

Ultraviolet (UV)

Ultraviolet (UV) light is electromagnetic radiation at the invisible end of the light spectrum that has short wavelength and high energy. The sun emits UV light but most of it is absorbed by the Ozone layer in the atmosphere. Direct exposure to UV radiation can have detrimental health effects as it affects the DNA structure of cells. However, this energy can be utilized in water disinfection.

UV water disinfection lamps emit radiation at a certain wavelength that has germicidal properties. Radiation is absorbed by microorganisms present in the water, causing the disruption of their DNA structure. As a result, they become sterile and no longer reproduce. Although they are not physically removed from water, they are considered dead and not a health risk anymore. UV radiation is highly effective for the control of bacteria, viruses, mold, algae, yeasts and other disease-causing organisms with sterilization efficiency of 99.99%.

UV neither adds nor removes any chemicals or particulates from the water. Hence it does not remove sediment, chlorine, or odour if present. Nonetheless, this is a strong advantage over chemical treatment methods because the chemistry of the water is not altered at all. Moreover, energy consumption of UV lamps is insignificant, making the technology affordable for microbial control.

Prior to UV sterilization, prefiltration with sediment or activated carbon filters is normally used to remove sediments, particulates and color that may affect the transmission of UV radiation and sterilization efficiency. UV treatment systems are available in varying capacities from residential units to large waterworks plants, and are used as the final step before the point of use.



A variety of UV water treatment systems