



Cleaning for brewers

Cleanliness is one of the most important aspects for all food preparations; this is even truer for Brewing. In Brewing we provide good growing conditions for yeast which are also good conditions for other micro-organisms, especially wild yeasts and bacteria. Cleanliness must be maintained through each stage of the brewing process.

The definition of sanitisation is to reduce bacteria and contamination to insignificant and manageable levels. The terms clean, sanitise, and sterilise are often used interchangeably but should not be. Items may be clean but not sanitised or vice versa.

Here are the definitions-

- **Clean**
To be free from dirt, stain, or foreign matter.
- **Sanitise**
To kill/reduce spoiling micro-organisms to negligible levels.
- **Sterilise**
To eliminate all forms of life especially micro-organisms, either by chemical or physical means (harsh chemicals, heat, and pressure).

Cleaning is the process of removing all the dirt and bio-films from a surface thereby removing all sites that can harbour bacteria. Cleaning is usually done with a correctly formulated brewing detergent (no perfumes, enzymes, or chlorine) and elbow grease.

None of the sanitising agents used by home brewers are capable of eliminating all bacterial spores and viruses. The chemical agent's brewer's use will clean and sanitise but not sterilise. However sterilisation is not necessary. Instead of worrying about sterilisation, home brewers can be satisfied if they consistently reduce these contaminants to negligible levels.

All sanitisers are meant to be used on clean surfaces. A sanitiser's ability to kill micro-organisms is reduced by the presence of dirt, grime and organic material.

Organic deposits can harbour bacteria and shield the surface from being reached by the sanitiser. So it is up to you to be sure that the surface to be sanitised is as clean as possible.

THE CLEANERS

Cleaning requires a certain amount of scrubbing, brushing and elbow grease. It is necessary because a dirty surface can never be a completely sanitised one. Deposits can harbour bacteria that can spoil beer. The ability of any sanitising agent to kill bacteria is reduced by the presence of any organic matter, so prior cleaning is necessary to complete sanitation. Below is a list of cleaners and their pros and cons.

Dishwashing detergents

These products often contain perfumes that can be absorbed into our brewing equipment and released back into beer. Additionally some detergents are difficult to rinse and leave behind a film that can be tasted in beer.

Bleaches

Both liquid and powdered chlorine bleaches often also contain perfumes and other additives such as enzymes and fillers. The one to use for brewing purposes is the Pink Stain Remover. As its name suggests it is used for cleaning stained equipment or if you have acquired beer bottles that need a thorough cleaning. It is very effective used in this way but is very hard on equipment (and your clothing), so its use should be limited and it needs extra care when rinsing.

Sodium Meta silicate (brewers detergent)

Widely available this cleaner (should not be confused with Sodium meta bisulphite which is a now superseded sanitiser) has been a very effective brewing cleaner for many years.

However it is now being replaced by the easier to use, liquid, nontoxic spray on cleaners such as Morgan's Low suds and Brewcraft's Brewclean. Spray on cleaners greatly reduce the amount of cleaner required and are quite economical.

Automatic Dishwashers

I am often asked about using dishwashers, but there are a few limitations. The narrow openings of hoses bottling valves and bottles usually prevent the water jets and detergent from effectively cleaning the inside. If it does get in there is no guarantee it will be rinsed out.

And lastly the drying additives can ruin head retention in beer. These work by coating the surface in a chemical film so droplets won't form preventing spots. The wetting action destabilises proteins that form the bubbles. It is for this reason that beer glasses should not be washed in the dishwasher.

The sanitisers

Once your equipment is clean, it is time to sanitise it before use. All surfaces that will contact your brew need to be sanitised such as fermenter, lid, o-ring, grommet, airlock, stirrers, thermometers and hydrometers, work surfaces, can openers and hands, etc.

Per carbonates and peroxides

Sodium per carbonate is sodium carbonate reacted with hydrogen peroxide and it is a very effective sanitiser for all types of brewing equipment. Hydrogen peroxide will effectively sanitise surfaces and containers that are already clean.

As with all sanitisers, the effectiveness of hydrogen peroxide as a sanitising agent is compromised by organic soil. Use these cleaners according to the manufacturer's instructions, but generally use 4 ml per litre and rinse after cleaning. One of the best properties of the per carbonate family is that they are environmentally and septic system friendly and need little or no rinsing.

I am often asked about using nappy cleaning powders such as 'Nappy San'. This product does contain sodium per carbonates (about 23%), but also contains many phosphates, enzymes and perfumes, which work well in the nappy bucket, but you won't catch me drinking from it!

Sodium meta bisulphite

It is used as a food additive, mainly as a preservative and is sometimes identified as E223. It may cause allergic reactions in those who are sensitive to sulphites and should not be used by asthmatics. It was commonly used in home brewing to sanitise equipment. When mixed with water, sodium metabisulphite releases sulphur dioxide (SO₂), a pungent, unpleasant smelling gas that can also cause breathing difficulties in some people.

For this reason, sodium metabisulphite has fallen from common use in recent times, with agents such as hydrogen peroxide becoming more popular for effective and odourless sterilisation of equipment. Products available include, Morgan's Sanitise, Brewcraft's Brewshield and sanitise sachets.

Cleaning your equipment means that you have removed all of the visible dirt and residue on your equipment, but not living organisms.

Sanitising means you have treated your equipment with a chemical solution that will eliminate virtually all spoilage organisms (moulds, wild yeasts, bacteria).

You **MUST** clean your equipment before sanitising the equipment, since it is difficult to properly sanitise equipment with visible residue on it.

The terminology 'sterile' is the complete elimination of spoilage organisms, and is not realistic in the home brewing environment.