

CE 704 SBR process – Sequencing Batch Reactor

Discontinuous wastewater treatment

In the classic continuous activated sludge process, the individual process steps of biological treatment take place simultaneously and separately from each other. In contrast, in the SBR process these process steps take place sequentially in one tank. Treatment of the wastewater is therefore not continuous, but in batches. Accordingly, this type of reactor is called a Sequencing Batch Reactor (SBR).

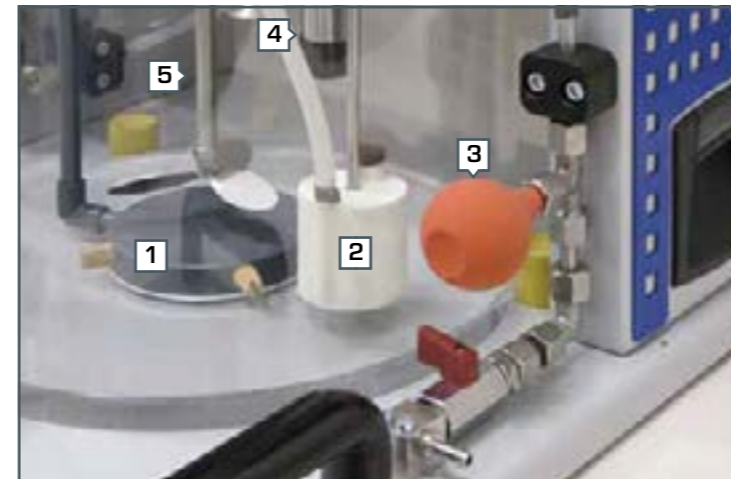
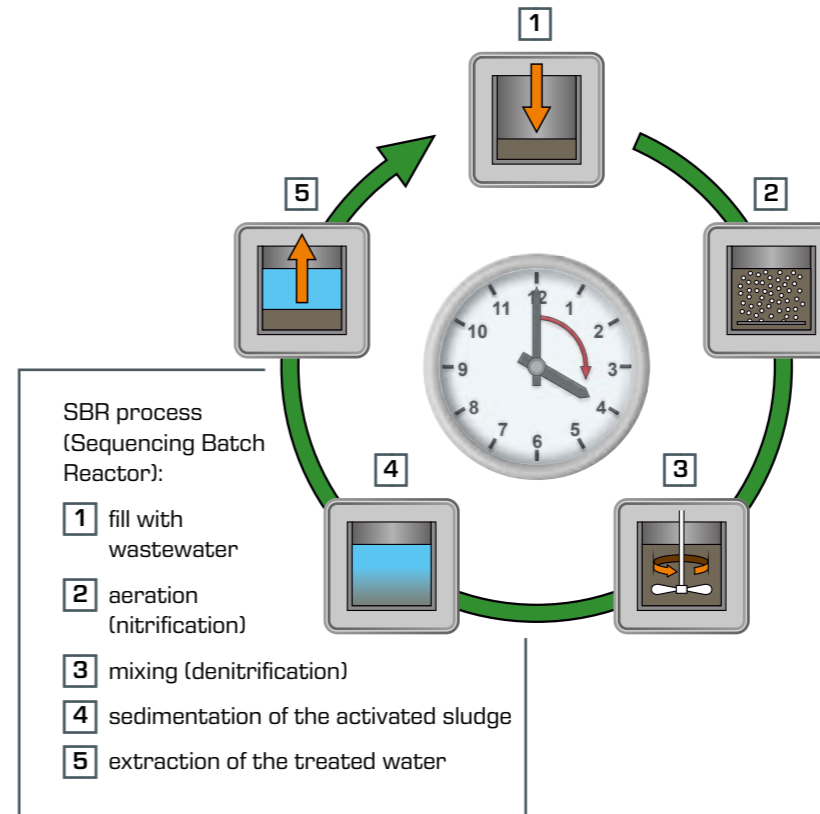
At the beginning of a cycle, the reactor is filled with wastewater. This is followed by mixing and aeration phases. This sets the environment required for each process step. After a defined period of time, all stirring machines and aeration are switched off. This causes the activated sludge to sink to the bottom of the reactor. After completion of the sedimentation phase, the treated wastewater is pumped out of the reactor so that a new cycle can begin. The duration and arrangement of the individual phases can vary within a cycle. Only the sedimentation of the activated sludge and the withdrawal of the treated water are obligatory at the end of a cycle.

This teaching device is used to learn the basics of the SBR process in a practical way. The main component of the device is the reactor, which is equipped with a stirring machine and an aeration device. The stirring machine ensures sufficient mixing of the reactor contents even in phases without aeration (denitrification).

Using timers, you can individually set the aeration and mixing phases. The oxygen concentration, pH value and temperature in the reactor are recorded. A digital process controller continuously displays the measured values and the speed of the stirring machine. The process controller also functions as a controller for the oxygen concentration during the aeration phase. The process controller is very easy to use and is operated by means of a touch screen.



About the product:



- 1 aeration device
- 2 floating device for clear water extraction
- 3 suction ball for clear water
- 4 oxygen sensor
- 5 stirring machine



Digital process controller for displaying the process variables and for controlling the oxygen concentration

Learning objectives
<ul style="list-style-type: none"> functional principle of the SBR process elimination of nitrogen by nitrification and denitrification influence of cycle design on treatment results recording and interpretation of temporal concentration curves determining conversion rates sedimentation properties of activated sludge