A Guide to Stains, Rings, Discoloration, Mineral Deposits: What They Are & How To Take Care Of Them

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A Note to Homeowners

Our customer service has responded to these common questions throughout the years and we have assembled some of the best information to inform and help you.

This guide is to simply identify the aesthetic problem, what causes the issue, how to take care of it and possibly prevent the return.

It is easy to assume there may be a problem with your water, however most issues are not water quality related. The following issues are very common and in no way reflect the how we care for and maintain our homes.

Stains, Rings or Discoloration

Rings in the toilet bowl are unsightly and in rare cases if left unattended, may develop into health hazards for humans or pets. Showerheads, spouts, aerators at the end of faucets, tile and grout, shower doors or curtains, crevices, nooks and crannies, and many surfaces can develop staining or discoloration. While some of the toilet bowl and other fixtures and surfaces may be perpetually wet, other areas are made wet occasionally and then allowed to dry before becoming wet again. This constant state of moisture encourages the growth of bacteria, molds and mildew, which form into toilet bowl rings and the other staining and discoloration. Minerals in the water supply and even the chemicals used to clean can lead to toilet bowl rings and the staining and discoloration on other faucets, fixtures and surfaces.

Pink Stains – What Is It?

Pink residue is generally not a problem with water quality. A pink discoloration may be a result of iron found in some well water or old pipes in the delivery system but would not be isolated to only one toilet, one fixture or one room. In most cases a pink residue is likely a result of airborne bacteria which produce a pinkish or dark gray film on moist surfaces. This film is usually found as a ring that accumulates at the water line in the toilet bowl or around showerheads, shower doors or curtains, sink drains, bathtubs, tiles and grout.

Some people have also noted that the pink residue appears in their pet's water bowl, which causes no apparent harm to the pet and is easily cleaned off.

Many experts agree that the bacteria that causes these pink stains is most likely Serratia Marcescens, a bacteria which is found naturally in soil, food, and in animals. Serratia, which produce a characteristic red pigment, thrive on moisture, dust, and phosphates and need almost nothing to survive. Serratia is easily carried airborne and will seek a moist location in which to grow. Some people have reported that the pink residue only appears during certain times of the year, when their windows or doors are left open for part of the day. Ironically good ventilation will not help. These bacteria are present in a number of environments and wind can carry the airborne bacteria or dust in which the bacteria are present.

Serratia marcescens thrives in conditions that are wet and seek a constant introduction of fat or phosphorous-laden materials, such as feces, urine, soap, gels and shampoo products and/or food products.

Pink Stains – How To Get Rid Of It

Customers have asked us why there is a pink ring in their toilet bowl or evidence of the pink discoloration elsewhere and what can they do to get rid of it. Often they are concerned that something must be in the water which is not the case and nothing to fear. However, the pink ring that develops at the water line in the toilet, around drains, in the tub/shower area, in bathroom drinking cups, and even dog bowls is actually caused by airborne bacteria known as Serratia Marcescens. The airborne bacteria thrive in moist environments, which is why it is commonly found in bathrooms.

Serratia Marcescens survives when any water sits for a period of time in the open air. This is why this issue is very common.

There are several things you can do to prevent the pink stains from developing. Drying wet surfaces after use will prevent the bacteria from growing.

For toilets, we have found over the years from manufacturers, our own personal experience and feedback from many customers that there is a way that takes less than a minute to make this “job” easy. Simply get a good toilet bowl cleaner and squirt around the bowl from the rim of the toilet and leave it. Upon your return, using a soft brush, apply light pressure against the bowl surface, swish the water around the bowl and flush. Do this before the reappearance of the discoloration and stay ahead of any reappearance. Serratia Marcescens cannot be completely killed and removed, but routine maintenance can keep the bacteria from reappearing, increasing or becoming a more stubborn issue.

Remember to flush any guest or infrequently used toilets on a daily basis to avoid setting a stain.

For harder to remove stains you can use regular household bleach and a soft bristle cleaning brush to gently scrub the affected area. An old toothbrush or nail brush works great.

Avoid being too aggressive with cleaning solutions or abrasive methods - please exercise caution. Others who recommend the use of stainless steel or wool pads or even pumice stones have given you information contrary to manufacturer warranties. These items will scratch and remove the protective coating, sealant or finish on the toilet which ironically makes them more susceptible to staining, mold or mildew, bacteria

growth and mineral deposit rings. Chlorine tablets or any toilet tank cleaners are not recommended. Check with the toilet bowl manufacturer for more information and warranty.

Shower curtains and liners - wash them in hot water with a little bleach. For patterned shower curtains, use color-safe bleach.

Bathtubs, sinks, drains, faucets, showerheads and other surfaces – if you can keep them wiped down and dry, the formation of pink residue may be avoided. Use similar cleaning methods as you would to clean the toilet. Do not be aggressive and if you have any special finishes consult with the manufacturer.

Natural surfaces (granite, marble, travertine, etc.), tile and grout can be porous and require a proper sealant and yet aggressive or incorrect cleaning will remove sealant over time. A good and properly applied sealant on marble, travertine, granite and other surfaces, tile and grout will prevent or inhibit any issues. Water should bead up or wipe up easy and not soak in. Resealing should be done as needed or on a schedule based on the material or surface to be sealed depending on manufacturer recommendations and your local conditions and usage.

Again, as with other items, if you can keep surfaces wiped down and dry, the formation of pink residue may be avoided. Use similar cleaning methods as you would to clean the toilet. Do not be aggressive and if you have any special finishes consult with the manufacturer.

Mold or Mildew Buildup – Black, Orange or Green – What Is It?

Mold or mildew manifests in your toilet bowl as a black, orangey or green ring that also can spread as streaks down the inside of the bowl. Mold or mildew will also cause the black, orangey or green discoloration that may appear at the end of a showerhead, shower doors or curtains sink drains, bathtubs, tiles and grout. The appearance of this issue is associated with several factors having to do with moisture but is generally not a problem with water quality. Mold or mildew is common where there is moisture. Bathrooms are especially susceptible which include toilet bowls, showerheads, shower doors or curtains, sink drains, bathtubs, tiles and grout.

Most mold or mildew can appear when any water sits for a period of time in the open air. This is why this issue is very common. Well ventilated spaces can prevent mold and

mildew and yet that well ventilated space can also carry airborne bacteria that can still result in mold, mildew or pink stains.

Mold or Mildew – How To Get Rid Of It

There are several things you can do to prevent the stains from developing. Drying wet surfaces after use will prevent mold and mildew from growing.

For toilets, we have found over the years from manufacturers, our own personal experience and feedback from many customers that there is a way that takes less than a minute to make this “job” easy. Simply get a good toilet bowl cleaner (some may actually be specific for mold and mildew) and squirt around the bowl from the rim of the toilet and leave it. Upon your return, using a soft brush, apply light pressure against the bowl surface, swish the water around the bowl and flush. Do this before the reappearance of the discoloration and stay ahead of any reappearance. Routine maintenance is the key.

Remember to flush any guest or infrequently used toilets on a daily basis to avoid setting a stain.

Many toilet bowl cleaners are available in spray-on or leave-in formats that effectively clean mold and mildew rings from the toilet bowl with weekly to monthly cleanings. These cleaners dissolve the ring and are rinsed away the next time the toilet is flushed. Chlorine bleach can also remove the black stain left behind by a ring of mold.

For harder to remove stains you can use regular household bleach and a soft bristle cleaning brush to gently scrub the affected area. An old toothbrush or nail brush works great.

Avoid being too aggressive with cleaning solutions or abrasive methods - please exercise caution. Others who recommend the use of stainless steel or wool pads or even pumice stones have given you information contrary to manufacturer warranties. These items will scratch and remove the protective coating, sealant or finish on the toilet which ironically makes them more susceptible to staining, mold or mildew, bacteria growth and mineral deposit rings. Chlorine tablets or any toilet tank cleaners are not recommended. Check with the toilet bowl manufacturer for more information and warranty.

Shower curtains and liners - wash them in hot water with a little bleach. For patterned shower curtains, use color-safe bleach.

Bathtubs, sinks, drains, faucets, showerheads and other surfaces – if you can keep them wiped down and dry, the formation of mold and mildew may be avoided. Use similar cleaning methods as you would to clean the toilet. Do not be aggressive and if you have any special finishes consult with the manufacturer.

Natural surfaces (granite, marble, travertine, etc.), tile and grout can be porous and require a proper sealant and yet aggressive or incorrect cleaning will remove sealant over time. A good and properly applied sealant on marble, travertine, granite and other surfaces, tile and grout will prevent or inhibit any issues. Water should bead up or wipe up easy and not soak in. Resealing should be done as needed or on a schedule based on the material or surface to be sealed depending on manufacturer recommendations and your local conditions and usage.

Again, as with other items, if you can keep surfaces wiped down and dry, the formation of mold and mildew may be avoided. Use similar cleaning methods on mold and mildew as you would to clean the toilet. Do not be aggressive and if you have any special finishes consult with the manufacturer.

Mineral Deposits – What Is It?

White crusty deposits that may accumulate around the toilet bowl, the end of a faucet or showerhead or appear as water spots come from water rich in the naturally-found calcium or magnesium minerals often referred to as water hardness. Water that is high in alkalinity or silica may also create this accumulation. Unfortunately, this is all too common an occurrence where water sits at a certain level and creates a line or is left to dry at the edge of a spout, faucet, showerhead or on any surface and leaves some crustiness.

In the toilet these deposits are often seen as white to gray-hued bowl rings. We can see the same rings in nature where the water level of a lake is evident. The same line exists around almost any pool.

At the water level where the water goes through a process of, evaporation & fill and evaporation & fill, a line becomes visible in that margin. Where water flows in a path this mineral deposit line can be seen in fountains. Where water is left to evaporate, you will see a more dramatic example of the leftover minerals on the surface of a pot, tea kettle, coffee machine, and humidifier, ends of faucets, showerheads and spouts especially if the water is heated. Ironically many people observe a guest toilet or toilet used

infrequently may have more mineral deposit issues because there is less water flow as the water just sits at that line over a longer period of time between usages. This is a common aesthetic condition and not a water quality issue.

Mineral Deposits – How To Get Rid Of It

We have found over the years from manufacturers, our own personal experience and feedback from many customers that there is a way that takes less than a minute to make this “job” easy. Simply get a good toilet bowl cleaner (some may actually be specific for mineral or hard water deposits) and squirt around the bowl from the rim of the toilet and leave it. Upon your return, using a soft brush, apply light pressure against the bowl surface, swish the water around the bowl and flush. Do this before the reappearance of the ring and stay ahead of any reappearance. Routine maintenance is the key.

Remember to flush any guest or infrequently used toilets on a daily basis to avoid setting a stain or deposit.

Many toilet bowl cleaners are available in spray-on or leave-in formats that effectively clean and break down mineral deposits from the toilet bowl with weekly to monthly cleanings. These cleaners dissolve the ring and are rinsed away the next time the toilet is flushed.

For harder to remove rings you can use regular household bleach along with a more concentrated mineral deposit cleaner and a soft bristle cleaning brush to gently scrub the affected area. An old toothbrush or nail brush works great.

Avoid being too aggressive with cleaning solutions or abrasive methods - please exercise caution. Others who recommend the use of stainless steel or wool pads or even pumice stones have given you information contrary to manufacturer warranties. These items will scratch and remove the protective coating, sealant or finish on the toilet which ironically makes them more susceptible to staining, mold or mildew, bacteria growth and mineral deposit rings. Chlorine tablets or any toilet tank cleaners are not recommended and may make mineral deposits worse. Check with the toilet bowl manufacturer for more information and warranty.

Shower curtains and liners - wash them in hot water with a little bleach. For patterned shower curtains, use color-safe bleach.

Bathtubs, sinks, drains, faucets, showerheads and other surfaces – if you can keep them wiped down and dry, the formation of deposits may be avoided. Use similar cleaning methods as you would to clean the toilet. Do not be aggressive and if you have any special finishes consult with the manufacturer.

Natural surfaces (granite, marble, travertine, etc.), tile and grout can be porous and require a proper sealant and yet aggressive or incorrect cleaning will remove sealant over time. A good and properly applied sealant on marble, travertine, granite and other surfaces, tile and grout will prevent or inhibit any issues. Water should bead up or wipe up easy and not soak in. Resealing should be done as needed or on a schedule based on the material or surface to be sealed depending on manufacturer recommendations and your local conditions and usage.

Again, as with other items, if you can keep surfaces wiped down and dry, the formation of deposits may be avoided. Use similar cleaning methods for deposits as you would to clean the toilet. Do not be aggressive and if you have any special finishes consult with the manufacturer.

Water filtration & conditioning (Environmental Water Systems - Model #s CS-EWS-1354-7000, EWS-CC-1465-7 or EWS-CC-1865-7) or water softening (Environmental Water Systems - Model #s CS-TT1054-7000 or RT1035) can inhibit mineral deposits or scale formation but not totally prevent them.

Filtration & conditioning is more gentle on appliances, faucets, fixtures and does not prematurely deteriorate the tank fittings, flappers, gaskets and other parts whereas softening (ion-exchange) replaces the naturally-found minerals with either sodium or potassium chloride (salts) causing a more aggressive and corrosive water environment. Either type of treatment may make it easier to wipe up or delay buildup but routine maintenance will still be required.

Red, Brown, Rust, Green And Other Colors – What Is It?

Red or rust stains can be caused by an abundance of iron in the water. A brown color may indicate the presence of manganese. We advise the installation of an iron (and manganese) removal system (Environmental Water Systems - Model # EWS-1054-PA) on the main water supply or the point of entry to prevent iron and/or manganese from entering the home.

The other issue may be old delivery systems and piping with metal issues. A helpful solution may be a 5 micron pre-sediment filter at the home's main water supply or the point of entry (Environmental Water Systems - Model # BB 1" SETUP) to prevent material from entering the home.

If the rust or discoloration is being generated from within the home, you have a symptom of a bigger issue. You will need to take corrective action to replace corroding pipes and resolve the problem.

Green or blue-greenish stains or discoloration that appears which are not a form of mold or mildew may have several causes. Water conditions above or below the neutral pH (6.8 – 7.8) range can cause any copper or brass pipes or fittings to shed off a green or blue-greenish discoloration and when it streaks down a surface or drips it can cause a stain. A system to correct pH up (Environmental Water Systems - Model # EWS-1054-PH or EWS-1354-PH) or down (Environmental Water Systems - Model # TT1054-PH-DN) can be installed at the homes' main line before entering the home to correct this particular issue.

Green or blue-greenish stains or discoloration can be caused by Electrolysis. Electrolysis is all too common and caused by two methods: First, where dissimilar metals are in contact with each other (note the top of your water heater where you see the grey pipe connected to the brass or copper pipes and the barnacles that form on the outside at the connection). Secondly, where metal piping is not ground properly which can cause the stains. This is a common problem with homes that have been remodeled and homes with a mixture of pipe materials (ie: galvanized, copper, PEX, Wirsbo, CPVC) being used. These stains or discoloration are a symptom of a bigger problem. Water filtration or treatment is not the cure. Corrective action will be needed to prevent the thinning of pipes, leaks in pipes and connections and other damage.

Green or blue-greenish stains or discoloration can also be caused by the introduction of Chloramine as the treatment method by your water district. Chloramine is the combination of chlorine and ammonia in order to disinfect your water. More harsh on metal surfaces than chlorine, the result is not only observable as a stain or discoloration it will eventually create long term issues with thinning of pipes, leaks in pipes and connections, appliance and other damage. Home builders in Southern California have even sued the local water districts due to pipes leaking after only 3 years. Filtration (Environmental Water Systems - Model # EWS-CC-1465-7) can be installed at the homes' main line before entering the home for this chemical (and thousands more) to solve this problem as well as providing great healthy quality water throughout your home for all uses.

Red, Brown, Rust, Green And Other Colors – How To Get Rid Of It

These rings are sometimes the most difficult to remove as cleaners that include bleach actually make the stain permanent. "The Family Handyman Magazine" suggests cleaning the ring with a diluted form of hydrochloric acid found at home improvement or hardware stores instead.

Remember to flush any guest or infrequently used toilets on a daily basis to avoid setting a stain.

If these rings and discoloration is a result of some of the items mentioned above, it is very important to take corrective action to resolve any issues that create these stains or discoloration to begin with.

These rings are not an issue with water quality except where chlorine or chloramine (chlorine and ammonia) may be involved. The appearance of these colors is a cause for concern regarding your home's pipes and all fixtures and appliances in the home. It may also cause higher levels of certain metals in your homes' water.

Many toilet bowl cleaners are available in spray-on or leave-in formats that effectively clean and break down stains from the toilet bowls with weekly to monthly cleanings. These cleaners dissolve the ring or stain and are rinsed away the next time the toilet is flushed.

For harder to remove stains you can use regular household bleach along with a more concentrated cleaner and a soft bristle cleaning brush to gently scrub the affected area. An old toothbrush or nail brush works great.

Avoid being too aggressive with cleaning solutions or abrasive methods - please exercise caution. Others who recommend the use of stainless steel or wool pads or even pumice stones have given you information contrary to manufacturer warranties. These items will scratch and remove the protective coating, sealant or finish on the toilet which ironically makes them more susceptible to staining, mold or mildew, bacteria growth and mineral deposit rings. Chlorine tablets or any toilet tank cleaners are not recommended and may make staining and mineral deposits worse. Check with the toilet bowl manufacturer for more information and warranty.

Shower curtains and liners - wash them in hot water with a little bleach. For patterned shower curtains, use color-safe bleach.

Bathtubs, sinks, drains, faucets, showerheads and other surfaces – if you can keep them wiped down and dry, the formation of stains may be avoided. Use similar cleaning methods as you would to clean the toilet. Do not be aggressive and if you have any special finishes consult with the manufacturer.

Natural surfaces (granite, marble, travertine, etc.), tile and grout can be porous and require a proper sealant and yet aggressive or incorrect cleaning will remove sealant over time. A good and properly applied sealant on marble, travertine, granite and other surfaces, tile and grout will prevent or inhibit any issues. Water should bead up or wipe up easy and not soak in. Resealing should be done as needed or on a schedule based on the material or surface to be sealed depending on manufacturer recommendations and your local conditions and usage.

Again, as with other items, if you can keep surfaces wiped down and dry, the formation of stains may be avoided. Use similar cleaning methods for stains as you would to clean the toilet. Do not be aggressive and if you have any special finishes consult with the manufacturer.

Yellow Color - What Is It?

If you should see a yellow discoloration in standing water (your toilet or bathtub) than the culprit most frequently associated with this are tannins. It can range from a faint tint to a darker golden yellow like ginger ale, a light color tea up to a dark tea color. The faint color is very common (and yes, he did flush the toilet but he should put the seat down).

Tannins are dissolved, decayed organic matter (carbon based decayed vegetation or animal matter) and creates an aesthetic issue which is generally not a health risk. Most people drink a form of tannin every day in coffee or tea. Most municipal water with tannins draws their water from rivers, surface water and swamps.

Tannins are difficult to filter due to many factors but it is important to know they do not pose a health issue. In well water tannins can indicate more significant issues with the water but on municipal water it is simply aesthetically displeasing.

Yellow Color – How To Get Rid Of It

Routine maintenance of your toilet is the only thing required. Remember to flush any guest or infrequently used toilets on a daily basis. Staining is generally not a factor except be aware of any issues with laundry.

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Regarding the removal of tannins on municipal water, carbon filtration can help (which has many other benefits) but tannins are persistent and may still be observable.

Municipal water systems will tend to over-chlorinate to compensate but you may still have a tint depending on the time of year. Ironically, the additional chemical treatment becomes more problematic for people, hair, skin, breathing and the homes' pipes, fixtures, finishes and appliances than the tannins.

As the city turns up the chlorine you may consider filtration (Environmental Water Systems model # CS-EWS-1354-7000) installed at the homes' main line before entering the home for this chemical (and thousands more) to provide great healthy quality water throughout your home for all uses.

If your municipal water is treating with chloramine (combination of chlorine and ammonia) than we would highly recommend filtration (Environmental Water Systems model # EWS-CC-1465-7 or EWS-CC-1465-7) installed at the homes' main line before entering the home for this chemical cocktail (and thousands more) to provide great healthy quality water throughout your home for all uses.

Discoloration from Cleaning Chemicals

Many cleaning chemicals intended to disinfect and clean can actually lead to a permanent toilet bowl ring stain above the waterline or around the bowl and problems with finishes or premature removal of sealants.

According to the Environmental Health Association of Nova Scotia, most toilet bowl cleaners contain dangerous chemicals which produce equally dangerous gases. Some of these chemicals, when used constantly over time, will strip the glossy finish from the toilet bowl, creating a dull ring that is a slightly different color than the bowl. The EHANS recommends using natural cleaning methods instead, such as soaking two denture

cleanser tablets in the bowl overnight, or allowing 1/4 cup white vinegar mixed with 1 cup borax to soak in the bowl's water overnight.

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the toilet. Do not be aggressive and if you have any special finishes consult with the manufacturer.

A Side Note:

Q: Don't the EWS Whole Home Water Filtration Systems remove the chlorine, which kills the bacteria in the water?
A: Yes, these systems will remove the chlorine and other disinfectants from the water and yet these common issues would still occur regardless of whether or not the water has been filtered.

Municipally treated water has been disinfected with harsh chemicals in order to comply with local, state and federal standards. The issues of stains, rings or discoloration are issues that develop after the water comes into the home and is used or left to sit. Once chlorinated water is exposed to the air, the chlorine dissipates to a gas. The water in your plumbing system is in a closed loop and is not exposed to any issues until after it exits your plumbing fixtures or appliances.