

# CE 701

## Biofilm process – laboratory-scale trickling filter

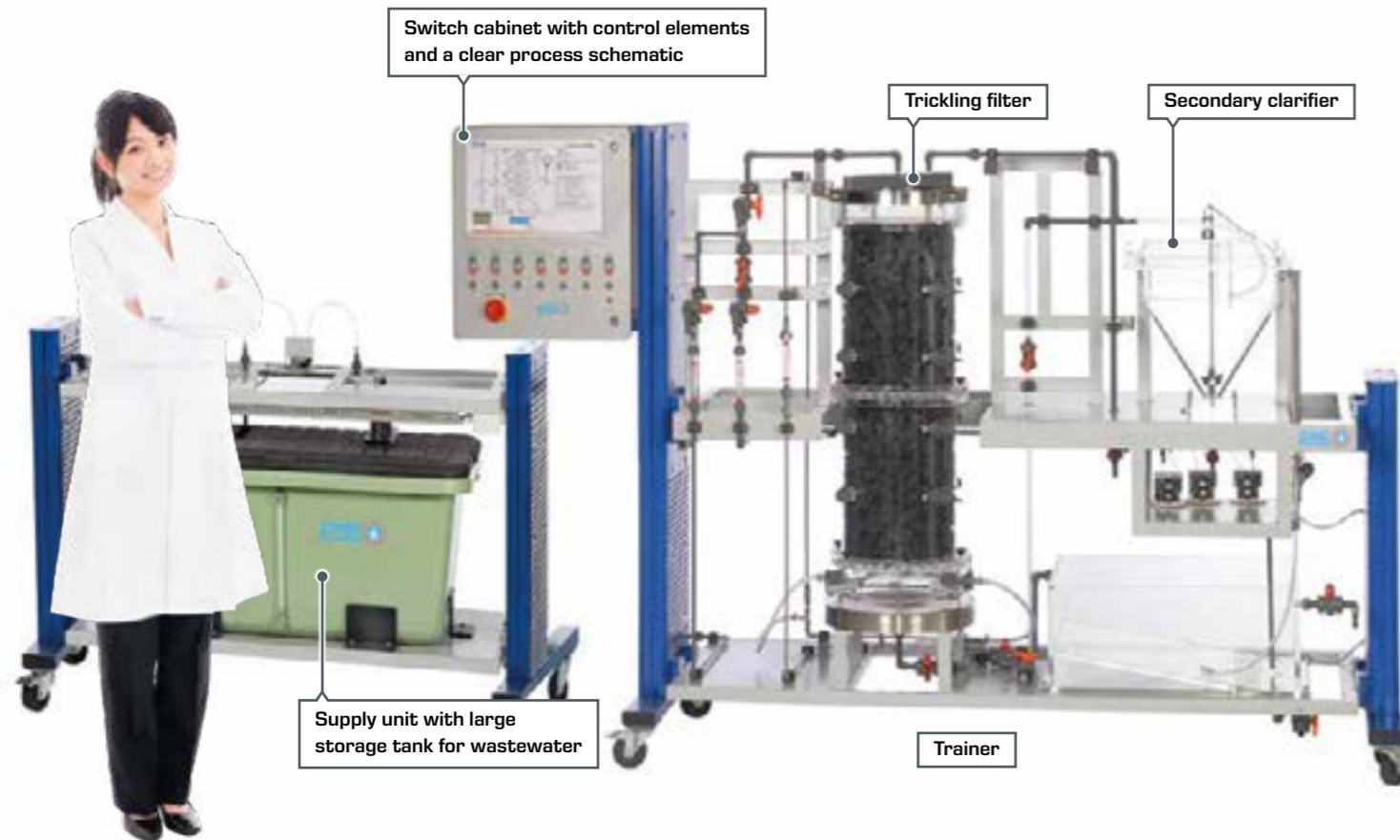
### Trickling filters: an aerobic biofilm process

Although trickling filters are one of the oldest biological wastewater treatment processes, they are still widely in use. The trickling filter process is therefore still an integral part of the curriculum in the field of water treatment.

The CE 701 trickling filter is designed for carbon elimination and nitrification. A rotary distributor distributes the wastewater to be treated evenly over the fixed bed. You can adjust the speed of the rotary distributor. There are two different HDPE packing types available for the fixed bed. The packing differs in terms of the specific surface area.

The trickling filter of CE 701 has aeration vents below the fixed bed. This allows for aeration by natural convection. If necessary, you can also close the aeration vents to artificially aerate the trickling filter with a compressor.

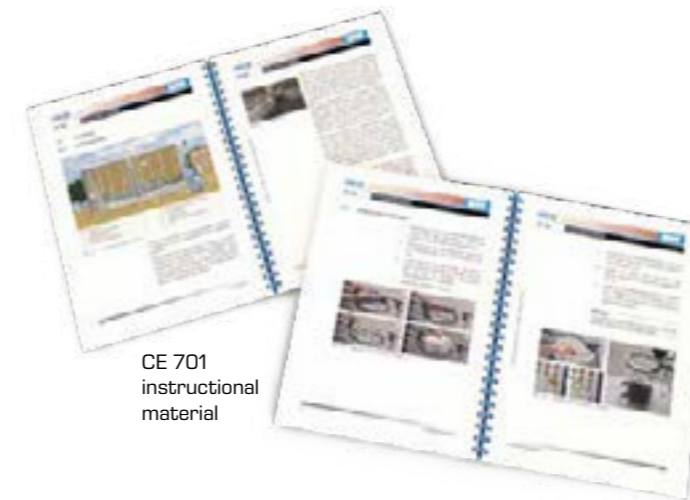
The instructional material sets out the fundamentals and design of trickling filter plants in detail. A detailed description of the device and the experiments enables you to quickly incorporate this training system into your classroom.



Rotary distributor on the head of the trickling filter with variable speed adjustment



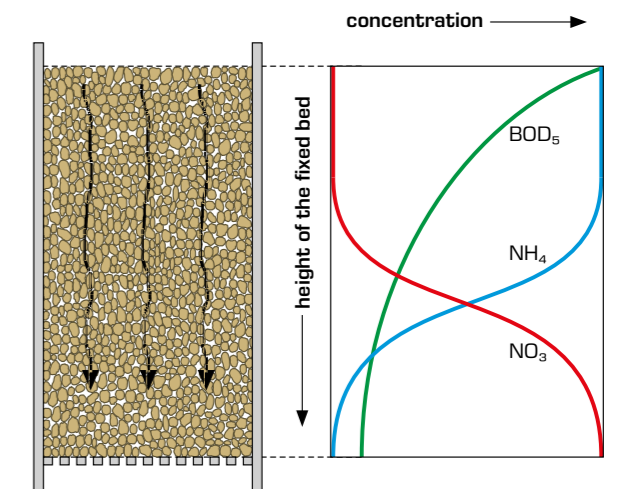
Sampling point within the trickling filter



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### Concentration profiles

Sampling points are located within the fixed bed. This allows you to determine the concentration profiles of BOD<sub>5</sub>, ammonia and nitrate which are characteristic for trickling filters.



Typical concentration profiles of BOD<sub>5</sub>, ammonia (NH<sub>4</sub>) and nitrate (NO<sub>3</sub>) in a trickling filter

About the product:



### Learning objectives

- functional principle of a trickling filter
- recording of concentration profiles
- creation of a stable operating state
- identification of the following influencing factors
  - ▶ flow rate of recirculation
  - ▶ volumetric loading of the trickling filter
  - ▶ surface loading of the trickling filter
- comparison of various packing types