

# Winery Sanitation: Clean / Sanitize

Alan Dillard, Limestone Creek - 2012

**You cannot make sound wine of quality in a dirty environment.**

## Areas of concern:

Raw material - grapes/fruit/pomace

Raw wood, including oak barrels/pallets and building structure or equipment

The production building/area

Wine making equipment - all of it!

People

Fruit in poor condition is already contaminated when you start processing.

This means additional sanitation methods, both for the fruit and for the equipment.

1. Higher levels of K<sub>2</sub>SO<sub>4</sub>
2. Use of Lysozyme, or Velcorin (see Scott Labs Handbook)
3. Extra care in cleaning processing equipment immediately after use.
4. Remove pomace from area immediately after pressing. Fruit flies/acetobacter and acetic acid/VA are the result of leaving pomace around.

Any wood, other than oak barrels, **MUST** be well sealed, or better yet, absent from the winery. **NO** wood pallets under tanks or anywhere else in the building. Pallets are a sponge for “critters”. No wood tools for stirring, etc.

Walls and floors must be impervious to contaminants/water, and cleaned regularly.

Ceilings/overhead lighting must be kept clean.

Floors and particularly drains and the area around drains should be cleaned after every use of drains.

All equipment used in processing fruit/fermentation/lab analysis, etc. must also be cleaned regularly. “You get ready to take a sample of wine with a wine thief, first sanitize it, then use it, then clean and sanitize it. Five minutes later, you get ready to take a sample, you sanitize it, then use it, then clean/sanitize it again.”

You, your help and any “visitors” to the wine production area should wash their hands and avoid bringing in mud, dirt, etc.

Every day in the winery, it is a good idea to stand still, look around and see if you have forgotten to clean and sanitize anything. Especially hard to do during crush/press, when you are up to “there” with incoming fruit, monitoring ongoing fermentation of earlier tanks, etc.,. But it is something you should train yourself and your staff to make a part of their routine. It could save you a lot of pain, money -- and WINE.

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Worrisome “critters”: Only the most common

Bacteria - Acetic acid(resulting VA/volatile acid/ “vinegar”)

Lactic acid, including Lactobacillus, Pediococcus, even Oenococcus  
(results include lowered acidity, higher pH and in many cases very nasty effects, as in “sweat socks” or “dead mouse”, etc.)

Spoilage yeasts - Zygosaccharomyces, Pichia, Candida, Dekkera/Brettanomyces and also Saccharomyces, (if left in wine at bottling).

“Brett” loves porous wood, especially oak barrels/pallets, etc. and once in your winery, is virtually impossible to control/eliminate. While most of the best red wines of Bordeaux have Brett in them, you may not want to have it in your St. Croix, etc!

All these yeasts/bacteria are much more likely to survive and create havoc when winery equipment from crusher/de-stemmer to pumps, hoses, lab equipment and bottling line equipment is not sufficiently cleaned and sanitized.

In addition, molds can be a problem, especially in the presence of high humidity/exposure to oxygen and also chlorine. Cork taint is often a result and the use of chlorine/chlorinated cleaning compounds should be avoided.

**You can’t sanitize anything if it isn’t clean.**

Cleaning involves removing all dirt/oils/fats “grease” from surfaces.

A combination of surfactants, detergents and “elbow grease” will do most surfaces well, but there are areas within almost all equipment that need extra cleaning that requires other methods, such as high pressure very hot water/steam, combined with detergents/acids to assure complete removal of “dirt”.

It is very important during mechanical cleaning that the polished surfaces of stainless equipment not be scratched. This means scrubbing tools/brushes need to be fairly stiff but not so tough as to damage the polish.

Yet another reason to avoid chlorine/chlorinated cleaning compounds is that they can also damage the polish if left in contact with surfaces for too long or are incompletely removed during rinsing.

Cleaning agents: Alkalis - Trisodium Phosphate, Soda ash, caustic soda, caustic potash. All work well to “break up” oils/fats, etc. and ease their removal from surfaces. Detergents are also helpful, but must be unscented! Use HOT water with any of these. Both caustic soda and caustic potash are to be used with care, preferably with skin and eye protection.

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Colloidal micelles - relatively new, very effective and harmless to people and the environment. This product also works well with "normal" water temperatures.

(Google "Wise Solutions" - [www.wisesolutions.net](http://www.wisesolutions.net))

Rinse well with water, follow with a rinse of citric acid to help remove any residue of agents/detergent, then do a final rinse with H<sub>2</sub>O.

#### **Sanitizing:**

Once the area/item is cleaned, there are a variety of ways to sanitize (not sterilize).

Most equipment can be sanitized by using a combo of Potassium Metabisulfite(K<sub>2</sub>SO<sub>4</sub>), also commonly referred to as MBS or KMS, and Citric acid. Use with caution, as both the powder form and the liquid combo can cause a severe respiratory reaction. I commonly used 200ppm KMS (6.5 gr./5 gal.) plus enough citric to reduce the water pH to less than 3.0. Obviously the pH of your water will dictate how much citric/5gal.

Both hot water and ozonated water are excellent methods for sanitizing, if you can afford the equipment. Hot water at + 180F. works very well, but needs to be maintained for at least 20 min. throughout the system or equipment being sanitized. Ozonated water is very effective, but the equipment is relatively expensive.

Sani-Date/Proxyclean are excellent, especially for drains and areas around drains where concrete tends to become porous from acids. Also good for equipment, if well rinsed. These products are also dangerous, both on skin/eye contact and if fumes are inhaled.

For long term storage, Quaternary ammonia is excellent, as it has residual anti-microbial properties. Once cleaned, press/crusher, etc. can be sprayed with this solution and left un-rinsed until next use. Also must be used carefully, skin/eye damage and inhalation damage are possible.

For details about agents/procedures, etc., see the list of resources.

Resources:

[www.scottlabs.com](http://www.scottlabs.com) "Fermentation Handbook" (Download or request hard copy.)

Google: "winery sanitation protocols"

[www.enologyaccess.org/Resources](http://www.enologyaccess.org/Resources) (UC Davis online class VEN 124)

[www.winegrapes.tamu.edu/winemaking/sanitation](http://www.winegrapes.tamu.edu/winemaking/sanitation) (Texas A&M, slide presentation)

Books:

"Micro-Vinification" Dharmardikari/Wilker Missouri State U. Mt. Grove, MO