

PR

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World Water Day 2015: No "stowaways" on board with UV light

UV disinfection of ballast water can contribute to preserving ecological equilibrium

"Water and Sustainable Development" is the motto of the World Water Day 2015 held by the United Nations every year on 22 March. This year's World Water Day is an appeal to the nations to protect the water resources and use them sustainably. This also includes ballast water used by large vessels to gain stability and balance their mass. The International Maritime Organisation (IMO) estimates that each year some ten billion tons of ballast water from the seas are pumped into hulks and discharged elsewhere. However, ballast water typically contains small organisms such as plankton, aquatic invertebrates, fish larvae and pathogens which are imported into foreign ecosystems. In this way, many sea dwellers become stowaways that travel around the world. However, the undesired "stowaways" can be killed specifically with powerful Heraeus UV lamps.

UV method very environmentally friendly

Microorganisms such as fish larvae, zebra mussels, jellyfish or even cholera bacteria imported from foreign waters are one of the greatest threats to the equilibrium of our seas. They are shipped around the globe in the ballast water of maritime vessels and can do enormous damage to the areas in which they are released. To preserve the biological and ecological equilibrium, it is therefore reasonable to keep this water free from organisms such as bacteria and pathogens.

The standards for clean ballast water defined by the IMO, which, however, still need to be ratified, shall help stem the invasion of the dangerous stowaways. In future, environmentally compatible treatment systems for ballast water are to become imperative on all maritime vessels. For example, ships already must have water treatment systems to enter U.S. territorial waters. One possible method is to treat ballast water with intensive UV light. The special light disinfects the water. In the UVC range, at a wavelength of 254 nanometres, it destroys the DNA of the bacteria and pathogens, makes them inactive and prevents them from reproducing. For this process, Heraeus develops and manufactures special UV lamps and complete modules and power supplies for integration into modern ballast water systems. "Water treatment with ultraviolet light is optimised by additional pre-filtering to remove bigger-sized pollutants. Compared to chemical and physical methods, the UV method is an especially environmentally friendly method," explains Erik Roth, UV expert for ballast water at Heraeus.

High-power amalgam lamps are used for water treatment. The special UV lamps are designed to meet the high requirements that apply in shipbuilding. Resistance to saltwater, acids, oils and pressures of up to 16 bar, insensitivity to vibration and compact design are just some of the requirements the small quartz glass lamp must meet. Quartz glass is used both for the lamp and for its envelope, as it intensifies the transmission of the UV light. Ship owners also benefit from the extremely long service life of the lamps, because the compact UV units deep down in the hull of the vessel do not require additional maintenance. Heraeus speciality light sources are developed and manufactured based on customer requirements, and appropriate accessories such as power supplies or holders can be supplied as well. This also saves the shipbuilder time and money when constructing compact units.

Learn more about specialty light sources for water treatment at www.heraeus-noblelight.com.

Heraeus, the technology group headquartered in Hanau, Germany, is a leading international family-owned company formed in 1851. We create high-value solutions for our customers, strengthening their competitiveness for the long term. Our activities focus on a number of markets: chemical and metals, energy and the environment, communications and electronics, health, mobility, and industrial applications. In fiscal year 2013, Heraeus achieved product revenue of €3.6 billion and precious metals trading revenue of €13.5 billion. With some 12,500 employees in over 110 subsidiaries worldwide, Heraeus holds a leading position in its global markets.

Heraeus Noblelight GmbH with its headquarters in Hanau and with subsidiaries in the USA, Great Britain, France, China and Australia, is one of the technology- and market-leaders in the production of specialty light sources and systems. In 2013, Heraeus Noblelight had an annual turnover of 138 Million € and employed 875 people worldwide. The organization develops, manufactures and markets infrared and ultraviolet emitters, systems and solutions for applications in industrial manufacture, environmental protection, medicine and cosmetics, research, development and analytical measurement techniques.

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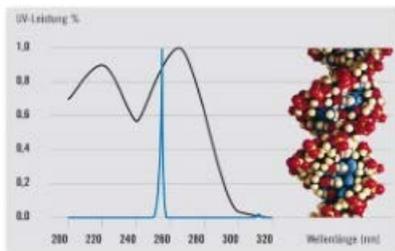
Pictures:



Heraeus UV Amalgamstrahler.jpg

Fig. 1

High-power amalgam lamps are used for efficient and environmentally friendly treatment of ballast water in ships.
(Photo: Heraeus Noblelight GmbH)



Heraeus Wirkungsspektrum.jpg

Fig. 2

The 254 nm spectrum of a UV lamp (blue) and the action spectrum for inactivation of micro-organisms (black).
(Photo: Heraeus Noblelight GmbH)