

Water Facts

8. Pink and Black Stains



Pink and Black Stains

What causes pink staining on surfaces?

Pink staining is caused by airborne bacteria called *Serratia Marcescens*. *Serratia*-type bacteria are found naturally in the environment and grow in moist, damp conditions such as those found in bathrooms and kitchens. *Serratia* particularly thrive in the presence of fatty deposits (nutrients) such as soapy residues. They have also been known to grow in pet food bowls and on sinks.

All bacteria need nutrients for growth and anywhere that provides these nutrients in moist conditions has the potential for bacterial growth. *Serratia* are usually detected in rooms where windows are open, which is commonly the case with many bathrooms. They can become more of a problem after building renovations where dust and debris are released into the atmosphere.

Serratia do not survive in chlorinated water supplied from the mains. However, the heating action of showers and hot water systems can remove the chlorine that has been put into mains supplies to keep water microbiologically safe. Without chlorine, bacteria can grow on surfaces such as tiles, grouting and shower fittings. In addition, water that feeds showers often comes from a storage tank and we know that storing water can also reduce or completely remove the chlorine which had been added. If storage tanks don't have a lid with a good seal, this can compound the problem, as airborne bacteria can get inside the tank.

Is pink staining a health concern?

The *Serratia Marcescens* bacteria that leads to pink staining is not known to cause waterborne disease.

What can be done to control pink staining?

Once established, it's difficult to eradicate the organism that causes pink staining entirely. The most effective way of controlling re-growth is by regular cleaning with a bleach-based cleaning product, paying particular attention to areas where soap residues may accumulate. The cleaning process is generally more successful if the bleach-based cleaner is allowed to act for a while (about half an hour), before rinsing clean.

Using abrasive cleaning products tends to encourage re-growth as they cause a rough surface where the bacteria can take hold – this is often why *Serratia* is seen on grout but not on tiles, unless they're covered in heavy soap deposits/film.

Other recommendations are to check (or get a plumber to check) that storage tanks that feed showers and internal plumbing are not open to the atmosphere. Installing a securely fitting lid should avoid dust and debris falling into the tank. It is also recommended that the tank itself is checked for sediment and deposits and cleaned if necessary. Deposits in the tank may reduce the amount of chlorine in the water and help create conditions in which bacteria like *Serratia* can grow.

What causes black staining on surfaces?

Black staining from water is typically composed of several different fungi. Fungal spores are naturally present in the environment and being airborne, can be dispersed throughout buildings by air currents. When they find a suitable warm, moist location with a source of food, the spores multiply and produce a grey or black 'jelly-like' growth. Water without chlorine present provides the moisture that these fungi need to grow.

Therefore they are usually found growing in the places listed below:

- The end of cold water taps (usually kitchen or bathroom) such as the plastic inserts in kitchen taps
- Inside washing machines, particularly around the powder drawer
- Filter jug hoppers and their elements
- Inside kettles, if water is left for long periods
- Toilet cisterns and bowls, for example up under the rim and inside the cistern
- Shower heads
- Around tiles and sealants in bathrooms and shower rooms
- On shower curtains or towels (where they often appear as black spots or staining)
- In waste traps connected to sinks

In bathrooms, propellants from aerosols, hair spray, deodorants and soap residues provide a source of nutrients and can accelerate growth. Also when houses are left vacant over long weekends, holidays or in between occupancy, fungal spores multiply. The increased use of double-glazing and warmer buildings has contributed to fungal growth as draughts, which help dry out the atmosphere, have largely been eliminated.



Is black staining a health concern?

Although unsightly, black stains caused by water don't generally present a risk to public health unless the fungal growth is allowed to continue unchecked and becomes very dense. Any risk though would be from breathing in fungal spores, in particular for those with illnesses such as asthma, not from the water supply itself.

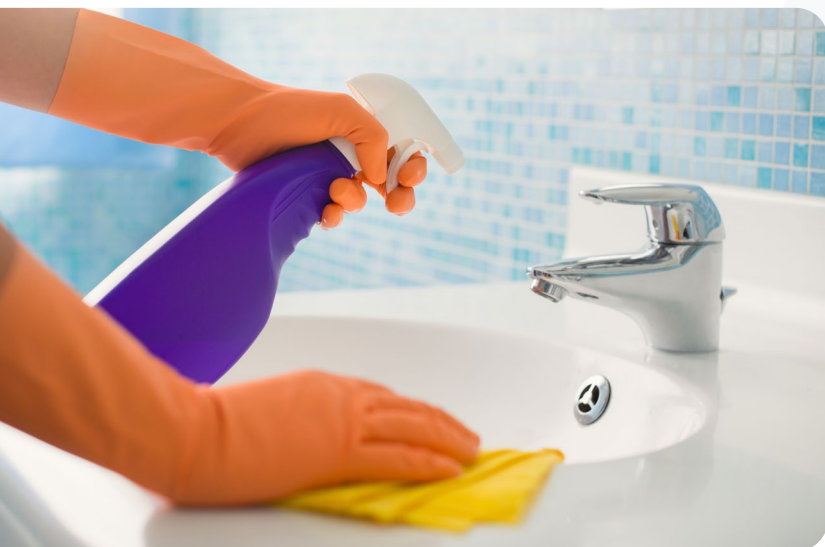
The cold mains water supply contains a small amount of chlorine, which inhibits the growth of fungal spores. However, water running through the internal plumbing system will gradually lose the protective effect of this residual amount of chlorine and its ability to prevent growth.

What can be done to control black staining?

As with pink staining above, once established, fungal growth can be difficult to get rid of. Improving ventilation and keeping surfaces dry is the best means of prevention. The most effective way of controlling re-growth is through regular cleaning with a bleach-based cleaning product, paying particular attention to areas where soap residues may accumulate. The cleaning process is generally more successful if the cleaning product is allowed to act for a while (about half an hour), before rinsing it off.

Using abrasive cleaning products tends to encourage re-growth as they cause a rough surface where the fungi can take hold. This is why black growth is often seen on grout but not on tiles, unless they're covered in heavy soap deposits.

We recommend that storage tanks that feed showers and internal plumbing are checked to make sure they aren't open to the atmosphere. Installing a securely fitting lid should avoid dust and debris falling into the tank. We also recommend that the tank itself is checked for sediment and deposits and cleaned if necessary. Deposits in the tank may reduce the amount of chlorine in the water and help create conditions in which fungi can grow. We'd also advise disinfecting and drying bathrooms and kitchen surfaces before leaving the house vacant for long weekends or holidays. Pouring a little household bleach into toilet bowls and down the kitchen sink will help slow down any re-growth.



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