

Press Release

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Award for Innovative Water Treatment Solutions

Emschergenossenschaft and BRAIN AG awarded for utilization of carbon from wastewater

On the occasion of the Braunschweig RE-WATER event, Dr Daniel Klein, Dirk Bogaczyk, Dr Linh-Con Phan (Emschergenossenschaft), Dr Renate Schulze and Dr Guido Meurer (BRAIN AG) jointly received the RE-WATER Award for their project work “ZeroCarbFP – Improved Use of Carbon Streams in Wastewater through Biotechnological Processes” project. The Braunschweig RE-WATER symposium addresses multidisciplinary issues in the reuse of water and wastewater, nutrient recovery and the closing of material and energy cycles.

The RE-WATER Award, which is endowed with Euro 10,000, acknowledges exemplary and seminal lectures, presentations, projects, initiatives and ideas which help promote and optimize the reuse of water. This time, the first prize was split two ways between Emschergenossenschaft and BRAIN AG and the Berlin Centre of Competence for Water.

“ZeroCarbFP”, the successful strategic alliance coordinated by Emschergenossenschaft, was set up in July 2013 to find alternative solutions for fossil and thus finite resources, in particular for crude oil and its derivatives. Against the backdrop of a constantly increasing demand from a growing world

population, various industries share a common strategic interest in identifying alternative sources of raw materials in order to reduce their dependency on finite fossil resources. This is particularly true for countries such as Germany, which are poor in raw materials and hence depend on imports. Wastewater serves as a source of carbon in some of the alliance’s sub-projects. The strategic alliance is co-funded by the German Federal Ministry of Education and Research (BMBF).

Thanks to technological progress, municipal and industrial wastewater nowadays is no longer solely regarded as a difficult-to-process waste stream, but

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rather as a valuable resource containing carbon, nitrogen and phosphor. In particular, the utilization of carbon from sewage sludges to produce biogas, which in turn is used to fuel combined heat and power stations, is now a well-established process, which, for instance, is also harnessed by Emschergenossenschaft in their Bottrop, Dortmund, Dinslaken and Duisburg wastewater treatment plants to generate energy for their own purposes.

Even though this helps cover a part of the wastewater treatment plants' energy needs, only a mere 50 per cent of the organic carbon can be metabolized in the regular fouling process. The jury especially honoured the strategy pursued by the multidisciplinary ZeroCarbFP team made up of engineers and scientists, which aims at recovering the remaining 50 per cent of carbon compounds. To achieve this goal, they employ specific microorganisms which enrich oils and fats in order for them to then be utilized further. Potential recycling scenarios include boosting biogas production (energetic utilization) or the use of defined oils as additives in lubricants.

“One of the most important purification steps in water treatment is biological by nature. Therefore, wastewater treatment plants al-

ready are in a pioneering position when it comes to the biologization of industrial production processes and can be spearheading the generation of valuable products from waste materials” says Dr Daniel Klein (Emschergenossenschaft).

“Therefore, wastewater treatment plants are interesting locations for bio-refineries, which is exactly where our joint research efforts come in, that have started to bear fruit after merely two years,” adds Dr Guido Meurer, EVP Microbial Production at BRAIN AG.

Emschergenossenschaft

Emschergenossenschaft (founded in 1899) manages the Emscher and Lippe river basins in North Rhine-Westphalia along with the Lippeverband (established in 1926). The administrative headquarters of both organisations are based in Essen, where they jointly form Germany's largest wastewater treatment plant operator. Together, they run a total of 58 wastewater treatment plants and maintain approximately 738 kilometres of water courses. As part of their water management responsibilities, the organisations also deal extensively with issues such as energy efficiency, resource recovery and the impacts of climate change. For more information, please visit www.eglv.de

BRAIN

BRAIN AG is one of Europe's technological leaders in the field of industrial, or so-called white, biotechnology, the core discipline of the bioeconomy. Using proprietary technology platforms, the company identifies as yet untapped highly performant enzymes, microbial producer organisms or natural substances from complex biological systems in order to transform them into industrially or bioeconomically viable processes. Innovative solutions and products developed from this "toolbox of nature" are already successfully in use in the chemical industry as well as in the cosmetics and foodstuffs industry. BRAIN's business model is based on two divisions: "BioScience" and "BioIndustrial". The "BioScience" division includes the company's collaboration business with selected, globally positioned industrial partners, which is usually concluded on an exclusive basis and which has been successfully built and continuously expanded by the company for more than 20 years. The second division, "BioIndustrial", deals with the development and marketing of BRAIN's proprietary products and active product components. For more information, please visit www.brain-biotech.de.