

TECH TALK

Liquid, Steam & Sterile Air/Gas Filtration: Protect your non-alcoholic beverage plant from contamination

Donaldson Process Filtration – Liquid, Steam and Sterile Air - is used throughout the manufacturing of non-alcoholic beverages such as juice, water, and soda. Filtration reduces the risk of contamination throughout the manufacturing process. It is used to remove particulate from the final product or its ingredients; sterile air may be used to blow bottles or vent a storage tank, and steam may be used to sterilize filter elements and equipment.

LIQUID

Depending on what point water is used, filtration is required to ensure different purity levels. Large particles greater than 250 micron, such as sand, will need to be removed regardless of whether the water is being used as utility or manufacturing water. Additional filtration will be needed in many cases – especially if the water will be used as ingredient water.

It is not uncommon to see filtration trains where a line of filter housings and elements are in place beginning with coarse filtration and ending with very fine filtration at the point-of-use. A sterile filter may also be used as a final stage filter to inhibit any living organisms such as bacteria, which are 0.2 micron or larger.

AIR AND GAS

Air and other gases are used at several points in the beverage producing process. They may be used for bottle blowing, to assist in creating an aseptic environment, in the form of a tank vent to keep product sterile (as tanks drain and/or fill) or to provide sterile nitrogen or carbon dioxide.

In all cases of compressed air or gas, contaminants such as oil, moisture, or particulate must be removed. The degree of filtration depends on the processes and certifications upheld at each manufacturing facility and their corresponding requirements. Gases will often touch the final product or the packaging container; therefore absence of bacteria is important and it is required that these gases are filtered to sterility.

Product or ingredient tanks for non-alcoholic beverages also require sterility. In some instances, a positive pressure is provided by an inert gas or, specifically, nitrogen. It is possible that rust or scale is present in the piping used to provide nitrogen to the tank; a filter up-stream of the tank would remove any potential contamination. In addition to a positive pressure system, a tank vent may also be used.



This is a vent that sits atop the product/ingredient tanks with a filter that provides sterile air to enter the tank. The tank vent allows the tank to breathe as necessary during filling and draining while the filter element removes any dust or other contaminant that may be present in the ambient air.

STEAM

Steam is typically used for sterilization. Sterile filter elements used for liquid and gas applications must be sterilized to avoid the growth of bacteria through the filter media. The most common way of sterilizing elements is through a steam sterilization process.

Bacteria are not generally found in steam due to the high temperatures; however, rust and scale is a viable contaminant in steam. If the steam is untreated, there is a risk that these particulates could contaminate the process or final product.

CONTACT US

Filtration – whether in liquid, steam or sterile air form – is essential for ensuring the quality of your product as well as the protection your brand reputation. Contact us today to learn how Donaldson can help. We offer **comprehensive product lines from compressor to point-of-use and final process filtration**, readily available parts, high reliability (backed by almost a century of filtration expertise) and global customer service.



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Protect Your Non-Alcoholic Beverage Plant from Contamination (06/13)
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