

Bottled Water Everywhere: Keeping it Safe



Consumers have a big thirst for bottled water. The International Bottled Water Association says that, in 2009 alone, more than 8 billion gallons of it were consumed in the United States.

The U.S. Food and Drug Administration (FDA) regulates bottled water products, working to ensure that they're safe to drink.

FDA protects consumers of bottled water through the Federal Food, Drug, and Cosmetic Act (FD&C Act), which makes manufacturers respon-

sible for producing safe, wholesome, and truthfully labeled food products.

There are regulations that focus specifically on bottled water, including

- "standard of identity" regulations that define different types of bottled water
- "standard of quality" regulations that set maximum levels of contaminants—including chemical, physical, microbial, and radiological contaminants—allowed in bottled water
- "current good manufacturing practice" (CGMP) regulations that require bottled water to be safe and produced under sanitary conditions

Types of Bottled Water

FDA describes bottled water as water that's intended for human consumption and sealed in bottles or other containers with no added ingredients, except that it may contain a safe and suitable antimicrobial agent. (Fluoride may also be added within the limits set by FDA.)

The agency classifies some bottled water by its origin. Here are four of those classifications:

- **Artesian well water.** This water is collected from a well that taps an aquifer—layers of porous rock, sand, and earth that contain water—which is under pressure from surrounding upper layers

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of rock or clay. When tapped, the pressure in the aquifer, commonly called artesian pressure, pushes the water above the level of the aquifer, sometimes to the surface. Other means may be used to help bring the water to the surface.

- **Mineral water.** This water comes from an underground source and contains at least 250 parts per million total dissolved solids. Minerals and trace elements must come from the source of the underground water. They cannot be added later.
- **Spring water.** Derived from an underground formation from which water flows naturally to the surface, this water must be collected only at the spring or through a borehole that taps the underground formation feeding the spring. If some external force is used to collect the water through a borehole, the water must have the same composition and quality as the water that naturally flows to the surface.
- **Well water.** This is water from a hole bored or drilled into the ground, which taps into an aquifer.

Bottled water may be used as an ingredient in beverages, such as diluted juices or flavored bottled waters. However, beverages labeled as containing “sparkling water,” “seltzer water,” “soda water,” “tonic water,” or “club soda” aren’t included as bottled water under FDA’s regulations. These beverages are instead considered to be soft drinks.

It May Be Tap Water

Some bottled water also comes from municipal sources—in other words, the tap. Municipal water is usually

treated before it is bottled. Examples of water treatments include

- **Distillation.** Water is turned into a vapor, leaving minerals behind. Vapors are then condensed into water again.
- **Reverse osmosis.** Water is forced through membranes to remove minerals.
- **Absolute 1 micron filtration.** Water flows through filters that remove particles larger than one micron—.00004 inches—in size. These particles include *Cryptosporidium*, a parasitic pathogen that can cause gastrointestinal illness.
- **Ozonation.** Bottlers of all types of waters typically use ozone gas, an antimicrobial agent, instead of chlorine to disinfect the water. (Chlorine can add residual taste and odor to the water.)

Bottled water that has been treated by distillation, reverse osmosis, or another suitable process may meet standards that allow it to be labeled as “purified water.”

Ensuring Quality and Safety

Federal quality standards for bottled water were first adopted in 1973. They were based on U.S. Public Health Service standards for drinking water set in 1962.

The 1974 Safe Drinking Water Act gave regulatory oversight of public drinking water (tap water) to the U.S. Environmental Protection Agency (EPA). FDA subsequently took responsibility, under the FD&C Act, for ensuring that the quality standards for bottled water are compatible with EPA standards for tap water.

Each time EPA establishes a stan-

dard for a contaminant, FDA either adopts it for bottled water or finds that the standard isn’t necessary for bottled water.

In some cases, standards for bottled water and tap water differ. For example, because lead can leach from pipes as water travels from water utilities to home faucets, EPA has set its limit for lead in tap water at 15 parts per billion (ppb). For bottled water, for which lead pipes aren’t used, the lead limit is set at 5 ppb.

For bottled water production, bottlers must follow the CGMP regulations put in place and enforced by FDA. Water must be sampled, analyzed, and found to be safe and sanitary. These regulations also require proper plant and equipment design, bottling procedures, and record keeping.

In addition, FDA oversees inspections of bottling plants. The agency inspects bottled water plants under its general food safety program and has states perform some plant inspections under contract. (Some states also require bottled water firms to be licensed annually.) 

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