Nitrification Using Integrated Microvi Activated Sludge Increases Capacity and Stability

Intensification of activated sludge to increase capacity, repurpose for additional effluent requirements and for the improvement of process stability is key to meet the challenges of wastewater treatment over the coming decades.

Integrated Microvi Activated Sludge (IMAS) is a novel and disruptive intensification technique. It takes advantage of Microvi's MicroNiche Engineering (MNE™) to deploy an extremely high concentration of organisms capable of nitrification without the need to maintain the long solids retention time required by conventional suspended growth or fixed film processes.

A demonstration of IMAS was carried out at the Bo'ness Wastewater Development centre in Scotland. Despite challenging influent conditions during the pilot trial, IMAS intensified the activated sludge process, achieving full nitrification at a sludge age of less than 3 days and hydraulic retention times of less than 4 hours. This compared to 14 days and 12 hours for conventional systems in the UK.

Performance was achieved at temperatures less than 10 °C, demonstrating MNE's adaptable and superior treatment capabilities compared to conventional treatment technologies.

Project Details

Site: Bo'Ness Wastewater Development Centre

Issue: Increasing capacity of and improving stability for Nitrification

Solution: Microvi MNE™, IMAS

Key Results:

- Achieves stable nitrification at SRT's below 3 days and temperatures below 10 °C
- Reduces required reactor volumes by over 50%
- Reduces aeration demand by 20 - 30%
- Potential to increase biomethane production by > 50%
- Reduces stress on downstream clarifiers

CONTACT US TO LEARN MORE →

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