

Robson Forensic

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How Safe Is My Bottled Water?

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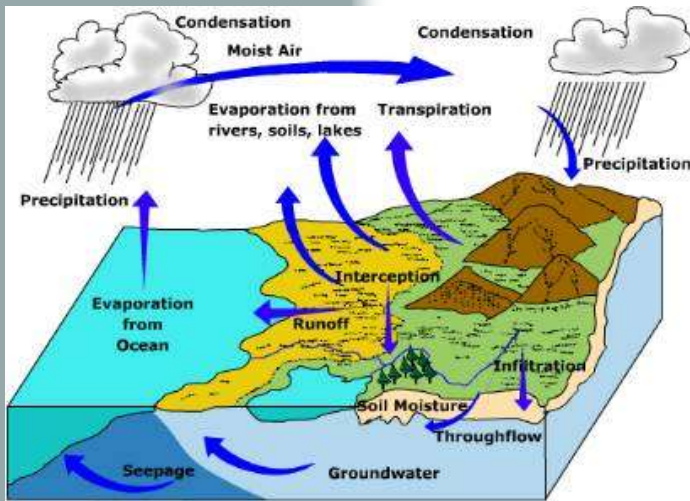
A national investigation and consulting firm of forensic experts in more than 50 targeted disciplines to provide scientific analysis, testing and expert testimony in litigation and insurance claims.

Bottled Water and You: The Basics



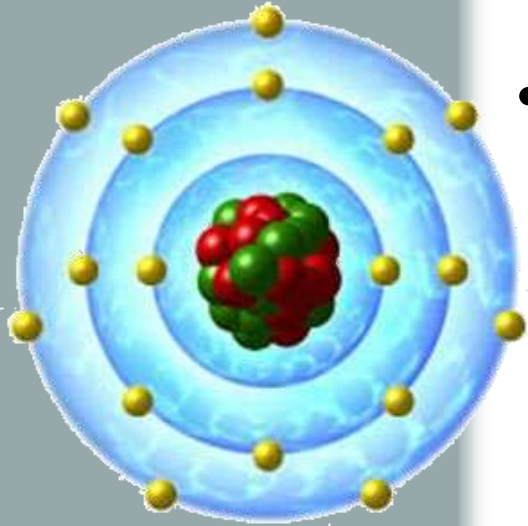
- Bottled water is the fastest growing drink choice in the United States, and Americans spend billions of dollars each year to buy it
- Some people drink bottled water as an alternative to other beverages; others drink it because they prefer its taste or think it is safer than their tap water
- The taste of water has to do with the way it is treated and the quality of its source, including its natural mineral content

Bottled Water and You: The Basics

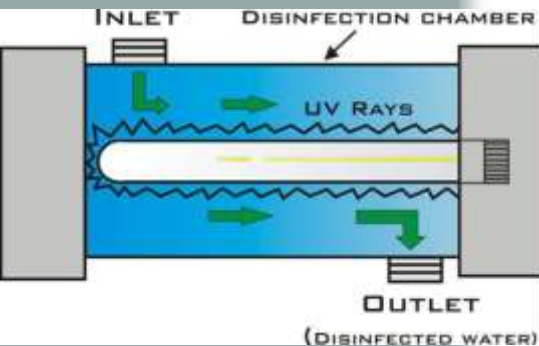


- Most bottled water comes from a ground water source, where water quality varies less from day to day, or is treated and immediately bottled
- One of the key taste differences between tap water and bottled water is due to how the water is disinfected
- Tap water may be disinfected with chlorine, chloramine, ozone, or ultraviolet light to kill disease-causing germs

Bottled Water and You: The Basics



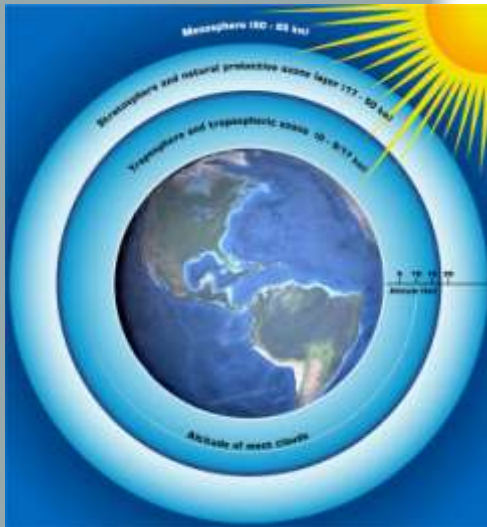
- Water systems use these disinfectants chlorine and chloramine because they are effective and inexpensive, and they continue to disinfect as water travels through pipes to homes and businesses.
- Bottled water that is disinfected is typically disinfected using ozone or other technologies such as ultraviolet light or chlorine dioxide.



Bottled Water and You: The Basics



- Ozone is preferred by bottlers, though it is more expensive than chlorine
- Bottlers prefer it because it does not leave a taste and because bottlers are not required to maintain a disinfectant in water sealed in a container
- Untreated water, whether from a bottle or from a tap, will have the characteristic taste of its source



Who Makes Sure That Bottle Water Is Safe to Drink?



- U.S. Food and Drug Administration (FDA) regulates bottled water as a packaged food under the Federal Food, Drug and Cosmetic Act
- The FDA has established standards of identity and quality for bottled water.

- FDA has also established good manufacturing practice requirements for processing and bottling drinking water.
- To make sure that all water is safe to drink, the EPA and the FDA set drinking water standards.
 - EPA sets standards for tap water provided by public water suppliers
 - FDA sets standards for bottled water based on EPA standards

Who Makes Sure That Bottle Water Is Safe to Drink?

FDA Consumer Health Information
www.fda.gov/oc/ohi

Bottled Water Everywhere: Keeping it Safe



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

The U.S. Food and Drug Administration (FDA) regulates bottled water products, making 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 responsible for producing safe, wholesome, and truthfully labeled food products.

There are regulations that specifically address 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 treated for human consumption and sealed in bottles or other containers with no added ingredients, except that it may contain a safe and viable 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.

U.S. Food and Drug Administration | www.fda.gov/oc/ohi

- FDA regulates bottled water as a packaged food under the Federal Food, Drug and Cosmetic Act
 - Establishes the standards of identity and quality for bottled water
- FDA has also established good manufacturing practice requirements for processing and bottling drinking water

Know what you're buying



- Many people prefer bottled water because of its taste
- The taste of water has to do with the way it is treated and the quality of its source, including its natural mineral content

- Most bottled water comes from a ground water source, where water quality varies less from day to day, or is treated and immediately bottled
- Bottled water from a dedicated source or plant may have a more consistent taste than tap water, which mostly comes from surface sources and must travel through pipes to reach homes.

Know what you're buying

- Bottled water is much more expensive, per gallon, than tap water.
- Consider whether you are buying it as a healthy alternative to bottled beverages, for its taste, or for other reasons.



Type of Water and Source



- These terms refer to both the geological sources of the water and the treatment methods applied to the water
- The terms don't necessarily describe the geographic location of the source or determine its quality

- For instance, “spring water” can be collected at the point where water flows naturally to the earth’s surface or from a borehole that taps into the underground source
- Other terms used on the label about the source, such as “glacier water” or “mountain water,” are not regulated standards of identity and may not indicate that the water is necessarily from a pristine area

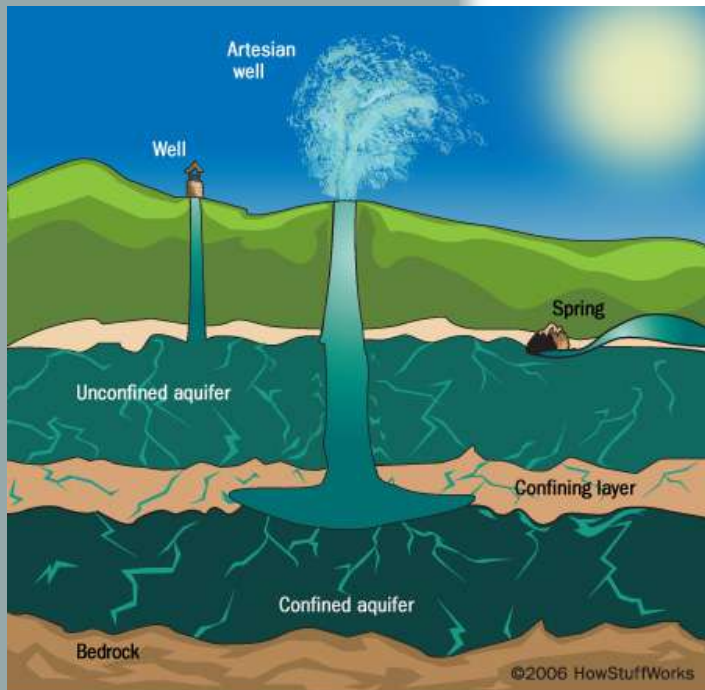
Type of Water and Source

- Likewise, the term, “purified,” refers to processes that remove chemicals and pathogens



- “Purified water” is not necessarily free of microbes – though it may be

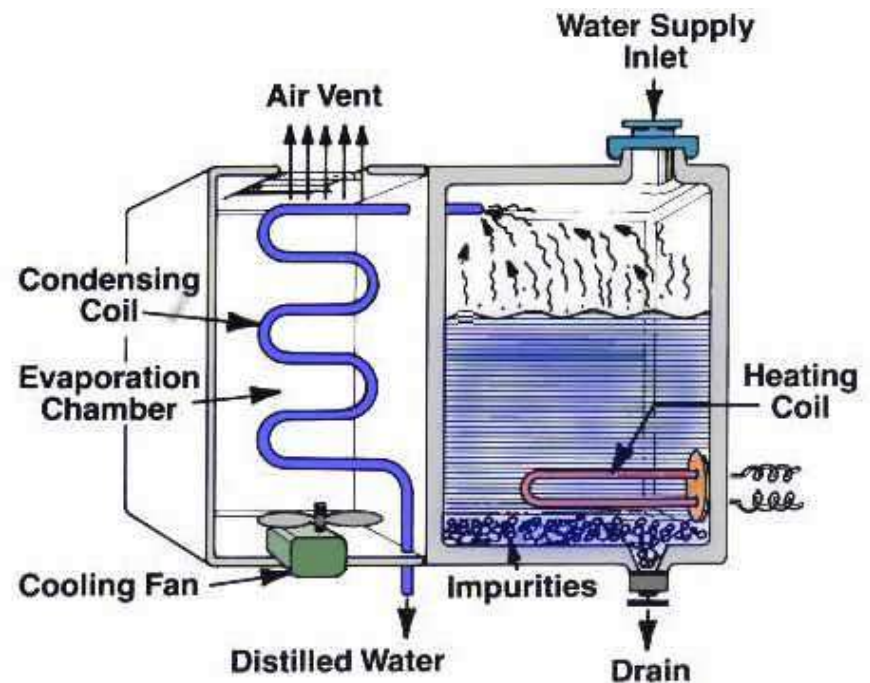
Bottled Water Terms



- ***Artesian water, ground water, spring water, well water*** - water from an underground aquifer which may or may not be treated
- Well water and artesian water are tapped through a well. Spring water is collected as it flows to the surface via a borehole
- Ground water can be either

Bottled Water Terms

- ***Distilled water*** - steam from boiling water is recondensed and bottled
- Distilling water kills microbes and removes water's natural minerals, giving it a flat taste



Bottled Water Terms



- ***Drinking water*** – water intended for human consumption and sealed in bottles or other containers you with no ingredients except that it may optionally contain safe and suitable disinfectants
 - Fluoride may be added within limitations set in the bottled water quality standards





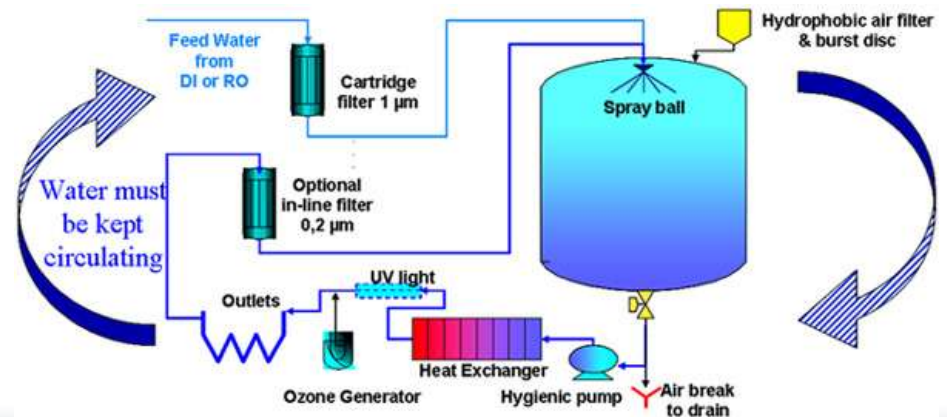
Bottled Water Terms

- ***Mineral water*** – Ground water that naturally contains 250 or more parts per million of total dissolved solids
- ***Sterile water*** - water that originates from any source, but has been treated to meet the U.S. Pharmacopeia standards for sterilization
 - Sterilized water is free from all microbes



Bottled Water Terms

- ***Purified water*** - water that originates from any source
- Purified water is essentially free of all chemicals (it must not contain more than 10 parts per million of total dissolved solids),
 - and may also be free of microbes if treated by distillation or reverse osmosis
- Purified water may alternately be labeled according to how it is treated



Bottled Water Terms

- ***Carbonated water, soda water, seltzer water, sparkling water, and tonic water are considered soft drinks and are not regulated as bottled water***



Bottled Water: Read the Label



- Bottlers must list on the label the type of bottled water (such as spring water, mineral water, or drinking water)
- If the water comes from a public water system and has not been treated to meet FDA's definition of "purified" or "sterile" water, the label must state that the source is from a community water system
- The best way to know if the water you are drinking is free from the contaminant(s) you are concerned about is to contact the bottler and ask for the latest testing results and whether the water has been treated to remove the contaminant

Certification

- Neither EPA nor FDA certify bottled water



- However, consumers may notice a logo or seal from two other organizations on the label

Certification



IBWA
INTERNATIONAL
BOTTLED WATER
ASSOCIATION

- The International Bottled Water Association (IBWA) is a trade organization for water bottlers.
 - IBWA members must meet the organization’s “model code” and are subject to annual inspections by an independent third party.
 - Bottlers belonging to IBWA frequently indicate membership on their labels.
- NSF International - Bottled water certified by NSF undergoes additional testing by unannounced annual plant inspections
 - NSF certifications mean that the bottler/complies with all applicable FDA requirements, including good manufacturing practices



Certification

- Underwriters Laboratories Inc. (UL) is an independent accredited testing and certification organization that tests bottled water to FDA, state, and IBWA model code requirements



FDA Bottled Water Standards



FDA Bottled Water Standards

- Bottled water sold in interstate commerce in the United States including products that originate overseas must meet federal standards
 - Check with your health department to see what bottled water standards exist for brands produced, bottled, and sold entirely in one state
- Bottled water must meet FDA standards for physical, chemical, microbial, and radiological contaminants
- When EPA sets a new standard for a contaminant in tap water, FDA must establish a new standard for the same contaminant in bottled water or find that EPA's new standard is not applicable to bottled water

FDA Bottled Water Standards



- Bottlers must include the name of the product and type of water; the name and address of the manufacturer, packer, or distributor; and the net content on their labels
- New bottled water sources must be approved by a state or local jurisdiction
- Bottlers must also test their sources and finished bottled water products at least once a week for microbiological contaminants and at least once a year for physical, chemical, and radiological contaminants

FDA Bottled Water Standards

- If bottled water is found to be adulterated or hazardous to health, it is subject to FDA enforcement action, such as seizure of domestic products and refusal of entry of imports
- Bottlers must operate their plants in accordance with FDA's good manufacturing practices to ensure that their bottled water products are safe and produced under safe and sanitary conditions

GMP
TRAINING
SYSTEMS



Questions?

Thank you for having me!

Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

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