



THE HOMEOWNER'S GUIDE TO THE WATER TREATMENT PROCESS



INTRODUCTION

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If you own a home with a water supply that is affected by hard water, lead, and other contaminants, it can be a life-changing decision to have it treated. Water treatment is the process of improving its quality to make it appropriate for lifestyle use in a home. This can apply to drinking water, the water you bathe in, and even how water affects your dishes or appliances.

Often, people are unaware that hard water, bacteria, or other contaminants can be doing so much damage. However, once they make the switch, the benefits are apparent both in the short and long-term. We've taken the time to create a handy guide on how you can improve your quality of life through the different methods of water treatment and what might be most appropriate for your situation. Take a look and see what you've been missing out on!

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WATER TREATMENT BASICS

When it comes to water treatment and the need for your own system, it is important to understand the basics of community water treatment. Typically, for city water and community sources in a water treatment plant, they treat via:

COAGULATION AND FLOCCULATION:

This is the introduction of positively charged chemicals such as aluminum sulfate that will neutralize negative solids in dirt, clay, and other organic material. Coagulation will occur after the chemicals separate the initial materials, and particles will settle. From there, the mixing process of flocculation will bond these particles into 'flocs', allowing them to be removed easily.

SEDIMENTATION:

The removal of matter that has settled at the bottom of a water container. This is necessary to refine the quality of water and prep it for filtration and disinfection.

FILTRATION:

After all the sedimentation particles have settled and been removed, there is still smaller matter that needs to be removed such as bacteria, parasites, and dust. This happens by passing them over consistent types of particles used in filtration, such as sand or charcoal.

DISINFECTION:

The final stage of basic water treatment involves the addition of chlorine or chloramine typically. A disinfectant is selected based on what is best-served for the purpose of the tank (drinking, swimming, etc.)

While these procedures are standard and effective for most community water, they might be too broad for specific regions – or even just the land your property sits on. Often, simple water treatment methods will still leave hard water and contaminants that can lead to buildup, poor tasting water, or other health side effects.

ADVANCED WATER TREATMENT METHODS

When you are looking to upgrade your potable and usable water supply at home, there are two best-fit methods we recommend – reverse osmosis and water softening. They will have different applications depending on your existing system, the soil and water supply around you, and what problems you are looking to solve.

Reverse Osmosis (RO) is when we take water from a given supply and remove ions and minerals by using a partially permeable membrane. This allows it to be safe for consumption. Reverse Osmosis for a household is different from normal filtration in that its membrane is 10 times less permeable than typical city water treatment. In other words, it gets all the nasty stuff out of your drinking or bathing water that you don't want.

Water Softening is the process of removing dissolved calcium and magnesium salts that cause water to form insoluble scale deposits and precipitates. If you've ever seen buildup on shower glass or an off-color ring in a toilet bowl, your instinct might be to think "wow, that's a poor job of cleaning!" In reality, these are often from hard water that builds up quickly and is difficult to remove.

Both of these methods have a significant impact on your home water system and will make your life appreciably better. The water in your shower will feel different, your soaps will work better, and your drinking water will look and taste pure. In addition to the treatments already done by the city to prevent bacteria and viruses from getting into your home water system, we highly recommend one of these two ways to treat water.

SAFE DRINKING WATER

When you combine the community water treatment practices with the additional steps of reverse osmosis or softening, it yields health and taste benefits you may be able to literally see. The purity, taste, and smell will be better, as well as the pH level of what you drink. People who are concerned with alkaline levels in their diet will see immediate changes.

Similarly, dust, parasites, viruses, and chemicals remain in most potable water after community treatment. The removal of these can contribute to better immune health, water taste, and is better for your home in terms of the sustainability of the pipes.

Ultimately, it is a matter of experiencing the difference between hard water and soft on your diet or noticing the absence of sediment in a glass you are drinking. The difference can be astounding, but you'd never know without knowledge of how water treatment actually works.



WHEN IS IT TIME FOR A HOME WATER TREATMENT SYSTEM?

Home water treatment may not always be necessary, but sometimes the signs of a contaminated supply are wrongly attributed to poor cleaning habits or non-water related issues. Solving these with water treatment can lead to drastic improvements in health and daily routine.

If your drinking or bathing water has a foul odor similar to rotten eggs, or there are metallic tastes when you drink water, that is an immediate warning sign your supply may be contaminated. Similarly, if there is buildup on your sinks and toilets, or the water from any of your taps is cloudy or murky, it might be time for a change.

Knowing about the prevalent treatment methods is the first step to getting a better water supply. From there, we recommend consulting with a professional to perform an appraisal of your home system to assess your individual needs and determine what system you may need. Whether it is a whole house filter that connects to your main supply line or an RO system installed under your sink, there are many options that can help make your water better. Once you've made the switch, you'll wonder how you lived with contaminated water in the past.



CHAPTER 1

WHY WE TREAT WATER

It is easy to take the quality of your home water system for granted. After all, it was most likely there when you moved in, and you might attribute certain negatives from the water to other home or hygienic issues. However, once you are aware of the benefits that custom home treatments such as reverse osmosis systems or water softening yield, it can be eye-opening.

In this guide to home water treatment, we'll go through the types of system installations, the cost-benefit analysis of luxury filtration, and when you might need to opt for water protection in your home. Knowing the health, happiness, and household benefits might just make that sooner than later.

WATER POLLUTION

When it comes down to it, the biological health of your drinking and bathing water is the number one concern within your system. If there are dangerous bacteria, alkaline imbalances, and sediment and minerals that cause issues to you or your home, they must be resolved right away.

In typical city or community water treatment plants, they use a four-step conventional method of water treatment. These are:

Coagulation and Flocculation: The removal of negatively charged particles coming from dirt, clay, and organic matter via binding and mixing.

Sedimentation: This is the removal of the suspended pathogens from step one, and is typically done continuously in community water treatment.

Filtration: The process of passing water through physical particles such as carbon, sand, or gravel in order to remove bacteria and contaminants that cause gastrointestinal disorders among other health concerns.

Disinfection: This step involves adding a disinfectant such as chlorine or chloramine to the water supply. This will oxidize the water and eliminate most remaining harmful organic matter such as parasites, viruses, and bacteria.

These steps are wonders of modern technology, and do a great job to protect you and your home from baseline issues in drinking and home-use water - but they don't necessarily cover all the bases. There are additional bacteria and contaminants that can contribute to health issues, hard water, and even unsightly blemishes on your appliances.



WATER QUALITY

We've all been there – you pour water from a tap and it is murky or cloudy. While this can and should be a red flag, it is often ignored or overlooked because 'that's just how the water is here'. That may be the case; there can be newly installed water filters that have air-based cloudiness that will subside as the water settles. However, if you're seeing this, it is important to look further into the quality of your water.

If there are other warning signs such as foul odor, metallic taste, or build up on your showers and sinks, then this is a distinct issue that needs to be changed immediately. Often, people will attribute these things to not cleaning well enough or other household issues, when it is more likely because of hard water or bacteria-laden systems that can cause illness or degrade your appliances.

Additional purification via reverse osmosis or water softening can help fix these issues, and the benefits extend much further than just the look of the water. Often, the biggest changes that people notice in water quality are the feel of their clothes out of a washer and dryer, the taste of the water from their tap, or less soapy residue on dishes or showers. This is because of the hard water that is full of mineral and sulfate deposits.

WATER RESOURCES

Most simple water treatment processes ensure that your supply will not be toxic and is moderately effective. Thus, the methods of treatment such as a reverse osmosis system or water softening do have an element of luxury to them. However, these high-end systems have significant long-term benefits that will help to contribute towards covering the cost of installation.

For example, if you find yourself re-cleaning dishes, sinks, or bath tubs due to soap scum or lime and rust buildup, this is not just a matter of inconvenience. It becomes a quality of life issue, as well as something that can cost significant money if it goes unchecked. Your time, money, and – let's be honest – pride can be affected by having gross-looking sinks, toilets, and showers. Pure water can help you avoid this, and it's not just vanity.

If your shower is running water that is gritty, murky, and doesn't allow for a true wash, you will immediately notice the benefits of a change. Your hair will be smoother and healthier, as will your skin. You might even notice that acne or flaky skin will subside, or that you might smell better. Once more, this is a bi-product of advanced water systems that people may not have even known was an option.

Finally, with reverse osmosis and water softening, you can be sure that your tap water will be fully filtered and potable all the time. This is much better for your health, but also the environment – disposable filters or bottled water are both expensive and wasteful. Simply put, using your water supply in its full intent is much better for home ownership, as ease of use and access to quality water should be given in a household.

HOW TO GET YOUR WATER TREATED

If you have realized that your water supply may be contaminated or hard, the next step is to figure out which solution is best for your home. This can be done through an assessment from a water filtration specialist, who can tell you whether you need an RO system, water softening, or other non-invasive options.

Most of these installations are same-day, quick, and the results will begin to take place nearly immediately. From there, it's a matter of enjoying cleaner drinking water, dishes, and stronger immune health.

If you're looking to improve the quality of your water and life in one fell swoop, Deer Valley Plumbing is your one-stop shop for all things water. We'd love to help you [improve the quality of your water at home](#).



CHAPTER 2

THE ADVANTAGES OF WATER TREATMENT TECHNOLOGY FOR YOUR HOME

We love to make sure we have the latest information and technology to support healthy living in the 21st century. Our sleep, diet, and lifestyle habits are all supported by modern advances, so why shouldn't your water supply be?

The answer is that many people don't realize the stark difference between a privately treated water supply and a standard (or even below average) community one. When a household is suffering the ill effects of polluted or hard water, the problems are often blamed on incorrect sources. In reality, if more people knew about how influential modern water treatment technology was at home, it would be more prevalent.

WHAT ARE WATER TREATMENT SYSTEMS?

When we refer to private luxury water treatment, the most common implementations are going to be reverse osmosis systems or water softening treatment. This is due to the inefficiencies in certain community water systems to rid your drinking and other tap water of harmful bacteria, minerals, and other pollutants. If you are consistently drinking untreated drinking water, you can suffer from gastrointestinal disorders or other health issues.

Similarly, if you have ever noticed rust or lime buildup on showers, sinks, or toilets and wondered what it was from, the answer is often your water supply. Most people assume it to be a lack of hygiene or improper cleaning, but in reality, it is from the minerals in hard water. Using reverse osmosis and/or water softening, you can make sure that the quality of your showers is better, you don't see soap scum residue,

and even your clothes and sheets will feel better when you pull them out of the washer.

When it comes down to it, there are a myriad of benefits to an enhanced home water filtration system, yet most people are settling for a mediocre experience without knowing it. Once you've consulted with a water treatment professional about the specific water supply to your home, you should be able to pinpoint the changes that a treatment installation will provide.

SIGNS OF POOR WATER QUALITY

All the benefits of a modern water treatment system are designed to get you the highest quality water. But as we said, it can be difficult to tell whether or not you are in need of these treatments if you're not looking carefully. Here are some signs you might have poor water quality that could use a supply update:

STAINED FIXTURES OR CLOTHING

Red, brown, green, or blue- these colors all can indicate different minerals such as iron, manganese, or copper in your water. It will affect the way you clean dishes, take showers, and how your water impacts your health.

OFF-COLOR APPEARANCE

If you have cloudy or yellowish-brown water, this can be from chemical contaminants such as hydrogen sulfide, manganese, or improper pH levels in your water supply. These will specifically cause gastrointestinal issues, or even bacterial infections. You might notice muscle cramps regularly as a non-water-laden symptom, as well.



FOUL TASTE OR ODOR

If your water smells like rotten eggs or is musty in any capacity, it can be indicative of mineral or pH imbalances. Additionally, if there are oily, soapy, or septic tastes and qualities about your water, it can indicate hard water, dissolved salts, or even methane and coliform bacteria in the supply.

PIPE CORROSION

This is another indicator of pH imbalance, or the presence of iron and lead among other minerals in your water. Hopefully your water supply issues do not come to this symptom, as it can be costly to fix. This is why we recommend being proactive about monitoring the water quality in your home.

If you notice any of these issues with your water supply, don't hesitate to call a water treatment specialist. A consultation can let you know what kind of solutions will work best for your home in order to vastly improve your quality of life.

LATEST WATER PURIFICATION TECHNOLOGY METHODS

Once you've determined that you need to improve your water quality, it's time to audit which of the most modern treatment processes is necessary. Typically, if your water is suffering from chemical contaminants or bacteria, you're going to want to opt for a reverse osmosis system. Conversely, if you are having issues with hard water, a simple water softening treatment will suffice.

WHAT IS REVERSE OSMOSIS?

RO can actually take care of hard water issues as well, as it is a very comprehensive treatment. RO is the process of moving water across a semipermeable membrane that will lower the incidence of lead, chemicals, and damaging particulates, among other things. People often wonder if reverse osmosis can remove bacteria – it certainly can. It is especially proficient at removing proteins produced by bacteria, which are often what cause stomach issues in home water supplies.

WHAT IS WATER SOFTENING?

This is the process of removing dissolved calcium and magnesium salts that cause hardness in your water. Hard water is what causes the build-up of soap scum or other precipitates on the surfaces of your appliances. Basically, life is harder when your water is. Once your water supply is softened, you will notice a better experience for drinking, bathing, and taking care of your residence.

These two in-home methods are typically used in conjunction with the already very high-tech water treatment that most communities or cities provide. In the event your home does not have this baseline,

you might need to look more into PAC (polyaluminum chloride) dosing, along with coagulation and flocculation treatments that cities use. Make sure to ask your water treatment specialist to give you a breakdown of how your water is being treated and what the next steps to modern purity are.

TREATMENT PROCESS

With Deer Valley Plumbing, the water treatment process is as simple as a consultation, visit, and one-day installation. We have decades of experience in creating a better quality of life for you and your family while raising the value of your home.

Ultimately, we use water for everything in our home, so why settle for less than the purest? If you believe you could benefit from a modern water treatment technology, reach out today – we'd be happy to streamline the process.



CHAPTER 3

WATER TREATMENT STEPS FOR REVERSE OSMOSIS AND SOFTENING

If your home water supply is compromised, it can have all sorts of negative effects on your daily life. Bacteria and mineral buildup can cause stomach issues, make your water smell and taste bad, and even affect your clothes and appliances.

If you believe that your community pipeline is not doing a sufficient job of treating the water for your home, it is time to look at private filtration options. These include reverse osmosis and water softening treatment, and can make all the difference between suffering through your home's tap and bathing water or enjoying purity.

COMMUNITY WATER TREATMENT STEPS

It would be irresponsible of us to label all community water filtration as insufficient – the technology that most cities use is very advanced and often will be good enough to drink and use around your house. However, it is important to know how they work and what might be missing if your water quality is not up to par. Here are the four steps of water treatment that most cities and public treatment plants use:

1. COAGULATION AND FLOCCULATION

The first step in most community treatment is introducing positively charged chemicals such as aluminum sulphate that can neutralize negative solids in dirt, clay, and other organic material. Coagulation happens after the chemicals separate the initial materials, and the particles settle on the bottom of a treatment tank. From there, the mixing process of flocculation will bond these particles into 'flocs', allowing them to be removed easily via the next steps.

2. SEDIMENTATION

Sedimentation is the removal of the suspended matter and pathogens that have settled at the bottom of a water container. This is necessary to refine the quality of water and prep it for filtration and disinfection.

3. FILTRATION

After all the sedimentation particles have settled and been removed, there is still smaller matter that needs to be removed such as bacteria, parasites, and dust. This happens by passing them over consistent types of particles used in filtration, such as sand or charcoal.

4. DISINFECTION

This is the final stage of basic public water treatment and involves the addition of chlorine or chloramine typically. A disinfectant is selected based on what is best-suited for the purpose of the tank (drinking, swimming, etc.)



These four steps take care of a large percentage of common particles and bacteria that you will find in water supplies. However, depending on your location, the overall quality of the public filtration, and your pipeline, there can still be harmful matter that remains in the water. These include minerals and salts that keep your water hard, and certain bacteria and sulphates that are not fully removed by these four steps.

HOW TO TREAT YOUR WATER FOR OPTIMAL PURITY

At a certain point in time, you may realize that your domestic water is not pure enough for functional home life. Your water will smell foul, or you might feel ill from drinking it. Additionally, if there are calcium buildups or dark stains on your toilets, sinks, and showers, it is a sign that you have hard water.

This is no way to live life; your home and your family can benefit immensely both in the short and long-term from a high-end water treatment system. We recommend one of the following two treatments depending on your location and pipeline:

REVERSE OSMOSIS

Despite being one of the easiest installations for home systems, reverse osmosis is still a very comprehensive treatment. RO is the process of moving water across a semipermeable membrane that will lower the incidence of lead, chemicals, and damaging particulates, among other things.

A common question is if reverse osmosis can remove bacteria – and it certainly can. It is especially proficient at removing proteins produced by bacteria, which are often the remaining particulate that causes stomach issues in home water supplies. Reverse osmosis units provide your home with water quality similar to bottled water, and can be installed in one day.

WATER SOFTENING TREATMENT

A softening system removes dissolved calcium and magnesium salts that cause hardness in your water through a unit placed at the initial inflow source of your water supply. Using molecules that attract and bind to positive ions dissolved in the water, it removes excess calcium and magnesium, among other particles that will create hard water.

The presence of hard water is what typically causes build-up of soap scum or other precipitates on the surfaces of your appliances. People often mistake these for being related to hygiene. - This also extends to the way clothes feel out of the wash, or your body feels after a shower. Basically, life is harder when your water is. Once your water supply is softened, you will notice a better experience for drinking, bathing, and taking care of your residence.

These two methods are typically used in conjunction with the baseline water treatment that most communities provide. In the event your home does not have this underlying system, you might need to look more into PAC (polyaluminum chloride) dosing, along with coagulation and flocculation treatments that cities use. Make sure to ask your water treatment specialist to give you a breakdown of how your water is being treated and what the next steps to modern purity are.

NEXT STEPS FOR WATER TREATMENT

Deer Valley Plumbing makes the water treatment process simple and efficient. The first step is a consultation, followed by a visit with one-day installation. We have decades of experience in high-end water treatment, and love educating our clients about all the potential benefits of pure water.

We believe that the quality of life for you and your family while at home is only as good as your water supply. If you could benefit from a modern water treatment technology, reach out today for a consultation.



CHAPTER 4

FINDING THE BEST WATER SOFTENER FOR YOUR HOME

Hard water coming from your community water supply can make everyday home life, well... hard. What should be a pure resource that is refreshing to drink and revitalizing to wash things in will now be a consistent problem.

Hard water can have dietary side effects, make your water taste bad, and cause all sorts of residue and buildups on appliances, showers, and toilets. If you're looking to solve this pipeline scourge, you're going to need a home water softening treatment. We've gone ahead and compiled the best water softening resources and how to implement them so your life can be easier; read along and learn how to rid yourself of hard water quickly.

HOW DO I KNOW IF I NEED A WATER SOFTENING TREATMENT?

Hard water comes from calcium and magnesium ions among other particulates that are left in your water supply. Water softening treatment replaces them with sodium ions, which helps to keep the other elements from interfering with the action of cleaners and detergents. However, some of the side effects of hard water build subtly, and if you don't know what you're looking for you might attribute them to something else.

If you think you might have hard water, here are the most common side effects:

- Mineral buildup on fixtures, faucets, and toilets.
- Itchy or dry skin from ineffective soap/water combination.

- Scum buildup in the shower from your soap not being soluble.
- Residue or cloudy spots on drinking glasses.
- Rusting appliances or silverware.

Any one of these can be a sign that your water supply might be hard, and if you see multiple of these, it's time to contact a water treatment professional to see what the best solution is for your home system.

WATER SOFTENERS ON THE MARKET

While softening treatment is the standard for hard water issues, not all systems are the same. Depending on what you are looking for, your region and the type of pipeline your home has, you might want to consider the following options:

SALT BASED ION-EXCHANGE WATER SOFTENERS:

Systems like these typically consist of two tanks. One of them is filled with resin beads designed to remove minerals from the water, while the other brine tank works simultaneously to clean and recharge the beads after the resin has been worn down. This is called ion exchange, and it is the driving mechanism behind removing calcium and magnesium in this water softening system.

These types of systems are made by many prominent brands, but we are partial to the Fleck 5600SXT filter. It utilizes computerized flow meters to make sure that the system is only regenerated when needed, meaning there is no salt waste. This makes for a durable system, as well as an environmentally friendly one.



SALT FREE WATER SOFTENERS:

These systems do not require the same upkeep as ion-exchange filtration systems. This is because they don't implement salt, and thus do not need bead regeneration. Instead, they utilize mechanisms to neutralize the minerals in your water supply rather than remove them. They do this by preventing them from bonding, which is the main way in which buildup and deposits form.

While these systems are a bit more advanced and costly, it is well worth it with the technology available. OneFlow is one of the leading water softener equipment suppliers in the Arizona area, and can help make your water supply balanced and healthy for you and your family.

REVERSE OSMOSIS WATER SOFTENERS:

While RO is typically not thought of as a water softening system, it does achieve the same effect in principle. Because reverse osmosis systems strip water of all substances, it polarizes them the other direction as harmful hard water. They do work to re-introduce healthy minerals to most systems, so while it is more of a give-and-take effect, the ultimate product of your pipeline is typically softened by reverse osmosis.

MAGNETIC WATER SOFTENERS:

One of the newer technologies in water softening, they are similar to salt-free systems in the sense that they don't remove the minerals from your water. Instead, the magnetic water conditions the hard minerals to not bond together and remain soluble. This means you can soften your water at a more affordable rate that is easier to implement. The installation of magnetic water softeners is essentially just wrapping the system around your pipes to create a magnetic field.

As with any advanced system, you should do your research on the best in class. Magnetic Water Technology is one of the leading brands of water softener magnetic systems. Any top-notch water softener company can work to install this brand or a similar one to keep your drinking and bathing water pure. Ultimately, the health benefits, lifestyle improvements, and home resale maintenance make a modern water softening system a no-brainer if your supply is contaminated.

WATER SOFTENER INSTALLATION

At Deer Valley Plumbing, we work to provide our clients with a custom solution for any pipeline issues they may have. Our team of specialists has been installing water softeners in the Phoenix area for decades, so we understand how the newest technology interacts with the unique landscape qualities.

If you are looking to improve your life with a water softening system, please reach out to us today. We'd love to show you how a better water supply can make all the difference for you and your family.



CHAPTER 5

FINDING THE BEST REVERSE OSMOSIS SYSTEMS

Living with a contaminated home water supply can be disappointing for you, difficult on your home, and even damaging to your health. In many instances, a community water pipeline does not properly account for different minerals and other contaminants, and you must take matters into your own hands.

One of the most advanced and effective home water treatment systems is reverse osmosis. This practice will remove common chemical contaminants such as metal ions and salts. The removal of this wide range of particles that is left over from community filtration can have both short and long-term benefits for keeping your home value and quality of life up. If you are looking to get a reverse osmosis system installed in the near future, take the following into consideration.

REVERSE OSMOSIS WATER FILTRATION

Many people are familiar with the term reverse osmosis, but don't know exactly what the process is or why it is so beneficial to your home water system. This is understandable; it's a complex solution for a myriad of drinking and bathing water problems, but the bottom line is it will create pure water.

In (somewhat) simple terms, a reverse osmosis filter works by water pressure pushing contaminants through a semi-permeable membrane so they can be removed from the supply. As this happens, both particulates and dissolved inorganic solids such as fluoride, lead, and pesticides are removed. In turn, this creates pure water.

While reverse osmosis is not a new technology, it has become much more cost effective and safe since its utilization in the 1970's. Today, it is one of the preferred methods for treating home water systems, and is extremely efficient.

HOW DOES RO IMPROVE WATER QUALITY?

We described the technology that reverse osmosis implements in order to achieve its goal of water purity, but it's also important to recognize the daily functions around you home that will improve. If you've been living with a contaminated water supply and switch to a self-contained RO, you should notice many of the following perks:

- Your water will smell and taste better due to lack of bacteria and other impurities.
- If you had to outsource your drinking water via bottles or delivery, and RO system will save you a great deal of money long term.
- The full containment of your water supply inside your house is much better for the environment, as you won't be dealing with plastics.
- Reverse osmosis systems are extremely easy to maintain; they typically only require a filter change and the unit is accessible via whatever unit it is hooked up to.
- If your water supply had bacteria affecting gut health, RO can immediately improve this – many people attribute stomach issues to other portions of their lifestyle but are pleasantly surprised to learn that purer water can change this.

With a list of benefits like this, it's easy to see why reverse osmosis systems are becoming more and more common among well-maintained households.

IS REVERSE OSMOSIS DRINKING WATER HYGIENIC?

This is a common question – for a while near the inception of the technology, there were skeptics about whether the drinking water produced by RO was healthy or safe. However, as time has progressed and systems have been tested and improved, it is conclusive that the purity of the water from reverse osmosis systems is preferable to almost any form of community water supply.

One misconception is that when drinking water is run through a reverse osmosis system in order to remove unhealthy minerals and contaminants, there is also a reduction in healthy minerals. This would only be true if someone's diet contained none of these necessary minerals (which is very unlikely in any sort of balanced diet). Similarly, there is no difference between the time of processing minerals from liquid vs. food in the human body.

When it comes down to it, reverse osmosis has been consistently proven to improve gut health, remove contaminants from a household's drinking water, and is a major boon to the purity of water. If you are having contaminant issues with your water supply, the choice isn't whether or not to get RO, it's a matter of which model and how soon.



SELECTING A REVERSE OSMOSIS SYSTEM

Once you've made the decision to get your water treated by reverse osmosis, there are several things you should consider. You need to make sure that you are working with qualified plumbing professionals who are local. This is because your soil and pipelines will likely have similar attributes to other houses around you, so a plumber with experience in the area will have extensive knowledge about how to best treat your water.

Similarly, make sure that when you have a discussion about systems, they explain why they recommend a certain model, how they are installing it, what parts you will need to self-maintain it. There are a wide variety of RO systems that have similar technology, but these five stand out as diverse and functional choices to us:

- **Waterdrop G3 System**
- **iSpring Water Filtration System**
- **APEC 4 stage Water Filter Systems**
- **PureDrop 5 Stage System**
- **Home Master Artesian Water Filtration System**

There are significant nuances in process, where the unit is installed, and how each is suited for your specific well or community water supply. However, we recommend getting a consultation from a professional in order to best explain these – there is a great amount of detail in what might seem like slight divergences, and it can make all the difference in the purity of your water.

GETTING THE BEST TREATMENT IN EVERY WAY POSSIBLE

At Deer Valley Plumbing, we have been providing Arizona and the greater Phoenix area a pathway to better quality of life for decades. Our experience in the area makes us well suited to diagnose your water supply and install a reverse osmosis system quickly and affordably.

If you are interesting in removing contaminants from your water and stress from your daily life, reach out today – we'd love to help.

tap into them, and the EPA standards are generally stringent for potable and bathing water.

GROUND WATER:

Typically the greatest percentage of a land-laden region like Arizona will be drawn from ground supply. This is water that seeps into the earth via precipitation and becomes part of flow in soil or bedrock. From there, your community supply will pump water to the surface for distribution.

PURCHASED WATER:

Depending on your location and soil/reservoir quality, a county might buy water from other utility companies to create a connection. While this might create higher water quality than unsatisfactory local sources, it is typically not at a level of purity we are looking for in high-end homes.

Ultimately, these sources will all flow to water treatment plants for relatively standardized processes before distribution. However, as we see in many regions, this is often not enough to prevent contaminated public water supplies.

WHAT HAPPENS IN WATER TREATMENT PLANTS?

While some community water filtration is technologically advanced and often will be 'good enough' to drink and use around your house, this is not a guarantee of true purity or healthy water. Additionally, it is important to know how they work and what might be missing if your water quality is not up to par. Here are the four steps of water treatment that most cities and public treatment plants use:

COAGULATION AND FLOCCULATION:

The first step in most community treatment is introducing positively charged chemicals such as aluminum sulphate that can neutralize negative solids in dirt, clay, and other organic material. Coagulation happens after the chemicals separate the initial materials, and the particles settle on the bottom of a treatment tank. From there, the mixing process of flocculation will bond these particles into 'flocs', allowing them to be removed easily via the next steps.

SEDIMENTATION:

Sedimentation is the removal of the suspended matter and pathogens that have settled at the bottom of a water container. This is necessary to refine the quality of water and prep it for filtration and disinfection.

FILTRATION

After all the sedimentation particles have settled and been removed, there is still smaller matter that needs to be removed such as bacteria, parasites, and dust. This happens by passing them over consistent types of particles used in filtration, such as sand or charcoal.

DISINFECTION:

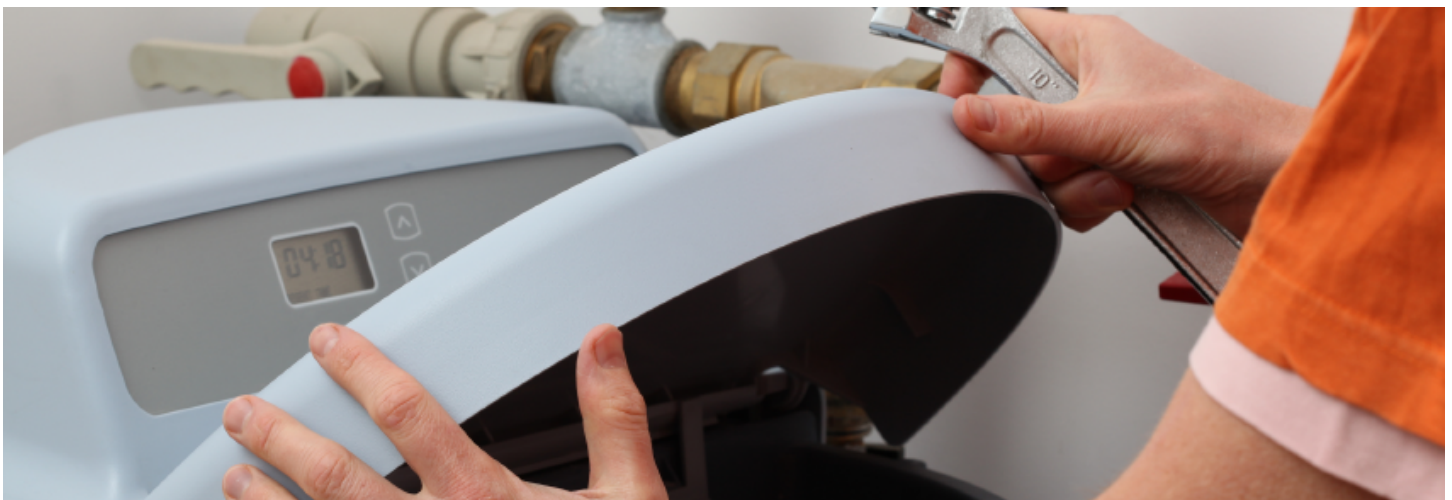
This is the final stage of basic public water treatment and involves the addition of chlorine or chloramine typically, this stage involves using a disinfectant that is best-suited for the purpose of the tank (drinking, swimming, etc.)

When setting up a water softening treatment plan, it is important to speak with your local plumber about how to specifically work with the water in your area. They will have tips that pertain to the water coming from regional treatment plants, as each pipeline is unique.

WATER SOFTENING TREATMENT AND MAINTENANCE

When implementing a home water softening system, you can work with a whole-house filtration system, whole house water softening, or the combination of a water softening system with under the sink reverse-osmosis. Regardless of your setup, we recommend professional lab analysis of your water, proper system installation from a plumber, and a plan of consistent treatment.

Here are some common tips that many water softening systems will benefit from. As always, make sure to check with your local plumber that these are necessary and correct:



CLEAN THE BRINE TANK OFTEN:

Salt buildups or bridges can contribute to the water being sodium saturated. This will make your water quality extremely poor, so do not let this happen.

PURIFY THE RESIN BED:

The resin bed will become 'fouled' if your water has iron in it and sits there for a long period of time. Make sure to flush the resin bed out with proper fluids and treatment mechanisms.

MONITOR SALT LEVELS:

Having too much or too little salt at any given time can throw off the balance of your water. Try to replace the salt before it gets too low, and don't overfill the tank either.

USE PURE SALT WITH IRON REMOVER:

We often hear of people using rock salt because it is less expensive, however it will end up being costly as it can cause contaminants or sediment buildup.

We are always proponents of utilizing intermittent professional support from the plumber who installed your system. While it might be tempting to go for quick DIY fixes, over the long run there will be red flags that most people won't catch without proper education and knowledge. This can prove far more costly than the money you save short-term, and a professional treatment every now and then can do wonders even as you maintain the system yourself.

GET THE BEST TREATMENT FROM DEER VALLEY PLUMBING

At Deer Valley Plumbing, we've built our reputation by helping create the purest water supplies in Arizona. We have decades of experience in identifying what creates hard water and contaminated sourcing, and we can offer the best solutions for long-term care.

If you're interested in refreshing your water supply, reach out to us today; we have the best plumbing service in the Phoenix area on tap.



CHAPTER 7

MAINTAINING A QUALITY REVERSE OSMOSIS SYSTEM

If your community water supply is contaminated or produces hard water, a reverse osmosis system is one of the best ways to mitigate this problem. These state-of-the-art filtration technologies are affordable and easy to use, but do require expert installation and proper maintenance in order to achieve their desired effect.

We've created a nifty guide in order to have the longest-lasting filters and membranes in an RO system that will keep your water fresh, pure, and a delight to use around the house. Read on to make sure you're the master of your water supply domain.

DO REVERSE OSMOSIS SYSTEMS NEED REGULAR MAINTENANCE?

This is a question that often gets asked far too late into ownership of an RO system. The answer is yes—routine maintenance should be performed on almost all RO systems.

Typically, these systems will have three, four, or five-filter stages. This will depend on the make and model of your RO unit, but for the most part, the timing and optimal practices for maintenance are very similar.

Regardless of what model you have, make sure to consult the plumbing professional who installed it about specific tips relative to your water supply and house for best practices. We recommend creating a calendar along with a short set of notes so that you'll have iron-clad (but not lead-filled) water purity.

HOW DO YOU MAINTAIN A REVERSE OSMOSIS SYSTEM?

Now that we have established the necessity of regular cleaning and that most systems will follow the

same general timing, let's dive into the details.

It is important to know the components of RO systems and what they do; for the sake of maintenance, we should be paying attention to the pre-filter, the carbon filter, and the membrane.

Pre-Filter: The pre-filter is the first line of defense against silt, sand, dirt, and other large particulate sediments. If it is not changed on a regular schedule, it can become clogged or bacteria-laden, which will then cause the RO membranes to get damaged. Make sure to change your pre-filter every 6-9 months.

Carbon Filter: After the pre-filter there is typically a carbon filter which is designed to remove chlorine and other smell/taste laden contaminants. This should be changed at the same interval as the pre-filter, as it's easier to do both at once and the carbon filter is also only good for about 6-9 months.

Reverse Osmosis Membranes: The RO process is actually referring to the passing of water through the RO membranes via pressure. The Membrane retains particles and contaminants, and pure water is passed out the other side and into your water supply. We recommend changing these membranes every two years, though some systems can go as long as three years without a membrane change.

As with all advanced plumbing solutions, these are guidelines and not strict rules. More importantly, your house, pipeline, and water supply could dictate longer or shorter time spans, and perhaps slightly different components to work with. Make sure that you are familiarized with the system you have; consulting your local plumbing professional is the best way to efficiently do this.



HOW TO CLEAN AND SANITIZE REVERSE OSMOSIS SYSTEMS

While it is going to be necessary to replace some of the components of your RO unit regularly, you can make sure you get the longest lifespan out of these parts by cleaning and sanitizing your system properly. While the process may seem daunting, we have broken it down into a few different steps that you can follow easily:

1. Prep the area in which you are sanitizing so that there is no dirt or dust near it, and your hands are clean (and preferably gloved).
2. Turn off all connected water supply lines such as cold water, refrigerators, or icemakers.
3. Drain all the water from your RO system and then close it.
4. Open the pre-filter compartment and if you aren't replacing it, pour a solution such as Sani System or bleach into the housing. Reconnect the compartment and run the cold water supply to let the system fill with the sanitizing solution.
5. Turn on the RO faucet and let it run for 15-30 minutes, especially if you are using bleach. After this amount of time, test to see if there is any chemical or bleach odor; if so, run water through in 5 minute increments until pure.
6. Turn off the cold water supply and drain the RO system 1-3 times.
7. Turn all your water supplies back on and allow time for the RO membrane to fill up your tanks and reservoirs.

There will always be slightly varying instructions for different models of RO system, but they are all based around flushing the compartments out with sanitizing solution. When performed properly, this protocol can greatly extend the life of filters, membranes, and your entire system.

HOW LONG SHOULD A REVERSE OSMOSIS SYSTEM LAST?

A high quality RO system that is maintained properly should last between 10-15 years. This is contingent on the model as well as adhering to your specific maintenance and sanitization plan.

Keep in mind that some of the parts may also wear out cyclically, such as the faucet and the storage tank. The storage tanks are generally under warranty for 5 years, and the most common sign of needing to be replaced is difficulty to pump water out. This means that there is not sufficient pressure, and this is not a fixable problem.

Luckily, in the scheme of the savings you'll get by having an RO system in your house, these infrequent replacements are very cost-effective. There's a reason why reverse osmosis is lauded as one of the most environmentally and consumer friendly water purifying techniques.

GET A PROFESSIONAL CONSULTATION, INSTALLATION, AND MAINTENANCE PLAN

At Deer Valley Plumbing, we have decades of experience in reverse osmosis plumbing solutions. We know that bad water quality can ruin daily life, and fixing it is of the utmost importance.

If you are looking to have a reverse osmosis system installed, or have one and would like a consultation about appropriate maintenance, [please reach out to us](#). It would be our pleasure to help increase the quality of your home's water supply.