Diamond-electrodes-technology

Diamond-electrodes-technology for water purification

„No water – no future“ those were the words of UN general secretary Koofi Annan addressing the fight for the most important resource. About 2 billion people have no access to clean drinking water worldwide and each year about 5 million people die from contaminated drinking water. The supply of clean water in sufficient amounts and quality is probably the biggest challenge of the 21st century.

In cooperation with Condias, m-u-t developed a system for purification and disinfection of wastewater. The device is based on the diamond-electrode-technology from Condias. The measurement and control technology as well as the system integration is provided by m-u-t.

The system demands are clear: Most of all it has to be small and compact to provide maximum portability. It needs to be transported to countries with limited infrastructure for usage in areas of conflict. The device also must have low energy consumption and should completely purify water of germs, pharmaceutics, chemicals and dyestuff.

The basic principle of the device is electrolysis. Due to the diamond-plated electrodes a special chemical reaction takes effect and produces hydroxide radicals. Those react with organic substances. Hydroxide radicals remain stable for a few milliseconds only. Therefore they react either with the carbon compounds in the dirty water or with each other which results in ozone, well known as cleaning agent. Therefore the complete list of organic dirt such as solvents, bacteria and pesticides, as well as toxic cyanides is destroyed. In the ideal case the only things that remain are harmless salts and carbon dioxide. Changing the voltage at the electrodes controls the degree of purification as well as the amount of ozone.

Compared to the usual method of using membrane filters even heavily clouded water or water contaminated with dyestuff, chemical or pharmaceutical ingredients is purified into drinking water again without a high energy consumption and a high failure rate.

m-u-t dedicates its research and development capacities to the task given by Koofi Annan. The chances for a fast and successful design and commercialization of the product are enormous, with such a strong and competent partner like Condias.

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