

Shortage of Clean Water Jeopardized Food Production – Water Treatment with Heraeus Noblelight UV Lamps

Demand for clean water is growing all over the world. Most of the water - some 70 percent of global consumption - is used in the production, processing and packaging of food. In the year 2012, seven billion people need to be fed on our planet. Demand for clean water is growing and at the same time, the resource is becoming ever scarcer due to overuse and pollution by people and the industry. This year's World Water Day wants to make us aware of the danger of the increasing shortage of clean water and promote careful use of water.

UV LIGHT FOR ECO-FRIENDLY WATER TREATMENT

The Heraeus Noblelight UV technology is used to purify waste water for re-use or recycling. Without the use of chemicals such as chlorine or ozone, special UV lamps not only destroy microorganisms such as bacteria, viruses, parasites and fungi but also decompose chemicals that are detrimental to health. Neither taste nor smell or PH value of the water are affected. A large number of applications such as drinking-water purification, process water in beverage and food production, fish farming and agricultural irrigation systems have the additional requirement that residue of drugs, hormones, pesticides and herbicides need to be decomposed.

For example, in fish farming, antibiotics are added to the water to reduce the growth and spread of pathogenic germs. The antibiotics are a threat to people when they eat fish. The purification of water with UV light often makes the use of antibiotics unnecessary. Resistance to antibiotics in the human body which has a negative effect on health is prevented.

Another method called "advanced oxidation" (AOP) additionally uses the UV radiation in the range below 250 nanometres. The light with even higher energy destroys substances in the water which are difficult or impossible to decompose, and breaks up and inactivates chemical compounds. The process is used for example against the "chlorine smell", so called chloramines, in

public swimming pools. Chloramin formation happens in water when chlorine reacts with urea, creatinine and amino acids. Short-wave UV light can decompose these compounds.

LOGLIFE AMALGAM LAMP FROM THE MARKET AND TECHNOLOGY LEADER

Heraeus Noblelight, the market and technology leader in the field of specialty light sources supplies a wide range of UV lamps for a large number of water applications. The lamps used for these applications are low-pressure UVC lamps, powerful compact medium-pressure UV lamps and Longlife amalgam lamps. The Heraeus Longlife amalgam lamps are regarded as the market-leading product, primarily due to their long service life enabled by the unique Longlife technology. A special manufacturing process for the Heraeus UV lamps prevents the transmission loss of the quartz glass which is a disturbing factor in conventional UV low-pressure lamps. The result is an almost constant disinfection effect over the entire service life of the lamp. Up to 90 percent of the UVC output power is achieved even after up to 16,000 hours of operation.

In addition to this, the Longlife amalgam lamps achieve a UV power density of up to 10 times more when compared to conventional mercury low-pressure lamps and can be used at higher ambient temperatures of up to 90°C. Moreover, amalgam lamps are less sensitive to temperature fluctuation.

Compared to other lamp technologies, UV amalgam lamps provide the best combination of efficiency and service life. Thanks to the higher UV output and long service life, UV plants for disinfection can be designed with fewer lamps. Moreover, lamp replacement intervals are extended to two or three years of operation. This provides a considerable potential for saving as regards number of lamps, plant components, energy requirement, service intervals and cost of operation and maintenance. Compact plants are made possible which further reduces the footprint required.