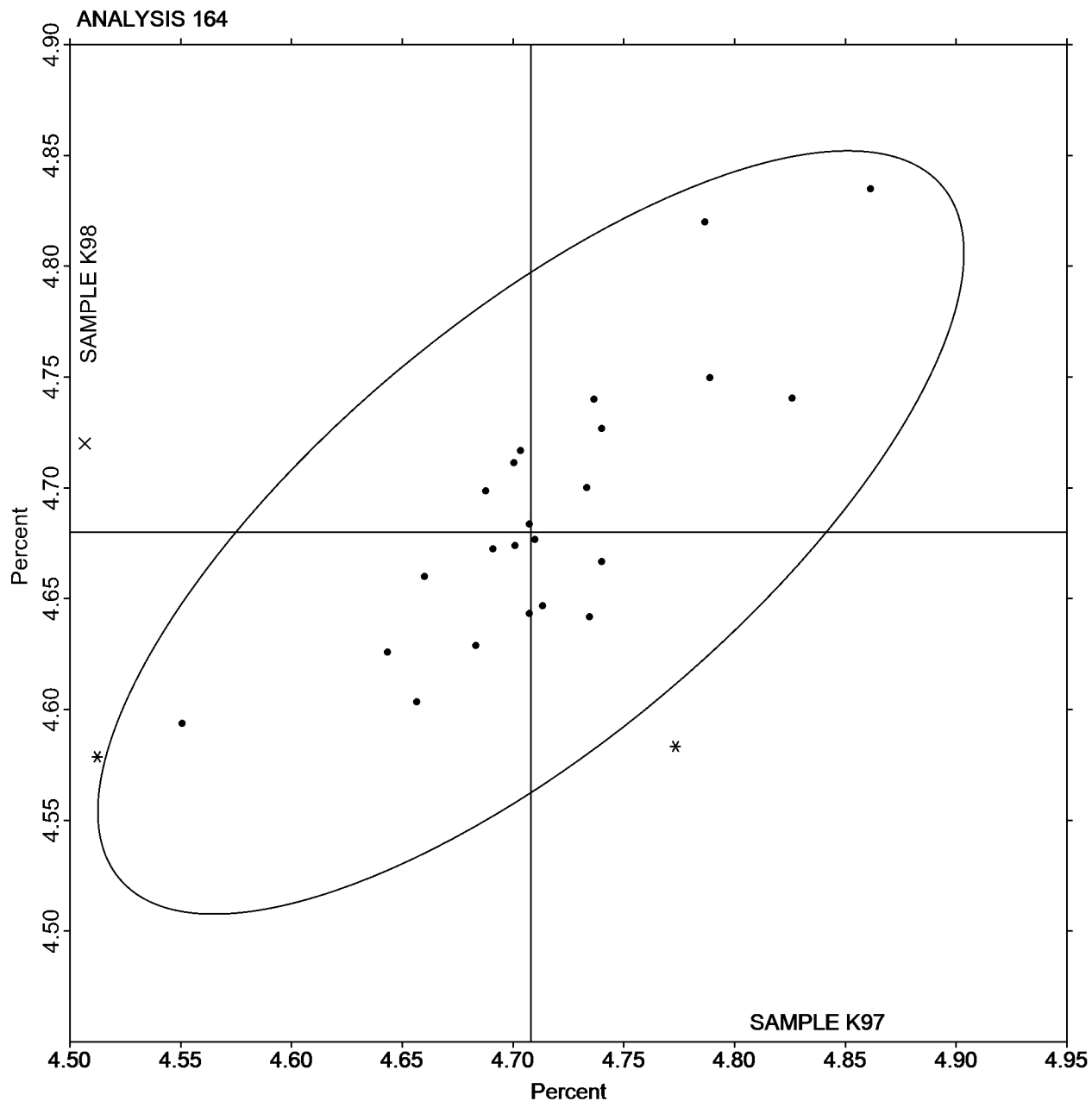
C2AGB7 (X) - Data for both samples are high.

RCHDX9 (X) - Extreme data.

Analysis 164

Chemical Analysis Element #5: Copper-based Alloy - Percent
NICKEL (Ni)

SAMPLE K97 = 4.7080 Percent SAMPLE K98 = 4.6800 Percent



Analysis 165

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

WebCode	Data Flag	Sample K97			Sample K98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CMLTT		0.076	0.001	0.17	0.075	0.001	0.15	OE
3J96YY	X	0.244	0.170	21.69	0.244	0.170	21.22	XR
4D3CHE		0.068	-0.007	-0.90	0.067	-0.007	-0.89	OE
7B6GRV		0.078	0.003	0.38	0.077	0.003	0.40	OE
7RCZK9		0.072	-0.003	-0.34	0.071	-0.003	-0.39	OE
7YTHVV		0.077	0.003	0.34	0.076	0.002	0.28	XX
AUERQ6		0.078	0.003	0.38	0.076	0.002	0.19	OE
B4ZBQV		0.078	0.003	0.42	0.078	0.004	0.44	XX
DTULUW		0.080	0.005	0.68	0.080	0.006	0.69	OE
EJ4WM2		0.076	0.001	0.18	0.075	0.001	0.15	OE
HMGNJ		0.068	-0.006	-0.81	0.068	-0.006	-0.81	OE
K7KLZQ	*	0.072	-0.002	-0.30	0.074	0.000	-0.02	GD
KFKWQ9	*	0.100	0.025	3.24	0.100	0.026	3.24	OE
KKDD9M	X	0.099	0.024	3.11	0.087	0.013	1.61	XX
L4GUGP		0.083	0.009	1.11	0.083	0.009	1.15	XX
L9H8ZF		0.076	0.001	0.17	0.075	0.001	0.11	XX
LWN7D9		0.076	0.001	0.17	0.077	0.003	0.32	IC
PH2G37		0.075	0.001	0.07	0.074	0.000	0.04	OE
QY6YHA		0.075	0.000	0.00	0.075	0.001	0.11	OE
RVHMF		0.075	0.000	0.04	0.075	0.001	0.11	DR
T9JZQF		0.072	-0.003	-0.34	0.072	-0.002	-0.27	OE
U3LBGG		0.067	-0.008	-1.03	0.066	-0.008	-1.02	OE
VK6XNV		0.079	0.004	0.55	0.078	0.004	0.48	OE
W6QUXU		0.079	0.004	0.54	0.077	0.003	0.33	IC
WCLFM3		0.069	-0.005	-0.68	0.069	-0.005	-0.68	IC
YXZAU6	*	0.054	-0.021	-2.65	0.052	-0.022	-2.73	IC
YZJ7MH		0.072	-0.002	-0.30	0.070	-0.004	-0.47	OE
ZE23VR		0.066	-0.008	-1.07	0.067	-0.007	-0.93	OE

Summary Statistics

	Sample K97		Sample K98	
Grand Means	0.0747	Percent	0.0740	Percent
Std Dev Btwn Labs	0.0078	Percent	0.0080	Percent

Statistics based on 26 of 28 reporting participants

Samples K97 , K98 : CDA 630, two different heats

Comments on assigned Data Flags for Test #165

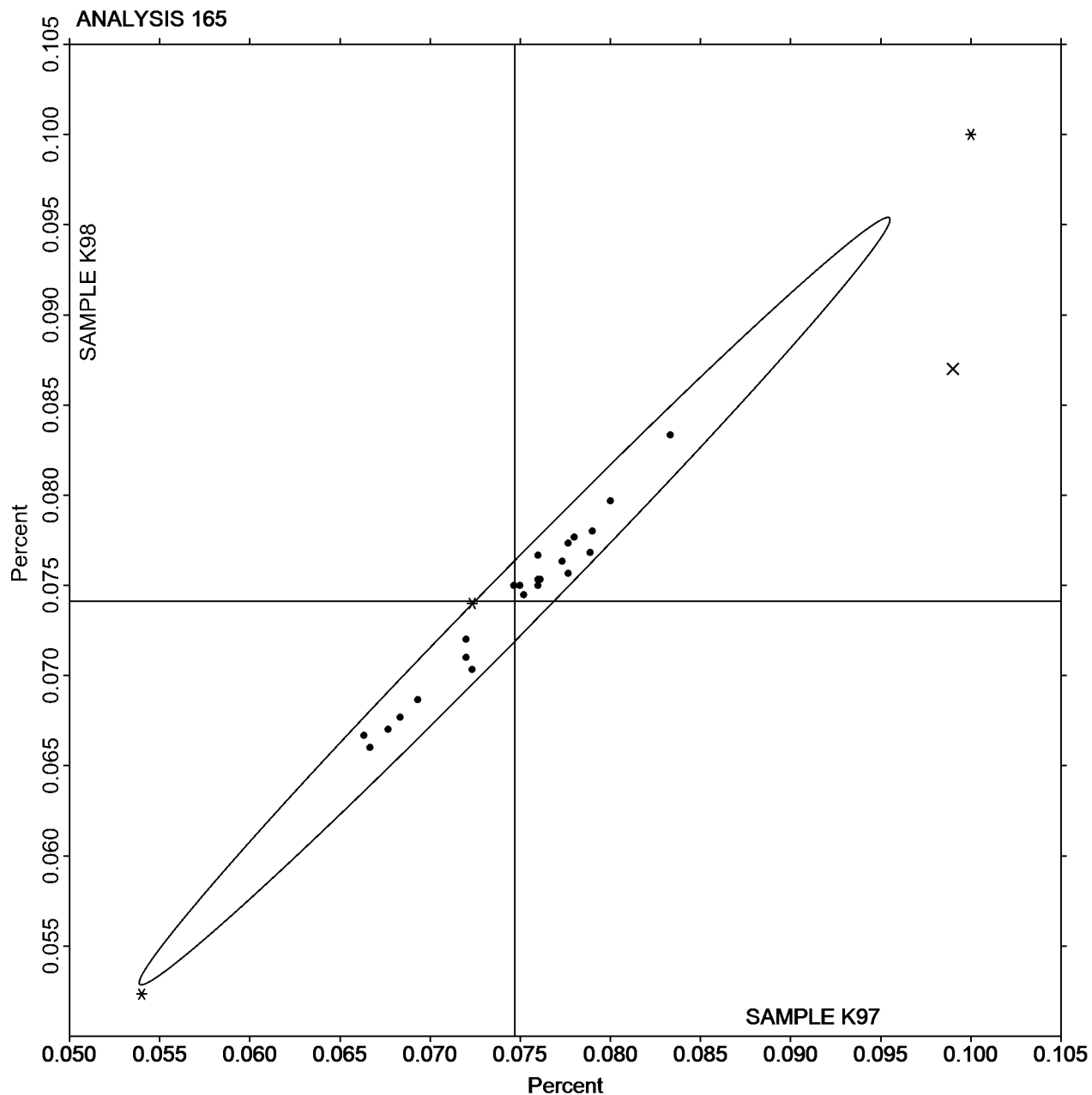
3J96YY (X) - Extreme data.

KKDD9M (X) - Inconsistent in testing between samples, data for Sample K97 are high.

Analysis 165

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

SAMPLE K97 = 0.0747 Percent SAMPLE K98 = 0.0740 Percent



Analysis 166

Chemical Analysis Element #7: Copper-based Alloy - Percent
LEAD (Pb)

WebCode	Data Flag	Sample K97			Sample K98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2FXEAC		0.0065	-0.0014	-0.22	0.0068	-0.0034	-0.45	OE
6EAA6V		0.0020	-0.0059	-0.95	0.0050	-0.0052	-0.69	OE
7MGHEN		0.0030	-0.0048	-0.78	0.0063	-0.0039	-0.52	IC
879EHG	*	0.0235	0.0156	2.53	0.0353	0.0251	3.29	ED
DQ42X7		0.0197	0.0118	1.92	0.0207	0.0105	1.37	OE
EN6CMV		0.0061	-0.0017	-0.28	0.0092	-0.0010	-0.13	OE
JPKAXH		0.0080	0.0002	0.03	0.0080	-0.0022	-0.29	XX
LPFZ7G		0.0099	0.0020	0.33	0.0100	-0.0002	-0.03	OE
N98UZ4		0.0032	-0.0047	-0.76	0.0058	-0.0044	-0.58	OE
NNH26T		0.0033	-0.0045	-0.73	0.0060	-0.0042	-0.55	OE
QYKCWL		0.0033	-0.0045	-0.74	0.0061	-0.0041	-0.53	GD
R64KQH		0.0063	-0.0015	-0.24	0.0090	-0.0012	-0.16	OE
V6AJKV		0.0039	-0.0040	-0.64	0.0064	-0.0038	-0.49	IC
VH6UNG		0.0150	0.0072	1.16	0.0150	0.0048	0.63	XX
VUZC6V		0.0031	-0.0048	-0.77	0.0058	-0.0044	-0.57	IC
X6TEKA		0.0070	-0.0008	-0.14	0.0060	-0.0042	-0.55	XX
YXTGAC		0.0097	0.0018	0.30	0.0120	0.0018	0.24	OE

Summary Statistics

	Sample K97		Sample K98	
Grand Means	0.00784	Percent	0.01020	Percent
Stnd Dev Btwn Labs	0.00617	Percent	0.00763	Percent

Statistics based on 17 of 17 reporting participants

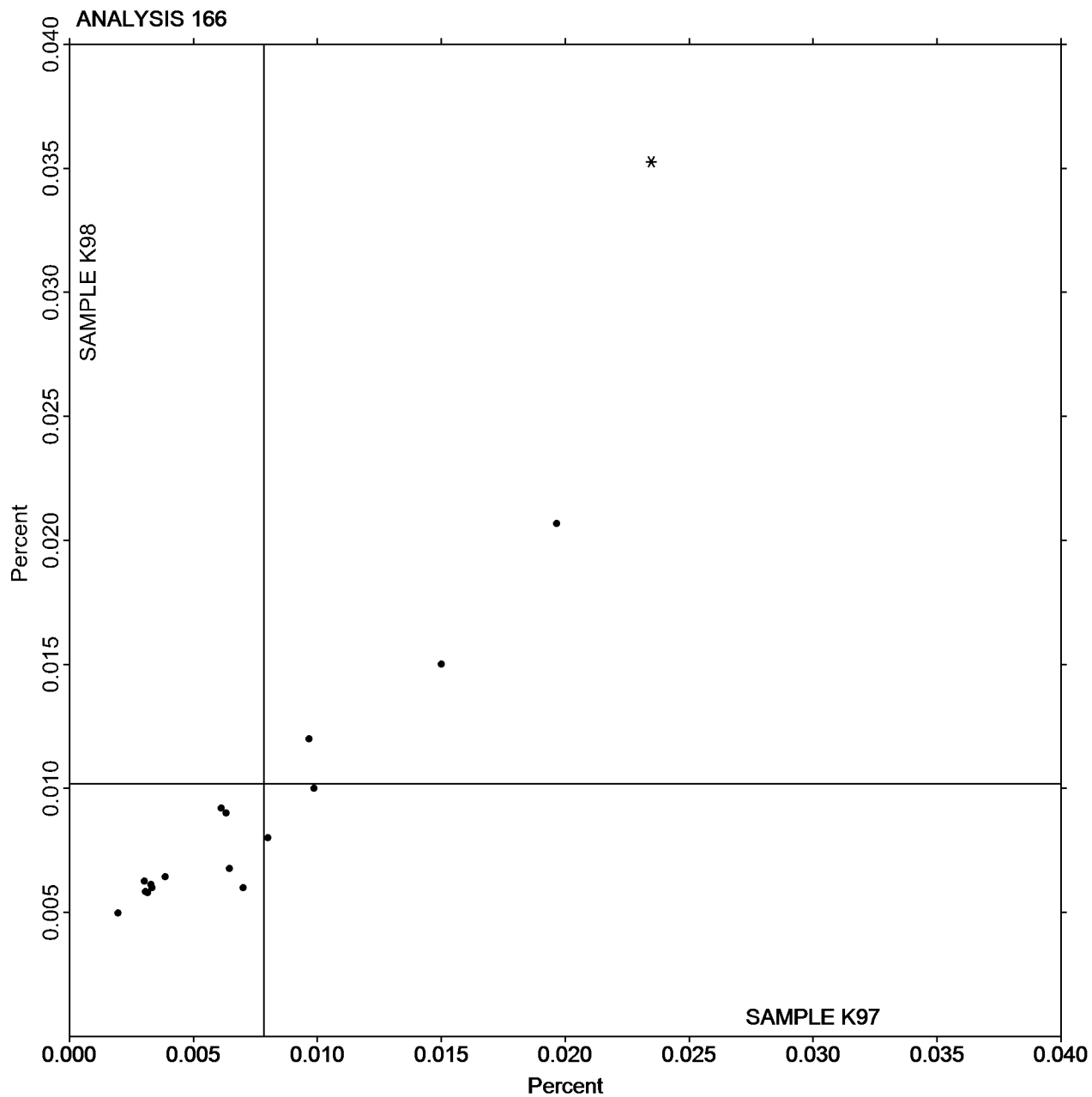
Samples K97 , K98 : CDA 630, two different heats

Analysis 166

Chemical Analysis Element #7: Copper-based Alloy - Percent

LEAD (Pb)

SAMPLE K97 = 0.00784 Percent SAMPLE K98 = 0.01020 Percent



Analysis 167

Chemical Analysis Element #8: Copper-based Alloy - Percent
ZINC (Zn)

WebCode	Data Flag	Sample K97			Sample K98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2FK6T7	*	0.084	-0.010	-1.37	0.106	-0.020	-2.32	XX
43TKJD		0.100	0.006	0.84	0.133	0.008	0.89	OE
4LYL8Y		0.098	0.004	0.52	0.131	0.005	0.61	OE
8936Z8		0.100	0.006	0.79	0.132	0.006	0.69	OE
A6PAY9		0.097	0.003	0.38	0.134	0.008	0.97	OE
AUUWL3	X	0.140	0.046	6.35	0.113	-0.012	-1.46	XX
AXW8ZW		0.094	0.000	-0.02	0.122	-0.004	-0.49	XX
BHLWF2	X	0.140	0.046	6.35	0.150	0.024	2.85	GD
CP66AY		0.096	0.002	0.33	0.126	0.000	0.03	XX
DGZQQG		0.090	-0.004	-0.54	0.130	0.004	0.50	OE
E3HFHK		0.095	0.001	0.10	0.127	0.002	0.18	IC
FD96GB		0.097	0.003	0.38	0.124	-0.002	-0.21	OE
FPB44B		0.100	0.007	0.90	0.132	0.006	0.70	IC
GERZKH		0.090	-0.004	-0.59	0.123	-0.003	-0.36	OE
HJQMAH	X	2.054	1.960	270.30	2.076	1.951	229.30	XR
HLH79F		0.083	-0.011	-1.46	0.119	-0.007	-0.83	XX
HM7TJR		0.101	0.007	0.93	0.132	0.006	0.73	OE
KH99RY	*	0.070	-0.024	-3.25	0.099	-0.027	-3.15	OE
L6F3DV		0.084	-0.010	-1.42	0.115	-0.010	-1.23	OE
LRE8WY	X	0.092	-0.002	-0.22	0.108	-0.018	-2.09	XX
PEJRP2		0.094	0.000	0.01	0.128	0.003	0.30	OE
QQB Y3W		0.103	0.009	1.20	0.135	0.010	1.12	DR
RLRMK2		0.100	0.006	0.88	0.130	0.005	0.54	OE
T3FW2G		0.093	-0.001	-0.08	0.125	0.000	-0.05	OE
TRF4UB		0.102	0.008	1.07	0.135	0.009	1.05	IC
XDAQZV		0.098	0.004	0.52	0.130	0.004	0.50	IC
XQMF4X		0.096	0.002	0.24	0.127	0.002	0.18	OE
Y9U86C		0.091	-0.003	-0.45	0.123	-0.003	-0.36	WD
ZFDMUU		0.096	0.002	0.34	0.127	0.001	0.14	OE
ZKRTKE		0.092	-0.002	-0.22	0.125	-0.001	-0.13	OE

Summary Statistics

	Sample K97		Sample K98	
Grand Means	0.0939	Percent	0.1260	Percent
Std Dev Btwn Labs	0.0073	Percent	0.0085	Percent

Statistics based on 26 of 30 reporting participants

Samples K97 , K98 : CDA 630, two different heats

Comments on assigned Data Flags for Test #167

AUUWL3 (X) - Inconsistent in testing between samples and inconsistent within the determinations for both samples. Data for Sample K97 are high.

BHLWF2 (X) - Data for both samples are high.

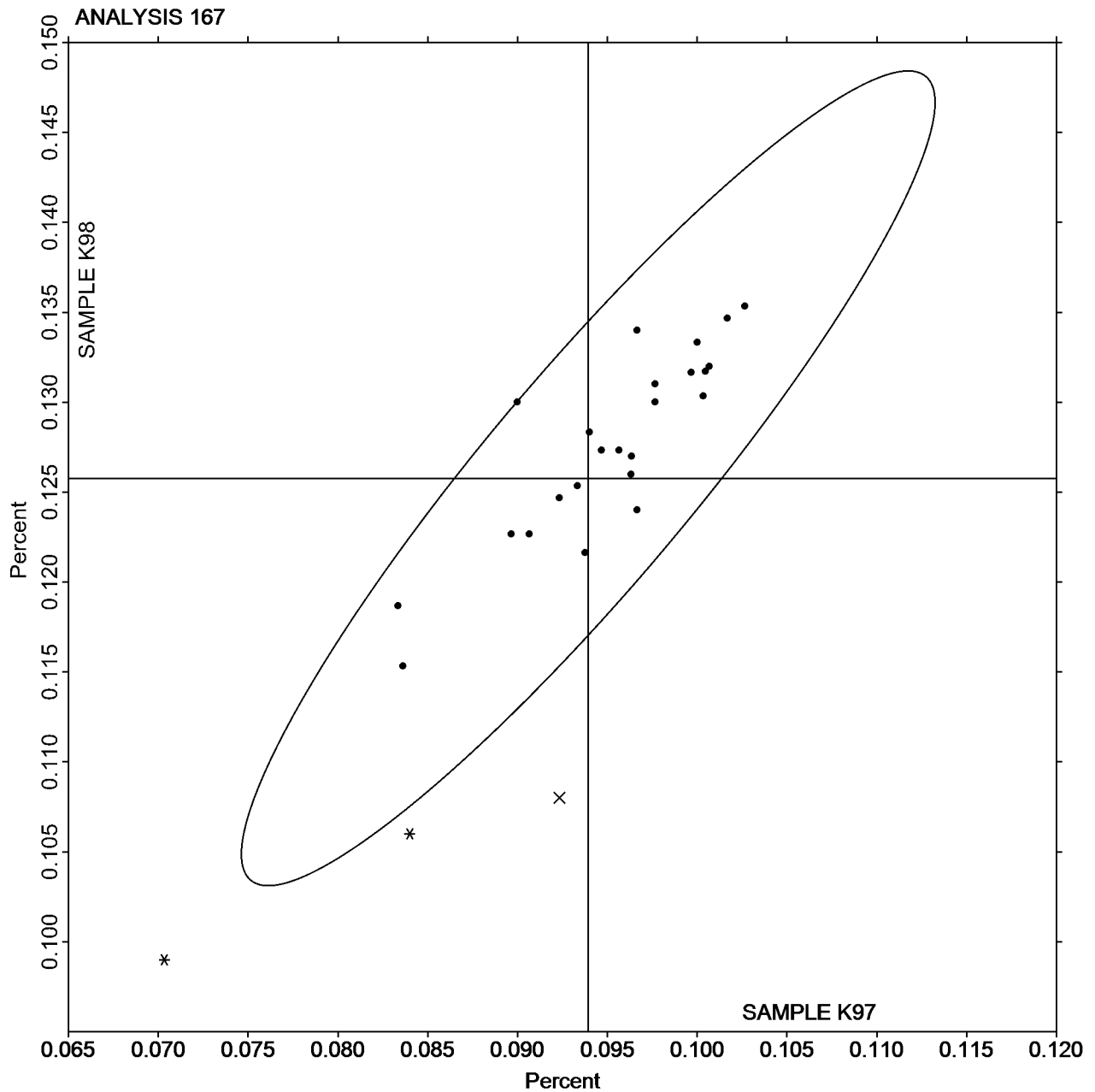
HJQMAH (X) - Extreme data.

LRE8WY (X) - Inconsistent in testing between samples and inconsistent within the determinations for Sample 97.

Analysis 167

Chemical Analysis Element #8: Copper-based Alloy - Percent
ZINC (Zn)

SAMPLE K97 = 0.0939 Percent SAMPLE K98 = 0.1260 Percent



Analysis 180

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2FPV8L		0.058	-0.001	-0.28	0.057	0.001	0.42	CI
36ZHEF	*	0.052	-0.007	-2.31	0.047	-0.009	-2.84	CO
3P64BF		0.055	-0.005	-1.46	0.052	-0.004	-1.21	OE
3TPCY8		0.061	0.002	0.68	0.056	0.001	0.31	CI
4VJKDN		0.061	0.001	0.47	0.057	0.001	0.42	OE
6Y23H6		0.062	0.002	0.79	0.057	0.001	0.42	OE
7JDH4B		0.057	-0.002	-0.60	0.054	-0.001	-0.34	DR
7KQLK3		0.059	0.000	0.04	0.055	0.000	-0.16	CI
8KYQ8K		0.059	0.000	0.04	0.057	0.001	0.42	OE
8UNZQT		0.060	0.001	0.24	0.057	0.002	0.51	OE
Aefgpy		0.059	-0.001	-0.19	0.056	0.001	0.29	XX
BPYP87		0.054	-0.005	-1.59	0.051	-0.004	-1.43	OE
BTKHBL		0.064	0.005	1.64	0.061	0.005	1.73	OE
CCUVA2		0.058	-0.001	-0.39	0.053	-0.002	-0.78	CO
CY7TTV		0.061	0.002	0.58	0.059	0.004	1.18	CI
DPVQ4N		0.060	0.001	0.25	0.056	0.001	0.20	OE
DTKK9A		0.057	-0.002	-0.62	0.052	-0.004	-1.23	DR
E2QL92		0.061	0.002	0.58	0.057	0.002	0.64	OE
EDLA84		0.064	0.004	1.43	0.059	0.004	1.29	OE
EKHGFC		0.059	0.000	0.08	0.056	0.001	0.21	CO
GNMKY4	*	0.065	0.006	1.95	0.059	0.004	1.16	CO
J3G8HM		0.060	0.001	0.25	0.056	0.001	0.31	DE
JE2VUF		0.059	0.000	-0.07	0.056	0.001	0.31	XX
K2C99K		0.061	0.002	0.58	0.056	0.001	0.20	GD
KAJMV2		0.053	-0.006	-1.88	0.050	-0.005	-1.74	OE
KJ2BJ9		0.057	-0.002	-0.71	0.054	-0.001	-0.45	CE
L4J9G6		0.063	0.003	1.11	0.058	0.002	0.75	CO
L6FEMJ		0.061	0.001	0.47	0.057	0.001	0.40	CO
LFTYQ8		0.061	0.002	0.58	0.057	0.001	0.42	OE
LVU64G	X	0.012	-0.048	-15.30	0.011	-0.045	-14.56	OE
Q88FKN		0.058	-0.001	-0.31	0.053	-0.003	-0.84	CI
QKDUXL		0.057	-0.002	-0.71	0.053	-0.002	-0.67	CI
QRJKH6		0.061	0.002	0.58	0.057	0.001	0.42	OE
RLPFDK		0.058	-0.001	-0.28	0.054	-0.001	-0.34	OE
RQH8CN		0.057	-0.002	-0.76	0.052	-0.003	-0.96	CI
RVX4AQ		0.060	0.001	0.25	0.062	0.007	2.16	OE
TBUHC7		0.062	0.003	0.90	0.058	0.002	0.75	OE
TL2338		0.061	0.002	0.62	0.058	0.002	0.81	CI
U9UMK9	X	0.048	-0.012	-3.70	0.050	-0.005	-1.65	OE
URLH9P		0.060	0.001	0.25	0.056	0.001	0.31	OE
VZHL3E	*	0.051	-0.008	-2.52	0.047	-0.008	-2.73	XX
WEZCHD		0.062	0.003	1.00	0.057	0.002	0.64	OE
WL9JPV		0.061	0.002	0.49	0.056	0.001	0.33	OE
XRJTVW		0.059	-0.001	-0.20	0.056	0.001	0.17	OE
YAKZW4		0.053	-0.006	-1.99	0.051	-0.004	-1.43	OE

Analysis 180

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
YQFQGC		0.064	0.005	1.54	0.061	0.006	1.84	OE
YWMUCW		0.055	-0.004	-1.28	0.051	-0.004	-1.39	CM
Z6EKEJ		0.061	0.001	0.47	0.057	0.001	0.42	CI
Z6WFZR		0.058	-0.001	-0.39	0.055	-0.001	-0.23	OE
ZA8N3G		0.060	0.001	0.25	0.057	0.002	0.53	CO
ZAQ6AQ	X	0.071	0.012	3.81	0.064	0.009	2.85	CO
ZBZY2J		0.062	0.003	1.04	0.059	0.003	1.07	CO
ZXFEP4		0.058	-0.001	-0.34	0.055	0.000	-0.13	DR

Summary Statistics

	Sample M97		Sample M98	
Grand Means	0.0592	Percent	0.0550	Percent
Stnd Dev Btwn Labs	0.0031	Percent	0.0031	Percent

Statistics based on 49 of 53 reporting participants

Samples M97 , M98 : AISI 309, two different heats

Comments on assigned Data Flags for Test #180

LVU64G (X) - Extreme data.

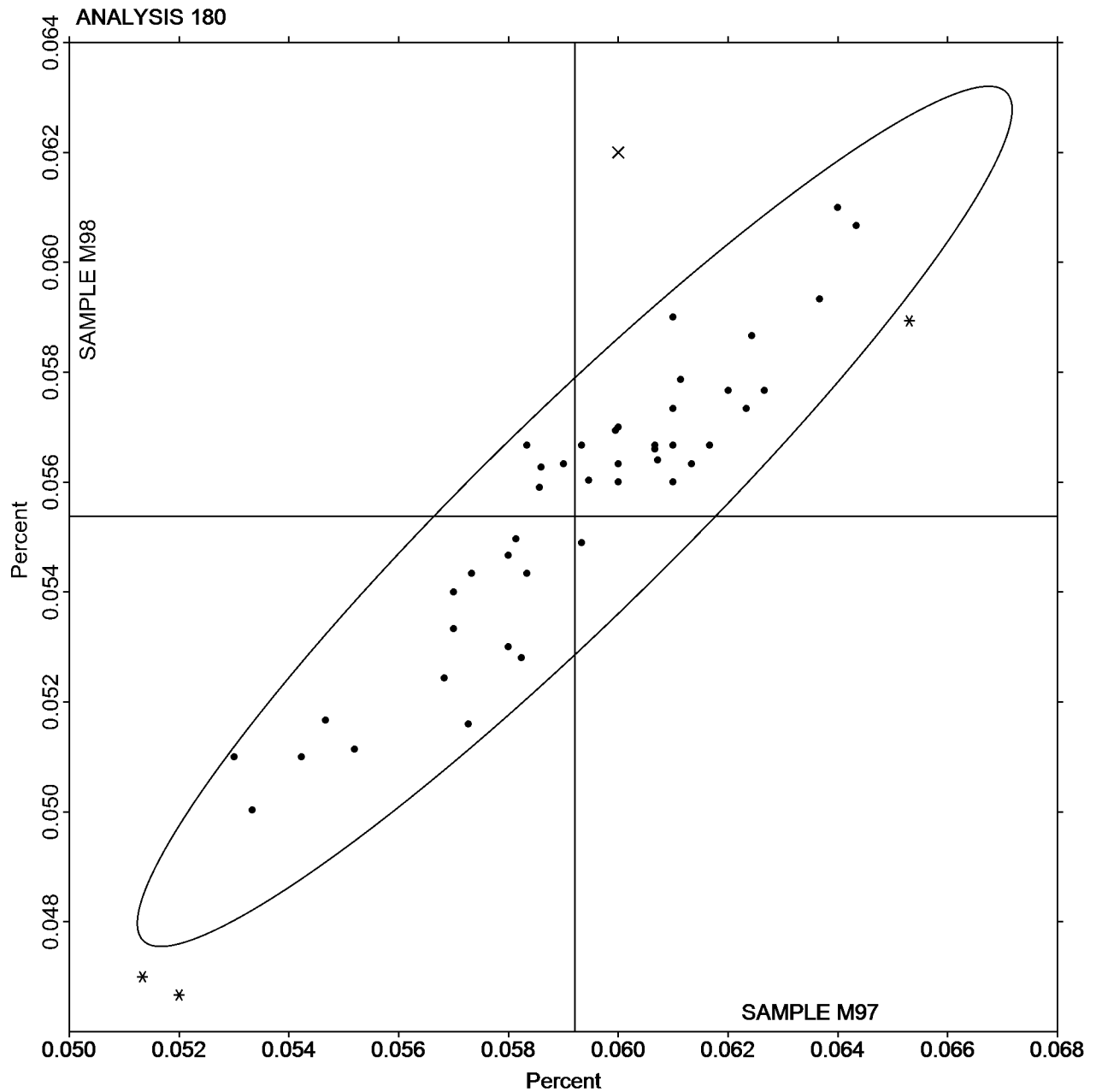
U9UMK9 (X) - Inconsistent in testing between samples, data for Sample M97 are low. Inconsistency within the determinations for both samples.

ZAQ6AQ (X) - Data for both samples are high. Inconsistency within the determinations for both samples.

Analysis 180

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

SAMPLE M97 = 0.0592 Percent SAMPLE M98 = 0.0550 Percent



Analysis 181

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2R4TCQ		1.653	-0.012	-0.64	1.611	-0.011	-0.61	DC
2YN2NT		1.650	-0.015	-0.78	1.620	-0.002	-0.14	OE
33M63E		1.660	-0.005	-0.25	1.613	-0.009	-0.50	DR
34VPZA		1.690	0.025	1.35	1.647	0.024	1.32	OE
3LBRKG		1.630	-0.035	-1.85	1.583	-0.039	-2.14	WD
3V28FC		1.665	0.000	0.00	1.623	0.001	0.05	OE
7AH6GB	*	1.660	-0.005	-0.25	1.650	0.028	1.51	AA
7NC7RR		1.673	0.009	0.46	1.637	0.014	0.78	OE
7P6KD3		1.653	-0.012	-0.64	1.619	-0.004	-0.21	OE
7X97FB		1.654	-0.010	-0.55	1.610	-0.012	-0.67	WD
88R9NB		1.699	0.034	1.81	1.643	0.021	1.14	IC
93JDCE		1.670	0.005	0.28	1.623	0.001	0.05	XR
9F7UKQ		1.656	-0.008	-0.45	1.617	-0.005	-0.28	OE
9P6CJ2		1.649	-0.016	-0.84	1.601	-0.022	-1.19	WD
9VY2B7		1.654	-0.011	-0.57	1.617	-0.006	-0.32	WD
A7Q8JV		1.662	-0.003	-0.14	1.642	0.020	1.09	DR
AXYUGA		1.700	0.035	1.88	1.653	0.031	1.69	OE
BFULZM		1.668	0.003	0.17	1.616	-0.006	-0.36	OE
BNT6J7		1.708	0.043	2.28	1.660	0.038	2.05	OE
BZY7U2	*	1.717	0.052	2.78	1.656	0.034	1.85	OE
C2BTAZ		1.685	0.020	1.06	1.637	0.015	0.79	OE
CAPEH4		1.690	0.025	1.35	1.637	0.014	0.78	OE
D4AT8C		1.663	-0.002	-0.11	1.620	-0.003	-0.15	IC
D7K3NV		1.665	0.000	0.00	1.614	-0.008	-0.46	WD
DPVWCV	X	1.591	-0.074	-3.92	1.539	-0.084	-4.59	OE
DYLDAC	X	2.097	0.432	22.98	2.037	0.414	22.67	OE
E94GNP		1.650	-0.015	-0.78	1.610	-0.012	-0.67	DR
EBMAQQ		1.656	-0.008	-0.45	1.602	-0.021	-1.14	WD
EP836P		1.662	-0.002	-0.13	1.620	-0.002	-0.14	OE
G62JR8		1.687	0.022	1.19	1.621	-0.001	-0.08	DR
G7W9PA		1.657	-0.008	-0.41	1.616	-0.006	-0.34	OE
GQBWXA		1.660	-0.004	-0.23	1.624	0.002	0.10	OE
HV298H		1.651	-0.013	-0.72	1.612	-0.011	-0.60	OE
LGTH3E		1.640	-0.025	-1.31	1.610	-0.012	-0.68	OE
MQFU3Y		1.665	0.000	0.00	1.618	-0.004	-0.25	OE
NBWL4E	X	1.587	-0.078	-4.13	1.549	-0.073	-4.00	OE
ND8QAU		1.672	0.007	0.37	1.648	0.026	1.41	OE
NXR7J4		1.650	-0.015	-0.79	1.601	-0.021	-1.16	OE
PBY8D7	X	1.743	0.079	4.18	1.707	0.084	4.61	GD
Q9NRYR		1.649	-0.016	-0.85	1.621	-0.001	-0.06	OE
QFYGTR	*	1.698	0.033	1.77	1.672	0.050	2.73	OE
RJ3A64		1.660	-0.005	-0.25	1.627	0.004	0.23	OE
RPU7KY		1.667	0.002	0.10	1.620	-0.002	-0.14	OE
UN2XYE		1.640	-0.025	-1.33	1.596	-0.026	-1.45	OE
V3PHP9	X	1.687	0.022	1.17	1.587	-0.036	-1.96	GD

Analysis 181

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
VXRRWX		1.633	-0.032	-1.70	1.614	-0.008	-0.45	OE
W92VDR		1.660	-0.005	-0.25	1.610	-0.012	-0.68	XR
WFEE97	X	1.820	0.155	8.26	1.780	0.158	8.62	OE
WJH2BB		1.680	0.015	0.81	1.627	0.004	0.23	OE
WXCNEG		1.657	-0.008	-0.41	1.605	-0.017	-0.96	WD
YY7K7U		1.660	-0.005	-0.25	1.617	-0.006	-0.32	OE
YZ9Z3T		1.652	-0.013	-0.68	1.597	-0.025	-1.38	OE
Z9VGTF		1.659	-0.006	-0.32	1.607	-0.016	-0.87	OE
ZGPWTY		1.670	0.005	0.28	1.633	0.011	0.59	XX

Summary Statistics

	Sample M97		Sample M98	
Grand Means	1.6647	Percent	1.6220	Percent
Stnd Dev Btwn Labs	0.0188	Percent	0.0183	Percent

Statistics based on 48 of 54 reporting participants

Samples M97 , M98 : AISI 309, two different heats

Comments on assigned Data Flags for Test #181

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

DYLDAC (X) - Extreme data.

NBWL4E (X) - Data for both samples are low.

PBY8D7 (X) - Data for both samples are high and inconsistency within the determinations for Sample M98.

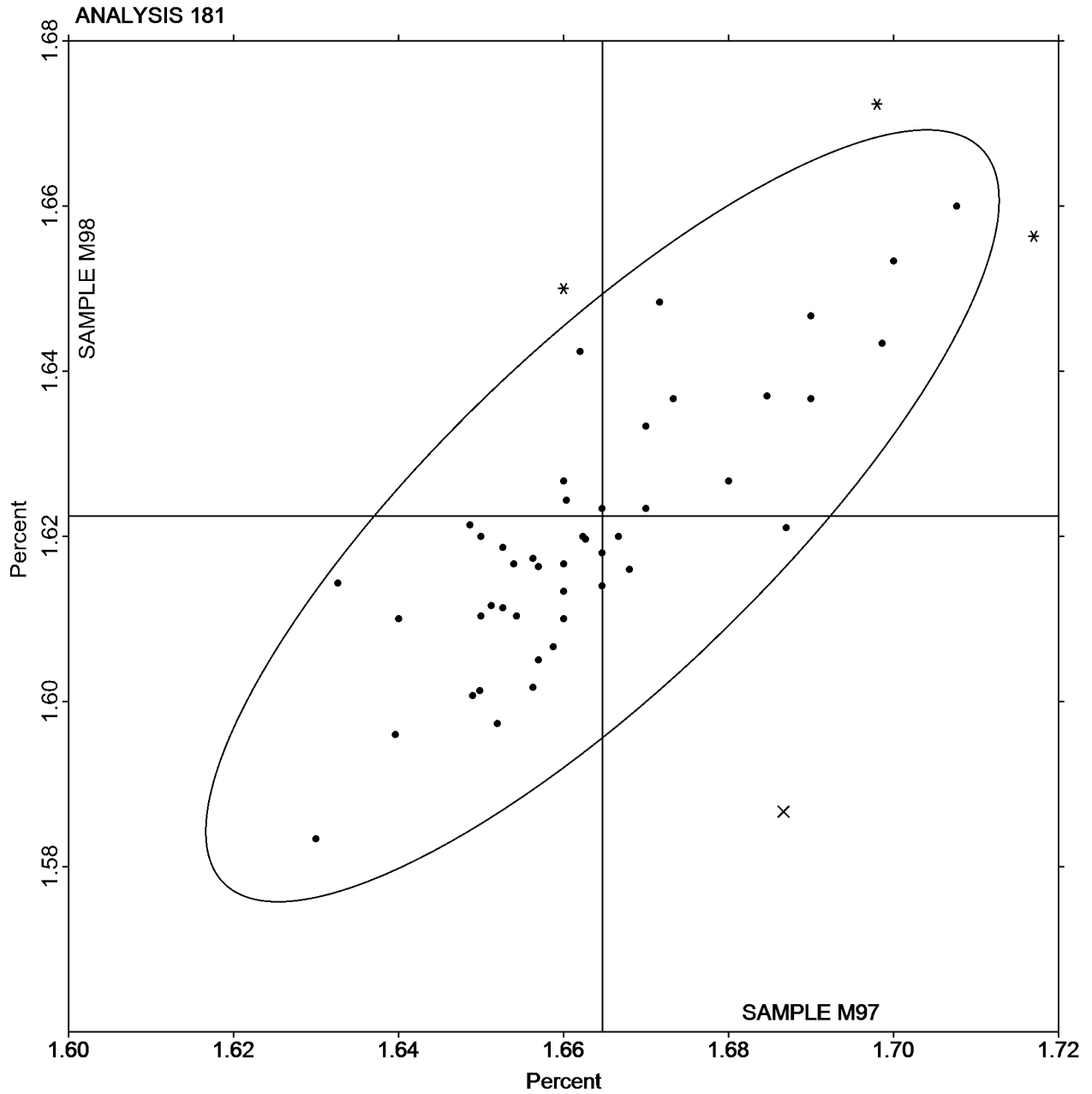
V3PHP9 (X) - Inconsistent in testing between samples and inconsistent within the determinations for Sample M97.

WFEE97 (X) - Extreme data.

Analysis 181

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

SAMPLE M97 = 1.6647 Percent SAMPLE M98 = 1.6220 Percent



Analysis 182

Chemical Analysis Element #3 - Corrosion Resistant Steel - Percent
NITROGEN (N)

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
3BZQBP		0.072	0.002	0.53	0.065	0.001	0.36	OE
6UUDGJ	X	0.108	0.038	13.07	0.095	0.032	8.41	OE
74YQU6		0.071	0.001	0.18	0.063	0.000	-0.08	CI
7HM9Z2		0.070	0.000	-0.17	0.064	0.000	0.10	OE
7RCZMT		0.064	-0.006	-2.14	0.056	-0.008	-2.02	OE
8UPPYW		0.072	0.002	0.65	0.066	0.002	0.54	CO
AVTAUA	*	0.064	-0.007	-2.37	0.059	-0.005	-1.23	OE
BGC6A7		0.073	0.002	0.71	0.066	0.002	0.60	CO
CCRHTF		0.070	0.000	-0.05	0.065	0.002	0.45	OE
EQLCAJ		0.070	-0.001	-0.28	0.063	-0.001	-0.25	OE
F4YCB3		0.074	0.004	1.34	0.069	0.005	1.34	OE
FJVXTB		0.070	-0.001	-0.28	0.064	0.000	0.01	CO
FRTKWF		0.065	-0.005	-1.86	0.054	-0.010	-2.54	CM
GMGCE6		0.074	0.003	1.16	0.066	0.003	0.74	CO
H772YW		0.071	0.000	0.11	0.063	0.000	-0.06	XX
LNXC6M		0.071	0.001	0.31	0.064	0.001	0.14	CI
N2BDR4		0.068	-0.002	-0.70	0.061	-0.003	-0.74	CO
N7RWAR		0.069	-0.001	-0.40	0.063	-0.001	-0.25	CO
NATTMM		0.074	0.004	1.23	0.066	0.002	0.63	XX
NYAEL7		0.071	0.000	0.02	0.064	0.001	0.21	CO
TB7LFW		0.073	0.003	1.00	0.065	0.002	0.45	CI
V7VDZK		0.070	0.000	-0.03	0.061	-0.002	-0.57	CO
WTWQFL	*	0.072	0.002	0.53	0.072	0.008	2.22	OE
ZLXVW7		0.072	0.001	0.50	0.063	0.000	-0.07	CO

Summary Statistics

	Sample M97		Sample M98	
Grand Means	0.0705	Percent	0.0640	Percent
Stnd Dev Btwn Labs	0.0029	Percent	0.0038	Percent

Statistics based on 23 of 24 reporting participants

Samples M97 , M98 : AISI 309, two different heats

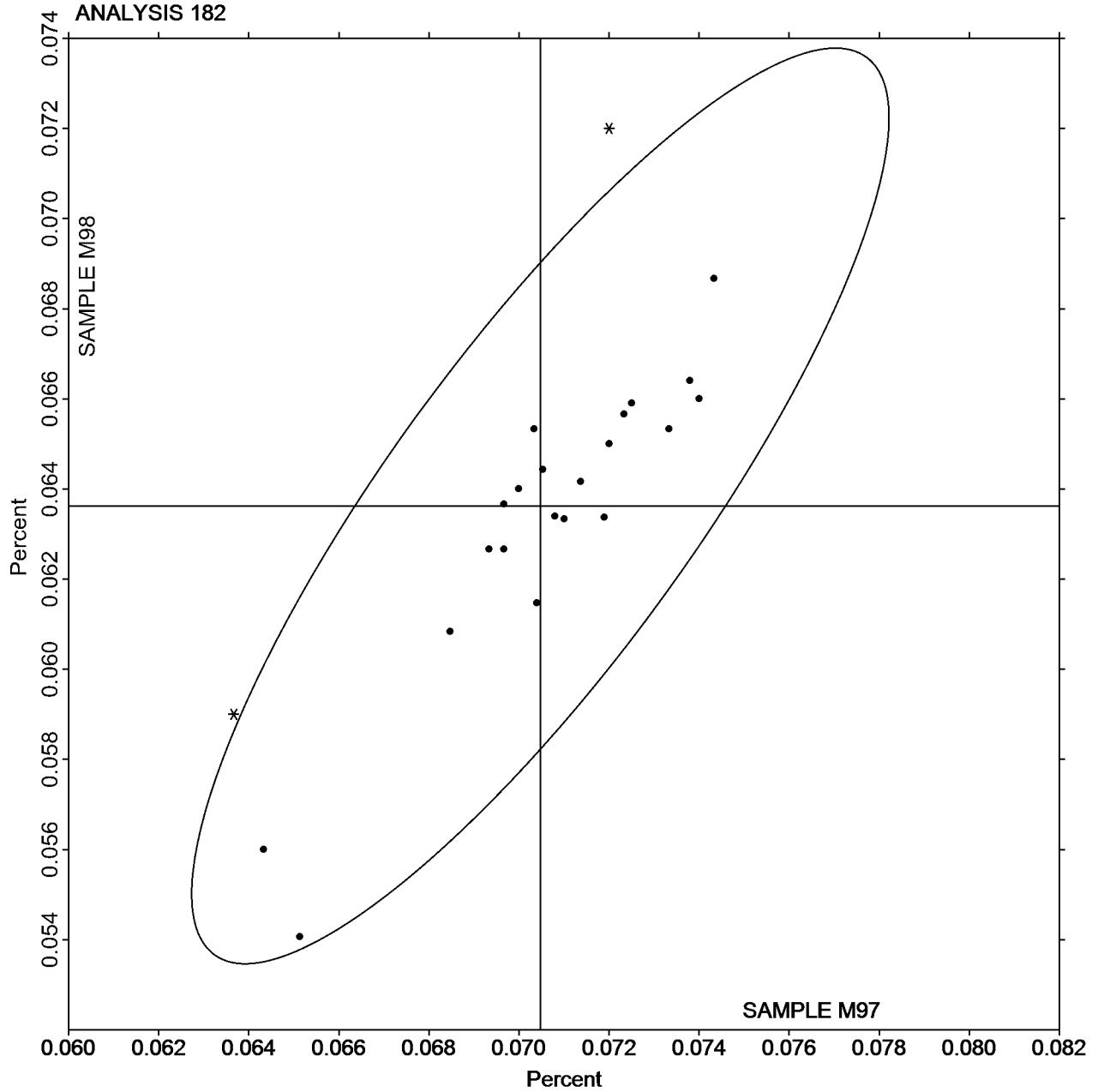
Comments on assigned Data Flags for Test #182

6UUDGJ (X) - Extreme data.

Analysis 182

Chemical Analysis Element #3 - Corrosion Resistant Steel - Percent
NITROGEN (N)

SAMPLE M97 = 0.0705 Percent SAMPLE M98 = 0.0640 Percent



Analysis 183

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2M9K2A		0.077	-0.006	-1.64	0.107	-0.012	-2.22	OE
38WJNJ		0.079	-0.003	-0.96	0.117	-0.001	-0.23	DR
4C69JC		0.083	0.000	0.01	0.117	-0.002	-0.30	OE
4JE4DZ	*	0.080	-0.003	-0.86	0.106	-0.013	-2.48	OE
6ZZH2B		0.087	0.004	1.17	0.124	0.005	1.05	WD
98K7TH		0.084	0.001	0.39	0.120	0.001	0.28	OE
99EUAR		0.079	-0.003	-0.96	0.121	0.002	0.41	OE
9QLG77		0.081	-0.001	-0.41	0.118	-0.001	-0.10	OE
BCWHEP		0.084	0.001	0.39	0.122	0.003	0.67	OE
CB3Q4A		0.080	-0.003	-0.86	0.117	-0.002	-0.36	XR
CYP7GD		0.088	0.005	1.46	0.126	0.007	1.44	OE
DDYT7F		0.083	0.000	0.10	0.116	-0.003	-0.49	OE
DRXPF2		0.083	0.000	0.10	0.118	-0.001	-0.10	OE
E7W2DC	*	0.083	0.001	0.15	0.109	-0.010	-1.90	DC
E9UQ2K		0.087	0.004	1.27	0.122	0.004	0.73	OE
EAZLEQ		0.080	-0.002	-0.67	0.120	0.002	0.35	DR
EHUPMU		0.080	-0.003	-0.77	0.115	-0.003	-0.62	XX
EVKMHQ		0.082	0.000	-0.09	0.121	0.003	0.54	OE
F3RP7B	X	0.008	-0.074	-21.57	0.009	-0.109	-21.06	OE
FDTA7H		0.083	0.000	0.10	0.119	0.000	0.02	OE
FDWKDM		0.087	0.004	1.17	0.121	0.002	0.41	OE
GCJQR		0.079	-0.004	-1.16	0.118	-0.001	-0.17	WD
GFKXNH		0.077	-0.005	-1.54	0.112	-0.006	-1.19	XX
HGLXVN		0.082	-0.001	-0.19	0.120	0.002	0.35	WD
HZGGZM		0.083	0.000	0.10	0.118	-0.001	-0.10	OE
K7DZ6P	*	0.093	0.010	2.91	0.130	0.011	2.14	OE
KU6J8L		0.080	-0.003	-0.77	0.120	0.001	0.28	OE
LLCULV		0.085	0.003	0.78	0.127	0.008	1.57	OE
M7W8CQ		0.083	0.000	0.10	0.115	-0.003	-0.62	OE
MKBBYK		0.082	0.000	-0.09	0.122	0.003	0.60	OE
MTU4GJ	X	0.070	-0.013	-3.67	0.101	-0.017	-3.31	XX
N7RPWL		0.079	-0.004	-1.06	0.109	-0.010	-1.84	OE
PD37TZ		0.077	-0.005	-1.54	0.114	-0.004	-0.81	XR
PQWK74		0.083	0.001	0.21	0.122	0.003	0.60	OE
QKWB3A		0.084	0.001	0.30	0.123	0.004	0.86	IC
R7WNQX		0.083	0.000	0.01	0.119	0.001	0.15	OE
TCCGVN		0.081	-0.002	-0.48	0.119	0.001	0.15	IC
U3BBUM		0.084	0.002	0.45	0.117	-0.002	-0.32	OE
UQRURF		0.086	0.003	0.88	0.107	-0.011	-2.16	OE
UUR6VU		0.081	-0.002	-0.57	0.115	-0.004	-0.68	OE
WFHDNE		0.084	0.002	0.49	0.121	0.002	0.41	WO
WR9KNJ		0.084	0.001	0.43	0.120	0.001	0.28	WD
WYUUEL		0.086	0.003	0.98	0.123	0.004	0.86	OE
X927RV		0.080	-0.003	-0.81	0.116	-0.002	-0.46	OE
Y7X4R4	*	0.092	0.010	2.82	0.131	0.012	2.34	GD

Analysis 183

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
YAQ9EF		0.079	-0.004	-1.16	0.111	-0.008	-1.52	DR
YGBD6V		0.084	0.002	0.48	0.116	-0.002	-0.42	CM
YZPKMJ		0.080	-0.003	-0.77	0.120	0.001	0.28	DR
ZLXVUL		0.086	0.003	0.98	0.119	0.001	0.15	OE

Summary Statistics

	Sample M97		Sample M98	
Grand Means	0.0826	Percent	0.1190	Percent
Std Dev Btwn Labs	0.0034	Percent	0.0052	Percent

Statistics based on 46 of 49 reporting participants

Samples M97 , M98 : AISI 309, two different heats

Comments on assigned Data Flags for Test #183

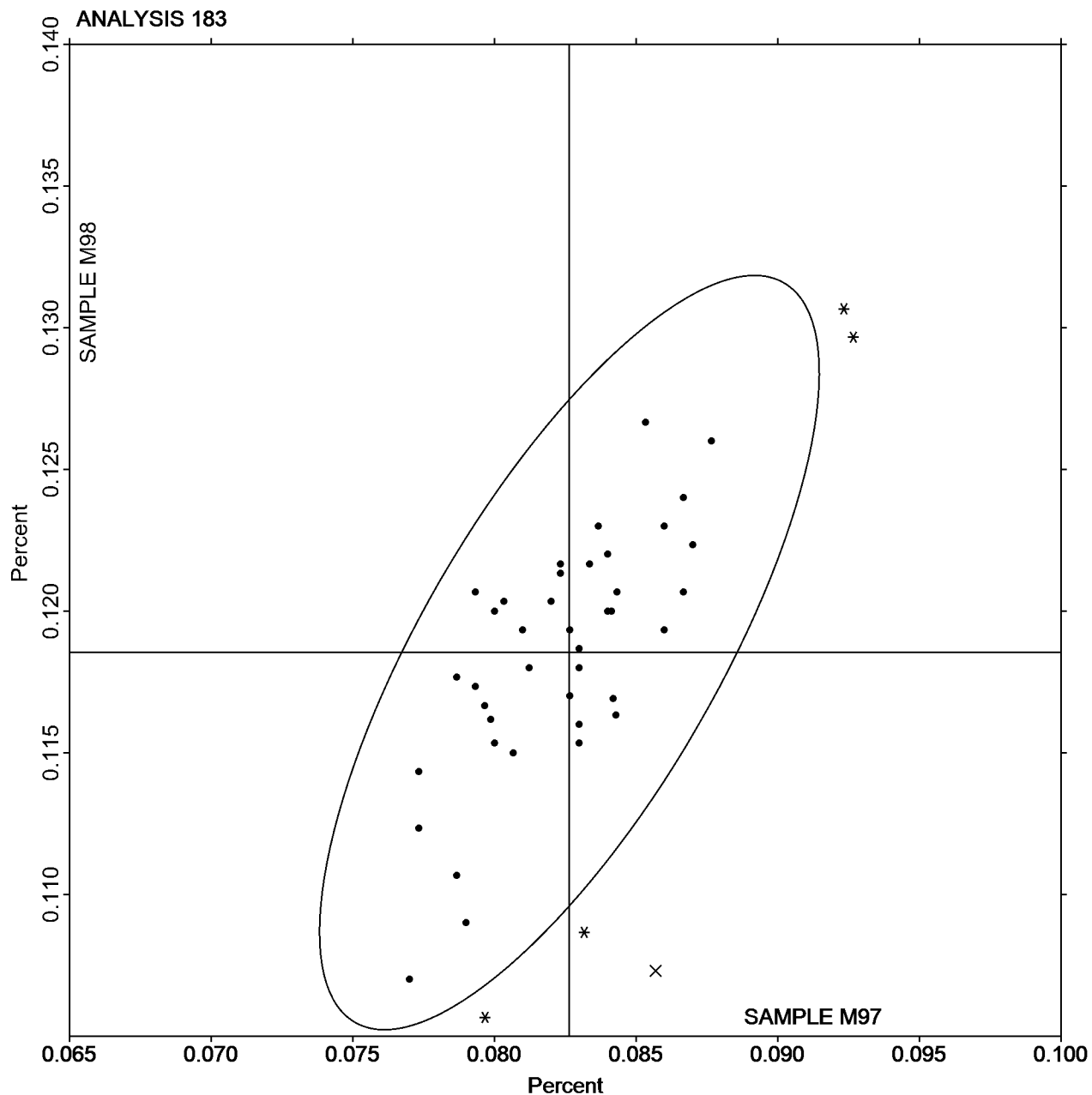
F3RP7B (X) - Extreme data.

MTU4GJ (X) - Data for both samples are low.

Analysis 183

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

SAMPLE M97 = 0.0826 Percent SAMPLE M98 = 0.1190 Percent



Analysis 184

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CLCW8		0.320	0.006	0.49	0.325	0.009	0.67	OE
2CZ9XZ		0.292	-0.023	-1.86	0.294	-0.022	-1.68	OE
2DLNXM		0.318	0.004	0.30	0.318	0.002	0.13	OE
2DQYZL		0.312	-0.003	-0.22	0.310	-0.006	-0.49	DR
2HB72E		0.292	-0.022	-1.81	0.290	-0.026	-2.05	WD
2MAEKF		0.302	-0.013	-1.04	0.304	-0.012	-0.96	OE
2MTVQP	X	0.448	0.133	10.93	0.432	0.116	9.03	OE
348URE		0.295	-0.019	-1.59	0.297	-0.019	-1.45	OE
37T3XN		0.310	-0.004	-0.33	0.311	-0.005	-0.41	OE
3X8CQ9		0.313	-0.001	-0.09	0.316	0.000	-0.01	DR
44BZZ8		0.316	0.002	0.13	0.322	0.006	0.50	OE
46CCEV		0.318	0.004	0.30	0.321	0.005	0.37	OE
63MMPU		0.316	0.001	0.10	0.314	-0.002	-0.18	OE
69V46A		0.305	-0.010	-0.80	0.307	-0.009	-0.69	OE
6TERDV		0.318	0.004	0.32	0.318	0.002	0.19	IC
779EK2		0.332	0.017	1.42	0.337	0.021	1.66	OE
7D4RCJ		0.320	0.006	0.46	0.320	0.004	0.32	XR
7GTLJQ		0.327	0.013	1.03	0.331	0.015	1.15	OE
7K8PAN		0.313	-0.001	-0.09	0.317	0.001	0.08	OE
7PF87V	*	0.282	-0.032	-2.63	0.284	-0.032	-2.46	OE
8HJMQL		0.319	0.005	0.38	0.323	0.007	0.58	OE
8RFRG9		0.320	0.005	0.43	0.321	0.005	0.37	OE
9KM286		0.314	-0.001	-0.06	0.312	-0.004	-0.28	OE
AN7LUX		0.336	0.022	1.80	0.336	0.020	1.56	OE
APKREU		0.317	0.002	0.19	0.316	0.000	-0.02	DR
BTH88W	X	0.266	-0.048	-3.97	0.261	-0.055	-4.25	XX
CQDD9X		0.328	0.014	1.14	0.329	0.013	1.04	XX
CRMFVG	*	0.332	0.018	1.44	0.341	0.025	1.98	OE
EDFEAQ		0.314	0.000	0.00	0.313	-0.003	-0.20	OE
EJ9N7N		0.312	-0.002	-0.17	0.316	0.000	0.00	GD
EKJRBZ		0.324	0.010	0.79	0.324	0.008	0.63	DR
FMLWJE		0.308	-0.006	-0.50	0.310	-0.006	-0.44	CM
GCRWZ2		0.310	-0.004	-0.33	0.309	-0.007	-0.57	OE
GHQXWP		0.312	-0.002	-0.17	0.317	0.001	0.11	OE
GVEMLZ		0.307	-0.008	-0.63	0.303	-0.013	-0.98	DR
H224NX		0.333	0.019	1.56	0.334	0.018	1.39	OE
KPGZMW		0.329	0.014	1.17	0.330	0.014	1.12	OE
L4G97P		0.317	0.002	0.19	0.319	0.003	0.26	OE
M9WVLF		0.290	-0.025	-2.03	0.292	-0.024	-1.89	OE
MBWNFT		0.319	0.004	0.35	0.317	0.001	0.06	WD
MCL69M		0.340	0.025	2.07	0.344	0.028	2.18	OE
MDEX2K		0.313	-0.001	-0.11	0.316	0.000	0.00	WD
MQEVVJ		0.307	-0.008	-0.63	0.309	-0.007	-0.57	DR
RLCEHR		0.292	-0.022	-1.81	0.295	-0.021	-1.63	OE
U4KF8B		0.326	0.012	0.95	0.338	0.022	1.69	OE

Analysis 184

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
VAJAJP		0.327	0.013	1.06	0.330	0.014	1.07	OE
WKZX2Z		0.311	-0.003	-0.25	0.312	-0.004	-0.33	XX
WYBA8U		0.318	0.004	0.33	0.320	0.004	0.29	OE
X6LKCU		0.315	0.000	0.02	0.312	-0.004	-0.31	OE
XDFZBR		0.314	-0.001	-0.06	0.317	0.001	0.08	OE
XF2KJN		0.309	-0.006	-0.47	0.315	-0.001	-0.07	XR
ZKMOV8R		0.317	0.003	0.21	0.314	-0.002	-0.13	DC

Summary Statistics

	Sample M97		Sample M98	
Grand Means	0.3144	Percent	0.3160	Percent
Stnd Dev Btwn Labs	0.0122	Percent	0.0128	Percent
Statistics based on 49 of 52 reporting participants				

Samples M97 , M98 : AISI 309, two different heats

Comments on assigned Data Flags for Test #184

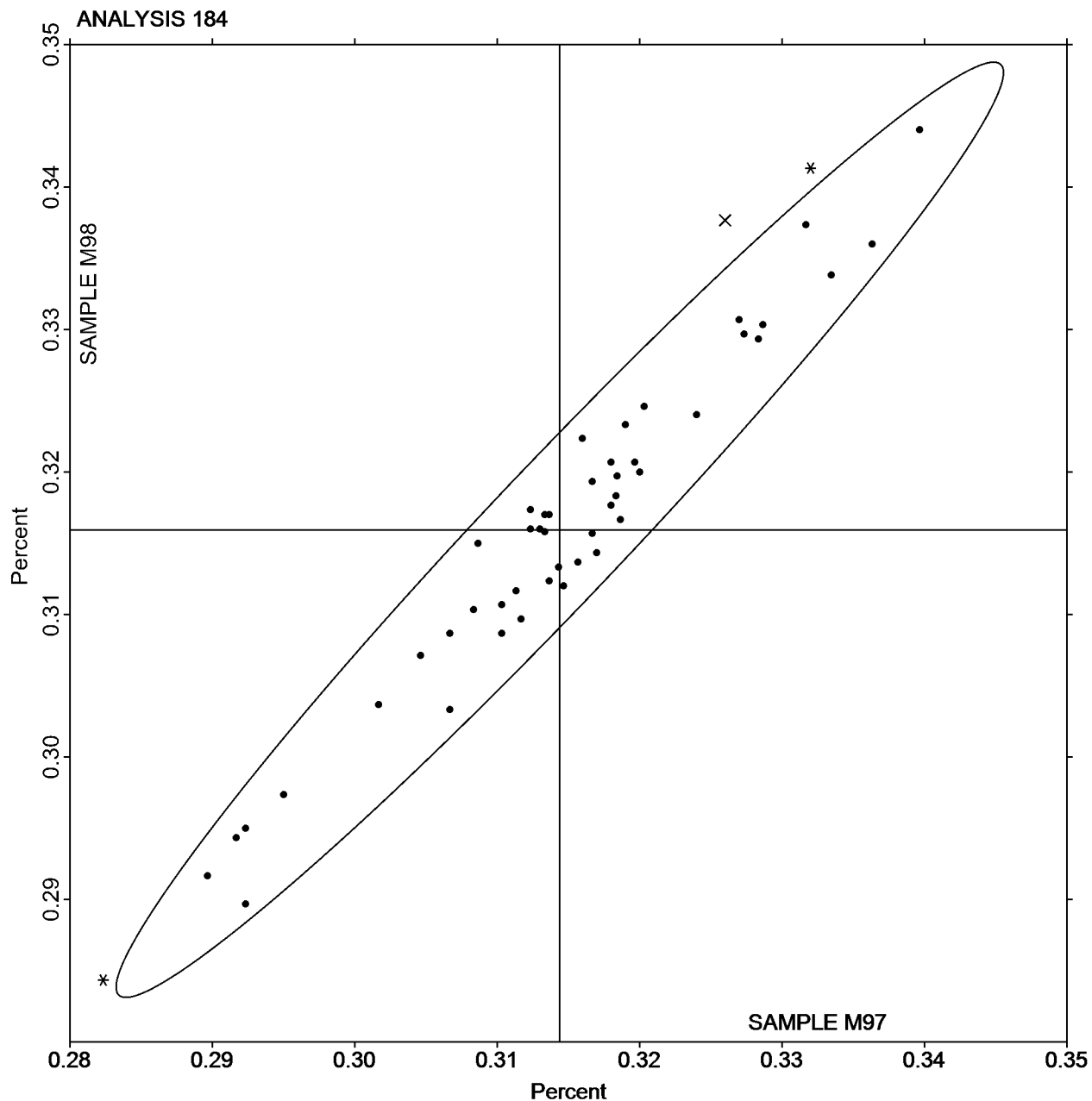
2MTVQP (X) - Extreme data.

BTH88W (X) - Data for both samples are low and inconsistent within the determinations for both samples.

Analysis 184

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

SAMPLE M97 = 0.3144 Percent SAMPLE M98 = 0.3160 Percent



Analysis 185

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2XEW9J		0.235	-0.014	-1.82	0.243	-0.015	-1.95	OE
3UJZFH		0.267	0.018	2.45	0.268	0.010	1.30	OE
3Y39HU		0.249	0.000	0.01	0.259	0.001	0.09	OE
4A4YXB		0.245	-0.004	-0.53	0.253	-0.005	-0.60	OE
4FMXX3	*	0.261	0.013	1.70	0.264	0.006	0.78	OE
4J8BU6		0.254	0.006	0.76	0.261	0.003	0.44	OE
4RQ4B3		0.242	-0.006	-0.84	0.253	-0.005	-0.65	XX
62XFH4		0.241	-0.007	-0.97	0.250	-0.008	-1.00	OE
77MFYH		0.250	0.001	0.18	0.260	0.002	0.26	XR
78UFDX		0.252	0.003	0.45	0.263	0.005	0.61	WD
7FE72J		0.235	-0.013	-1.77	0.248	-0.010	-1.30	OE
7FLQAT		0.250	0.001	0.18	0.262	0.004	0.48	OE
7VBPV9		0.248	-0.001	-0.13	0.255	-0.003	-0.33	OE
87YJ29		0.254	0.005	0.67	0.265	0.007	0.87	OE
8DUJF2		0.246	-0.003	-0.35	0.253	-0.005	-0.65	WD
9ZTXYY	*	0.229	-0.019	-2.57	0.242	-0.016	-2.12	DR
A4R6Y7		0.256	0.007	0.94	0.262	0.004	0.57	OE
C2VV24		0.248	0.000	-0.05	0.259	0.001	0.18	OE
D894AD		0.246	-0.003	-0.39	0.253	-0.005	-0.60	OE
D93RPN		0.253	0.004	0.54	0.260	0.002	0.26	OE
DV2KZ6		0.253	0.004	0.54	0.261	0.003	0.39	OE
DV4L6G		0.246	-0.003	-0.35	0.257	-0.001	-0.17	CM
E9JM4E		0.234	-0.015	-1.99	0.240	-0.018	-2.38	OE
ENJD8R		0.250	0.001	0.18	0.257	-0.001	-0.17	OE
H97CQQ		0.239	-0.010	-1.28	0.249	-0.009	-1.17	OE
HPM6WB		0.249	0.000	0.05	0.258	0.000	0.05	OE
HXZQUX		0.265	0.016	2.14	0.275	0.017	2.17	DR
J96WXQ	*	0.268	0.019	2.58	0.276	0.018	2.29	OE
JPDTBX		0.248	-0.001	-0.08	0.260	0.002	0.22	IC
K34AA3		0.245	-0.003	-0.44	0.249	-0.009	-1.13	DR
K8UFB6		0.240	-0.008	-1.11	0.244	-0.014	-1.78	OE
M2LXMG		0.249	0.001	0.09	0.262	0.004	0.52	GD
M3WY7U		0.245	-0.004	-0.48	0.258	0.000	0.05	OE
Q8F6CR		0.250	0.001	0.18	0.260	0.002	0.26	DR
QACM3L		0.252	0.003	0.41	0.262	0.004	0.52	OE
QJK8EV		0.253	0.004	0.58	0.263	0.005	0.70	XR
RDW3F7		0.247	-0.002	-0.22	0.259	0.001	0.09	XX
T3WX2X		0.250	0.001	0.14	0.259	0.001	0.09	OE
TMWNWX		0.242	-0.007	-0.88	0.252	-0.006	-0.75	OE
UGNE2F	*	0.254	0.005	0.72	0.270	0.012	1.52	AE
URMH74		0.255	0.006	0.85	0.262	0.004	0.57	OE
VEE3N7		0.246	-0.003	-0.35	0.259	0.001	0.13	OE
VHVCVH		0.252	0.003	0.45	0.262	0.004	0.48	OE
VNLXQB		0.251	0.002	0.32	0.260	0.002	0.26	WD
VY4G6F		0.240	-0.008	-1.12	0.249	-0.009	-1.20	DR

Analysis 185

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
W6483C		0.244	-0.005	-0.66	0.252	-0.006	-0.73	XX
WWT29U		0.248	-0.001	-0.08	0.256	-0.002	-0.26	DC
XT6C43		0.251	0.002	0.32	0.260	0.002	0.26	IC
XW6LCJ		0.246	-0.002	-0.31	0.257	-0.001	-0.13	WD
Z2RWFD		0.254	0.005	0.67	0.263	0.005	0.61	WD
ZD8EEG		0.258	0.010	1.30	0.268	0.010	1.30	OE
ZRJ7P2		0.262	0.014	1.83	0.274	0.016	2.04	OE

Summary Statistics

	Sample M97		Sample M98	
Grand Means	0.2486	Percent	0.2580	Percent
Stnd Dev Btwn Labs	0.0075	Percent	0.0077	Percent

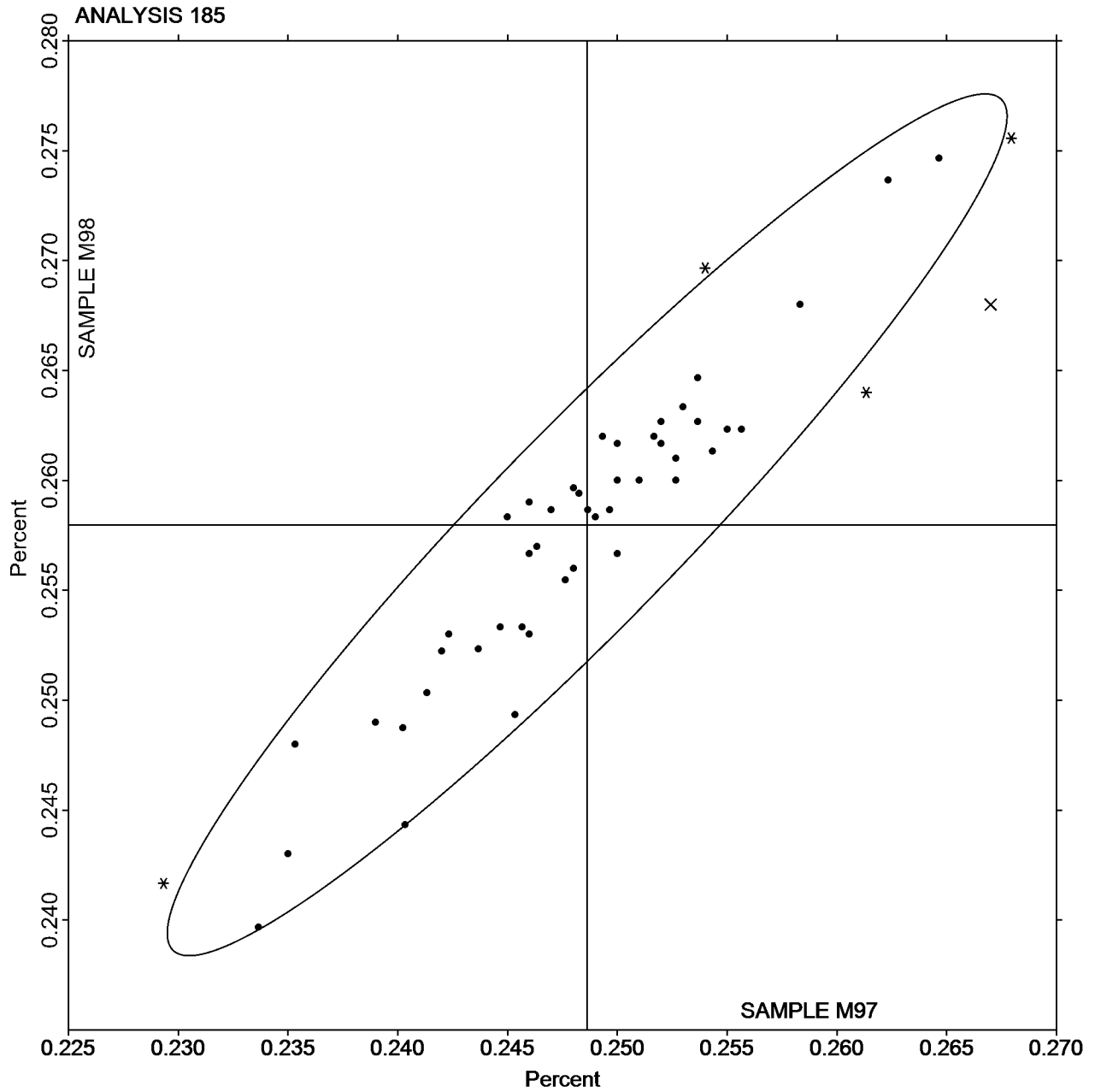
Statistics based on 51 of 52 reporting participants

Samples M97 , M98 : AISI 309, two different heats

Analysis 185

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

SAMPLE M97 = 0.2486 Percent SAMPLE M98 = 0.2580 Percent



Analysis 186

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2CRZGD		12.12	0.08	0.86	12.09	0.07	0.59	OE
2JENGP	*	12.22	0.18	1.93	12.11	0.09	0.81	OE
3AEDWY		12.21	0.16	1.78	12.25	0.23	2.02	OE
4NZDVJ	X	12.45	0.41	4.43	12.26	0.23	2.08	ED
6EAMUW		12.02	-0.03	-0.28	11.92	-0.10	-0.91	OE
8VCHJD		12.06	0.02	0.22	12.00	-0.02	-0.20	OE
97L7EP		12.01	-0.03	-0.36	11.96	-0.06	-0.56	WC
97X2KP		12.05	0.01	0.08	12.05	0.02	0.22	OE
9D3F68		11.93	-0.11	-1.23	11.88	-0.15	-1.29	OE
9QGHVP		12.06	0.02	0.19	12.01	-0.01	-0.11	IC
A92ZLA		12.05	0.00	0.04	12.04	0.01	0.13	XR
AC3WHW	*	12.21	0.16	1.78	12.31	0.29	2.56	OE
ALNA9F	*	12.29	0.24	2.65	12.28	0.26	2.29	DC
AX6TBK		12.03	-0.02	-0.18	11.98	-0.05	-0.41	OE
AXM8Q3		12.04	0.00	-0.03	12.06	0.04	0.33	OE
B9VZB9		12.08	0.04	0.44	12.06	0.04	0.36	OE
BER9PL		12.09	0.05	0.55	12.04	0.02	0.16	OE
BPEZXX		11.97	-0.07	-0.79	11.95	-0.08	-0.67	WD
CJETDG		12.08	0.04	0.44	12.03	0.01	0.07	OE
D2N9YG		11.84	-0.21	-2.25	11.84	-0.18	-1.63	DR
DBTB4D		12.07	0.03	0.33	11.91	-0.11	-0.97	OE
ELCX38		12.03	-0.01	-0.14	12.00	-0.03	-0.23	OE
EMJFKP		12.03	-0.01	-0.14	11.96	-0.07	-0.58	WD
EWPBMU		12.06	0.02	0.18	12.04	0.01	0.13	oe
F9P8JV	*	12.09	0.04	0.48	12.24	0.22	1.96	OE
FWL7PX		12.06	0.02	0.19	12.09	0.06	0.57	OE
GNRDYH		11.94	-0.10	-1.08	11.94	-0.09	-0.76	OE
GUVAWW		11.96	-0.09	-0.96	11.94	-0.08	-0.70	WD
H9VGDY		11.90	-0.14	-1.55	11.80	-0.22	-1.95	OE
HF77WY		11.96	-0.08	-0.89	11.95	-0.07	-0.64	WD
HNBD29	X	11.52	-0.53	-5.72	11.48	-0.54	-4.80	OE
HP8CBL		12.07	0.02	0.26	12.13	0.11	0.99	GD
KNMC8M		11.91	-0.13	-1.41	11.95	-0.08	-0.67	WD
L6RZWR		12.05	0.00	0.04	11.97	-0.05	-0.47	ED
L7AZHV		12.08	0.04	0.40	12.05	0.02	0.22	IC
MZDADQ		12.03	-0.01	-0.10	11.95	-0.07	-0.64	WD
PP3AH9		12.00	-0.04	-0.43	11.95	-0.07	-0.61	XX
QTP48Z		11.97	-0.07	-0.74	11.90	-0.12	-1.05	OE
RADK8F		12.05	0.00	0.04	12.02	0.00	0.01	WD
RHAM6K		11.92	-0.12	-1.30	11.86	-0.16	-1.46	DR
RKDCFG		11.99	-0.06	-0.61	11.93	-0.09	-0.79	OE
RKJMNY		11.97	-0.08	-0.83	11.95	-0.07	-0.64	OE
RQGP78		12.06	0.02	0.22	12.07	0.05	0.42	OE
T6J7VE		11.95	-0.09	-0.97	11.98	-0.04	-0.38	OE
U4DATT		12.10	0.06	0.62	12.08	0.05	0.48	XR

Analysis 186

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
UAPQ9U	*	12.02	-0.02	-0.22	12.16	0.14	1.22	OE
UBXEHN		12.23	0.19	2.07	12.18	0.16	1.43	OE
UF9D4E		12.21	0.16	1.78	12.19	0.17	1.49	XX
UG8VLN		11.87	-0.17	-1.84	11.83	-0.20	-1.74	WD
UM78VL		12.00	-0.04	-0.47	12.03	0.01	0.10	AA
VLWFKJ		12.02	-0.03	-0.28	12.04	0.02	0.16	OE
VNQHVK		12.10	0.06	0.62	12.10	0.08	0.69	DR
X7YGXK		12.10	0.06	0.62	12.06	0.03	0.30	OE
XAUFYW	X	11.60	-0.44	-4.82	11.57	-0.46	-4.05	CM
XN4DMH		12.07	0.02	0.26	12.07	0.04	0.39	XX

Summary Statistics

	Sample M97	Sample M98
Grand Means	12.043 Percent	12.020 Percent
Stnd Dev Btwn Labs	0.092 Percent	0.112 Percent

Statistics based on 52 of 55 reporting participants

Samples M97 , M98 : AISI 309, two different heats

Comments on assigned Data Flags for Test #186

4NZDVJ (X) - High data for Sample M97.

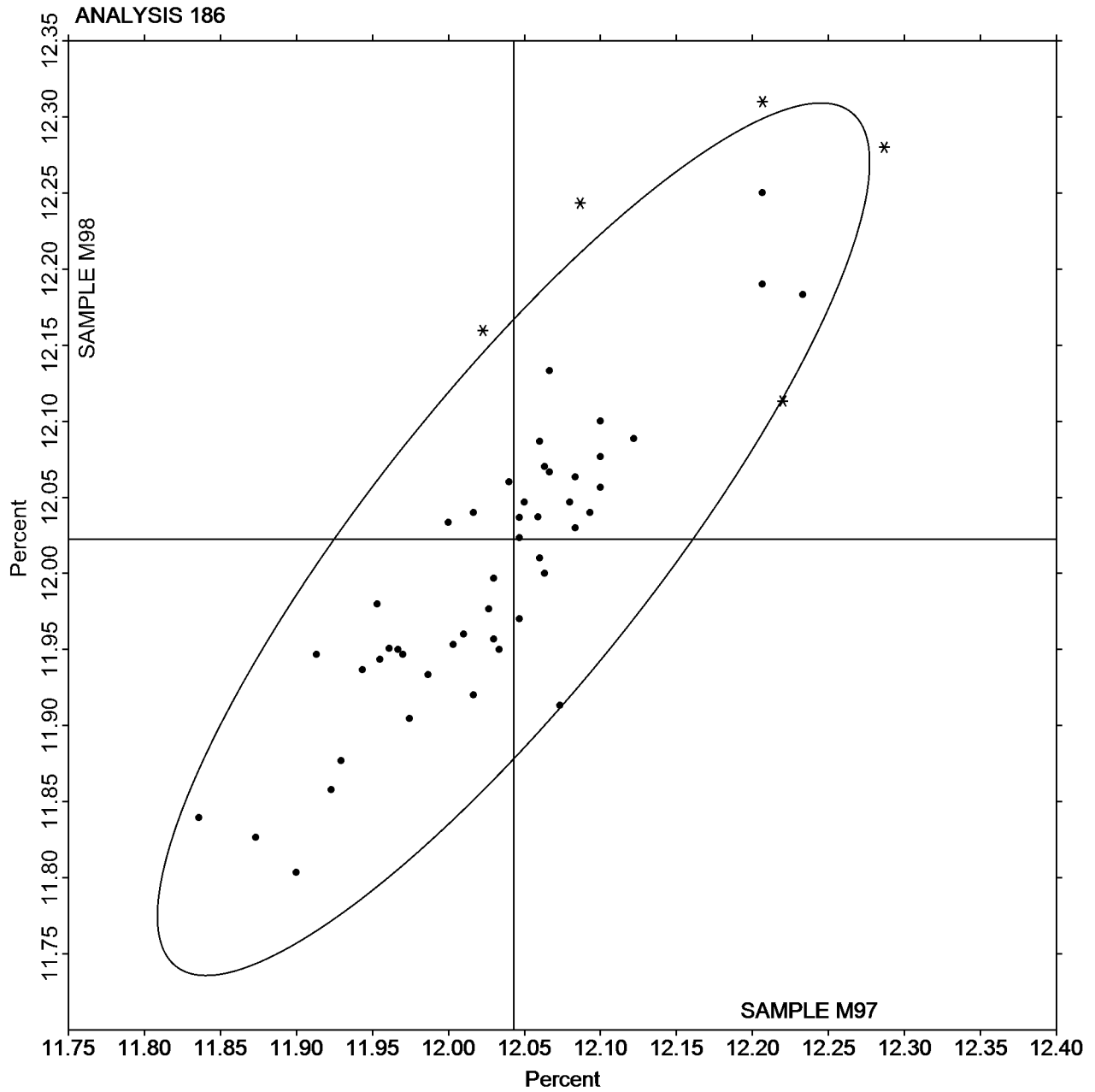
HNBD29 (X) - Data for both samples are low.

XAUFYW (X) - Data for both samples are low and inconsistent within the determinations for Sample M98.

Analysis 186

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

SAMPLE M97 = 12.043 Percent SAMPLE M98 = 12.020 Percent



Analysis 187

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
22YA6L	X	22.94	0.49	3.86	23.08	0.62	4.49	ED
26LW29		22.44	-0.01	-0.05	22.43	-0.03	-0.21	WD
28WRVC		22.45	0.00	0.00	22.49	0.03	0.20	OE
2CT3HX		22.45	0.00	-0.03	22.44	-0.02	-0.14	WC
2Y4APG		22.56	0.11	0.86	22.65	0.19	1.39	OE
3GAVGW		22.52	0.07	0.55	22.49	0.03	0.25	IC
483VFE		22.35	-0.10	-0.76	22.39	-0.07	-0.53	OE
4Q6FNN		22.53	0.08	0.62	22.55	0.09	0.69	OE
4YKJU9		22.45	0.00	0.02	22.52	0.06	0.44	ED
6BAEPL		22.46	0.01	0.10	22.44	-0.02	-0.16	OE
76TEBF		22.41	-0.04	-0.29	22.45	-0.01	-0.09	OE
7UDKEE		22.54	0.09	0.70	22.55	0.09	0.66	OE
8UNGRR		22.51	0.06	0.49	22.50	0.04	0.27	OE
AQ3YWJ		22.49	0.04	0.31	22.53	0.07	0.52	OE
B8LYE2		22.49	0.04	0.31	22.51	0.06	0.40	OR
BDJG8D		22.35	-0.10	-0.76	22.34	-0.12	-0.85	WD
BMYG6G		22.67	0.22	1.69	22.67	0.21	1.51	OE
D3EX24		22.37	-0.08	-0.65	22.43	-0.03	-0.19	XX
D3JQYW		22.59	0.14	1.12	22.56	0.10	0.74	OE
E7ZFXZ		22.63	0.18	1.38	22.68	0.22	1.62	WD
EAAEQY		22.49	0.04	0.29	22.43	-0.03	-0.21	WD
EGJGLR	*	22.31	-0.14	-1.12	22.46	0.00	-0.02	WD
EPMDQB		22.53	0.08	0.63	22.56	0.11	0.77	OE
F9MDZP	*	22.31	-0.14	-1.12	22.17	-0.29	-2.13	OE
GKAXNQ		22.49	0.04	0.31	22.51	0.05	0.39	XX
GQVZNF		22.46	0.01	0.05	22.51	0.05	0.35	OE
GYUR3P		22.59	0.14	1.12	22.57	0.11	0.83	OE
GZ79F3		22.52	0.07	0.55	22.50	0.04	0.32	XR
HMFPLX		22.66	0.21	1.68	22.68	0.22	1.62	OE
HYMVZ6		22.43	-0.02	-0.16	22.43	-0.03	-0.24	XR
K6B284	X	22.85	0.40	3.15	23.04	0.58	4.19	OE
KEYZVN		22.47	0.02	0.15	22.49	0.03	0.25	WD
KJFQLN		22.47	0.02	0.18	22.54	0.08	0.59	OE
KRRR2X		22.25	-0.20	-1.59	22.24	-0.22	-1.62	OE
LWBQ34	*	22.15	-0.30	-2.33	22.09	-0.37	-2.71	OE
LYUFDN		22.34	-0.11	-0.86	22.26	-0.20	-1.45	OE
MCV9N8		22.59	0.14	1.07	22.58	0.12	0.90	DR
MQ3HJE		22.20	-0.25	-1.96	22.23	-0.23	-1.64	GD
MRM87T	X	22.93	0.48	3.73	22.85	0.39	2.82	IC
PHBPVY		22.31	-0.14	-1.07	22.10	-0.36	-2.59	OE
QPFBM8	*	22.10	-0.35	-2.74	22.11	-0.35	-2.51	OE
TTXZQA	*	22.70	0.25	1.96	22.62	0.16	1.19	OE
TUKVMN		22.38	-0.07	-0.55	22.39	-0.07	-0.50	OE
TW8HB6		22.61	0.16	1.23	22.59	0.13	0.93	XX
UEJ6Z6		22.41	-0.04	-0.32	22.43	-0.03	-0.19	OE

Analysis 187

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
UKPF7J		22.37	-0.08	-0.65	22.30	-0.16	-1.16	DR
UX8HHB		22.54	0.09	0.68	22.49	0.03	0.22	WD
V6ETHM		22.52	0.07	0.57	22.60	0.14	1.05	WD
VLZL2Y		22.33	-0.12	-0.92	22.37	-0.09	-0.67	CM
XLAM6R		22.41	-0.04	-0.34	22.40	-0.06	-0.43	DC
XRXTWD		22.40	-0.05	-0.37	22.52	0.06	0.47	OE
XU2NGG		22.52	0.07	0.56	22.52	0.06	0.44	OE
YE6QRQ		22.41	-0.04	-0.30	22.43	-0.03	-0.18	OE
Z8BA7Z		22.28	-0.17	-1.31	22.29	-0.17	-1.20	OE

Summary Statistics

	Sample M97		Sample M98	
Grand Means	22.450	Percent	22.460	Percent
Stnd Dev Btwn Labs	0.128	Percent	0.138	Percent

Statistics based on 50 of 54 reporting participants

Samples M97 , M98 : AISI 309, two different heats

Comments on assigned Data Flags for Test #187

22YA6L (X) - Data for both samples are high and inconsistent within the determinations for both samples.

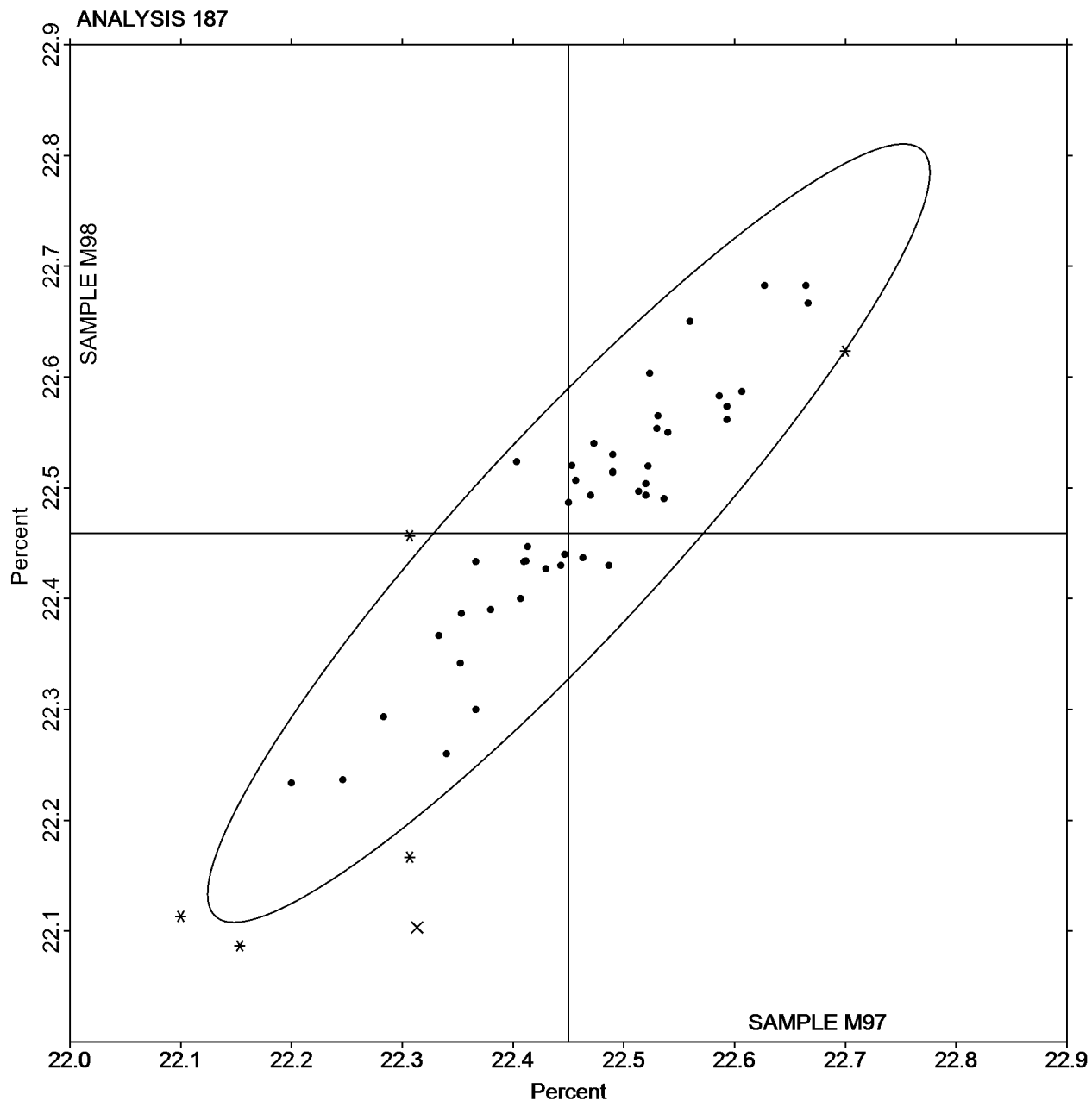
K6B284 (X) - Data for both samples are high. Possible systematic error.

MRM87T (X) - Data for both samples are high. Possible systematic error and inconsistent within the determinations for Sample M98.

Analysis 187

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

SAMPLE M97 = 22.450 Percent SAMPLE M98 = 22.460 Percent



Analysis 188

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2HDTQR		0.324	0.004	0.43	0.217	0.004	0.58	CM
2M3BRX		0.319	-0.001	-0.12	0.215	0.002	0.24	OE
369GQ6		0.300	-0.020	-1.97	0.204	-0.009	-1.26	OE
3JXYXM		0.331	0.011	1.08	0.220	0.007	1.08	OE
43XY6E		0.321	0.001	0.07	0.220	0.007	0.96	OE
4BA388		0.331	0.011	1.06	0.217	0.004	0.58	DR
4KVBL3		0.318	-0.002	-0.16	0.209	-0.004	-0.58	XX
76EFKH	X	0.327	0.007	0.66	0.235	0.022	3.14	OE
7APNM8		0.311	-0.009	-0.87	0.209	-0.004	-0.58	OE
89CA46		0.329	0.009	0.92	0.212	-0.001	-0.15	OE
8K7ZUX		0.303	-0.017	-1.62	0.202	-0.011	-1.60	OE
8Q6U7C		0.319	-0.001	-0.12	0.219	0.006	0.87	OE
9TFJCZ	X	0.273	-0.047	-4.60	0.206	-0.007	-1.07	OE
B39AND		0.330	0.010	0.98	0.210	-0.003	-0.44	XR
CD38Q4		0.297	-0.023	-2.27	0.207	-0.006	-0.92	AA
CFCUZ4		0.312	-0.008	-0.77	0.205	-0.008	-1.22	OE
CTNMMU		0.324	0.004	0.40	0.220	0.007	1.06	OE
FCXMUE	X	1.662	1.342	130.74	1.642	1.429	207.34	DR
FEE76H		0.328	0.008	0.82	0.219	0.006	0.82	OE
FM7LUL		0.328	0.008	0.75	0.223	0.010	1.50	GD
FWTU8H		0.320	0.000	-0.03	0.218	0.005	0.77	XX
GFVKJW	*	0.321	0.001	0.10	0.229	0.016	2.27	OE
H3YC7G		0.296	-0.024	-2.33	0.207	-0.006	-0.92	OE
HJPQR8		0.328	0.008	0.75	0.216	0.003	0.43	IC
HWEMVQ		0.307	-0.013	-1.26	0.214	0.001	0.19	OE
J4G8J8		0.315	-0.005	-0.48	0.205	-0.008	-1.21	OE
JCL4GJ		0.306	-0.014	-1.33	0.202	-0.011	-1.55	OE
JM7DZL		0.325	0.005	0.46	0.213	0.000	0.00	WD
KPHU73		0.314	-0.006	-0.55	0.199	-0.014	-2.03	DR
LTMQXB		0.321	0.001	0.14	0.211	-0.002	-0.29	OE
MFFBEC		0.329	0.009	0.85	0.220	0.007	1.01	OE
MLH7CQ		0.319	-0.001	-0.09	0.210	-0.003	-0.44	OE
MMXWM2		0.324	0.004	0.40	0.215	0.002	0.29	OE
MNYEXQ	*	0.350	0.030	2.93	0.224	0.011	1.59	WD
N2KX62		0.327	0.007	0.69	0.216	0.003	0.38	OE
NLT4M9		0.323	0.003	0.33	0.212	-0.001	-0.10	IC
NQAXXT		0.318	-0.002	-0.16	0.216	0.003	0.38	OE
PT6P3Q		0.330	0.010	1.01	0.216	0.003	0.38	XX
PV7RJ2		0.323	0.003	0.33	0.209	-0.004	-0.53	DC
QAJHWU		0.327	0.007	0.72	0.216	0.003	0.43	XR
RQ79KZ		0.320	0.000	-0.03	0.214	0.001	0.14	OE
TCYAZD		0.313	-0.007	-0.64	0.210	-0.003	-0.44	DR
TEJAWW		0.323	0.003	0.27	0.213	0.000	0.05	WD
TYCHHC		0.303	-0.017	-1.62	0.198	-0.015	-2.13	OE
UHFXPU		0.315	-0.005	-0.53	0.216	0.003	0.48	OE

Analysis 188

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
VD84TH		0.315	-0.005	-0.51	0.205	-0.008	-1.16	DR
WAZHMC		0.322	0.002	0.17	0.214	0.001	0.09	WD
WV2T9Q	X	0.368	0.048	4.68	0.273	0.060	8.70	OE
XGDYNK		0.323	0.003	0.33	0.209	-0.004	-0.58	OE
XVGZ3R		0.330	0.010	1.01	0.223	0.010	1.50	OE
Y8W3NH		0.334	0.014	1.37	0.225	0.012	1.69	OE
Z2AKT8		0.311	-0.009	-0.86	0.205	-0.008	-1.16	OE
ZBFCCA		0.319	-0.001	-0.06	0.210	-0.003	-0.49	WD

Summary Statistics

	Sample M97		Sample M98	
Grand Means	0.3199	Percent	0.2130	Percent
Std Dev Btwn Labs	0.0103	Percent	0.0069	Percent

Statistics based on 49 of 53 reporting participants

Samples M97 , M98 : AISI 309, two different heats

Comments on assigned Data Flags for Test #188

76EFKH (X) - High data for Sample M98.

9TFJCZ (X) - Low data for Sample M97.

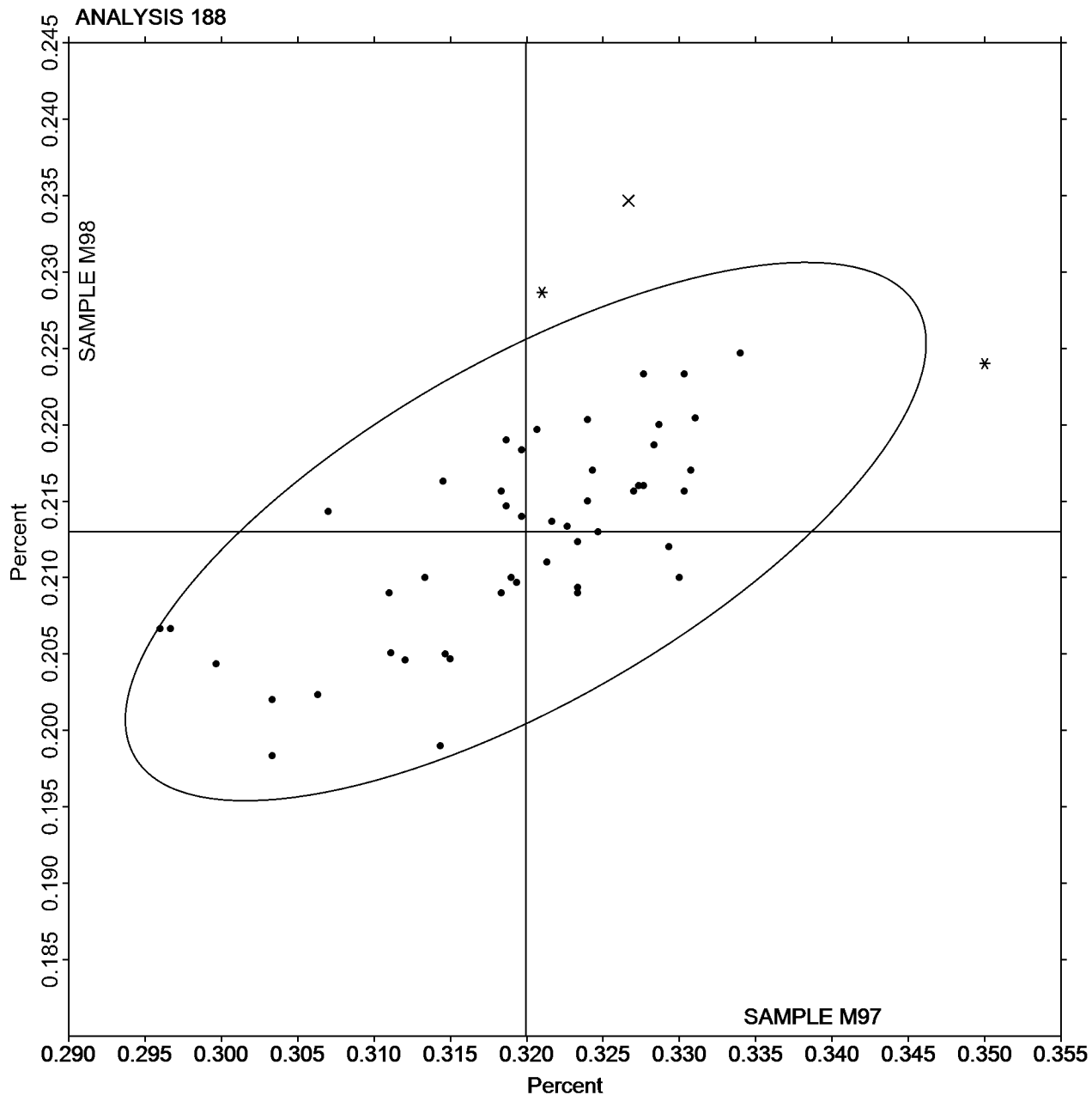
FCXMUE (X) - Extreme data.

WV2T9Q (X) - Data for both samples are high.

Analysis 188

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

SAMPLE M97 = 0.3199 Percent SAMPLE M98 = 0.2130 Percent



Analysis 189

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
2NRGFU		0.134	0.004	0.62	0.127	0.004	0.67	OE
36KGCE		0.129	-0.001	-0.19	0.123	0.000	0.03	OE
39PQY3		0.129	-0.002	-0.24	0.121	-0.001	-0.24	OE
63NP7L		0.139	0.008	1.26	0.130	0.007	1.17	OE
6GMN3V		0.122	-0.008	-1.25	0.115	-0.008	-1.25	OE
7W3XVC		0.129	-0.001	-0.19	0.122	0.000	-0.08	OE
897PRG		0.140	0.009	1.41	0.132	0.009	1.50	oe
89ZYG7		0.135	0.005	0.77	0.126	0.004	0.61	WD
9MRUWW		0.130	0.000	-0.04	0.120	-0.002	-0.40	DR
9VJ8Z3		0.129	-0.001	-0.14	0.122	-0.001	-0.13	OE
ADGWJD		0.131	0.001	0.16	0.122	-0.001	-0.13	OE
ADKAD2		0.132	0.002	0.26	0.123	0.001	0.08	DR
AU8WG6		0.124	-0.006	-0.95	0.115	-0.008	-1.25	DR
CF4PUK		0.130	0.000	-0.04	0.123	0.001	0.08	OE
DPWJ4G	X	0.132	0.002	0.26	0.102	-0.021	-3.32	DR
EVG2UX		0.130	0.000	-0.04	0.122	0.000	-0.03	OE
EYVF3J		0.130	0.000	-0.04	0.120	-0.002	-0.40	IC
FMKRXX		0.133	0.003	0.47	0.124	0.001	0.23	OE
FU36Q6		0.133	0.003	0.47	0.125	0.003	0.45	XR
FZTVFR		0.128	-0.002	-0.29	0.121	-0.001	-0.18	OE
G9DL7Z	*	0.145	0.015	2.24	0.138	0.016	2.52	XX
GCRWXF		0.129	-0.002	-0.24	0.119	-0.004	-0.61	OE
GKUBC9		0.122	-0.008	-1.25	0.115	-0.008	-1.25	OE
GMGW2P		0.131	0.001	0.16	0.123	0.001	0.08	XX
GZH4M3		0.135	0.004	0.67	0.125	0.003	0.40	OE
H3TRUQ		0.123	-0.007	-1.10	0.116	-0.007	-1.09	OE
JM8FL		0.141	0.011	1.63	0.132	0.010	1.57	OE
JYKGF		0.114	-0.016	-2.47	0.107	-0.015	-2.42	OE
JZTMLQ		0.133	0.002	0.37	0.125	0.003	0.45	WD
KALM3A		0.123	-0.007	-1.10	0.115	-0.007	-1.14	CM
KKP477		0.133	0.002	0.37	0.127	0.004	0.67	OE
LKEPLT		0.132	0.001	0.21	0.125	0.002	0.35	OE
MXBRF2		0.127	-0.003	-0.44	0.121	-0.001	-0.24	OE
NVK7ZH		0.124	-0.006	-0.93	0.118	-0.005	-0.73	OE
QHDPFY		0.128	-0.002	-0.34	0.122	0.000	-0.08	DC
QZ8G7Y		0.137	0.007	1.02	0.129	0.007	1.04	IC
R7RWCG		0.122	-0.009	-1.30	0.114	-0.008	-1.30	OE
RE2UWA		0.125	-0.005	-0.75	0.118	-0.004	-0.72	OE
RGQ8RY		0.142	0.012	1.78	0.133	0.011	1.73	WD
TFHQAZ		0.119	-0.011	-1.65	0.114	-0.008	-1.30	OE
TQXTLP		0.117	-0.013	-1.96	0.111	-0.011	-1.83	OE
U79PIJ		0.130	0.000	-0.04	0.122	0.000	-0.03	OE
U7TWX9		0.135	0.004	0.67	0.125	0.002	0.35	GD
VA6VB9		0.142	0.012	1.83	0.135	0.012	1.94	OE
VBGDUD		0.120	-0.011	-1.61	0.113	-0.010	-1.57	OE

Analysis 189

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

WebCode	Data Flag	Sample M97			Sample M98			Instr Code
		Lab Mean	Diff. from Grand Mean	CPV	Lab Mean	Diff. from Grand Mean	CPV	
VCB3WL		0.130	0.000	-0.04	0.124	0.002	0.24	WD
VHDCP8		0.135	0.004	0.67	0.126	0.004	0.61	DR
VTTFYC		0.131	0.000	0.06	0.123	0.001	0.08	XX
VZBLVJ		0.131	0.001	0.11	0.122	-0.001	-0.13	OE
XNFZXR		0.138	0.008	1.22	0.131	0.009	1.41	OE
XPC76Q		0.132	0.001	0.21	0.124	0.002	0.24	OE

Summary Statistics

	Sample M97		Sample M98	
Grand Means	0.1303	Percent	0.1220	Percent
Stnd Dev Btwn Labs	0.0066	Percent	0.0063	Percent

Statistics based on 50 of 51 reporting participants

Samples M97 , M98 : AISI 309, two different heats

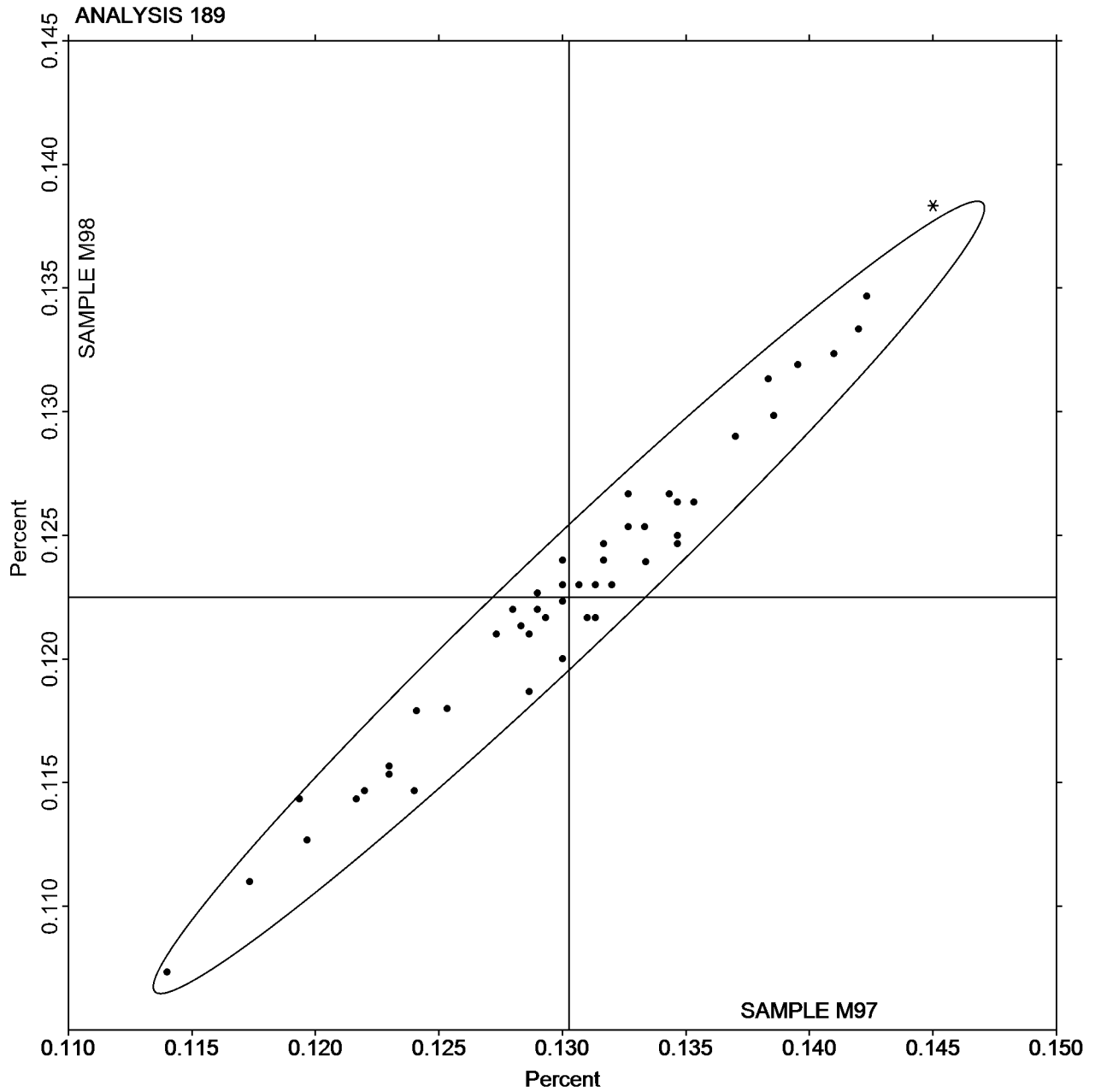
Comments on assigned Data Flags for Test #189

DPWJ4G (X) - Inconsistent in testing between samples, data for Sample M98 are low.

Analysis 189

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

SAMPLE M97 = 0.1303 Percent SAMPLE M98 = 0.1220 Percent



Instrument and Method Code List - Report# 96
Instrument information as provided by laboratories
AnalysisAnalysis Name**115****Fastener Wedge Tensile (10 degree)**

Instrument code and descript

BA	Baldwin
FI	Fuel Instruments & Engineers
GA	Galdabini
HT	Hung Ta Instrument
IN	Instron
ML	MTS Landmark
MT	MTS / Sintech
RI	Riehle Test System
SA	Satec
SH	Shimadzu
TO	Tinius Olsen
UN	United Testing Systems
XX	Instrument manufacturer not specified by lab

116**Fastener Axial Tensile**

Instrument code and descript

BA	Baldwin
FI	Fuel Instruments & Engineers
GA	Galdabini
HT	Hung Ta Instrument
IN	Instron
ML	MTS Landmark
MT	MTS / Sintech
RI	Riehle Test System
SA	Satec
SH	Shimadzu
TO	Tinius Olsen
UN	United Testing Systems
XX	Instrument manufacturer not specified by lab

120**Rockwell Hardness: C Scale**

Instrument code and descript

AK	Akashi
BU	Buehler
CL	Clark
EM	EMCO
FU	Future-Tech
IN	Indentec
KD	Kyung Do Precision
LE	Leco
MA	Matsuzawa
MI	Mitutoyo

Analysis 189

Chemical Analysis Element #10 - Corrosion Resistant Steel - Percent
VANADIUM (V)**120** **Rockwell Hardness: C Scale**

Instrument code and descript

NA	New Age Industries
PH	Phase II
UN	United Testing Systems
WI	Wilson / Instron Instruments
WO	Wolpert Tester
XX	Instrument manufacturer not specified by lab

125 **Rockwell Hardness: Externally Threaded Fasteners**

Instrument code and descript

AF	AFFRI
AK	Akashi
AN	Antonik
BU	Buehler
CL	Clark
EM	EMCO
FR	Frank Well
FT	Future-Tech
GR	Greenslade & Co.
HT	Hoytom
IN	Indentec
KF	Karl Frank GmbH
LE	Leco
MI	Mitutoyo
ML	MetLab
NA	New Age Industries
RS	Reicherter/C.Stiefelmayer Briro
SP	Service Physical Tester
TG	Time Group
UN	United Testing Systems
WI	Wilson / Instron Instruments
WO	Wolpert Tester
XX	Instrument manufacturer not specified by lab

126 **Vickers Hardness: Externally Threaded Fasteners**

Instrument code and descript

AK	Akashi
AR	Vickers Armstrongs hardness tester
BU	Buehler, Ltd.
CL	Clark
FU	Future-Tech
GN	Albert Gnehm
IN	Indentec
LE	Leco
SH	Shimadzu
WO	Wolpert Tester
XX	Instrument manufacturer not specified by lab

127 **Fastener Wedge Tensile (10 degree) - Metric**

Instrument code and descript

HP	Hegewald & Peschke
IN	Instron
LO	Losenhausen
MF	MFL Systeme
MR	Mohr & Federhaft Ag
RO	Roell & Korthaus
SA	Satec
SH	Shimadzu
ST	Schenck-Trebel
TO	Tinius Olsen
UN	United Testing Systems
WB	Walter + Bai
WZ	Zwick
XX	Instrument manufacturer not specified by lab

128 **Fastener Axial Tensile - Metric**

Instrument code and descript

GA	Galdabini
IN	Instron
LO	Losenhausen
RO	Roell & Korthaus
SH	Shimadzu
ST	Schenck-Trebel
TO	Tinius Olsen
WB	Walter + Bai
XX	Instrument manufacturer not specified by lab

129 **Fastener Double Shear**

Instrument code and descript

BA	Baldwin
IN	Instron
RI	Riehle Test System
SA	Satec
TO	Tinius Olsen
UN	United Testing Systems
XX	Instrument manufacturer not specified by lab

130 **Tensile Strength: Lab-Machined Flat Steel**

Instrument code and descript

ZZ	Instruments No Longer Tracked
----	-------------------------------

136 **Rockwell Superficial Hardness (30N Scale)**

Instrument code and descript

AN	Antonik
BU	Buehler
CL	Clark
LE	Leco
MI	Mitutoyo
NA	New Age Industries
UN	United Testing Systems
WI	Wilson / Instron Instruments
XX	Instrument manufacturer not specified by lab

145 **Total Case Depth**

Instrument code and descript

BR	Brinell Glass
BU	Buehler, Ltd.
CL	Clark
CM	Clemex
LC	Leica
LE	Leco
MA	Matsuzawa
NE	Nikon Eclipse
NI	Nikon Epiphot
NX	Nikon (model not specified)
OB	Olympus BH2-UMA
OG	Olympus PMG
OI	Olympus IX70
OL	Olympus PME
ON	Olympus (model not specified)
RE	Reichert-Jung MeF3
RP	Reichert-Jung Polyvar
UT	Unitron (model not specified)
WT	Wilson-Tukon
XX	Instrument manufacturer not specified by lab
ZA	Zeiss Axiovert
ZI	Zeiss Imager
ZO	Zeiss Axio Observer
ZT	Zeiss AxioTech
ZX	Zeiss (model not specified)

146 **Effective Case Depth**

Instrument code and descript

BU	Buehler, Ltd.
CL	Clark
CM	Clemex
FU	Future-Tech
LE	Leco
MA	Matsuzawa
MI	Mitutoyo
NA	New Age
SH	Shimadzu
ST	Struers
WT	Wilson-Tukon
WZ	Zwick
XX	Instrument manufacturer not specified by lab

160 **Copper-based Alloy, Element #1**

Method code and description

AA	Atomic Absorption Spectrophotometry
BD	By Difference
ED	X-ray Fluorescence, Energy Dispersive
EL	Electrochemistry
GD	Glow Discharge Spectroscopy
OE	Optical Emission Spectrometry
WC	Wet Chemistry (not specified)
WD	X-ray Fluorescence, Wavelength Dispersive
XR	X-ray Fluorescence (ED or WD not specified)
XX	Method not specified by lab

Method code and description

CI	Combustion/IR
CO	Combustion
DR	Direct Reading Optical Emission Spectrometry
GD	Glow Discharge Spectroscopy
OE	Optical Emission Spectrometry
XX	Method not specified by lab