

FACT  
SHEET

# Tertiary Treatment Products



Arvia is a team of tertiary water treatment experts with over a decade of installation and integration experience.

Its innovative Nyex™ systems have been designed to tackle the most challenging waters which other technologies cannot properly clean. They are designed and manufactured in-house and can be combined, where necessary, with ancillary technologies to provide a fully operational solution which is tailored exactly to your treatment requirements.

We have two core technologies, the hero products of each are Nyex Rosalox™ and Nyex Ellenox™.



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## Nyex Rosalox™

The Nyex Rosalox™ treatment process combines adsorption with electrochemical oxidation in a single, scalable unit. As the water flows into the reactor tank, contaminants are concentrated onto the surface of the proprietary Nyex™ adsorbent media. A low electrical current is simultaneously passed through the media bed to fully mineralise the adsorbed contaminants to water and gases, which are vented away.

The patented media is non-porous with high electrical conductivity and allows for targeted and continuous oxidation of the contaminants. Unlike granular activated carbon (GAC), Nyex™ media is effectively regenerated in-situ and the process can continue without interruption.

### Nyex Rosalox™ Key Benefits

- l Removes hydrophobic recalcitrant organics to trace levels
- l Removes persistent organic compounds such as active ingredients from pharmaceuticals and agrochemicals
- l COD polishing from ~300mg to very low levels
- l Low energy consumption due to localisation of contaminants on the adsorbent media
- l No chemical dosing which allows for safe reclamation or discharge of wastewater



## Nyex Ellenox™

The Nyex Ellenox™ treatment process is an established technology which produces powerful hydroxyl (OH<sup>-</sup>) radicals that electrochemically destroy organic contamination, such as COD, to application-specific acceptable levels.

### Nyex Ellenox™ Key Benefits

- l Removes recalcitrant COD from <10,000 mg/L COD to low levels for low flow rates
- l Removes recalcitrant COD from <2,500 mg/L COD to low levels for medium flow rates
- l Removes hydrophilic or hydrophobic contaminants from water
- l High concentration of OH<sup>-</sup> radicals indiscriminately attack even hard-to-adsorb compounds
- l Allows rapid removal of background COD, pre-treating wastewater for targeted removal of persistent compounds by Nyex Rosalox™

## No chemicals and no sludge generated

In contrast to traditional advanced oxidation processes (AOPs), results using the Nyex Rosalox™ and Nyex Ellenox™ processes are achieved without chemical dosing and the production of toxic sludge or secondary waste, which are becoming increasingly expensive for industrial facilities to manage and dispose of.

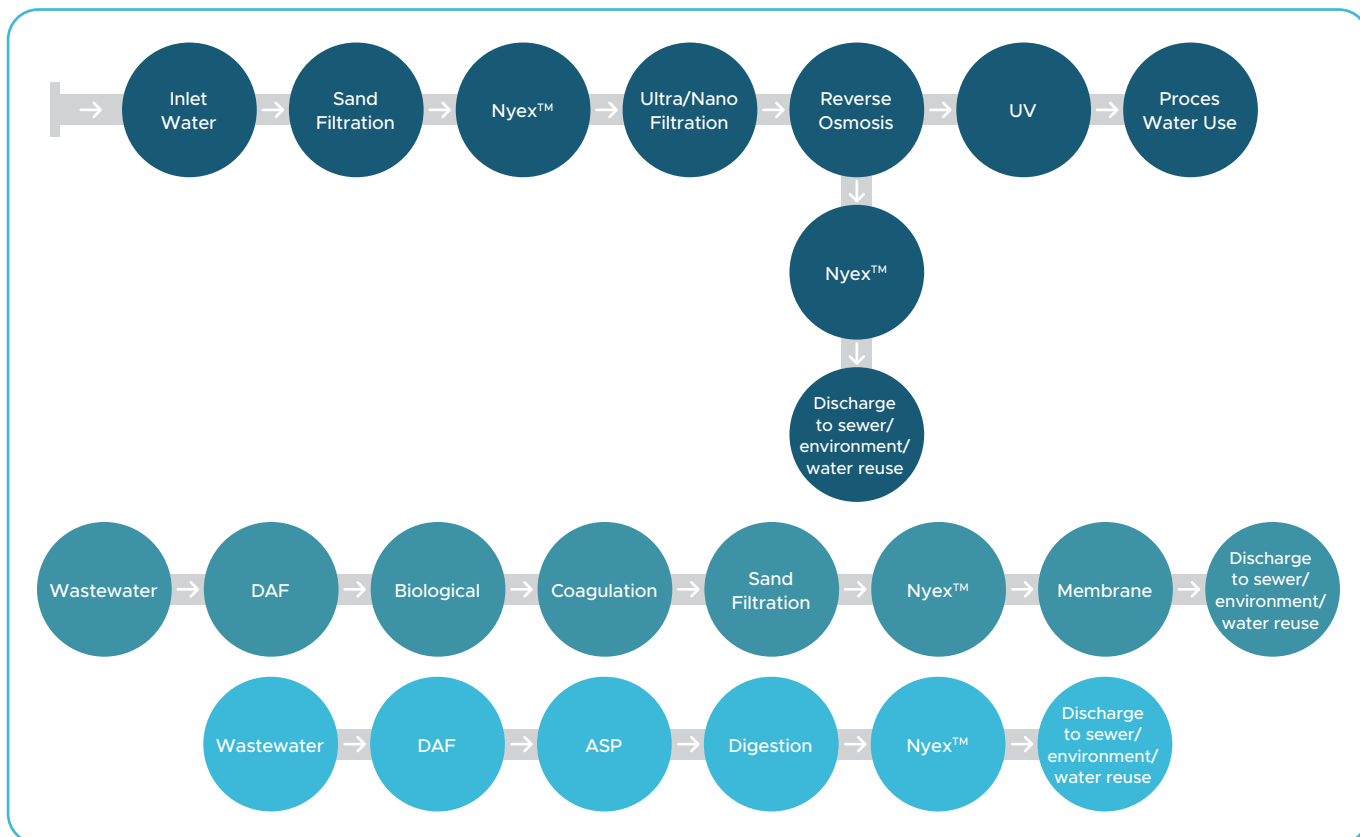
## Increasing the efficiency of existing processes

Water is complex and often requires various treatment steps to ensure it is of a sufficient quality for its intended purpose.

Nyex™ can be placed at various points in the treatment train to increase the effectiveness of other processes. For example, we sometimes place our Nyex™ systems before RO systems to protect the expensive membranes from certain compounds.

We have also used our system to increase the life of a GAC process to save OpEx and reduce environmental cost of GAC renewal.

Examples of how we have integrated into a treatment train to meet specific needs and maximise results can be seen below:



## Low Risk Water Treatment

Some of our clients require a low-risk solution so that is why when you work with Arvia you get the option for a three-step delivery:

### 1. Bench testing in our lab

Testing your water against each of our technologies under different conditions optimises the treatment performance and efficiency of subsequent pilot.

### 2. Pilot testing on your premises

Installing a pilot plant over a few months allows us to assess and develop the treatment process under real operating conditions, capturing variable conditions.

### 3. Data driven full scale design

This approach increases certainty over cost and performance early in the project, reducing risk.

# arvia

7 Christleton Court, Manor Park,  
Runcorn, Cheshire WA7 1ST  
United Kingdom  
Telephone: +44 1928 378 983

[arviatechnology.com](http://arviatechnology.com)

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