



Features

- Anaerobic degradation of organic substances in the stirred tank and UASB reactor
- 3 different operation modes

Tesca Anaerobic Water Treatment System 32480 demonstrates the biological anaerobic water treatment. The trainer consists basically of two units:

- Stirring tank with secondary clarifier
- UASB reactor

Both units can be used separately or in combination. This allows both a single stage and a dual stage operation mode. In the dual stage operation, a pump first transports the raw water into a stirred tank. In this tank the acidification of the organic substances dissolved in the raw water takes place. Here, anaerobic microorganisms convert the long-chain organic substances into short-chain organic substances. In a secondary clarifier the biomass discharged from the stirred tank is separated from the water. The separated biomass is pumped back into the stirring tank.

From the secondary clarifier the raw water pretreated in this manner reaches a UASB reactor (UASB: Upflow Anaerobic Sludge Blanket). Here the final step of the anaerobic degradation takes place. The previously formed short-chain substances are converted by special microorganisms into biogas (methane and carbon dioxide). Flow through the UASB reactor is from the bottom to the top. At the top of the UASB reactor there is a separation system. This separates the generated gas from the treated water. It also ensures that the biomass remains in the reactor. The gas can be discharged externally or collected. The treated water exits at the top end of the reactor and is collected in a tank. To adjust the flow velocity in the UASB reactor a part of the treated water can be re-circulated.

The temperatures in the stirred tank and the UASB reactor can be controlled. The pH value in the stirred tank is measured. In addition, the pH value in the UASB reactor can be controlled. A software and webcam are available for data acquisition and visual inspection.

Anaerobic biomass and analysis technology are required to perform the experiments. Recommended parameters are: COD (chemical oxygen demand), nitrogen and phosphor.

Specifications

- Anaerobic degradation of organic substances
- Stirred tank with secondary clarifier
- UASB reactor with separation system
- Separate supply unit with tanks for raw water and treated water
- Single stage or dual stage operation mode
- Temperatures in the stirred tank and the UASB reactor can be controlled
- Control of the pH value in the UASB reactor
- Software for data acquisition via USB under Windows 7 (Optional)

Note: Specifications are subject to change.

Tesca Technologies Pvt. Ltd.

IT-2013, Ramchandrapura Industrial Area, Sitapura Extension,
Near Bombay Hospital, Vidhani Circle, Jaipur-302022, Rajasthan, India,
Tel: +91-141-2771791 / 2771792; Email: info@tesca.in, tesca.technologies@gmail.com
Website: www.tescaglobal.com

- Visual inspection with webcam (Optional)

Technical Specifications

Tanks

- Stirred tank: 30L
- Secondary clarifier: 30L
- UASB reactor: 50L
- Tank for raw water: 180L
- Tank for treated water: 180L

Flow rates (max.)

- Raw water pump: 25L/h
- Return sludge pump: 25L/h
- Circulation pump: 100L/h
- Metering pumps: 2x 2,1L/h

Measuring ranges

- pH value: 0...14
- Temperature: 0...100°C

Experiments:

- Familiarization with anaerobic water treatment
- Effects of temperature and pH value on anaerobic degradation
- Functional principle of a UASB reactor
- Comparison of single stage and dual stage operation mode
- Monitoring and optimization of the operating conditions
- Identification of the following influencing factors
 - ♦ Sludge loading
 - ♦ Volumetric loading
 - ♦ Flow velocity in the UASB reactor

Requirements

- Mains Power 220 – 240V @ 50Hz, 1Ph

Note: Specifications are subject to change.

Tesca Technologies Pvt. Ltd.

IT-2013, Ramchandrapura Industrial Area, Sitapura Extension,
Near Bombay Hospital, Vidhani Circle, Jaipur-302022, Rajasthan, India,
Tel: +91-141-2771791 / 2771792; Email: info@tesca.in, tesca.technologies@gmail.com
Website: www.tescaglobal.com

