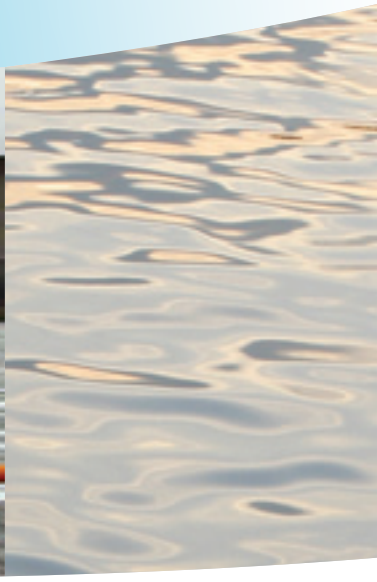
evoqua
WATER TECHNOLOGIES



ADI® SEQUENCING BATCH REACTOR (SBR)

FLEXIBLE AEROBIC WASTEWATER TREATMENT PROCESS

THE TECHNOLOGY

The ADI® sequencing batch reactor (SBR) is an advanced activated sludge process where various treatment events occur in a single vessel. The biological process events are separated by time rather than space, making it easy for operators to add, lengthen, shorten, or alter the sequence of the events to achieve the desired process modification.

Different environments are created in the SBR by controlling process equipment such as aerators, mixers, pumps, and decanters during a specific timed cycle. There are typically four cycle events: fill, react, settle, and decant. The combination of events allows for the removal of organic carbon, suspended solids, ammonia, nitrogen, and phosphorus.

By linking a programmable logic controller (PLC) to the system, the process is easily monitored and controlled on-site by plant personnel. The timing and sequencing of events in an SBR cycle depend on the influent wastewater characteristics and treatment objectives.

The aerobic technology can be used as a stand-alone process or to polish anaerobic effluent. It pairs well with ADI-BVF® technology, as the level variation and flow equalization offered by the BVF® reactor complements the batch operation of the SBR.

KEY INDUSTRIAL MARKETS

- Food & Beverage
- Brewery
- Distillery
- Biofuel
- Pulp & Paper
- Chemical & Pharmaceutical

ENHANCED FLEXIBILITY AND CONTROL

The ADI® SBR system provides wastewater treatment plants with increased flexibility compared to conventional activated sludge systems, along with several other benefits.

COST SAVINGS

- Eliminate wastewater surcharges
- Reduce number of tanks required for wastewater treatment
    - Lower long-term maintenance costs
- Relatively compact footprint due to batch kinetics
    - External clarifier is not required
- Low capital and O&M costs compared to other activated sludge and membrane bioreactor systems

PROCESS ADVANTAGES

- Batch kinetics for removal of organics, solids, and nutrients
- Time and sequence of process events can be easily adjusted via automated control systems
    - Easy process flexibility
    - Can affect performance by adjusting timing and/or air addition
    - Can have two or more operating in parallel with cycles offset
    - Allows for nutrient removal
- Cyclic feast-famine conditions produce a better settling sludge than continuous-flow conditions

ENVIRONMENTAL BENEFITS

- Produces high-quality effluent low in biochemical oxygen demand (BOD), total suspended solids (TSS), nitrogen, and phosphorus
    - Easily meets discharge requirements for publically-owned treatment works
    - Suitable for water reuse in certain applications, improve plant's water security
- Small footprint

OPERATION & MAINTENANCE

- Easy to operate and maintain
- Intuitive interface offers greater flexibility and control
- Fewer equipment and mechanical parts, simplifying construction and maintenance
- ADI Systems' decanter has fewer mechanical parts than most commercially available decanters, further simplifying operation and maintenance

PROJECT DELIVERY

ADI Systems customizes each ADI® SBR system to meet the unique needs of the application. Design/build project delivery offers a number of benefits, including a single point of contact and responsibility, and consistency in design and construction quality throughout the entire project. Technology-only packages are also available.

ADI® Systems
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