Taints in wine

EACH YEAR the AWRI helpdesk investigates a range of taints in wines. In some of these cases, the taints cannot be remediated, and the wine is left unsaleable. It is therefore important to understand the more common sources of taints and take steps to avoid them. Some of the more frequent questions asked about taints are answered below.

WHAT IS A TAINT AND HOW IS IT DIFFERENT FROM A FAULT?

A taint in wine is something that comes from outside the winemaking process. Examples include chloroanisoles from corks or smoke taint from atmospheric smoke.

A winemaking fault, on the other hand, is something that originates from within the winemaking process, such as high volatile acidity or oxidation.

IS EVERYONE SENSITIVE TO TAINTS?

There is significant variation in peoples' ability to detect the different taints found in wine. Work at the AWRI has shown that there are many winemakers who cannot perceive one or more relatively common taints. For example, approximately 15% of the population cannot smell chlorophenol in wine, and those that can also vary in their sensitivity towards it.

The 'Wine Flavour, Faults and Taints' section of the AWRI website provides a description of common wine taints (and faults) that can occur in wine, including their origin, mechanism of formation and detection threshold. As people vary in their sensitivity and ability to detect many wine faults and taints, the AWRI highly recommends that winemakers refresh their skills in this area from time to time.

HOW DO 2,4,6 TRICHLOROANISOLE (TCA) TAINTS FORM?

TCA is one of the most common taints the AWRI helpdesk sees each year. It is a very potent taint that has a strong musty/mouldy character and suppresses desirable fruit characteristics in wine. For TCA to be formed three conditions must be met: the presence of the precursor 2,4,6-trichlorophenol (TCP) or chlorine in general, fungi to convert TCP to TCA, and moisture. Without one of these conditions, TCA formation will not occur. Chlorophenols are industrial compounds that are now extremely common in the environment through decades of use, mainly as a treatment for wood products. As a consequence, winemakers should be vigilant to ensure mould growth is kept to a minimum on winery walls and surfaces to help prevent TCA formation.

CAN MUSTY WATER TAINT WINE?

In short, yes. A number of recent helpdesk investigations have found winery water supplies to be the source of musty taints found in wine. There are several different compounds that can cause musty aromas in water, including TCA, geosmin and 2-methylisoborneol. Through tank and equipment cleaning, the mustiness can be transferred to the wine, with the level of taint depending on the level of mustiness in the water. Similarly, if musty water is used to rinse or clean oak barrels, then the mustiness can be transferred to the wine stored in these barrels and the barrels themselves. One preventative measure is to install carbon filters on all water sources used within the winery, as well as conducting routine sensory assessments of the winery water sources.

My pump ran dry and now my wine is tainted – is there anything I can do? Taints from burnt out pumps are seen periodically by the AWRI helpdesk. When a mono pump is allowed to run dry, a burning character similar to burnt rubber or smoke can be transferred to wine. The compounds present include a mix of sulfur compounds and smoke-related compounds. Unfortunately, there is not currently a method to remove these taint compounds, so a wine tainted in this way is not recoverable.

HOW CAN I AVOID TAINTS FROM WINEMAKING ADDITIVES AND PROCESSING AIDS?

The AWRI helpdesk has investigated a number of cases where winemaking additives and processing aids have been the source of taints in wines. To avoid such taints, it is important that these materials are screened prior to use. In most instances this screening involves a simple sensory assessment that can be performed in the winery. Procedures for screening common additives and processing aids can be found on the AWRI website, as well as details of a testing service offered by AWRI Commercial Services.

The following table is a simple template that can be used for recording sampling and testing requirements for all winemaking chemicals and additives upon receival. Batch numbers should ALWAYS be recorded and holdback samples should be taken at the same time as the testing samples. The holdback sample size should be the same as the testing sample size.

Material	Sampling requirement	Testing required	Holdback sample (yes/no)
L-Ascorbic Acid	200 g per batch	Sensory assessment	Yes
Bentonite	1 kg per batch	Sensory assessment	Yes
Carbon	200 g per batch	Sensory assessment	Yes
Citric	200 g per batch	Sensory assessment	Yes
Gelatine (solid)	200 g per batch	Sensory assessment	Yes
Hose	30 cm per hose	Sensory assessment	Yes
PVPP	200 g per batch	Sensory assessment	Yes
L-Tartaric acid	200 g per batch	Optical rotation and sensory assessment	Yes
Yeast hulls	200 g per batch	Sensory assessment	Yes

For further assistance with taints or any other winemaking queries, please contact the AWRI helpdesk on 08 8313 6600 or helpdesk@awri.com.au.