



## Wine Industry Interlaboratory Program

### Summary Report #025- Spring 2007

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## **About the Wine Industry Interlaboratory Program**

This interlaboratory survey was administered by Collaborative Testing Services, Inc. (CTS) through an agreement with The American Society for Enology and Viticulture (ASEV) with technical assistance provided by the Laboratory Proficiency Testing Guidance Committee (LPTGC) of the Technical Projects Committee (TPC). The purpose of the survey was to evaluate laboratory performance and assess the performance of the industry with respect to quality assurance testing conducted on commercially produced wine through an on-going interlaboratory testing program. Two bottles of differing wines were supplied to participant laboratories. The samples for each type of wine were chosen consecutively from a single production run, to minimize variation between bottles. Participating laboratories were asked to analyze the samples' ten properties in accordance with their normal laboratory procedures and return the results and methodology information to CTS.

### **About CTS**

Founded in 1971, Collaborative Testing Services, Inc. (CTS) is a privately - owned company that specializes in interlaboratory tests for a variety of sectors: including rubber, plastics, fasteners and metals, containerboard, paper, wine and color, as well as proficiency tests for forensic laboratories. All of the tests are designed to assist organizations in achieving and maintaining quality assurance objectives. Labs from the U.S., as well as more than 55 countries, currently participate in the CTS programs.

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## Key for Web Summary Report (Page 1 of 2)

<b>WebCode</b>	Assigned laboratory identification number (temporary) used to ensure lab confidentiality while permitting a lab to locate its data in the Wine Web Summary Report published on the CTS web site. The WebCode for each analysis can be found in the Performance Analysis Report mailed to each participant.
<b>Lab Mean</b>	The average of the test results obtained by the participant.
<b>Grand Mean</b>	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.
<b>Difference from Grand Mean</b>	The difference of the LAB MEAN from the GRAND MEAN.
<b>Between-Lab Standard Deviation</b>	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).
<b>Comparative Performance Value</b>	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. 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). The critical value for each CPV will vary depending on the number of labs participating in a test.
<b>Data Flag</b>	DATA FLAGS are assigned based on the simultaneous analysis of both samples tested. Refer to the following chart for an explanation of each symbol:

<u>DATA FLAG</u>	<u>STATISTICALLY INCLUDED/EXCLUDED</u>	<u>ACTION REQUIRED</u>
*	INCLUDED	<b>CAUTION</b> - review testing procedure and monitor future results. Results fall outside 95% ellipse but within a 99% ellipse that is calculated but not drawn.
X	EXCLUDED	<b>STOP</b> - immediate review of data and/or testing procedure is required. Results fall outside the 99% ellipse. See specific notes following each table for more information on why the data is excluded.
M	EXCLUDED	<b>PROCEED</b> - lab was unable to report data for one sample.

**Graph** - For each laboratory, the LAB MEAN for the first sample (x-axis) is plotted against the LAB MEAN for the second sample (y-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 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.

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### Common Problems Highlighted in Footnotes

1. **Extreme data** - The laboratory's results for one or both samples are so inconsistent with those of the other participants that the lab mean(s) fall outside the plot. The participant is advised to immediately review his data and/or testing procedure.
2. **Systematic bias** - The laboratory's results are either consistently high or low for both samples when compared to the other participants (the plotted point falls near the top or bottom of the ellipse). This indicates that the participant is performing the test with a constant bias. Causes of systematic errors include improper calibration, the particular make/model of equipment or a modification to the testing procedure.
3. **Inconsistency in testing between samples/sample sets** - The laboratory's results indicate that there are differences in the way the two samples tested (the plotted point falls to the side of the ellipse). This type of error may be attributed to the analyst deviating from the procedure when testing one of the samples or a material interaction occurrence with the instrument or room conditions. The inconsistency is reflected in the CPVs for the two samples, such as a +1.5 CPV for sample A and a -2.2 CPV for sample B. CTS also will specify if the laboratory's data for one sample are high/low compared to the other participants. If this inconsistency is slight, the lab's plotted point will be an \* that falls on the edge of the ellipse.
4. **Inconsistency in testing within a sample** - The laboratory's within-lab standard deviation for a specified sample is high when compared to the other participants, often causing the lab's plotted point to fall outside of the ellipse.

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Labs flagged with an \* are not typically included in the footnotes of a data table. These labs may locate their position in the control ellipse and use the definitions above to help identify the type of testing error. An \* should serve as a caution flag, a "yellow light", to a lab. If this error is repeated in future rounds, a lab may need to stop and review its testing procedures. The initial data flag is not cause for alarm. Interlaboratory tests conducted at regular intervals permit a lab to recognize trends in testing.

**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 901**  
**Ethanol (% of volume)**

WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1PWJX9		10.04	-0.14	-1.00	10.04	-0.16	-1.15
1TB4WH		10.14	-0.04	-0.28	10.15	-0.05	-0.35
2L6M13		10.11	-0.06	-0.46	10.11	-0.09	-0.64
3C3Q6Q		10.04	-0.14	-1.00	10.05	-0.15	-1.07
4CNG1W		10.30	0.13	0.90	10.32	0.13	0.92
5H2WLR		10.15	-0.03	-0.21	10.16	-0.03	-0.24
BF5Q8E		10.39	0.22	1.54	10.38	0.18	1.32
BHPAT4		10.50	0.33	2.33	10.51	0.32	2.29
BV14DA		10.23	0.06	0.40	10.26	0.07	0.48
CNVMHV		10.18	0.01	0.04	10.24	0.05	0.34
DTY7LH		10.05	-0.13	-0.93	10.05	-0.14	-1.04
EMSYSV		10.10	-0.07	-0.53	10.10	-0.09	-0.68
ET3VU9		10.13	-0.04	-0.32	10.13	-0.06	-0.46
ETYCWK		10.10	-0.07	-0.53	10.09	-0.10	-0.75
F2SVWE	*	9.97	-0.21	-1.50	10.07	-0.12	-0.89
FMWL1M		10.14	-0.04	-0.28	10.15	-0.05	-0.35
FRB1PS		10.10	-0.07	-0.53	10.13	-0.06	-0.46
FTCRSF		10.40	0.23	1.62	10.40	0.21	1.50
GK4UMV		10.15	-0.03	-0.21	10.14	-0.06	-0.42
GK6KTC		10.20	0.03	0.18	10.20	0.01	0.05
GSWJVH	X	10.25	0.08	0.54	10.15	-0.04	-0.31
GUMHB2		10.16	-0.01	-0.07	10.19	0.00	-0.01
H43TVD		10.10	-0.07	-0.53	10.10	-0.09	-0.68
H45J2V		10.09	-0.09	-0.63	10.18	-0.01	-0.11
HSURWA	X	10.50	0.33	2.33	10.30	0.11	0.77
JNATPT		10.30	0.13	0.90	10.33	0.14	0.99
JQ3K3K	X	10.50	0.33	2.33	10.40	0.21	1.50
JXYCZX		10.21	0.04	0.26	10.22	0.02	0.16
JZQ4DQ	*	9.79	-0.38	-2.75	9.81	-0.39	-2.81
K4J28T		10.17	-0.01	-0.07	10.22	0.02	0.16
KBX94H	*	10.48	0.30	2.15	10.55	0.36	2.58
KG5JV6	X	9.55	-0.62	-4.47	9.80	-0.39	-2.85
KNHEET		10.17	0.00	-0.03	10.18	-0.01	-0.10
KX3T7X		10.29	0.11	0.79	10.31	0.12	0.84
L5TPGC		10.12	-0.05	-0.39	10.15	-0.04	-0.31

**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 901**  
**Ethanol (% of volume)**

WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
LRWL5Z		10.12	-0.05	-0.39	10.11	-0.09	-0.64
MP7LT9		10.15	-0.03	-0.21	10.16	-0.03	-0.24
MTJAAX	*	10.48	0.30	2.15	10.43	0.23	1.68
MVKGCW		10.08	-0.09	-0.68	10.08	-0.11	-0.82
PYNWDL		9.99	-0.18	-1.32	10.02	-0.17	-1.26
QN4X39		10.10	-0.07	-0.53	10.10	-0.09	-0.68
QRHJT8		10.25	0.08	0.54	10.28	0.08	0.59
RD5N1Q		10.19	0.02	0.11	10.20	0.01	0.05
RZB2T2		10.13	-0.05	-0.35	10.15	-0.04	-0.31
SQERS6		10.05	-0.12	-0.89	10.09	-0.10	-0.75
SWL5WV		10.13	-0.04	-0.32	10.15	-0.04	-0.31
THCD1W		10.04	-0.13	-0.96	10.13	-0.06	-0.46
TLR1RU		10.19	0.02	0.11	10.20	0.00	0.01
TQEV38		10.28	0.11	0.76	10.30	0.10	0.74
UEMG4P	X	10.75	0.58	4.12	10.75	0.56	4.03
VKXJUW		10.21	0.04	0.26	10.24	0.05	0.34
VVHG5V		10.35	0.18	1.26	10.42	0.22	1.60
WDS3YG		10.16	-0.01	-0.10	10.17	-0.02	-0.15
WH5SF5		10.16	-0.01	-0.10	10.20	0.00	0.01
XB18SZ		10.10	-0.07	-0.53	10.10	-0.10	-0.71
ZV3X2Z		10.50	0.33	2.33	10.50	0.31	2.22

Grand Means		Summary Statistics	
	10.174 percent		10.193 percent
Std Dev Btwn Labs			0.138 percent
	0.140 percent	<b>Statistics based on 51 of 56 reporting participants</b>	

Wines tested: SA47: White Merlot; SA48: White Merlot

## Analysis 901

## Ethanol (% of volume)

**Comments on assigned Data Flags**

GSWJVH (X) - Inconsistent in testing between samples.

HSURWA (X) - Inconsistent in testing between samples.

JQ3K3K (X) - Inconsistent in testing between samples. Also inconsistent in testing within Sample SA47.

KG5JV6 (X) - Data for both samples are low.

UEMG4P (X) - Data for both samples are high. Possible Systematic Error.

**Results by Methodology (as reported by laboratory)**

Test Methodology	Sample SA47 <i>White Merlot</i>			Sample SA48 <i>White Merlot</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Ebulliometer Method	10.38	0.19	0.20	10.38	0.20	0.18	4	8
Gas Chromatography Method	10.23	0.09	0.06	10.24	0.10	0.05	9	10
Near Infrared Method	10.14	0.06	-0.04	10.16	0.06	-0.03	23	24
Dist. / Density Method	10.09	0.04	-0.08	10.12	0.06	-0.08	6	8
FTIR	10.17	0.15	0.00	10.20	0.16	0.00	5	6



## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 902

## Total Sulfur Dioxide

WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
11KV26		138.5	2.0	0.21	132.0	4.1	0.44
14BQ7N		133.5	-3.0	-0.32	129.0	1.1	0.12
2LUYSP		146.0	9.5	1.00	135.5	7.6	0.81
32V1SF		114.0	-22.5	-2.37	109.0	-18.9	-2.01
3FTM3X		136.5	0.0	0.00	127.5	-0.4	-0.04
5SGU6W		146.0	9.5	1.00	136.0	8.1	0.86
693VCC		135.0	-1.5	-0.16	130.5	2.6	0.28
89WAU2		132.0	-4.5	-0.48	126.0	-1.9	-0.20
8VF4AN		144.5	8.0	0.84	136.0	8.1	0.86
92RX9P		134.0	-2.5	-0.27	119.5	-8.4	-0.89
966CXV		156.5	20.0	2.10	150.5	22.6	2.41
9K73P1		127.5	-9.0	-0.95	117.0	-10.9	-1.16
AD2MTL		140.5	4.0	0.42	136.5	8.6	0.92
ALF5YL	X	96.3	-40.2	-4.23	94.1	-33.8	-3.60
AZ1YT5		147.0	10.5	1.10	131.0	3.1	0.33
AZZ337		137.4	0.9	0.10	123.8	-4.0	-0.43
CEMEDE	X	154.5	18.0	1.89	132.5	4.6	0.49
CEN7BM		126.5	-10.0	-1.05	114.0	-13.9	-1.48
DA8SNG		133.5	-3.0	-0.32	127.5	-0.4	-0.04
DR3BMH		144.5	8.0	0.84	136.0	8.1	0.86
H5MLZW	*	110.3	-26.3	-2.76	104.1	-23.8	-2.53
H7CHW3	*	163.0	26.5	2.78	153.5	25.6	2.73
J18Y9X		142.0	5.5	0.58	137.0	9.1	0.97
JKH2ZF		138.5	2.0	0.21	125.5	-2.4	-0.25
KHQALP	X	208.0	71.5	7.52	208.0	80.1	8.53
LBLY1B		146.0	9.5	1.00	135.5	7.6	0.81
LQELTW	*	118.0	-18.5	-1.95	117.0	-10.9	-1.16
NC7E8A		143.0	6.5	0.68	132.5	4.6	0.49
P7LBMR		121.5	-15.0	-1.58	112.0	-15.9	-1.69
P8SZL4		136.0	-0.5	-0.06	127.0	-0.9	-0.09
PC7JJC		136.0	-0.5	-0.06	127.5	-0.4	-0.04
Q522NX		132.0	-4.5	-0.48	126.5	-1.4	-0.15
QQ2L1H		135.5	-1.0	-0.11	128.0	0.1	0.01
R5VG5M		132.0	-4.5	-0.48	119.0	-8.9	-0.95
RN9UMR		128.5	-8.0	-0.84	117.5	-10.4	-1.10

**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 902**  
**Total Sulfur Dioxide**

WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
S34MZ5		132.5	-4.0	-0.42	121.0	-6.9	-0.73
S6KK52		135.0	-1.5	-0.16	126.0	-1.9	-0.20
SF59YL		138.5	2.0	0.21	132.0	4.1	0.44
SG3KS4		140.0	3.5	0.37	130.0	2.1	0.23
SNJT5L		135.5	-1.0	-0.11	123.0	-4.9	-0.52
SYP7BY		135.0	-1.5	-0.16	125.0	-2.9	-0.31
TDD35W		139.0	2.5	0.26	135.0	7.1	0.76
TWWFX7		143.5	7.0	0.73	130.5	2.6	0.28
TZH6BJ		137.5	1.0	0.10	131.0	3.1	0.33
UBN68P		120.9	-15.6	-1.65	112.5	-15.3	-1.63
UHQX9C		133.5	-3.0	-0.32	123.0	-4.9	-0.52
UKHPN4		134.0	-2.5	-0.27	131.5	3.6	0.39
V4GWE2		148.0	11.5	1.21	138.0	10.1	1.08
VAKNFQ		140.0	3.5	0.37	131.5	3.6	0.39
VGP25U		140.0	3.5	0.37	129.5	1.6	0.17
WCBBN6		130.4	-6.1	-0.64	119.5	-8.4	-0.89
X9KGGP		148.0	11.5	1.21	140.5	12.6	1.34
Z8NEPB		134.0	-2.5	-0.27	128.5	0.6	0.07
Z8Q5VU		142.0	5.5	0.58	134.0	6.1	0.65
ZAF633	X	85.5	-51.0	-5.37	76.0	-51.9	-5.52

**Grand Means**

136.53 mg/L

**Summary Statistics**

127.88 mg/L

**Std Dev Btwn Labs**

9.51 mg/L

9.40 mg/L

Statistics based on 51 of 55 reporting participants

Wines tested: SA47: White Merlot; SA48: White Merlot

## Analysis 902

## Total Sulfur Dioxide

**Comments on assigned Data Flags**

ALF5YL (X) - Data for both Samples are low.

CEMEDE (X) - Inconsistent in testing between samples.

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

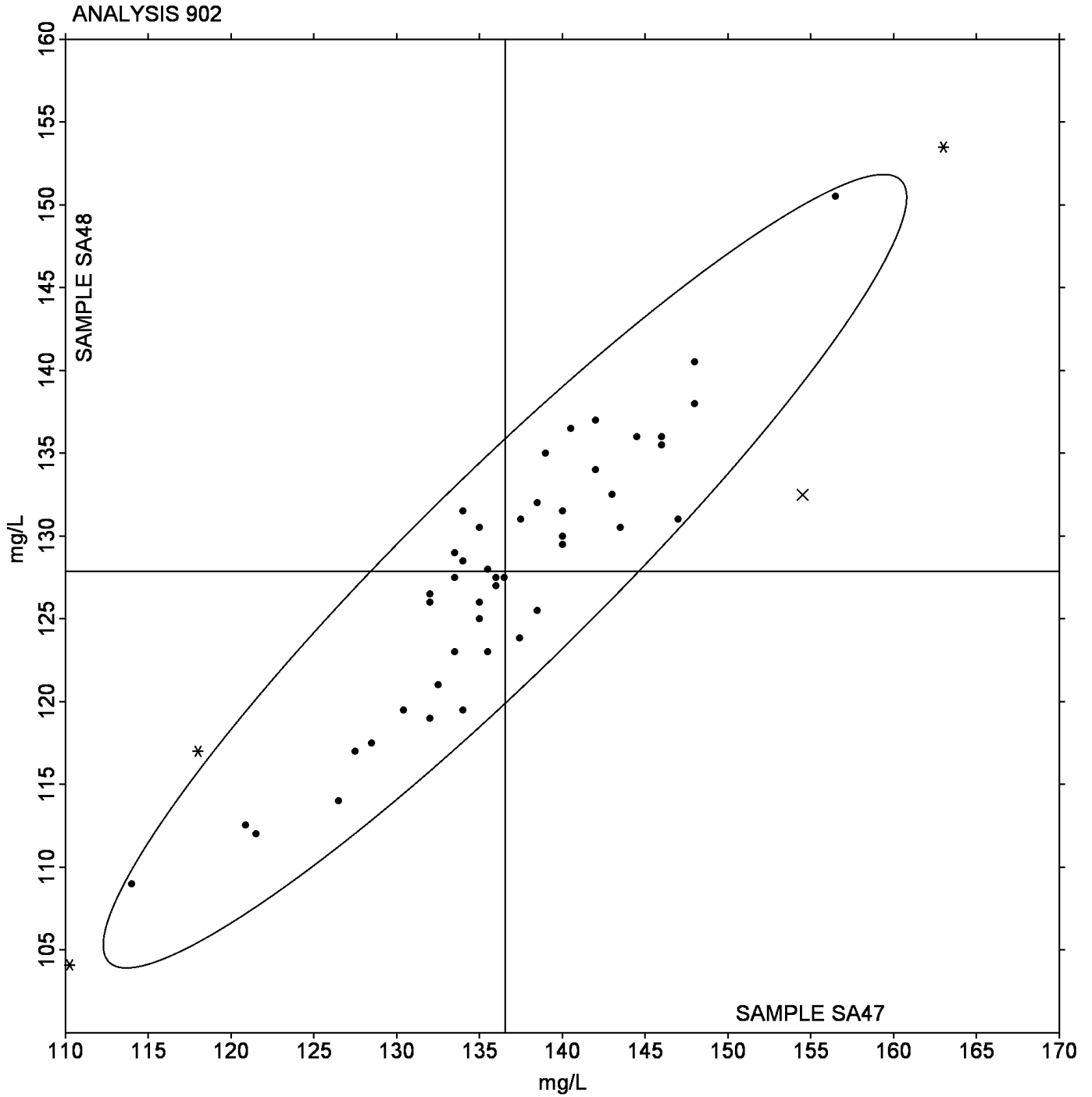
ZAF633 (X) - Data for both samples are low.

**Results by Methodology (as reported by laboratory)**

Test Methodology	Sample SA47 <i>White Merlot</i>			Sample SA48 <i>White Merlot</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Ripper Method	135.9	8.4	-0.6	127.4	8.3	-0.5	24	28
Aeration Oxidation (AO) Method	135.9	5.5	-0.7	126.0	6.1	-1.9	17	18
Segmented Flow Analyzer	133.5	0.0	-3.0	129.0	0.0	1.1	1	1
Enzymatic Method	152.3	6.0	15.7	145.5	7.1	17.6	2	2
Colorimetric Analyzer	141.0	7.1	4.5	131.3	6.0	3.4	2	2
Flow Injection Analysis	140.3	0.4	3.7	133.3	4.6	5.4	2	3

Analysis 902

Total Sulfur Dioxide



**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 903**  
**Free Sulfur Dioxide**

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WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
181DCT	X	5.00	-11.61	-4.06	5.50	-8.94	-3.52
2WTPCW		16.50	-0.11	-0.04	13.50	-0.94	-0.37
32NT9Z		11.20	-5.41	-1.89	9.50	-4.94	-1.95
3MX2Q5		15.50	-1.11	-0.39	16.00	1.56	0.62
3Z49DP		20.50	3.89	1.36	17.50	3.06	1.21
3Z52BW		20.50	3.89	1.36	15.50	1.06	0.42
4FSNLE		23.00	6.39	2.24	19.00	4.56	1.80
4USHY9		21.50	4.89	1.71	19.00	4.56	1.80
4ZWY4H	X	31.50	14.89	5.21	29.00	14.56	5.74
54EWJR		17.50	0.89	0.31	15.00	0.56	0.22
5J6SKW		20.50	3.89	1.36	18.50	4.06	1.60
5NM85L		17.00	0.39	0.14	13.00	-1.44	-0.57
5S2NTS		17.00	0.39	0.14	14.00	-0.44	-0.17
5TPS2K		18.50	1.89	0.66	17.00	2.56	1.01
62ZUZB		14.00	-2.61	-0.91	14.00	-0.44	-0.17
6LUGRU		19.00	2.39	0.84	17.00	2.56	1.01
7TQT89		15.00	-1.61	-0.56	13.00	-1.44	-0.57
7ZTTSB		16.00	-0.61	-0.21	14.00	-0.44	-0.17
8MHM6B		11.50	-5.11	-1.79	9.50	-4.94	-1.95
8N5WP6		18.50	1.89	0.66	15.50	1.06	0.42
9KRS1U		19.74	3.13	1.09	16.34	1.90	0.75
9YSMDP		16.00	-0.61	-0.21	13.00	-1.44	-0.57
ASL89Y		15.50	-1.11	-0.39	12.00	-2.44	-0.96
AW1NX5		16.50	-0.11	-0.04	14.00	-0.44	-0.17
AW1S77	*	18.24	1.63	0.57	19.04	4.60	1.81
B4V7FB		15.50	-1.11	-0.39	14.00	-0.44	-0.17
B6KK9F		15.00	-1.61	-0.56	12.00	-2.44	-0.96
BQUD3H	X	37.50	20.89	7.31	34.00	19.56	7.71
BZ9JNY		10.00	-6.61	-2.31	10.00	-4.44	-1.75
C4UNC9		18.50	1.89	0.66	16.50	2.06	0.81
CT53SJ		15.00	-1.61	-0.56	13.00	-1.44	-0.57
CXPYMP		15.50	-1.11	-0.39	11.00	-3.44	-1.36
DVW68X		15.00	-1.61	-0.56	15.00	0.56	0.22
DXNDJM		16.50	-0.11	-0.04	14.50	0.06	0.02
G49P2D		17.00	0.39	0.14	15.00	0.56	0.22

**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 903**  
**Free Sulfur Dioxide**

WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
HX476Y		17.00	0.39	0.14	13.50	-0.94	-0.37
HZWYKQ		18.00	1.39	0.49	16.00	1.56	0.62
L3YQ28		13.50	-3.11	-1.09	13.00	-1.44	-0.57
LYK3B9		13.35	-3.26	-1.14	10.10	-4.34	-1.71
M7AHMB		12.00	-4.61	-1.61	11.00	-3.44	-1.36
MYTRKM		15.50	-1.11	-0.39	15.00	0.56	0.22
NRNEZ9	X	30.00	13.39	4.69	26.00	11.56	4.56
QMNQV7		17.50	0.89	0.31	15.00	0.56	0.22
R8AG28		18.00	1.39	0.49	16.50	2.06	0.81
RMUZZX		17.50	0.89	0.31	15.50	1.06	0.42
RR9KV6		16.00	-0.61	-0.21	12.00	-2.44	-0.96
S2UL5J		17.00	0.39	0.14	16.50	2.06	0.81
SK43ZR		14.47	-2.14	-0.75	12.35	-2.09	-0.82
TVPBBW		20.50	3.89	1.36	18.50	4.06	1.60
U78RKJ		18.50	1.89	0.66	16.00	1.56	0.62
W29LUP	*	22.50	5.89	2.06	17.00	2.56	1.01
XPJGDY		17.50	0.89	0.31	14.50	0.06	0.02
XV45Y9		14.00	-2.61	-0.91	13.00	-1.44	-0.57
XXWWC1		16.00	-0.61	-0.21	15.00	0.56	0.22
ZBNCDH		11.00	-5.61	-1.96	10.00	-4.44	-1.75

**Grand Means**

16.608 mg/L

**Summary Statistics**

14.438 mg/L

**Std Dev Btwn Labs**

2.859 mg/L

2.537 mg/L

Statistics based on 51 of 55 reporting participants

Wines tested: SA47: White Merlot; SA48: White Merlot

**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 903**  
**Free Sulfur Dioxide**

**Comments on assigned Data Flags**

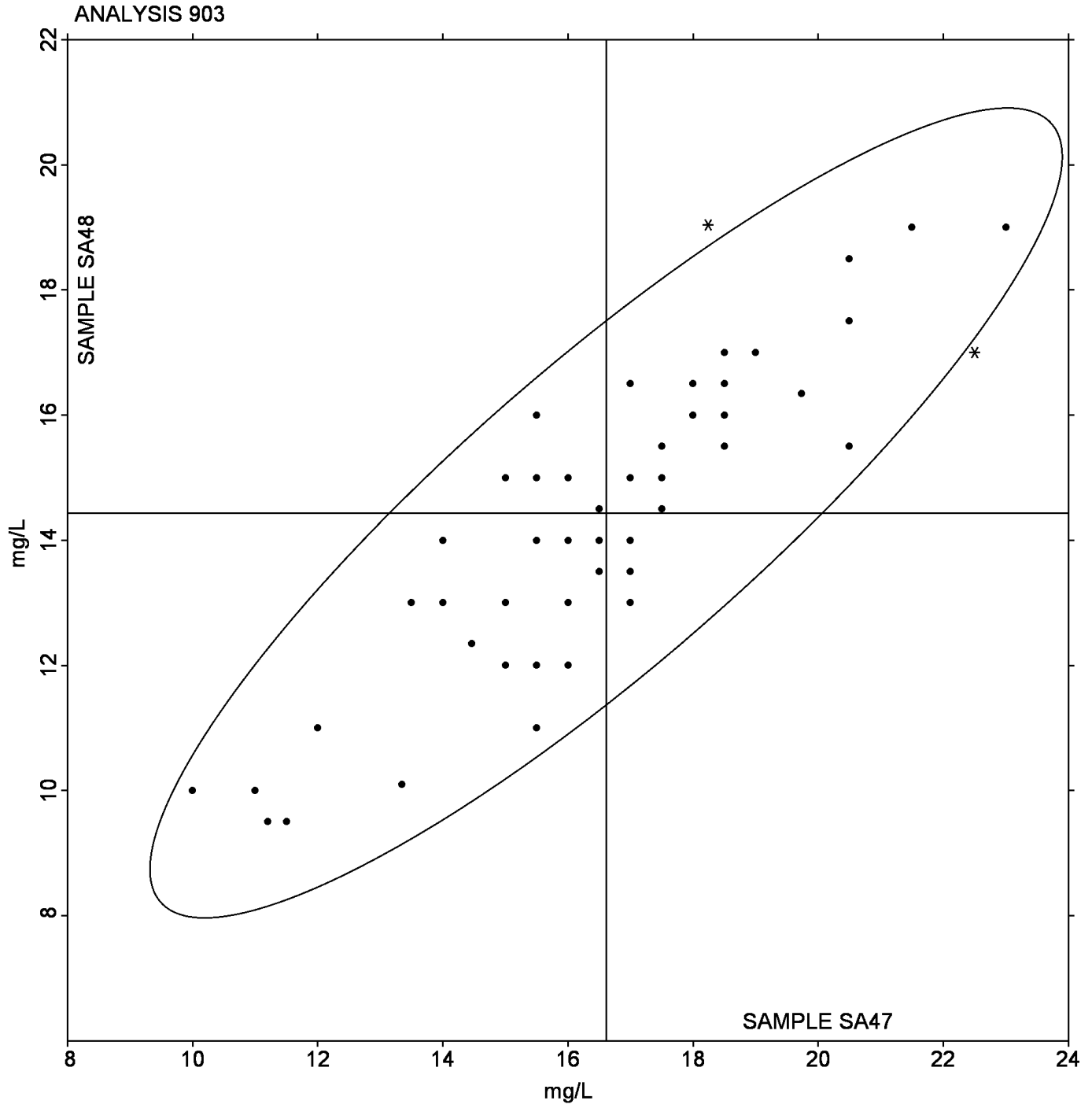
181DCT (X) - Data for both samples are low.  
 4ZWY4H (X) - Data for both samples are high.  
 BQUD3H (X) - Data for both samples are high.  
 NRNEZ9 (X) - Data for both samples are high.

**Results by Methodology (as reported by laboratory)**

Test Methodology	Sample SA47 <i>White Merlot</i>			Sample SA48 <i>White Merlot</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Ripper Method	17.06	2.81	0.45	15.06	2.36	0.62	12	12
Aeration Oxidation (AO) Method	16.49	2.83	-0.12	14.25	2.50	-0.18	32	35
Segmented Flow Analyzer	16.25	1.06	-0.36	14.50	0.71	0.06	2	2
Colormetric Analyzer	15.00	0.00	-1.61	12.00	0.00	-2.44	1	2
Flow Injection Analysis	13.25	2.47	-3.36	11.25	2.47	-3.19	2	2

Analysis 903

Free Sulfur Dioxide



**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 904**  
**Titrateable Acidity**

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WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2KXS3H		6.200	-0.217	-1.01	6.300	-0.147	-0.60
3G6XW1		6.405	-0.012	-0.06	6.390	-0.057	-0.23
3TJ4PU		6.250	-0.167	-0.78	6.250	-0.197	-0.80
44KRQS		6.455	0.038	0.18	6.345	-0.102	-0.41
4CT8EC		6.400	-0.017	-0.08	6.350	-0.097	-0.39
4MBXMW		6.440	0.023	0.11	6.375	-0.072	-0.29
4RRCA3	*	6.850	0.433	2.02	7.050	0.603	2.46
5KK3GF		6.600	0.183	0.85	6.700	0.253	1.03
5QUGFS		6.300	-0.117	-0.55	6.250	-0.197	-0.80
6EDVQ3		6.100	-0.317	-1.48	6.100	-0.347	-1.41
6KN2B2	*	7.000	0.583	2.72	7.000	0.553	2.26
6MFUQT		6.300	-0.117	-0.55	6.300	-0.147	-0.60
777MWF		6.360	-0.057	-0.27	6.430	-0.017	-0.07
7BM2KM		6.400	-0.017	-0.08	6.500	0.053	0.22
85GPZ9	X	7.450	1.033	4.82	7.250	0.803	3.28
8QXN3X	X	6.700	0.283	1.32	7.450	1.003	4.09
9EVU45		6.450	0.033	0.15	6.450	0.003	0.01
A63588		6.370	-0.047	-0.22	6.520	0.073	0.30
BZYT MV		6.320	-0.097	-0.45	6.390	-0.057	-0.23
CP7LC4		6.010	-0.407	-1.90	6.070	-0.377	-1.54
CRZCRV		6.205	-0.212	-0.99	6.230	-0.217	-0.88
DH1BJG	X	5.000	-1.417	-6.62	5.000	-1.447	-5.90
DH32QY	*	6.750	0.333	1.55	7.000	0.553	2.26
DLMLL9	X	6.600	0.183	0.85	6.350	-0.097	-0.39
EHWPP3		6.834	0.417	1.95	6.946	0.499	2.04
FBQEVF		6.435	0.018	0.08	6.520	0.073	0.30
FH4AD3		6.400	-0.017	-0.08	6.400	-0.047	-0.19
K6PMYE	X	59.300	52.883	246.88	59.100	52.653	214.73
KGU25S		6.300	-0.117	-0.55	6.350	-0.097	-0.39
KK8NUR		6.540	0.123	0.57	6.525	0.078	0.32
KM1F9H		6.350	-0.067	-0.31	6.450	0.003	0.01
L3RT7A		6.455	0.038	0.18	6.345	-0.102	-0.41
MJ97P7		6.900	0.483	2.25	7.030	0.583	2.38
MNNUE5		6.000	-0.417	-1.95	5.920	-0.527	-2.15
NGGJW4		6.495	0.078	0.36	6.505	0.058	0.24

**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 904**  
**Titrateable Acidity**

WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
NMRQH2		6.400	-0.017	-0.08	6.500	0.053	0.22
PEPSHB		6.400	-0.017	-0.08	6.450	0.003	0.01
PFLBDB		6.300	-0.117	-0.55	6.300	-0.147	-0.60
Q5QEB3		6.800	0.383	1.79	6.750	0.303	1.24
Q8JHPP		6.305	-0.113	-0.53	6.325	-0.122	-0.50
Q8L8V7		6.550	0.133	0.62	6.600	0.153	0.63
QT1D1N		6.400	-0.017	-0.08	6.400	-0.047	-0.19
S4XMQP		6.200	-0.217	-1.01	6.300	-0.147	-0.60
S96W6X		6.400	-0.017	-0.08	6.400	-0.047	-0.19
UGUWAV		6.550	0.133	0.62	6.600	0.153	0.63
USA582		6.300	-0.117	-0.55	6.300	-0.147	-0.60
USA9J4		6.235	-0.182	-0.85	6.220	-0.227	-0.92
V9RCNQ		6.400	-0.017	-0.08	6.400	-0.047	-0.19
VBG6T7	X	9.575	3.158	14.74	6.585	0.138	0.56
VL4VEE		6.225	-0.192	-0.90	6.290	-0.157	-0.64
VP5Y8M	X	63.900	57.483	268.35	63.900	57.453	234.31
WSD8DQ		6.500	0.083	0.39	6.400	-0.047	-0.19
XGTEMU		6.186	-0.232	-1.08	6.216	-0.231	-0.94
XL7U91		6.350	-0.067	-0.31	6.330	-0.117	-0.48
XL7YK3		6.380	-0.037	-0.17	6.360	-0.087	-0.35
XTTUVX		6.680	0.263	1.23	6.750	0.303	1.24

**Grand Means**

6.4170 g/L as tartaric acid

**Summary Statistics**

6.4466 g/L as tartaric acid

**Std Dev Btwn Labs**

0.2142 g/L as tartaric acid

0.2452 g/L as tartaric acid

**Statistics based on 49 of 56 reporting participants**

Wines tested: SA47: White Merlot; SA48: White Merlot

## Analysis 904

## Titratable Acidity

**Comments on assigned Data Flags**

85GPZ9 (X) - Data for both samples are high. Possible Systematic Error.

8QXN3X (X) - Inconsistent in testing between samples. Data for Sample SA48 are high.

DH1BJG (X) - Data for both samples are low.

DLMLL9 (X) - Inconsistent in testing between samples.

K6PMYE (X) - Extreme data. Lab previously reported in g/100mL, but data appear to be in g/L.

VBG6T7 (X) - Inconsistent in testing between samples. Data for Sample SA47 are high. Also inconsistent in testing within both samples.

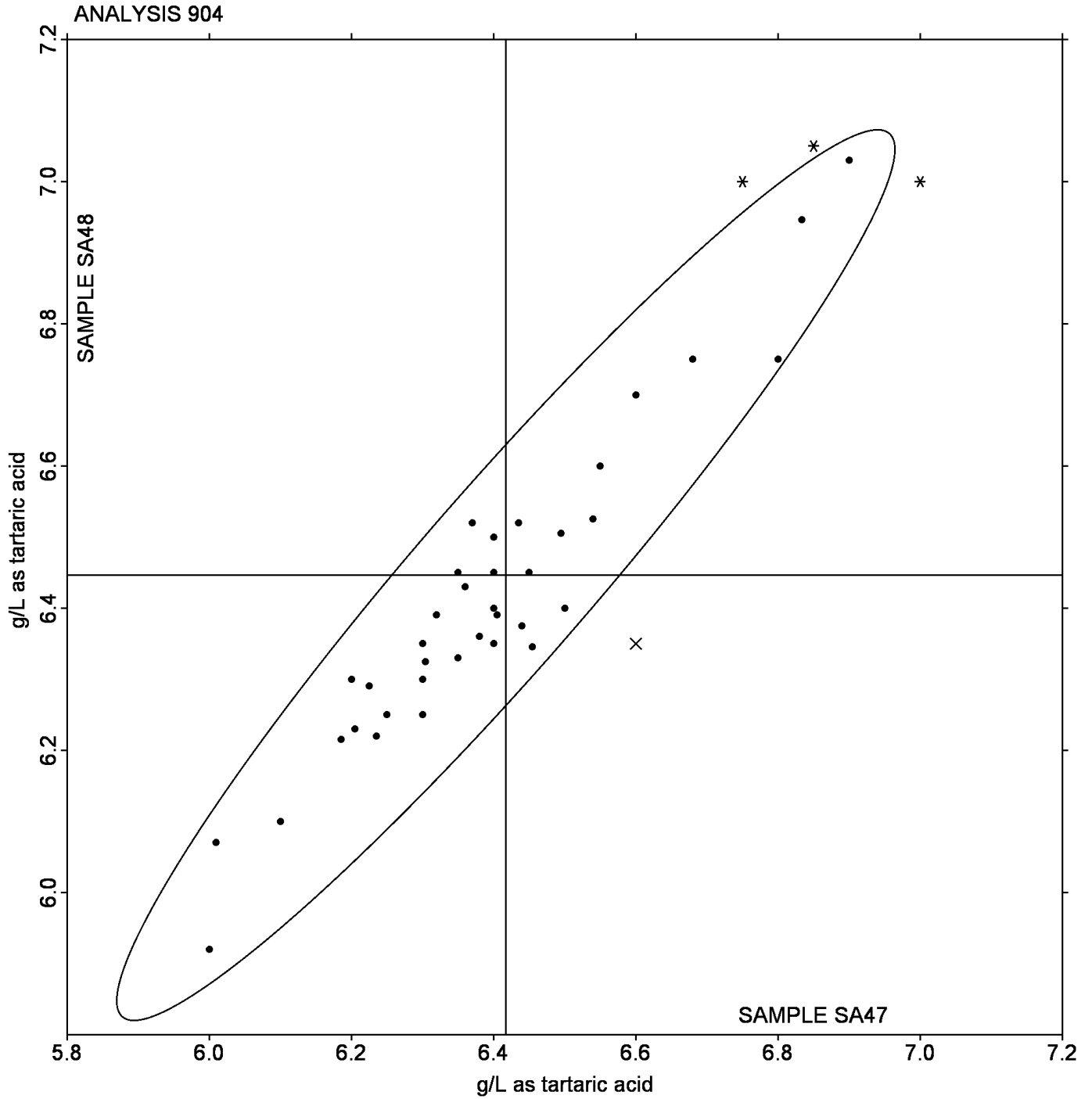
VP5Y8M (X) - Extreme data. Lab indicated reporting in g/100mL, but data appear to be in g/L.

**Results by Methodology (as reported by laboratory)**

Test Methodology	Sample SA47 <i>White Merlot</i>			Sample SA48 <i>White Merlot</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Autotitration	6.387	0.172	-0.030	6.410	0.179	-0.037	28	33
Manual Titration	6.387	0.220	-0.030	6.404	0.254	-0.043	16	19
FTIR	6.400	0.000	-0.017	6.450	0.071	0.003	2	3

Analysis 904

Titrateable Acidity



**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 905**  
**Volatile Acidity**

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WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1T5H1G		0.2245	-0.1218	-1.15	0.1980	-0.1434	-1.38
25JC8Y		0.3950	0.0487	0.46	0.3800	0.0386	0.37
3YD1ML		0.2250	-0.1213	-1.15	0.2300	-0.1114	-1.07
4AL5CD		0.2200	-0.1263	-1.20	0.2000	-0.1414	-1.36
5TUNKB		0.3200	-0.0263	-0.25	0.3500	0.0086	0.08
5X8DVY		0.2350	-0.1113	-1.05	0.2400	-0.1014	-0.97
6R3WZH		0.1800	-0.1663	-1.58	0.1900	-0.1514	-1.45
6TVPEA		0.3550	0.0087	0.08	0.3350	-0.0064	-0.06
75WGSL		0.1600	-0.1863	-1.77	0.1550	-0.1864	-1.79
79HGMD		0.2200	-0.1263	-1.20	0.2150	-0.1264	-1.21
9GMLHW		0.5700	0.2237	2.12	0.5400	0.1986	1.90
A198GW		0.5300	0.1837	1.74	0.5000	0.1586	1.52
A4Z5D3		0.3600	0.0137	0.13	0.3750	0.0336	0.32
BU32EY		0.2000	-0.1463	-1.39	0.2000	-0.1414	-1.36
BU4UC6		0.3800	0.0337	0.32	0.3900	0.0486	0.47
BWVTTQ		0.2100	-0.1363	-1.29	0.2100	-0.1314	-1.26
D79E1G		0.2450	-0.1013	-0.96	0.2400	-0.1014	-0.97
EE6JM5		0.2850	-0.0613	-0.58	0.2850	-0.0564	-0.54
FDG91W		0.2100	-0.1363	-1.29	0.2050	-0.1364	-1.31
HW6BQW		0.4200	0.0737	0.70	0.4150	0.0736	0.71
J88D3B		0.2450	-0.1013	-0.96	0.2400	-0.1014	-0.97
LP4UTT		0.3400	-0.0063	-0.06	0.3150	-0.0264	-0.25
MWVPBJ		0.4150	0.0687	0.65	0.4300	0.0886	0.85
N81144		0.3300	-0.0163	-0.15	0.3300	-0.0114	-0.11
N82U2B		0.4000	0.0537	0.51	0.3800	0.0386	0.37
NHXLZ5		0.2400	-0.1063	-1.01	0.2250	-0.1164	-1.12
Q4KL1C		0.3900	0.0437	0.41	0.3950	0.0536	0.51
Q8D8MR		0.2800	-0.0663	-0.63	0.3000	-0.0414	-0.40
QYA696		0.3750	0.0287	0.27	0.3600	0.0186	0.18
QZ8F3N		0.3450	-0.0013	-0.01	0.3250	-0.0164	-0.16
R713JL		0.4650	0.1187	1.13	0.4250	0.0836	0.80
R7YCC4		0.4350	0.0887	0.84	0.4400	0.0986	0.95
RT3Z78		0.3500	0.0037	0.04	0.3500	0.0086	0.08
RVMKSX		0.3525	0.0062	0.06	0.3305	-0.0109	-0.10
RVVRLZ		0.3650	0.0187	0.18	0.3525	0.0111	0.11

**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 905**  
**Volatile Acidity**

WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
S1UTQY		0.4200	0.0737	0.70	0.4200	0.0786	0.75
S3LNVF		0.4650	0.1187	1.13	0.4650	0.1236	1.18
SETTL8		0.3350	-0.0113	-0.11	0.3350	-0.0064	-0.06
TC2YFR		0.2400	-0.1063	-1.01	0.2500	-0.0914	-0.88
U5XDTL		0.4350	0.0887	0.84	0.4450	0.1036	0.99
U8P8Y3		0.3650	0.0187	0.18	0.3600	0.0186	0.18
V39ANL		0.3600	0.0137	0.13	0.3750	0.0336	0.32
V6Z7LS		0.4000	0.0537	0.51	0.4150	0.0736	0.71
VH5JJE		0.3700	0.0237	0.22	0.3750	0.0336	0.32
W2HFVB	*	0.1400	-0.2063	-1.95	0.1100	-0.2314	-2.22
WZVRQC		0.5800	0.2337	2.22	0.5700	0.2286	2.19
X966NR		0.3500	0.0037	0.04	0.3550	0.0136	0.13
XJTQYV		0.5175	0.1712	1.62	0.5175	0.1761	1.69
Y6L692		0.3650	0.0187	0.18	0.3600	0.0186	0.18
Y7L1YY		0.3750	0.0287	0.27	0.3800	0.0386	0.37
YMMNTZ	X	4.6000	4.2537	40.32	4.6000	4.2586	40.83
Z1FR5B		0.5074	0.1611	1.53	0.4774	0.1359	1.30
Z36LAS		0.4900	0.1437	1.36	0.4900	0.1486	1.42
ZZ9ZWW		0.3650	0.0187	0.18	0.3450	0.0036	0.03

Grand Means		Summary Statistics	
	0.34626 g/L as acetic acid		0.34143 g/L as acetic acid
Std Dev Btwn Labs			
	0.10551 g/L as acetic acid		0.10429 g/L as acetic acid
<b>Statistics based on 53 of 54 reporting participants</b>			

Wines tested: SA47: White Merlot; SA48: White Merlot

**Comments on assigned Data Flags**

YMMNTZ (X) - Extreme data. Lab previously reported in g/100mL, but data appear to be in g/L

## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 905

## Volatile Acidity

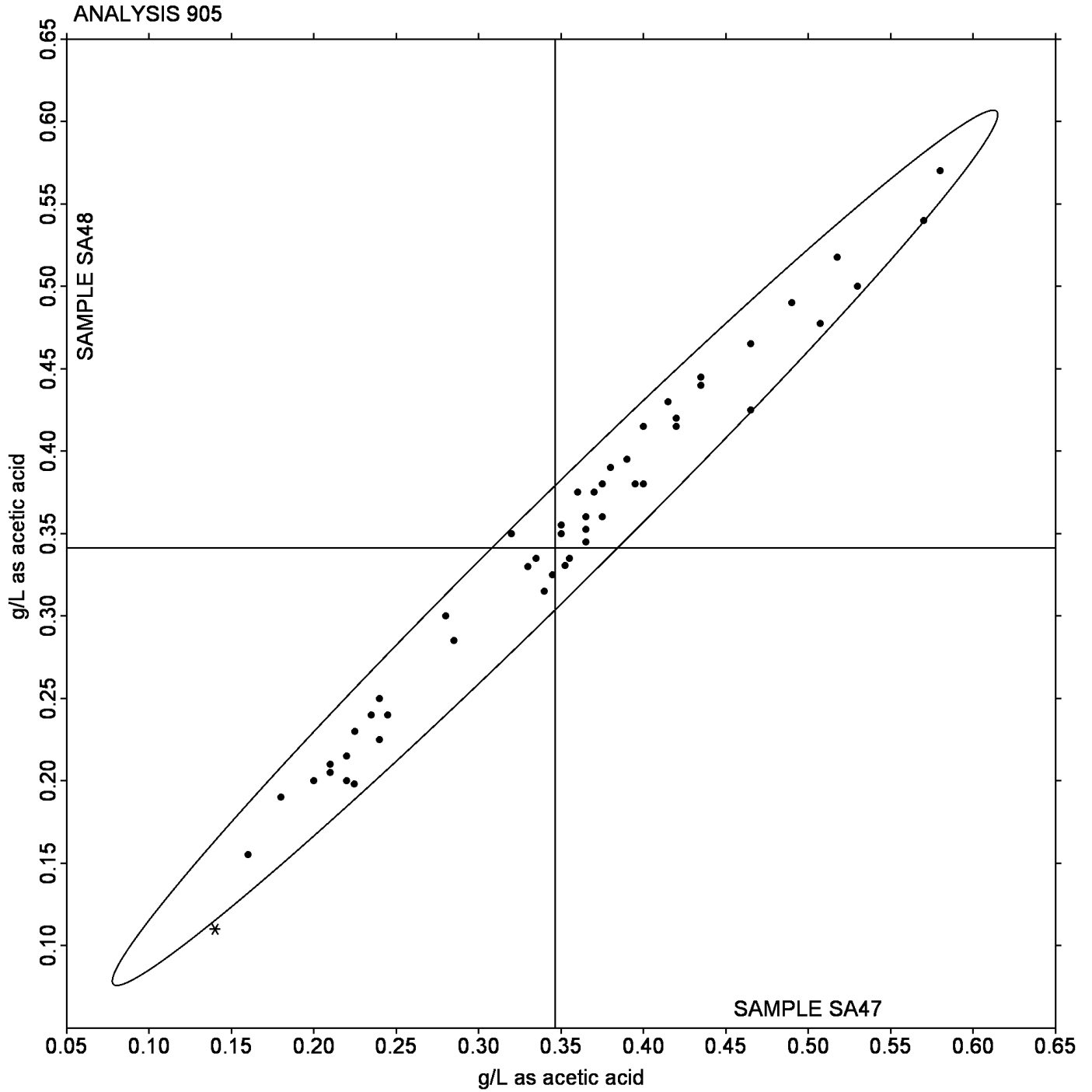
## Results by Methodology (as reported by laboratory)

Test Methodology	Sample SA47 <i>White Merlot</i>			Sample SA48 <i>White Merlot</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Cash Still Method	0.4016	0.0775	0.0554	0.3951	0.0725	0.0537	32	33
Enzymatic Method	0.2195	0.0236	-0.1267	0.2132	0.0245	-0.1283	12	12
GC	0.2400	0.0000	-0.1063	0.2500	0.0000	-0.0914	1	1
Seg. Flow / Colorimetric Analyzer	0.3842	0.0337	0.0379	0.3908	0.0369	0.0494	6	6
FTIR	0.1800	0.0000	-0.1663	0.1900	0.0000	-0.1514	1	2

ASEV-CTS Wine Industry Interlaboratory Testing Program

Analysis 905

Volatile Acidity



**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 906**  
**Specific Gravity**

WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1LN6LV		1.007	0.000	0.00	1.007	0.000	0.05
2DHPQF		1.009	0.002	1.62	1.008	0.002	1.50
2G8MMM		1.007	0.000	0.29	1.007	0.000	0.22
3RXEMV		1.007	0.000	0.00	1.007	0.000	-0.03
3VA54J		1.007	0.000	0.03	1.007	0.000	0.00
4KKLMK		1.008	0.001	1.16	1.008	0.001	1.13
5957KP		1.007	0.000	-0.04	1.007	0.000	0.01
5CF1ZF		1.007	0.000	0.08	1.007	0.000	0.05
5E7V5W	M	1.007	0.000	0.33	No data reported for this sample		
6M6FL4		1.007	0.000	0.03	1.007	0.000	-0.01
6M78JB		1.007	0.000	0.02	1.007	0.000	0.02
6PX7ZV	*	1.004	-0.002	-1.83	1.005	-0.002	-1.69
6TH3XL	X	1.007	0.001	0.71	1.008	0.001	0.96
7HSTV5		1.007	0.000	0.18	1.007	0.000	0.24
7QR8R4		1.007	0.000	0.13	1.007	0.000	0.22
8E2WYY	*	1.005	-0.002	-1.58	1.005	-0.002	-1.44
8JLSVP		1.006	-0.001	-0.67	1.006	-0.001	-0.61
8JLW6S		1.007	0.000	0.00	1.007	0.000	-0.03
9NLE7H		1.008	0.001	1.24	1.008	0.002	1.25
9WFYMX		1.004	-0.003	-2.37	1.004	-0.003	-2.35
AUP4GF		1.006	-0.001	-0.50	1.006	-0.001	-0.61
BNHXEh		1.007	0.000	0.04	1.007	0.000	0.05
BNKML1		1.007	0.000	0.02	1.007	0.000	0.04
ENEBRU		1.006	-0.001	-0.54	1.006	-0.001	-0.61
FF82X6		1.006	-0.001	-0.66	1.006	-0.001	-0.82
FHY134		1.007	0.000	-0.02	1.007	0.000	-0.02
FKNGLC	*	1.010	0.004	3.08	1.010	0.004	3.12
GDH41Z		1.008	0.001	1.00	1.008	0.001	1.05
H33HJB		1.006	-0.001	-0.42	1.006	0.000	-0.40
KZDNZF		1.007	0.000	0.04	1.007	0.000	0.04
LS8BE4		1.007	0.000	-0.05	1.006	0.000	-0.05
N53DV9		1.007	0.000	0.06	1.007	0.000	0.00
NQ9YG1	X	1.800	0.793	659.28	1.800	0.793	656.93
NS2RVT		1.007	0.000	0.26	1.007	0.000	0.31
PLUJTV		1.007	0.000	0.00	1.007	0.000	-0.03

**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 906**  
**Specific Gravity**

WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
RFH8ZR		1.008	0.001	0.91	1.008	0.001	0.92
RZ361Q		1.006	0.000	-0.09	1.006	0.000	-0.14
SXSVE6	*	1.009	0.002	1.66	1.009	0.002	1.79
SXTNCD		1.008	0.001	1.16	1.008	0.001	1.17
TRLFAF		1.006	0.000	-0.25	1.006	0.000	-0.32
WL3KY2	X	1.009	0.002	1.99	1.009	0.002	1.63
WQHXYU		1.007	0.000	0.06	1.007	0.000	0.09
XK2P94	X	1.005	-0.001	-1.08	1.005	-0.002	-1.44
XNQ7J3		1.005	-0.002	-1.50	1.005	-0.002	-1.52
XSUP7Y		1.006	-0.001	-0.42	1.006	0.000	-0.40
YGJXQE		1.007	0.000	-0.08	1.006	0.000	-0.11
YGLNWX		1.004	-0.002	-2.08	1.004	-0.003	-2.10
YHDQE6	X	1.007	0.000	0.00	1.066	0.059	49.23

Grand Means		Summary Statistics	
1.0066	sp gr 20/20 C	1.0065	sp gr 20/20 C
0.0012	sp gr 20/20 C	0.0012	sp gr 20/20 C
<b>Statistics based on 42 of 48 reporting participants</b>			

Wines tested: SA47: White Merlot; SA48: White Merlot

**Comments on assigned Data Flags**

5E7V5W (M) - Laboratory did not submit data for Sample SA48.

6TH3XL (X) - Inconsistent in testing between samples.

NQ9YG1 (X) - Data for both samples are high.

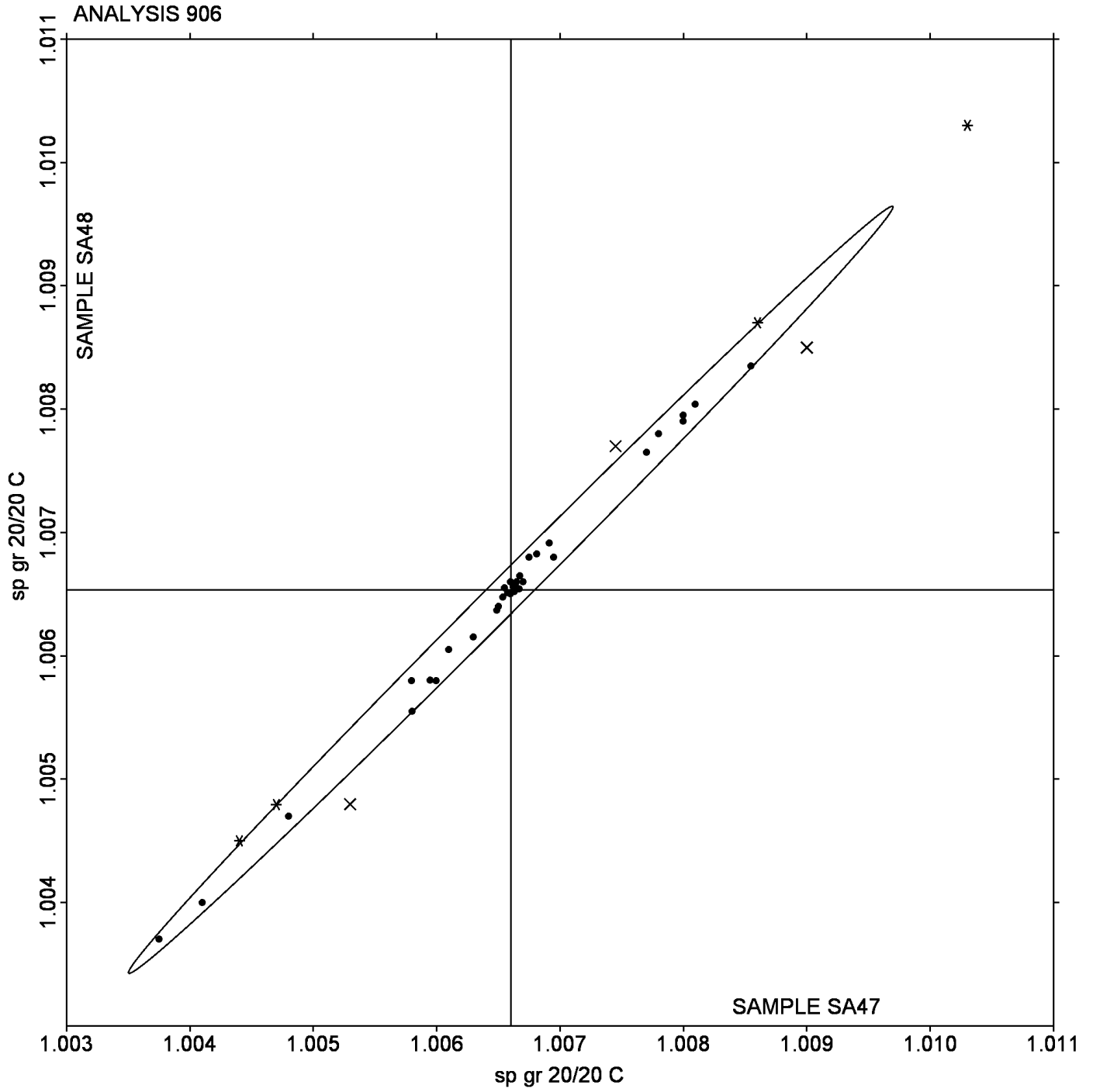
WL3KY2 (X) - Inconsistent in testing between samples.

XK2P94 (X) - Inconsistent in testing between samples. Also inconsistent in testing within Sample SA47.

YHDQE6 (X) - Inconsistent in testing between samples. Data for Sample SA48 are high, possible transcription error.

Analysis 906

Specific Gravity



## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 907

## pH

WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2BHBA3		3.060	-0.030	-0.92	3.050	-0.039	-1.17
3AR1JE		3.080	-0.010	-0.30	3.070	-0.019	-0.57
3EMSQR	X	3.055	-0.035	-1.07	3.110	0.021	0.62
56ZFYP		3.095	0.005	0.16	3.095	0.006	0.18
59C3PM		3.115	0.025	0.77	3.120	0.031	0.92
7A7RE2		3.150	0.060	1.84	3.155	0.066	1.97
7GHS2J		3.120	0.030	0.92	3.120	0.031	0.92
7LXBZS		3.105	0.015	0.46	3.100	0.011	0.33
833DUP		3.070	-0.020	-0.61	3.060	-0.029	-0.87
8346SX		3.100	0.010	0.31	3.110	0.021	0.62
87K49E		3.060	-0.030	-0.92	3.080	-0.009	-0.27
8RBC4P		3.030	-0.060	-1.84	3.040	-0.049	-1.47
92LBB2		3.090	0.000	0.00	3.080	-0.009	-0.27
94U6B8		3.062	-0.028	-0.86	3.063	-0.027	-0.80
9FSN1V		3.030	-0.060	-1.84	3.040	-0.049	-1.47
AN5W2W		3.060	-0.030	-0.92	3.060	-0.029	-0.87
AXNXHL		3.160	0.070	2.15	3.170	0.081	2.42
CD7VUH	X	2.900	-0.190	-5.83	2.900	-0.189	-5.66
D73B6C		3.095	0.005	0.16	3.095	0.006	0.18
DVW7AH		3.115	0.025	0.77	3.120	0.031	0.92
DWP9TS	X	3.130	0.040	1.23	3.180	0.091	2.72
F1X37N		3.150	0.060	1.84	3.145	0.056	1.67
G61NAA		3.115	0.025	0.77	3.095	0.006	0.18
G8SHFS		3.080	-0.010	-0.30	3.080	-0.009	-0.27
GAJQRG		3.100	0.010	0.31	3.100	0.011	0.33
GUTLB8		3.030	-0.060	-1.84	3.030	-0.059	-1.77
H2M8M5	*	3.070	-0.020	-0.61	3.040	-0.049	-1.47
H8RYBQ		3.095	0.005	0.16	3.095	0.006	0.18
J2LPH2		3.065	-0.025	-0.76	3.050	-0.039	-1.17
JYWBPX	X	3.075	-0.015	-0.46	3.035	-0.054	-1.62
K7QUQS		3.095	0.005	0.16	3.095	0.006	0.18
L4ZWSL		3.100	0.010	0.31	3.090	0.001	0.03
LXTHNV		3.120	0.030	0.92	3.120	0.031	0.92
LZKG4E		3.100	0.010	0.31	3.090	0.001	0.03
M88P7C		3.110	0.020	0.62	3.110	0.021	0.62

## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 907

## pH

WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
M926WD		3.085	-0.005	-0.15	3.090	0.001	0.03
MA1TPR		3.049	-0.041	-1.26	3.043	-0.047	-1.40
MJX9T3		3.100	0.010	0.31	3.100	0.011	0.33
MXSQQN		3.035	-0.055	-1.69	3.035	-0.054	-1.62
N3VBTA		3.100	0.010	0.31	3.100	0.011	0.33
N5N373		3.075	-0.015	-0.46	3.080	-0.009	-0.27
N6ACRX	*	3.135	0.045	1.38	3.160	0.071	2.12
NCSVPC		3.100	0.010	0.31	3.090	0.001	0.03
PHV8XV		3.110	0.020	0.62	3.100	0.011	0.33
PZ45PZ		3.050	-0.040	-1.23	3.050	-0.039	-1.17
QARPAQ		3.135	0.045	1.38	3.125	0.036	1.07
REZK1J		3.105	0.015	0.46	3.085	-0.004	-0.12
S8U354		3.095	0.005	0.16	3.090	0.001	0.03
SC7TMS		3.090	0.000	0.00	3.085	-0.004	-0.12
T539ZM		3.080	-0.010	-0.30	3.080	-0.009	-0.27
TUK9BL		3.130	0.040	1.23	3.135	0.046	1.37
U3M1T1	X	3.055	-0.035	-1.07	3.110	0.021	0.62
WJZK5W		3.075	-0.015	-0.46	3.085	-0.004	-0.12
WMD435	*	3.010	-0.080	-2.45	3.030	-0.059	-1.77
X6SW5Z		3.090	0.000	0.00	3.100	0.011	0.33
YZLMBC		3.110	0.020	0.62	3.115	0.026	0.77

## Grand Means

3.0899 pH

## Summary Statistics

3.0891 pH

## Std Dev Btwn Labs

0.0326 pH

0.0334 pH

Statistics based on 51 of 56 reporting participants

Wines tested: SA47: White Merlot; SA48: White Merlot

**Analysis 907**

**pH**

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**Comments on assigned Data Flags**

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

CD7VUH (X) - Data for both samples are low.

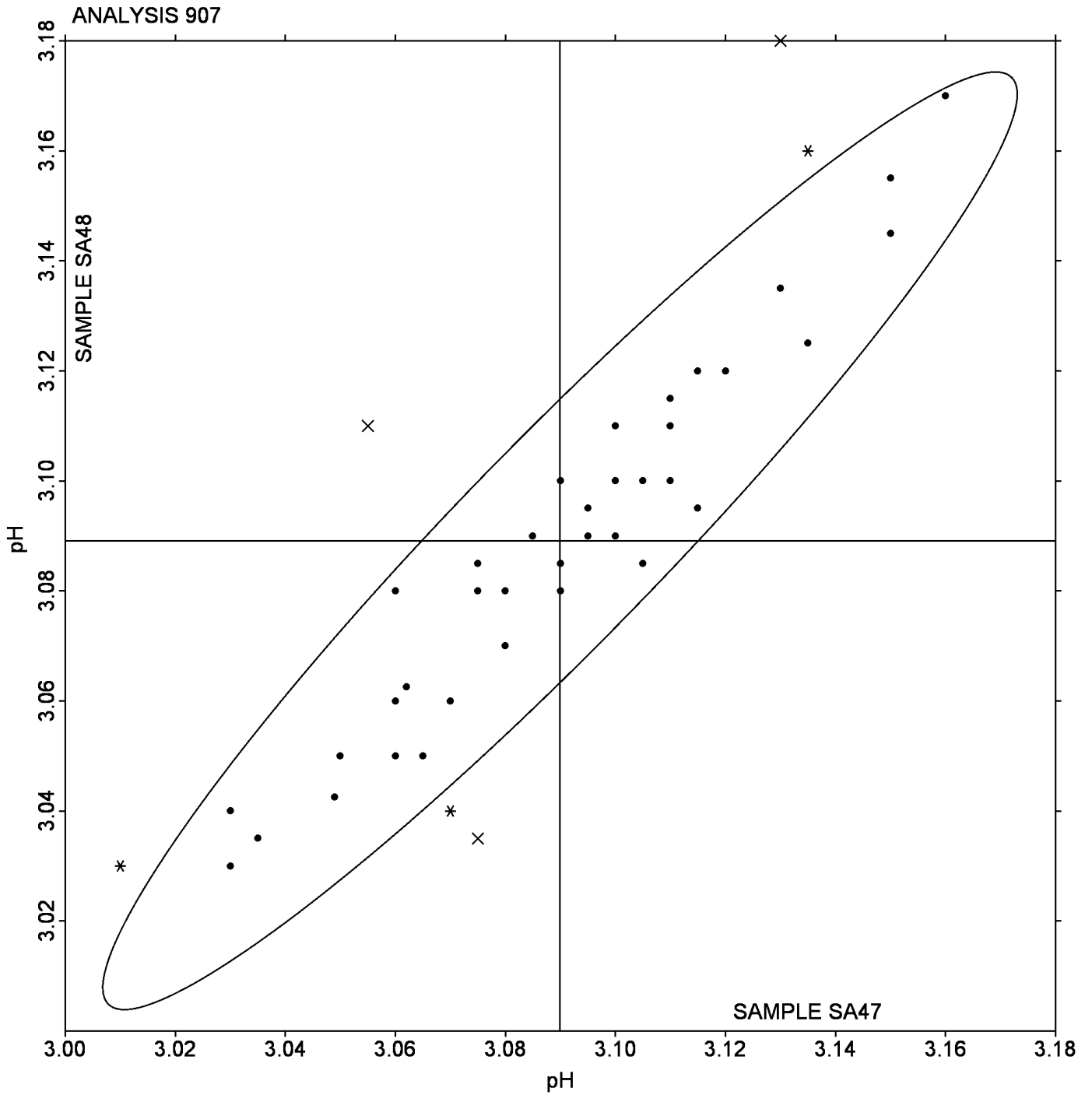
DWP9TS (X) - Inconsistent in testing between samples. Data for Sample SA48 are high.

JYWBPX (X) - Inconsistent in testing between samples.

U3M1T1 (X) - Inconsistent in testing between samples.

Analysis 907

pH



**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 908**  
**Residual Sugar**

WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2ZMVB6		30.60	0.82	0.47	30.77	1.43	1.01
4C3ZLT		29.36	-0.42	-0.25	29.48	0.14	0.10
4SPUEC		31.65	1.87	1.08	32.13	2.79	1.98
7NWWJH		30.75	0.97	0.56	29.75	0.41	0.29
8L455R	*	34.00	4.22	2.44	28.00	-1.34	-0.95
9715MM		27.98	-1.80	-1.04	27.86	-1.48	-1.05
9EXVB4		28.81	-0.98	-0.56	28.63	-0.70	-0.50
9VKSDD		27.00	-2.78	-1.61	27.00	-2.34	-1.65
A1UVSY	X	87.50	57.72	33.37	92.50	63.16	44.75
H9U45B		30.60	0.82	0.47	30.30	0.96	0.68
LA1FKJ		28.00	-1.78	-1.03	28.20	-1.14	-0.80
LM3FV4		29.50	-0.28	-0.16	28.00	-1.34	-0.95
LVRKC3		29.30	-0.48	-0.28	29.20	-0.14	-0.10
NZR4AD	X	3.00	-26.78	-15.49	3.00	-26.34	-18.66
QP7TBR		28.80	-0.98	-0.57	30.10	0.76	0.54
QRT33Y		28.60	-1.18	-0.68	28.55	-0.79	-0.56
RA2YB2		30.00	0.22	0.12	30.00	0.66	0.47
UV16FA		31.60	1.82	1.05	31.40	2.06	1.46

Grand Means		Summary Statistics	
	29.784 g/L		29.336 g/L
Std Dev Btwn Labs			1.411 g/L
	1.730 g/L		
<b>Statistics based on 16 of 18 reporting participants</b>			

Wines tested: SA47: White Merlot; SA48: White Merlot

**Comments on assigned Data Flags**

8L455R (X) - Inconsistent in testing between samples. Also inconsistent in testing within Sample SA47.

A1UVSY (X) - Data for both samples are high.

NZR4AD (X) - Extreme data. Data appear to be off by a factor of 10.

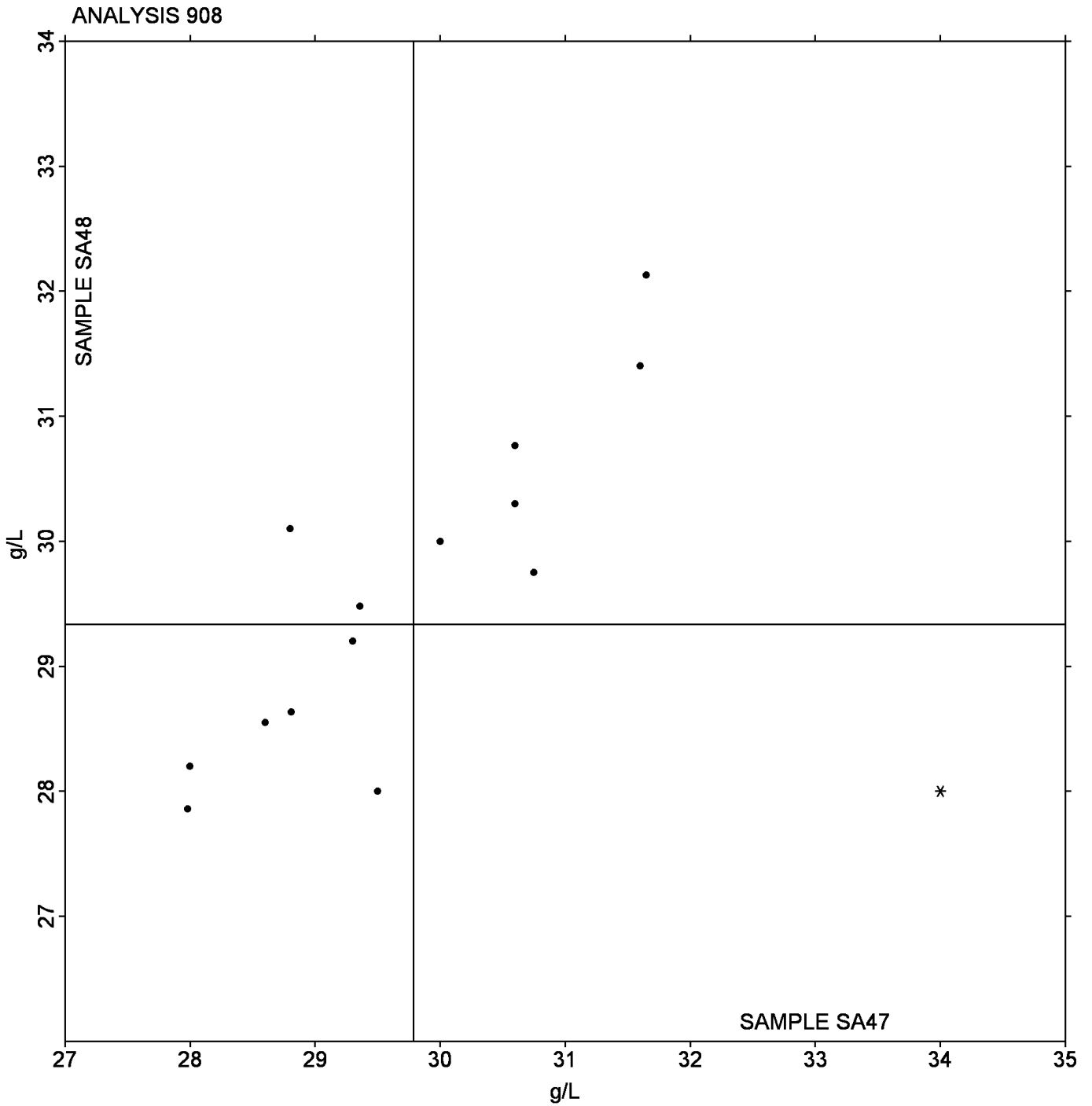
**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 908**  
**Residual Sugar**

**Results by Methodology (as reported by laboratory)**

Test Methodology	Sample SA47 <i>White Merlot</i>			Sample SA48 <i>White Merlot</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Cu Reduction Method	29.37	1.40	-0.42	29.24	1.38	-0.10	10	13
Segmented Flow	30.08	1.89	0.29	30.10	2.14	0.76	3	3
FTIR	29.33	0.04	-0.45	29.34	0.20	0.00	2	2

Analysis 908

Residual Sugar



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 909**  
**L-Malic Acid**

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WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1M4PZE	X	2.380	1.146	11.60	2.145	0.892	8.82
21311W		1.225	-0.010	-0.10	1.214	-0.039	-0.39
23UV6D		1.100	-0.134	-1.36	1.100	-0.153	-1.52
25HKAR		1.143	-0.091	-0.93	1.196	-0.057	-0.57
2FWHXG		1.311	0.076	0.77	1.326	0.072	0.71
4L1315		1.285	0.051	0.51	1.295	0.042	0.41
4NN7KH		1.168	-0.067	-0.68	1.255	0.002	0.02
5DVRFS		1.194	-0.041	-0.41	1.227	-0.027	-0.27
5DYC66		1.350	0.116	1.17	1.350	0.097	0.96
6B8E8Z		1.208	-0.026	-0.27	1.264	0.011	0.11
6DSZUP	X	1.763	0.529	5.35	1.793	0.540	5.34
6MP9FL		1.125	-0.109	-1.11	1.145	-0.108	-1.07
7526EB		1.050	-0.184	-1.87	1.065	-0.188	-1.86
77TZKT		1.281	0.046	0.47	1.302	0.048	0.48
7AGKFP		1.262	0.028	0.28	1.234	-0.019	-0.19
7XX8NZ		1.275	0.041	0.41	1.325	0.072	0.71
82R7H3		1.237	0.002	0.02	1.232	-0.022	-0.22
9EKAUE		1.310	0.076	0.77	1.330	0.077	0.76
A8DWQP		1.260	0.026	0.26	1.300	0.047	0.46
CDFPV5		1.140	-0.094	-0.96	1.145	-0.108	-1.07
DJCLG3		1.145	-0.089	-0.91	1.145	-0.108	-1.07
EJXAS	X	2.050	0.816	8.26	1.960	0.707	6.99
F67JFB		1.334	0.100	1.01	1.337	0.083	0.82
FCD145		1.327	0.093	0.94	1.338	0.084	0.83
GK8FC9		1.430	0.196	1.98	1.455	0.202	2.00
GPM1BH		1.270	0.036	0.36	1.310	0.057	0.56
GY3YT7		1.300	0.066	0.66	1.255	0.002	0.02
HHGM7S		1.190	-0.044	-0.45	1.190	-0.063	-0.63
L96NVR		1.213	-0.021	-0.22	1.273	0.020	0.19
L98C29	X	1.065	-0.169	-1.72	1.210	-0.043	-0.43
M3238M		1.090	-0.144	-1.46	1.120	-0.133	-1.32
M5TXD3		1.262	0.028	0.28	1.274	0.020	0.20
ML15C6		1.143	-0.091	-0.93	1.196	-0.057	-0.57
PM4P7J		1.370	0.136	1.37	1.360	0.107	1.06
PTKVGQ		1.255	0.021	0.21	1.260	0.007	0.07

**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 909**  
**L-Malic Acid**

WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
QFYECV		1.174	-0.060	-0.61	1.197	-0.056	-0.56
UXKVL3	X	0.950	-0.284	-2.88	2.020	0.767	7.59
V6R1UB		1.160	-0.074	-0.75	1.121	-0.132	-1.31
VMEBES		1.204	-0.030	-0.31	1.257	0.004	0.04
YG13WS		1.135	-0.099	-1.01	1.160	-0.093	-0.92
ZAXETH	X	1.875	0.640	6.48	1.960	0.707	6.99
ZPVJ5W	*	1.515	0.281	2.84	1.570	0.317	3.13

Grand Means		Summary Statistics	
	1.2344 g/L		1.2533 g/L
Std Dev Btwn Labs			0.1010 g/L
	0.0987 g/L		
<b>Statistics based on 36 of 42 reporting participants</b>			

Wines tested: SA47: White Merlot; SA48: White Merlot

**Comments on assigned Data Flags**

1M4PZE (X) - Data for both Samples are high.

6DSZUP (X) - Data for both samples are high.

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

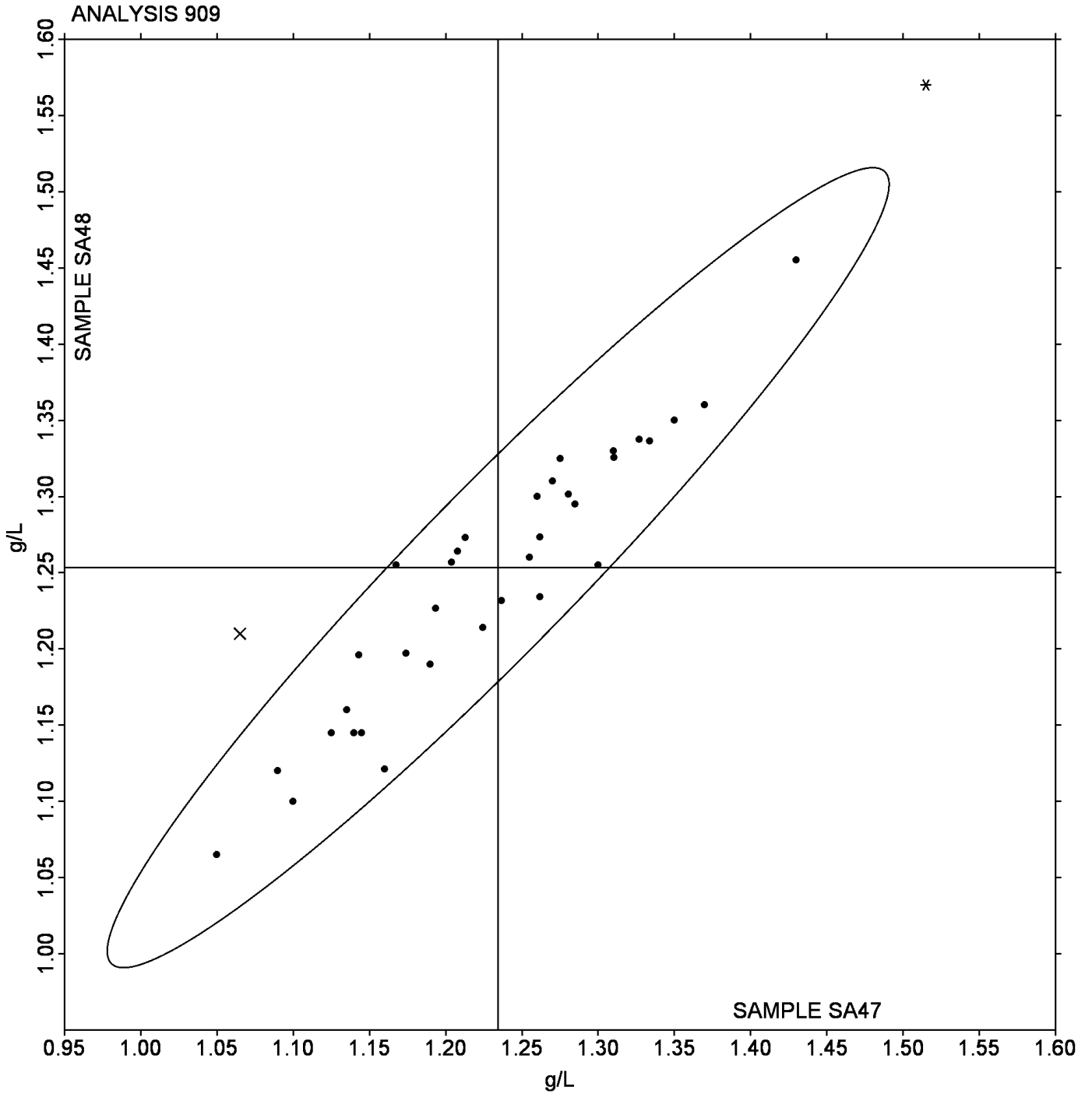
L98C29 (X) - Inconsistent in testing between samples.

UXKVL3 (X) - Inconsistent in testing between samples. Data high for Sample SA48 and low for Sample SA47.

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

Analysis 909

L-Malic Acid



## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 910

## Glucose + Fructose

WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
246KDW	*	33.26	4.14	3.17	33.37	4.08	2.87
34ZZUL		30.04	0.92	0.71	29.44	0.15	0.11
3SPCZ3		28.77	-0.35	-0.27	30.33	1.05	0.74
46S2MV		28.90	-0.22	-0.17	29.45	0.17	0.12
4LH36F		29.55	0.43	0.33	29.80	0.52	0.36
5GHXR V	X	21.30	-7.82	-5.99	21.20	-8.08	-5.69
5YNP1H		27.15	-1.97	-1.51	26.55	-2.73	-1.92
7BHRHN		27.98	-1.14	-0.87	27.86	-1.42	-1.00
7GVGZB		29.81	0.69	0.53	29.92	0.64	0.45
818CB9		28.75	-0.37	-0.28	28.55	-0.73	-0.52
B4682K		28.65	-0.47	-0.36	29.20	-0.08	-0.06
B9LKHZ	X	4.48	-24.64	-18.87	4.50	-24.79	-17.44
BTMB68		30.75	1.63	1.25	30.50	1.22	0.86
C3F8WM		28.65	-0.47	-0.36	28.80	-0.48	-0.34
CKY6XD		29.90	0.78	0.60	29.80	0.52	0.36
CME44A		28.50	-0.62	-0.47	28.60	-0.68	-0.48
CX1UXV		29.20	0.08	0.06	29.50	0.22	0.15
DUAGLQ		30.15	1.03	0.79	31.10	1.82	1.28
HRF2FY	X	26.75	-2.37	-1.81	22.25	-7.03	-4.95
J3P1NB		29.50	0.38	0.29	29.50	0.22	0.15
JYAGP3		29.00	-0.12	-0.09	29.00	-0.28	-0.20
K81TK1	X	16.30	-12.82	-9.82	16.03	-13.26	-9.33
KWJMJL		27.54	-1.58	-1.21	27.57	-1.71	-1.20
L1X9WW		30.17	1.05	0.80	29.42	0.13	0.09
L9VSKL		29.70	0.58	0.45	29.55	0.27	0.19
M3PHRX		30.35	1.23	0.94	30.05	0.77	0.54
NCR3R5		30.30	1.18	0.91	29.40	0.12	0.08
PFJK74	*	29.60	0.48	0.37	32.15	2.87	2.02
RX5MDJ		28.50	-0.62	-0.47	31.00	1.72	1.21
SQ22RD		30.02	0.90	0.69	29.27	-0.01	-0.01
T782RZ		29.65	0.53	0.41	29.25	-0.03	-0.02
T8CA3Y		30.30	1.18	0.91	29.40	0.12	0.08
T9ZT5S		26.88	-2.24	-1.71	27.52	-1.76	-1.24
U14G4V		28.60	-0.52	-0.40	27.65	-1.63	-1.15
U3VB9B	X	9.87	-19.25	-14.75	9.79	-19.50	-13.72

**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 910**  
**Glucose + Fructose**

WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
U6JRSK		27.50	-1.62	-1.24	27.50	-1.78	-1.25
UN2U4E		30.35	1.23	0.94	30.65	1.37	0.96
VFXC8Y	X	7.88	-21.24	-16.27	8.00	-21.28	-14.97
VP73TK		27.58	-1.54	-1.18	27.74	-1.55	-1.09
VZCGYX	*	26.95	-2.17	-1.66	29.55	0.27	0.19
YVKLSG		28.43	-0.69	-0.53	28.78	-0.50	-0.35
ZD3S4R		27.30	-1.82	-1.39	26.47	-2.82	-1.98

Grand Means		Summary Statistics	
	29.117 g/L		29.282 g/L
Std Dev Btwn Labs			1.422 g/L
	1.306 g/L		
<b>Statistics based on 36 of 42 reporting participants</b>			

Wines tested: SA47: White Merlot; SA48: White Merlot

**Comments on assigned Data Flags**

- 5GHXRV (X) - Data for both samples are low.
- B9LKHZ (X) - Data for both samples are low.
- HRF2FY (X) - Inconsistent in testing between samples. Data for Sample set DA48 are low.
- K81TK1 (X) - Data for both samples are low.
- U3VB9B (X) - Data for both samples are low.
- VFXC8Y (X) - Data for both samples are low.

## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 910

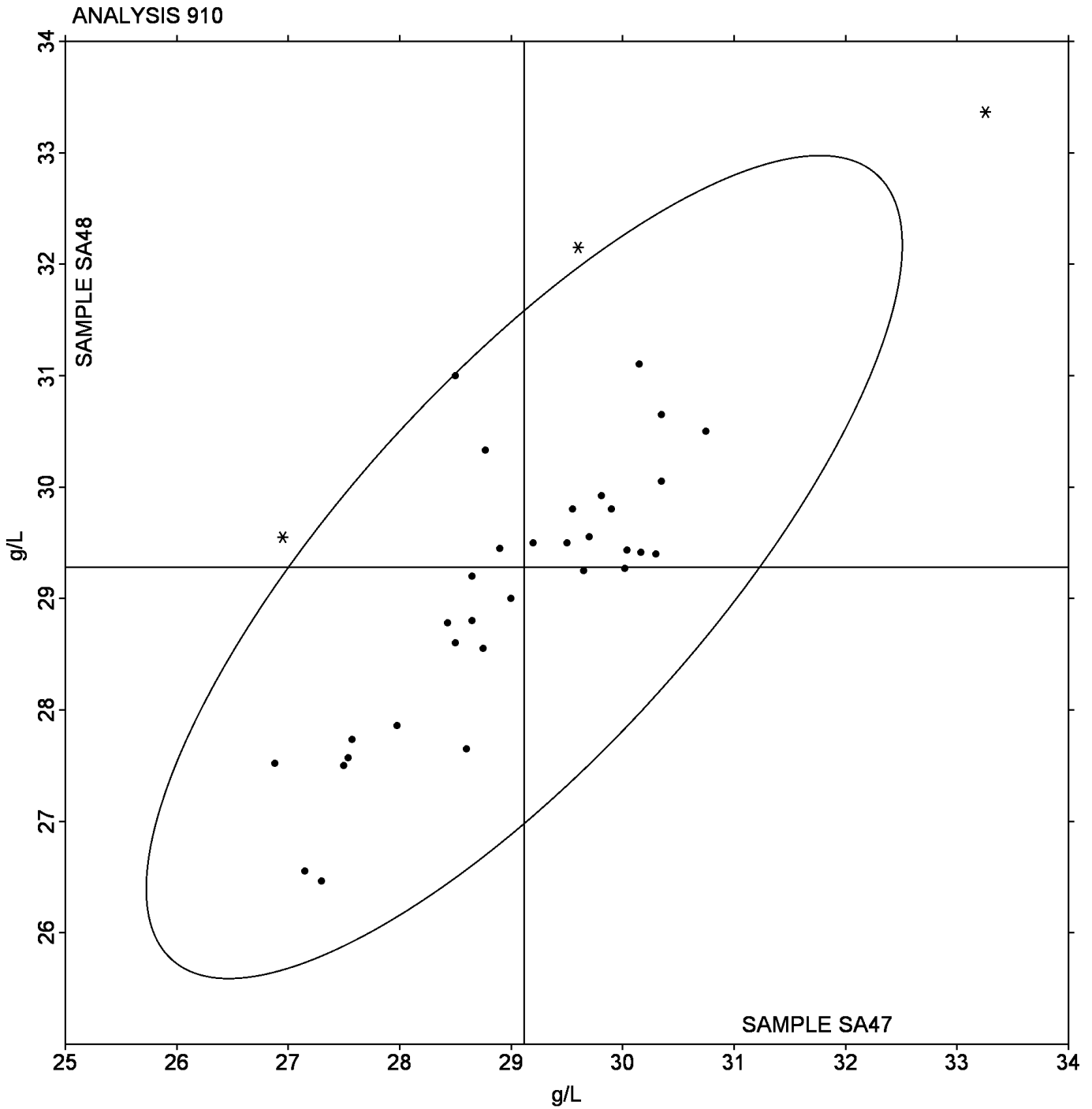
## Glucose + Fructose

## Results by Methodology (as reported by laboratory)

Test Methodology	Sample SA47 <i>White Merlot</i>			Sample SA48 <i>White Merlot</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
HPLC	30.20	0.78	1.08	29.88	0.88	0.59	2	2
Enzymatic	28.96	1.03	-0.16	29.04	1.11	-0.25	26	34
Segmented Flow	29.17	1.68	0.05	29.26	1.97	-0.03	2	2
FTIR	28.43	1.80	-0.69	28.05	2.12	-1.23	2	2
Other	29.90	0.00	0.78	29.80	0.00	0.52	1	2

Analysis 910

Glucose + Fructose



## ASEV-CTS Wine Industry Interlaboratory Testing Program

### Research Property 950

#### Research Property - Copper (Cu) Content

WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Target Value	% Diff from Target Value	Lab Mean	Diff from Target Value	% Diff from Target Value
1VW3VY		0.2150	0.0550	34.4%	0.2100	0.0400	23.5%
2K6X75		0.1400	-0.0200	-12.5%	0.1600	-0.0100	-5.9%
3VVJSW		0.1200	-0.0400	-25.0%	0.1300	-0.0400	-23.5%
6KT91G		0.1500	-0.0100	-6.2%	0.1000	-0.0700	-41.2%
7P53LL		0.1500	-0.0100	-6.2%	0.1600	-0.0100	-5.9%
ECJVA5		0.1700	0.0100	6.3%	0.1950	0.0250	14.7%
GT6VLE		0.1310	-0.0290	-18.1%	0.1300	-0.0400	-23.5%
HTWFK6		0.1600	0.0000	0.0%	0.1600	-0.0100	-5.9%
L4D73T		0.1400	-0.0200	-12.5%	0.1500	-0.0200	-11.8%
MM6ZDV		0.1400	-0.0200	-12.5%	0.1400	-0.0300	-17.6%
Q9W7S2		0.1600	0.0000	0.0%	0.1550	-0.0150	-8.8%
SEZTVP		0.1630	0.0030	1.9%	0.1610	-0.0090	-5.3%
W8HMPT		0.4600	0.3000	187.5%	0.1950	0.0250	14.7%
YDM7SF		0.1500	-0.0100	-6.2%	0.1450	-0.0250	-14.7%
YKQ5KT		0.1500	-0.0100	-6.2%	0.1550	-0.0150	-8.8%

#### Research Property Target Value

**Target Value**

0.16000 mg/L

0.17000 mg/L

*CTS has chosen to designate a target value for this property instead of using an average value. The target value was calculated from the average of a single laboratory accredited for this property under ISO 17025.*

Wines tested: SA47: White Merlot; SA48: White Merlot

**Consensus Average**

(may differ from target value)

0.17327 mg/L

0.15640 mg/L

*This consensus average is based on 15 reporting participants.*



**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Research Property 951**  
**Research Property - Iron (Fe) Content**

WebCode	Data Flag	Sample SA47			Sample SA48		
		Lab Mean	Diff from Target Value	% Diff from Target Value	Lab Mean	Diff from Target Value	% Diff from Target Value
19GLRN		1.9000	1.0420	121.4%	0.8500	0.0420	5.2%
1Y1PUW		0.8350	-0.0230	-2.7%	0.7150	-0.0930	-11.5%
54XPD9		1.2500	0.3920	45.7%	1.1500	0.3420	42.3%
6AQKFB		0.8000	-0.0580	-6.8%	0.8000	-0.0080	-1.0%
6ML1E8		0.7000	-0.1580	-18.4%	0.6000	-0.2080	-25.7%
94M9GA		0.7750	-0.0830	-9.7%	0.6800	-0.1280	-15.8%
F95THD		0.8000	-0.0580	-6.8%	0.7000	-0.1080	-13.4%
G89PL9		1.0000	0.1420	16.6%	0.9950	0.1870	23.1%
K2RAU2		1.3000	0.4420	51.5%	1.4500	0.6420	79.5%
N58L6H		0.7300	-0.1280	-14.9%	0.6550	-0.1530	-18.9%
NY372S		1.0170	0.1590	18.5%	0.9000	0.0920	11.4%
PJHC88		0.6980	-0.1600	-18.6%	0.5900	-0.2180	-27.0%
S1KFSV		0.8000	-0.0580	-6.8%	0.7500	-0.0580	-7.2%
WC9BDA		0.6950	-0.1630	-19.0%	0.6300	-0.1780	-22.0%

Research Property Target Value		
<b>Target Value</b>	0.85800 mg/L	0.80800 mg/L
<p><i>CTS has chosen to designate a target value for this property instead of using an average value. The target value was calculated from the average of three laboratories accredited for this property under ISO 17025, with the difference between those laboratories being less than 10% of the target value.</i></p>		

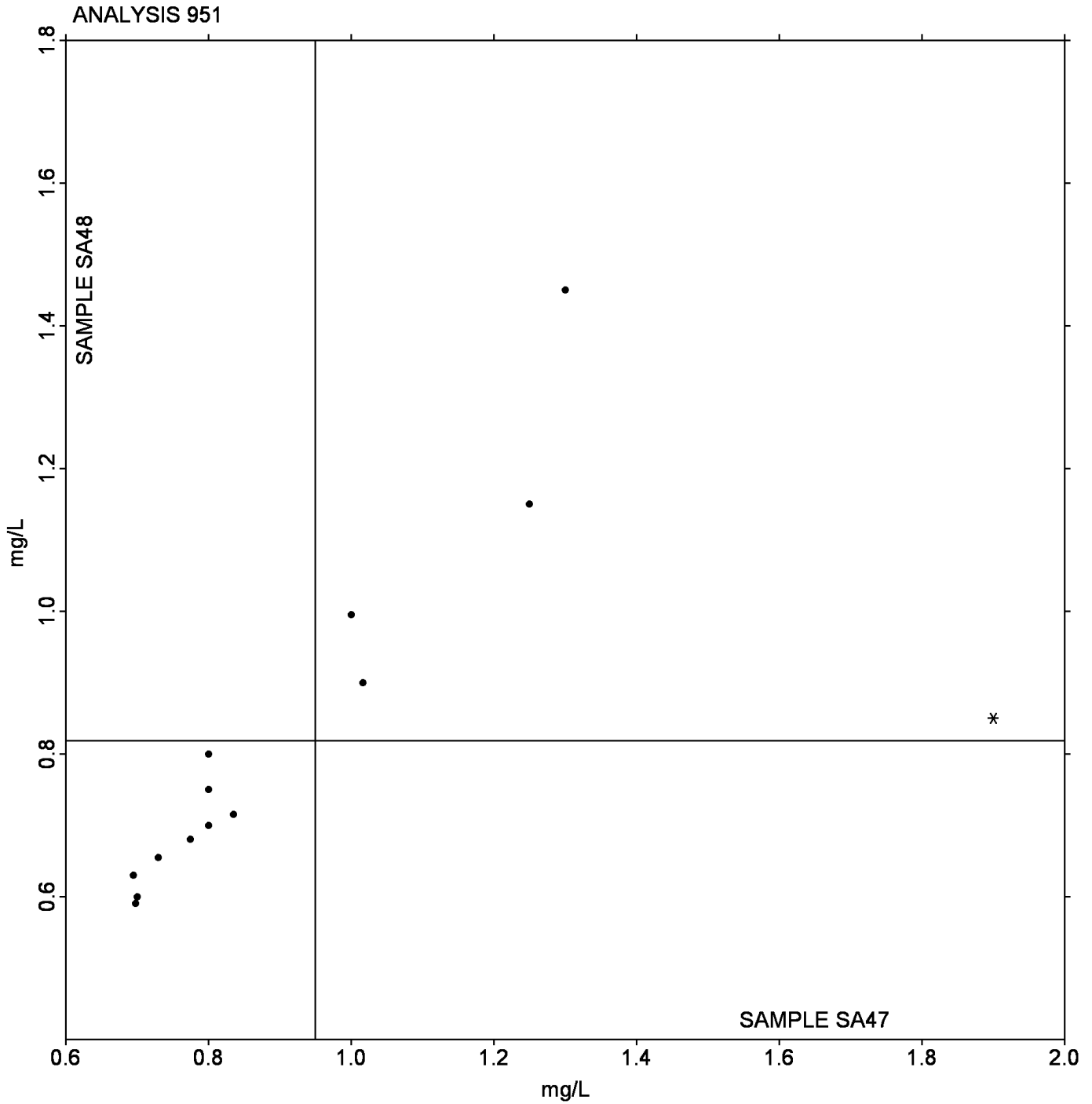
Wines tested: SA47: White Merlot; SA48: White Merlot

**Consensus Average** (may differ from target value)      0.95000 mg/L      0.81893 mg/L

*This consensus average is based on 14 reporting participants.*

Research Property 951

Research Property - Iron (Fe) Content



If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.