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SFC Umwelttechnik

clean water for the world

**CYCLIC ACTIVATED
SLUDGE TECHNOLOGY**

C-TECH™

www.sfcu.at





CYCLIC ACTIVATED SLUDGE TECHNOLOGY

SFC is a specialized company for process technologies in the field of water and wastewater treatment.

Typical clients are municipalities, industrial clients and general contractors. Main business activities are consulting and design and supply of process technology, equipment, EPC and turn-key contracting.

APPLICATIONS

- ❑ Sewage treatment
- ❑ Beverage and food industry
- ❑ Paper industry
- ❑ Pharmaceutical and chemical industries
- ❑ Petrochemical industries
- ❑ Textile mills
- ❑ Large scale and containers
- ❑ Overground and underground

The **C-TECH™** process is a cyclic activated sludge process, whereby carbon oxidation, nitrification, denitrification and bio-P removal are carried out simultaneously.

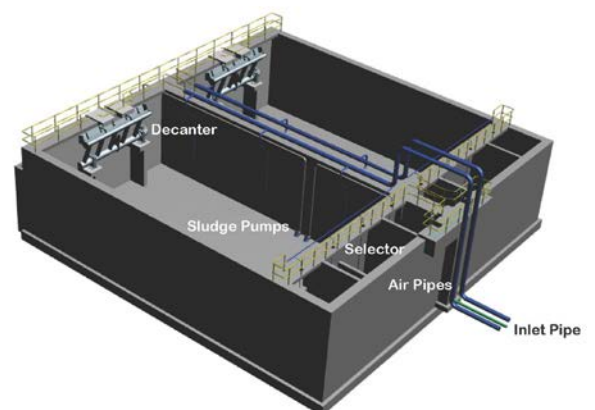
The process control based on online respirometry allows the omission of equalization tanks, mixing devices and shock filling, as in SBR- systems usually required. A continuous treatment is achieved by installing two or more parallel operating basins.

PROCESS ADVANTAGES

- ❑ less area and volume requirement
- ❑ less M+E equipment
- ❑ highest elimination rate for N and P
- ❑ suppression of filamentous organisms
- ❑ highest flexibility against dynamic flows and loading at reduced operation costs



C-TECH™ Domžale/Slovenia





... LOW ENERGY CONSUMPTION

The system has been implemented in various reference plants in all continents and is currently featuring the world-wide largest facility of its kind for up to **600,000 m³/d**.

C-TECH™ basins can be manufactured in round or square shape. The following devices are part of the process:

- ❑ selector for simultaneous N/DN, bio-P removal and control of bulking sludge
- ❑ highrate decant arm with scumguard to remove treated effluent
- ❑ sludge recirculation pumps into the selector compartments
- ❑ control system via OUR
- ❑ fine bubble aeration system

SIMULTANEOUS NUTRIENT REMOVAL

The relatively short cycle of approx. 2–4 hrs in combination with the selector and the process control allows for simultaneous N/DN. Nitrification takes place at the periphery of the floc, whereas denitrification occurs within the floc.

The control system computes the required aeration time and rate, which allows effluent concentrations of BOD/SS/TN/TP < 10/10/10/1mg/l

The release of phosphorus takes place in the selector, its uptake in the main reactor zone during aeration phase.

CONTINUOUS OPERATION

The installation of parallel basins allows a continuous plant operation with continuous influent and discharge. Through the PLC system each individual basin can be taken out of service for maintenance purposes without affecting the continuity of the process operation. The unique OUR oxygen uptake rate control software optimizes the power consumption of the reactor to the utmost.

CYCLE

Within one cycle the phases aeration, settling and decanting are repeated continuously. Thus, all necessary reaction conditions for simultaneous nutrient removal and sludge settling are completed. The duration of a dry weather cycle is typically 4 hrs. only.

The phase delay between the basins leads to a continuous process wherein all installed machinery and aggregates are most efficiently used.

OPTIONS

- The process and cycle design can be adapted to:
- ❑ nutrient removal or removal of BOD / COD only
 - ❑ simultaneous sludge stabilization
 - ❑ nitrification at very low temperatures
 - ❑ enhanced bio-P
 - ❑ with or without primary settling tanks
 - ❑ with or without anaerobic digester



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