Laboratory bench for biological wastewater treatment

The pilot plant for wastewater treatment consists of a supply tank, an aerobic tank, an anoxic tank, a clarifier, an electric board, a pump board and a process computer. The supply tank is has a capacity of 100 L and is provided with a mixer to keep the effluent homogeneous. The tank is refrigerated at 2-4 ° C to prevent the initiation of the biological process before the aerobic pool. The level of the feed tank can be monitored by means of an ultrasonic level sensor. The inflow is transported by means of a peristaltic pump in the aerobic tank with a capacity of 35 L. It is equipped with a mechanical mixer. The aerobic pool is equipped with a series of sensors such as:

- Temperature sensor, 0 – 100 °C,
- Dissolved oxygen sensor, 0 – 10 mg/L;
- pH sensor, 0 – 14 pH units;
- Redox potential sensor, -1000 - +1000 mV;
- Turbidity sensor, 0 – 3000 NTU.

The oxygen required for the mineralization of organic substances is ensured by air bubbling through a series of ceramic diffusers mounted on the bottom of the tank. The anoxic tank has the same capacity as the aerobic pool, and the clarifier has the capacity of 60L. The activated sludge, which sediments in the clarifier, can be recirculated by means of a peristaltic pump back to the aerobic tank to ensure the maximum rate of mineralization of the organic substances. The activated sludge in excces can be discharged at the bottom of the clarifier by means of a variable flow peristaltic pump. The plant is monitored and controlled by the process computer.