

# Finning Case Studies

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# Some Important Considerations

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- Fining is an inexact science and all wines are different – trials are almost always required.
- Most standard fining agents are relatively non-selective, so using the least amount of fining agent to obtain the desired outcome is the goal.

# An Example of Copper Fining

- A Pinot noir which had been in barrel for 9 months starts to smell “reduced”; cooked cabbage/onion aroma.
- Classic Trial for Mercaptans / Sulfides

Case	Glass 1 Copper	Glass 2 Ascorbic, then Copper	Conclusion
1	No Change in Smell	No Change in Smell	Not a Sulfide Problem
2	No Change in Smell	Reduction or Elimination of Smell	Disulfide
3	Reduction in Smell	Elimination of Smell	H <sub>2</sub> S, mercaptan, and disulfide
4	Elimination of Smell	Elimination of Smell	H <sub>2</sub> S and/or mercaptan

# An Example of Copper Fining

- Add Ascorbic (5-10 drops of 10g/L solution) to all trial samples, wait 10-15min., then perform copper fining according to table.
- Copper Fining Solution Setup: 1000PPM  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$  solution
  - $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$  mw = 249.68 g, Cu mw = 63.54 g wt., so %Cu = 25.4%
- For 1000ppm Cu soln. add 3.929 g  $\text{CuSO}_4$  to 1 liter of DI water.
- Add 1000ppm solution to 25 mL wine samples per table below:

Cu add to wine (ppm)	1000ppm Cu solution add (uL)	Wine sample (mL)	Wine #1 Aroma (reduced smell yes/no)
0	0	25	
0.05	1.25	25	
0.1	2.5	25	
0.2	5	25	
0.5	12.5	25	
1	25	25	
2	50	25	

# An Example of Copper Fining

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- After bench-top trial, a 1ppm Copper addition is selected as best choice.
- Ascorbic acid at 35ppm is added and allowed to react for 1 week. After 1 week the 1ppm Copper addition is added. After several days to one week the wine is racked off lees.
- Other options besides Copper/Ascorbic:
  - Scott Labs “Redules” and other fining products.
  - Pickering supplies “Vinpur.”
  - Products from Laffort and other manufacturers.

# Activated Carbon Fining

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- Pinot noir fruit was processed with minimal supervision and limited sorting.
- Fruit looked clean but probably had Botrytis infection inside clusters.
- Resulting must and wine has strong “earthy” or “green/stemmy” aroma.
- ETS analysis showed geosmin (earthy odor) at 56ng/L.
- Literature suggests activated carbon fining.

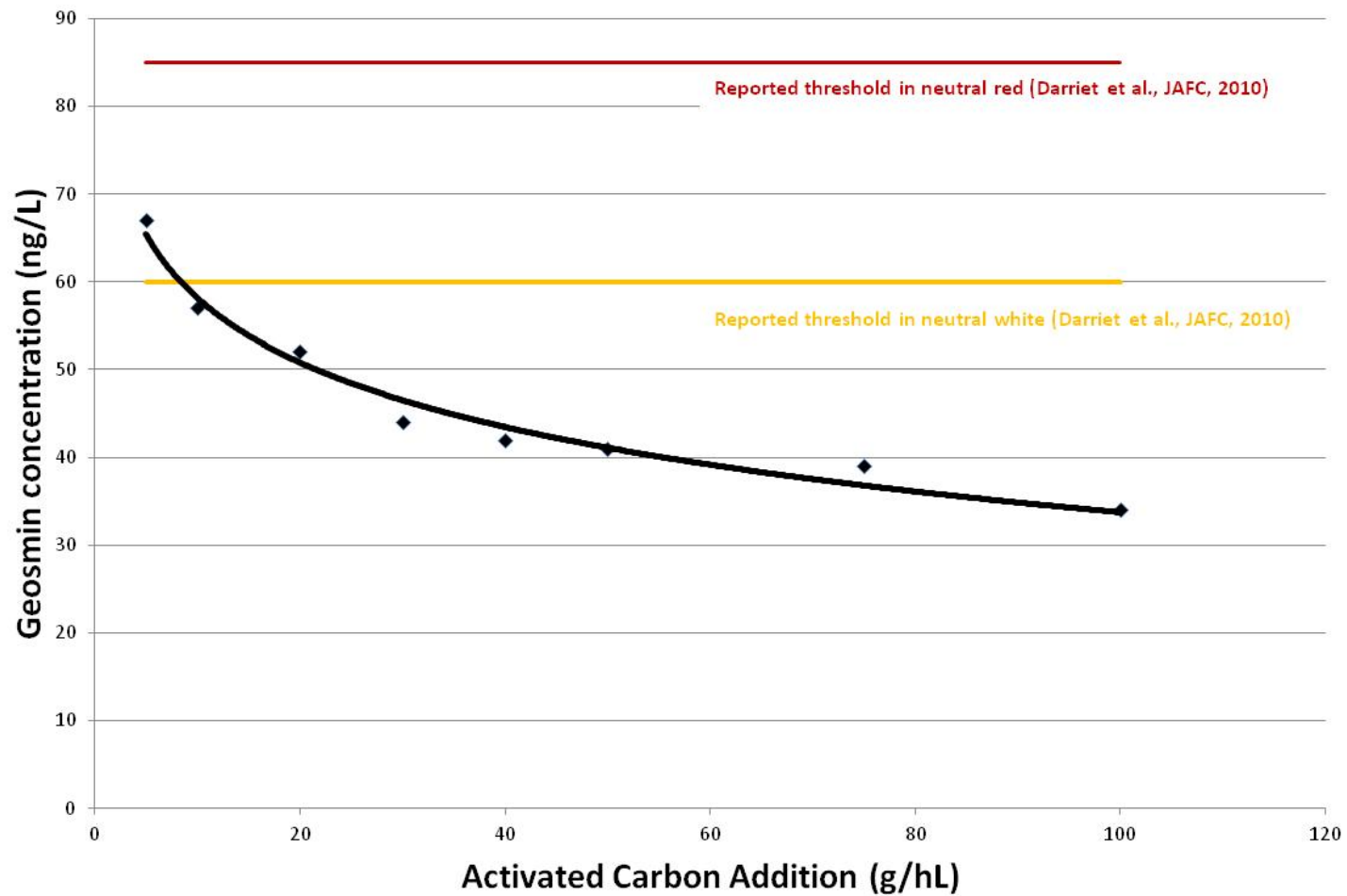
# Activated Carbon Fining

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- Purchased “De-odorizing” activated carbon from Davison Winery Supply (SIHA Actiliq GE from Begerow). Be careful, there are also standard and “de-colorizing” versions.
- Trial Setup: (5-100g/hL additions)
- Trial samples sent to ETS for geosmin analysis.
- Based on bench-top aroma trial, 75g/hL addition was determined best.
- Important to filter carbon out of wine completely – does not settle easily.

# Activated Carbon Fining

## Activate Carbon Addition for Reduction of Geosmin





# PVPP Trial for Laccase Removal

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- At the Unified and OWRI symposiums the issue of laccase from botrytis infected grapes was a hot topic this year.
- Laccase in wine is a potential problem for premature browning of white wines and filtration difficulties.
- Received Viognier fruit with “slight” botrytis on some clusters, decided to send to ETS for laccase analysis.

# PVPP Trial for Laccase Removal

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- Initial ETS results of fermenting wine was 6 units/mL laccase on 12/1/2011.
- Setup PVPP fining trial (5-20g/hL) and sent results to ETS for analysis 1/12/2012.
- ETS results on all trials < 1 unit/mL.

Where did the laccase go?

- metabolized by yeast near end of fermentation?
- denatured somehow?
- All PVPP fining levels removed it? Need a control to know for sure!

# PVPP Trial for Laccase Removal

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- Other options besides PVPP fining for laccase removal:
  - Tannin additions early in processing (seemed to be the preferred method for CA winemakers).
  - Ultrafiltration to remove protein.
  - High Temperature Short Time (HTST) treatment to denature laccase.
  - Protein fining to bind laccase (negatively charged at wine pH), then bentonite fining to remove protein/laccase complex – still investigating.