

Chapter 4:
Sanitation

The #1 cause for poor quality wine & returns!

Cleaning versus Sanitizing

Cleaning uses water, cleaning agents (*e.g. detergents*), and mechanical means (*e.g. water pressure or bristle brush*) to remove organic and inorganic matter.

Cleaning agents break down, solubilize, and disperse contaminants into water, so the contaminants can be washed away.

Sanitizing uses specialized chemicals to inhibit/kill micro-organisms such as yeasts and bacteria down to an acceptable level.

Often referred to as “sterilization” but this is not technically correct; sterilization refers to the process of eradicating ALL micro-organisms and is required in such applications as surgery. It uses special equipment to apply high heat (*e.g. autoclave, steam*).

Cleaning & Sanitizing

Poor cleaning and sanitizing regimens are common causes of problems, typically microbial spoilage.

Cleaning and sanitizing are NOT the same; one does not replace the other.

Clean and sanitize ALL equipment that will come into contact with juice/wine.

Use appropriate cleaning & sanitizing agents for the type of material, *i.e. glass, stainless steel, plastic, oak barrels, etc.*

Some products include cleaning and sanitizing agents to perform both steps into one.

NOTE: If you are also a beer maker, some products may not be adequate or suitable for winemaking equipment and vice versa.

Cleaning & Sanitizing Regimen

- 1. Pre-Rinse** using fresh, clean water and pressure to dislodge any excess material before you begin
- 2. Prepare** cleaning/sanitizing agents
 - Prepare carefully according to manufacturers instructions
 - Only use recommended agents for the type of material; do NOT use soaps – these leave a residue that will affect taste of wine.
 - Use recommended dilution rates (see Table); do NOT use higher dilution rates – may damage equipment.
 - Dissolve agent in warm water; never add water to an agent.

Cleaning & Sanitizing Regimen

3. **Clean** and clean thoroughly

- Ensure cleaning solution reaches entire surface.
- Use a soft-bristle brush or other soft material to scrub residues and stains; do NOT use any abrasive material – scratches become a breeding ground for micro-organisms.
- May need to soak for a short period to dissolve tough stains; Be conscious of soaking time as extended soaking may damage the equipment.
- Rinse equipment with fresh, clean water before sanitizing.
- Remember: you CANNOT sanitize a dirty surface.

Cleaning & Sanitizing Regimen

4. Sanitize

- Remember to use a suitable sanitizing agents for the type of material to be sanitized.
- Leave sanitizing solution in contact with surface for the appropriate amount of time. Please refer to following table.

5. Rinse

- Rinse out equipment one last time with fresh, clean, cool water.
- Let equipment drain of excess water.
- Ensure there are no residual odours.

 Watch video

Cleaning Agents

It's important to understand the formulation of cleaning agents so you understand how to handle and use the various products.

Cleaning agents are formulated with one or more “active” ingredients that perform the cleaning action plus other chemicals, such as surfactants and/or foaming agents, to increase cleaning efficiency.

Some cleaning agents include a sanitizing agent into one product to simplify labour and reduce costs.

Formulation is often a trade secret and, therefore, ingredients are not always listed on packaging or even in the MSDS.

Cleaning Agents

Store all cleaning agents and solutions in airtight containers. Rotate your stock at least every 6 months.

CAUTION: Always use cleaning agents as directed on package and NEVER mix chemicals with cleaning agents, for example, to improve effectiveness – it may result in serious health hazards.

Most common active ingredients found in cleaning agents:

Weak alkaline (base) chemicals

Caustic (corrosive) alkaline chemicals

Enzymes

Surfactants (short for surface-active agent)

Chelating agents

Cleaning Agents

Weak alkaline (base) chemicals

- Powder form, e.g. sodium carbonate (soda ash) and sodium percarbonate
- Capable of dislodging heavy deposits or greasy residues in carboys & tanks
- Sodium percarbonate is one of the best agents and very environmentally friendly; it is most effective across a broader range of materials; it releases hydrogen peroxide, a strong oxidizer; dissolves tartrate crystals and neutralizes acetic acid in problem barrels
- Relatively safe; found in many common household and winemaking cleaning products such as PBW (Powdered Brewery Wash), One Step No Rinse Cleanser (aka Aseptox), B-Brite Cleanser, and Saniton

Cleaning Agents

Caustic (corrosive) alkaline chemicals

- Powder form, e.g. sodium hydroxide (caustic soda, NaOH), potassium hydroxide (caustic potash, KOH)
- Very effective but very corrosive; must be handled with care as they can burn skin
- Limited to stainless steel and plastics; use on glass is not recommended as it will weaken the integrity of carboys and result in glass shattering and possibly injuries.

Enzymes

- Many eco-friendly products, including laundry detergents, are now starting to replace chemical agents with enzymes (biological agents).
- Found in such products as Micro-Zyme P500
- These have a much broader use on materials

Cleaning Agents

Surfactants (short for surface-active agent)

- Capable of lifting and dispersing dirt and greasy residues
- Examples: Detergents, foaming agents and wetting agents.

Chelating agents

- Sequester minerals – the culprits in hard water
- Example: Phosphates

Legend for Use of Agents

- Safe to use on material.
- ◆ Use caution; may affect material if not used properly.
- Generally NOT recommended as it may impact integrity of material and may be a health hazard; use great caution.
- ✘ Do NOT use; will likely cause adverse affect on material, e.g. corrosion, esp. with oak barrels.

Cleaning Products

Products	Dilution Rates & Special Instructions	Materials					
		Soft-glass carboys	Stainless Steel (304)	Food-grade plastics	PET carboys	Silicone equipment	Oak
Sodium carbonate (generic)	1–10% solution Allow solution to be in contact with surface for up to 15 minutes.	◆	●	●	◆	●	■
Sodium percarbonate (generic)	1–10% solution Allow solution to be in contact with surface for up to 15 minutes.	◆	●	●	◆	●	●
Sodium/potassium hydroxide (generic)	1–10% solution Allow solution to be in contact with surface for up to 30 minutes.	■	●	●	■	■	✗

NOTE: Follow product manufacturer's instructions for best results.

Cleaning Products

Products	Dilution Rates & Special Instructions	Materials					
		Soft-glass carboys	Stainless Steel (304)	Food-grade plastics	PET carboys	Silicone equipment	Oak
PBW	<p>0.5–1% solution Allow warm (40°C or 100°F) solution to be in contact with surface for up to 30 minutes.</p> <p>Up to 3% solution for stubborn stains. Soak overnight at room temperature.</p>	◆	●	●	◆	●	✗
One Step No Rinse Cleanser	<p>0.5–1% solution Allow warm (40°C or 100°F) solution to be in contact with surface for up to 30 minutes.</p>	◆	●	●	◆	●	✗

NOTE: Follow product manufacturer's instructions for best results.

Cleaning Products

Products	Dilution Rates & Special Instructions	Materials					
		Soft-glass carboys	Stainless Steel (304)	Food-grade plastics	PET carboys	Silicone equipment	Oak
B-Brite Cleanser	0.5–1% solution Allow warm (40°C or 100°F) solution to be in contact with surface for up to 30 minutes.	◆	●	●	◆	●	■
Saniton	0.2% solution Allow warm (40°C or 100°F) solution to be in contact with surface for up to 20 minutes.	◆	●	●	◆	●	■
Micro-Zyme P500	0.1% solution Allow warm (40°C or 100°F) solution to be in contact with surface for a few minutes on soft stains or overnight on stubborn stains.	●	●	●	●	●	✗

NOTE: Follow product manufacturer's instructions for best results.

Sanitizing Agents

Same comments as cleaning agents re. handling, formulation, storage, stock rotation, etc. apply to sanitizing agents.

Most common active ingredients found in sanitizing agents:

Sulfite

Acids

Chlorine

Iodophors

Sanitizing Agents

Sulfite

- Powder form
- Widely used throughout wine industry
- Effective across a wide range of materials but can cause pitting on stainless steel if exposed excessively
- Relatively safe to use when handled properly; must use in a well ventilated area as vapour can cause respiratory problems
- Examples: Potassium metabisulfite (KMS), sodium metabisulfite

Sanitizing Agents

Acids

- Most often acetic acid (e.g. vinegar), phosphoric acid found in common winemaking sanitizers such as Star San and Saniclean, and peroxyacetic acid (PAA) found in such products as Oxysan ZS
- PAA is an excellent bleaching alternative to chlorine-based products and is considered eco-friendly, acts very quickly and is effective in hard water, but it is very expensive.
- Tend to be corrosive to soft metals
- Kill selective micro-organisms, potentially leaving behind latent micro-organisms that can then strike later to cause spoilage

Sanitizing Agents

Chlorine

- Powder form
- The main active ingredient in bleach and winemaking products such as Diversol and Sani-Brew
- Examples: Sodium hypochlorite, chlorinated trisodium phosphate (TSP)
- Very corrosive, esp. on stainless steel, and weakens glass
- Can cause mold infections throughout winemaking area that can prove impossible to eradicate
- Not considered environmentally friendly

Sanitizing Agents

Iodophors

- Concentrated liquid form containing iodine
- Found in such products as IODOPHOR BTF SANITIZER
- Very effective and environmentally friendly
- Commonly used in the food & beverage industry, esp. beer industry, and institutions
- Often advertised as not requiring rinsing but rinsing is always recommended as it can leave traces of dark coloring and/or odours

Sanitizing Agents

Products	Dilution Rates & Special Instructions	Materials					
		Soft-glass carboys	Stainless Steel (304)	Food-grade plastics	PET carboys	Silicone equipment	Oak
Potassium metabisulfite Sodium metabisulfite (generic)	10% solution with equal parts of citric acid. Allow solution to be in contact with surface for at least 15 minutes.	◆	●	●	●	●	●
Diversol BX/A	Up to 0.5% solution Allow solution to be in contact with surface for at least 20 minutes.	■	◆	●	●	●	✗
Sani-Brew	0.35% solution Allow solution to be in contact with surface for at least 20 minutes.	■	◆	●	●	●	✗

NOTE: Follow product manufacturer's instructions for best results.

Sanitizing Agents

Products	Dilution Rates & Special Instructions	Materials					
		Soft-glass carboys	Stainless Steel (304)	Food-grade plastics	PET carboys	Silicone equipment	Oak
Iodophor BTF Sanitizer	0.1% solution Allow solution to be in contact with surface for approx. 2 minutes.	■	■	◆	●	■	✘
IO Star Sanitizer	0.1% solution Allow solution to be in contact with surface for approx. 1 minute.	■	■	◆	●	■	✘

NOTE: Follow product manufacturer's instructions for best results.

Cleaning/Sanitizing Agents

Products	Dilution Rates & Special Instructions	Materials					
		Soft-glass carboys	Stainless Steel (304)	Food-grade plastics	PET carboys	Silicone equipment	Oak
Star San	0.5% solution Allow solution to be in contact with surface for at least 5 minutes.	■	◆	●	●	●	✘
Saniclean	0.5% solution Allow solution to be in contact with surface for at least 5 minutes.	■	◆	●	●	●	✘

NOTE: Follow product manufacturer's instructions for best results.

Cleaning/Sanitizing Agents

Products	Dilution Rates & Special Instructions	Materials					
		Soft-glass carboys	Stainless Steel (304)	Food-grade plastics	PET carboys	Silicone equipment	Oak
Oxi-San	0.5% solution Allow solution to be in contact with surface for at least 15 minutes.	■	◆	◆	■	■	✘
Oxi-San ZS	0.5% solution Allow solution to be in contact with surface for at least 5 minutes.	■	■	■	■	■	■

NOTE: Follow product manufacturer's instructions for best results.