CO\textsubscript{2} utilization in brewing and packaging is common to most every brewery today. Whether in the bright beer tank for final carbonation, bottling lines for air evacuation or blanketing of yeast propagation tanks, CO\textsubscript{2} performs an important role in the brewing process.

Generally the brewery CO\textsubscript{2} is shipped in bulk containers and kept in holding tanks until required. Pipework and hoses transport CO\textsubscript{2} through multiple connections to the point of use. During transport there are many opportunities for CO\textsubscript{2} contamination from unwanted particles and bacteria that may affect beer purity and quality.

Why not be 100\% sure the CO\textsubscript{2} injected into your beer is sterile?

The most cost effective method to ensure CO\textsubscript{2} sterility is filtration. Strategically placed at the source, in-line, on tanks and at point of use, Pall Emflon\textsuperscript{®} PFR 0.2 micron sterilizing grade filters give protection where needed. From 10” filters placed into large flow housings to self-contained encapsulated filters with 1.5” sanitary Tri-clamp connections, Pall Emflon PFR filters are manufactured in various sizes and configurations to fit any size brewery.

Pall Emflon PFR filters meet FDA requirements for food contact materials and are designed with a double layer of Polytetrafluoroethylene (PTFE) to remove bacteria, viruses and particles from air and gas streams, even in the presence of humidity and moisture. Each filter can be repeatedly cleaned and reused for long service life.

Pall Emflon PFR filters help protect your beer quality…from tank to bottle.

**Brewery CO\textsubscript{2} Filtration**
Pall Advanta™ Single-Cartridge Gas Filter Housings

Description
Pall Advanta gas filter T-flow housings are designed for economical air, gas and vent filtration and sterilization applications using a single open ended (SOE) AB sanitary style (10”, 20”, or 30”) code 7 filter cartridge. Pall Advanta housings incorporate design features that meet stringent requirements of the Food and Beverage industry.

Specifications
Materials
• Housing: 316L stainless steel
• Gasket: Silicone (other polymers available)

Surface Finishes
• Interior polished to 16 µin Ra.
• Exterior polished to 32 µin Ra.
• Exterior and interior electropolished

Filter Cartridges
Accepts one SOE AB Style 10”-30” (254-762 mm) AB style cartridge with Code 7 adapter

Configuration
• T-Type flow pattern

Housing Sealing Mechanism
• Stainless steel V-band clamp

Operating Conditions
Maximum Design and Operating Pressure and Temperature:
• 145 PSI (10 Bar)
• 284°F (140°C)

Sterilization
Steamable in situ and by autoclave.

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Pall Emflon PFR Membrane Cartridges and KLEENPAK™ Emflon Membrane Assemblies

Description
Pall Emflon PFR sterile air filter cartridges and KLEENPAK Emflon assemblies feature Pall’s advanced 0.2 µm polytetrafluoroethylene (PTFE) double layer membranes. They are designed to remove microbes (yeast, bacteria and viruses) and particles from air and gas streams, even in the presence of humidity and moisture. Available filter configurations include a sanitary single open ended (SOE) AB style and a capsule. Pall KLEENPAK Emflon assemblies are compact, self-contained filters in a rugged polypropylene construction designed for gas service. KLEENPAK Emflon is not suitable for in situ steaming.

Specifications
Materials
• Meet FDA requirements for food contact materials
• Membranes: double layer PTFE
• Support/Drainage/Core/Cage/End Caps/Adapters: Polypropylene
• Shell (capsule only): Polypropylene
• O-rings: silicone or Ethylene Propylene (EPDM) for capsules

Removal Ratings
Air/Gases: For cartridges: >0.003 µm, particulate rated by NaCl CNC particle analysis. Also, 100% of bacteria retention at 0.2 micron in liquids and gases. Virus retentive in gases. For capsules: >0.01 µm, particulate rated by equivalent tests.

Typical Continuous Air Service Life (AB style PFR only):
• 12 months to 166°F (60°C)

Filter Configurations

Small Flow
• 1-49 SCFM

KleenPak – Self contained capsule filter
• 1 ½” (38 mm) sanitary flange
• ½” (14 mm) hose barb

Operating Conditions
Max. differential pressure/perm for cartridges
• 50 psig (3.5 bar) to 100°F (40°C)

Large Flow
• 50-900 SCFM

Emflon PFR – Single open ended cartridge filter
• 10”, 20”, 30” elements

Requires filter housing

Operating Conditions
Max. differential pressure/perm for cartridges
• 77 psid (5.3 bar) at 68°F (20°C)
• 60 psid (4.1 bar) at 176°F (80°C)