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THE FUTURE IN WINERY CLEANING / SANITIZING IS HERE!

INTRODUCTION

The following document will be divided into two main sections. The first section will highlight the typical steps that have been used for years in the wine industry for cleaning and sanitizing of tanks and process equipment. The second section will highlight the new way of cleaning and sanitizing that many wineries have already discovered, along with the numerous advantages, positive environmental impact, and cost savings that these new methods allow. The new method of cleaning / sanitizing is built around three core products in Heritage Systems Restore™ line of cleaners / sanitizers. Lancer™ a Antimicrobial Sanitizer and Disinfectant, Filmaway™ an alkaline cleaner, and Oxydate™ a stain remover.

THE OLD WAY

The first step in tank cleaning is the use of caustic or chlorinated TSP (trisodium phosphate) to remove tartrates and proteins from the tank surface. Some wineries are under the mistaken impression that chlorinated TSP is both a cleaner and sanitizer. Chlorinated TSP is not a sanitizer and is ineffective in killing fungus and bacterial strains. Chlorinated TSP creates a sticky film on the tank surface, which must be removed prior to the sanitation step.

The next step is an intermediate rinse (often containing citric acid to remove the sticky TSP film). After the intermediate rinse, a chlorinated sanitizer is used to sanitize the tank surface. After this step, a citric acid rinse is required to neutralize the high pH of the chlorinated sanitizer (or chlorinated TSP if the sanitation step is mistakenly skipped).

The caustic, chlorinated TSP (trisodium phosphate), and chlorinated sanitizer (which contains sodium) add a great deal of sodium to the wastewater, which is then treated and often land applied to vineyard land. Excessive sodium is toxic to plants, increases soil salinity, changes osmotic pressure in soils around the root zone and limits water uptake by the vines. The sodium, chlorine, and other ions in these compounds add greatly to the total dissolved solids (TDS) levels in the wastewater. TDS in winery wastewater is already regulated by environmental agencies in

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many parts of California and soon will be regulated throughout the entire state. Phosphate from chlorinated TSP accelerates algae blooms in the wastewater ponds which leads to poor suspended solids removal, reduced BOD removal and odors.

Trichloroanisole (TCA) imparts a “musty” flavor and odor to wine and is detectable by wine drinkers at concentrations as low as 5 – 10 parts per trillion (ppt). TCA is formed by the o-methylation of 2,4,6 – trichlorophenol by molds. Trichlorophenol may be formed by the reaction of chlorine (as found in chlorinated sanitizers and chlorinated TSP) with phenols in wood and wood products. That is why so many wineries are now avoiding the use of chlorinated products in tank and equipment cleaning / sanitizing operations.

THE NEW WAY

The new way of tank cleaning consists of three steps:

1. The use of Filmaway™ alkaline cleaner to remove proteins and tartrates.
2. Intermediate rinse requiring only water.
3. The use of Lancer™ Antimicrobial Sanitizer and Disinfectant to sanitize winery process equipment (no final rinse required)

Filmaway™ alkaline cleaner is a potassium hydroxide based cleaner with proprietary chelating agents that make it equally effective in removing heavy tartrates (calcium tartrate, potassium tartrate, potassium bitartrate) as well as protein deposits. Filmaway™ alkaline cleaner does not cause a sticky film on the tank surface like chlorinated TSP. It is most effective in the pH range of 11.3 – 12.3 which will be achieved by adding one gallon of Filmaway™ to 100 gallons of water.

Since Filmaway™ alkaline cleaner is a potassium hydroxide based product, it does not contribute sodium to the wastewater. Potassium is one of the major macronutrients required for plant growth. Potassium acts as an enzyme activator essential for photosynthesis and plant respiration. After nitrogen and phosphorus, soils are most deficient in potassium.

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Lancer™ Antimicrobial Sanitizer and Disinfectant is a 5% PAA (peroxyacetic acid) solution. PAA is a stabilized equilibrium solution that is EPA approved for numerous uses, including circulation cleaning and industrial sanitizing of equipment such as tanks, pipelines, evaporators, fillers, pasteurizers, aseptic equipment, and for sanitizing previously cleaned food contact surfaces of equipment. PAA is an equilibrium mixture of acetic acid and hydrogen peroxide.

The advantages of Lancer™ Antimicrobial Sanitizer and Disinfectant over traditional chlorinated sanitizers are numerous. Since PAA degrades to acetic acid and water (ultimate biodegradation to oxygen, water and carbon), it does not contribute to wastewater dissolved solids levels. After the sanitation step, a final neutralizing rinse with citric acid is not needed. One major winery achieved an 89% reduction in salt loading when replacing their chlorinated sanitizer with PAA and eliminating the citric acid rinse. Eliminating the citric acid rinse can save hundreds of thousands of gallons of water annually and ultimately save time and money in related labor costs.

Lancer™ Antimicrobial Sanitizer and Disinfectant (as well as Filmaway™ alkaline cleaner) contains no chlorine and thus does not contribute to TCA formation. Lancer™ Antimicrobial Sanitizer and Disinfectant is a far more powerful sanitizer than any chlorine based product and adds no acetic acid residue or volatile acidity to wines.

Both the Lancer™ Antimicrobial Sanitizer and Disinfectant and the Filmaway™ alkaline cleaner can be applied using Heritage Systems patented, portable and safe delivery system. These products can be supplied in five gallon Cornelius kegs which are set on a portable cart along with a small nitrogen cylinder. The nitrogen pressurizes the keg to 10 psig. After the cellar worker determines the amount of chemical needed, he opens a valve at the end of a long dispensing hose and closes the valve when a built in flowmeter reads the desired amount of chemical. The cart is portable and all working parts (flowmeter, piping, dispensing hose, etc.) are stainless steel. When the kegs are empty, Heritage Systems removes them and supplies new kegs so winery personnel never have to handle or transfer any chemicals. Major wineries such as Rombauer, St. Francis, Honig, Clos Du Bois, and Sutter Home are already using these dispensing systems in their cleaning operations.

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Oxydate™ stain remover is a chlorine free stain lifter that works on wood, walls, floors, and equipment. Just pressure wash the surface to be cleaned, leave wet, and apply the Oxydate™ stain remover. In 15 minutes the stain is gone with no final rinse required. Oxydate™ will not leave a film residue on cleaned surfaces.

CONCLUSION

It is becoming increasingly clear to more and more wineries each day that the old ways of using chlorinated TSP / chlorinated sanitizers are over. The increased water use, increased wastewater salt levels, increased sodium content of soils, and increased potential for TCA formation are only a few reasons that the old ways are no longer applicable. To learn more about Heritage Systems Restore™ line of cleaners please visit our website at www.heritagesystemsinc.com or call us at 707-258-0553.