

Wine Barrel Maintenance

With proper care and cleaning, an oak barrel can last up to 6 years

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Wine barrels are a significant investment for any winery and must be treated gently and consistently to get maximum use out of them. With proper maintenance, a new 60-gallon barrel should last five to six years, requiring a replacement rate of 17 percent to 20 percent each year. This means 1,500 to 1,800 bottles can be infused with notes of toasted oak. At prices of \$300 to \$1,000 per barrel, this translates into an added per-bottle cost of 16¢ to 67¢ for exclusively oak-aged wines.

Barrel cleaning procedure

Rinse schedule

- Cold water rinse with a well-designed barrel washer spray head for 3 minutes to remove lees.

- Moderately hot (144°F) water rinse for 3 minutes. This is not a sanitation, but is designed to remove potassium tartrate, which is 10 times more soluble in warm than in cold water. Higher water temperatures would cook the barrel and the residual wine soaked in its staves.
- Soda ash (Na_2CO_3) addition optional at 2 g/L.
- Cold water rinse for 3 minutes.
- Sodium peroxycarbonate (Na_2CO_4) addition optional at 2 g/L
- Citric acid (5 g/L) rinse to neutralize.

A barrel that has been infected with *Brettanomyces* yeast cannot be sterilized and should be put out of commission and turned into a beautiful planter or



The author in a circular barrel cellar



other artistic display for the tasting room. Because wood conducts heat very poorly — 30 times less than stainless steel — the heat even from prolonged hot water exposure doesn't penetrate the staves deeply enough to kill all microorganism that live in the cracks and blisters of a toasted oak barrel. Even the use of ozonated water will not provide absolute sterility. In the worst case, the *Brett* bloom will occur later in the barrel aging process, i.e. closer to bottling. Remember that handing down a *Bretty* barrel to home winemakers is not a fair practice.

Ideally, the winemaking schedule should be cyclic so that reusable barrels get emptied, cleaned, and refilled with new wine within a day or two. If this is not possible, e.g., when the wine is becoming too oaky, a barrel can be stored without wine either wet or dry. To prepare for dry storage, the cleaned barrel needs to drain out completely and be allowed to dry in a clean, TCA-free, low relative humidity environment without fruit flies getting access through the open bung hole. Using air-purifying systems in the cellar that employ UV light or photocatalytic oxidation (AiroCide®, etc.) may be a good idea. The dry-stored barrels need to be treated with sulfur every three or

four weeks. Wet storage avoids that the barrels dry out too much and become leaky, or get unpredictably depleted of SO₂ gas after burning of an elemental sulfur wick or direct gassing with bottled SO₂. The disadvantages of wet barrel storage are additional depletion of precious oak aroma components and increased wastewater biological oxygen demand when emptied.

Barrel storage procedures

Dry

1.7 to 3.4 g elemental sulfur burnt in each barrel every three to four weeks.

Wet

1,125 g citric acid /bbl (5 g/L) and 45 g potassium metabisulfite/bbl (200 mg/L), in cold, chlorine-free water.

Both

Silicon bungs should be wrapped in small freezer bags to prevent hardening and discoloration. Alternatively, they can be replaced with water-filled freezer bags covering the bung hole.

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