



UV Disinfection – What You Need to Know - FAQ



What is UV?

UV is invisible light radiation with a wavelength between 200-300 nanometres. It can be used to kill or damage organisms that cause disease in drinking water, including some that cannot be killed by chlorine such as *Cryptosporidium*. UV is therefore used to disinfect water supplies.

What does a UV disinfection unit look like?

A typical UV disinfection unit consists of a reaction chamber containing a number of UV lamps. The water flows through this and is disinfected. A typical unit for a small water supply is a metal cylinder about 1m long which can be mounted on wall.

Can I install a UV disinfection system on my water supply?

UV requires a reliable power supply – if the power fails, the system will not work and your drinking water will not be disinfected. It is also vital that the UV radiation is able to pass through the water. In much the same way as visible light, UV cannot pass through cloudy or coloured water. Other substances in the water such as iron and manganese can also reduce the ability of the UV system to work. Where the quality of water to be disinfected is not good enough, pre-treatment can be installed. The extent and cost of this will depend on the water quality, but typically consists of a series of cartridge filters. As with any water treatment system, it is recommended that you obtain advice from a suitably qualified professional (see below for details).

So all I need to do is zap my water with UV and it will be safe to drink?

Not quite – UV is an effective disinfectant, but it leaves no lasting residual disinfectant in the water. It is easy for a supply to become re-contaminated between the UV unit and the tap. For this reason it is important to make sure that all pipes and tanks are in good condition and nothing can get into or grow within the system. It may be necessary to periodically flush pipes and tanks with a chemical disinfectant. Small point of use UV disinfection units can also be installed, typically under sinks, to make sure the water remains safe at the point of consumption.

How much effort is required to maintain a UV system?

Some maintenance is required, but it is relatively simple. Fouling will reduce the efficiency of the unit, so regular cleaning is needed. This is typically monthly, but will depend on how clean the incoming water is. UV lamps will also need changing – they typically last about a year. It is a good idea to have some sort of safeguard built into the system so that an alarm is produced if the UV lamp stops working or the water quality deteriorates so that the UV is no longer able to pass through the water to kill pathogens.

How big does my UV system need to be?

This will depend on the volume of water produced by your water supply. UV disinfection units are rated for certain flows of water and it is important to remain within the stated ranges. If the system is undersized, water can pass through too quickly and the UV light will not have sufficient time to disinfect the water properly.

How do I go about finding a suitable contractor to install or work on a UV disinfection system?

A good place to start is the Watersafe website. Watersafe is a UK wide approvals scheme that provides a searchable database of plumbers and contractors with the necessary qualifications and experience to work safely on drinking water systems. The Watersafe scheme can be accessed here: <https://www.watersafe.org.uk/>. Some local authorities also maintain lists of contractors.

My UV system doesn't appear to be working – what should I do?

Firstly you should make sure no-one drinks the water unless it has been boiled until you are certain it is being disinfected. If necessary you may need to take advice on an alternative means of disinfection until the UV is operational. Here are some things to check:

- Are the UV lamps operating?
 - Replace faulty lamps
 - Is the power supply functioning?
- Has UV transmittance reduced?
 - Check the quality of incoming water and any pre-treatment
 - Check the condition of the quartz sleeves surrounding the lamps – do they need cleaning or replacing?
 - Check the operation of the UV sensor

My UV system appears to be working, but I am still getting failures – why?

There could be a number of reasons :

- Is the water supply becoming re-contaminated after the UV system?
- Is the UV system being adequately maintained and cleaned?
- Is the incoming water suitable quality for UV disinfection without pre-treatment?
- Is the water getting sufficient contact time with the UV (i.e. design flows not exceeded)?
- Are the taps themselves clean?

My UV system makes the water warm and I don't like it.

This can happen on first drawing water or if there is a low flow through the unit and it is incorrectly sized. Try flushing water through the system until cooler water appears.

Further advice on the safe treatment of private water supplies and the Private Water Supply Grant Scheme may be obtained from the Environmental Health Department of your local authority.

