

# CIA/ETS Study On Rejected Wines: Part 1

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## Study design

- Study is designed to determine actual flaws within wines that are rejected by consumers dining at the Wine Spectator Greystone Restaurant and students and staff at the Culinary Institute of America at Greystone
- Rejected wines were sent to ETS Labs for chemical analysis
- Wine specifics (e.g. producer, area of production, etc.) were not released to anyone till after testing was completed
- Tested population of 100 wines is study's goal

## CIA Greystone Restaurant Consumers Demographics

- Above average level of wine knowledge
  - Wine Professionals
    - Winemakers, winery owners, vineyard owners, sommeliers
  - Food Professionals
    - Chefs, restaurant owners, food suppliers, media
  - Non-food and beverage professionals consumers who have a keen interest in wine and food

## Pre-serving Practices

- Servers are trained to look for obvious physical cork failures when serving
- Servers do perform a sensory evaluation of the wines prior to serving to large groups that have pre-ordered wines
  - 10-15% of business is large groups
  - Occurs infrequently
  - These are also submitted to ETS when found

## Post-rejection Practices

- Wines that were rejected by restaurant consumers were re-evaluated for flaws by CIA managers
  - If the manager determined that it is not flawed, it was not submitted to ETS Labs
- Samples of rejected wines were poured into two 125mL containers within 1-hour of rejection.
  - Containers have securely tightened foil-lined lids
- Samples were sent to ETS Labs for testing two times per week
  - Samples are kept refrigerated until transferred to ETS Labs

## CIA Wine Bottle Statistics (May 2006)

- # of bottles opened: 4,764
  - # of domestics opened: 4061 (85%)
  - # of imports opened: 703 (15%)

## Rejected Wine Statistics (May 2006)

- Total # of bottles rejected: 10
  - # of domestics rejected: 5
  - # of imports rejected: 5
- % of rejects versus poured: 0.21%
  - % of domestics rejected: 0.12%
  - % of imports rejected: 0.71%

## Rejected Wine Statistics (May 2006)

- Types of wines rejected
  - # of red – 6
  - # of white – 3
  - # of rosé – 0
  - # of port/desert – 1
- Ages of wines rejected
  - 0-2 years old – 2
  - 3-5 years old – 4
  - 6-8 years old – 4
  - +8 years – 0



## CIA “Rejected Wines” Chemical Analyses

1. *Haloanisoles*
2. *Oxidation*
3. *Reduction (Sulfides)*
4. *Brettanomyces (Reds Only)*
5. *Volatile Acidity*

Red wine: 18 analyses each  
White wine: 16 analyses each



## Preliminary Results on 12 Wines

	Count	%
Haloanisoles	9	75%
Oxidation	8	67%
Reduction (sulfides)	2	17%
<i>Brettanomyces</i>	3	25%
Volatile Acidity	0	0%
No Issues Detected	0	0%

## Haloanisoles

2,4,6-trichloroanisole (TCA)	~ 2-6 ng/L <sup>(1)</sup>
2,3,4,6-tetrachloroanisole (TeCA)	~ 10 ng/L <sup>(2)</sup>
Pentachloroanisole (PCA)	NA
2,4,6-tribromoanisole (TBA)	~ 4 ng/L <sup>(3)</sup>

- TCA: 9 / 12 wines
- Other haloanisoles: none

(1) Simpson and Sefton 2005, (2) Duerr 1985, (3) Chatonnet 2005

## Oxidation

Free sulfur dioxide	~ 5 mg/L
Total sulfur dioxide	N.A

- 8 / 12 free SO<sub>2</sub> < 6 mg/L
- 5 / 12 free SO<sub>2</sub> < 2 mg/L (MRQ)

## Reduction / Sulfides

hydrogen sulfide	~ 1 ug/L
methyl mercaptan	~ 1-2 ug/L
ethyl mercaptan	~ 1-2 ug/L
dimethyl disulfide	~ 10 ug/L
diethyl disulfide	~ 4 ug/L
dimethyl sulfide	~ 17-25 ug/L
diethyl sulfide	~ 1 ug/L

- 2 / 12 wines elevated dimethylsulfide

## *Brettanomyces*

4-Ethylphenol (4EP)	~ 400 ug/L <sup>(1)</sup>
4-Ethylguaiacol (4EG)	~ 50 ug/L <sup>(1)</sup>

- 3 / 8 red wines 4EP > 400 ug/L

(1) Chatonnet 1995



## Volatile Acidity

Volatile acidity (acetic acid)	~ 0.1 g/100 mL
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- None of the tested wines indicated any VA issues



### CIA Wines

## Summary of Analyses –by Origin

Analysis	Domestics						Imports					
	D115 R-97	D112 R-00	D114 R-00	D101 R-02	D102 R-02	D126 R-02	D121 W'04	I120 R-00	I124 R-01	I113 R-02	I123 W-02	I122 W'04
2,4,6-trichloroanisole	80.3	38.7	-	-	-	8.4	910	72.0	10.0	15.2	23.9	5.8
2,3,4,6-tetrachloroanisole	-	-	-	-	-	-	-	-	-	-	-	-
2,4,6-tribromoanisole	-	-	-	-	-	-	-	-	-	-	-	-
pentachloroanisole	-	-	-	-	-	-	-	-	-	-	-	-
free sulfur dioxide	<1	2	<1	<1	6	6	<1	12	3	4	<1	18
total sulfur dioxide	20	86	6	25	45	37	41	79	21	37	84	94
diethyl disulfide	-	-	-	-	-	-	-	-	-	-	-	-
diethyl sulfide	-	0.5	-	0.5	-	-	-	-	0.5	-	0.5	0.5
dimethyl disulfide	0.5	0.5	0.6	0.9	1.3	0.6	0.7	2.0	0.6	-	2.7	0.9
dimethyl Sulfide	70	14	72	13	248	104	11	12	47	70	30	19
ethyl mercaptan	-	-	-	-	-	-	-	-	-	-	-	-
hydrogen sulfide	-	-	-	-	-	-	-	-	-	-	-	-
methyl mercaptan	-	-	-	-	-	-	-	-	-	-	-	-
4-Ethylguaiacol (GC/MS)	68	284	170	-	49	31	-	-	11	25	-	-
4-Ethylphenol (GC/MS)	894	523	1134	-	176	204	-	-	65	366	-	-
volatile acidity(acetic)	0.065	0.090	0.055	0.024	0.074	0.046	0.018	0.044	0.053	0.065	0.039	0.023