

## BOTTLED WATER

The Canadian Bottled Water Association defines bottled water as water that meets all federal and provincial regulations for potable water, is sealed in a sanitary container, and is sold for human consumption. Potable means that the water is safe for human consumption. However, the regulations for bottled water are not the same as those for tap water. The quality of tap water follows the Canadian Drinking Water Quality Guidelines, but they are only guidelines, not enforced by law. Bottled water is regulated under the Food and Drugs Act of Canada and is enforceable by law. However, while the bottled water regulations are law, the tap water guidelines are more stringent and thorough than any regulations for bottled water.



**Various Brands of Bottled Water;**

<http://www.allergybegone.com/newsletter-aug2005-html.html>

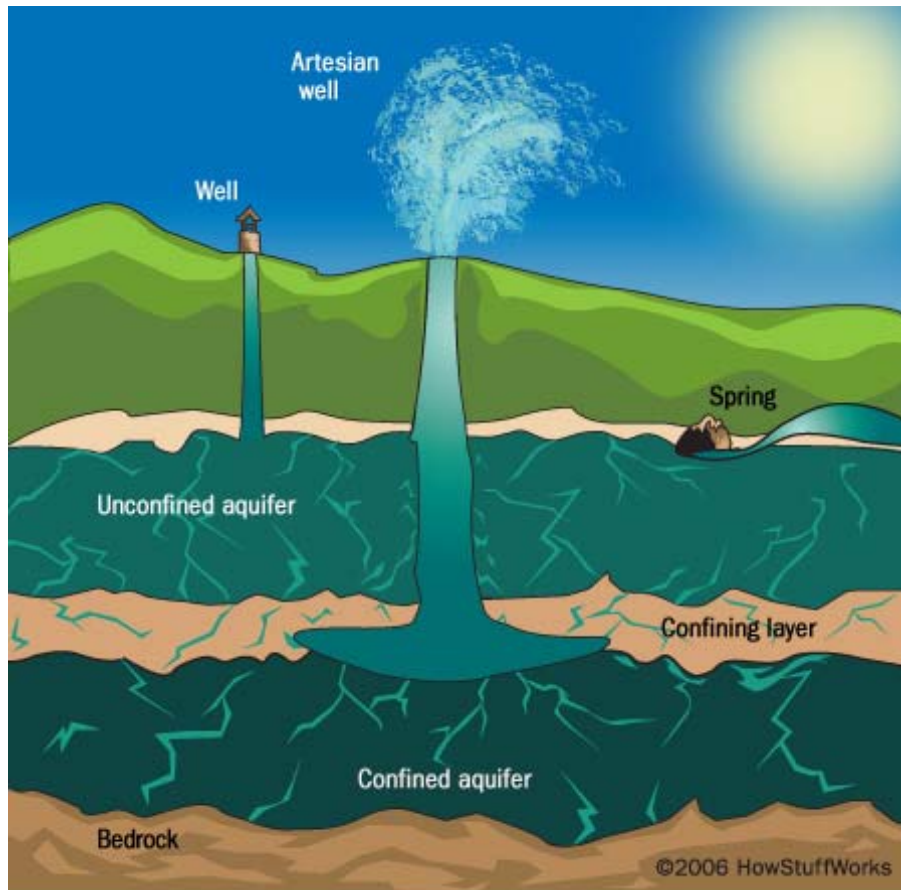
### What kind of water am I drinking?

There are many different kinds of bottled waters, and each one has specific requirements regarding its origin, composition and treatment. Spring water comes from an underground source from which the water flows naturally to the surface and has less than 500 parts per million of total dissolved solids (TDS). Mineral water is the same as spring water, except that it has more than 500 parts per million of TDS. In the United States, spring water must have less than 250 parts per million of TDS. Spring water and mineral water may or may not be treated. Only spring water and mineral water must be potable at its source; all other types of bottled water do not have to be potable at the water source.

Well water is water which would meet the definition of spring water, except that it does not flow naturally to the surface, and must be drilled in order to obtain the water. Well water comes from an unconfined aquifer, which is a supply of underground water that has an impermeable layer of clay or rock beneath it.

Artesian well water rises under its own pressure from a confined aquifer, which is a supply of underground water that has an impermeable layer of clay or rock beneath it and above it. Artesian water has to be drilled in order to access it. For more information about groundwater and aquifers, see the [Groundwater](#) fact sheet.

Distilled water is from the steam that is collected from boiling water; the steam is recondensed and bottled. Distilled water will not contain any microbes or natural minerals that exist in water. Purified water can come from any source, but has been treated to be free of chemicals; in the United States, purified water must have less than ten parts per million of TDS. Purified water may or may not contain any microbes; this depends upon the type of treatment that has been used. Purified water can be treated by a variety of processes, including filtration, distillation, deionization and reverse osmosis. If the water has been treated by distillation or reverse osmosis, it will be free of all microbes.



**Tapping Groundwater Sources;**  
<http://home.howstuffworks.com/bottled-water1.htm>

Sterile water can originate from any water source, but is treated to inactivate all microbes from the water. Any water that is labeled simply as “drinking water” is water that is intended for human consumption, and has no added ingredients except optional safe and suitable disinfectants. Fluoride may be added, provided that the total amount of fluoride is within the national guidelines for fluoride in drinking water. For a summary of the many types of bottled water that is available, see the CBC article, [Bottled Water: What’s in a label?](#)

### How is bottled water regulated?

In Canada, bottled water is regulated under the Federal Food and Drugs Act, because once water is put into a sealed container, it is considered a food product. Below is a summary of Division 12, which regulates bottled water in Canada.

Section	What it means
B.12.001	Mineral water and spring water must be from a groundwater source (not from a public community supply) and cannot contain any coliform bacteria. The composition of mineral water and spring water cannot be modified by adding chemicals, but carbon dioxide, fluoride and ozone can be added.
B.12.002	Labels on mineral water and spring water must include the location where the water came from, the amount of total dissolved salt content, the total fluoride content and if fluoride or ozone were added.

Section	What it means
B.12.003	If carbon dioxide is added to mineral water or spring water, the water must be labeled as carbonated water.
B.12.004	If the water contains any coliform bacteria, more than 100 total aerobic bacteria per millilitre, naturally occurring fluoride ions in an amount greater than its natural amount, or total fluoride amounts greater than one part per million, the water cannot be sold.
B.12.005	Prepackaged ice for sale cannot contain any coliform bacteria, naturally occurring fluoride ions in an amount greater than its natural amount, or total fluoride amounts greater than one part per million.
B.12.006	Besides mineral water and spring water are the following classifications: a. Distilled water means the water has been treated through distillation (vapourization and condensation). b. Demineralized water is water that has been treated by a method other than distillation, so that the mineral content is less than 10 parts per million. c. Carbonated water means that carbon dioxide has been added to the water.
B.12.007	Other than water that is represented as mineral water or spring water, if chlorine has been used in treating the water, but have been removed from the water, chlorine or compounds of chlorine do not have to be listed as ingredients.
B.12.008	Other than water that is represented as mineral water or spring water, total fluoride content must be shown on the label.
B.12.009	Other than water that is represented as mineral water or spring water, any treatments must be shown on the label, except: a. addition of any ingredient which is included on the ingredient list. b. chlorination, followed by the removal of chlorine and compounds of chlorine. c. decantation. d. filtration.

### Canadian Food and Drug Act Regulations for Bottled Water

There is one other regulation that is not explicitly stated in the above regulations. Bottled water products are not permitted to contain any *Pseudomonas aeruginosa*, which are bacteria that can be found in source waters, and has been found to be responsible for gastrointestinal illnesses.

Of these nine regulations for bottled water, five regulations deal with labeling requirements and one regulates prepackaged ice, leaving only three regulations for bottled water quality. The three that deal with water quality are B.12.001, which regulates the source of mineral and spring water, B.12.004, which states the maximum concentration of bacteria that can be in bottled water, and B.12.006, which states the regulations for bottled water, other than mineral and spring water. These three conditions are not sufficient, to ensure that there are no bacteria, parasites or viruses in the water. It is a common myth that, as long as fecal coliforms are not present, the water is safe for drinking. Chemical contaminants, for example, cannot be detected through fecal coliform presence.

Under the Food and Drugs Act, the federal government is permitted to take action when products pose a health hazard to consumers. And since Canada uses the Guidelines for Canadian Drinking Water Quality to assess the quality of tap water, bottled water manufacturers are typically expected to ensure that chemical and radiological contaminants do not exceed the maximum acceptable concentrations, as set out in the Guidelines for Canadian Drinking Water Quality.

However, there is very little accountability to ensure that bottle water manufacturers do follow the Guidelines. Inspectors from the Canadian Food Inspection Agency visit a water bottling plant once in a 12 to 18 month period. As well, there is nothing to regulate how often bottled water must be tested for bacterial, chemical or radiological contaminants. In the United States, water bottling plants must test source waters and finished products at least once per week for microbiological contaminants and at least once per year for physical, chemical and radiological contaminants. The Canadian Bottled Water Association (CBWA) sets out a stringent code of practices for its members, but membership is voluntary and CBWA membership is not written on the label of the bottle.

In a recent study, the Natural Resources Defense Council (NRDC), in the United States, studied the differences between drinking water and tap water. In the report, they discuss a contamination issue that arose in Massachusetts several years ago. This case illustrates the lack of accountability within the bottled water industry. A commercial well, located in the parking lot of an industrial warehouse, was supplying "spring water" to several bottling manufacturers; the well was also located near a hazardous waste site. On multiple occasions between 1993 and 1996, the well water was found to contain high levels of trihalomethanes and other contaminants. The trihalomethane levels consistently exceeded the standards set by both the Environmental Protection Agency (EPA) and the Food and Drug Administration (FDA) for tap and bottled water. This company continued to sell the water without investigating the cause of contamination, and no one permitted them from operating either! The issue continued until an employee within the company revealed the issue to the public; today, the well is no longer used.

The regulations for bottled water are much less stringent than the guidelines are for tap water. The following table summarizes some significant differences between the EPA regulations for tap water and the FDA regulations for bottled water in the United States.

Water Type	Disinfection Required?	Confirmed <i>E. coli</i> & Fecal Coliform Banned?	Testing Frequency for Bacteria?	Must Filter to Remove Pathogens, or Have Strictly Protected Source?	Must Test for <i>Cryptosporidium</i> , <i>Giardia</i> , Viruses?	Testing Frequency for Most Synthetic Organic Chemicals?	Operator Must be Trained & Certified?	Must Use Certified Labs to Do Testing?	Must Report Violations to State, Feds?
Bottled Water	No	No	1/week	No <sup>a</sup>	No	1/year	No	No	No
Carbonated or Seltzer Water	No	No	None	No	No	None	No	No	No
Big City <sup>b</sup> Tap Water (using surface water)	Yes	Yes	Hundreds/month	Yes	Yes	1/quarter (limited waivers available if clean source)	Yes <sup>c</sup>	Yes	Yes
Small Town <sup>d</sup> Tap Water (using a well)	If needed	Yes	20/month	No (unless subject to surface contamination)	No	1/quarter (waivers available if clean source)	Yes <sup>c</sup>	Yes	Yes

- a. FDA requires state or local approval of bottled water sources, but there is no federal definition or control of what may be a bottled water source; the FDA "approved source" requirement thus has been called a "regulatory mirage."
- b. Big city refers to city systems serving 100,000 people or more. A big city using only wells would have to comply with all requirements noted for a surface water-supplied city, except that if its wells were not under the influence of surface water, it currently would not have to disinfect, filter, or test for *Cryptosporidium*, *Giardia*, or viruses. A new rule for such groundwater-supplied systems must be issued in 2002, which may require some cities using wells to disinfect or filter and do additional microbial monitoring.
- c. The Safe Drinking Water Act Amendments of 1996 require states, subject to EPA guidelines, to train and certify operators of all public water systems. EPA's rules to implement this provision are required to be issued by February 1999.
- d. Small town refers to a town of 20,000 people. Such a small town using surface water would have to comply with all the same requirements noted for a large city using surface water, except the monitoring frequency for coliform would be 20/month, and there currently are no *Cryptosporidium*, *Giardia*, or virus monitoring requirements for small towns.

#### Comparison Between United States Regulations for Tap and Bottled Water;

<http://www.nrdc.org/water/drinking/bw/table1.html>

There are some important differences to notice from this chart, including the fact that bottled water does not have to be disinfected, tested for viruses, or use certified operators and labs. While the drinking water guidelines in Canada are less stringent than the standards in the United States, there is still a significant difference between Canadian drinking water guidelines and the bottled water regulations. For example, in Toronto, drinking water is tested every four hours for bacteria; in 2004, the tap water in New York City was tested 430,600 times!

There are many contaminants that are more strictly regulated for tap water, including fecal coliform bacteria. Tap water is not allowed to have any *E. coli* or fecal coliform bacteria. The presence of fecal coliforms is usually used as an indicator that there may be dangerous pathogens in the water. The following chart summarizes some of the differences between the regulations in the United States for bottled and tap water.

Contaminant	EPA Tap Water Standard (parts per billion)	FDA Bottled Water Standard (parts per billion)	Bottled Water vs. Tap Water Standard
<i>E. coli</i> or Fecal Coliform	No confirmed samples of <i>E. coli</i> or fecal coliform allowed	Up to 1 of 10 bottles tested may contain specified levels of any type of coliform, subject to conditions	Bottled Water weaker
<i>Giardia lamblia</i> , <i>Legionella</i> , Heterotrophic-Plate-Count (HPC), Viruses	Dependent on treatment technique	No Standards	Bottled Water weaker
Fluoride	4,000	Range from 800 to 2,400	Bottled Water stricter
Copper	Dependent on treatment technique	1,000	Bottled Water stricter
Lead	Dependent on treatment technique	5	Bottled Water stricter
Phthalate	6	No Standard	Bottled Water weaker
Trihalomethanes	80	100	Bottled Water weaker

**Differences Between United States Regulations for Tap and Bottled Water;**

<http://www.nrdc.org/water/drinking/bw/chap4.asp>

As well, several contaminants, including asbestos and bromate, are required to be monitored in tap water, but not in bottled water. Just like with drinking water, each country or region can have different guidelines or standards regarding the quality of bottled water. The European standards for bottled water are stricter than the standards and guidelines in Canada and the United States. Bottled water that is imported into Canada must follow the regulations for bottled water under the Food and Drug Act.

**Is bottled water really any safer than tap water then?**

Most experts will agree that, in most regions of developed countries, municipally treated drinking water is just as safe as, or safer than bottled water, at a fraction of the price. There are several myths that bottled water companies are very good at perpetuating.

First, there is the groundwater source myth; the International Bottling Water Association states, in their fact sheets, that "[b]y law, [spring and wells] must be protected from surface intrusion and other environmental influences. This requirement ensures that surface water contaminants such as *Cryptosporidium* and *Giardia* are not present." ([http://www.bottledwater.org/public/BWFactsHome\\_main.htm](http://www.bottledwater.org/public/BWFactsHome_main.htm)). While water from groundwater sources is less likely to contain *Cryptosporidium* and *Giardia* than surface waters, there have, in the past, been outbreaks of cryptosporidiosis and giardiasis, due to contamination of groundwater. Groundwater can become contaminated in a number of ways, including leaching from landfills, infiltration of pesticides on farms and industrial sources. For more information about groundwater contamination, see the [Groundwater](#) fact sheet. As well, the water can become contaminated as it is bottled, if proper care is not taken. While source water protection

does help to protect the quality of the water, it is the type of treatment that ensures that there will not be any *Cryptosporidium* or *Giardia* in the water, not the source. In fact, the following table summarizes the treatment processes that the Centers for Disease Control and Prevention (CDC) in the United States list as effective and ineffective against *Cryptosporidium*.

Water so labeled has been processed by method effective against <i>Cryptosporidium</i>	Water so labeled may not have been processed by method effective against <i>Cryptosporidium</i>
Reverse osmosis treated	Filtered
Distilled	Micro-filtered
Filtered through an <i>absolute</i> 1 micron or smaller filter	Carbon-filtered
"One micron absolute"	Particle-filtered
	Multimedia-filtered
	Ozonated
	Ozone-treated
	Ultraviolet light-treated
	Activated carbon-treated
	Carbon dioxide-treated
	Ion exchange-treated
	Deionized
	Purified
	Chlorinated

**Treatment Processes Which Are Effective against *Cryptosporidium*;**

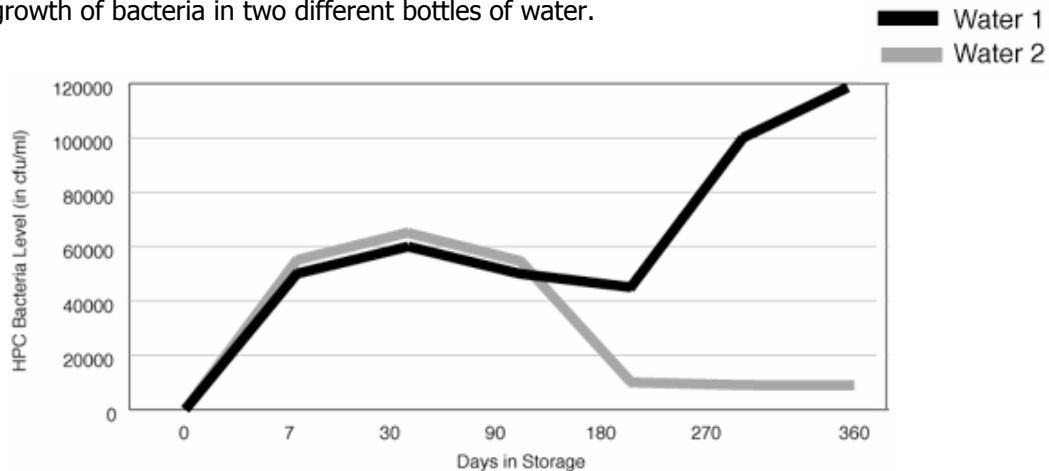
[http://www.cdc.gov/parasites/crypto/gen\\_info/filters.html](http://www.cdc.gov/parasites/crypto/gen_info/filters.html)

Another common myth about bottled water is the origin; only mineral water and spring water must come from a groundwater source. In the United States, it is estimated that more than 25 percent of all bottled water is from tap water. To produce Dasani water, Coca-cola takes water from surface waters in Calgary, Alberta, and Brampton, Ontario, filters it five times and adds minerals to the water. Pepsi uses water from Vancouver, British Columbia, and Mississauga, Ontario, to produce Aquafina water. Recently, an American campaign called the Think Outside the Bottle campaign, has been informing the public of the source of Aquafina water, and urging Pepsi to explicitly include the source on the labels of the bottles. In July 2007, Pepsi agreed to write "Public Water Source" on their bottles of Aquafina water.

A third myth is that bottled water is better because it contains fewer chemicals than tap water. In the United States, many of the tap water and bottled water standards are the same for chemical contaminants. The only ones that are stricter for bottled water are copper, fluoride and lead. And fluoride is, to a certain extent, healthy. A study by the CDC concluded that fluoride was a healthy addition to tap water, and recommended that bottled water manufacturers include total fluoride on the labels of bottles. There is much speculation that children who drink bottled water are more likely to get cavities than children who drink tap water, as most municipalities add fluoride to their drinking water.

Many people buy bottled water because they dislike chlorine in their drinking water, whether for health or aesthetic concerns. However, small amounts of chlorine in water can keep it safe for drinking. When water goes through the chlorination process, a small amount is left in the water, so that it remains safe as the water travels from the water treatment facility to the tap. Ozonation is a process that many bottled water companies choose to use, because ozone is an

effective disinfectant and does not change the taste of the water, as chlorination does. However, ozonation treatment does not remain effective as long as chlorine does. Depending on storage temperature, bacteria can multiply fairly quickly in bottled water. The following graph illustrates the rapid growth of bacteria in two different bottles of water.



**HPC Bacteria Growth in Two Stored Bottles of Water;**

<http://www.nrdc.org/water/drinking/bw/chap3.asp#figure8>

Studies have shown that, after just one week in storage, total bacteria counts can increase 1000-fold or more in mineral water. Still water stored in plastic containers appears to allow bacteria levels to grow more quickly than gasified water in glass containers.

As well, while bottled water companies perpetuate the idea that bottled water has no chlorine in it, there have been chlorine by-products found in bottled water. In fact, the American guideline for trihalomethanes (abbreviated THMs; these are potentially dangerous by-products of chlorine) is stricter for tap water than for bottled water.

### Do people actually get sick from drinking bottled water?

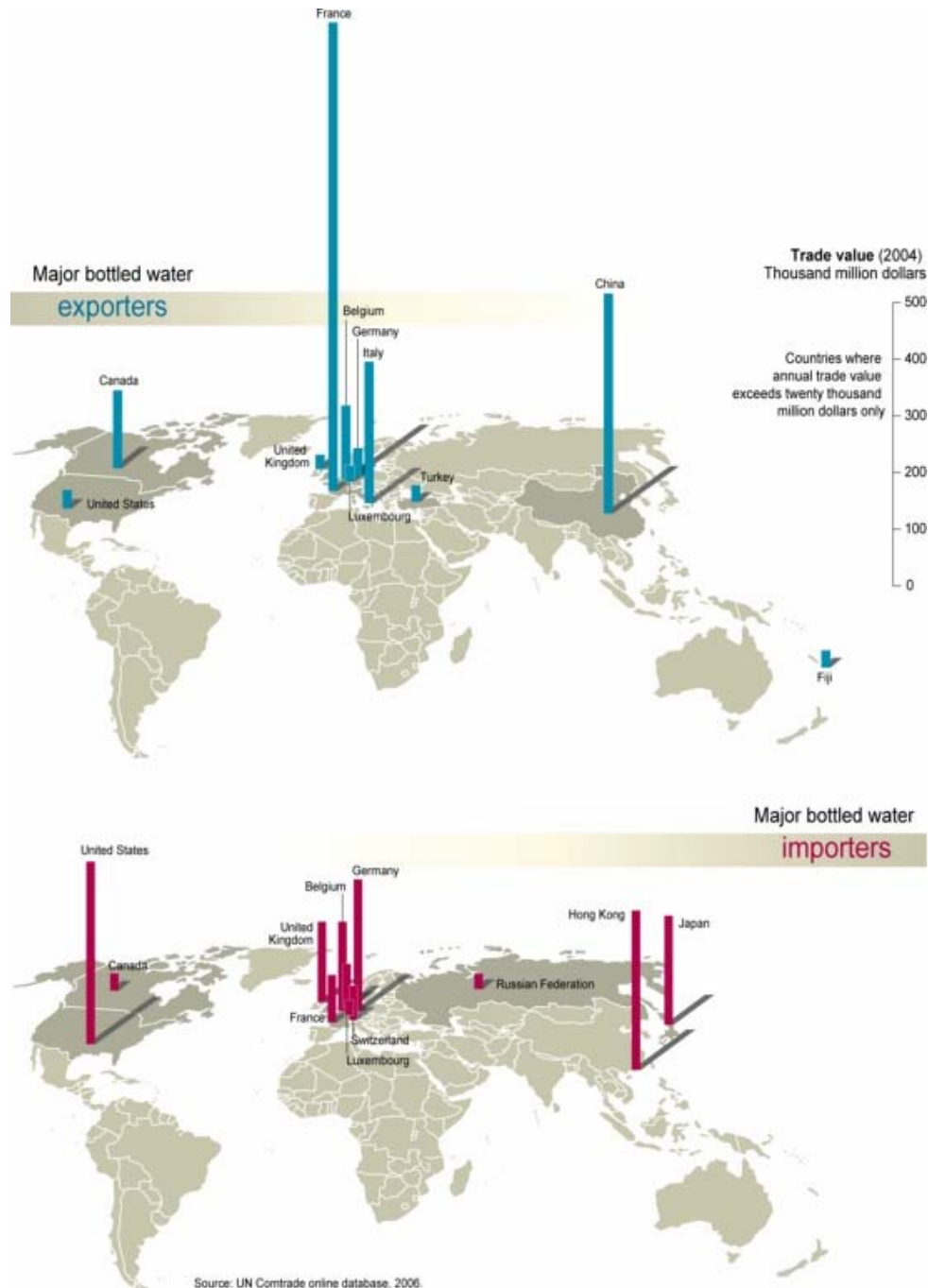
There have been multiple waterborne disease outbreaks from contaminated bottled water. The CDC documented a cholera outbreak in the 1970s in Portugal. The contaminated water source of a bottled water company resulted in 2,467 hospitalized cases of cholera and 48 deaths. A small number of these people became ill after attending a spa which was fed with the same water source as the bottled water, but the majority of the illnesses were attributed to the bottled water.

In 1994, a cholera outbreak occurred in a United States territory in the Marianas Islands. Approximately one-third of the residents on the island drank the brand of bottled water, which was contaminated with *Vibrio cholerae*. Thousands may have been exposed to the bacteria, but at least 11 became ill (four of whom had to be hospitalized). In the past, the company that produced the bottled water had been in trouble for not cleaning the bottles properly.

In 2004, Coca-cola recalled its entire line of Dasani bottled water from the British market after bromate levels were found to exceed the legal standards. In March 2007, the Canadian Food Inspection Agency issued a warning for excessive arsenic levels in an imported brand of mineral water. Some bottled water recalls and warnings are kept relatively private, so that the public remains unaware. In other circumstances, bottled water manufacturers use practices that do not protect the water against contamination; these practices can remain unnoticed for extended periods of time, due to the lack of accountability in the bottled water industry.

Who drinks bottled water? How big is the bottled water market?

The map below shows the amounts of bottled water exports and imports in various regions of the world. Western Europe produces large quantities of bottled water (large exporters), but they are also large consumers of bottled water (large importers).



**Major Exporters and Importers of Bottled Water;**

Emmanuelle Bournay; UN Comtrade online database, 2006;

[http://maps.grida.no/go/graphic/major\\_bottled\\_water\\_exporters\\_and\\_importers](http://maps.grida.no/go/graphic/major_bottled_water_exporters_and_importers).

The following table shows the per capita consumption of bottled water in various regions of the world between 2000 and 2003. North Americans, in general, are among the top consumers of bottled water, yet low production in North America requires Canada and the United States to import much of their bottled water.

Region	Per capita consumption (litres)			
	2003	2002	2001	2000
Africa & Middle East	11	10	9	9
Asia	10	9	7	6
Australia	35	33	37	33
Canada	47	41	29	26
East Europe	24	21	17	15
Latin America	51	50	53	50
USA	90	85	74	67
West Europe	112	102	97	93
<b>TOTAL</b>	<b>380</b>	<b>351</b>	<b>323</b>	<b>299</b>

**Per Capita Consumption of Bottled Water in Various Regions of the World;**

Zenith International and Beverage Marketing Corporation;  
[http://www.icbwa.org/2000-2003\\_Zenith\\_and\\_Beverage\\_Marketing\\_Stats.pdf](http://www.icbwa.org/2000-2003_Zenith_and_Beverage_Marketing_Stats.pdf)

In 2005, Canadians spent \$652.7 million to consume 1.9 billion litres of bottled water. That works out to about 60 litres per capita in one year. The city of Toronto estimates that one litre of tap water in Canada costs less than one-tenth of a cent. Bottled water costs range from 240 more than 10,000 times more than tap water costs.

A 1993 American poll found that 35 percent of people who drank bottled water did so primarily because of concerns about tap water quality. Another 12 percent of people drank bottled water because of health concerns and because they wanted a beverage substitute for juice or pop. That leaves 53 percents of bottled water drinkers who were not concerned about tap water quality, but were still buying bottled water. Those statistics may have changed after the *Cryptosporidium* outbreak in Milwaukee in 1993 that killed more than 100 people and the *E. coli* outbreak in Walkerton in 2000 that killed seven people, but there are still many people who buy bottled water for the sake of appearances.

The manufacturing of bottled water is a large industry, and is continuing to grow and expand. In 2000, there was reported to have been 119.8 trillion litres of bottled water produced in the world; in 2003, that number was up to 153.1 trillion litres of bottled water! In 2003, the production value of bottled water was \$45.8 billion! In 2000, the bottled water market in the United States alone was worth \$5.7 billion!

**Why shouldn't I drink bottled water?**

If that fact that tap water and bottled water are of similar quality, especially in urban areas of developed countries, is not enough to encourage you to save money by drinking tap water, here are a few more reasons.

Bottled water production requires more natural resources and energy than tap water treatment and distribution does. A great deal of resources and energy is used to put water into bottles and transport them around the world. According to ABC News, to transport a one-litre bottle of French water to Chicago uses about 57 grams of oil. David Coale, of Acterra, calculated the amount of oil that would be used to transport several brands of water from their source to California. The picture below illustrates his findings, as he poured the amount of oil that would be required into each bottle of water.



#### **Amount of Oil Required to Ship Bottles of Water around the World**

In one year, manufacturers use about 2.7 million tonnes of plastic to bottle water. Most bottled water comes in plastic bottles, made from polyethylene terephthalates (PET). To produce one kilogram of PET requires 17.5 kilograms of water and emits several significant air pollutants in the process. To produce enough bottles to meet the yearly demand in the United States uses 1.5 million barrels of oil (which would be enough to fuel 100,000 cars for one year!).

Furthermore, scientists suggest that PET contains dangerous chemicals and water bottles can take many years to degrade. A 2006 Canadian study found that after bottles containing PET had been stored for six months, a significant level of antimony (which is a toxic chemical) had leached from the plastic into the water.

Bisphenol A is a synthetic chemical that is found in plastic and canned goods, including transparent water bottles made from PET. The chemical is derived from petroleum and is one of the highest volume chemicals currently in production. Plastics that use bisphenol A are generally identified by a triangle with the number seven inside it. There is emerging concern that bisphenol A may be a hormone disruptor, which is a chemical that acts as a synthetic hormone (estrogen or androgen), and can cause a variety of diseases and defects, including cancer, miscarriages and birth defects. For more information about emerging contaminants, including hormone disruptors, see the fact sheet about [Emerging Contaminants](#).

Bisphenol A has been shown to act as a synthetic female sex hormone and has been associated with increased risks of cancer, miscarriages and birth defects. Researchers have known that bisphenol A can act as a synthetic estrogen since the 1930s, but production has been increasing since the 1950s. The Canadian government has selected bisphenol A as one of 200 currently used chemicals that need further research to determine how dangerous the chemical really is. The unusual characteristic of bisphenol A is that it appears to be more harmful at low doses than at high doses. There are Canadian guidelines for bisphenol A, but health effects have been observed in animals who received doses up to 1000 times less than the maximum limit that was set by Health Canada in 1999. Many environmentalists are comparing bisphenol A with cigarettes, stating that bisphenol A will be the next tobacco industry.

Another bottled water concern is the large number of plastic bottles that end up in landfills. It is estimated that 88 percent of water bottles are not recycled. In 2002, the Environment and Plastics Industry estimated that Canadians threw 65,000 tonnes of PET drink containers, many of them water bottles, into the garbage, instead of recycling. This allows the harmful chemicals in plastic water bottles to leach into nearby water supplies. And, unfortunately, recycling plastic isn't as easy as people tend to think. Bottled water manufacturers don't typically use recycled plastic, because of the cost, and even recycled plastic bottles generally contain more new plastic than recycled plastic.



**Water Bottles in the Trash;**

<http://home.howstuffworks.com/bottled-water4.htm>

Drinking bottled water, when there is access to safe drinking water from a tap, is an action that promotes inequity around the world. There are millions of people without access to safe drinking water and adequate sanitation. According to the International Water Management Institute, clean water could be provided to everyone in the world for approximately \$1.7 billion per year, above current spending. Improved sanitation would cost an additional \$9.3 billion per year. Altogether though, this is less than 24 percent of the \$46 billion that the bottled water industry is worth.

Another speculation is that, if current consumption trends continue, bottled water could lead to the privatization of municipal water supplies. As consumption rates increase, the amount of water that is required by bottled water companies also increases. Water sources that municipal water treatment facilities previously used to provide water for communities are being bought out by bottled water companies. Over the last several years, there has been speculation about

selling Canada's freshwater, including water from the Great Lakes, which hold 20 percent of the world's surface freshwater.

### What can I do?

If your municipally treated water is safe, and you do not have any health-related reasons to drink bottled water, then don't! There are so many advantages of avoiding bottled water, including the cost, pollution and health risks that are associated with bottled water.

If you choose to drink bottled water, for whatever reason, here are a few tips to minimize risk of contamination and impact of pollution:

- When you buy your bottled water, check the inside and the outside of the bottle for any irregularities. Look for broken seals, floating material inside, or anything else.
- Check the manufacturing label, best-before date, chemical analysis, treatment method, and type of water.
- Do your research. Before choosing a brand of bottled water, research the company, the origin of the water and the treatments that they have used. The NRDC recently completed a four year study of bottled water, which included testing more than 1000 bottles of 103 brands of bottled water. The NRDC found that at least one sample of about one-third of the tested water contained significant contamination (where significant contamination means that it violated standards or guidelines). The contaminants that they found included arsenic, trihalomethanes (including chloroform), excessive heterotrophic-plate-count (HPC) bacteria and elevated (but below standards) levels of nitrates. You can read more about the study at <http://www.nrdc.org/water/drinking/bw/bwinx.asp>.
- Research recycling and pollution habits of bottled water companies. Gaia Water is bottled in Caledon, Ontario, and uses recycled glass bottles for their water (they even pick up old bottles in some locations). A Colorado-based company called BIOTA uses a corn-based, biodegradable plastic bottle that can decompose within three months.
- Buy bottled water in glass bottles, instead of plastic bottles. Plastic bottles contain potentially harmful chemicals, and encourage bacterial growth faster than glass bottles do.
- Buy products with no-spill caps, meaning that water cannot spill and air cannot enter the bottled water when replacing the bottle in the cooler.
- Refrigerate the bottle once it is opened, and if you can, refrigerate the bottle before opening as well. If you cannot refrigerate the bottled water, store it in a cool, dry, dark place.
- Clean your water cooler regularly.

For more information about bottled water issues, read the recent article titled [Banned! Top chefs just say no to serving bottled water – and yes to helping the environment](#).

The Safe Drinking Water Foundation has educational programs that can supplement the information found in this fact sheet. Operation Water Drop looks at the chemical contaminants that are found in water; it is designed for a science class. Operation Water Flow looks at how water is used, where it comes from and how much it costs; it has lessons that are designed for Social Studies, Math, Biology, Chemistry and Science classes. Operation Water Spirit presents a First Nations perspective of water and the surrounding issues; it is designed for Native Studies or Social Studies classes. Operation Water Health looks at common health issues surrounding drinking water in Canada and around the world and is designed for a Health, Science and Social Studies collaboration. Operation Water Pollution focuses on how water pollution occurs and how

it is cleaned up and has been designed for a Science and Social Studies collaboration. To access more information on these and other educational activities, as well as additional fact sheets, visit the Safe Drinking Water Foundation website at [www.safewater.org](http://www.safewater.org).

### Resources:

Canadian Bottled Water Association. 2007. Frequently asked questions. <http://www.cbwa.ca/en/faq.htm>.

Canadian Broadcasting Corporation. September 2006. Bottled water: What's in a label? <http://www.cbc.ca/marketplace/pre-2007/tips/bottledwater.html>.

Canadian Broadcasting Corporation. February 2007. Buying bottled water is wrong, says Suzuki: Environmentalist launches national tour on green issues. <http://www.cbc.ca/canada/story/2007/02/01/suzuki-water.html>.

Canadian Broadcasting Corporation. February 2000. Is bottled water safer than tap water? <http://www.cbc.ca/marketplace/pre-2007/files/food/bottledwater/index.html>.

Centers for Disease Control and Prevention. September 2005. Preventing Cryptosporidiosis: A Guide to Water Filters and Bottled Water. [http://www.cdc.gov/parasites/crypto/gen\\_info/filters.html](http://www.cdc.gov/parasites/crypto/gen_info/filters.html).

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