



Removal of Micropollutants



Fighting Micropollutants

Further Treatment

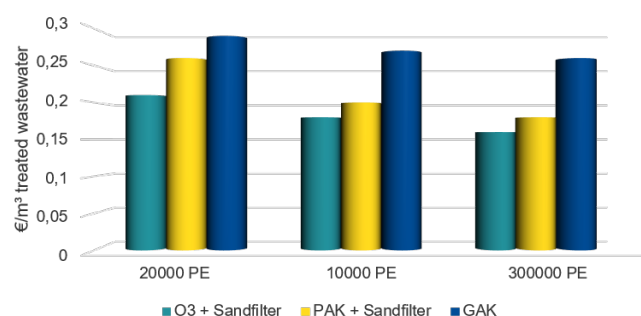
To further lower the level of these pollutants, an advanced treatment step is required. For many substances ozonation, as an oxidative step, shows better elimination results than the adsorption in form of activated carbon. Based on our long-term experience in industrial applications, we have adapted our high-end technical approach to the specific demands of municipal wastewater treatment and created the next generation AOP (Advanced Oxidation Process) for micropollutant removal. It combines highly efficient elimination with low capital and operational expenditures.

APIs and new pollutants

Many Active Pharmaceutical Ingredients (APIs) and other anthropogenic substances, such as pesticides and various industrial chemicals, are present in municipal wastewater treatment plant discharges. Classical 3-phase municipal wastewater treatment consists of mechanical, chemical and biological treatment. However, a large number of substances are not affected and pass through the treatment. As a result, micropollutant levels in wastewater treatment plant discharges are still considered to have a chronic negative impact on our eco systems and humans.

* Source: Mulder, M. et al. (2015), Costs of Removal of Micropollutants from Effluents of Municipal Wastewater Treatment Plants - General Cost Estimates for the Netherlands based on Implemented Full Scale Post Treatments of Effluents of Wastewater Treatment Plants in Germany and Switzerland. STOWA and Waterboard the Dommel, The Netherlands

Cost comparison of 3 typical treatment processes (CAPEX + OPEX) *





Next generation AOP

up2e! - the better ozonation

As a platform technology our proprietary Roturi® gas-mass-transfer technology achieves a direct ozone dissolution and thus a highly efficient and quick gas transfer to the medium. The instant dissolution reduces ozone amounts and increases degradation rates. Amid those features, the technology can always be extended by adding individual key modules or treatment lines to address increase in volumes or load parameters.

No or small reaction basin

The large reaction surface created by the micro bubbles produced through the Roturi® dissolves ozone instantly and inline. As a consequence, much smaller or even no reaction basin is required.

Efficiency means savings



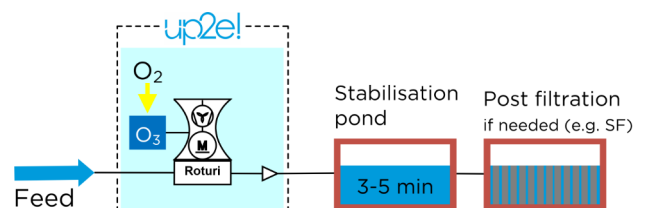
Energy



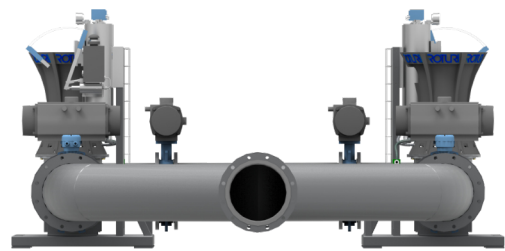
Space/footprint



Oxygen



Our clients benefit from small footprint, less energy demand, lower installation and operational cost. At the same time operating the system is safe and easy.

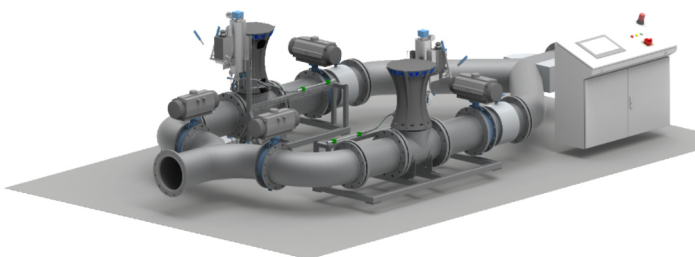


Piloting and long-term rental

Our mobile technical scale units are available for testing at our client's sites. For full scale units we offer both, classical purchase and long-term rental in case our clients prefer to work on a monthly operating expenditure instead of initial capital expenditure.

Time saving installation and commissioning

The a3op platform comes as a pre-tested, either skid-mounted or containerized ready-to-operate unit. This makes retrofitting or new installations not only easy but also highly time efficient.





Your water in good hands.
Call us!