



Tips for Maintaining Good Steam Hygiene

Good hygiene principles require the control of bacteria in your ENTIRE process – raw materials, processing, packaging and utilities. So how does clean steam play a part in this? There are predominantly four areas to consider when it comes to maintaining hygiene and preventing issues in foods, beverages or pharmaceutical products. The Four C's are:



Cross-contamination

One of the most common causes of food poisoning when bacteria or other microorganisms are unintentionally transferred from one object to another.



Cleaning

Both CIP and COP are vital to remove any dirt, residue or bacteria on equipment and surfaces.



Cooking

Thorough cooking will kill potentially harmful micro-organisms, but the risk of contamination through a failure in the cooking process can be reduced and even eliminated by the use of clean steam.



Chilling

While chilling is not a steam-related issue, it still matters in the overall maintenance of proper food hygiene.

Steam is one of the most energy efficient and reliable ways to transfer heat. It plays a vital role in cooking/heating, humidification and sterilization, but not all steam is created equal. Contamination in steam can come from 3 sources:

- **Chemicals** – Raw feed-water is usually treated by public utilities to kill micro-organisms and remove other harmful substances. The chemicals used, plus other approved chemicals added by the processor, can make their way into steam used for cleaning or sterilization through boiler carry-over.
- **Particulates** – Chemicals used to treat public water can be very corrosive to boilers and steam supply lines. Steam is a very aggressive vapor which can cause corrosion of piping and boilers. Water minerals precipitate deposits of scale that can create particulates with the steam supply.
- **Non-condensable gases** – Oxygen, carbon dioxide and other gasses dissolved in feed water can cause cold spots in steam sterilizers and reduce heat transfer efficiency.

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Types of Steam

Plant Steam

Plant steam is the starting point for all grades of steam used in food, beverage and pharmaceutical processing. It's ok to use plant steam in applications where it doesn't directly contact your process or products, for example in heat exchangers or retorts.

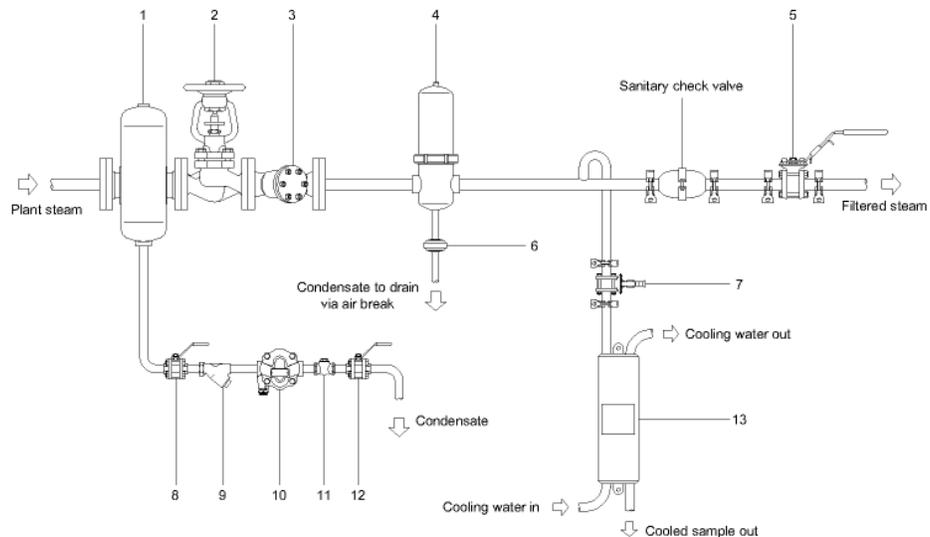
Culinary/Food grade/Potable Steam

Culinary steam is produced by passing plant steam through a high efficiency filter which is designed to remove 95% of all particles larger than 2 microns. However, filters are not designed to remove chemicals or water suspended within the steam, therefore salts may still get through and impact the process or final product. These filters can also clog quickly if the steam is of poor quality.

Clean Steam

Clean steam is the highest grade of steam for all sanitary applications and should be used for any and all quality-critical processes. Use of clean steam removes the risk of contamination from boiler chemicals, particulates and cross-contamination. Clean steam is produced by using a secondary, independent generator and feed-water that has been pretreated through reverse osmosis, deionization, demineralization or continuous electro-deionization to remove dissolved solids, inorganics and particulates. Therefore, no chemical treatment is necessary.

For more information on steam systems, contact your local M.G. Newell rep or email us at sales@mgnewell.com.



Steam information courtesy of Spirax-Sarco