

Tank Vent and Process Gas Filters for Pharmaceutical and Biopharmaceutical Production

Tank Vent Filters

Tanks used for storage, mixing, dispensing, and single use that are filled and emptied as part of a process need to be properly vented to protect structural integrity. Filling a tank without venting can cause pressure inside the tank to increase, reducing process flow and in extreme cases causing a tank to rupture. Emptying a tank without a vent will result in vacuum buildup inside the tank, which can again reduce flow or even result in tank implosion.

For tanks used in pharmaceutical and biopharmaceutical processes, these vents must have proper filtration in-line, both to prevent escape of process ingredients into the surrounding environment as tanks are filled, and more importantly to prevent potential contaminants - particles, bacteria, etc. - in the surrounding environment from entering the tank during transfer.

The choices for these filters would be a hydrophobic filter, rated for either bioburden reduction or sterilizing. To decide which, a proper risk assessment should be performed considering several factors:

- Likelihood of bacterial contamination in the surrounding environment
- Level of contamination that might be encountered
- How conducive is the material stored in the tank to bacterial growth?
- Adequacy of cleaning/sterilizing procedures for the tank
- How much of a burden might be placed on downstream sterilizing filters if a bioburden reduction filter is employed?

Process Gas Filters

Any pressurized gasses used in the pharmaceutical and biopharmaceutical processes must also be filtered. The same considerations for tank vent filters when choosing between bioburden reduction and sterilizing filters need to be considered during a proper risk assessment.

Options for Tank Vent or Process Gas Filters

Bioburden Reduction Filter Options

- BTM (PTFE membrane)
- BPVWB (Hydrophobic PVDF membrane)

Sterilizing Filter Options

- PTM/PTR (PTFE Membrane)

Conclusion and Summary

Pharmaceutical and Biopharmaceutical processes utilize many tanks, each of which must be properly vented. They also use pressurized gas in multiple steps. Installation of the proper, Bioburden Reduction or Sterilizing filters will protect tanks and processes from unwanted contaminants and control or eliminate bacteria to ensure product sterility, guaranteeing product quality and patient safety. Critical Process Filtration supplies a wide range of filter materials and configurations allowing optimization of your filtration process while minimizing filtration costs. For more information, please [contact the Critical Process Filtration Technical Service team.](#)