

Wasser 3.0

Innovative material
water quality improvement.



Water is meant for washing...

Most people know this sentence from well-known lyrics. But water is not only meant for washing, water is the most important resource in the world. Over 70 percent of our planet is covered with water, the share of fresh water of the entire water deposit however only amounts to 3.5 percent. Of these, less than 0.007 percent are available for direct human usage, even though water is indispensable for us humans – everyone drinks about 75,000 liters in the course of their life. However, very few people are fortunate enough to be able to decide which water quality they drink. In addition to this, mankind contributes more to the pollution of water than any other living being on this planet.

By now, more than 70,000 substances that pollute water are known. Especially pharmaceuticals play a role that cannot be neglected. Municipal waste water purification plants represent the most important entrance paths into the environment in this case. Until now, about 120 different pharmaceutical active agents and decomposition products have been detected in sewage plants and this number is steadily increasing.

The reason is: Pharmaceutical active agents and their decomposition products are secreted by the body and reach the hydrological cycle via the sewage. Up to 70 percent of the dose leaves the body unchanged. In addition to this, expired medicines are disposed of via the toilet. At present, the sewage works are not designed for the complete removal of these substances or they have long since reached the limit of their capacity. Therefore, new concepts that clean the water also from these substances, and hence make it pure again, are necessary.

Started as a research project at the University Koblenz-Landau in Germany project Wasser 3.0 offers a new, innovative and efficient material scientific solution.

How Wasser 3.0 works

In this process, with actually is quite a simple procedure, special hybrid silica gels are used that can absorb quantities of pharmaceuticals and pharmaceutical residues, convert them chemically and bind them with their porous surface without technically demanding measures.

A big challenge was to filter out only these stressors and to leave the natural minerals in the water. The use of Wasser 3.0 is carried out in compliance with the environmental performance evaluation and without the development of toxic substances.

Successful combination – Science and economy

Wasser 3.0 was developed by Assistant Professor Dr. Katrin Schuhen together with her team at the University Koblenz-Landau under laboratory conditions (www.wasserdreinull.de).

From the very beginning, the project was accompanied by abcr GmbH. The specialist for silicon-organic chemistry developed Wasser 3.0 from laboratory concept into industrial standard. Wasser 3.0 documents the success story of a goal-oriented and applied cooperation on research of two innovatively thinking partners from science and economy.

Jointly they already have a steady focus on the next steps for Wasser 3.0: Whilst abcr GmbH can produce the product in quantities considerable enough to be worth marketing, the discharge into the sewage works is realized together with process engineers at the University Koblenz-Landau. This is forward thinking: Apart from pharmaceuticals many additional unwanted substances are present in the water. That is why the team Wasser 3.0 is conducting research for an upgrade by the means of which also heavy metals and micro plastic can be removed. The first positive results of this research series can already be demonstrated.

On the way for the environment

In the summer 2015, Wasser 3.0 mobile starts its tour through Germany and Northern Europe. The aim is, on the one hand, to inform people about the solution for “pure” water with Wasser 3.0. On the other hand, stretches of water are screened, analyzed and a requirements specification for the prevention of water pollution is drawn up along the way. With these current data, the material of Wasser 3.0 is steadily developed further and adjusted to the demand responsively.

Exciting challenges await the team Wasser 3.0 – however, beforehand the search for further sponsors willing to support Wasser 3.0 is paramount.

Never to be lost out of sight: Wasser 3.0 – Pure water is a human right

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