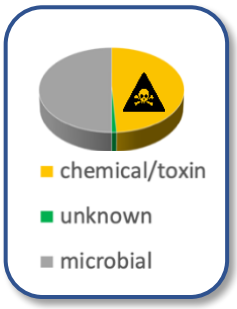
# Trust Your Water Again.
# What you need to know.

LAKOTA SCIENTIFIC
Water filtration since 1990.

# Why filter your water?




**Municipal water treatment facilities focus on microbial threats. That means chemical contaminants can, and do, remain in your water. The most recent report available from the Centers for Disease Control (CDC)[1] shows that *almost half (49.6%) of water-borne outbreak-related cases of illness are due to chemicals or toxins.* The media commonly reports on the microbial outbreaks, like *Legionella* or *E. coli,* but chemicals and toxins are responsible for significant illness that often goes under reported in mainstream media.**

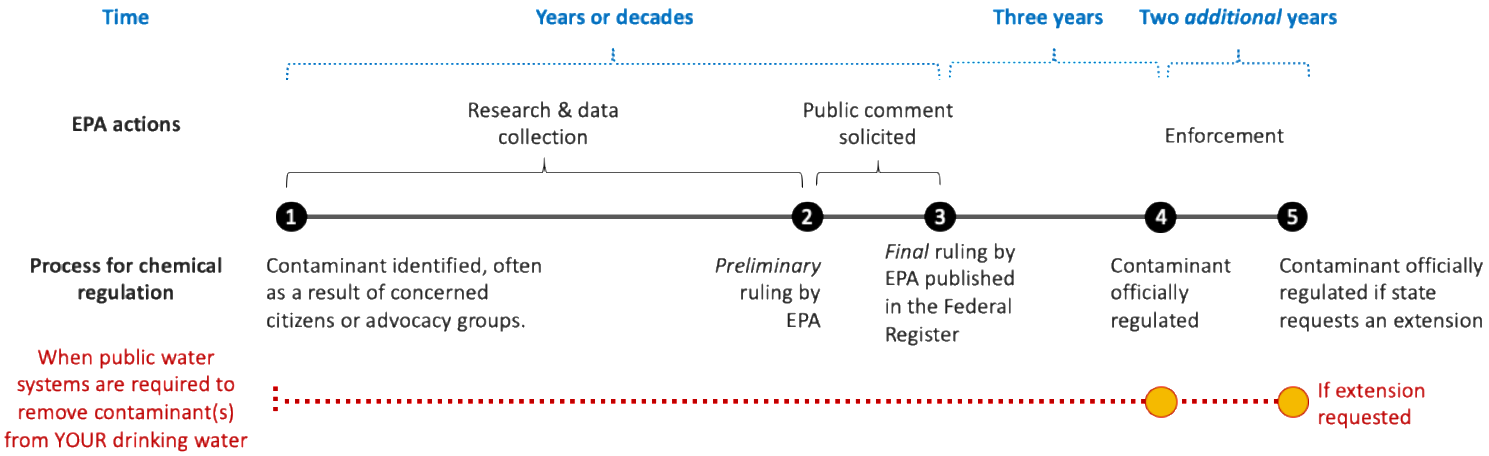
**Public Water Systems**

Water treatment strategies vary depending on population size served and water source (lake, river, ground), but all must adhere to standards set by the Environmental Protection Agency (EPA) under the 1974 Safe Drinking Water Act[2]. The 90+ regulated substances can be found here, but experts agree that the maximum allowable level EPA finds as acceptable can still lead to severe health problems for many substances. For example, lead is a known neurotoxin that leads to lower IQ, reproductive issues including spontaneous abortions and gastrointestinal diseases[3]. Young children are particularly at risk and experts agree **no level is safe**; however, lead is allowable up to 15 parts per billion in tap water because that is a manageable limit for most water utilities[4].

**EPA's Process is Too Slow to Address Emerging Chemical Threats**

What about new and emerging chemical contaminants that are not yet regulated? How does a substance become regulated by the EPA[5]? (Hint: it's a really long process.) The process to evaluate and add contaminants to the EPA's list of National Primary Drinking Water Regulations can take decades and follows these steps:

1. Identify unregulated compound. Chemicals are assumed safe until proven otherwise.
2. Research / data collection to assess health impact and likelihood of introduction into water supply
3. *Preliminary* determination published in Federal Register and public comment solicited
4. *Final* decision to/not to regulate published in Federal Register




Chromium-6, widely used in metal plating, stainless steel production, wood preservation and textile manufacture, is also known as hexavalent chromium or the Erin Brockovich chemical. A timeline from Environmental Working Group (EWG)[6] illustrates how long the process for EPA to set an enforceable standard can take.


**2017** EWG publishes an interactive map showing all counties in the U.S. and the results of the latest hexavalent chromium testing[7]

**2020** Still no federal enforceable standard...

After 30+ years, a tenacious concerned citizen sounding the alarm and exposing wide-spread contamination, and clear links to cancer, there still remains no enforceable limits for Chromium-6 set by the EPA. Rather, the EPA only recognizes the contribution to mild allergic dermatitis and set a limit for *total* chromium that includes a combination of Chromium-3 (an essential nutrient found in vitamin supplements) *and* Chromium-6 (a known carcinogen).

**Source Water and Piping Infrastructure**

Drinking water originates from rivers, streams, lakes, reservoirs, springs or groundwater before it flows to a treatment plant and ultimately our tap. Source water protection from natural and human threats is voluntary. The EPA encourages state and local governments to implement protection programs, but it is left up to the local jurisdiction. Additionally, drinking water sources can change without warning or notification. A change in source water from the Detroit Water and Sewage Department to the Flint River, which contained a range of contaminants, spurred the massive public health crisis and federal state of emergency that played out in Flint, MI.

After treatment, water has to travel to where it is used: your home. There are over 1 million miles of drinking water pipes across the country. Water can also become contaminated after it enters the distribution system, from a breach in the piping system or from corrosion of plumbing materials made from lead or copper. The lead catastrophe in Flint, MI highlights one example. The water from the Flint River was not properly treated to prevent infrastructure pipe corrosion, and lead leached into the drinking water at alarming levels[8]. While well-known, Flint isn't the only place this problem occurs. In fact, America's drinking-water infrastructure is "nearing the end of its useful life" according to the American Society for Civil Engineers' Report Card for America's Infrastructure. Failing or improperly maintained distribution systems are a major contributor of lead and copper into drinking water. An estimated $1 trillion dollars will be required to maintain and expand service to meet demands over the next 25 years[9].

**Well Water**

Unlike public water systems treated and supplied by a municipality, well water is ground water that is not treated. EPA does not regulate private wells. If you are one of the more than 13 million households who rely on wells for drinking water, annual testing for water contaminants is recommended.

However, seasonality and local activities can affect well water quality. Testing provides an assessment from **a snapshot in time**. For example, the following are potential sources of contamination from ground water movement, surface water seepage and seasonal run-off that can contaminate wells[10]:

- Microorganisms from animal or human sewage
- Fertilizers, herbicides, pesticides from agricultural practices
- Heavy metals and/or organic chemicals from household plumbing, service lines, municipal waste disposal, residential fuel storage tanks, septic tanks, road de-icing, landfills, storm water pipes and drains, lawn fertilizer storage and use, illegal dumping
- Radionuclides from mining, nuclear power production or naturally present sources

With the exception of disinfectants, and disinfectant by-products, the following culprits can be found in well water.

## Meet some of the culprits.

**These are some of the things you'll find in water besides water.**

**CHLORINE, CHLORAMINES AND TRIHALOMETHANES**—Water treatment is designed to address microbial contaminants, but the disinfectants can leave behind harmful byproducts when they react with naturally occurring organic and inorganic matter. In addition to tasting bad, they can cause skin and/or eye irritation during bathing.

**FLUORIDE**—Most of our customers want to remove fluoride for health reasons[11]. Fluoridation, the controlled addition of fluoride to a public water supply, is touted as necessary to reduce cavities and improve oral health; however, many Western European countries have rejected water fluoridation, and tooth decay rates are no higher than US cities with fluoridation. Only 3% of Western Europe drinks fluoridated water[12,13]. The decision to fluoridate in the US is typically not made by the citizens, but when cities can vote whether to add it to their water, they choose not to. Over 144 Cities have discontinued water fluoridation since 1990[14].

**HERBICIDES, PESTICIDES AND OTHER AGRICULTURAL CHEMICALS AND WASTE PRODUCTS**—Run off, water leaving farm fields because of rain, melted snow, or irrigation, is the number one source of lake and river pollution but also contaminates coastal waters and underground drinking water supplies. Common sources include fertilizer, herbicides, pesticides, animal waste from domesticated livestock feeding and farming operations, irrigation water and plowing[15]. There is active litigation for over $1 Billion in total compensation against herbicide manufacturers by farmers for damage to non-GMO crops caused by herbicide driftage as well as consumers for health problems as severe as cancer[16, 17, 18,19.]

**GLYPHOSATE,** an herbicide marketed to large scale agricultural operations as well as consumers (Roundup), has been linked to cancer. A recent peer-reviewed publication, that compiled a summary of over 140 de-classified documents from litigation, exposes how one manufacturer influenced and manipulated reporting of scientific studies and covered up deleterious toxicological implications[20].

**HEAVY METALS** like lead, arsenic, chromium-6, mercury, uranium and cadmium are human carcinogens. Each has unique properties that confer toxicity through different mechanisms of action. This review provides a comprehensive overview of sources of pollution, potential for human exposure and molecular mechanisms of toxicity, genotoxicity (DNA damage leading to cancer) and carcinogenicity.

Industrial sources of heavy metal pollution include refineries, coal burning and nuclear power plants, wood preservation, paper processing, foundries, welding, smelting operations and leached tailings and drainage from mining operations. Manufacture of batteries, colorants, pigments or dye stuffs, plastics, textiles, microelectronics as well as agricultural sources such as fertilizers, insecticides, herbicides, fungicides, algicides and sheep dips are also significant contributors[21]. Heavy metals are regulated by EPA at different levels, but there is agreement from health experts that many levels are too high and pose health risks.

**MICROPLASTICS** are small pieces of plastic <5mm in size synthesized for use in a wide array of consumer products (e.g. synthetic clothing fabric) and industrial processes, or they can form naturally as larger pieces of plastic debris breakdown. We've all seen that plastic bag or water bottle floating in a lake or stream. With help from the sun, UV radiation breaks down larger plastic pieces into microplastic particles. Some are so small they aren't visible to the naked eye. They are **not removed** by wastewater treatment and can absorb and give off chemicals and harmful pollutants such as bisphenol A (BPA), dioxin, persistent organic pollutants (POPs), polybrominated diphenyl ethers (PBDEs), polychlorinated biphenyls (PCBs) and/or polycyclic aromatic hydrocarbons (PAHs)[22]. The negative effects on human health are not fully understood but oxidative stress, chronic inflammation, immune dysregulation and formation of abnormal tissue growth and/or cancer have all been implicated[23]. Microplastics are not regulated by the EPA.

**PARASITES LIKE *GIARDIA* AND *CRYPTOSPORIDIUM*** are protozoans found in a variety of animals and are readily distributed through feces-contaminated soil, lakes, rivers, ponds and streams. Infection is transmitted through environmentally robust cysts that can survive for long periods of time outside of the host. Cysts can be problematic in both well and city water sources because cysts are resistant to common disinfectants like chlorine[24]. Drinking water and recreational water are the most common modes of transmission[25]. Once ingested, they cause diarrhea and gastrointestinal distress in humans.

**PFAS** (per- and polyfluoroalkyl substances)—Known as "forever chemicals" because they do not naturally breakdown, this class of several thousand different compounds is a product of industrial processes (e.g. fire retardants and a range of applications in the aerospace, photographic imaging, semiconductor, automotive, construction, electronics, and aviation industries) and commercial products (e.g. nonstick cookware, waterproof fabrics, food packaging etc.)[26].

Long chain PFAS (perfluoroalkyl carboxylic acids with eight or more carbons and perfluoroalkyl sulfonic acids with six or more carbons) have been used since the 1940s. Because they have come under such widespread scrutiny, some major chemical companies agreed phase out PFAS, and they are no longer manufactured in the US; however, they can still be manufacturer internationally and imported in consumer goods such as carpet, leather and apparel, textiles, paper and packaging, coatings, rubber and plastics[27]. PFAS bioaccumulate, which means they build up in tissues and organs over time, and human exposure has been linked to developmental, immune, metabolic, and endocrine system disorders as well as cancer. PFAS are the basis for the 2019 documentary *Dark Waters*, and contamination is widespread across the US[28] with at least 6 million U.S. residents that exceed US EPA's lifetime health advisory of 70 parts per trillion[29]. EPA has not yet implemented enforceable, regulated levels. Rather, they have issued a health advisory to serve as informational technical guidance[30,31].

While long-chain PFAS have been phased out of production in the US, they have been replaced with shorter chain versions such as GenX, ADONA and F-53B that pose similar health risks. EPA does not regulate PFAS.

**PHARMACEUTICALS** flushed down the drain or toilet can enter the wastewater treatment system. However, most municipalities are not designed to remove these kinds of contaminants, and many can end up in tap water[32].

## Major sources of contamination.

**Curious how your tap water fares?** Visit Environmental Working Group's database organized by zip code to find out if you are in a hot spot contamination area.

While it's good to know how the tap water in your community or municipality compares, reports are from testing performed at a point in time. The only way to really TRUST YOUR WATER AGAIN is with a high-quality water filter that offers broad contaminant removal.

## The Lakota Scientific approach to purification.

**Do current EPA regulations serve our interests? The only way to really trust your water again is a good water filtration system. The Lakota Scientific approach combines a gold standard in water filtration, carbon, with specialty resins and filters for broad contaminant reduction.**


Carbon. Carbon. And more carbon. What matters most? The *amount* of carbon, the *kind* of carbon and *quality* of the carbon. Filters that use less carbon materials remove fewer contaminants and need to be replaced more often because they reach maximum adsorption capacity more quickly. But Lakota Systems don't stop with lots of carbon. In addition, we combine a variety of different filter and media types to ensure broad contaminant removal: oxidation reduction, specialty resins, heavy metal sorbents, sediment filters and ceramic cartridges.

We offer three systems: the standard Under the Counter (UC) unit, Whole House (WH) unit and a fully customizable Add-on Option (OP). The standard UC has five stages of purification outlined below and is mounted under the kitchen sink for drinking and cooking water.

**OXIDATION REDUCTION MEDIA.** Transfers electrons to **chlorine, chloramine** and **solubilized heavy metals** to reduce them (put them in a lower oxidation state) facilitating adherence to the media and pulling them out of water. Additionally, this media **controls the growth of microorganisms** by shifting the redox potential and disrupting the electron transport chain thus leading to cellular damage and death.

**SPECIALTY SORBENT.** Used for the removal of dissolved **arsenic, chromium-6, fluoride, lead, mercury** and **uranium**.


**GRANULATED, ACTIVATED CARBON.** Used for the adsorption of high molecular weight toxic chemicals: **herbicides** (e.g. glyphosate, atrazine), **pesticides** (e.g. chlorpyrifos) and **pharmaceuticals.**

**EXTRUDED, ACTIVATED CARBON** in a series for adsorption of low molecular weight toxins such as **trihalomethanes** and **chlorine.** Put into a 1 µM extruded block to filter out **microplastics** and **parasites** such as ***Giardia*** and ***Cryptosporidium*.**

The WH is mounted where water enters the home and filters drinking water and water used for bathing, washing, cooking and brushing teeth. This is popular in high contamination areas, if you have sensitive skin or take baths. The WH is fully customizable depending on need.

Whole House Unit

Under Counter Unit

Combining the UC with the WH is recommended for homes that may have lead pipes or other contaminants in the plumbing system. The WH filters water entering the house, and the UC filters water prior to drinking or cooking thus removing harmful contaminants that may be present in the home plumbing infrastructure.

The Add-on Option is **fully customizable** depending on your specific needs and is added on to an existing Under Counter System. It is typically used when there is extreme contamination, unique or special concerns such as:


Add On Option

- Drinking water that comes from a well with hydrogen sulfide (rotten egg smell), nitrates and/or coliforms like *E. coli* bacteria
- You live in a known high contamination area. Local, state or federal authorities may put out advisories as they did in Michigan with warnings not to eat fish from any water way that was directly from or connected to the Huron River due to PFAS contamination. Residents were also told to stay away from River foam because PFAS foams at high concentrations[33].
- Suburban, out state or rural settings prone to industrial or agricultural contaminants
- Natural disasters or large amounts of run-off or flooding. After Hurricane Harvey, Houston was besieged with contamination that would have overwhelmed the average water filtration system.

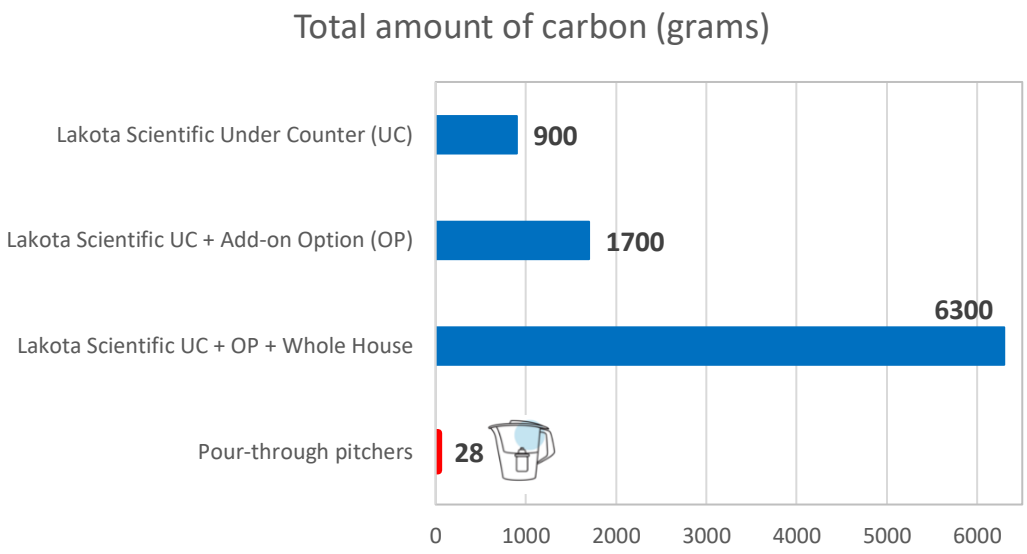
## Pour-through type pitchers don't stack up.

**How *much* and what *type* of carbon do most pour-through pitchers contain? Do they have specialty filters or resins to reduce a broad range of contaminants?**

Pour-through pitchers do little more than improve taste and clarity providing a false sense of security. Many of the sinister compounds are tasteless and odorless and not correlated to how cloudy it appears. Some pour-through filter companies claim broad contaminant removal; however, the chart below compares the amount of carbon in Lakota Systems vs. common pour-through filters. It's important to emphasize that in addition to lots of granulated, activated and extruded blocks of carbon, Lakota Systems also contain a variety of other filter and media types to increase the types of contaminants removed, and that doesn't appear on the chart.

In an independent evaluation, Duke University and North Carolina State evaluated 13 pour-through pitchers for PFAS removal from contaminated drinking water throughout North Carolina. Pitchers showed removal efficiencies between

36% - 76%, depending on the brand. All showed inferior performance against dual stage under sink units (like the Lakota Scientific UC), which achieved >99% removal to below the analytical method limit of detection[24].




**Cost of ownership**

At first, it may seem like pour-through pitchers are less expensive. However, the frequency of filter changes and cost per filter should be estimated over the course of several years to adequately compare. Irrespective of cost, no pour-through filter on the market can deliver the same quality of purification as a multi-stage system. If removal of colorless, odorless sinister contaminants from your water is the goal, a pour-through **will never stack up**.

**Hassle**

Repeated filling and re-filling can be a hassle, and pitchers can be heavy and cumbersome to handle and fit into a fridge. If a lot of water is used for cooking and/or drinking, waiting for water to percolate through the pitcher filter is a nuisance. And remember, they should be cleaned regularly to prevent the growth of microorganisms.

## Total dissolved solids (TDS): a crude measure of water quality.

**TDS is used as an imprecise way to measure combined salt, minerals and hardness levels in water. It is commonly used to estimate water quality for crop irrigation, livestock drinking water and to track changes in water systems that support aquatic life (e.g. due to natural flooding, evaporation, pollution etc.). However, some water filter brands use it in sales materials and deceptively correlate low TDS with overall filter effectiveness. Here's what you should know about TDS and why it is a poor way to measure the effectiveness of a water filter.**

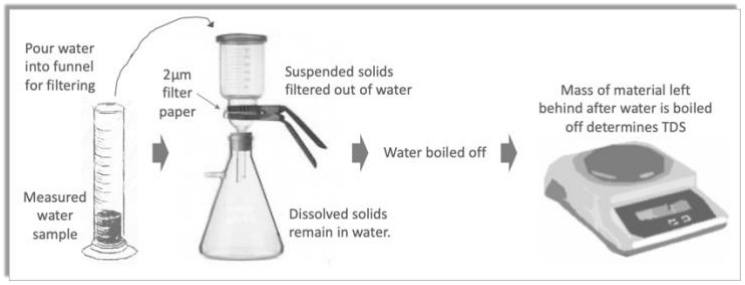
**What is TDS?**

1. TDS is an estimate of aesthetics (taste, odor and clarity) and does *not* quantify specific contaminants.

2. Total calcium, magnesium, sodium, potassium, chloride, phosphate, sulfate and nitrates commonly raise TDS values. Concentrations for individual substances require more precise, specific analytical tests.

**How is TDS measured?**

TDS measures total inorganic (minerals, salts or metals) and organic substances dissolved in water that can pass through a 2-micron filter. (This is in contrast to suspended solids, such as silt, clay, algae, organic debris, particulate




matter, etc., that will not pass through the filter and are not a part of the TDS value.) TDS is calculated by passing water through a filter to remove suspended solids, boiling off the water and weighing solids left behind. The mass of everything left behind is the TDS value. A simplified diagram is pictured in the figure.

The value doesn't distinguish the t*ype* of dissolved solid only the total combined *amount*. For example, minerals such as calcium and magnesium raise TDS values. This is why bottled mineral water, enriched with healthful minerals, will have a higher TDS rating than most tap water.

Outside of a laboratory, TDS can be measured through the use of a conductivity meter. When inorganic salts are dissolved, they disassociate into ions. Ions can be positively charged (cations) or negatively charged (anions) which allow water to conduct an electrical current. The electrical current can be measured with a conductivity meter providing an approximate value of the dissolved solids.

TDS values above 500 parts per million can be associated with poor aesthetic characteristics of drinking water such as taste and clarity, but values cannot distinguish healthful or benign minerals from harmful contaminants[34]. Filtration systems that lower TDS may also lower the pH of the water increasing the corrosive potential. This can lead to leaching of harmful metals, such as lead, from pipes and hardware.

Lakota Scientific Systems remove harmful compounds and do not remove minerals such as calcium and magnesium. Because TDS values rise with increased concentrations of calcium and magnesium, TDS readings may or may not be affected after filtration with a Lakota Scientific System and are not a good proxy for how well the filter is working.

## Bottled water: expensive, unsustainable and unhealthy.

**We've all seen the plastic bottles floating in waterways, washed up on beaches and strewn about in landfills. It might be because the word is out. There is growing awareness about contaminants in our tap water, and bottled water provides one alternative…..maybe.**

There are perceived health benefits based on successful marketing campaigns, but the impacts of our decisions have never before been so directly linked to social, environmental and health consequences. Here are three great reasons to skip bottled water and drink purified tap water instead.

1. **Bottled water is expensive**

   An average gallon of bottled water costs roughly 2,000-3,000x more than tap water, and Americans consume about 39 gallons of bottled water per person per year[35,36]. Since most bottled water is purchased as single use bottles, it's bad for the environment too.

2. **Bottled water has a big carbon footprint and contributes to pollution**
   On average, less than 15% of plastic bottles are recycled. That means 85% of bottles can end up in landfills and waterways[37]. And where do all those plastic bottles come from? PET is petroleum-based and energy-intensive to produce. Conservative energy estimates say it takes about 1/4 bottle worth of oil to produce the bottle[38, 39].


The **amount of oil** it takes to manufacture a bottle to hold the water is shown in **red**.

Filling and delivering all those bottles of water consumes vast amounts of energy and water (yes, water) too. An average liter of water takes between 1.5 and 7 liters of water to produce if supply chain logistics are included in the calculation[40]. The range varies depending on the source and location of the source water, production conditions and how far the bottled water is shipped to a final destination.

**3. There can be more in bottled water than just water**

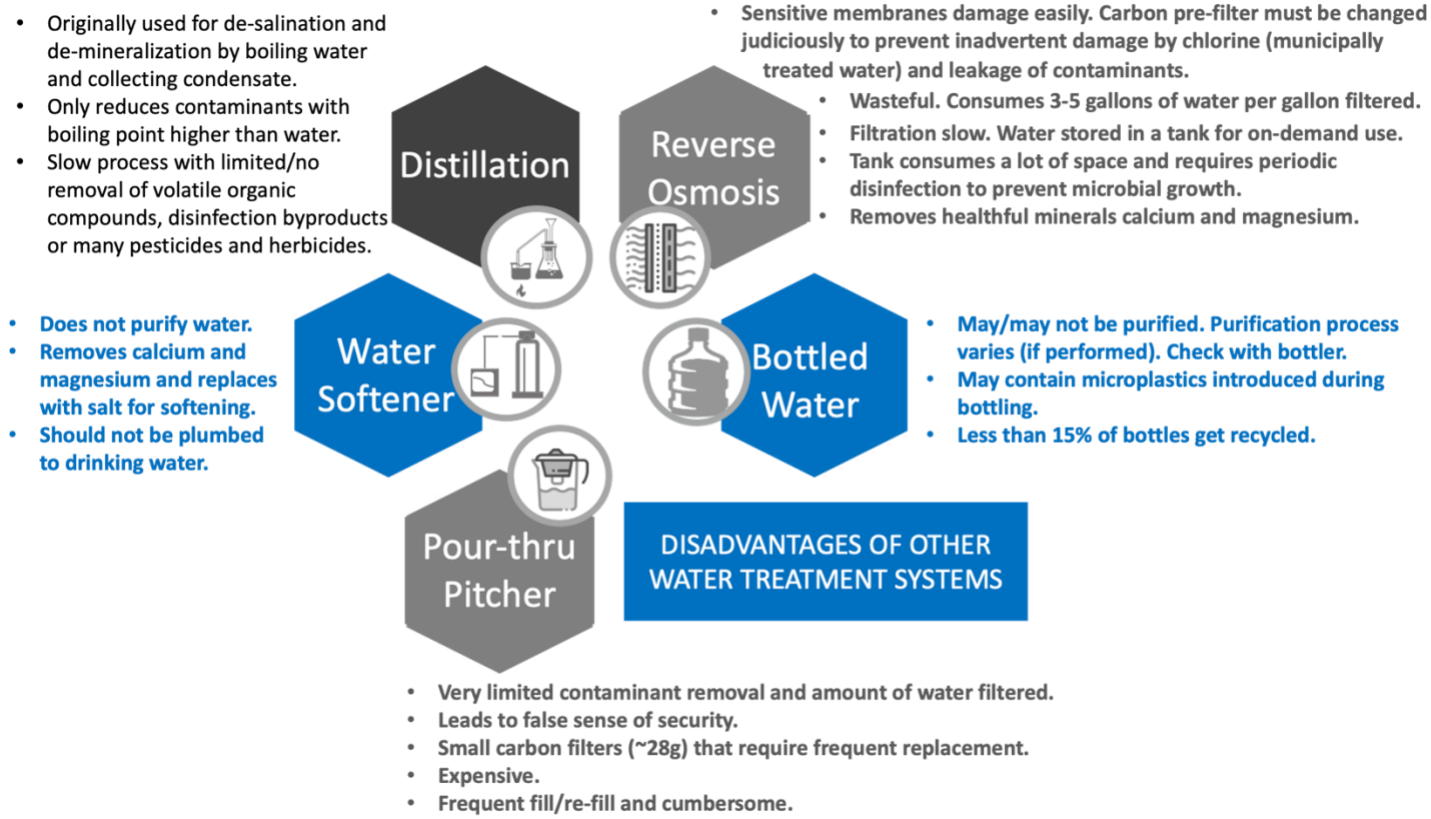
Marketing data suggest the most common reason people buy bottle water is for health[41]. However, a World Health Organization report[42] found that >90% of bottled water tested contained microplastics. Some were introduced through the bottling process and/or packaging methods. Others were present in the tap water but never removed prior to bottling due to no or poor-quality filtration systems[43]. To find out how water is purified prior to bottling, it's up to the consumer to contact the manufacturer if they want specifics[44].

Additionally, many plastic water bottles contain phthalates[45] and/or bisphenol-A (BPA)[46] that can leach into the water. They are known endocrine disruptors linked to abnormal sexual development, have been shown to adversely affect reproductive health and development as well as may cause cancer[47,48, 49].

Wasn't the whole point of drinking bottled water to be healthy?

## What about other water treatment systems?

**Lakota Scientific Water Filtration Systems reduce a broad, comprehensive range of contaminants because we combine different kinds of carbon filters with specialty resins, heavy metal sorbents and redox media. What about other types of water treatment? How do they compare?**



## Types of Water Treatment

| | Bottled Water | Reverse Osmosis | Distillation | Water Softener | Pour-through Pitcher |
|---|---|---|---|---|---|
| **CATEGORY** | | | | | |
| Contaminant reduction capacity | ? Depends on Brand | Good | Depends on contaminant | None | Poor |
| Maintenance | N/A | Frequent pre-filter changes to maintain filter integrity. Disinfect holding tank. | N/A if purchased from store in gallon jugs. | Remove iron and clean tank annually. On-going salt addition. | Frequent filter changes. Clean pitcher. |
| Hassle | High | Medium | High | High | High |
| Energy use | High | High | High | HIgh | Low |
| Water use | High | High | High | High | Low |
| Sustainability rating* | Very poor | Poor | Poor | N/A | Good |
| Cost | Medium | Medium | Medium | Expensive | Medium |

*takes into account environmental stewardship; energy used during filtration process, water wasted during filtration, overall fossil fuel use

## Why Lakota Scientific Water Filters?

We are a family-owned water filtration company since 1990, and our family is passionate about safe drinking water. Lakota Scientific was started after a search to find a good water filter for our family ended in disappointment. We wanted more than better taste and chlorine removal. We wanted to remove all the taste-less, odorless nasty contaminants lurking in the water we drink, bathe and play in. After three decades in the business, we see the need growing as more contaminants and unaddressed contamination events are brought to our attention.

Concerned about particular contaminants? Call and talk to a chemist or microbiologist about your water chemistry or contamination questions. 1.800.945.5782.

Not sure if you can install the Under-Counter water filter unit on your own? We have experienced installers on staff to answer installation questions.

Not sure if our ready-to-go solutions are right for you? We can customize a filter for your unique or specific needs. Call us at 1.800.945.5782 or visit us any time at www.lakotascientific.com

Woman and veteran-led water filtration since 1990. Let us help you **Trust Your Water Again**.

## References

[1] https://www.cdc.gov/healthywater/surveillance/drinking-surveillance-reports.html

[2] https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations#main-content
[3] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4144270/
[4] https://www.npr.org/sections/thetwo-way/2016/08/13/489825051/lead-levels-below-epa-limits-can-still-impact-your-health
[5] https://www.epa.gov/sdwa/how-epa-regulates-drinking-water-contaminants
[6] https://www.ewg.org/research/chromium-six-found-in-us-tap-water/timeline
[7] https://www.ewg.org/interactive-maps/2016-chromium6-lower-48.php
[8] https://www.npr.org/sections/thetwo-way/2016/04/20/465545378/lead-laced-water-in-flint-a-step-by-step-look-at-the-makings-of-a-crisis
[9] https://www.infrastructurereportcard.org/cat-item/drinking-water/
[10] https://www.epa.gov/node/83209/view
[11] https://www.tandfonline.com/doi/abs/10.1080/10643389.2019.1647028
[12] https://fluoridealert.org/content/water_europe/
[13] http://fluoridealert.org/content/europe-statements/
[14] https://www.nofluoride.com/cities_rejecting.cfm
[15] https://toxtown.nlm.nih.gov/sources-of-exposure/runoff/storm-water
[16] https://www.investors.com/news/bayer-monsanto-loss-dicamba-trial/
[17] https://usrtk.org/pesticides/glyphosate-health-concerns/
[18] https://www.marketwatch.com/story/bayer-basf-must-pay-265m-in-herbicide-suit-2020-02-16
[19] https://www.nytimes.com/2019/05/13/business/monsanto-roundup-cancer-verdict.html
[20] https://www.ncbi.nlm.nih.gov/pubmed/29843257
[21] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4144270/
[22] https://toxtown.nlm.nih.gov/sources-of-exposure/microplastics
[23] https://www.sciencedirect.com/science/article/pii/S0048969719344468
[24] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6513095/
[25] https://www.cdc.gov/parasites/giardia/index.html and https://www.cdc.gov/parasites/crypto/
[26] https://pfas-1.itrcweb.org/wp-content/uploads/2017/11/pfas_fact_sheet_history_and_use__11_13_17.pdf
[27] https://www.epa.gov/pfas/basic-information-pfas
[28] https://www.usnews.com/news/best-states/articles/2019-05-06/contaminated-water-from-teflon-chemical-found-in-43-states-report-finds
[29] https://pubs.acs.org/doi/pdf/10.1021/acs.estlett.6b00260
[30] https://www.epa.gov/pfas/pfas-laws-and-regulations
[31] https://www.epa.gov/newsreleases/aggressively-addressing-pfas-epa
[32] https://www.pca.state.mn.us/featured/dont-flush-medicines-down-drain
[33] https://www.hrwc.org/our-watershed/threats/pfas-and-the-huron-river/
[34] https://www.uwyo.edu/uwe/pubs/b1183/_files/tds.pdf
[35] https://www.businessinsider.com/bottled-water-facts-science-healthy-2017-4
[36] https://green.harvard.edu/tools-resources/green-tip/reasons-avoid-bottled-water
[37] https://www.forbes.com/sites/lauratenenbaum/2019/05/15/these-three-plastic-recycling-myths-will-blow-your-mind/#1f30212d75f0
[38] https://iopscience.iop.org/article/10.1088/1748-9326/4/1/014009/pdf
[39] https://sustainability.temple.edu/sites/sustainability/files/uploads/Resources/bottled_water_and_energy.pdf
[40] https://www.npr.org/sections/thesalt/2013/10/28/241419373/how-much-water-actually-goes-into-making-a-bottle-of-water
[41] https://www.transparencymarketresearch.com/bottled-water-market.html
[42] https://apps.who.int/iris/bitstream/handle/10665/326499/9789241516198-eng.pdf?ua=1
[43] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6141690/
[44] https://www.consumerreports.org/water-quality/looking-for-info-about-bottled-water-quality-good-luck/
[45] https://www.fda.gov/regulatory-information/search-fda-guidance-documents/small-entity-compliance-guide-establishing-allowable-level-di2-ethylhexylphthalate-bottled-water
[46] https://toxtown.nlm.nih.gov/chemicals-and-contaminants/bisphenol-a-bpa
[47] https://www.sciencedirect.com/science/article/abs/pii/S0960076011001063
[48] https://toxtown.nlm.nih.gov/chemicals-and-contaminants/phthalates
[49] https://www.breastcancer.org/risk/factors/plastic