

Bottled Water Filtration

Enables more rigorous process control to improve bottled water quality

Bottled water is the most popular drink in the world that claims to be healthier and more convenient. A main challenge of bottled water processing is to consistently produce a quality product free of particles and pathogenic organisms that could taint its quality, reduce its shelf life, and be a pathogenic threat to people.

To maintain the required high quality, bottled water manufacturers must utilize several filtration steps in bottled water production. These steps remove particles that affect bottled water clarity and remove potentially pathogenic organisms like cryptosporidium oocysts and other bacteria.

Applying Entegris technologies and expertise to your bottled water filtration processes will ensure peace of mind by enabling more rigorous process control as well as risk management.

TYPICAL WATER PRODUCTION PROCESS

Bottled water is usually divided into purified water or spring water. Each has different sources and requirements, therefore, is produced by different processes.

Purified Water

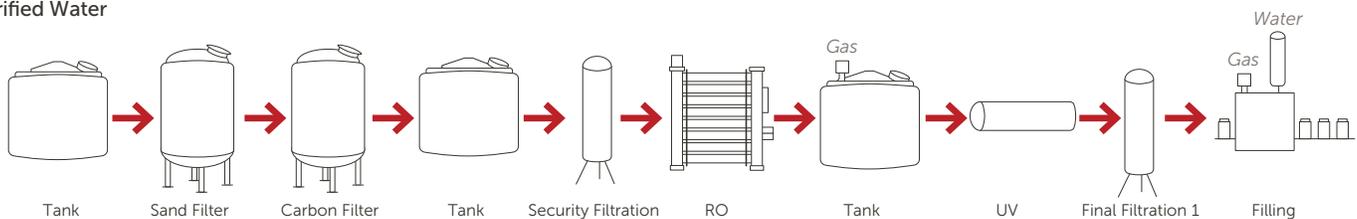


Figure 1. Typical purified water production process.

Spring Water

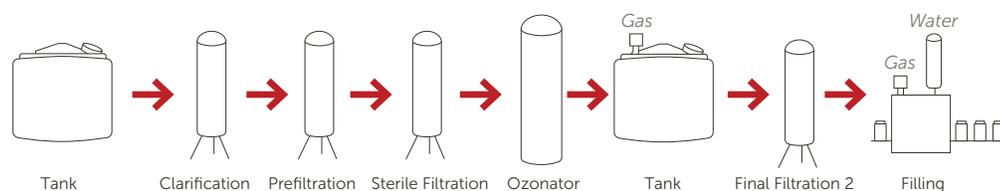


Figure 2. Typical spring water production process.



Purified water is also called deionized water, distilled water, or reverse osmosis water. It is essentially free of all chemicals and must not contain more than 10 parts per million of total dissolved solids and be free of microbes. Purified bottled water is mainly filtered by reverse osmosis to remove fine particles, organic, and metallic elements. Final filtration to remove bacteria is accomplished using sterilizing-grade filters, Figure 1.

Spring water preserves all essential minerals required by the human body in the right proportions. Spring bottled water is mainly filtrated to remove particles and microorganisms from the water and combined with ozone sterilization to ensure water sterility, Figure 2.

SEPARATION GOALS AND REQUIREMENTS

- Security filtration – removes particles such as carbon and sand over 10 microns, protects reverse osmosis (RO) system. Should provide consistent high flow rate, long service life, and is economical.
- Clarification – reduces bigger particles, intercepts most of the particle impurities, reduces the operation cost of production.
- Prefiltration – reduces fine particles and mold, algae, and protozoa, prolongs the life of sterile filters. Should withstand multiple cycles of hot water sanitization.
- Sterile filtration – removes fine particles, bacteria, and other microorganisms, extends the shelf life of bottled water. Should withstand multiple cycles of hot water sanitization.
- Final filtration – maintains reliable retention of microorganisms and particles that may come from the pipeline and upstream. Should withstand multiple cycles of hot water sanitization.
- CIP/rinse water filtration – reduces fine particles and microorganisms in the water. Should provide consistent high flow rates, excellent chemical compatibility, long service life, and is economical.
- Gas/vent filtration – removes particles and microorganisms from gas/air and ensures that the water stored will not be contaminated.

WATER PRODUCTION FILTRATION RECOMMENDATIONS

Entegris has filtration expertise and solutions for every filtration step during bottled water production. Our portfolio will help improve water quality and enhance your production experience.

Filtration step	Recommendation
Security filtration	Pharmsteri™ PP cartridge filters
Clarification	Pharmsteri PP cartridge filters
Prefiltration	Pharmsteri PP cartridge filters
Sterile filtration	Pharmsteri PES cartridge filters
Final filtration 1	Pharmsteri PES cartridge filters
Final filtration 2	Pharmsteri PTFE cartridge filters
CIP/rinse water	Pharmsteri PP cartridge filters
Gas/vent filtration	Pharmsteri PTFE cartridge filters



Pharmsteri cartridge filters.

All recommended products are manufactured in accordance with ISO 9001 and ISO 13485 certified quality management systems.

All recommended products meet the FDA indirect food additive requirements cited in 21 CFR 177-182.

All recommended products meet (EU) No.1935/2004, (EU) No.10/2011.

APPLICATION SUCCESSES

Entegris has helped numerous customers throughout the world apply filtration to their bottled water processes, and enabled them to successfully lower the risk of contamination and maintain more rigorous process control. To gain peace of mind in your process, contact Entegris.

FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit entegris.com and select the [Contact Us](#) link to find the customer service center nearest you.

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