



Wine Faults

Can be a Result of -

- Bad Winemaking
- Bad Storage Conditions
- Or can be deliberate - if controlled..
- Secondary re-fermentation in bottle - **Champagne**
- Aerobic yeast growth in barrel - **Fino sherry**
- Oxidation in Cask - **Tawny Port**
- Heavy Oxidation - **Madeira**
- Pine resin from storage container - **Retsina**
- Partial Malo-lactic in Bottle - **Vinho Verde**
- Mould Growth on Grapes - **Botrytis Wines**

OXIDATION

Causes change in colour

- White - pale to gold, amber
- Red - deep to red, brown

Changes in aroma and flavour

- Fruit becomes subdued, heavy or stewed and maderised
- Slow gentle oxidation in whites will add to complexity

Can cause the formation of -

- ACETALDEHYDES - a sherry character caused by oxidation of ethanol (alcohol)
- ACETIC ACID or VINEGAR - volatile nose, spoilage by yeast, bacteria or insects. Wild yeast.
- ETHYL-ACETATE - esterification* that can have a positive effect in small amounts, a lifted nail polish aroma. May also be caused by lactic bacteria

* resulting from a reaction of an ethanol and a phenol

Caused by

Reaction with Oxygen
Insufficient Sulphur Dioxide use
Poor Winemaking practices
Desirable for preventing Reduction

Controlled by

Minimum O2 in cellar
Tanks and Barrels at Maximum fill
CO2 blankets used
Care taken at bottling (nitrogen)

HEAT DAMAGE

- Very Common problem
- Ideal storage temperature not above 13 degrees C
- Above this leads to Rapid ageing
- Thermal Expansion of the Wine
- Fluctuating temps - **cork 'pistoning'**
- Oxidation
- Examine fill levels
- Seepage around Foil
- Movement of Foil



REDUCTION

Caused by

Reaction to lack of Oxygen
Lack of Nitrogen in Grapes / Must
Poor Winemaking practices

Controlled by

Micro-oxygenation
Copper Coin
Adding DAP (diamonium phosphate)
Aeration



SULPHUR

Sulphur Dioxide (**SO2**) is added in winemaking
It acts as an **ANTI-OXIDANT** and an **ANTI-MICROBIAL** agent
It is present in the finished wine in the form of sulphites
Yeast produces tiny amounts during fermentation
Fermenting yeast is stressed if a low Nitrogen environment
Hydrogen Sulphide (**H2S**) is produced
Gives cabbage or rubber aromas
If untreated - mercaptans may form
Not removable - sulphur, rotten egg aromas



SO2 is not responsible for H2S formation
Wine develops and matures on stored Oxygen
Can give pre-mature polyphenol/tannin staining

IPMP (2-isopropyl-3-methoxy-d3-pyrazine)

Green pepper/capsicum aromas
Sauvignon family (**Blanc and Cabernet**)
Methoxypyrazine is good in small quantities
Caused by lack of ripeness at picking
Asian Lady Beetle



ANISOLES

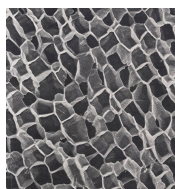
TCA - 2.4.6. Trichloroanisole - a compound produced by microbes found in the lenticels of cork bark
TBA - 2.4.6. Tribromoanisole - a compound more often found in environmental conditions - such as in wood preservatives, fire retardants or pesticide residue
TeCA - 2.3.4.6. Tetrachloroanisole - similar to TBA



Château Montelena, Calistoga, Napa

- Built in 1882
- Bought in 1968 by James Barrett
- Won best white in 1976 Judgement of Paris
- In 2004 TCA was reported in low levels in the wine
- Claimed to be a combination of old wood, sprayed with chlorines and cellar mold
- Old wooden barrels, walkways, ladders and beams were replaced and all stone work cleaned
- Discontinued use of chlorine sprays
- TCA problem went

- Anisoles effect taste when present in tiny amounts
- 1 part per trillion (**1 nanogram**) can be detected
- Usually between 10-20 ng becomes obvious on nose
- **Equal to 1 second in 320 centuries**
- **Or 1 grain of wheat in 100,000 tonnes**
- Flavour stripping and flattening
- IWC 05,06,07 - 6 to 7% faulty wines, 0.8-1.2% TCA
- Can be filtered out with complex plastic layers
- Can be removed by filtering through cork dust



Hexagonal shaped Cells
800 million per Cork
Cork Lenticels

Grade A	These are corks with top quality visual appearance - excellent surfaces, with no major visual flaws and few small ones. <ul style="list-style-type: none">• No holes or pores which exceed 2mm.• No cracks originating at the ends which exceed 11% of cork length.• No cracks in the body of the cork to exceed 18% of cork length.• All cracks must be tight and not open.• No horizontal cracks.• No worm holes, hardwood, belly spots, or greenwood.• Several narrow and shallow lenticels are acceptable if they are free of dust and particles.
Grade B	These are corks of good visual appearance with no major visual flaws and with surface visual flaws of no depth or substance. <ul style="list-style-type: none">• No holes or pores which exceed 5mm.• No cracks originating at the ends which exceed 18% of cork length.• No cracks in the body of the cork to exceed 25% of cork length.• All cracks must be tight and not open.• Lenticels and horizontal cracks must not open up when the corks are bent.• No Greenwood. No angled or deformed corks.• Very small chips and lateral worm activity in the middle of the body of the cork may be acceptable.• Lenticels at ends must not be wide or deep and should be free of dust and particles.
Grade C	These are corks of average visual appearance with one or more major visual flaws which will be of cosmetic nature only. Thus they may be aesthetically unappealing, but functional. <ul style="list-style-type: none">• No cracks, channels, hardwood or belly spots which exceed 55% of length.• Lenticels and horizontal cracks on body may open up when corks are bent.• Greenwood to 55% of cork length is acceptable unless it presents severe depth or width.• Large chips are acceptable.• No worm activity from end to side which exceed 55% of cork length.• No dry years which exceed 55% of cork length.• There may be heavy, but not continuous porosity.

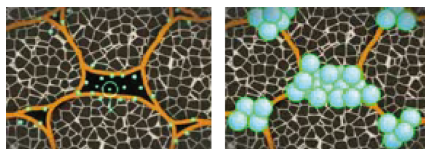
Diamant process

Cork bark is air dried for 10 months

Then ground up and steamed

Supercritical (hot and pressurized) CO₂ is used to clean

Fragments are 'glued' together with suberin



Stelvin

- Developed in 1960's by French company Pechiney
- Stelcap – Yalumba asked for wine closures in 1964 – Stelvin
- Was used extensively in 1980's in Switzerland
- 1971 and 1972 was trialed at Ch Haut-Brion
- Recent results released about 10 year trial at Ch Margaux
- Michel Laroche Chablis 1er and Gd Cru since 2001
- New Zealand – 1% in 2001 to 70% in 2004
- Formerly owned by Rio Tinto Alcan (Canada) now Amcor
- Stelvin Lux – no visible threading



BRETTANOMYCES

Aka . Dekkera

- Can be considered desirable in small Quantities
- A slow growing yeast that produces metabolites in wine, after primary fermentation
- Some of which are Volatile compounds
- Bad - **4 ethylphenol** - band aids, barn yards, horsebox and mousey aromas
- Good - **4 ethylguaiaicol** - bacon, spice, cloves, smoke and leather aromas
- Develops in barrel after primary fermentation, before MLF (when wine is warmer) or during racking
- Common in thick skinned (high polyphenols) varieties
- Does not like SO₂ (modern winemakers use min amount)
- Develops easily in ripe (some RS), high alcohol, soft acid (high pH) wines that are exposed to oxygen
- Can be removed with heavy filtering (not good)
- It feasts on sugars found in caramelised oak

GEOSMIN (jos-min)

The earthy flavour found in beetroots

Organic compound with a distinctive earthy aroma

A terpene made by Streptomyces bacteria

Streptomyces is responsible for plant decay

Aroma after rainfall on soil (petrichor)

Infects grapes in the vineyards

Can be removed by added milk or grape seed oil

