The Need For UV in Domestic, Commercial & Industrial

It is proven scientifically that 85% of child sickness and 65% of adult diseases are produced by water-borne viruses, bacteria and intestinal protozoa such as Cryptosporidium and Giardia. Inappropriate water treatment can lead to health problems - hepatitis B, tuberculosis, meningitis, typhoid fever, trichomoniasis, and cholera, glaucoma, gastrointestinal pain, salmonella, poliovirus, and diarrhea. In North America, E.coli O157:H7, an extremely dangerous strain of E.coli bacteria, infects more than 80,000 people annually. Fortunately, E.coli O157:H7 is easily inactivated by UV light.

Disinfecting your drinking water with ultraviolet light (UV) makes good sense. It's environmentally safe, it's well proven, and it's the way of the future for water disinfection requirements around the globe.

The Process

Ultraviolet (UV) disinfection uses a UV light source, which is enclosed in a transparent protective sleeve. It is mounted so that water can pass through a flow chamber, and UV rays are admitted and absorbed into the stream. When ultraviolet energy is absorbed by the reproductive mechanisms of bacteria and viruses, the genetic material (DNA/RNA) is rearranged and they can no longer reproduce. They are therefore considered dead and the risk of disease has been eliminated.

UV-rays are energy-rich electromagnetic rays that are found in the natural spectrum of the sunlight. They are in the range of the invisible short wave light having a wavelength ranging from 100 to 400 nm (1 nanometre = 10-9m).

UV, like distillation, disinfects water without adding chemicals, and therefore possesses some of the same benefits as distillation. It does not create new chemical complexes, nor does it change the taste or odor of the water, and does not remove any beneficial minerals in the water.

Ultraviolet devices are most effective when the water has already been partially treated, and only the cleanest water passes through the UV flow chamber. Nimbus Water use both a sediment and a carbon filter to clean the water prior to passing it through the UV light, to provide complete water quality solutions.

Ultraviolet light is a natural, cost effective, environmentally friendly disinfection process for use in homes where healthy water is a concern.

UV Applications

Well Water

Many rural homeowners who draw their water from private wells assume that their water is safe. Unless the water has been tested, however, there is no way to know whether it contains potentially harmful pathogens. A
coliform count indicates that a well is contaminated. Faulty sewage or manure systems or field run-off can be sources of the contamination.

Many livestock producers wish to protect their animals from poor water quality and install water treatment systems that incorporate UV for disinfection.

**Surface Water**

In many rural regions, homes and cottages draw their water directly from lakes or streams, which collect potentially harmful storm run-off. Add that many animals live in these lakes and streams, and the likelihood of microbial contamination in these supplies is high. Again, the water can be tested, and a coliform count will indicate whether the water should be disinfected.

As with any water supply, the level of contamination can vary throughout the seasons. Water is most likely to be contaminated with microorganisms during rainy season when levels are high and run-off peaks. Consequently, the rainy season is an ideal time to test your water.

**Public Water Supplies**

Even people in communities served by municipally treated water are installing UV systems. Concerns over the health affects of chlorine have prompted many families to de-chlorinate their water. Some of these families use UV systems to disinfect their de-chlorinated water. Others install UV systems to back up the municipal treatment process.

**Commercial Water**

Restaurants, hotels, resorts, and campgrounds must supply safe water to their guests. Many of these establishments now employ UV disinfection systems because they are simpler and easier to handle than chlorination systems.

As well, the sick and elderly are more susceptible to waterborne pathogens than are the young and healthy. Consequently, hospitals and nursing homes must keep their water free from microbial contamination. The medical industry also incorporates UV into essential processes such as dialysis.

**Process Water for Industry**

Factories and laboratories with low water use but high quality requirements can take advantage of UV disinfection systems to treat their water. Some processes are unable to tolerate chlorine, and the food and beverage industry wants to eliminate the odour and taste of chlorine from their products.