



## Wine Industry Interlaboratory Program

### Summary Report #035- Summer 2010

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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 SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
24MDVD		13.11	-0.08	-1.34	13.27	-0.09	-1.45
2NFNXY	X	13.50	0.31	4.98	13.70	0.34	5.34
3J9VTW	*	13.10	-0.09	-1.43	13.20	-0.16	-2.47
3PQTC2		13.15	-0.04	-0.61	13.32	-0.04	-0.59
48YXUT		13.13	-0.06	-0.94	13.37	0.01	0.19
4HQ76A		13.08	-0.11	-1.75	13.26	-0.10	-1.53
6MQQUN		13.17	-0.02	-0.29	13.31	-0.05	-0.75
76RQYV		13.21	0.02	0.28	13.39	0.03	0.42
7NNKWM		13.21	0.02	0.36	13.36	0.00	-0.05
7W9G6G		13.26	0.07	1.17	13.46	0.10	1.59
8EDP8P		13.24	0.05	0.84	13.40	0.04	0.58
8GBGVX		13.15	-0.04	-0.61	13.30	-0.06	-0.91
8QVQ4Z		13.20	0.01	0.20	13.40	0.04	0.66
974ZBT		13.26	0.07	1.17	13.44	0.08	1.28
A2BVA8		13.20	0.01	0.20	13.40	0.04	0.66
A6QMJ4		13.20	0.01	0.11	13.35	-0.01	-0.13
A944FX		13.15	-0.04	-0.61	13.31	-0.05	-0.75
AC4EAA		13.27	0.08	1.33	13.44	0.08	1.28
ALK7KJ		13.21	0.02	0.36	13.38	0.02	0.34
BCB6P7	X	13.00	-0.19	-3.05	13.35	-0.01	-0.13
CAQ7Y7		13.14	-0.05	-0.78	13.34	-0.02	-0.36
CGG86B		13.19	0.00	-0.05	13.38	0.02	0.27
CMM3K4		13.22	0.03	0.52	13.38	0.02	0.34
CNHZED	X	13.50	0.31	5.06	13.70	0.34	5.34
D4DPZ2		13.19	0.00	0.03	13.34	-0.02	-0.28
D8DDFZ	X	12.80	-0.39	-6.29	12.85	-0.51	-7.93
DDAQ6U		13.15	-0.04	-0.61	13.37	0.01	0.11
EH6X6H		13.14	-0.05	-0.86	13.33	-0.03	-0.44
EHQENJ	X	13.50	0.31	5.06	13.60	0.24	3.78
ELNZY9	*	13.33	0.14	2.22	13.44	0.08	1.28
EV9HBY		13.15	-0.04	-0.70	13.34	-0.02	-0.28
EVBHKR		13.20	0.01	0.11	13.32	-0.04	-0.59
F88X4B		13.19	0.00	-0.05	13.36	0.00	0.03
GAU9R7	X	12.98	-0.21	-3.45	13.28	-0.08	-1.30
GU9XVR		13.24	0.05	0.76	13.36	0.00	0.03

## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 901

## Ethanol (% of volume)

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
GWPCYG		13.22	0.03	0.52	13.36	0.00	0.03
H27JDJ	X	13.40	0.21	3.44	13.39	0.03	0.50
HK8GRF		13.17	-0.02	-0.37	13.37	0.01	0.19
HWP6L6	X	13.75	0.56	9.11	14.10	0.74	11.59
J87A2W		13.21	0.02	0.28	13.37	0.01	0.11
JJD9NU		13.20	0.01	0.20	13.40	0.04	0.66
K4NHQ6		13.19	0.00	0.03	13.37	0.01	0.11
KDJVUY		13.20	0.01	0.20	13.40	0.04	0.66
KGJDKT		13.20	0.01	0.20	13.40	0.04	0.66
KHW8X8		13.23	0.04	0.60	13.37	0.01	0.11
LEXD9Q	X	12.80	-0.39	-6.29	12.93	-0.43	-6.68
LGEHAL		13.21	0.02	0.28	13.35	-0.01	-0.13
MMQHL6		13.21	0.02	0.28	13.38	0.02	0.34
MTPAKJ		13.20	0.01	0.20	13.38	0.02	0.34
N9WTMY		13.06	-0.13	-2.07	13.22	-0.14	-2.23
PGJBCP		13.17	-0.02	-0.37	13.34	-0.02	-0.36
QBJYJR		13.30	0.11	1.82	13.45	0.09	1.44
QPHEJQ		13.21	0.02	0.36	13.39	0.03	0.42
QXJGAZ		13.29	0.10	1.65	13.41	0.05	0.81
QYX6JP		13.22	0.03	0.44	13.35	-0.01	-0.20
R7TBUH		13.24	0.05	0.84	13.40	0.04	0.66
RDF44Y	X	13.50	0.31	5.06	13.70	0.34	5.34
RLZ2M4		13.19	0.00	-0.05	13.35	-0.01	-0.13
RQV9W7	*	13.10	-0.09	-1.43	13.20	-0.16	-2.47
TRADK2	*	13.33	0.14	2.22	13.53	0.17	2.61
TVB9RJ		13.18	-0.01	-0.21	13.37	0.01	0.19
URQ4UX	X	13.32	0.13	2.14	13.11	-0.25	-3.95
V63LUL		13.16	-0.03	-0.53	13.32	-0.04	-0.59
VDW4CH	*	13.00	-0.19	-3.05	13.20	-0.16	-2.47
VEGLZ9		13.15	-0.04	-0.61	13.37	0.01	0.11
VLUXE9		13.23	0.04	0.68	13.41	0.05	0.81
VZQJTY		13.05	-0.14	-2.24	13.20	-0.16	-2.47
W7933G		13.26	0.07	1.17	13.43	0.07	1.12
WACWF7		13.23	0.04	0.60	13.40	0.04	0.66
WVJATU		13.22	0.03	0.44	13.40	0.04	0.66

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

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
XPM3C6		13.10	-0.09	-1.43	13.33	-0.03	-0.52
Y8BLWU	X	12.95	-0.24	-3.86	13.05	-0.31	-4.81
YVEKC3		13.20	0.01	0.20	13.37	0.01	0.19
ZMH678		13.22	0.03	0.44	13.40	0.04	0.58
ZXNHPZ		13.17	-0.02	-0.29	13.34	-0.02	-0.36

Grand Means	Summary Statistics
13.188 percent	13.358 percent
Std Dev Btwn Labs 0.062 percent	0.064 percent
<b>Statistics based on 63 of 75 reporting participants</b>	

Wines tested: SA67: Merlot; SA68: Merlot

**Comments on assigned Data Flags**

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

BCB6P7 (X) - Inconsistent in testing between samples, data for Sample SA67 are low. Also inconsistent in testing within both sample sets.

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

D8DDFZ (X) - Data for both samples are low.

EHQENJ (X) - Data for both samples are high. Also inconsistent in testing within Sample SA68.

GAU9R7 (X) - Inconsistent in testing between samples, data for Sample SA67 are low.

H27JDJ (X) - Inconsistent in testing between samples, data for Sample SA67 are high. Also inconsistent in testing within both sample sets.

HWP6L6 (X) - Data for both samples are high.

LEXD9Q (X) - Data for both samples are low.

RDF44Y (X) - Data for both samples are high.

URQ4UX (X) - Inconsistent in testing between samples, data for Sample SA68 are low.

Y8BLWU (X) - Data for both samples are low.

## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 901

## Ethanol (% of volume)

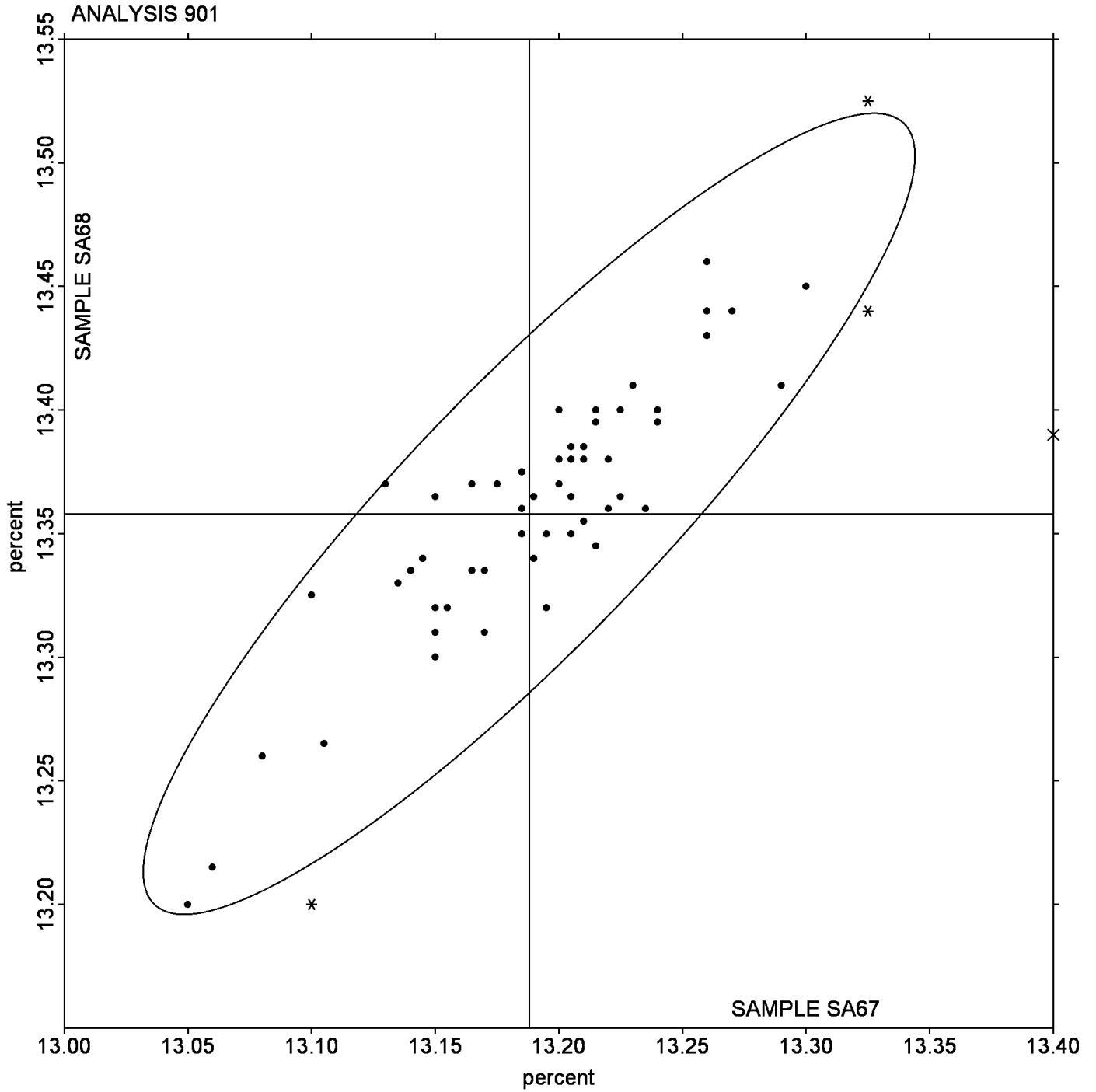
## Results by Methodology (as reported by laboratory)

Test Methodology	Sample SA67 <i>Merlot</i>			Sample SA68 <i>Merlot</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Ebulliometer Method	13.14	0.12	-0.05	13.29	0.13	-0.07	2	8
Gas Chromatography Method	13.25	0.07	0.06	13.39	0.09	0.03	2	3
Near Infrared Method	13.19	0.04	0.00	13.36	0.04	0.00	34	34
Dist. / Density Method	13.17	0.08	-0.02	13.34	0.10	-0.02	4	11
FTIR	13.20	0.05	0.02	13.38	0.04	0.02	15	17
Other _____	13.16	0.00	-0.03	13.32	0.00	-0.04	1	2

# ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 901

### Ethanol (% of volume)



## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 902

## Total Sulfur Dioxide

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
22ATRJ		83.50	0.67	0.06	86.00	-9.42	-1.11
24PD9E		76.50	-6.33	-0.52	89.00	-6.42	-0.76
2DJ4YH		76.00	-6.83	-0.56	93.50	-1.92	-0.23
2UGDKR		81.50	-1.33	-0.11	101.00	5.58	0.66
366WZG		86.50	3.67	0.30	94.50	-0.92	-0.11
3FMRQG		83.00	0.17	0.01	90.50	-4.92	-0.58
3JGLML		78.50	-4.33	-0.36	100.50	5.08	0.60
3Z6CNT		102.50	19.67	1.62	108.00	12.58	1.48
42RR82		84.00	1.17	0.10	104.00	8.58	1.01
4NM8PH		100.50	17.67	1.46	111.50	16.08	1.90
4X9Q97		90.00	7.17	0.59	99.00	3.58	0.42
6JEXPD		76.50	-6.33	-0.52	97.00	1.58	0.19
6YD6LU		77.00	-5.83	-0.48	90.00	-5.42	-0.64
7FFDER		62.00	-20.83	-1.72	86.50	-8.92	-1.05
7KNA2M		96.00	13.17	1.09	97.00	1.58	0.19
8WFDFN		99.00	16.17	1.33	113.00	17.58	2.07
99EQ29		76.80	-6.03	-0.50	91.20	-4.22	-0.50
9D8F7F		73.00	-9.83	-0.81	91.50	-3.92	-0.46
9UUDJ8		90.00	7.17	0.59	95.00	-0.42	-0.05
9W4BYA		70.50	-12.33	-1.02	94.50	-0.92	-0.11
9XDY6M		95.50	12.67	1.04	96.50	1.08	0.13
APNWX8	X	101.50	18.67	1.54	138.00	42.58	5.02
BDDM9L		105.00	22.17	1.83	112.50	17.08	2.01
BZ6VCH		94.50	11.67	0.96	97.50	2.08	0.24
DQ4FBJ		102.50	19.67	1.62	109.00	13.58	1.60
EKC98N		80.50	-2.33	-0.19	95.00	-0.42	-0.05
EYKXEQ		106.50	23.67	1.95	106.50	11.08	1.31
F72QFV		69.50	-13.33	-1.10	76.00	-19.42	-2.29
FDNHR2		76.50	-6.33	-0.52	90.50	-4.92	-0.58
G686RG		81.70	-1.13	-0.09	91.75	-3.67	-0.43
GHNAB6	*	68.50	-14.33	-1.18	104.00	8.58	1.01
GQF69A		100.00	17.17	1.42	105.00	9.58	1.13
GXVY4Q		94.50	11.67	0.96	103.50	8.08	0.95
HF86WF	*	114.00	31.17	2.57	103.50	8.08	0.95
HFCF4P		85.00	2.17	0.18	89.00	-6.42	-0.76

## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 902

## Total Sulfur Dioxide

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
HYE7HE		108.00	25.17	2.07	108.50	13.08	1.54
JTE7DP		67.00	-15.83	-1.30	84.00	-11.42	-1.35
KN4HDV		61.00	-21.83	-1.80	79.00	-16.42	-1.94
KWLZWT		92.00	9.17	0.76	100.80	5.38	0.63
L8J2BG		84.80	1.97	0.16	94.80	-0.62	-0.07
LKLY7L		71.50	-11.33	-0.93	93.00	-2.42	-0.29
LMCVC3		73.50	-9.33	-0.77	97.00	1.58	0.19
MVUXUW		101.00	18.17	1.50	102.00	6.58	0.78
MXWMCL		84.00	1.17	0.10	105.00	9.58	1.13
MZNW89		79.50	-3.33	-0.27	86.00	-9.42	-1.11
N2WZAM	*	90.00	7.17	0.59	116.00	20.58	2.43
NF48UL		87.00	4.17	0.34	93.00	-2.42	-0.29
NKW9VZ		82.00	-0.83	-0.07	96.50	1.08	0.13
NNJTZF		74.50	-8.33	-0.69	91.50	-3.92	-0.46
PBF6Y8		62.50	-20.33	-1.67	83.50	-11.92	-1.41
PF82GQ		81.00	-1.83	-0.15	99.50	4.08	0.48
PM2YX9		76.00	-6.83	-0.56	92.00	-3.42	-0.40
PTPF27		91.50	8.67	0.71	89.50	-5.92	-0.70
QALA43		78.40	-4.43	-0.36	96.40	0.98	0.12
QB4A97		74.00	-8.83	-0.73	88.50	-6.92	-0.82
QTCYYC		73.50	-9.33	-0.77	91.50	-3.92	-0.46
RG6RA6		69.50	-13.33	-1.10	82.50	-12.92	-1.52
RQZNJL		72.00	-10.83	-0.89	101.00	5.58	0.66
T498U8	X	78.00	-4.83	-0.40	62.00	-33.42	-3.94
T99PLW		81.00	-1.83	-0.15	92.00	-3.42	-0.40
TEZ3JL		74.50	-8.33	-0.69	96.00	0.58	0.07
TU7PML		77.00	-5.83	-0.48	92.15	-3.27	-0.39
UKJPKM		80.25	-2.58	-0.21	94.16	-1.26	-0.15
V4M8A7	*	67.00	-15.83	-1.30	74.00	-21.42	-2.53
V99CLZ		97.00	14.17	1.17	93.00	-2.42	-0.29
VHFJ6G		72.00	-10.83	-0.89	93.00	-2.42	-0.29
WYA2W2		95.00	12.17	1.00	100.50	5.08	0.60
X9P4NA		79.00	-3.83	-0.32	93.00	-2.42	-0.29
XPDZU6		71.50	-11.33	-0.93	88.00	-7.42	-0.88
Y9PAUU		72.00	-10.83	-0.89	93.00	-2.42	-0.29

## ASEV-CTS Wine Industry Interlaboratory Testing Program

### Analysis 902

#### Total Sulfur Dioxide

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
ZN9U9T	X	86.00	3.17	0.26	74.00	-21.42	-2.53
ZZCRZH		77.00	-5.83	-0.48	90.50	-4.92	-0.58

Grand Means		Summary Statistics	
	82.825 mg/L		95.424 mg/L
Std Dev Btwn Labs			8.481 mg/L
	12.135 mg/L		
<b>Statistics based on 69 of 72 reporting participants</b>			

Wines tested: SA67: Merlot; SA68: Merlot

#### Comments on assigned Data Flags

APNWX8 (X) - High data for Sample SA68. Also inconsistent in testing within Sample SA67.

T498U8 (X) - High data for Sample SA68. Also inconsistent in testing within both sample sets.

ZN9U9T (X) - Inconsistent in testing between samples.

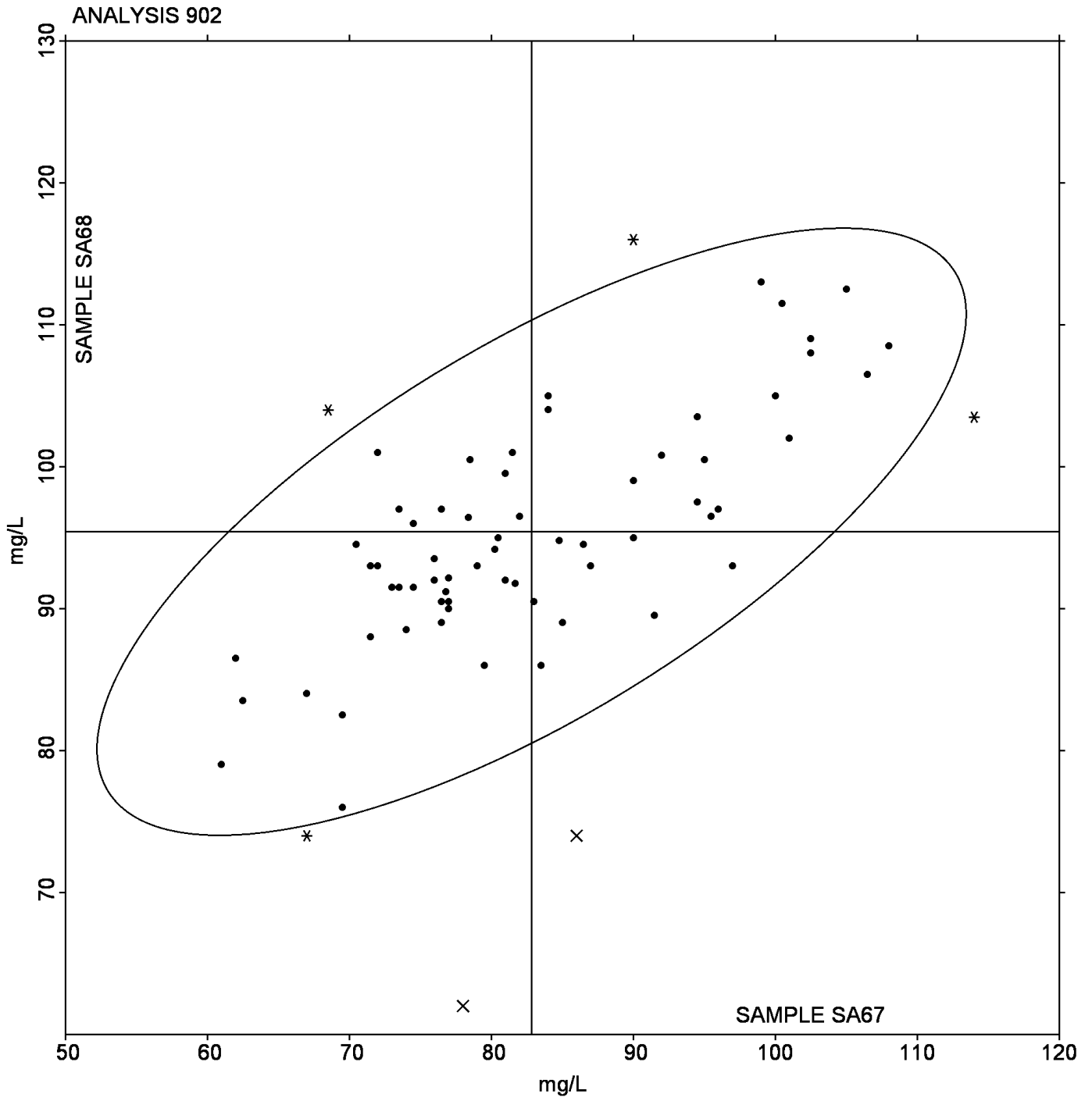
#### Results by Methodology (as reported by laboratory)

Test Methodology	Sample SA67 <i>Merlot</i>			Sample SA68 <i>Merlot</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Please specify method used	83.27	1.66	0.44	93.93	7.54	-1.49	3	3
Ripper Method	92.61	10.08	9.78	98.27	8.11	2.85	25	28
Aeration Oxidation (AO) Method	77.03	9.03	-5.80	92.43	8.89	-3.00	18	19
Segmented Flow Analyzer	80.50	2.57	-2.33	96.42	4.81	0.99	6	6
Colorimetric Analyzer	70.94	4.84	-11.89	91.88	5.54	-3.55	8	9
Flow Injection Analysis	74.70	1.75	-8.13	94.20	2.25	-1.22	5	6

# ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 902

### Total Sulfur Dioxide



## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 903

## Free Sulfur Dioxide

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2GM3RG		14.50	-1.28	-0.35	33.50	4.88	1.24
3LG3EV		14.50	-1.28	-0.35	26.50	-2.12	-0.54
3VXX6V		17.50	1.72	0.47	29.50	0.88	0.22
3YNYD3		15.00	-0.78	-0.21	33.00	4.38	1.11
47CQ6F		22.50	6.72	1.82	35.50	6.88	1.74
4AUCWU		15.00	-0.78	-0.21	29.50	0.88	0.22
4Q2G6N		17.50	1.72	0.47	31.00	2.38	0.60
6R9AJM		20.00	4.22	1.14	33.00	4.38	1.11
6U8J9N		16.40	0.62	0.17	28.80	0.18	0.05
76UPFT		15.50	-0.28	-0.08	30.00	1.38	0.35
777QZ9		22.50	6.72	1.82	31.50	2.88	0.73
7RW8TH		13.00	-2.78	-0.75	26.50	-2.12	-0.54
7YELU2		15.50	-0.28	-0.08	28.50	-0.12	-0.03
8L2N2P		9.50	-6.28	-1.70	22.50	-6.12	-1.55
96KR2Y		12.00	-3.78	-1.02	25.50	-3.12	-0.79
9UDN9M		17.00	1.22	0.33	27.00	-1.62	-0.41
AGLGQC		17.50	1.72	0.47	32.00	3.38	0.86
AULBRQ		13.00	-2.78	-0.75	26.00	-2.62	-0.66
B8DAJ6		14.00	-1.78	-0.48	28.50	-0.12	-0.03
BARNGB		15.50	-0.28	-0.08	33.50	4.88	1.24
BRG48A	X	26.00	10.22	2.77	49.00	20.38	5.17
BT2KWZ	X	29.50	13.72	3.72	17.50	-11.12	-2.82
C4XB8H		18.50	2.72	0.74	32.00	3.38	0.86
CHVQV2		11.50	-4.28	-1.16	27.50	-1.12	-0.28
CMUZGJ		10.50	-5.28	-1.43	22.00	-6.62	-1.68
CRC2YE		16.00	0.22	0.06	28.00	-0.62	-0.16
DGWQFQ		15.50	-0.28	-0.08	26.50	-2.12	-0.54
E3G6T6		13.50	-2.28	-0.62	25.00	-3.62	-0.92
E6X79M		19.60	3.82	1.04	31.20	2.58	0.65
F8HRRX		12.50	-3.28	-0.89	28.50	-0.12	-0.03
FMBBM6		18.50	2.72	0.74	32.00	3.38	0.86
FMTLYH		22.50	6.72	1.82	35.50	6.88	1.74
GH7U26		16.00	0.22	0.06	28.50	-0.12	-0.03
GN2B6V		15.50	-0.28	-0.08	28.00	-0.62	-0.16
H74FCG	*	6.50	-9.28	-2.51	17.00	-11.62	-2.95

## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 903

## Free Sulfur Dioxide

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
HKF4VF		20.50	4.72	1.28	33.50	4.88	1.24
HMXC22		17.50	1.72	0.47	27.50	-1.12	-0.28
HTAQZJ		13.50	-2.28	-0.62	29.00	0.38	0.10
J2AC66		14.00	-1.78	-0.48	28.00	-0.62	-0.16
J7WZWU		20.87	5.09	1.38	35.31	6.69	1.70
JNJ7TR		13.50	-2.28	-0.62	30.00	1.38	0.35
KAEMQ4		15.00	-0.78	-0.21	27.00	-1.62	-0.41
KWDFUB		16.50	0.72	0.20	28.00	-0.62	-0.16
LM3L4F		20.50	4.72	1.28	31.00	2.38	0.60
MP9AEY		14.50	-1.28	-0.35	25.50	-3.12	-0.79
N2ETCY		21.50	5.72	1.55	35.50	6.88	1.74
N4VYEU		13.00	-2.78	-0.75	26.00	-2.62	-0.66
NVVFQP		18.00	2.22	0.60	34.00	5.38	1.36
P7M6KE		14.50	-1.28	-0.35	26.00	-2.62	-0.66
PLQNZA		17.50	1.72	0.47	28.85	0.23	0.06
PMLANN		14.00	-1.78	-0.48	24.00	-4.62	-1.17
Q7WGVN	*	26.00	10.22	2.77	35.00	6.38	1.62
QDEZYN		12.00	-3.78	-1.02	25.00	-3.62	-0.92
QDTYNY		21.00	5.22	1.41	33.00	4.38	1.11
QJQNZH		11.00	-4.78	-1.29	29.00	0.38	0.10
QMAUEX		11.50	-4.28	-1.16	22.00	-6.62	-1.68
QU9MCC		14.00	-1.78	-0.48	28.00	-0.62	-0.16
RTALW2		17.00	1.22	0.33	31.50	2.88	0.73
RXUT6Q		16.00	0.22	0.06	32.00	3.38	0.86
TBBB7T		11.00	-4.78	-1.29	26.50	-2.12	-0.54
UC28CB		15.00	-0.78	-0.21	25.00	-3.62	-0.92
VEQTNA		12.00	-3.78	-1.02	25.00	-3.62	-0.92
VLH9U4	*	11.00	-4.78	-1.29	18.50	-10.12	-2.57
W26FYF		16.50	0.72	0.20	28.00	-0.62	-0.16
WQMBUJ		13.00	-2.78	-0.75	26.50	-2.12	-0.54
WRKBAU		16.00	0.22	0.06	28.00	-0.62	-0.16
WZ4XQD	*	25.50	9.72	2.63	34.50	5.88	1.49
XCWDZU		11.50	-4.28	-1.16	23.50	-5.12	-1.30
XE8KY7		18.50	2.72	0.74	34.00	5.38	1.36
YNZ62B		13.75	-2.03	-0.55	25.05	-3.57	-0.91

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

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
YQB8HM		16.50	0.72	0.20	25.50	-3.12	-0.79
YZAK4A		15.00	-0.78	-0.21	29.50	0.88	0.22
ZF7ZFN		13.50	-2.28	-0.62	27.50	-1.12	-0.28
ZYVQKA	*	19.50	3.72	1.01	25.50	-3.12	-0.79

Grand Means	Summary Statistics
15.779 mg/L	28.621 mg/L
<b>Std Dev Btwn Labs</b>	
3.691 mg/L	3.945 mg/L
<b>Statistics based on 72 of 74 reporting participants</b>	

Wines tested: SA67: Merlot; SA68: Merlot

**Comments on assigned Data Flags**

BRG48A (X) - Data for both samples are high.

BT2KWZ (X) - Inconsistent in testing between samples. Data may have been transposed between sample sets.

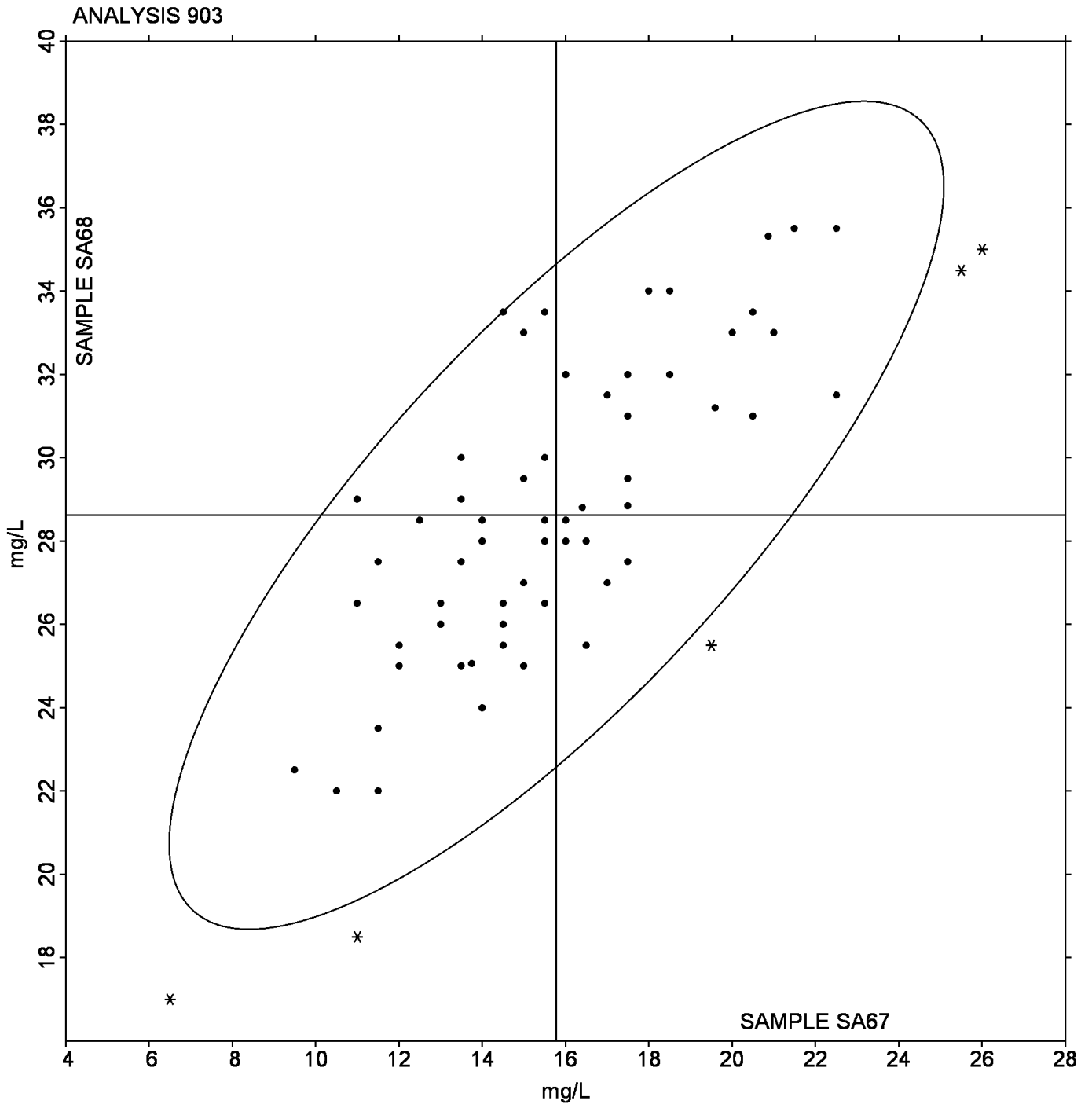
**Results by Methodology (as reported by laboratory)**

Test Methodology	Sample SA67 <i>Merlot</i>			Sample SA68 <i>Merlot</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Please specify method used	15.71	2.83	-0.07	28.31	2.55	-0.31	4	4
Ripper Method	18.40	3.17	2.62	31.02	3.29	2.40	15	17
Aeration Oxidation (AO) Method	15.06	2.85	-0.72	27.92	3.15	-0.70	30	33
Segmented Flow Analyzer	15.75	2.02	-0.03	31.92	2.75	3.30	6	6
Colormetric Analyzer	14.17	2.79	-1.61	27.75	3.63	-0.87	6	7
Flow Injection Analysis	12.92	0.80	-2.86	26.00	1.14	-2.62	6	7

# ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 903

### Free Sulfur Dioxide



## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 904

## Titratable Acidity

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
37JW2U		5.585	0.028	0.10	5.960	0.085	0.35
3JNTVK		5.550	-0.007	-0.03	5.850	-0.025	-0.10
43HKTT	*	5.745	0.188	0.68	5.830	-0.045	-0.18
4AEWQM		5.490	-0.067	-0.24	5.830	-0.045	-0.18
4MMVJU		5.700	0.143	0.52	6.000	0.125	0.51
6BWKAJ		5.515	-0.042	-0.15	5.950	0.075	0.31
6TKFVF	*	4.800	-0.757	-2.74	5.250	-0.625	-2.53
7BHR6D		5.700	0.143	0.52	5.950	0.075	0.31
7ENF2J		5.500	-0.057	-0.21	5.840	-0.035	-0.14
7GZHHV	*	5.700	0.143	0.52	5.800	-0.075	-0.30
7JJHEE		5.700	0.143	0.52	6.000	0.125	0.51
7PBP6F	*	6.400	0.843	3.05	6.600	0.725	2.94
7PQ7VK		5.285	-0.272	-0.99	5.700	-0.175	-0.71
88G3QE		5.600	0.043	0.16	5.900	0.025	0.10
97UCFW		5.600	0.043	0.16	5.900	0.025	0.10
ADRHQ3		5.600	0.043	0.16	6.000	0.125	0.51
AJMPFU		5.605	0.048	0.17	5.920	0.045	0.18
AVKZDN		5.405	-0.152	-0.55	5.780	-0.095	-0.38
AY97AW		5.745	0.188	0.68	6.035	0.160	0.65
BJHF9L		5.300	-0.257	-0.93	5.700	-0.175	-0.71
BWZ26N	*	5.650	0.093	0.34	6.150	0.275	1.12
D9KNA2		5.690	0.133	0.48	6.010	0.135	0.55
DLPYKX		5.700	0.143	0.52	5.925	0.050	0.20
DVJZF2		5.375	-0.182	-0.66	5.800	-0.075	-0.30
DYTB2M		5.355	-0.202	-0.73	5.695	-0.180	-0.73
E6GR6J	*	5.395	-0.162	-0.59	5.550	-0.325	-1.32
EHLHTP		5.635	0.078	0.28	5.905	0.030	0.12
ET2YLT		5.400	-0.157	-0.57	5.750	-0.125	-0.51
F8GQ2A		5.500	-0.057	-0.21	5.850	-0.025	-0.10
FHP9W9		5.500	-0.057	-0.21	5.800	-0.075	-0.30
FNLZ8P		5.560	0.003	0.01	5.910	0.035	0.14
FVYQQX	*	6.385	0.828	3.00	6.570	0.695	2.82
FYQDQG		5.600	0.043	0.16	5.970	0.095	0.39
GKBLRY		5.670	0.113	0.41	5.820	-0.055	-0.22
H68JLB	*	6.300	0.743	2.69	6.550	0.675	2.74

## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 904

## Titratable Acidity

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
H8BRQK		4.985	-0.572	-2.07	5.305	-0.570	-2.31
HBPF9V		5.620	0.063	0.23	5.920	0.045	0.18
HX2LJC		5.800	0.243	0.88	6.100	0.225	0.91
HYRLTG		5.535	-0.022	-0.08	5.880	0.005	0.02
J32C3G		5.670	0.113	0.41	6.000	0.125	0.51
JZFYGJ		5.550	-0.007	-0.03	5.950	0.075	0.31
K696FF		5.400	-0.157	-0.57	5.800	-0.075	-0.30
K8L2FY	X	6.630	1.073	3.89	7.225	1.350	5.47
KDHCGR		5.400	-0.157	-0.57	5.800	-0.075	-0.30
LDMT9X		5.500	-0.057	-0.21	5.850	-0.025	-0.10
LNYKDJ		5.580	0.023	0.08	5.975	0.100	0.41
LVX3W3		5.500	-0.057	-0.21	5.850	-0.025	-0.10
NDGWYQ		5.270	-0.287	-1.04	5.600	-0.275	-1.11
NX83R7		5.500	-0.057	-0.21	5.750	-0.125	-0.51
PA4XQR	*	4.900	-0.657	-2.38	5.435	-0.440	-1.78
PBZDZE		5.600	0.043	0.16	6.000	0.125	0.51
PM6DBG		5.735	0.178	0.64	6.045	0.170	0.69
PYTUUF		5.700	0.143	0.52	6.100	0.225	0.91
Q8C6BL	X	6.000	0.443	1.60	5.835	-0.040	-0.16
T2FD2F		5.575	0.018	0.06	5.920	0.045	0.18
T72KUU		5.550	-0.007	-0.03	5.780	-0.095	-0.38
TDZ3DD		5.075	-0.482	-1.75	5.335	-0.540	-2.19
TKA6QU		5.250	-0.307	-1.11	5.500	-0.375	-1.52
TXBBMM	X	6.650	1.093	3.96	6.270	0.395	1.60
UKXQCB	*	4.950	-0.607	-2.20	5.245	-0.630	-2.55
VWCWHQ		5.675	0.118	0.43	6.050	0.175	0.71
VWVPAQ		5.344	-0.213	-0.77	5.665	-0.210	-0.85
WCFYZH		5.600	0.043	0.16	5.900	0.025	0.10
WDAKNW		5.735	0.178	0.64	6.030	0.155	0.63
WKLQCM		5.500	-0.057	-0.21	5.800	-0.075	-0.30
WZZU6F		5.500	-0.057	-0.21	5.900	0.025	0.10
XE9FEV		5.650	0.093	0.34	5.950	0.075	0.31
XGCEM3		5.650	0.093	0.34	5.850	-0.025	-0.10
XWKRVW	*	6.100	0.543	1.97	6.200	0.325	1.32
Y2PMKG		5.550	-0.007	-0.03	5.900	0.025	0.10

## ASEV-CTS Wine Industry Interlaboratory Testing Program

### Analysis 904

#### Titratable Acidity

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
Y8LCV2		5.515	-0.042	-0.15	5.890	0.015	0.06
YJYWWA		5.800	0.243	0.88	6.050	0.175	0.71
ZHM7UK		5.500	-0.057	-0.21	5.850	-0.025	-0.10

Grand Means	Summary Statistics	
5.5572 g/L as tartaric acid	5.8746 g/L as tartaric acid	
Std Dev Btwn Labs	0.2760 g/L as tartaric acid	0.2467 g/L as tartaric acid
<b>Statistics based on 70 of 73 reporting participants</b>		

Wines tested: SA67: Merlot; SA68: Merlot

#### Comments on assigned Data Flags

K8L2FY (X) - Data for both samples are high. Also inconsistent in testing within Sample SA68.

Q8C6BL (X) - Inconsistent in testing between samples.

TXBBMM (X) - Inconsistent in testing between samples, data for Sample SA67 are high. Also inconsistent in testing within Sample SA68.

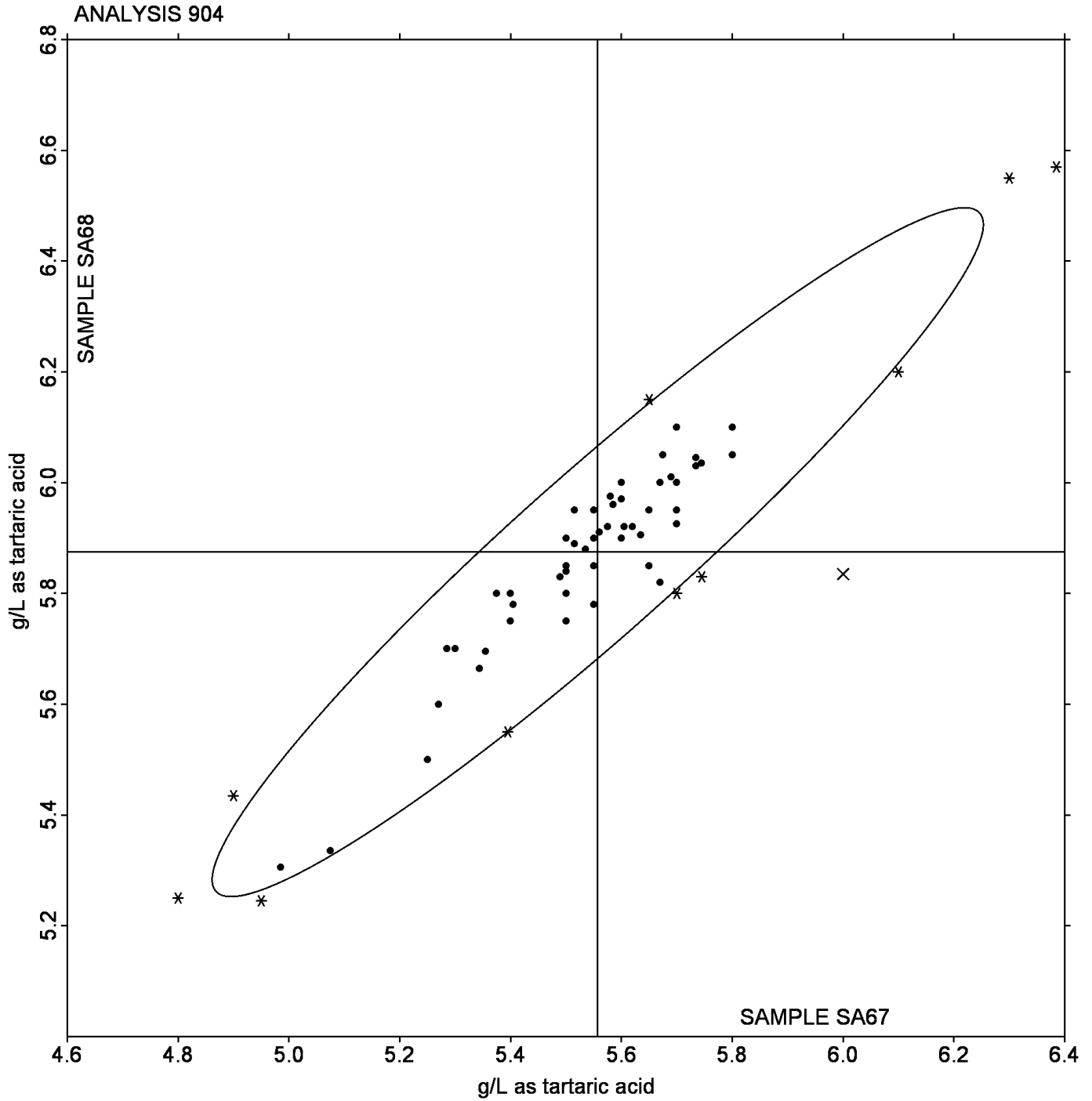
#### Results by Methodology (as reported by laboratory)

Test Methodology	Sample SA67 <i>Merlot</i>			Sample SA68 <i>Merlot</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Autotitration	5.521	0.161	-0.037	5.860	0.161	-0.015	34	36
Manual Titration	5.501	0.159	-0.056	5.837	0.155	-0.038	16	22
FTIR	5.663	0.119	0.106	5.937	0.146	0.063	9	14

# ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 904

### Titrateable Acidity



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

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WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
23HYXR		0.4750	-0.0413	-0.80	0.5550	-0.0417	-0.76
2M4V9F		0.5000	-0.0163	-0.32	0.6350	0.0383	0.70
2TYMX2		0.5850	0.0687	1.33	0.6400	0.0433	0.79
2U7TB2		0.5450	0.0287	0.55	0.6300	0.0333	0.60
2WPVU3		0.4100	-0.1063	-2.06	0.5100	-0.0867	-1.58
3QCBQ9		0.5950	0.0787	1.52	0.6950	0.0983	1.79
3TFGFA		0.5450	0.0287	0.55	0.6400	0.0433	0.79
4L9BVT		0.4650	-0.0513	-0.99	0.5850	-0.0117	-0.21
6Q8FG2		0.5750	0.0587	1.13	0.6850	0.0883	1.60
7ZJ788		0.5350	0.0187	0.36	0.6300	0.0333	0.60
86RE7A		0.5200	0.0037	0.07	0.6200	0.0233	0.42
8C8QVK		0.5100	-0.0063	-0.12	0.5950	-0.0017	-0.03
8WDP3T		0.4700	-0.0463	-0.90	0.5250	-0.0717	-1.30
92WPVR		0.5300	0.0137	0.26	0.5650	-0.0317	-0.58
9UL8MF		0.5250	0.0087	0.17	0.5950	-0.0017	-0.03
9Z3MPH		0.6000	0.0837	1.62	0.6450	0.0483	0.88
9ZWVMA		0.4850	-0.0313	-0.61	0.5700	-0.0267	-0.49
AAJR6A		0.5150	-0.0013	-0.03	0.5850	-0.0117	-0.21
AW9823		0.5150	-0.0013	-0.03	0.6150	0.0183	0.33
BAUMY9		0.4875	-0.0288	-0.56	0.6150	0.0183	0.33
BKAP3K		0.5550	0.0387	0.75	0.6300	0.0333	0.60
BRGHUK		0.4650	-0.0513	-0.99	0.5500	-0.0467	-0.85
BZ49QV		0.5400	0.0237	0.46	0.6250	0.0283	0.51
CGGKQU		0.5200	0.0037	0.07	0.6100	0.0133	0.24
CGRRBK	*	0.4100	-0.1063	-2.06	0.4500	-0.1467	-2.67
CJQ6HR		0.4800	-0.0363	-0.70	0.5700	-0.0267	-0.49
CUK6VB	*	0.6585	0.1422	2.75	0.7440	0.1473	2.68
DFM8R9	*	0.6400	0.1237	2.39	0.6700	0.0733	1.33
DJARVN		0.4900	-0.0263	-0.51	0.5750	-0.0217	-0.40
E76WFE		0.4900	-0.0263	-0.51	0.5450	-0.0517	-0.94
E9WWL9		0.5400	0.0237	0.46	0.6150	0.0183	0.33
EVTEZZ	X	4.3000	3.7837	73.16	5.7000	5.1033	92.75
EY4ZM8		0.6000	0.0837	1.62	0.6500	0.0533	0.97
FBB2A4		0.5150	-0.0013	-0.03	0.6250	0.0283	0.51
FCGYGZ		0.4800	-0.0363	-0.70	0.5650	-0.0317	-0.58

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

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WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
FVDRLX	X	0.4200	-0.0963	-1.86	0.4100	-0.1867	-3.39
GEWGM6		0.4700	-0.0463	-0.90	0.5350	-0.0617	-1.12
GZ8YQR		0.4850	-0.0313	-0.61	0.5950	-0.0017	-0.03
KRGH4T		0.5000	-0.0163	-0.32	0.5750	-0.0217	-0.40
LXBYUY	X	0.5880	0.0717	1.39	0.5835	-0.0132	-0.24
M2Z6A6		0.5400	0.0237	0.46	0.6000	0.0033	0.06
M9EJVG		0.5627	0.0464	0.90	0.6569	0.0602	1.09
MGQHLL		0.4950	-0.0213	-0.41	0.5800	-0.0167	-0.30
MJG842		0.5050	-0.0113	-0.22	0.6050	0.0083	0.15
MLLX7A		0.4900	-0.0263	-0.51	0.5550	-0.0417	-0.76
NZRQUG	*	0.4650	-0.0513	-0.99	0.4800	-0.1167	-2.12
PRXCJ2		0.4900	-0.0263	-0.51	0.5650	-0.0317	-0.58
QMV8CV		0.6000	0.0837	1.62	0.7000	0.1033	1.88
QNQWJK		0.5350	0.0187	0.36	0.6250	0.0283	0.51
QVR47C		0.4900	-0.0263	-0.51	0.5300	-0.0667	-1.21
QW6AHA	X	0.3350	-0.1813	-3.51	0.3800	-0.2167	-3.94
T2EZCA		0.5955	0.0792	1.53	0.6855	0.0888	1.61
T87AGB		0.5900	0.0737	1.42	0.6700	0.0733	1.33
T8ZVCT		0.4050	-0.1113	-2.15	0.4750	-0.1217	-2.21
TJCFD2	X	0.7800	0.2637	5.10	0.9900	0.3933	7.15
TKZWD9		0.5250	0.0087	0.17	0.5850	-0.0117	-0.21
TLLDWA		0.5200	0.0037	0.07	0.6100	0.0133	0.24
TR6TCY		0.5100	-0.0063	-0.12	0.6100	0.0133	0.24
TUCZRM		0.6100	0.0937	1.81	0.6660	0.0693	1.26
V4WVVK		0.4700	-0.0463	-0.90	0.5300	-0.0667	-1.21
VAUXCC	X	0.6938	0.1774	3.43	0.7188	0.1220	2.22
VBMNQA		0.4950	-0.0213	-0.41	0.5750	-0.0217	-0.40
VYVKDP		0.5040	-0.0123	-0.24	0.5580	-0.0387	-0.70
WTUD3K	X	0.5350	0.0187	0.36	6.3000	5.7033	103.65
X3FK3W		0.5050	-0.0113	-0.22	0.5900	-0.0067	-0.12
XBA6HV		0.4900	-0.0263	-0.51	0.5800	-0.0167	-0.30
XD8MY Y		0.4950	-0.0213	-0.41	0.5800	-0.0167	-0.30
XFA9P9		0.5330	0.0167	0.32	0.5980	0.0013	0.02
Y3ZYFP		0.4400	-0.0763	-1.48	0.5600	-0.0367	-0.67
YJXVA9		0.4950	-0.0213	-0.41	0.5300	-0.0667	-1.21

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

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
Z2MBH8	*	0.4700	-0.0463	-0.90	0.6150	0.0183	0.33
Z3ULAQ		0.5100	-0.0063	-0.12	0.6100	0.0133	0.24

Grand Means		Summary Statistics	
	0.51633 g/L as acetic acid		0.59674 g/L as acetic acid
Std Dev Btwn Labs			
	0.05171 g/L as acetic acid		0.05502 g/L as acetic acid
<b>Statistics based on 65 of 72 reporting participants</b>			

Wines tested: SA67: Merlot; SA68: Merlot

**Comments on assigned Data Flags**

EVTEZZ (X) - Data for both samples are high. Lab indicated reporting in g/100mL, but data may be in g/L as acetic.

FVDRLX (X) - Inconsistent in testing between samples, data for Sample SA68 are low.

LXBYUY (X) - Inconsistent in testing between samples and inconsistent within the determinations for Sample SA68.

QW6AHA (X) - Data for both samples are low. Possible Systematic Error.

TJCFD2 (X) - Inconsistent in testing between samples, data for Sample SA68 are high. Also inconsistent in testing within both sample sets.

VAUXCC (X) - Inconsistent in testing between samples, data for Sample SA67 are high. Also inconsistent in testing within Sample SA67.

WTUD3K (X) - Inconsistent in testing between samples, data for Sample SA68 are high. Data for Sample SA68 may be off by a factor of 10.

## Analysis 905

## Volatile Acidity

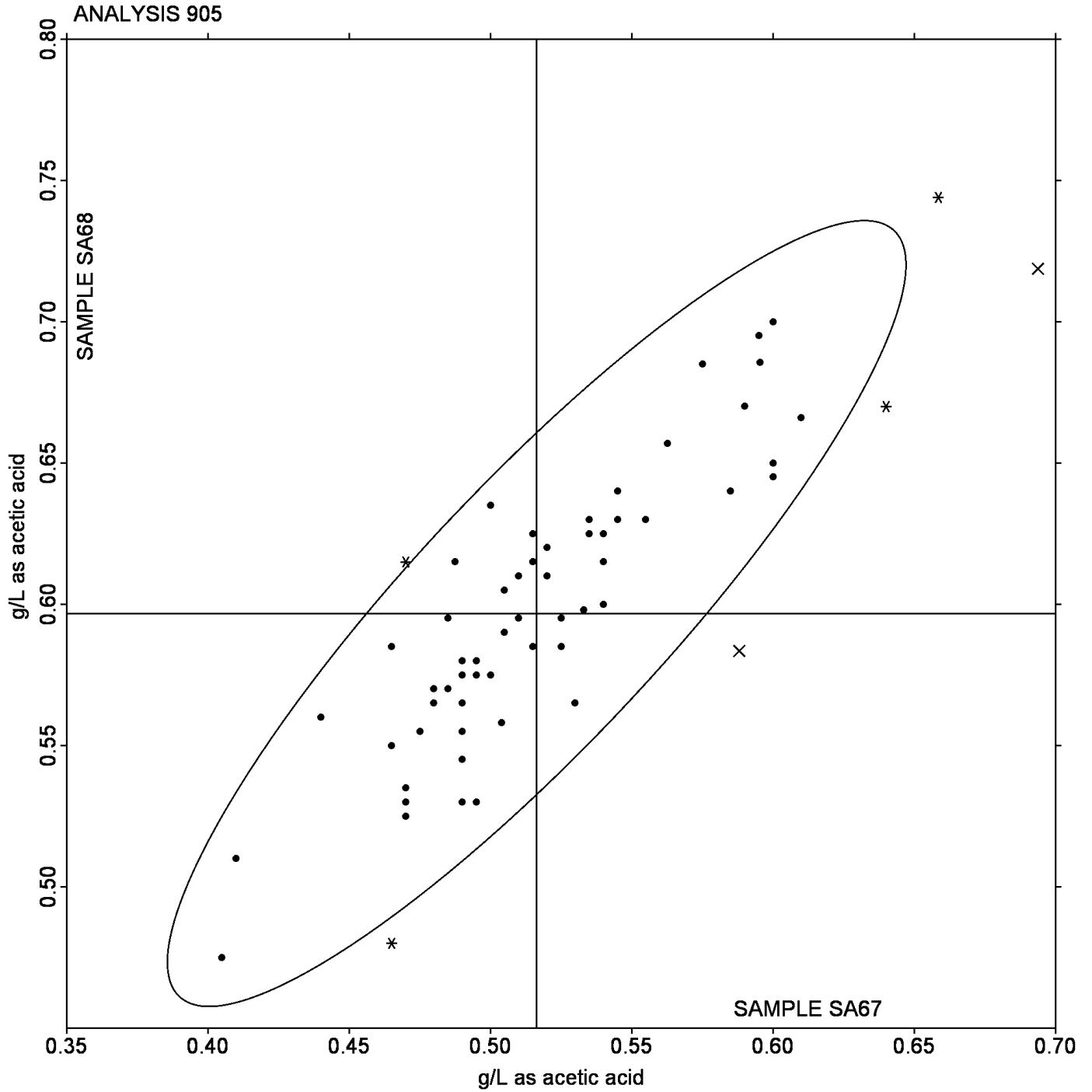
## Results by Methodology (as reported by laboratory)

Test Methodology	Sample SA67 <i>Merlot</i>			Sample SA68 <i>Merlot</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Cash Still method	0.5274	0.0506	0.0111	0.6087	0.0506	0.0120	22	28
Enzymatic method	0.4924	0.0338	-0.0240	0.5845	0.0339	-0.0123	19	21
GC	0.5120	0.0113	-0.0043	0.5890	0.0438	-0.0077	2	2
Seg. Flow / Colorimetric Analyzer	0.5367	0.0454	0.0203	0.6233	0.0549	0.0266	9	9
FTIR	0.5131	0.0400	-0.0032	0.5681	0.0406	-0.0286	8	11

# ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 905

### Volatile Acidity



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

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WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2L97XH		0.9940	-0.0012	-1.27	0.9935	-0.0012	-1.34
2XQBAB		0.9952	0.0000	0.04	0.9950	0.0003	0.28
38949K	X	0.9934	-0.0017	-1.92	0.9946	-0.0002	-0.16
4N3GNB	*	0.9940	-0.0012	-1.27	0.9934	-0.0014	-1.50
683N WV	*	0.9980	0.0028	3.07	0.9976	0.0028	3.07
6GQ3X4	X	0.9947	-0.0005	-0.53	0.9951	0.0004	0.42
6RZCTZ		0.9951	-0.0001	-0.06	0.9947	0.0000	-0.03
6YM4PB		0.9952	0.0000	0.02	0.9948	0.0000	0.02
7G3U7L		0.9953	0.0002	0.19	0.9949	0.0002	0.20
7NBUZP	X	0.9959	0.0007	0.77	0.9949	0.0001	0.13
7R7MX2		0.9939	-0.0013	-1.38	0.9934	-0.0013	-1.45
8QCAYF		0.9952	0.0000	0.00	0.9947	0.0000	0.00
8RHWAY		0.9945	-0.0007	-0.72	0.9940	-0.0007	-0.80
9R26WA		0.9952	0.0000	0.02	0.9947	0.0000	0.01
AALYF9		0.9952	0.0000	0.00	0.9947	0.0000	0.00
AHRWRR		0.9952	0.0000	0.05	0.9947	-0.0001	-0.06
AJ4RFH		0.9951	0.0000	-0.03	0.9947	0.0000	-0.04
AJMXXA		0.9951	0.0000	-0.02	0.9948	0.0001	0.12
BDG9UU		0.9963	0.0011	1.26	0.9958	0.0010	1.11
BGZMQG	X	0.9968	0.0016	1.80	0.9958	0.0011	1.15
CFGPNR		0.9954	0.0002	0.27	0.9949	0.0002	0.18
CJ7F9K		0.9952	0.0000	0.01	0.9947	0.0000	0.01
E3V3VR		0.9940	-0.0012	-1.27	0.9937	-0.0010	-1.12
ECQY7A		0.9952	0.0000	0.04	0.9947	0.0000	-0.04
EF4R3U		0.9952	0.0001	0.07	0.9948	0.0000	0.03
ERFZRF		0.9972	0.0020	2.24	0.9968	0.0021	2.24
FAM96C		0.9952	0.0000	0.05	0.9946	-0.0001	-0.14
FYLUZ8		0.9952	0.0000	0.05	0.9948	0.0000	0.04
G2ZYN3		0.9966	0.0014	1.53	0.9962	0.0015	1.60
GEETRV		0.9951	-0.0001	-0.11	0.9949	0.0001	0.13
GZ64K2		0.9955	0.0003	0.33	0.9949	0.0001	0.16
H329MQ		0.9960	0.0008	0.93	0.9956	0.0009	0.95
H7HX46		0.9952	0.0000	0.00	0.9947	0.0000	-0.01
H7R6MZ		0.9952	0.0000	0.05	0.9947	0.0000	-0.03
HV7YK4	X	0.9950	-0.0002	-0.17	0.9950	0.0003	0.29

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

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WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
KMP7EN		0.9971	0.0019	2.08	0.9966	0.0018	1.98
KQ77G4		0.9951	-0.0001	-0.06	0.9947	-0.0001	-0.09
L4JVMR		0.9933	-0.0018	-2.00	0.9929	-0.0018	-1.99
L4WP27		0.9951	-0.0001	-0.11	0.9947	0.0000	-0.03
LMVHCG		0.9951	0.0000	-0.02	0.9947	0.0000	-0.01
LP3UZK	X	0.9950	-0.0002	-0.17	0.9950	0.0003	0.29
MCENUX		0.9956	0.0004	0.49	0.9953	0.0006	0.62
MKKPKX		0.9955	0.0003	0.36	0.9951	0.0004	0.43
ML33L7		0.9936	-0.0016	-1.71	0.9932	-0.0016	-1.72
ML69VP		0.9951	0.0000	-0.01	0.9948	0.0000	0.04
MTHEJF		0.9951	0.0000	-0.04	0.9947	0.0000	-0.04
MU2KBX	X	0.9950	-0.0002	-0.17	0.9940	-0.0007	-0.80
NPYABP		0.9952	0.0000	0.05	0.9947	0.0000	-0.03
NRNXT4		0.9944	-0.0008	-0.83	0.9939	-0.0008	-0.90
P6RH99		0.9951	0.0000	-0.04	0.9947	0.0000	-0.03
P8KC79	X	0.9925	-0.0027	-2.92	0.9925	-0.0022	-2.43
PUTNVD		0.9948	-0.0004	-0.39	0.9944	-0.0003	-0.36
QJ3PD7	X	1.0124	0.0172	18.92	1.0122	0.0174	18.97
RBE2NL		0.9952	0.0000	0.00	0.9948	0.0001	0.08
RFT4NN	*	0.9975	0.0023	2.57	0.9971	0.0024	2.57
RKM9VT	X	0.9960	0.0008	0.93	0.9940	-0.0007	-0.80
VEE28E	X	0.9938	-0.0014	-1.49	0.9942	-0.0005	-0.58
VT7FW2	X	0.9940	-0.0012	-1.27	0.9930	-0.0017	-1.88
WHLNJA		0.9940	-0.0012	-1.32	0.9936	-0.0011	-1.23
XBZHDA		0.9951	0.0000	-0.04	0.9947	-0.0001	-0.06
XCDYN2		0.9948	-0.0004	-0.44	0.9943	-0.0005	-0.52
XUETEP		0.9934	-0.0018	-1.97	0.9930	-0.0018	-1.91
YBRW9E		0.9952	0.0000	0.05	0.9948	0.0001	0.08
YLW9Q8		0.9949	-0.0002	-0.23	0.9946	-0.0002	-0.20
YX8VMK		0.9947	-0.0005	-0.50	0.9945	-0.0002	-0.25

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

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<b>Grand Means</b>	<b>Summary Statistics</b>
0.99515 sp gr 20/20 C	0.99473 sp gr 20/20 C
<b>Stnd Dev Btwn Labs</b>	
0.00091 sp gr 20/20 C	0.00092 sp gr 20/20 C
<b>Statistics based on 53 of 65 reporting participants</b>	

Wines tested: SA67: Merlot; SA68: Merlot

**Comments on assigned Data Flags**

38949K (X) - Inconsistent in testing between samples.

6GQ3X4 (X) - Inconsistent in testing between samples.

7NBUZP (X) - Inconsistent in testing between samples and inconsistent within the determinations for SampleSA68.

BGZMQG (X) - Inconsistent in testing between samples.

HV7YK4 (X) - Inconsistent in testing between samples.

LP3UZK (X) - Inconsistent in testing between samples.

MU2KBX (X) - Inconsistent in testing between samples.

P8KC79 (X) - Inconsistent in testing between samples, data for Sample SA67 are high. Also inconsistent in testing within both sample sets.

QJ3PD7 (X) - Data for both samples are high.

RKM9VT (X) - Inconsistent in testing between samples.

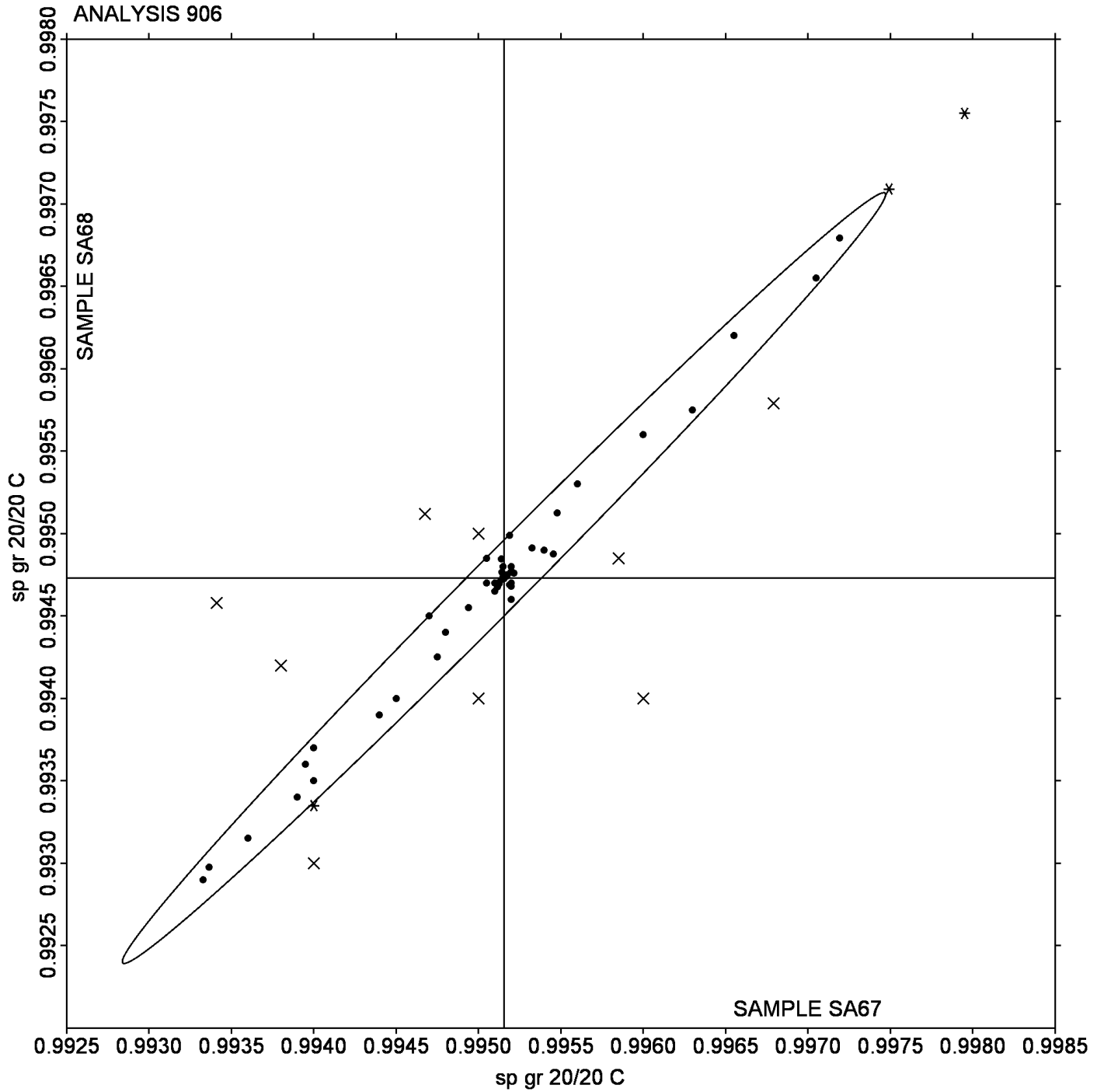
VEE28E (X) - Inconsistent in testing between samples.

VT7FW2 (X) - Inconsistent in testing between samples.

# ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 906

### Specific Gravity



## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 907

## pH

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2CVYQP		3.510	0.019	0.52	3.550	0.017	0.51
2LWQCR		3.430	-0.061	-1.68	3.495	-0.038	-1.11
332NPL		3.490	-0.001	-0.03	3.540	0.007	0.22
46UWRY		3.445	-0.046	-1.27	3.515	-0.018	-0.52
63UADW		3.560	0.069	1.90	3.590	0.057	1.69
6H7CXW		3.460	-0.031	-0.85	3.510	-0.023	-0.67
6X28CH		3.510	0.019	0.52	3.545	0.012	0.36
72F89M		3.530	0.039	1.08	3.555	0.022	0.66
73AF7E	*	3.500	0.009	0.25	3.500	-0.033	-0.96
73HENW		3.505	0.014	0.39	3.530	-0.003	-0.08
7CMMMM		3.510	0.019	0.52	3.550	0.017	0.51
8NA7N7		3.525	0.034	0.94	3.545	0.012	0.36
8XT6GW		3.510	0.019	0.52	3.555	0.022	0.66
9F72DZ		3.535	0.044	1.21	3.545	0.012	0.36
9JB4Q4		3.485	-0.006	-0.16	3.515	-0.018	-0.52
9JCCR2		3.530	0.039	1.08	3.585	0.052	1.54
9NXBX6		3.540	0.049	1.35	3.570	0.037	1.10
9PHD2N		3.505	0.014	0.39	3.555	0.022	0.66
9UGPAT		3.515	0.024	0.66	3.565	0.032	0.95
AA3BXC		3.430	-0.061	-1.68	3.480	-0.053	-1.55
AC2H8T		3.480	-0.011	-0.30	3.515	-0.018	-0.52
ANFLAH		3.500	0.009	0.25	3.550	0.017	0.51
BHHVRC		3.465	-0.026	-0.72	3.520	-0.013	-0.37
BRWNW7		3.440	-0.051	-1.40	3.490	-0.043	-1.26
BZJMZT		3.475	-0.016	-0.44	3.510	-0.023	-0.67
C4XZ8W		3.500	0.009	0.25	3.530	-0.003	-0.08
CT42T8		3.515	0.024	0.66	3.565	0.032	0.95
D2QTUW	X	3.520	0.029	0.80	3.470	-0.063	-1.85
D6F6YJ		3.530	0.039	1.08	3.570	0.037	1.10
DHPNT9		3.495	0.004	0.11	3.540	0.007	0.22
DHVXX9		3.555	0.064	1.76	3.565	0.032	0.95
DRMRHC		3.485	-0.006	-0.16	3.530	-0.003	-0.08
E8Q67U		3.515	0.024	0.66	3.555	0.022	0.66
FCEHZY		3.470	-0.021	-0.58	3.490	-0.043	-1.26
FN674N		3.525	0.034	0.94	3.570	0.037	1.10

## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 907

## pH

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
GBUHGP		3.555	0.064	1.76	3.590	0.057	1.69
HHH4AV		3.470	-0.021	-0.58	3.520	-0.013	-0.37
HN9PE3		3.470	-0.021	-0.58	3.485	-0.048	-1.40
J76ZNZ		3.520	0.029	0.80	3.555	0.022	0.66
JAVQ9R		3.490	-0.001	-0.03	3.540	0.007	0.22
JTVKL2		3.460	-0.031	-0.85	3.500	-0.033	-0.96
KE4XAT		3.480	-0.011	-0.30	3.525	-0.008	-0.23
KQDF4G		3.460	-0.031	-0.85	3.510	-0.023	-0.67
L4MADY		3.480	-0.011	-0.30	3.530	-0.003	-0.08
M7CNBV		3.510	0.019	0.52	3.550	0.017	0.51
MZBJ4K		3.480	-0.011	-0.30	3.525	-0.008	-0.23
N2EDYT		3.480	-0.011	-0.30	3.520	-0.013	-0.37
P26JL4		3.575	0.084	2.32	3.615	0.082	2.42
P463CR		3.480	-0.011	-0.30	3.525	-0.008	-0.23
PBM4NM		3.430	-0.061	-1.68	3.485	-0.048	-1.40
PDKEV2		3.410	-0.081	-2.23	3.460	-0.073	-2.14
PFGPA3		3.485	-0.006	-0.16	3.535	0.002	0.07
QMMJCQ		3.525	0.034	0.94	3.555	0.022	0.66
QWGF8M		3.475	-0.016	-0.44	3.520	-0.013	-0.37
RCXTX3		3.480	-0.011	-0.30	3.540	0.007	0.22
TFJ9H2		3.470	-0.021	-0.58	3.500	-0.033	-0.96
TQWZLW	*	3.420	-0.071	-1.96	3.450	-0.083	-2.43
TU87MZ		3.510	0.019	0.52	3.525	-0.008	-0.23
TYKAXY		3.470	-0.021	-0.58	3.510	-0.023	-0.67
UB9ZK7	*	3.390	-0.101	-2.78	3.440	-0.093	-2.73
UN2UDQ		3.505	0.014	0.39	3.535	0.002	0.07
UY8X74		3.480	-0.011	-0.30	3.525	-0.008	-0.23
VAEEWR		3.485	-0.006	-0.16	3.530	-0.003	-0.08
VJ7PJN		3.474	-0.017	-0.47	3.534	0.001	0.02
VMCRLN		3.535	0.044	1.21	3.590	0.057	1.69
W367QH		3.465	-0.026	-0.72	3.505	-0.028	-0.82
WECLDE		3.490	-0.001	-0.03	3.530	-0.003	-0.08
WNA4HG		3.470	-0.021	-0.58	3.515	-0.018	-0.52
X7UL92	*	3.570	0.079	2.18	3.620	0.087	2.57
YL4W89		3.470	-0.021	-0.58	3.515	-0.018	-0.52

## ASEV-CTS Wine Industry Interlaboratory Testing Program

### Analysis 907

#### pH

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
YWR7CZ		3.480	-0.011	-0.30	3.540	0.007	0.22
YZ2L73		3.500	0.009	0.25	3.555	0.022	0.66
Z88WDC	*	3.475	-0.016	-0.44	3.555	0.022	0.66

Grand Means		Summary Statistics	
	3.4910 pH		3.5327 pH
Std Dev Btwn Labs			
	0.0363 pH		0.0340 pH
<b>Statistics based on 72 of 73 reporting participants</b>			

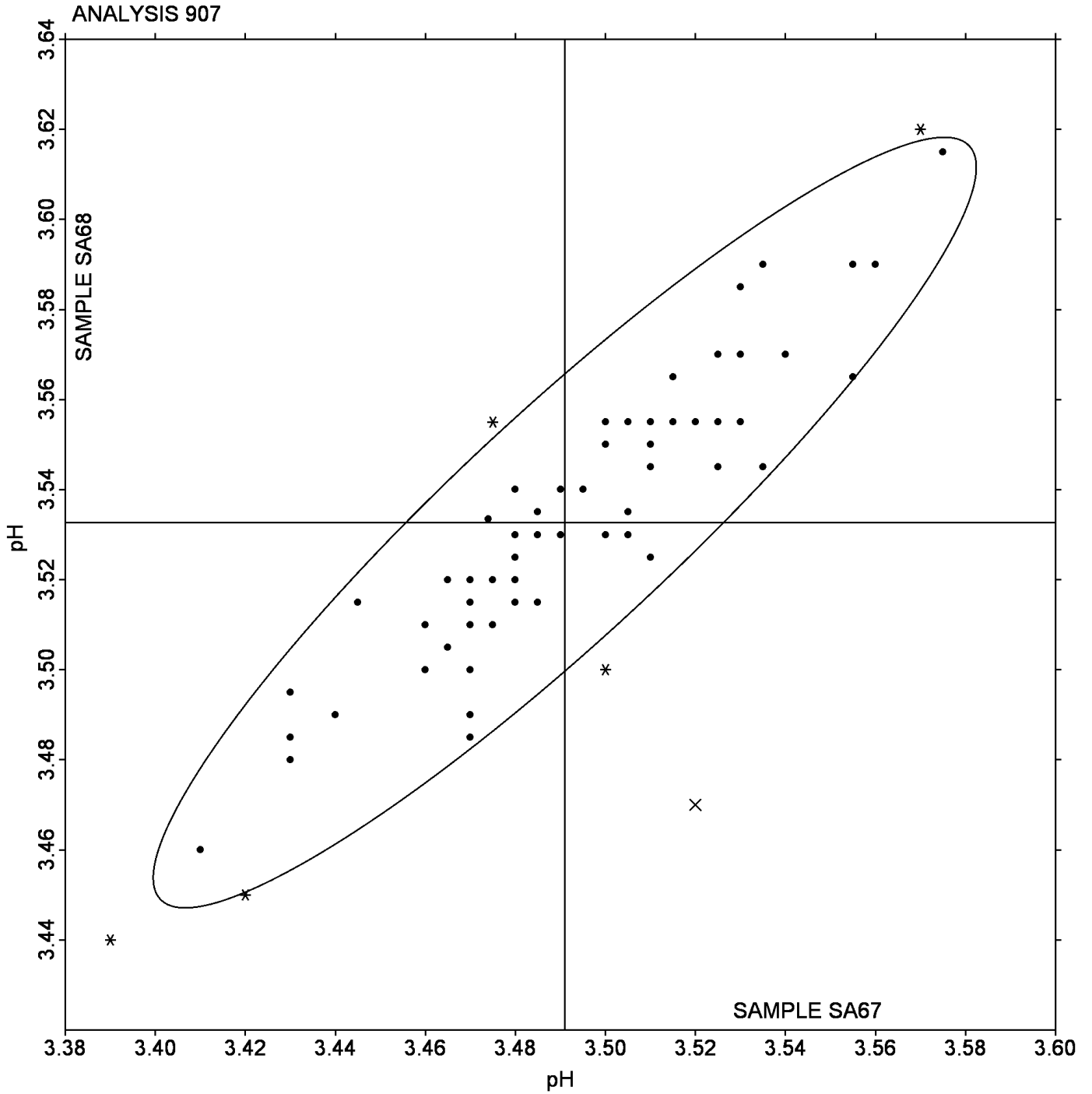
Wines tested: SA67: Merlot; SA68: Merlot

#### Comments on assigned Data Flags

D2QTUW (X) - Inconsistent in testing between samples.

Analysis 907

pH



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

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2FCMFR		4.900	-0.255	-0.21	4.100	-0.476	-0.40
2GVLV3		4.710	-0.445	-0.36	4.250	-0.326	-0.27
4Y6NGP		2.925	-2.230	-1.80	2.215	-2.361	-1.96
4ZQ9RG	*	8.400	3.245	2.62	6.900	2.324	1.93
6C7TEZ		4.700	-0.455	-0.37	4.800	0.224	0.19
7BU97N		2.935	-2.220	-1.79	2.275	-2.301	-1.91
7UQA6K		5.400	0.245	0.20	4.650	0.074	0.06
7XB4AF		5.300	0.145	0.12	4.400	-0.176	-0.15
8PQERB		5.300	0.145	0.12	4.800	0.224	0.19
94LLBR		4.725	-0.430	-0.35	4.230	-0.346	-0.29
9PDYD3		4.755	-0.400	-0.32	5.230	0.654	0.54
FUDY9X		5.150	-0.005	0.00	4.800	0.224	0.19
HHL YWD		5.150	-0.005	0.00	4.500	-0.076	-0.06
JPMWPB		7.700	2.545	2.05	7.300	2.724	2.27
JQ8XZZ		4.710	-0.445	-0.36	4.050	-0.526	-0.44
KRE4U6		5.315	0.160	0.13	4.555	-0.021	-0.02
MW8AT2		4.700	-0.455	-0.37	3.800	-0.776	-0.65
NXARXT		6.800	1.645	1.33	6.300	1.724	1.43
QNFTDK		4.200	-0.955	-0.77	3.300	-1.276	-1.06
RJJVLA		5.645	0.490	0.40	4.690	0.114	0.10
W2CENU		5.225	0.070	0.06	4.720	0.144	0.12
ZZALK8		4.760	-0.395	-0.32	4.800	0.224	0.19

**Grand Means**

5.1548 g/L

**Summary Statistics**

4.5757 g/L

**Std Dev Btwn Labs**

1.2397 g/L

1.2017 g/L

**Statistics based on 22 of 22 reporting participants**

Wines tested: SA67: Merlot; SA68: Merlot

## Analysis 908

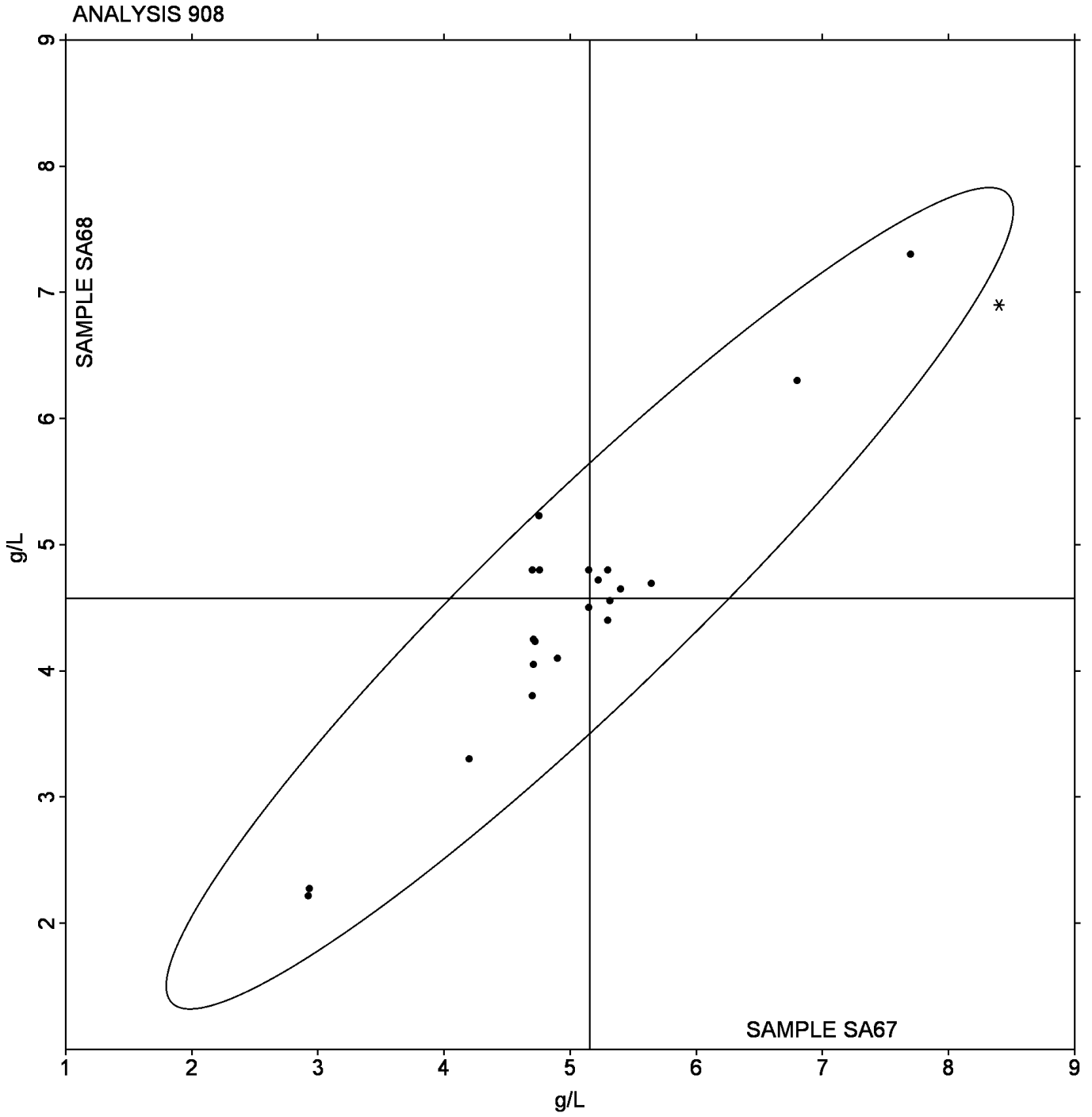
## Residual Sugar

## Results by Methodology (as reported by laboratory)

Test Methodology	Sample SA67 <i>Merlot</i>			Sample SA68 <i>Merlot</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Cu Reduction Method	5.052	0.321	-0.103	4.548	0.373	-0.028	13	14
Segmented Flow	6.500	1.697	1.345	5.850	2.051	1.274	2	2
FTIR	5.118	1.150	-0.037	4.613	1.281	0.037	4	4
Other _____	2.930	0.007	-2.225	2.245	0.042	-2.331	2	2

Analysis 908

Residual Sugar



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

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WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2MC8CR		0.1100	-0.0066	-0.15	0.1500	0.0001	0.00
38KMR9	*	0.1050	-0.0116	-0.26	0.1900	0.0401	0.84
3FQH7N	*	0.1585	0.0419	0.94	0.1445	-0.0054	-0.11
3TXDUH		0.0985	-0.0181	-0.41	0.1385	-0.0114	-0.24
3VZR7F		0.0750	-0.0416	-0.93	0.1100	-0.0399	-0.84
479AK3	X	0.0150	-0.1016	-2.28	0.1100	-0.0399	-0.84
48VD66		0.1600	0.0434	0.97	0.2000	0.0501	1.05
6RZPM3	X	0.0500	-0.0666	-1.49	3.8950	3.7451	78.37
6W9MZB		0.0900	-0.0266	-0.60	0.1400	-0.0099	-0.21
7E6NZL		0.0950	-0.0216	-0.48	0.1290	-0.0209	-0.44
97HVYH	X	0.2950	0.1784	4.00	0.2900	0.1401	2.93
9874GW	X	0.2850	0.1684	3.78	0.3900	0.2401	5.02
9DD2AB	X	0.3900	0.2734	6.14	0.4500	0.3001	6.28
9RYGBM		0.0550	-0.0616	-1.38	0.1000	-0.0499	-1.05
A63XZP		0.1200	0.0034	0.08	0.1600	0.0101	0.21
ARWX97		0.0750	-0.0416	-0.93	0.1000	-0.0499	-1.05
AVW7NK	X	0.0900	-0.0266	-0.60	0.2500	0.1001	2.09
AVWMPJ	*	0.2115	0.0949	2.13	0.2150	0.0651	1.36
B4M9YQ		0.1030	-0.0136	-0.31	0.1305	-0.0194	-0.41
C3PPQL		0.1350	0.0184	0.41	0.2000	0.0501	1.05
CC2CXN		0.0825	-0.0341	-0.77	0.1290	-0.0209	-0.44
CN9AMX		0.0795	-0.0371	-0.83	0.1180	-0.0319	-0.67
DGWFF6		0.0200	-0.0966	-2.17	0.0500	-0.0999	-2.09
EUKLNR		0.1000	-0.0166	-0.37	0.1000	-0.0499	-1.05
G8EKXM	X	0.9000	0.7834	17.58	1.2000	1.0501	21.97
G997M2		0.1750	0.0584	1.31	0.2050	0.0551	1.15
GD39NF	X	0.2250	0.1084	2.43	0.3350	0.1851	3.87
GET9UB	X	0.2850	0.1684	3.78	0.3300	0.1801	3.77
HJEBP3		0.1580	0.0414	0.93	0.2175	0.0676	1.41
JLZHG3		0.1200	0.0034	0.08	0.1550	0.0051	0.11
JP24EQ		0.1200	0.0034	0.08	0.1550	0.0051	0.11
K9QA9J		0.1250	0.0084	0.19	0.1550	0.0051	0.11
LCCL2D		0.1130	-0.0036	-0.08	0.1560	0.0061	0.13
LZUU3P		0.1200	0.0034	0.08	0.1400	-0.0099	-0.21
MJTL3T		0.0800	-0.0366	-0.82	0.1150	-0.0349	-0.73

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

WebCode	Data Flag	Sample			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
N47VFD	M	No data reported for this sample			0.1115	-0.0384	-0.80
NEUNQ8		0.1015	-0.0151	-0.34	0.1275	-0.0224	-0.47
NPKY2H		0.1300	0.0134	0.30	0.1500	0.0001	0.00
P7YF4W		0.2000	0.0834	1.87	0.2150	0.0651	1.36
P8WGH8		0.1300	0.0134	0.30	0.1500	0.0001	0.00
PV3VZR		0.0600	-0.0566	-1.27	0.0700	-0.0799	-1.67
Q7EMVE		0.0755	-0.0411	-0.92	0.1000	-0.0499	-1.05
R2UWWD		0.1500	0.0334	0.75	0.2000	0.0501	1.05
R4TH3Y		0.0900	-0.0266	-0.60	0.1400	-0.0099	-0.21
RPGCDT		0.1420	0.0254	0.57	0.1725	0.0226	0.47
RRLJF2	*	0.2400	0.1234	2.77	0.2500	0.1001	2.09
RTETUZ	X	0.2000	0.0834	1.87	0.4000	0.2501	5.23
RXJBEF		0.1050	-0.0116	-0.26	0.1600	0.0101	0.21
TJAZ3K	*	0.0258	-0.0908	-2.04	0.0213	-0.1286	-2.69
U3CGDC		0.0850	-0.0316	-0.71	0.1000	-0.0499	-1.05
UUN3YP		0.1000	-0.0166	-0.37	0.1500	0.0001	0.00
VYVVGZ		0.0860	-0.0306	-0.69	0.1240	-0.0259	-0.54
WFXPE7	X	0.3000	0.1834	4.12	0.4900	0.3401	7.12
WL3GMX		0.2050	0.0884	1.98	0.2650	0.1151	2.41
WP7H68		0.1250	0.0084	0.19	0.1550	0.0051	0.11
WV4X9		0.1500	0.0334	0.75	0.1800	0.0301	0.63
X3UNBU		0.1260	0.0094	0.21	0.1540	0.0041	0.08
XZAWVT	X	0.2770	0.1604	3.60	0.3530	0.2031	4.25
ZJDEXU		0.0900	-0.0266	-0.60	0.1200	-0.0299	-0.63
ZR8NZC		0.1450	0.0284	0.64	0.2000	0.0501	1.05
ZVGJAA		0.1500	0.0334	0.75	0.1900	0.0401	0.84

**Grand Means**

0.11659 g/L

**Summary Statistics**

0.14994 g/L

**Std Dev Btwn Labs**

0.04455 g/L

0.04779 g/L

**Statistics based on 48 of 61 reporting participants**

Wines tested: SA67: Merlot; SA68: Merlot

## Analysis 909

## L-Malic Acid

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**Comments on assigned Data Flags**

479AK3 (X) - Inconsistent in testing between samples.

6RZPM3 (X) - Extreme data for Sample SA68.

97HVVH (X) - Data for both samples are high.

9874GW (X) - Data for both samples are high.

9DD2AB (X) - Data for both samples are high.

AVW7NK (X) - Inconsistent in testing between samples.

G8EKXM (X) - Data for both samples are high. Data may be off by a factor of 10.

GD39NF (X) - Data for both samples are high. Also inconsistent in testing within Sample SA68.

GET9UB (X) - Data for both samples are high. Possible Systematic Error.

N47VFD (M) - Laboratory did not submit data for Sample SA67.

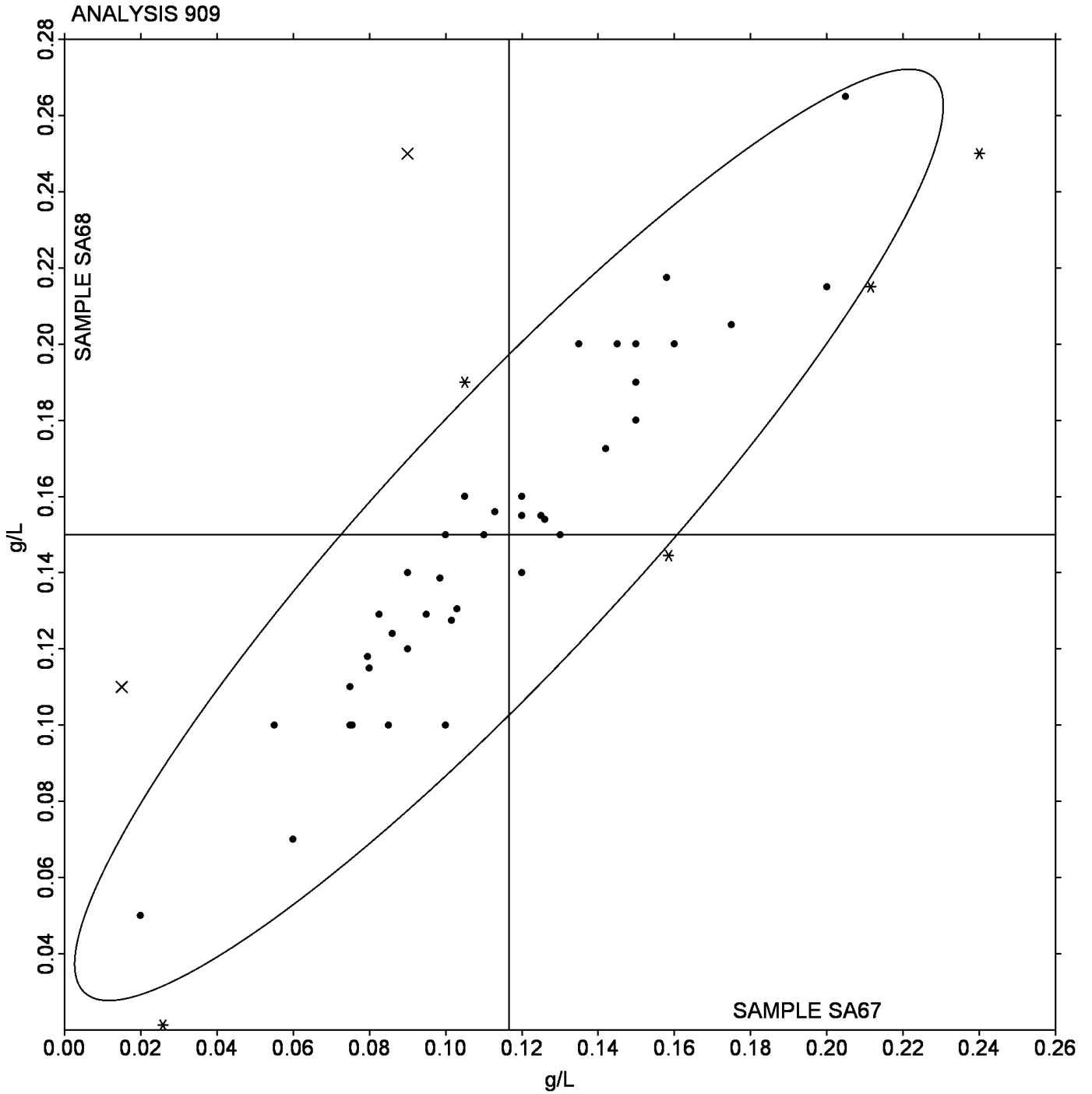
RTETUZ (X) - Inconsistent in testing between samples, data for Sample SA68 are high. Also inconsistent in testing within Sample SA67.

WFXPE7 (X) - Data for both samples are high. Also inconsistent in testing within Sample SA67.

XZAWVT (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 SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2EK3TF		3.630	0.241	0.74	2.680	0.119	0.49
2FVQX8		3.520	0.131	0.40	2.670	0.109	0.45
2KRX9A		3.300	-0.089	-0.27	2.500	-0.061	-0.25
382Q2F		3.380	-0.009	-0.03	2.535	-0.026	-0.11
3HJQV9	X	4.400	1.011	3.10	4.300	1.739	7.20
3JEDJM		3.550	0.161	0.49	2.800	0.239	0.99
3QHCA3		3.725	0.336	1.03	2.945	0.384	1.59
43ENBP		3.600	0.211	0.65	2.650	0.089	0.37
4NM9NR		3.750	0.361	1.11	2.750	0.189	0.78
4PWWT4	*	4.170	0.781	2.40	2.920	0.359	1.49
6AY7HG		3.225	-0.164	-0.50	2.390	-0.171	-0.71
83WXGB		3.130	-0.259	-0.79	2.425	-0.136	-0.56
8T6MZN		2.935	-0.454	-1.39	2.275	-0.286	-1.18
8XXN33		3.800	0.411	1.26	2.800	0.239	0.99
96EQR4	X	0.550	-2.839	-8.71	0.300	-2.261	-9.36
A2VHWW		3.500	0.111	0.34	2.800	0.239	0.99
AE9P64		3.700	0.311	0.95	2.900	0.339	1.40
ALP37M	X	5.110	1.721	5.28	4.450	1.889	7.82
B44WEN	X	3.630	0.241	0.74	0.080	-2.481	-10.27
B4VXTF		2.955	-0.434	-1.33	2.205	-0.356	-1.47
BKQPZG		3.005	-0.384	-1.18	2.315	-0.246	-1.02
CBY4NG	X	3.285	-0.104	-0.32	3.620	1.059	4.38
CFR6QV		2.700	-0.689	-2.11	2.150	-0.411	-1.70
CMXXZJ		3.144	-0.246	-0.75	2.370	-0.191	-0.79
DKKBNR		3.550	0.161	0.49	2.600	0.039	0.16
DNJQY3		3.485	0.096	0.29	2.660	0.099	0.41
DQKBTR		3.365	-0.024	-0.07	2.450	-0.111	-0.46
E4BBC8		3.300	-0.089	-0.27	2.450	-0.111	-0.46
FW87YQ		3.430	0.041	0.13	2.610	0.049	0.20
G6P94N		2.665	-0.724	-2.22	2.180	-0.381	-1.58
G94FA6		3.500	0.111	0.34	2.500	-0.061	-0.25
GHL99E		3.600	0.211	0.65	2.700	0.139	0.57
GVR9ZX		3.350	-0.039	-0.12	2.350	-0.211	-0.87
HA4942		3.210	-0.179	-0.55	2.405	-0.156	-0.65
HMG7GJ		3.310	-0.079	-0.24	2.480	-0.081	-0.34

## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 910

## Glucose + Fructose

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
HRPGU7		3.150	-0.239	-0.73	2.400	-0.161	-0.67
KELHXZ		3.750	0.361	1.11	2.950	0.389	1.61
KRLU7G		3.600	0.211	0.65	2.650	0.089	0.37
KTU24R		3.430	0.041	0.13	2.600	0.039	0.16
KVZDBR		3.300	-0.089	-0.27	2.500	-0.061	-0.25
LEMGVY	X	2.250	-1.139	-3.49	1.300	-1.261	-5.22
MJYBKK		3.100	-0.289	-0.89	2.300	-0.261	-1.08
MQVTVY		3.365	-0.024	-0.07	2.455	-0.106	-0.44
MUBJA6		3.450	0.061	0.19	2.550	-0.011	-0.05
NYXGMA	*	2.950	-0.439	-1.35	2.505	-0.056	-0.23
P2YWKY		2.925	-0.464	-1.42	2.215	-0.346	-1.43
PGD93K	*	4.170	0.781	2.40	3.260	0.699	2.89
PHB9HV		3.300	-0.089	-0.27	2.500	-0.061	-0.25
PJ9NUA	X	1.670	-1.719	-5.27	1.565	-0.996	-4.12
QVKLM9		3.250	-0.139	-0.43	2.550	-0.011	-0.05
R288CF		3.350	-0.039	-0.12	2.550	-0.011	-0.05
RRKVBD		3.150	-0.239	-0.73	2.400	-0.161	-0.67
RVPQ2J		3.510	0.121	0.37	2.580	0.019	0.08
TA3ZEX		3.300	-0.089	-0.27	2.550	-0.011	-0.05
TK946P		3.960	0.571	1.75	3.005	0.444	1.84
UGWXHM	*	3.250	-0.139	-0.43	2.200	-0.361	-1.50
VLV3B7	X	4.900	1.511	4.63	3.615	1.054	4.36
WKFCAY		3.500	0.111	0.34	2.700	0.139	0.57
XVVEDC		3.000	-0.389	-1.19	2.250	-0.311	-1.29
YJWZVT		4.050	0.661	2.03	3.050	0.489	2.02
YZMBVV	X	7.100	3.711	11.38	6.200	3.639	15.06
ZK6EV6		3.330	-0.059	-0.18	2.560	-0.001	-0.01

## Grand Means

3.3891 g/L

## Summary Statistics

2.5612 g/L

## Std Dev Btwn Labs

0.3260 g/L

0.2416 g/L

Statistics based on 53 of 62 reporting participants

Wines tested: SA67: Merlot; SA68: Merlot

## Analysis 910

## Glucose + Fructose

**Comments on assigned Data Flags**

3HJQV9 (X) - Data for both samples are high.

96EQR4 (X) - Data for both samples are low.

ALP37M (X) - Data for both samples are high.

B44WEN (X) - Inconsistent in testing between samples, data for Sample SA68 are low.

CBY4NG (X) - Inconsistent in testing between samples, data for Sample SA68 are high.

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

PJ9NUA (X) - Data for both samples are low. Also inconsistent in testing within Sample SA68.

VLV3B7 (X) - Data for both samples are high.

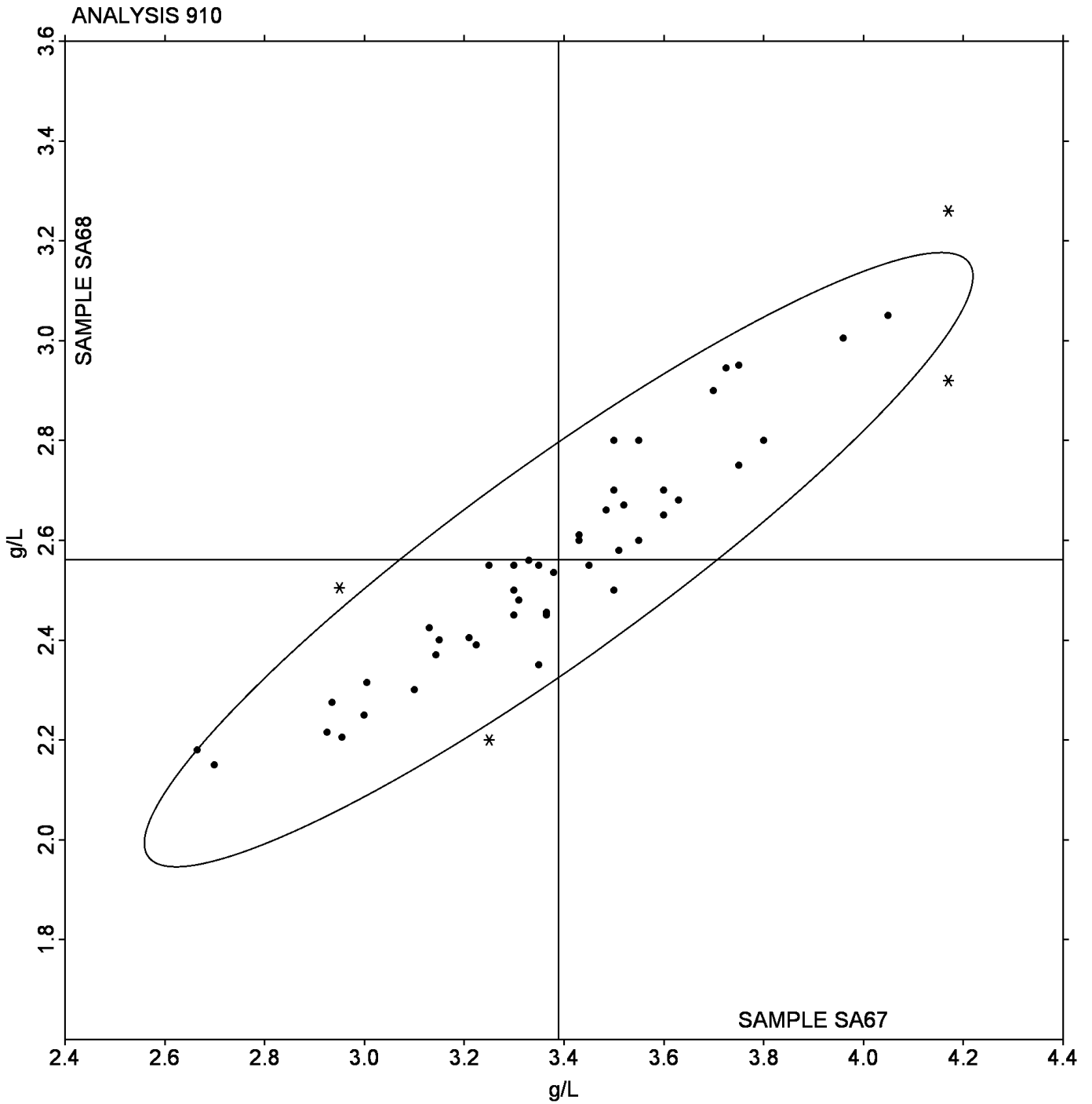
YZMBVV (X) - Data for both samples are high.

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

Test Methodology	Sample SA67 <i>Merlot</i>			Sample SA68 <i>Merlot</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Please specify method used	2.665	0.000	-0.724	2.180	0.000	-0.381	1	1
HPLC	3.430	0.000	0.041	2.600	0.000	0.039	1	3
Enzymatic/Spectrophotometric	3.380	0.291	-0.009	2.563	0.224	0.001	42	50
FTIR	3.450	0.122	0.061	2.513	0.125	-0.049	4	7
Other _____	3.210	0.000	-0.179	2.405	0.000	-0.156	1	1

Analysis 910

Glucose + Fructose



## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 915

## A420nm (1cm path)

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
248JCB		2.438	-0.280	-1.68	2.552	-0.392	-2.12
2X9DAZ	X	0.274	-2.444	-14.61	0.319	-2.625	-14.23
3CLNYU	X	2.001	-0.717	-4.29	2.359	-0.585	-3.17
3CYDYP	X	0.324	-2.394	-14.31	0.346	-2.598	-14.09
4CKDBE		2.675	-0.043	-0.26	2.870	-0.074	-0.40
4DKX4E	X	0.539	-2.180	-13.03	0.590	-2.354	-12.77
6ZVJAM		2.499	-0.220	-1.31	2.591	-0.353	-1.92
7YTEKL		2.700	-0.018	-0.11	2.930	-0.014	-0.07
ADLB69		2.687	-0.031	-0.19	3.045	0.101	0.55
AXY784		2.590	-0.128	-0.77	2.815	-0.129	-0.70
BG7MAB		2.733	0.014	0.08	2.978	0.034	0.18
BX97FD		2.750	0.032	0.19	2.995	0.051	0.28
CT4YBW		2.670	-0.048	-0.29	2.930	-0.014	-0.07
D4JBYE		2.740	0.022	0.13	3.040	0.096	0.52
EREM6Y		2.705	-0.014	-0.08	2.891	-0.053	-0.29
F29PG7		2.930	0.212	1.26	3.020	0.076	0.41
GEUXMQ		2.570	-0.148	-0.89	2.880	-0.064	-0.35
H4YZQ2	X	1.334	-1.384	-8.27	1.353	-1.591	-8.63
H6WZ6B		3.050	0.332	1.98	3.205	0.261	1.42
J79TJX		2.800	0.082	0.49	2.960	0.016	0.09
JRHAUM		2.745	0.027	0.16	3.020	0.076	0.41
K4NTME		2.698	-0.020	-0.12	2.847	-0.097	-0.53
KX662L		2.560	-0.158	-0.95	2.795	-0.149	-0.81
M8NUX3	X	0.346	-2.373	-14.18	0.357	-2.587	-14.03
MTD2JJ		2.600	-0.118	-0.71	2.830	-0.114	-0.62
P3K78Y		2.644	-0.074	-0.44	2.854	-0.090	-0.49
PD6HGR	X	0.309	-2.409	-14.40	0.313	-2.631	-14.26
PWZ47N		2.750	0.032	0.19	2.987	0.043	0.23
Q4VTKW	X	0.264	-2.455	-14.67	0.293	-2.651	-14.38
RX8WFF		2.728	0.010	0.06	3.029	0.085	0.46
T9XJYM		2.420	-0.298	-1.78	2.765	-0.179	-0.97
TLYWHJ		2.694	-0.025	-0.15	2.873	-0.071	-0.38
UKYUAD		2.705	-0.013	-0.08	2.955	0.011	0.06
V28JDZ		2.767	0.048	0.29	2.974	0.030	0.16
VHMEEF		2.700	-0.019	-0.11	2.850	-0.094	-0.51

**ASEV-CTS Wine Industry Interlaboratory Testing Program**  
**Analysis 915**  
**A420nm (1cm path)**

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
W3AHJQ		2.895	0.177	1.06	3.142	0.198	1.07
WRWUPU	X	3.480	0.762	4.55	3.850	0.906	4.91
X4GPB6	X	310.000	307.282	1,836.45	343.000	340.056	1,843.88
X82J3T		2.670	-0.048	-0.29	2.860	-0.084	-0.45
XV7FRH		2.980	0.262	1.56	3.340	0.396	2.15
YLAWMF	*	3.254	0.536	3.20	3.515	0.571	3.09
YRVHCN		2.645	-0.073	-0.44	2.866	-0.078	-0.42

**Grand Means**

2.7184 Absorbance Units

**Summary Statistics**

2.9438 Absorbance Units

**Std Dev Btwn Labs**

0.1673 Absorbance Units

0.1844 Absorbance Units

**Statistics based on 32 of 42 reporting participants**

Wines tested: SA67: Merlot; SA68: Merlot

**Comments on assigned Data Flags**

2X9DAZ (X) - Data for both samples are low. Data may be off by a factor of 10.

3CLNYU (X) - Data for both samples are low.

3CYDYP (X) - Data for both samples are low. Data may be off by a factor of 10.

4DKX4E (X) - Data for both samples are low.

H4YZQ2 (X) - Data for both samples are low.

M8NUX3 (X) - Data for both samples are low. Data may be off by a factor of 10.

PD6HGR (X) - Data for both samples are low. Data may be off by a factor of 10.

Q4VTKW (X) - Data for both samples are low. Data may be off by a factor of 10.

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

X4GPB6 (X) - Data for both samples are high. Data may be off by a factor of 100.

**ASEV-CTS Wine Industry Interlaboratory Testing Program**

**Analysis 915**

**A420nm (1cm path)**

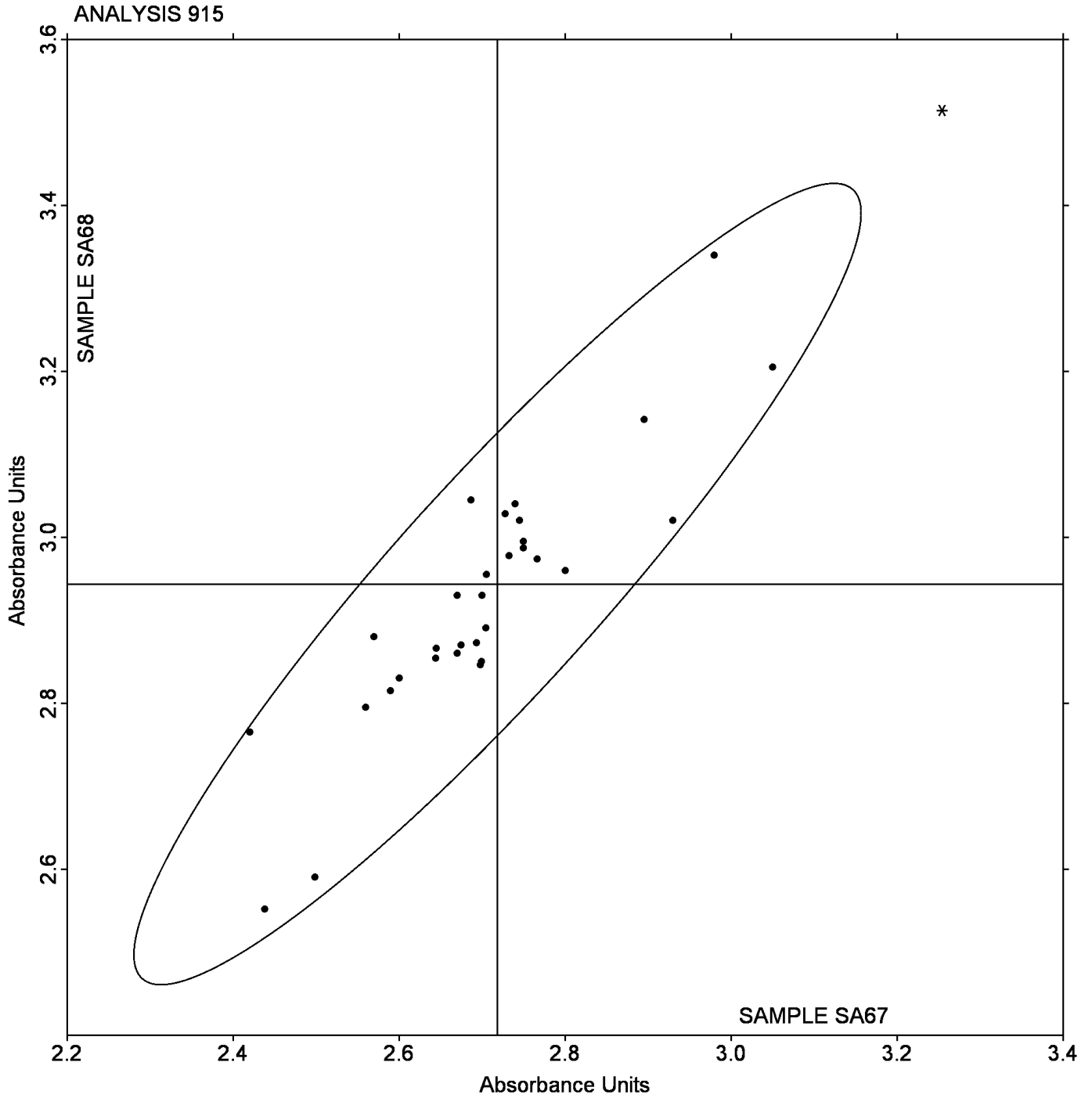
**Results by Methodology (as reported by laboratory)**

Test Methodology	Sample SA67 <i>Merlot</i>			Sample SA68 <i>Merlot</i>			Labs Incl / Rpt	
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM		
Code not used by CTS at this time	2.701	0.138	-0.017	2.925	0.155	-0.018	31	42

ASEV-CTS Wine Industry Interlaboratory Testing Program

Analysis 915

A420nm (1cm path)



## ASEV-CTS Wine Industry Interlaboratory Testing Program

## Analysis 916

## A520nm (1cm path)

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
24PE6X		2.919	0.020	0.08	3.575	-0.010	-0.02
28QWCJ		2.775	-0.124	-0.46	3.515	-0.070	-0.16
3ZY47L	X	0.284	-2.615	-9.73	0.366	-3.219	-7.57
4GA2FK	*	3.670	0.771	2.87	4.730	1.145	2.69
683C6E	X	1.452	-1.447	-5.38	1.704	-1.881	-4.42
68UWEL	X	0.357	-2.542	-9.46	0.414	-3.171	-7.46
6VKNYT	X	0.337	-2.562	-9.53	0.411	-3.174	-7.46
6ZLNLG		2.640	-0.259	-0.96	3.425	-0.160	-0.38
7KXQCF		2.700	-0.199	-0.74	2.980	-0.605	-1.42
87ZT9A	X	0.324	-2.575	-9.58	0.388	-3.197	-7.52
8UULLU	X	0.306	-2.593	-9.64	0.696	-2.889	-6.79
BA89CF		2.984	0.085	0.32	3.706	0.121	0.28
BX8YYF	X	0.623	-2.276	-8.47	0.834	-2.751	-6.47
BZV2V9		2.958	0.059	0.22	3.862	0.277	0.65
C2TYAF		2.980	0.081	0.30	3.692	0.107	0.25
CFNFVR	X	336.000	333.101	1,239.21	427.000	423.415	995.77
CP4W7F		2.915	0.016	0.06	3.655	0.070	0.17
DCHTG7		2.980	0.081	0.30	3.735	0.150	0.35
DYTR8R		2.640	-0.259	-0.96	3.525	-0.060	-0.14
FTVY24		3.025	0.126	0.47	3.710	0.125	0.29
G8G36W		2.904	0.005	0.02	3.621	0.036	0.09
GBNLD8		2.786	-0.113	-0.42	3.229	-0.356	-0.84
GQ9NLQ		2.753	-0.146	-0.54	3.040	-0.545	-1.28
J4BGCJ		2.950	0.051	0.19	3.710	0.125	0.29
JAPGCN		2.690	-0.209	-0.78	3.085	-0.500	-1.17
KGFBJR		3.140	0.241	0.90	3.940	0.355	0.84
LJAKGQ		2.777	-0.122	-0.45	3.113	-0.472	-1.11
LTY2FV		2.890	-0.009	-0.03	3.690	0.105	0.25
MLZD62		3.088	0.190	0.71	3.734	0.149	0.35
N9F2WQ		3.380	0.481	1.79	4.404	0.819	1.93
NJWH7L		2.910	0.011	0.04	3.635	0.050	0.12
PE6VPU		2.850	-0.049	-0.18	3.800	0.215	0.51
R7X3Z8	*	2.070	-0.829	-3.08	2.616	-0.969	-2.28
RK94YG		2.691	-0.208	-0.77	2.961	-0.624	-1.47
TBJX86		2.945	0.046	0.17	3.730	0.145	0.34

**ASEV-CTS Wine Industry Interlaboratory Testing Program**

**Analysis 916**

**A520nm (1cm path)**

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
TXXLVV		2.815	-0.084	-0.31	3.235	-0.350	-0.82
U9DWJD		2.750	-0.149	-0.55	3.530	-0.055	-0.13
VUU2YY		3.370	0.471	1.75	4.200	0.615	1.45
YNW8FN		2.840	-0.059	-0.22	3.451	-0.134	-0.31
ZB6ZXD		2.972	0.073	0.27	3.875	0.290	0.68

Grand Means		Summary Statistics	
	2.8986 Absorbance Units		3.5846 Absorbance Units
Std Dev Btwn Labs			
	0.2688 Absorbance Units		0.4252 Absorbance Units
<b>Statistics based on 32 of 40 reporting participants</b>			

Wines tested: SA67: Merlot; SA68: Merlot

**Comments on assigned Data Flags**

3ZY47L (X) - Data for both samples are low. Data may be off by a factor of 10.

683C6E (X) - Data for both samples are low.

68UWEL (X) - Data for both samples are low. Data may be off by a factor of 10.

6VKNYT (X) - Data for both samples are low. Data may be off by a factor of 10.

87ZT9A (X) - Data for both samples are low. Data may be off by a factor of 10.

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

BX8YYF (X) - Data for both samples are low.

CFNFVR (X) - Data for both samples are high. Data may be off by a factor of 100.

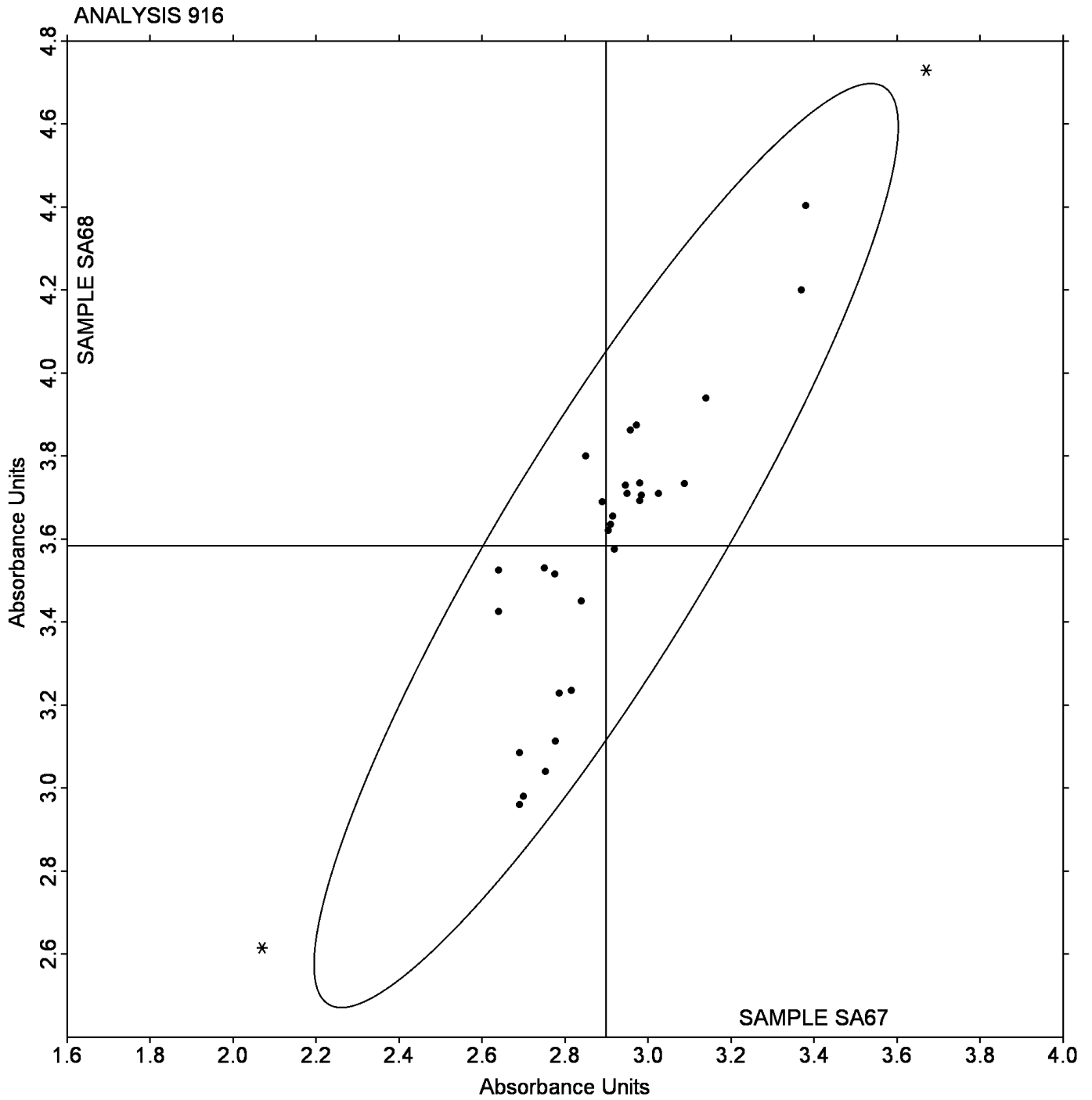
**Results by Methodology (as reported by laboratory)**

Test Methodology	Sample SA67 <i>Merlot</i>			Sample SA68 <i>Merlot</i>			Labs Incl / Rpt
	Group Mean	Btwn Lab STD	Diff from GM	Group Mean	Btwn Lab STD	Diff from GM	
Code not used by CTS at this time	2.900	0.182	0.002	3.579	0.340	-0.006	30 40

ASEV-CTS Wine Industry Interlaboratory Testing Program

Analysis 916

A520nm (1cm path)



## ASEV-CTS Wine Industry Interlaboratory Testing Program

### Research Property 950

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

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Target Value	% Diff from Target Value	Lab Mean	Diff from Target Value	% Diff from Target Value
272Q34		0.1000	-0.0052	-4.9%	0.0950	0.0075	8.6%
4NC92E		0.0820	-0.0232	-22.1%	0.0620	-0.0255	-29.1%
4RFTCR		0.0735	-0.0317	-30.1%	0.0495	-0.0380	-43.4%
736FCJ		0.1100	0.0048	4.6%	0.1300	0.0425	48.6%
7QBLZF		0.1050	-0.0002	-0.2%	0.0750	-0.0125	-14.3%
7X847L		0.1260	0.0208	19.8%	0.0910	0.0035	4.0%
9ECU6L		0.1100	0.0048	4.6%	0.0800	-0.0075	-8.6%
9M9XFK		0.1200	0.0148	14.1%	0.0900	0.0025	2.9%
AD4EPX		0.1880	0.0828	78.7%	0.2075	0.1200	137.1%
ADFYDN		0.1500	0.0448	42.6%	0.1300	0.0425	48.6%
F7FH8F		0.1225	0.0173	16.4%	0.0935	0.0060	6.9%
FJ8FGJ		0.1115	0.0063	6.0%	0.0870	-0.0005	-0.6%
JQJCVF		0.0180	-0.0872	-82.9%	0.0170	-0.0705	-80.6%
LMZGFZ		0.0900	-0.0152	-14.4%	0.0700	-0.0175	-20.0%
N7R7BQ		0.0700	-0.0352	-33.5%	0.0700	-0.0175	-20.0%
X4WHUV		0.1050	-0.0002	-0.2%	0.1000	0.0125	14.3%
YHMLER		0.1000	-0.0052	-4.9%	0.0780	-0.0095	-10.9%
Z3XWF7		0.0480	-0.0572	-54.4%	0.1650	0.0775	88.6%
Z964WG		0.0790	-0.0262	-24.9%	0.0580	-0.0295	-33.7%

#### Research Property Target Value

Target Value

0.10520 mg/L

0.08750 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 designated laboratories accredited under ISO 17025 with the differences between those laboratories being less than 10% of the target value.*

Wines tested: SA67: Merlot; SA68: Merlot

Consensus Average  
(may differ from target value)

0.10336 mg/L

0.08797 mg/L

*This consensus average is based on 18 reporting participants.*

**Research Property 950**

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

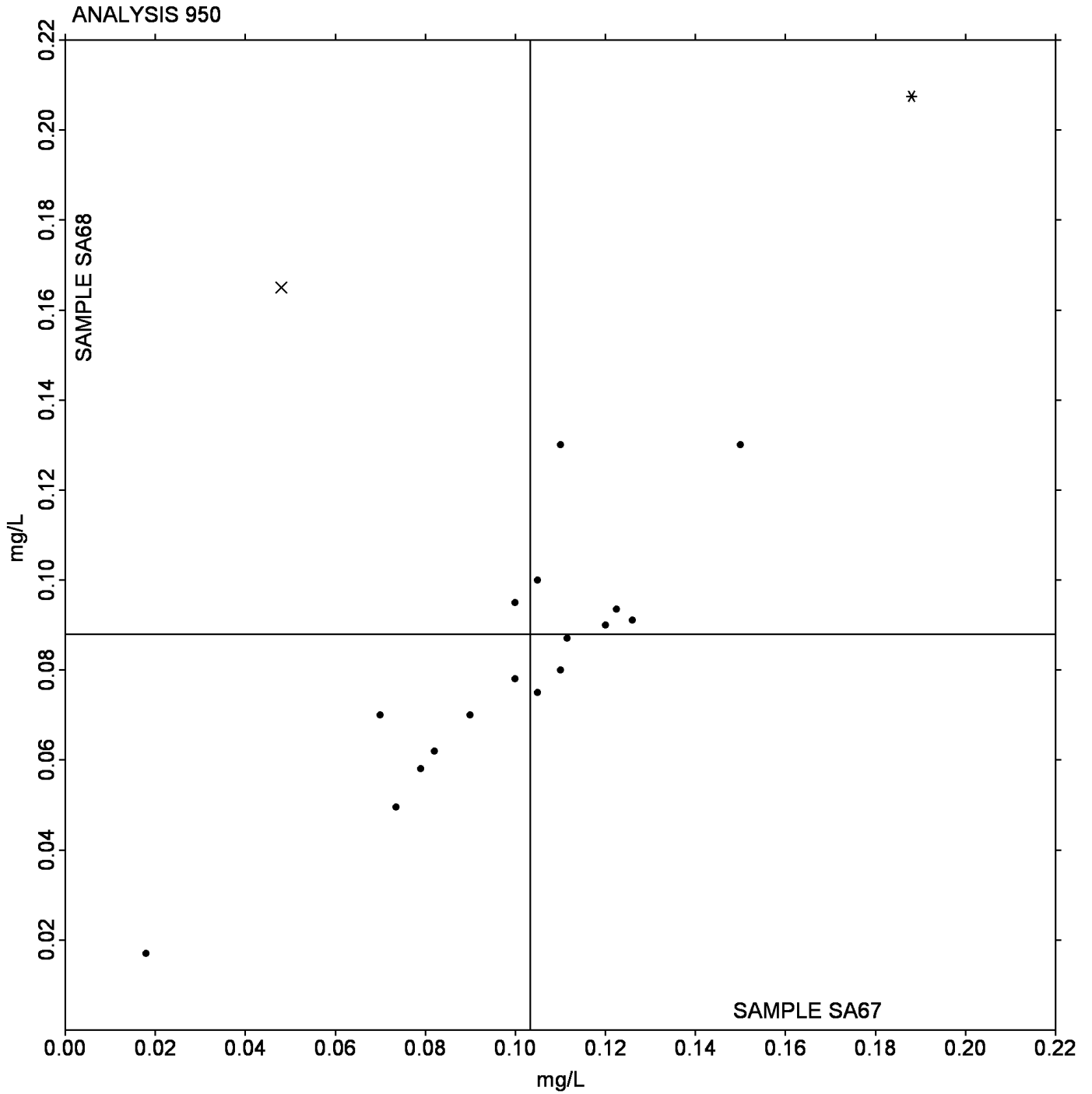
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**Comments on assigned Data Flags**

Z3XWF7 (X) - Inconsistent in testing between samples.

Research Property 950

Research Property - Copper (Cu) Content



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**  
**Research Property 951**  
**Research Property: Lead**

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Target Value	% Diff from Target Value	Lab Mean	Diff from Target Value	% Diff from Target Value
6L4FTJ		12.00	1.00	9.1%	6.00	0.50	9.1%
7VFUJ4		18.05	7.05	64.1%	13.00	7.50	136.4%
AAKA83		2.25	-8.76	-79.6%	11.00	5.50	100.0%
GB23GD		37.50	26.50	240.9%	30.50	25.00	454.5%
GHV4HJ		20.00	9.00	81.8%	10.00	4.50	81.8%
JPKHF		10.00	-1.00	-9.1%	5.00	-0.50	-9.1%
MW79KE		24.00	13.00	118.2%	17.50	12.00	218.2%
UBKHMx		11.00	0.00	0.0%	5.05	-0.45	-8.2%
XTTEJ9		5.05	-5.95	-54.1%	No data reported for this sample		
YD2Q9Z		20.00	9.00	81.8%	20.00	14.50	263.6%

Research Property Target Value	
Target Value	<b>11.000</b> ug/L (micrograms/liter) <b>5.500</b> ug/L (micrograms/liter)
<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 designated laboratories accredited under ISO 17025 with the differences between those laboratories being less than 10% of the target value.</i>	

Wines tested: SA67: Merlot; SA68: Merlot

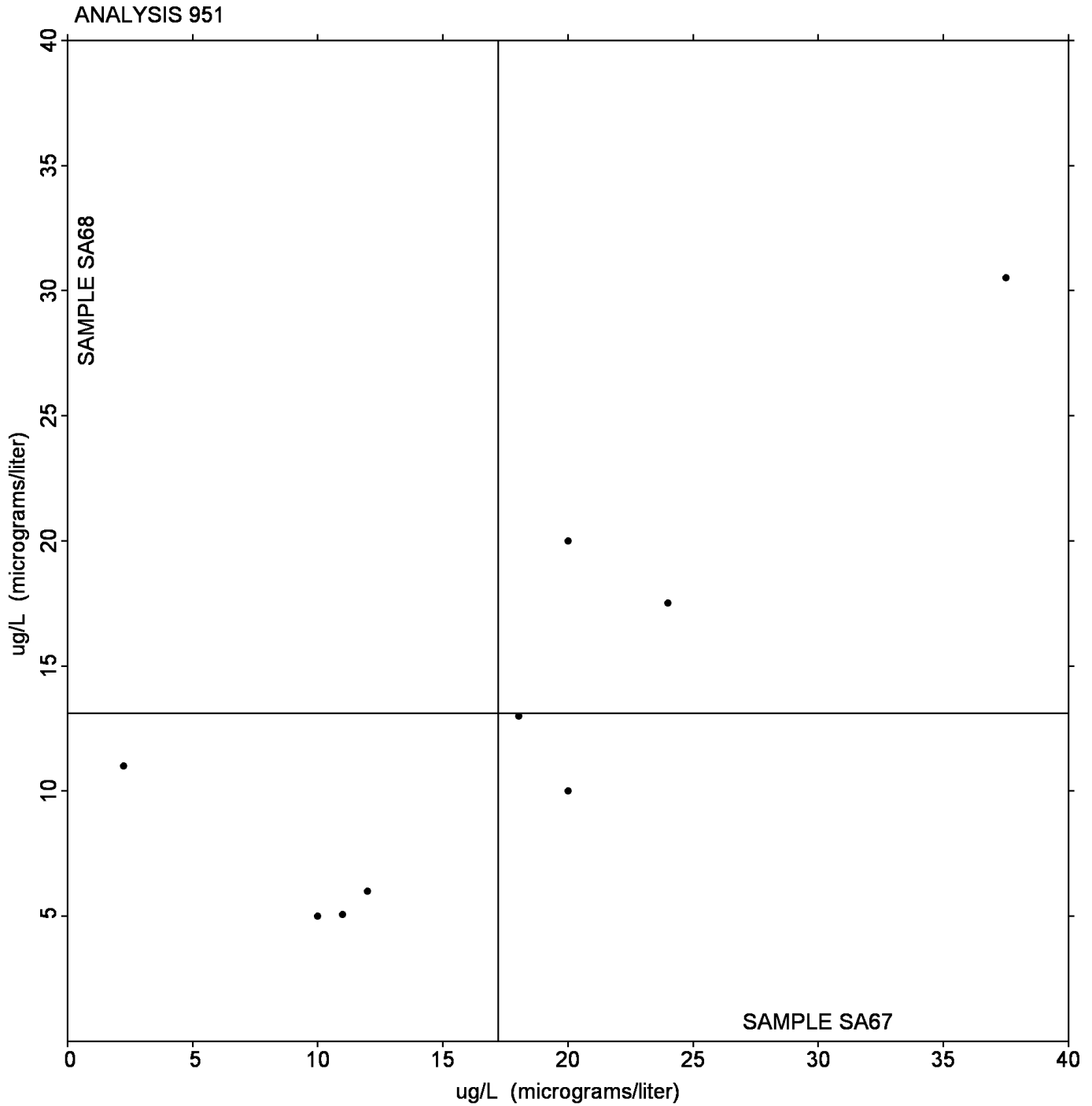
**Consensus Average**                      17.199 ug/L (micrograms/liter)                      13.117 ug/L (micrograms/liter)  
 (may differ from target value)

*This consensus average is based on 9 reporting participants.*

**Comments on assigned Data Flags**

XTTEJ9 (M) - Laboratory did not submit data for Sample SA68.

Research Property 951  
Research Property: Lead



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 952**

**Research Property: Arsenic**

WebCode	Data Flag	Sample SA67			Sample SA68		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
9CNNRQ		18.00	-3.00	-1.41	12.00	-2.30	-0.71
HB2FM7		23.00	2.00	0.94	16.00	1.70	0.53
JYU4JJ		20.00	-1.00	-0.47	10.00	-4.30	-1.33
N3NWU4		21.00	0.00	0.00	15.50	1.20	0.37
VVD726		23.00	2.00	0.94	18.00	3.70	1.14

**Research Property Target Value**

**Target Value**                      **20.500** ug/L (micrograms/liter)                      **14.000** ug/L (micrograms/liter)

*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 designated laboratories accredited under ISO 17025 with the differences between those laboratories being less than 10% of the target value.*

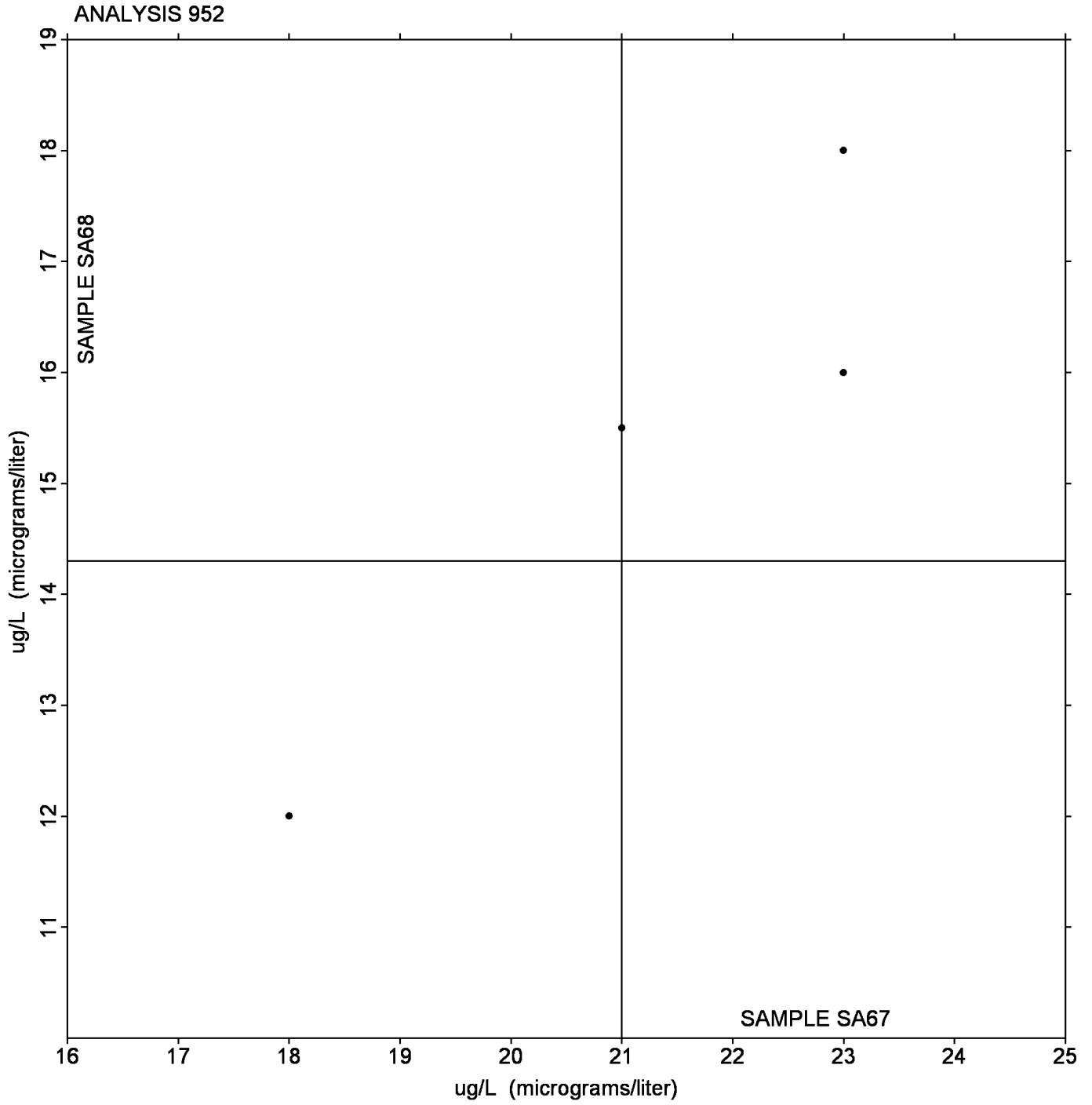
**Wines tested:** SA67: Merlot; SA68: Merlot

**Consensus Average**                      21.000 ug/L (micrograms/liter)                      14.300 ug/L (micrograms/liter)  
 (may differ from target value)

*This consensus average is based on 5 reporting participants.*

Analysis 952

Research Property: Arsenic



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