



CYCLOR® TURBO

Aerobic granular sludge (AGS) small-footprint sequencing batch reactor (SBR)



Criteria

Effluent Quality	mg/L
Total Nitrogen (TN)	<10
Total Suspended Solids (TSS)	<15
Total Phosphorus (TP)	<1

Advantages

Up to 50% less footprint vs. conventional activated sludge (CAS)

Suitable for shallower basins than typical AGS

4x sludge settling velocity vs. CAS

Less OpEx vs. CAS

Applications

Biological nutrient removal (TP & TN)

Process Intensification

Municipal wastewater

Organic industrial waste

Green field or retrofit

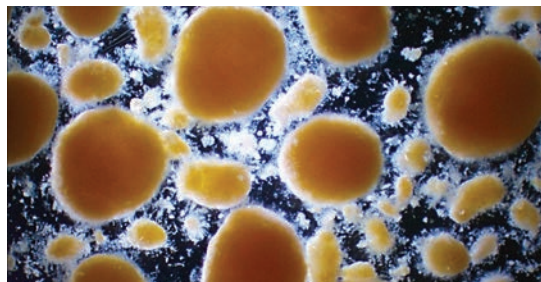
Problem

Your plant needs maximized biological treatment while saving footprint, removing more nitrogen, TSS and phosphorus with less inputs. Your site needs a proven solution that works, whether it's greenfield or retrofitting an SBR or conventional activated sludge (CAS).

Solution

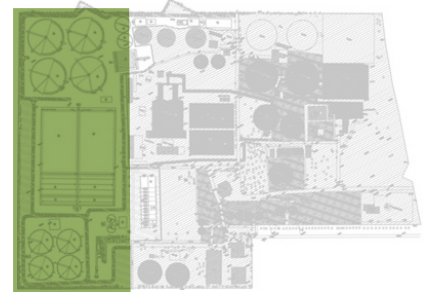
Cyclor® Turbo is SUEZ' footprint-saving improvement on AGS, a fixed-level SBR with fast-settling densified sludge that nitrifies, denitrifies, biologically removes phosphorus, and even reduces solids. Here's how:

- Microbiome is converted to densified biomass consortium with granular sludge for 4x higher settling velocity than the flocculated biomass in CAS. The partial granulation also captures more suspended solids in the settled sludge blanket than full granulation, enabling the reactor to produce <15 mg/L TSS.

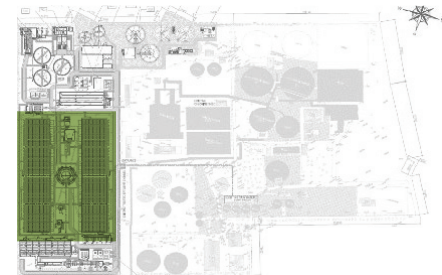


Cyclor® Turbo's densified biomass consortium with granular sludge.

- Requires up to 50% less footprint than CAS: Compresses the required treatment into a comparably small footprint, and the constant water level ensures that the head loss is also an improvement over CAS (and 3x less than conventional SBRs).



Above: CAS. Below: Using Cyclor® Turbo requires 50% less footprint on the same site



- Reduces OpEx vs. CAS. Cyclor® Turbo reduces the consumption of reagents like metallic salt use (because the process reduces phosphorus by >75% without reagents) as well as sludge produced by metallic salts.

technologies for cleaner water

5 Burks Way · Winnipeg MB · R5T 0C9
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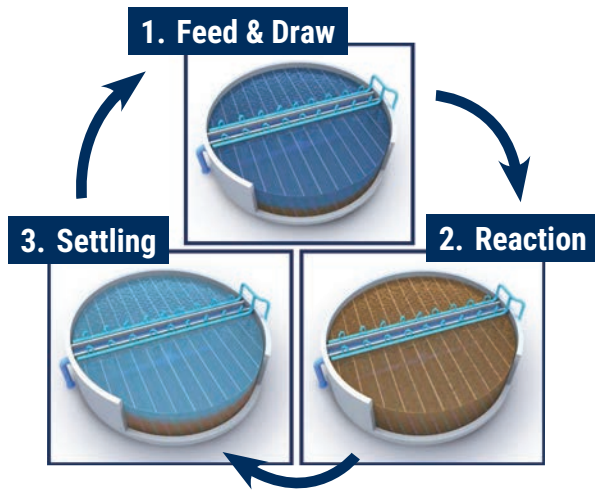


Axiom Water companies

How it works

Cyclor® Turbo's water level remains constant through each step:

- 1. Feed & Draw:** While clean water is drawn off the reactor's top, the reactor in its anaerobic state is fed from the bottom under the sludge blanket. This retains the heaviest sludge and naturally selects for phosphate accumulating organisms (PAO) that help further densify sludge.
- 2. Reaction:** Aeration ensures mixing and oxygenation for BOD removal, nitrification, and phosphate consumption. The aeration is optimized to enhance denitrification and improve total nitrogen removal.
- 3. Settling:** Air is turned off and denitrification can commence even as the densified sludge rapidly sinks to the basin floor.



Designed to be better

By reconfiguring an SBR based on a deep understanding how sludge works, Cyclor® Turbo achieves <10 mg/L TN, <15 mg/L TSS, and biologically removes phosphorus without reagent. It does this in half the footprint and with less O&M than conventional SBRs. Plus, Nexom—a name you trust—owns the quality of the delivered and finished product.

Proven globally

The 150 m³/day demonstration facility at a French coastal city was built and run for 18 months, with 100 variables analyzed every 10 seconds to conclusively define the process' capabilities.



Installs:

- La Roche-sur-Yon, France (12.5 MGD, 47,400 m³/day),
- Libourne, France (2.9 MGD, 11,000 m³/day),
- Morainvillers, France (1.0 MGD, 3,900 m³/day)
- Central Manila wastewater facility, Philippines (47.5 MGD, 180,000 m³/day)

In North America, Nexom is building a full-scale demonstration facility near its headquarters in cooperation with the East St. Paul, Manitoba wastewater treatment plant. Contact Nexom today to arrange a tour of the facility!

Nexom knows intensification

The Nexom team has been pushing the bounds of biological intensification for decades across hundreds of projects globally. Our engineers are leading experts in a range of technologies, including the BioPorts MBBR.

Nexom brings this experience to our licensing of Cyclor® Turbo from SUEZ. SUEZ' reputation is strong and their development of this technology is rock-solid. Nexom is proud to leverage our biological treatment expertise to share this solution with North America!

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UPGRADING WITH CYCLOR® TURBO IS EASY AND EFFECTIVE

1

We walk you through exactly what project details we need. Call 888-426-8180 or email info@nexom.com.

2

We supply design-ready drawings, proprietary technologies, and responsive support.

3

You never worry about your nutrients, TSS levels, or footprint constraints again.