



Household Drinking Water Filtration Devices

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Filters are used to remove chemicals and suspended particles from water that can cause taste, odour or clarity problems. They must not be relied upon to remove disease-causing bacteria (pathogens) without the additional use of a disinfection device.

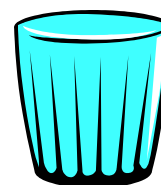
Type	Advantages	Disadvantages
<i>Mechanical Particulate Filters</i>	<ul style="list-style-type: none"> Removes suspended particles, iron, manganese, silt, organic matter, turbidity <p>E.g. Sand filter, Diatomaceous earth</p>	<ul style="list-style-type: none"> Will clog media over time reducing water pressure Bacterial growth on media possible Regeneration (backwashing) of media required Media must be replaced periodically Depending on what needs to be removed, the addition of oxidizing agents and filter aids may be required
<i>Adsorptive Filters</i>	<ul style="list-style-type: none"> Removes dissolved impurities like chlorine, hydrogen sulphide, some gases and oils, some pesticides, tastes and odours due to organic matter Solid carbon block filters remove more contaminants than granular carbon filters Does not require electricity Convenient Inexpensive <p>E.g. Activated carbon (solid or granular)</p>	<ul style="list-style-type: none"> Will not remove all bacteria, viruses, protozoa Media will clog over time reducing water pressure Backwashing of filter required weekly but no guarantee that this will increase effectiveness Prone to bacterial growth Filter must be changed regularly Must flush system after periods of non-use
<i>Membrane Filtration</i>	<ul style="list-style-type: none"> Removes nitrates, sulphates, lead, sodium, dissolved solids, fluoride, certain pesticides and herbicides, certain volatile organic compounds, heavy metals, calcium, magnesium Economical Uses no electricity Removes some protozoa and some bacteria <p>E.g. Reverse Osmosis</p>	<ul style="list-style-type: none"> Susceptible to clogging Removes cysts such as Cryptosporidium if filter is one micrometer or less in diameter Requires good water pressure Membrane requires flushing Wastes 8 gallons of water to produce one gallon of drinking water Slow to produce drinking water Damaged membrane not easy to detect Must flush system after periods of non-use

Other Systems

Type	Advantages	Disadvantages
<i>Ion Exchange</i>	<ul style="list-style-type: none"> • Removes calcium, magnesium, iron, manganese • Enhances removal of heavy metals, nitrates and sulphates • Capable of reducing levels of gaseous substances like carbon dioxide <p>E.g. Water Softeners</p>	<ul style="list-style-type: none"> • Does not remove bacteria • Elevates sodium content if removing hardness • Possible bacterial growth in resin bed • Susceptible to fouling from high iron, manganese and copper levels unless pre-filtered • Backwashing required to regenerate medium

Before you buy a device, consider the following:

- The raw water should be tested before choosing a system or device. Different raw water conditions may require a combination of treatment processes to produce water of drinking quality.
- Determine if the filtration device will be required to filter drinking water only or will it be required to filter the water for all household uses.
- The treated water should be tested a minimum of 3 times per year to ensure that the device is capable of removing pathogens from the water.
- All devices and filters should be certified by a third party testing and certification organization such as the National Sanitation Foundation (NSF) or the Underwriters Laboratory Inc. (UL)



Contact the Health Unit for the following additional information:

- Household Drinking Water Disinfection Devices
- Common Drinking Water Quality Complaints
- Listing of Accredited Laboratories
- Drinking Water Safety
- Well Water Construction
- Protection of Water Quality in Drilled Wells
- Rural Water Quality Testing Program
- Healthy Futures Rural Well Upgrading & Decommissioning Project