

Comparison of water treatment

Method	Principle	advantage	defeat
Reverse Osmosis	Using pressure to force tap water through a membrane(0.001m),retaining solute on one side,allowing the pure water to pass to the other side.	<ol style="list-style-type: none"> 1. Removes all the good or bad substances in tap water 2. Drinkable directly,taste good 3. Removes 99.9% of germs, chemicals and minerals in tap water 	<ol style="list-style-type: none"> 1.water outlet is slow, waste 5 liters water to produce 1 liter 2.carbonic acid retaining, is acidic of pH 6 3.is pure water without good minerals 4.it is hard to preserve, easily polluted by germs 5.requires space to install, high cost to maintenance
Mineral Water	<p>It is natural source from ground,such as spring,spa,wells.</p> <p>By boiling and filtration preserved in bottles</p>	<ol style="list-style-type: none"> 1. Drinkable directly,taste good, live water 2. Contents abundance of minerals and nutrients 	<ol style="list-style-type: none"> 1. Bad packing or bad sterilizing seal lip, pollution by transportation. 2. Water source will be severe polluted by acid rain,chemicals, waste water, and heavy metal...etc. 3. High cost of boiling process. remains part of germs, can not prevent the pollution 4. minerals are compound hardly bing absorbed by body 5. filtration process is hard to control in same quality
Distilled Water	Boiling the water and then condensing the steam into a clean container, leaves most solid contaminants behind. It does not guarantee the absence of bacteria,chloride,bromite	High temperature can sterilize, removes minerals, heavy metal, and most sentiments, bacteria	<ol style="list-style-type: none"> 1. Distillation device for home use produce 12 liters per day,(4 liters per 8 hours)) 2. no oxygen and mineral in water 3. spend time and cost energy 4. high cost of hydro, process is slow and water outlet is small 5. can not removes substances with low boiling point, such as organic bacteria, THM,chloride
Water Softener (anion exchange resin)	Using anion exchange cation calcium & magnesium ions in the water. the hardness ions replace the hydrogen,sodium or potassium ions which are released into the water. But the harder the water the more hydrogen,sodium or potassium ions are released from the resin and into the water	<ol style="list-style-type: none"> 1. It won't deposit white precipitate (bathtub ring)in water boiler 2. It can removes heavy metal ions 	<ol style="list-style-type: none"> 1. Requires regeneration of resin. 2. I will increase the sodium ions and potassium ions in water, high sodium water will affect the blood circulation. 3. Can not remove the sediments and odor

Ultraviolet (UV) Water Disinfection	Using UV radiations in order to inactive microorganisms. It attacks the vital DNA of the bacteria directly	Can kill bacteria	<ol style="list-style-type: none"> 1. Can not remove the sediments and odor 2. UV light bub should change by using a period of time, otherwise it will lose effect.
Water Ionizer	Using direct current to the electrode to electrolysis water, and get alkaline water from cathode,acid water from anode.	<ol style="list-style-type: none"> 1. Alkaline water(cation):abundant of hydroxyl (OH-) contents calcium, magnesium, potassium and sodium ions, gathering in cathode, these are good minerals for body,it is drinking water 2. Acid water (anion) oxygen,sulfide acid, will gathering in anode, abundant of H⁺ ions, it is for sterilizing and cleaning 3. It is 5-6 molecules, small cluster water has high penetration and dissolving , minerals and nutrients can be easily to be absorbed by our cells. Increasing metabolism. 4. Abundant of oxygen in water 	<ol style="list-style-type: none"> 1. It is hard to preserve alkalinity and negative charge of ORP(Oxidation Reduction Potential) 2. alkaline water can preserve for 10 to 12 hour in normal indoor condition. if in the temperature below 0° C. will last forever ;2 days in refrigerator (3-6° C.) 3. Acid water can preserve for about 2 to 3 week