BLUEWATER

A white paper from Bluewater designed to help to stimulate public awareness about creating and sustaining pristine water quality for people at home, for businesses and for use in public dispensing systems.

CLEAN WATER DELIVERY FOR YOUR HOME, FOR BUSINESS AND FOR THE PUBLIC

- A GUIDE TO THE BEST TECHNOLOGY

BLUEWATER THOUGHT LEADERSHIP
WATER INTELLIGENCE

CONTENT

We want to give people a level playing field to make informed choices on the water they consume from their taps at home, work or in public areas. Bluewater's white papers are geared to outline the technology options available to householders, business owners and others to help ensure their drinking water meets wellbeing and health expectations.

EXECUTIVE SUMMARY

From London to LA, Beijing to Cape Town, people are wising up to the reality that the water flowing from their faucets at the twist of a tap is no longer as healthy as they once took for granted.

Urban water treatment and delivery systems are complicated and costly – and sadly often outdated with treatment plants struggling to maintain and improve their facilities in an age where cities are growing and government funding is shrinking. The challenges posed by issues ranging from a mounting list of pollutants to water shortages or flooding sparked by climate change are compounded by degrading water delivery pipe networks and sewage systems.

Around the world, water treatment and sewage systems work efficiently to remove the risk of deadly waterborne diseases like cholera and typhoid, although the chemicals such as chlorine they use to protect us from pathogens can create by-products that may cause cancer.

What's more, few water facilities are purposely equipped to fully remove the likes of hormones, toxic metals, synthetic organic chemicals and other pollutants such as micro-plastic particles that have been polluting our planet in ever increasing amounts due to industrial, construction and agricultural activities.

The question we should all ask is whether our drinking water is healthy to drink. And if we conclude it isn't, then what can we do about it in our own homes or businesses to stay safe? This Bluewater White Paper looks at the available water purification options to protect our health.

WATERWISE, HEALTHY AND SAFE

Water is vital to life and wellbeing. Everyone needs to be able to access clean drinking water free of bacteria, chemicals, micro-plastics and other contaminants to live healthy lives and avoid health problems, both short-term and long-term.

But just how reliable is the water we get from our taps to drink, wash and cook food, and bathe in?

The frank answer is that our drinking water isn't as healthy as many of us assume or hope.

Our fresh water supplies hold vast amounts of manmade organic chemicals, toxic metals, antibiotics, hormones, detergents and micro-plastics, much of which we have poured down the drain ourselves and that ultimately journeys back to emerge from our water taps because our water treatment plants are not designed to remove them.

Buying plastic bottles of water is no answer either. Not only is the plastic itself a potential health threat, but the water inside may also contain contaminants. A study by a US research team at Orb Media found 'a single bottle can hold dozens or possibly even thousands of microscopic plastic particles'. Tests by Orb Media on more than 250 bottles from 11 brands reveal contamination with plastic including polypropylene, nylon, and polyethylene terephthalate (PET).

So what solutions are available to purify our water and protect both our health and that of the planet as well? Boiling water is an obvious answer as it has been used for thousands of years, but while it will eliminate bacteria, boiling water will not remove contaminants like toxic metals, pharmaceutical residues or chemicals.

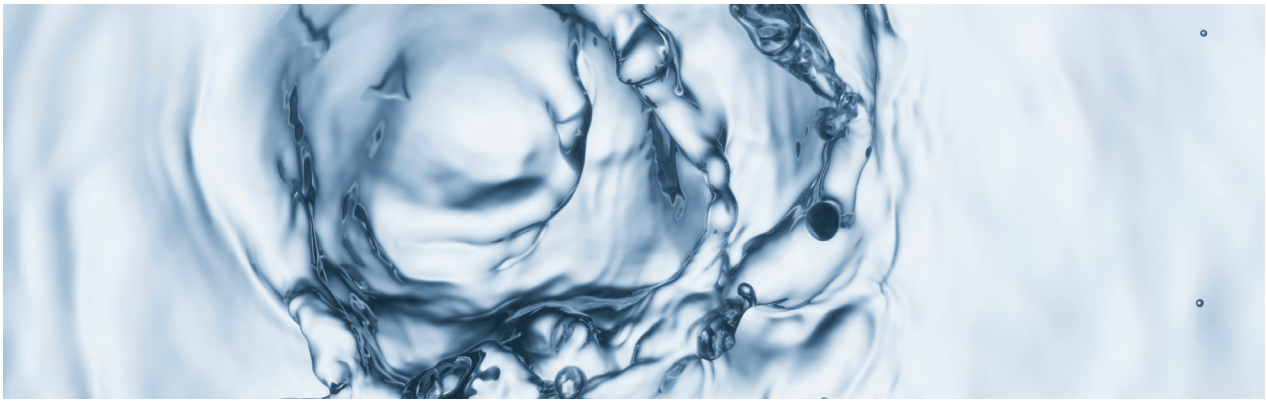
Generally speaking there are four principal ways to clean water:

1. Carbon filters absorb organic contaminants in water that impact taste and odor as well as chlorination by-products and some cleaning solvents and pesticides.

2. Ion exchange filters help soften water by removing minerals such as calcium and magnesium and may also remove lead and fluoride.

3. Distillation units kill bacteria, viruses and other microbes and removes heavy organics and toxic metals.

4. Reverse osmosis is considered one of the best ways to purify water, removing a wide spectrum list of contaminants, including nitrates, organic compounds, smells, pesticides, dioxins, toxic metals and petrochemicals.



1. CARBON FILTER WATER TREATMENT

A filter with granular activated carbon (GAC) can remove certain chemicals, especially organic chemicals, from water. While a GAC filter, also referred to as a 'charcoal' filter, will also remove chemicals creating objectionable odors or tastes such as hydrogen sulphide (rotten eggs odor) or chlorine, they do not remove iron and nitrate chemicals. GAC filters can be used as part of a whole-house filtration system where they are installed at point-of-entry to treat water travelling to faucets and other fixtures in the home. GAC filters can also be installed at point-of-use, such as in an under-sink system. GAC pitcher filters are readily available in retail outlets and are often used as part of a refrigeration icemaking system. Granular activated carbon is made from carbon high raw organic materials such as coconut shells or coal. GAC does not remove metals such as lead, microbiological contaminants like cysts, coliform and bacteria, nor inorganic contaminants such as lead, arsenic and asbestos.

2. ION EXCHANGE WATER TREATMENT

An ion is basically charged atoms or molecules. Ion exchange systems are used for water softening and purification purposes. The treatment process involves dissolved ions being replaced by other, more desirable, ions of a similar electrical charge in a vessel where a waste stream is passed through a specialized resin that captures calcium and magnesium ions. Ion exchange technology targets and removes specific substances such as chlorides, Perfluorooctane sulfonate anion (PFOS) and Perfluorooctanoic acid (PFOA). Ion exchange is not considered effective for bacterial reduction or removal of chemical disinfectants, particles and suspended solids (bacteria, protozoa, nutrients or dissolved metal, for example).

3. DISTILLATION WATER TREATMENT

Distillation is one of the oldest methods used by humans to improve their water quality by removing bacteria, inorganic and many organic compounds. Using electricity to boil water, distillation will remove metals such as lead and nitrate as well as soften hard water, but it will not remove all chemicals, including chlorine or VOC's. Basically, contaminated water is heated to form steam that leaves behind inorganic compounds and large non-volatile organic molecules. When the steam cools it condenses to deposit purified water in a collection vessel. Most distillation units are installed as point-of-use units placed close to a kitchen faucet and able to produce up to 41 liters (11 U.S. gallons / 9.16 imperial gallons) a day. Despite its efficiency, there are downsides to distillation, including high energy use and the need for regular maintenance to keep the unit operating properly to remove unevaporated pollutants left in the boiling chamber such as calcium and magnesium scale.

4. REVERSE OSMOSIS WATER TREATMENT

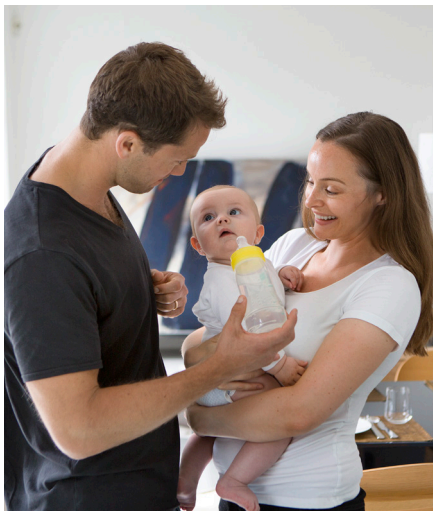
Reverse osmosis (RO) is widely considered the most effective way to purify water, capable of removing up to 95 – 99% of all known contaminants that may find their way into drinking water, from toxic metals to bacteria and chemicals. The way reverse osmosis works is basically to apply external pressure on water entering the RO system and force it through a semipermeable membrane that blocks contaminants. The rejected contaminants are diverted into an external drain, while the filtered water is pristine clean and free of any particles larger than 0.00001 microns in size (bacteria are about two microns in size). RO systems are so efficient that they remove everything from water, including the trace minerals that can impact taste, which is why some manufacturers offer a remineralization filter.

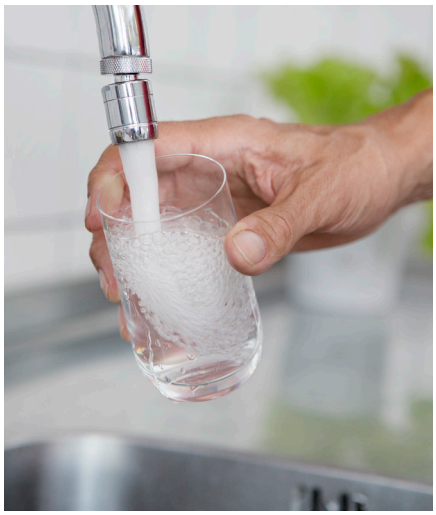
BLUEWATER - THE 'TESLA' OF WATER PURIFIERS

Bluewater uses its own patented, second-generation reverse osmosis technology called SuperiorOsmosis™ in a whole new generation of water purifiers with outstanding performance and design. Given a clean slate, Bluewater designers have combined purification technology, clean water delivery power and environmental friendliness into an amazing package that benefits both human and planetary health.

Our water purifiers are different from others in the market. They have been designed and engineered from the start to deliver the world's most efficient clean water delivery rate from a highly compact unit. A Bluewater water purifier can be used at home, in sports arenas, at major events or in supermarkets, delivering purified drinking water from municipal or other sources such as wells.

Representing the very latest in reverse osmosis technology, Bluewater's SuperiorOsmosis™ delivers unmatched purification efficiency, operating capacity and service life. SuperiorOsmosis™ technology gives users a direct flow water system delivering over 6,900 liters (1,822 U.S. gallons /1,517 Imperial gallons) of purified water a day.



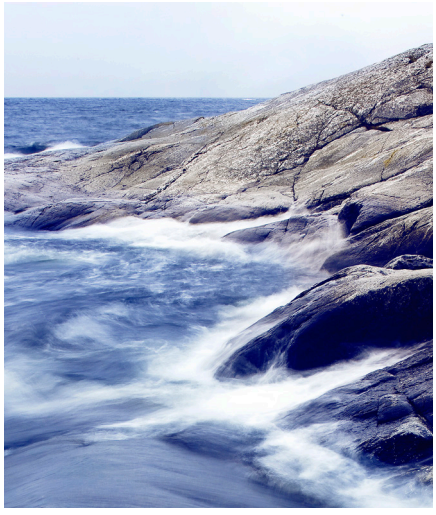


GOOD FOR YOU

Engineered into Bluewater's sleek looking, point-of-use Spirit and Pro water purifiers, SuperiorOsmosis™ helps ensure cleaner, healthier water that you can trust for drinking, washing fruit and vegetables, cooking with and bathing in for year after year with minimal service requirements.

GOOD FOR THE PLANET

Bluewater SuperiorOsmosis™ also solves the criticism thrown at traditional RO technology that it generates more waste water than clean drinking water. Bluewater's patented technology not only removes contaminants such as toxic metals like lead, chemicals, pharmaceutical residues, micro-organisms and other harmful substances and particles down to 0.0001 microns in size, but also dramatically slashes the reject water stemming from the filtration processes.



Premium quality tap water
Bluewater harnesses patented technology to deliver enhanced water quality in a world where tap water taste and safety can no longer be taken for granted. We believe everyone has the right to drink water that is as clean as nature intended. That is why our technology is designed to deliver water for residential and commercial drinking, cooking, washing and other purposes that is free of bacteria, toxic metals, pharmaceutical and chemical residues, and the likes of limescale.

www.bluewatergroup.com

The Gold Seal Trademark from the United States Water Quality Association (WQA) helps connect consumers with water treatment products that have been tested and certified to meet industry standards. WQA's Gold Seal Product Certification Program ensures that the product is constructed or formulated from safe materials, the claims listed on the packaging are backed by test data, and the product will hold up under normal usage conditions.

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