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Safer water for future generations

# Arvia Water Technologies Ltd

- Advanced tertiary water and wastewater treatment provider
- Based in the North West of the UK
- Office and laboratory in Shanghai, China
- 35 employees, expert water engineers and scientists, specialists in tertiary water treatment.
- Projects deployed on a globally in various water treatment applications

Water Reclamation  
and Reuse



Wastewater  
Treatment



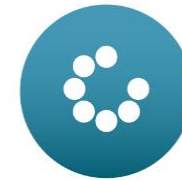
Drinking Water  
Treatment



Point of Entry  
Treatment



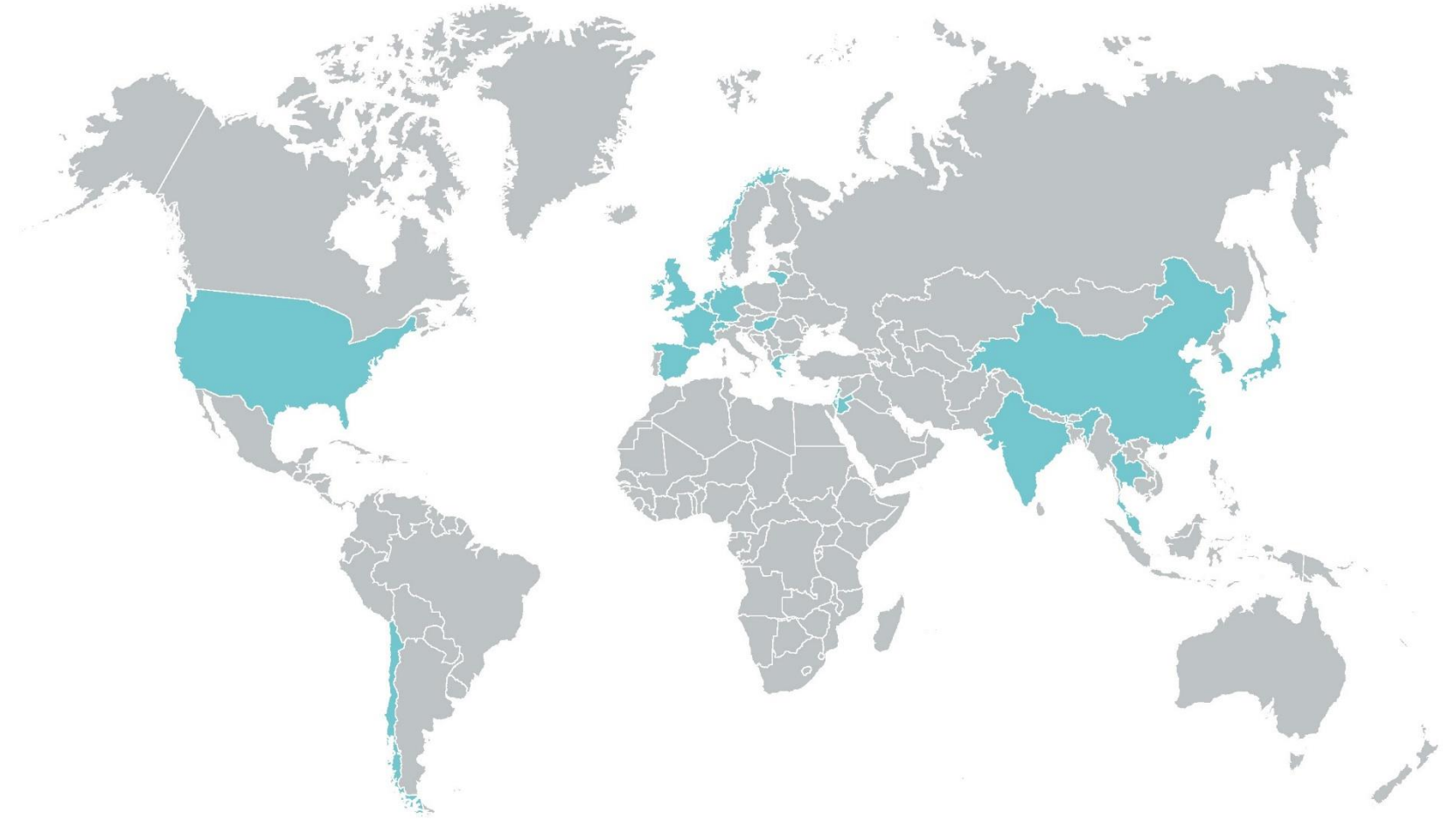
Advance Treatment  
Capabilities



# Arvia's Market Activity

## Sectors

- Life sciences
- Aquaculture
- Chemical
- Utilities
- Semiconductors
- Oil and Gas
- Textiles





# Nyex™ Treatment Applications

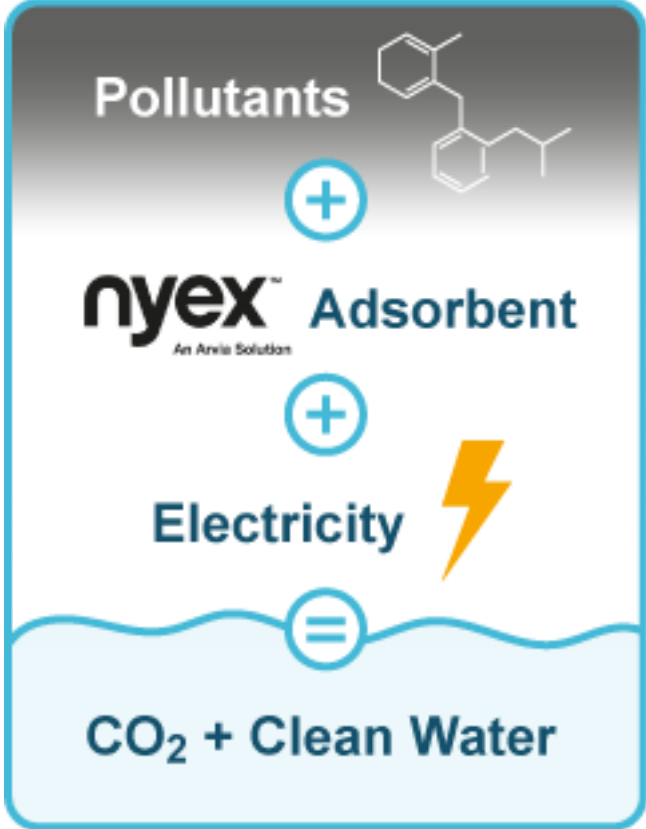
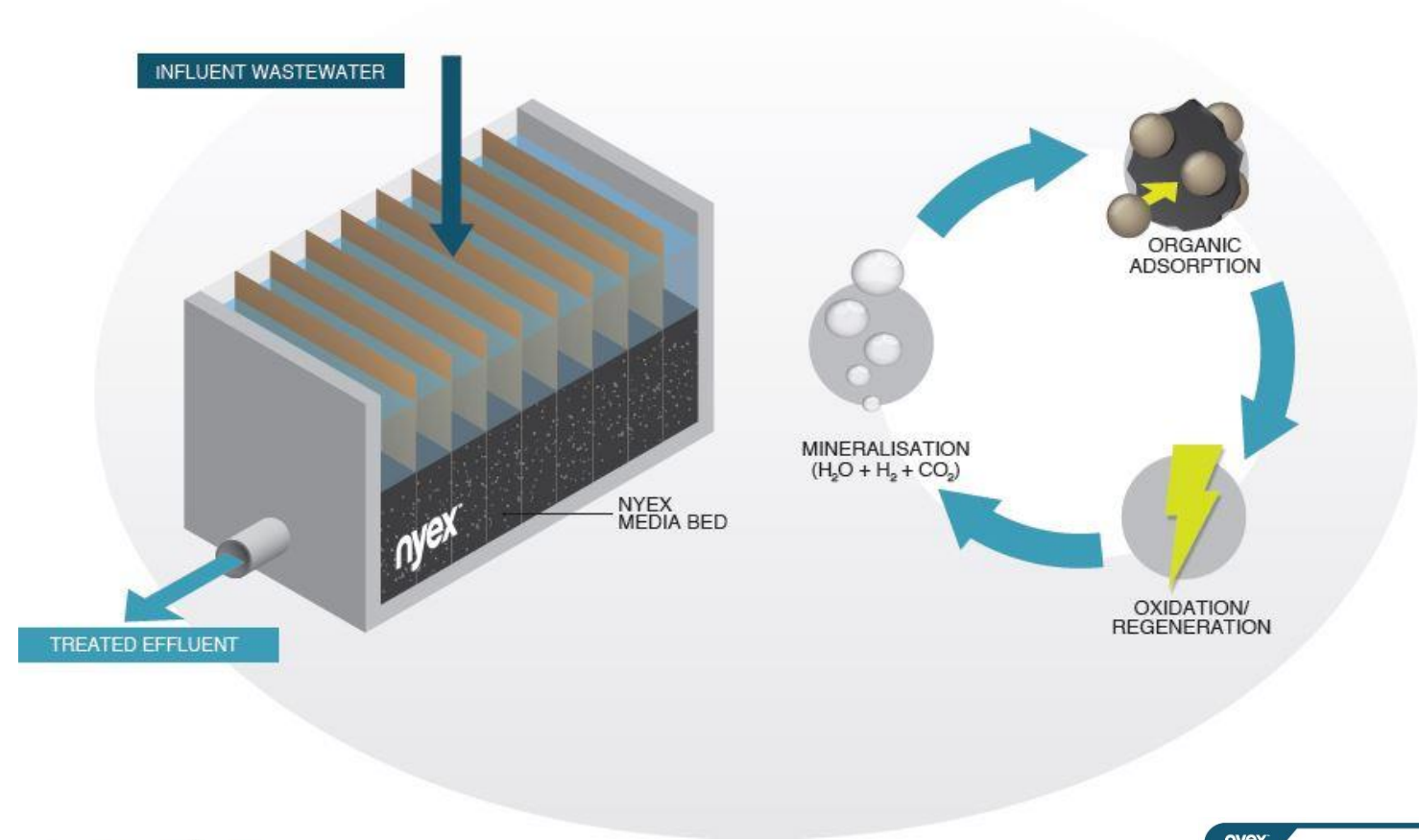
- **Recalcitrant COD**  
Reduction from 1000's mg/L to below 30 mg/L for reuse or discharge
- **Micropollutants/CECs**  
Removal, including pesticides and hazardous chemicals
- **Colour**  
Removal from raw water and process water, including dyes, tea/coffee wash and natural organic material (NOM/CDOM)



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**Nyex Rosalox™  
Treatment**

# Nyex Rosalox Treatment Process



# Nyex Rosalox System Use and Maintenance

- **Adsorbent**  
2 - 4 % top-up of Nyex™ media each year
- **Electrode/Separators**  
5 year inspection required
- **Labour**  
Limited operational requirements needed
- **Energy**
  - 10 - 20 kWh/kg COD on average for COD removal
  - 0.4 - 1 kWh/m<sup>3</sup> for micropollutant removal





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**Nyex Ellenox™  
Treatment**



# Nyex Ellenox™

- Established technology which produces powerful hydroxyl (OH\*) radicals that oxidise organic contamination

## Electrode/Separators

- Effectively removes recalcitrant organics from 1,000s mg/L COD and below
- Achieves effluent quality to below 100 mg/L COD
- High concentration of OH\* radicals indiscriminately oxidise recalcitrant compounds



# Nyex™ Treatment Benefits

## Lower Treatment Costs

- No sludge produced
- No consumables
- Adsorption of contaminants reduces energy consumption, compared to AOPs
- Simple operation

## Environmentally Friendly

- Free from chemical dosing
- In-situ Nyex™ media regeneration, avoiding trucking or incineration
- Effective to extremely low levels of pollutant removal

## Minimal maintenance

- Typically 1 day annual maintenance (relative to size of plant)
- No moving parts

## Flexible Design

- Scaled and optimised to suit individual treatment requirements
- Retrofit into existing tanks
- Replace existing treatment processes or combine to enhance performance

# Nyex™ Benefits vs. GAC / PAC

**Does not  
require media  
replacement**

Save \$\$ and  
downtime



**No trucking or  
disposal of sludge**

Save disposal  
costs



**Media regenerates  
as part of the process**

Consistent  
performance



GAC and PAC **move** the problem. Arvia **solve** the problem.

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# Nyex™ Benefits vs. Ozone

**Nyex™ has  
lower CAPEX  
and OPEX**

**Nyex™ has  
simple design  
and operation**

Ozone is complex

**Nyex™ is efficient –  
concentrate  
contaminants  
before oxidation**

Avoid efficiency losses  
from Ozone generation  
and mixing

**5 to 10 times  
less bromate  
formed**

**Nyex™ is safer  
to operate**

Remove risks from  
Ozone

No handling of  
dangerous chemicals

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# Project Management



# Overview of benefits

- Simple design and easy to operate (on/off control).
- Removes organic contaminants such as COD, micropollutants, and colour from water
- No chemical dosing – cost and safety improvement
- No sludge produced – disposal cost saving and operational benefit
- No media replacement – reduce cost and maintenance downtime
- Actively prevents biofilm formation – no cleaning chemicals
- Low maintenance – typically 1 day annual maintenance
- Switch treatment on and off on-demand – only use when needed



The background of the slide is a deep teal color. On the left side, there is a vertical strip of water with numerous bubbles of various sizes. The word "arvia" is rendered in a large, 3D, metallic font. The letters are filled with a pattern of white chemical structures, including hexagons and lines representing molecular bonds. The font has a reflective, chrome-like finish.

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**Thank you for listening**

**Any questions?**

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