



# **Overview of Water Treatment Methods**



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**The following "Water Treatment Guide" provides a brief overview of current water conditioning and treatment technologies for both farm and home applications. Structured Water is cutting edge ...**

### **1) WATER SOFTENERS - RESIN BASED ION EXCHANGE**

This is the common type of softening technology promoted by companies such as Ecowater, Culligan, Kenitico, GE, Whirlpool, Sears and Home Depot. Resin based ion exchange systems create polluting salt infused waste water while removing the two most important minerals necessary for good health, calcium and magnesium. Contrary to mainstream opinions and misdirected research, problems associated with hard water are a consequence of water having been stripped of its energy due to pipes, pumps and toxic chemicals. As noted in this buying guide, water can be re-energized by a variety of beneficial structuring methods without the need to remove beneficial minerals from the water. Most of these salt based water softening systems have electrical parts which require servicing and replacement from time to time as well as the need to keep the storage tank filled with salt or potassium. This type of system does indeed eliminate mineral buildup in pipes and appliances but it also contributes to chaotic, destructured, de-energized and unhealthy water for plants, people and animals.

### **2) WATER SOFTENERS - MAGNETS**

Magnets are placed in a strategic location directly onto the pipe and require no monthly maintenance and typically will carry a ten year guarantee. The magnets ability to soften water will vary greatly depending on the size, strength, type and manufacturer of the magnets. In spite of its efficacy, magnet technology remains a dubious product with the American consumer and this is primarily due to the pervasive marketing efforts of the larger water softener companies.

### **3) WATER SOFTENERS - ELECTRICITY**

Electricity can also be used to magnetize water and the two most popular companies selling these type of systems are Easy Water and Aqua Genesis. A magnetic field is created around a water pipe using electric current. These systems come in different sizes depending on water hardness and typically carry a ten year warranty. But why use electricity to magnetize when magnets can do the same thing with no moving parts but better yet, get more bang for your buck by taking advantage of water structuring units which can provide even more benefits for water than a simple magnet.

#### **4) WATER SOFTENERS - MINERALS**

Water treatment and softening using minerals is a superior option to salt based and electrical systems in that more can be done to enhance the health effects of the water with minerals and mineral cartridges can also be used to correct the mineral deficiency in water caused by reverse osmosis and salt based water softeners. Treating and conditioning water with minerals is the method of choice in Asian countries but in America, the old school technologies still have a stronghold which is maintained by aggressive and slick marketing campaigns. Water People and Biocera are Korean companies that deal primarily in mineral water treatment options. Awakening the Waters is a distributor of such a natural flow action unit that does this.

#### **5) IONIZED WATER**

Ionized water was made popular by the Japanese who borrowed the technology from the Russians who invented the process. A water ionizer separates water into alkaline water and acid water using a process known as electrolysis which can also be defined as electrocution. In order for this process to take place, minerals must be present in the water. This process is only feasible for creating small batches of water typically promoted as medical alkaline water. Ionized water has been known to have short term beneficial effects but it is believed that long term use of this water is detrimental to good health. Prices for these counter top units can range from \$600 to \$4,000 dollars for comparable units with the most popular brands being Kangen an MLM company, Jupiter, Tyent and Enagic. Structured water is a better, safer, more balanced water choice for maintaining good health.

#### **6) DISTILLED WATER**

Distilled water is created by a process of boiling water and then condensing the steam into a sterile container. By doing so, all particulates are left behind and the result is water free of all mineral and toxic content. This water has become popular as so-called health water, touted for its pureness. Distilled water can be considered hungry water and may have some short term health benefits for detoxification but along with detoxification is a demineralization process of vital minerals being extracted from the body. Structured water would be a much safer alternative and a superior, gentler, yet more powerful detoxifier, safe for long term use.

#### **7) REVERSE OSMOSIS**

Multi-filtration cartridges filter out all particulates, heavy metals and beneficial minerals. RO systems strip the water of everything but toxic memory creating acidic water. RO systems typically have issues with bacteria growth as well in the filters and the water storage tank and need to be routinely disinfected which the customer rarely follows through with. A drain hookup is required to handle the average 30% wastewater. RO systems provide a false sense of security regarding water purity in that pure water is not the same as water stripped of all particulates. Water from a pristine mountain stream can be considered pure but it will contain all kinds of life enhancing minerals. Filters typically require replacement twice yearly and these systems are limited in use to one sink, although very expensive whole house systems are available. With the advent of structured water technology, minerals treatment

cartridges, and advanced filtration, these types of systems could be considered outmoded.

## **8) WHOLE HOUSE VS. AGRICULTURAL FILTER SYSTEMS**

There are many options available for whole house filter systems on the market with some working very well and others not working well at all. There are whole house filters designed to remove just about any kind of particulates including pathogens, bacteria, iron, manganese, sediments, biofilms, organic material, fluoride, chlorine, arsenic and more. Most whole house filter systems on the market can't take care of all issues with one filter and whole filters system can become quite expensive to purchase and maintain depending on system choice. Frequency of filter replacement is based on water usage and water quality. A quality whole filter may be good choice to supplement water treatment and conditioning depending on the water issues to be dealt with. The more popular whole house systems are Pelican, Culligan, Ecowater, Rhino, Kinetico and Sears but in my opinion your best choice would be a system similar to whole house filtration system but built for agricultural applications. The best system we know of is manufactured by Parker and is called the Farm Guard. Its washable filter deals with sediment, iron, manganese, algae and silt. It will last longer and cost less than any house unit. The Farm Guard has no moving parts and is composed of rugged materials built to stand up to the rigors of farm use. We know of no other filtration that can compare with it. Regardless of what issues you may be grappling with, all solutions should include a water structuring unit.

## **9) FLUORIDE FILTER**

Water treatment devices are classified as either a water filter or a water purifier. A water filter must remove at least 99.99% of pathogenic bacteria. A water purifier must remove at least 99.9999% of pathogenic bacteria. Additionally, a water purifier must be capable of reducing viruses by at least 99.999%. Berkey claims to produce the world's finest tabletop water filtration/purifier system and they do deal with fluoride. These systems are extremely popular due to price, quality, durability and the integrity of the company. Structured water will significantly enhance the performance of the Berkey Water Purifier.

## **10) CARBON FILTERS**

Carbon filtration is the most popular, cost effective and simplest of methods for removing contaminants from water. Carbon filters can remove chlorine, sediment and volatile organic compounds from water but are not effective for removing minerals, salts and dissolved inorganic compounds. Carbon filters will typically be rated to remove particle sizes ranging from 0.5 to 50 microns. Effectiveness of a carbon filter is also based on flow rate. The slower the rate, the more effective the adsorption of contaminants by the filter. Structured water will improve the efficiency of any type of carbon filtration system.

## **11) UV LIGHT WATER TREATMENT**

UV lights are typically used only for well water systems and are very effective at killing harmful microorganisms including: E. Coli, Cryptosporidium and Giardia. Lights typically need to be replaced at least every two years. UV lights are very narrow in their scope of water treatment and typically well water requires more than just

treating for pathogens and there are systems available such as those mentioned below that are much broader in their scope of water treatment.

## **12) CHEMICAL INJECTION WATER TREATMENT SYSTEMS**

Chemical injection systems have many applications in agriculture, food processing, medical facilities, industry and rural residential water treatment. In conjunction with a water structuring unit, the chemical injection water treatment approach can be the most efficacious of all water treatment and conditioning systems for agricultural applications and oftentimes a specially designed iron filtration cartridge can be used to reduce chemical use. These systems also have merit for residential use but this technology is hardly known among residential water treatment specialists. All of these chemical injection systems will operate more efficiently, requiring less product when used in conjunction with a water structuring unit and in some cases with specially designed filtration cartridges. The three most popular chemical injection water treatment systems used for primarily for agricultural and industrial applications are:

## **13) CHEMICAL INJECTION - CALCIUM HYPOCHLORATE**

The primary purpose of this product is to disinfect well water. Calcium hypochlorate is safer and more effective to use than sodium hypochlorate which is another term for household bleach. This product can be used in tablet form in conjunction with an automatic tablet dispenser placed at the wellhead to disinfect water before it is pumped out of the well. One concern with calcium hypochlorite is that when combined with organic particulates in the water, it can lead to the formation of trihalomethanes which are extremely carcinogenic. Additionally, it isn't effective against all pathogens nor can it eliminate iron, manganese or biofilms. B&B Chlorination is one of the primary purveyors of this product.

## **14) CHEMICAL INJECTION - HYDROGEN PEROXIDE**

This little known product has a multitude of health and productivity benefits for animals, plants and even people and is used primarily in agriculture. A Stenner injection pump is typically used to introduce a hydrogen peroxide solution into the water supply prior to supplying a residence, a barn, a chicken coop, a greenhouse or other agricultural applications. Oxyblast is the only known purveyor of this product to be found on the internet.

## **15) CHEMICAL INJECTION - CHLORINE DIOXIDE**

Although the word chlorine is in the name, chlorine creation is not a byproduct when mixed with water. This product is sold under many names for a multitude of beneficial uses for the oil industry, agriculture, food and beverage processing, water treatment plants, rendering plants and more. To create chlorine dioxide requires mixing sodium chlorite with an acid. For agricultural water systems, this is typically done by hand and then infused into the water supply with an injector pump. This product is also available under different names for medicinal use for animals and plants and under the name Miracle Mineral Supplement (MMS) has even been known to be used for treating tens of thousands of malaria cases in Africa as well as a multitude of other diseases including cancer. For residential, medical, food and beverage operations, the mixing process is accomplished via automation, drawing product from separate containers, injecting into a mixing chamber and then infusing

into the water supply. Unlike disinfection with calcium hypochlorite, chlorine dioxide does not lead to the formation of trihalomethanes and its applications are extremely broad. Chlorine dioxide is able to accomplish an unparalleled 99.9% kill rate for most pathogens and it is also the most effective choice for eliminating iron, manganese, hydrogen sulfide and biofilms from water. This is the product of choice for municipal water treatment plants around the world because of its lack of hazards to human health but it remains virtually unknown in American municipalities which for the most part all use cancer causing water treatment options. Additionally, the internet is filled with danger warnings about chlorine dioxide which seems very odd considering its historically safe and beneficial use for water treatment plants globally as well as being used routinely for farm and ranch use. Dupont and Bio-Cide are the major producers of this product.

**Note: Structured water will enhance the performance of any and all water conditioning technologies and filtration systems or better still replace them !**

**NO filters, magnets, electricity or maintenance ...**

Crystal Blue Water Structuring Units are transforming modern Agriculture and our daily lives. They are precision engineered using the best quality materials and sizing goes from Mini HandHelds to 10" in line units.

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