

Water is imperative to sustain life on earth. Global water demand will outstrip supply by 60% in just 12 years' time.

Many of the world's aquatic ecosystems are already severely damaged due to human interference, including industrial manufacturing. Micropollutants discharged in wastewater pose an unquantified threat to the environment and human health. Improving the quality of water resources is vital to avoid the predicted gap between supply and demand by 2030.

Organic Micropollutants

Overcoming the treatment challenge

Opportunities

Due to advances in analytical techniques, contaminants can now be identified, even at trace levels in water bodies. Arvia has developed a patented process to provide targeted removal of micropollutants from wastewater and drinking water supplies.

The company has demonstrated removal results of up to 99% for micropollutants listed in the EU Water Framework Directive. This brings water in compliance within safe regulatory limits.

Future-Proof Treatment

Micropollutant treatment is required whenever water is abstracted for domestic purposes and before wastewater is discharged or reused. The nature of water is increasingly complex due to the presence of micropollutants from various sources. Arvia is working to tackle known and emerging contaminants and design tailored solutions for each treatment challenge.

Sources of micropollutant contamination include;

- Pharmaceutical manufacturing and use
- Chemical manufacturing and use
- Agrochemical manufacturing and use
- Waste management including landfill leachate
- Manufacture and disposal of personal care products

Impact

Some consequences of inadequately treated water containing micropollutants include;

- Antimicrobial resistance such as antibiotics becoming ineffective
- Inadvertent dosing of medication from water
- Bioaccumulation of micropollutants in the food chain
- Population decreases in aquatic species due to feminisation and submissive behaviour
- Over-exposure of medication in intensive animal farming leading to allergic sensitivities in humans eg. Penicillin

Regulation

As analytical techniques improve, the visibility of micropollutants in water bodies increases. This has led to more stringent regulations being set and enforced by controlling bodies to minimise the levels of micropollutants entering the environment and drinking water.

Nyex™ Treatment Applications

Arvia design and supply Nyex tertiary treatment systems to end users or OEM/contractors for the treatment of:

- Water abstracted for domestic use
- Wastewater discharged to the local sewer or environment
- Wastewater to be reused in-process
- Influent water treatment



Fully containerised Nyex Treatment System on site at Anglian Water

Arvia's Nyex Treatment Systems combine adsorption with electrochemical oxidation in a single, scalable unit. Contaminants are concentrated on the surface of Arvia's proprietary adsorbent media, which is non-porous with high electrical conductivity. This patented media allows for targeted and continuous oxidation. Unlike granular activated carbon, Nyex media is effectively regenerated in-situ and the process can continue without interruption or replacement.

Arvia is already working with utilities in the UK and Europe and has treated challenging wastewaters from the chemical, electronics, oil/gas and pharmaceutical industries in Europe and Asia.

Flexibility

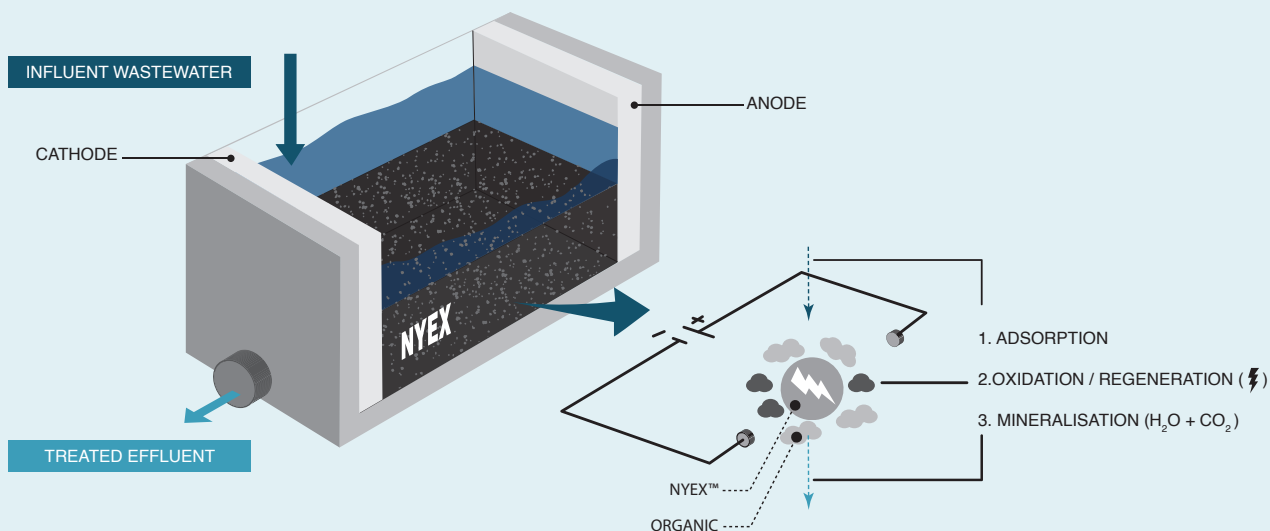
Highly successful as stand-alone solutions, Nyex systems are extremely adaptable and can also be utilised to complement other existing or planned treatment processes.

Costs

Operational costs for treatment are low due to energy use being in proportion to micropollutant concentration. The systems are free from chemical dosing and do not produce sludge, which requires transportation and specialist disposal.

Nyex treatment systems are low maintenance and require minimal manpower and training to operate.

Nyex™ Treatment Process



Get in touch with our application experts today for a targeted solution to your micropollutant removal challenge

Arvia Technology Ltd

Call: +44 (0)1928 515 310 Email: info@arviatechnology.com
The Heath Business and Technical Park, Runcorn, Cheshire WA7 4EB

arviatechnology.com

arvia
Safer water for future generations