

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

- Removes hydrophobic recalcitrant organics to trace levels
- Removes persistent organic compounds such as active ingredients from pharmaceuticals and agrochemicals
- COD polishing from ~300mg to very low levels
- Low energy consumption due to localisation of contaminants on the adsorbent media
- 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⁻) radicals that electrochemically destroy organic contamination, such as COD, to application-specific acceptable levels.

Nyex Ellenox™ Key Benefits

- Removes recalcitrant COD from <10,000 mg/L COD to low levels for low flow rates
- Removes recalcitrant COD from <2,500 mg/L COD to low levels for medium flow rates
- Removes hydrophilic or hydrophobic contaminants from water
- High concentration of OH⁻ radicals indiscriminately attack even hard-to-adsorb compounds
- 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.

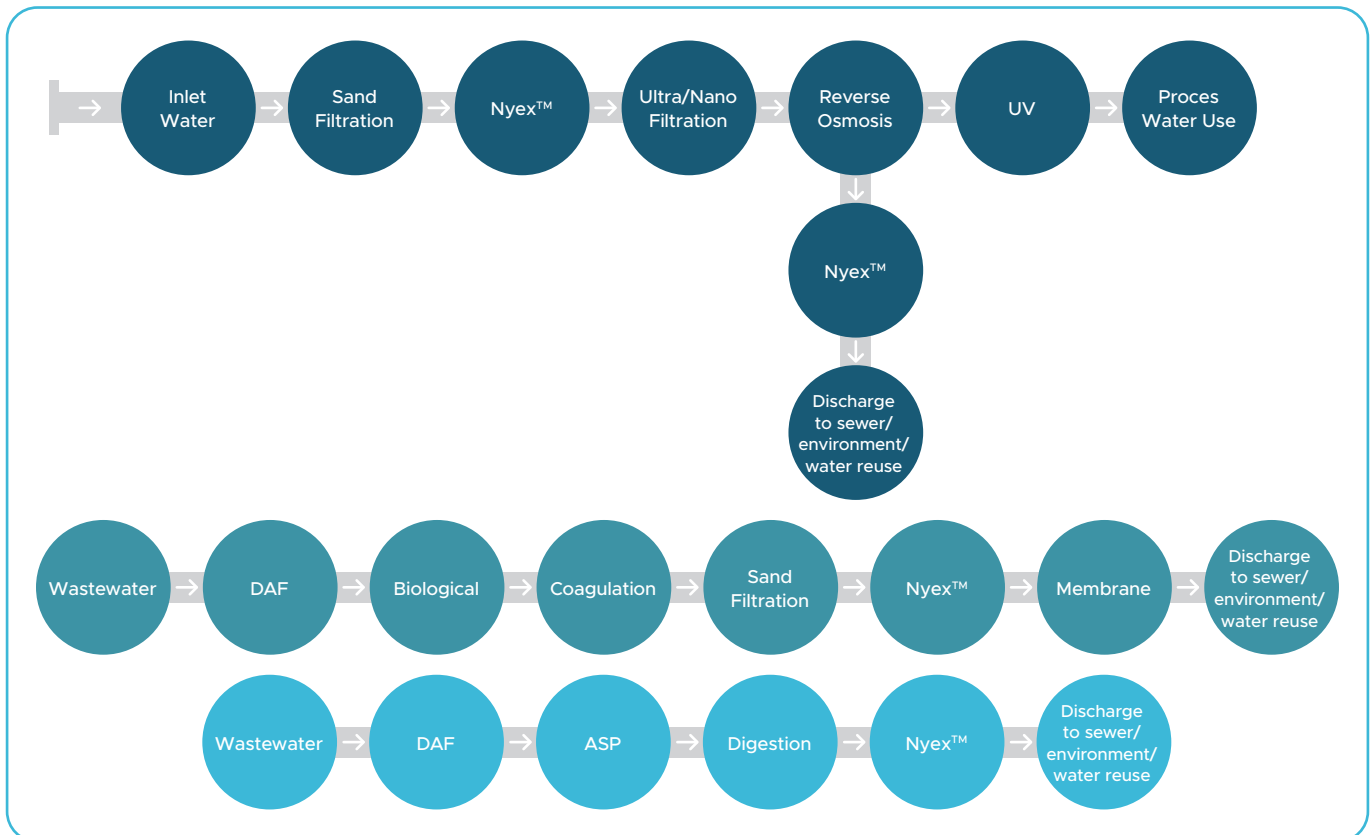
Increasing the efficiency of existing processes

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.

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