



Cork samples soak overnight during TCA batch testing of various lots at Cork Supply.

Saving Face

DEFENDING NATURAL CORK, THE SCAPEGOAT FOR WINE DEFECTS

story and photos by Deborah Parker Wong

WHEN WINE PROFESSIONALS encounter a sensory deviation in wine and the offending molecule isn't obvious, cork often takes the blame by default. While not every taster is capable of decoding a library of aromas at the molecular level, the ability to detect basic defects like *Brettanomyces*, volatile acidity, and Trichloroanisole (TCA) is fundamental to objectively assessing wine quality.

During a recent sensory exercise conducted by Ana Cristina Lopes Cardoso, Research and Development Manager at Cork Supply Portugal, a group of trained tasters—among them top Irish sommelier Julie Dupouy-Young and myself—were tasked with identifying TCA in wine at levels of 1, 2, and 4 parts per trillion (ppt/ng/l).

Lopes Cardoso staged a series of Duo-Trio tests in which one of three samples acts as the control to be matched. Not surprisingly, all the tasters could detect TCA, which has a very low threshold of 3–5 ppt—though very few tasters could find it at 1 or 2 ppt. Things got even more interesting when the tasters were also confronted with samples that had been heavily doctored with five different molecules that emulate TCA, including 1-Octen-3-ol, which smells distinctly of mushroom; geosmin, which is associated with the smell after a rainstorm; and 2,4,6-Trichlorophenol (TCP), a TCA precursor with a specific but hard-to-detect chemical odor.

Despite the existence of research identifying contamination molecules from production and storage premises for the past 25 years, it's easy to see why cork takes the rap when other moldy or earthy-smelling molecules are present



Ana Cristina Lopes Cardoso, Research and Development Manager at Cork Supply Portugal, leads a sensory training.

at detection thresholds: The majority of tasters simply can't identify or differentiate between them.

As the cork industry rushes to employ automated sensing equipment designed to weed out TCA-contaminated natural

corks, it's rare to find technologies currently available that screen for TCA and other "off-aromas." According to Cork Supply President/founder Jochen Michalski, this makes the Northern California-based company's service the most rigorous available in the marketplace today.

During a process Cork Supply has developed called Dry Soak 100 (DS100), which analyzes the headspace of heated cork, natural corks are subject to a rigorous round of sensory evaluation by at least three human sensors. "Although we've also developed an automated technology to screen corks called DS100+, I still have more confidence in our human-sensory DS100 screening method," Michalski says. "With DS100 we're also able to remove any other off-aromas."

But it's the latest research on corklins—compounds found in cork that react with flavonoids in wine to protect color and reduce astringency over time—that's shifting the cork industry's focus on sensory neutrality. Researchers are using near-infrared spectroscopy to grade corks and oak staves from low to high according to the amount of phenols they will release into wine. Given the cork industry's speedy adoption rate of technologies that add value to their products, winemakers may soon have another criterion—phenolic content—to consider when selecting grades of cork. **SJ**