

# Water is imperative to sustain life on earth. Global water demand will outstrip supply by 60% by 2030.

Many of the world's aquatic ecosystems are already severely damaged due to human interference, including industrial manufacturing. Most industries are now very aware of the issues of pollution and water reuse and take it very seriously. But it's an ongoing challenge.

Traditional water treatment processes were not designed to remove pollutants to low levels demanded by new regulations. This is forcing industries to look to new technology to solve these ongoing problems.

Implementing water reuse strategies and 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.

We have 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 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 in 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

We design and supply Nyex™ tertiary treatment systems which remove organic micropollutants and recalcitrant COD from industrial wastewater. Typical applications include:

- | Removal of specific organic micropollutants or recalcitrant COD from a manufacturing effluent.
- | Enabling industrial water reuse as part of a Zero Liquid Discharge strategy.
- | Inlet water treatment, removing contaminants before they enter your production process.
- | Protection of existing treatment processes.
- | Increasing the efficiencies and lifespan of existing treatment processes.



Containerised Nyex™ Treatment System on site at Anglian Water



Our Nyex Rosalox™ treatment system combines adsorption with electrochemical oxidation in a single, scalable unit.

We have treated challenging wastewaters from many industries in Europe, Asia and US. Our technology is best suited to those applications with a particular micropollutant or active ingredient to remove. In order to reduce hazardous organics to trace levels the systems are optimised when the flow rate is fairly low.

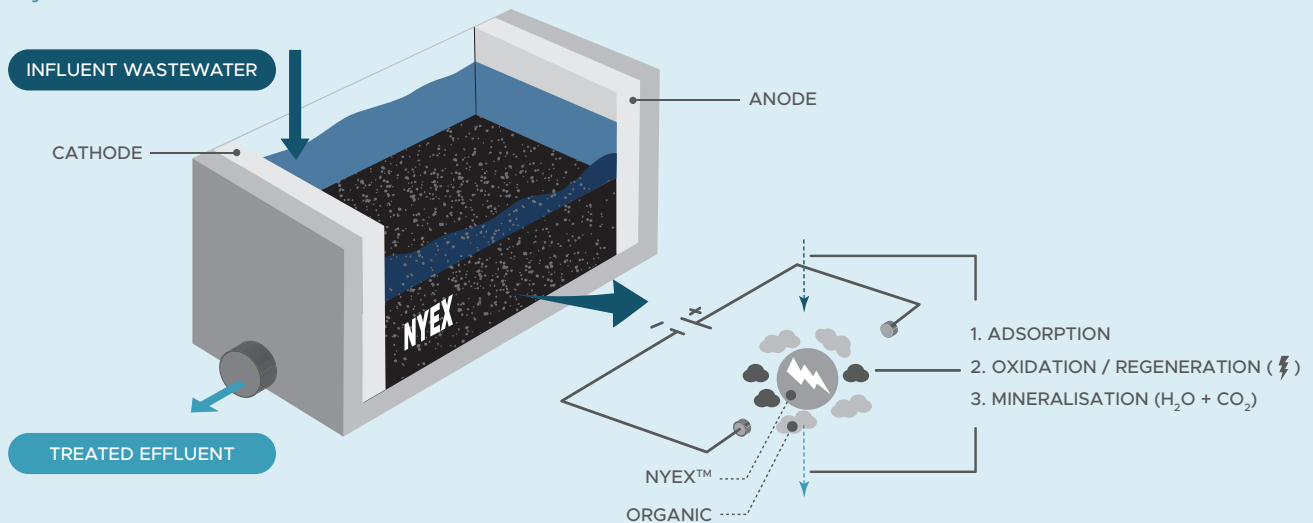
## Flexibility

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 controllable and lower than other systems because of the concentration of pollutants onto the surface of our conductive Nyex™ media. Energy use is in proportion to micropollutant concentration. The systems are free from chemical dosing and do not produce sludge, so no need for specialist disposal off-site. Nyex™ treatment systems are low maintenance and require minimal manpower and training to operate.

## Nyex™ Treatment Process



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Get in touch to discuss your company's treatment challenges and arrange a treatability trial on your wastewater today.