

# The 10 most common wine cellar problems and how to overcome them

This booklet came about by listening to people at our cellar door sales. After a while you start hearing the same questions over and over again.

People just want to know more about wines and wine making. Anything. How the vines grow, how many crops a season, how old are the barrels, how long does it take to make wine and how long should I keep wine.

People also tell me they don't know much about wines. But you have to know very little to enjoy wine. If you like it, it's a good wine. It's that simple.

Storing wines is also very simple.

Somewhere between 12-16 degrees Centigrade, constant temperature, 60-70% humidity, dark, still, well ventilated and clean. The rest of the information in this publication expands on these basic facts.

Always remember that wine is alive. How you store it will affect how quickly it ages, how well it ages and how good a wine you end up with.

And also remember that a wine cellar is not a wine hospital. If you've got an average bottle of wine start with, it will not improve with age. It'll just be an older average bottle of wine.

Always, always enjoy what you do and what you drink because life is all too short to drink bad wine.

Peter Svans

The Gurdies Winery

'The 10 most common wine cellar problems and how to overcome them'

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# 1

## Lay it down

### Which way up?

Store your table wines horizontally; on it's side so the wine is in contact with the cork. This will keep the cork wet. If the cork dries out it will shrink and let air get to your wine.

Air is the greatest enemy to a good wine and will turn it into vinegar. You will notice all through this guide that we concentrate on strategies to eliminate air from the bottle. Keep this in mind all the time

Store it with the label up. This helps in three ways;

- You can easily see what the wine is. You don't have to disturb the bottle to see what you've got in the cellar.
- The sediment that forms in a good wine will form on the opposite side of the label. You can see how heavy it is when the time comes to open the bottle and you decide to decant it or serve it from the bottle.
- The label is less likely to be damaged. If you're storing the wine as an investment, a damaged label will reduce the value. If you're cellaring your wines because you just enjoy good wines, a damaged label will still detract from your enjoyment of this wine.

Keep wines in their original wooden cases or original packaging. If you keep fine wines to drink them then the original packaging will just add to the enjoyment. If you're keeping your wines as an investment then you most certainly have to keep the original packaging, as it will add significantly to the value of your wines.

Sparkling wines and champagnes can be stored standing up. The carbon dioxide naturally produced in the wine will form a layer in the neck and protect the wine from contact with the air. Carbon dioxide is heavier than air and will sit on top of the wine. The air (if there is any in there) will sit above the carbon dioxide.

**Summary: Store your wine on it's side**



# Keep it at a cool constant temperature

## What Temperature?

The magic temperature to store wines is between 12-16 degrees Centigrade. However, any temperature between 5-18C (40-65F) will do **as long as it remains constant**.

**A very important point of this guide is for you to understand the importance of storing your wines at a constant temperature all the time.**

The degree and the speed of the temperature change is critical. A gradual change between summer and winter of a few degrees won't matter. The same change each day will harm your wines by ageing them more rapidly (not in a nice way).

The most important rule when storing wine is to avoid large temperature changes or fluctuations. You'll notice damage of this nature straight away from the sticky deposit that often forms around the capsule. Over time the continual expansion and contraction of the wine will damage the 'integrity' of the cork. It's like having the cork pulled in and out again every day. When this happens, minute quantities of wine may be pushed out along the edge of the cork (between the cork and the bottle neck) allowing air to seep back in. Once the air is in contact with your wine the irreversible process of oxidation has begun and your wine is ruined.

**A quick way to check for this is to remove the capsule. Do not do this if you are keeping the wine for investment purposes as this harms the appearance and thus the value of the wine. Do this only if you are interested in keeping great drinking wines in your own cellar.**

Even a steady storage temperature of 21C (70F) is better than temperature that goes from 7C to 18C (45F - 65F) and back again every day.

At 12-16C the wine will age properly enabling it to fully develop. Higher temperatures will age wine more rapidly and cooler temperatures will slow down the ageing process. Heat will generally speed up any chemical reaction and this is all that is going on in the bottle, a slow controlled chemical reaction that improves your wines. That doesn't mean you can keep your wines in the oven for a week and end up with fantastic wines. Just the opposite. Irreversible damage is done if your wine is kept at over 28C (82F) for even a month.

At 12°C (55°F) wines will age so slowly and develop such fantastic complexity that you will never have to worry about them.

And note that white wines are affected far more by temperature than red wines. Cold stabilisation is part of the white wine winemaking process. The wine is chilled to minus 4C (25F) for a few days. This precipitates out the impurities in the wine. You may have noticed small crystals or grains in the bottom of a white wine you've had in the fridge for

a while. This is due to the wine not being cold stabilised during the wine making process. Not necessarily a fault, just a part of the winemaking process.

Don't store a bottle of sparkling wine (Champagne in some parts of the world) in your fridge for that special day. When that day arrives there may not be much to celebrate with. Keep the bubbly in the fridge for a day or two but no longer. After that and you should take it out of the fridge and put it back in your cellar.

### **What can you see and taste in a temperature damaged wine?**

One dead giveaway of heat damage is colour. A brick red brown colour, especially in a young wine can be an indicator of oxidation damage due to heat. Since Sherry is an oxidised wine, another indicator of heat damage in wines is a sherry-like taste.

### **Can I use standard refrigeration equipment for my wines?**

Commercial refrigeration equipment is easy to find, there's plenty of it for sale second hand and everyone seems to know how to install it and keep it running. But it's not the best for storing and aging wine.

The four main reasons why not are;

- It's designed for food products  
Standard refrigeration equipment is designed specifically to look after food products, not to store your wines. What works for T-bone and veggies is not the best thing for your expensive wine.
- Designed to cool quickly  
Standard commercial refrigeration equipment has to cool things quickly to stop it spoiling. Usually by blasting cold air to reach a desired temperature. The system then works on a cycle. Once a set temperature is reached, standard refrigeration equipment shuts off. When the temperature rises to a pre-determined point, cold air is blasted in again. This continuous up and down temperature cycle isn't good for your wines.
- Designed to remove heat and moisture  
Standard refrigeration equipment is designed to remove heat and moisture from food products. Heat has to be quickly removed to stop frost and moisture forming that will in turn form mildews. Wine does not give off heat or moisture. So we end up with an environment that's way too dry for wine. This will cause wine corks to shrink and then air can get in. Once air can get in, wine can get out and your wine is ruined.  
**See section 3, Humidity.**
- Built to a price not a standard  
Commercial refrigeration equipment is designed to be price competitive so vibration, noise and appearance aren't high priorities. Vibration will eventually destroy a fine wine (**see section 10, Vibration**). A wine cellar is a real conversation piece and you'll always have people 'inspecting' your collection. Something that's loud, shaking and looking decidedly industrial will detract from the appearance of your wine cellar.

## What temperature do I serve my wine?

When tasting wines the very first thing you do is look at the wine. What's the colour like? Dark? Light? Then you swirl it around the glass and sniff the wonderful aromas. Only then do you have a sip to savour the rich flavours. The aroma comes from the wine warming up and giving off vapours. A liquid will vapourise as it heats up so you really want to have whatever wine you're drinking at slightly less than room temperature.

By room temperature I mean the surrounding temperature. There's a huge difference in room temperature between the mountains in winter and the beach in summer. I've listed what I've found to be good wine drinking temperatures in the table below.

### Wine Serving Temperature Guidelines

Temp F	Temp C	Notes
100°	39°	Warm Bath
68°	20°	-
66°	19°	Vintage Port
64°	18°	Shiraz and other red wines
63°	17°	Red Burgundy, Cabernet
61°	16°	Pinot Noir
59°	15°	Chianti, Zinfandel
57°	14°	Tawny/NV Port, Madeira
55°	13°	Ideal storage for all wines
54°	12°	Beaujolais, rose
52°	11°	Sauternes
50°	10°	Most white wines
48°	9°	Chardonnay
47°	8°	Riesling
45°	7°	Champagne
43°	6°	Ice Wines
41°	5°	Asti Spumanti
39°	4°	-
37°	3°	-
35°	2°	Fridge Temperature
33°	1°	-
32°	0°	Water freezes
0°	-18°	Freezer Temperature



**Summary: Store your wines between 12-16 degrees Centigrade and make sure the temperature stays constant**

## Humidity

The wrong humidity level is another enemy of the natural cork seal. A natural cork is compressed and forced into the bottle as a 100% natural seal. The resilient and elastic cork now wants to expand and is continuously pushing out against the glass to form a seal.

The air space between the bottom of the cork and the wine is called the ullage. The ullage will increase over time as the cork is far from a perfect seal. It will let some air in while also absorbing some wine. Low humidity combined with a defective cork results in the wine moving out of the bottle (increasing ullage) and air naturally moving into the bottle.

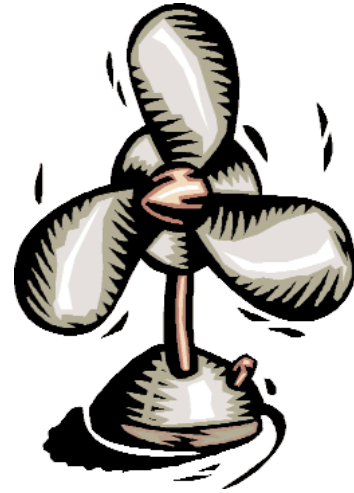
The lower the humidity and the worse the cork, the faster this will happen to your precious wine. Once the air is in it's not long before your wines starts turning into vinegar.

Moderate humidity is important to keep the cork in good resilient condition and prevent it shrinking. A relative humidity of 50-80% is an acceptable range with about 70% recommended. A standard commercial refrigeration or air conditioning system is programmed to run at about 20% humidity. Low humidity will cause the cork to dry out and lose its elasticity and allow air to get into the bottle. This will happen even if the bottle is stored on its side.

A very easy way to increase the humidity in a confined space is to leave out a bucket of water. This will naturally evaporate and raise the humidity.

Excessive humidity will not harm the wine but will cause the labels and any other paper products like cardboard boxes to rot. And if you are keeping the wine to drink for yourself this may be OK. But remember that any damage to the label and presentation of the bottle will lessen it's investment value.

**Summary: Anywhere between 50-80% relative humidity is acceptable, 70% being ideal**





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## Sunlight or exposure to UV

Light will prematurely age a bottle of wine. Clear bottles are most susceptible to this problem, but ultraviolet (UV) light will penetrate even dark coloured glass.

Ultraviolet light will damage wine by causing the degradation of the otherwise stable organic compounds. Especially the tannins found in wine. These organic compounds contribute to the aroma, flavour and structure of the wine. Without them your wine would be flat and thin.

So exposure to UV light results in unfavourable and irreversible changes in your wine.

Extra care should be given to sparkling wines as they are more sensitive to light than other wines.

Incandescent or sodium vapour lights are better for a cellar than fluorescent lighting. Fluorescent lights give off significant amounts of UV light.

If you have a glass-fronted refrigerator or wine storage cabinet just remember that glass readily transmits UV.

**Summary: Store your wines in a dark place**



## The quality of the wine in the first place

There are two common misconceptions about average quality wines:

- **It will improve with age**
- **If it doesn't, I can always cook with it**

### **It will improve with age?**

It won't. There is nothing in this world that will improve a bad wine. You can store a poor quality wine for a hundred years under ideal conditions and it will still be a poor quality wine. You can most certainly ruin a great wine by storing it the wrong way, but you will **never** improve a poor wine by storing it under ideal conditions.

### **I can always cook with it.**

Again, this is wrong. Heating a poor wine a few degrees will not magically alter its chemical properties. The same off flavours, the same bitter tastes and the same bad nose will be transferred to your food. The only thing you'll do to your cooking with a bottle of poor quality wine will be to ruin a good meal.

**Remember.**

**A wine cellar is not a wine hospital.**

**When your wine is ruined it's too late.**

**The best and the only cure is prevention.**

Good wine storage procedures protect your wines' health, they protect your investment and they greatly add to your enjoyment of a great bottle of wine.

**Summary: Start with a good wine, store it properly and you'll end up with a great wine**



## Quality of the cork

The cork closure has been around since the Roman days. There's a whole mystique wrapped around pulling the cork out of a bottle of wine. What corkscrew to use, how to hold the bottle, do I look at or smell the cork and the list just goes on. Most of it's rubbish. The cork is there to seal the bottle and that's just about it.

As well as corks leaking or drying out we can have the problem of a 'corked' bottle. Unfortunately there's not much you can do to control this.

Wine becomes 'corked' or tainted when a chemical called tri-chloro-anisole (TCA) combines with chlorine in the bleach used to sanitize the corks. TCA arises from moulds naturally occurring in the tree bark. It is virtually impossible to detect a mouldy cork before it's put into the bottle.

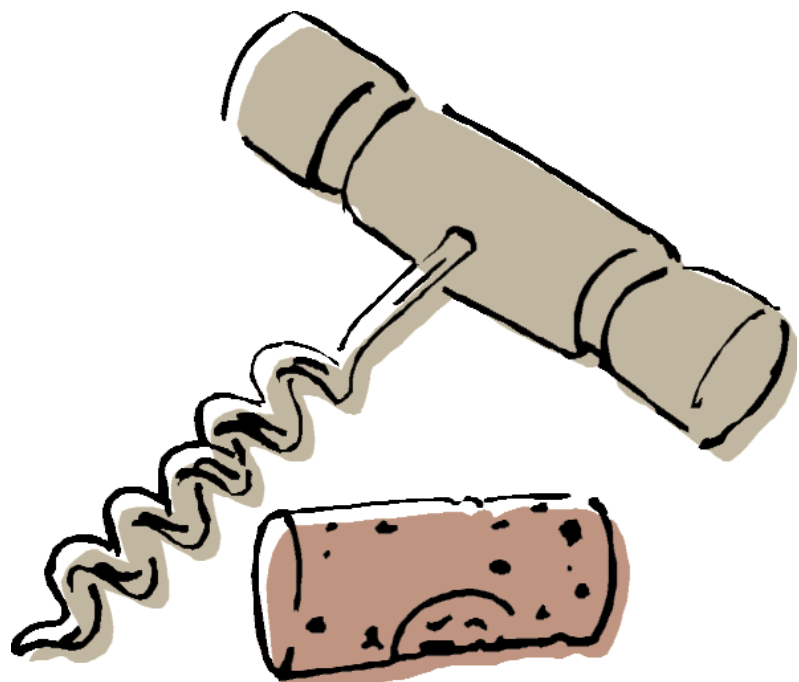
A severely corked bottle is easy to pick. It will smell like damp carpet or a flooded cellar.

It gives that musty unpleasant smell. And this is fine because you can pick straight away that something is wrong with the bottle.

A lightly corked bottle presents a bigger problem. The wine will smell flat and taste dull. There'll be no fruit nose and no fruit flavour. The average wine drinker will assume that this is how the wine is supposed to taste. The reputation of the winery suffers through something they have no knowledge of or control over. A no win situation.

Wineries responded to this problem by using synthetic corks by the millions. The cork industry responded by spending millions on research to find the cause and cure for cork taint. A chlorine free cork treatment process was developed and this has helped greatly. Anecdotal evidence says up to 8% of bottles had cork taint a few years ago. Now, that's down to below 2% which is a great news.

It's the natural properties of the cork that make it so useful as a closure for wine bottles.



More specifically:

All from *Cooke, G.B. 1961. Cork and the cork tree. Pergamon press, Oxford.*

Most of the unique properties of cork relate to the cell structure, which is very different to other natural materials. The difference is that each cell is filled with air, is sealed and not internally connected to any adjacent cells. The individual cells are bonded together by a strong natural resinous substance, giving the cells strength.

Resilient. Cork is very unique and useful because it can be compressed, yet it remains resilient. Cork can be compressed by exerting pressure, and when the pressure is removed it will return to its original volume. When the piece of cork is put under pressure, the air in the cells is compressed, and when the pressure is removed the air expands to fill the volume it previously occupied such that the piece of cork will also return to the volume it previously occupied. However if too much pressure is exerted the cells will collapse and the volume of the piece of cork will be reduced.

Impervious to water and other liquids, including oil. This is because individual cells are not connected to each other therefore capillary action does not occur, as it does, for example in some types of wood.

Low density because the cells are filled with air.

Low thermal conductivity, again due to the cells that do not transmit energy well because they are filled with air.

High friction surface. When the surface of a piece of cork is cut thousands of small cups are formed that create a vacuum when the surface is pressed against a smooth surface.

Vibration and sound absorbency. This is because the air filled cells compress and therefore soak up some of the energy that is being transmitted through them.

**Summary: Follow the advice in the rest of this guide and you'll give your corks the best possible chance of helping age your wines properly**

## Position, position, position...

If you don't have the luxury of digging a cellar under the house or building a dedicated cellar, then you've got to work out where to position your 'cellar'. Pick a location that is away from an outside wall. A cupboard sounds ideal but if it's against a western facing outside wall, you will boil your wines in the first week.

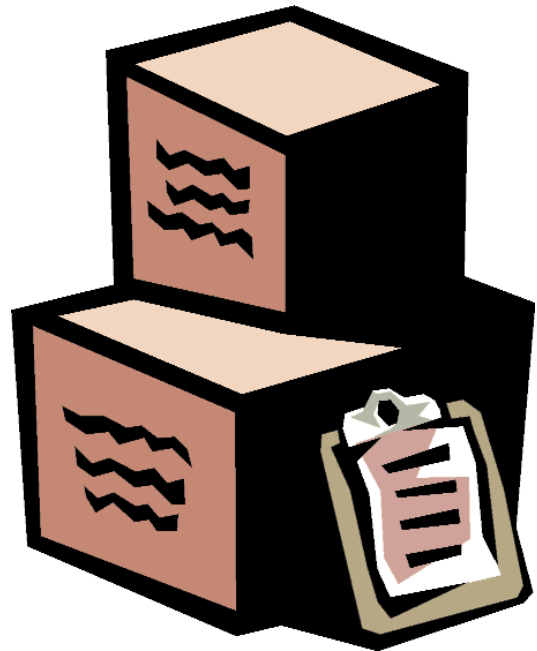
Pick a cupboard or a spot under a staircase in the centre of the house. This will give you the greatest chance of keeping your wines at a stable temperature. Pack them in polystyrene foam fruit boxes if you have to, wrap each individual bottle in newspaper to help keep a stable temperature. Just do whatever you have to in order to keep the temperature constant.

The temperature more than anything else is the single most important thing you can control to help age your wines properly.

There are dozens of temperature controlled wine cabinets on the market and they are all fantastic. If you can stretch your budget to get hold of one of these, just do it. Your wines will love you for it.

If you are living in an apartment and space is at a premium, your downstairs garage is ideal. It's usually fairly cool with a constant temperature. Just make sure the area is secure from other people also collecting wines.

**Summary: Find an area with a constant temperature, this is the single most important factor you can control to age your wines properly**



## How long should I keep a particular style of wine?

You've just bought a bottle of wine that has gold medals from every major wine show in the country. You open it and it tastes no better than the nine-dollar bottle you had last night. What's the problem? When you read the review of the wine in your wine magazine you find out it should have been 'laid down' for 3-5 years. But often there's nothing mentioned on the label so how would you know?

We've produced a rough guide of how long to store different types of wines to get them to their peak drinking age. Remember this is a very subjective area. Every winery makes wine in different ways and every year produces a different vintage. Some will age well while others are designed to drink now.

If you really want to get the best from your wines, contact the winery that made it. They'll tell you exactly when you should drink the wine.

<b>Wine Type</b>	<b>Ageing</b>
Cabernet-Merlot blend	2-8 years
Cabernet Sauvignon	3-10 years
Cabernet-Shiraz blend	3-10 years
Chardonnay	0-5 years
Merlot	2-5 years
Pinot Noir	2-5 years
Port non-vintage	0-5 years
Port vintage	5-20 years
Riesling	0-8 years
Shiraz	2-5 years
Sparkling wines non-vintage (Champagne)	0-2 years
Sparkling wines vintage (Champagne)	5-8 years

**Summary: Most wines will have a recommended cellaring time printed on the label, if not, ask where you bought the wine or contact the winery that made it**

## Calm

Constant vibration from machinery, noise, nearby railway lines, roads etc will disturb the sediment in the wine bottle. Vibration agitates the bottle. It's like picking it up and shaking it once a day. Anything like this just helps speed up the chemical reactions going on inside the bottle and not in a nice way.

It would be rare that you'd have a cellar with conditions bad enough to damage your wines. But just keep it in mind when you see advertisements for 'wine storage' warehouses or vaults. Go and have a look where they are and what the conditions are like. Watch out if it's a converted warehouse next to a railway line. If the walls shake each time a train goes past then I'd strongly recommend you go look at another place to store your precious wines. No matter how good the temperature, security, humidity or whatever, the vibrations just will not help your wines.

But shouldn't a wine be 'turned' every so often? No, absolutely not. All this will achieve is to stir up the sediment and speed up any chemical reactions going on in the bottle. Leave it where it is and how it is when you first laid it down and you'll have a wonderful wine in a few years time.

**Summary: Once a wine is laid down, that's where it should stay until you are ready to open it or sell it**



## Clean and odour free



Your cellar or storage area should be clean and free from any smells, foodstuffs or other items.

Strong outside smells can find their way through the cork and contaminate your wine. Bleach and petrol are both wonderful substances and life would be very different without them. But store them someplace else, not near your valuable wine collection.

If you can't afford proper wine cellar refrigeration then make sure there's good ventilation. Keeping your wines under the house is a pretty good start if there's proper ventilation. If not you'll probably end up with a musty mouldy smell in your wines. This smell will find it's way through the cork and into your wine.

Keep the area clean. I know this sounds obvious but mice and insects will live in just about any rubbish. They'll chew the corks and they'll gnaw at the labels. Can you imagine bringing one of your treasured bottles out to your dinner guests with a label that looks like Swiss cheese? Some dust is OK. It will add to the authenticity and even some cobwebs will add to the conversation. But you really have to draw the line when it comes to a rodent chewed label or cork.

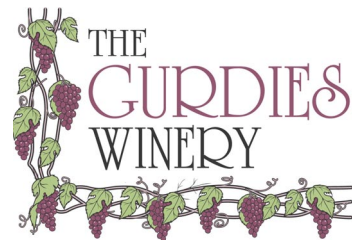
And as mentioned above, your wines will fetch much higher prices at auction or market if they are in pristine condition, in their original packaging and show no signs of heat stress.

Finally you should never store any fruit, vegetables or cheeses near your wines or anything else that is likely to ferment. Anything that has it's own yeasts has no place in your wine cellar.

**Summary: Keep the area clean and keep it dedicated to your wines**

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