

Only the Lone Ranger Had Silver Bullets



All Closure Systems have Pluses and Minuses

- The Major Pluses of Cork Are:
 - It is “forgiving,” generally allowing for slow oxygen ingress. This means low chances of premature oxidation and low chances of wine becoming reduced.
 - It is traditional and is associated with the “Ceremony of Wine.” This creates a value for the consumer, which in turn allows winemakers a chance to charge a good price.
 - Most wineries own or have access to corking machinery.

- The notable minuses include:
 - Cork taint really does exist and must be controlled.
 - Since Portugal is no longer a poor nation, cork is no longer as cheap as it once was.



What is being done about the Minuses?

- The Issue of Taint



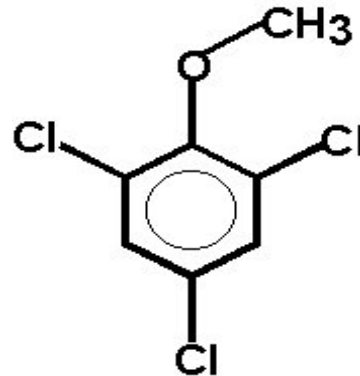
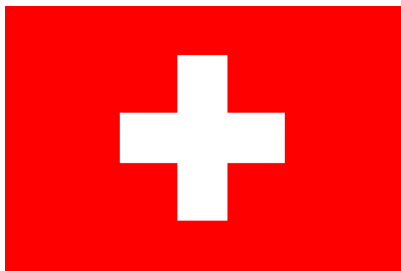
- The Issue of Price



WHAT IS MEANT BY TAINT?

The reasons for an “off” bottle of wine are not always easy to pin down. It has long been presumed, however, that corks were involved. “Corked” or “goût de bouchon” (literally “stopper taste”) are often used as synonyms for “off”.

In 1981 Trichloroanisole (TCA) was named in a Swiss study as a prime culprit. Subsequent studies confirmed that TCA was THE cork taint of consequence. The average person can identify TCA at levels of 4.5 to 6 parts per trillion.



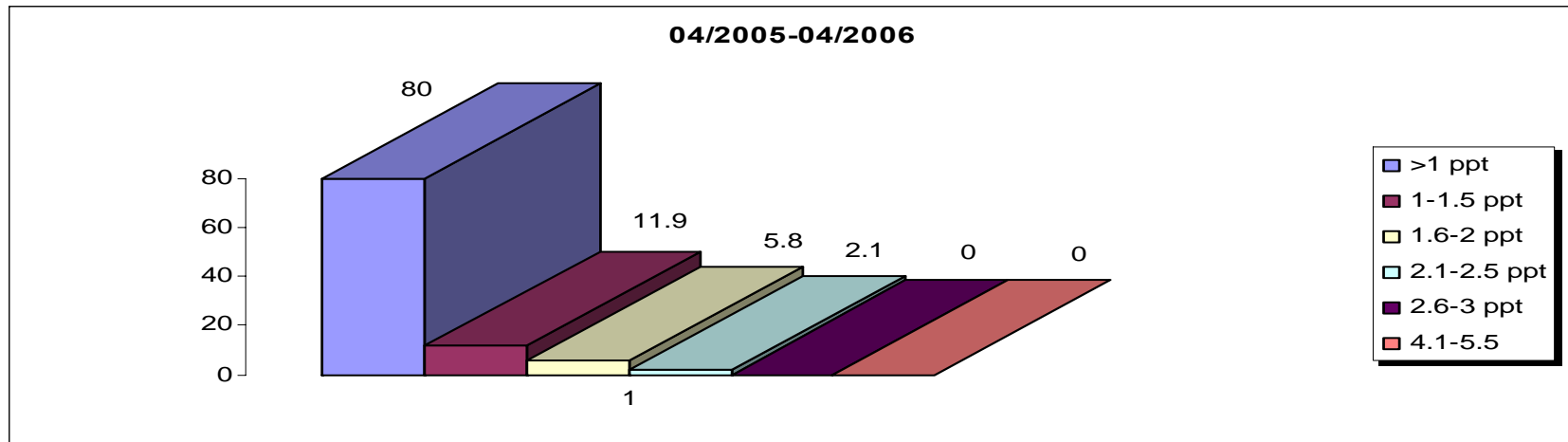
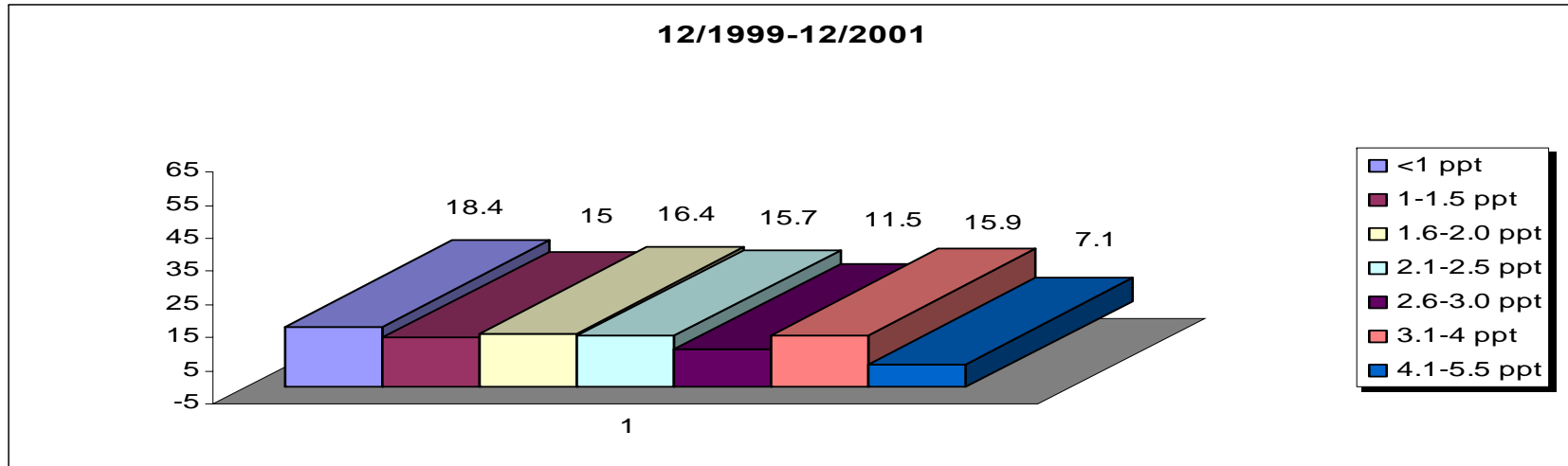
TCA (Wet Cardboard)

Cork Taint

- Between 1995 and 1999 a group of five of the largest American vendors of cork (the Cork Quality Council) worked with ETS Labs in Napa to study the nature of TCA using “SPME” (solid phase micro extraction).
- Once we understood the nature TCA taint from cork we then moved to learn how to use “SPME” analysis as a Quality Control tool. Testing began in December 1999. Such testing has since become the worldwide standard.



Progress in Control of TCA in Natural Corks as Shown by Bale Soak Scores Using SPME

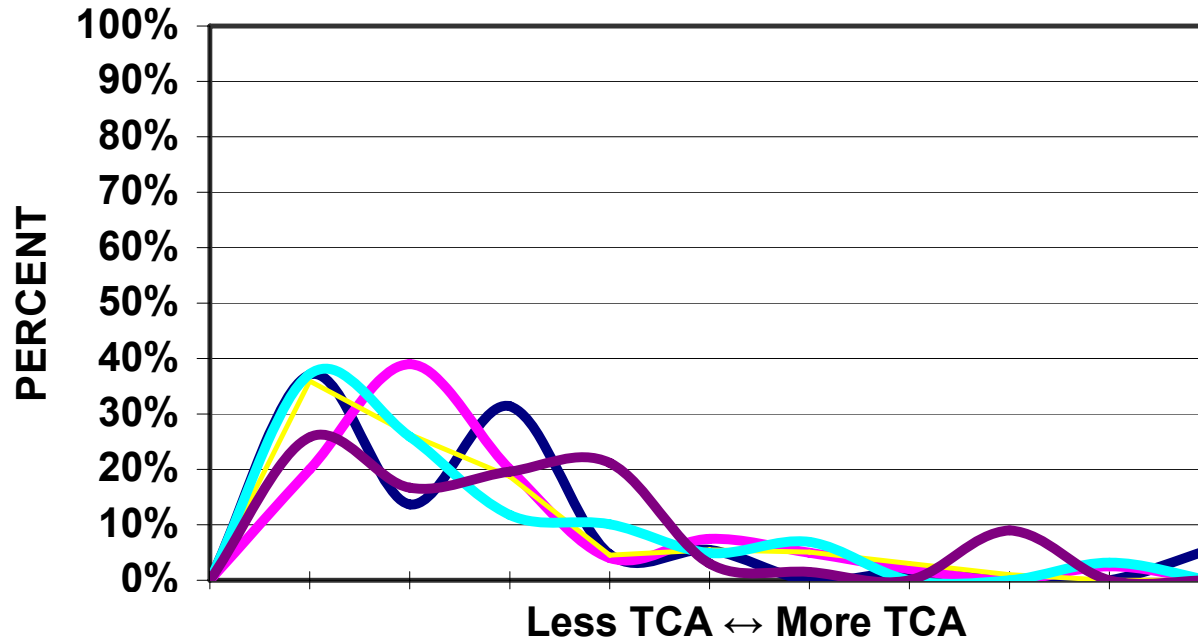


Note: The Average Person can identify TCA at levels from 4.5 to 6 ppt.
 A cork bale soak consists of 50 corks in 10 % wine (v/v) for 24 hours

What Gives Meaning to SPME Scores?

- Certification by ETS. The basic techniques of broad scale testing were first developed at ETS. 9 SPME machines (2 owned by or devoted to the CQC) are currently located at ETS. More tests have been run there than at any other location. Though most CQC firms own their own units in Portugal, ETS scores are the ultimate arbiters.
- Scores must be seen in CONTEXT. One 50 cork soak scores tells us little without also knowing the method of processing (discrete lot batches versus large mixed cork batches) and knowing the scores of the sister bales in the same lot.

**RELATIVE TCA LEVELS FOUND IN DIFFERENT QUALITIES OF
45X24 CORKS FROM MULTIPLE DISCRETE CORK PRODUCES
MONITORED OVER A 6 MONTH PERIOD IN 2001**



Conclusion: TCA is not related to visual quality. Please note, however, that oxygen permeability is in a large part related to visual quality.

Other Advances

- Corks made from granulate reflect the need to hold prices down. Unfortunately, since the granulate comes from cork waste, such corks initially had high TCA scores.
- This was addressed by learning to treat granulate with steam to drive off TCA

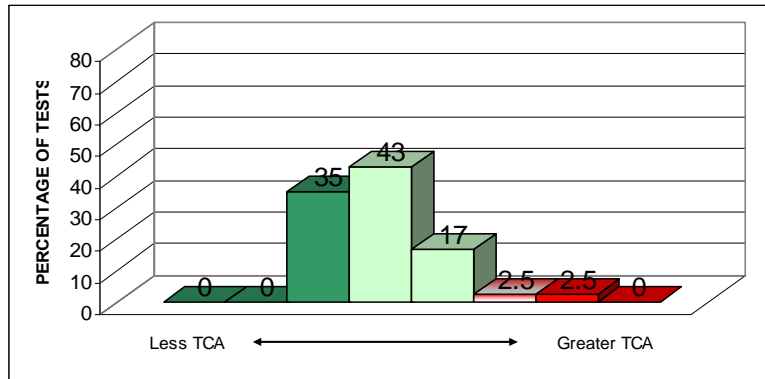
Advances in the Treatment of Granulate Used to Make Agglomerated (Technical) Corks

Steam processing began in earnest in mid-2004. Even before then, however, soak scores were being reduced due to improved wood selection and better care for granulate.

Steam processing has meant a further lowering of soak scores. They are now remarkably consistent. Such corks in many cases provide a good, economical option.

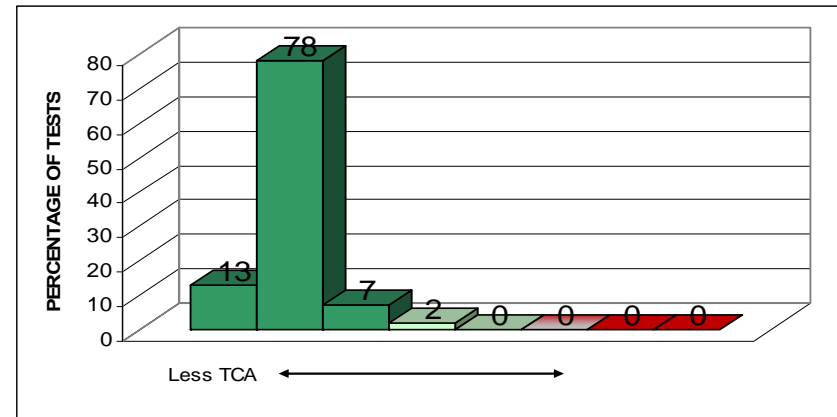
Single shipment received spring 2004

No steam treatment



Single shipment received October 2006

Steam treatment of (at least) the granulate



Note: Not all suppliers use this treatment. Make sure your supplier does!!!

Summary

- Cork (like all closures and packaging choices) has pluses and minuses.
- Major efforts have been made over the last decade to reduce the minuses while sustaining the pluses. Major issues addressed include taint and cost issues.
- As with any closure, it is best to be an informed buyer. Again silver bullets are very uncommon.