



reducing **pollution**

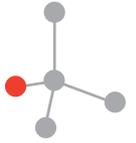
Water covers more than 70 percent of the surface of the Earth and it is one of the most valuable natural resources of our planet.

● Approximately 97 percent of it is salty and therefore not useable for different industries. About 2 percent is covered by glaciers and polar ice caps. This means just about 1 percent of it can be used for different applications. Apart from clean water, we also have to keep the waters in the oceans, rivers, and lakes unpolluted because otherwise it could harm the environment we are living in. Human population and the demand of usable water have increased over the last years. Therefore saving this resource and minimizing pollution in water is absolutely necessary.

CONDIAS has developed different solutions to these problems. Due to legal regulations all ships with ballast water tanks will have to be fitted or retrofitted with a system for ballast water treatment. This step is necessary to avoid that the balance of the local marine ecosystem is disturbed. The Electrochemical Advanced Oxidation

Process EAOP® can be used for the disinfection of ballast water in tanks of ships. At DIACHEM® electrodes hydroxyl radicals which are produced directly from the water reduce living organisms to a minimum. In cooperation with RWO Marine Water Technology, a subsidiary of Veolia Environment, CONDIAS is well-prepared for this huge growth market.

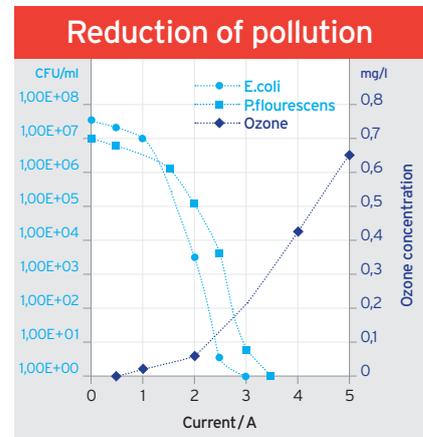
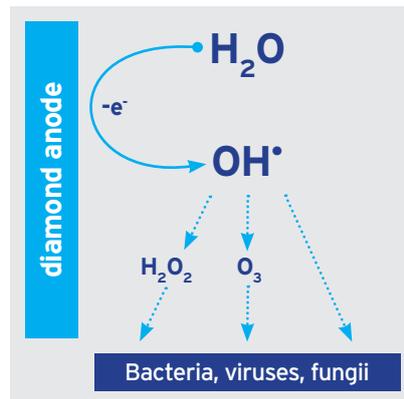
Another successful story of using the CONDIAPURE® technology is the treatment of skin diseases and the removal of unpleasant smells of pets. The ozonized water accelerates the healing of the affected skin and removes smells. For this purpose our partner Permelc Electrode LTD., Japan, developed the DEO Shower, in cooperation with Ebara Jitsugyo Co., Ltd., which is based on the CONDIAPURE® technology.



Technology

CONDIAPURE® technology for water treatment is based on diamond electrodes which produce hydroxyl radicals OH^\bullet and ozone, O_3 , as strong oxidants directly by water electrolysis and it can be used for the reduction of organic contaminants. This particular electrochemical advanced oxidation process (EAOP®) provides different advantages. The main advantages are that no additional chemicals have to be added for disinfection and that the technology can be used as a firewall or as a volume disinfectant.

With diamond electrodes ozone can efficiently be produced. Even in a single cycle through the electrochemical cell ozone concentrations are high enough for a reliable reduction by a factor of 4-6 order of magnitude.



CFU reduction and ozone concentration depending on electrolysis current.

Benefits of using the CONDIAPURE® technology:

- disinfection using a mixture of oxygen-based agents produced directly from the electrochemical process in water
- no additional chemicals needed
- serves either as fire wall or provides volume disinfectants

Potential

The CONDIAPURE® technology can be used for different applications. CONDIAS estimates the greatest potential in chlorine-free disinfection of in-line processes. Another potential business is the disinfection directly at the point-of-use. The treatment at the point-of-use improves the water quality directly at the point of consumption, e.g. drinking, bathing, washing, etc. It can be used in small communities, at the household level or in an environment where the storage of water is a big challenge. Besides these applications the CONDIAPURE® technology can also be used for the disinfection of surfaces.

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