Features:

The purpose of the Tesca Aeration Apparatus is to permit the study of the oxygen transfer characteristics of diffused air systems and the physical and chemical parameters that influence their oxygenation capacity. These studies are a necessary prelude to the understanding of the biological treatment of wastewaters.

Tesca Aeration Apparatus comprises an open tank equipped with a propeller stirrer. Air is supplied via a compressed air line through a pressure regulator valve, and through a flow meter to a diffuser positioned within the tank. A variety of diffusers are included. The dissolved oxygen content of the water in the tank is measured by means of a dissolved oxygen probe, which includes a direct reading of water temperature.

Mounted on the base is the clear 27-liter acrylic water tank. On the front of the tank is a depth scale and at the base a drainage tap. The digital stirrer control includes speed and torque measurements. This is supported by a metal bar. Three diffusers – sparger tube, treble airstone, and single airstone – may be separately attached to the aerator tube.
Variable-speed adjustment of the stirrer paddle provides different levels of turbulence in the tank.

Specifications:

- Tank capacity: 27l
- Flow meter range: 0-10 l/min
- Oxygen/temperature meter ranges: -5 to 199%DO2
  - 5 to 25.0%DO2
  - 5 to 19.99mg/l
  - 10 to 105°C
- Oxygen probe length: 300mm
- Chemicals required: Sodium sulfite, (not supplied) cobaltous chloride

Experiments:

- Effects of oxygen transfer under non-steady-state conditions
- Measurement of the absorption coefficient Ks and the oxygenation capacity R
- The effect on Ks and R of:
  - Degree of fluid mixing
  - Water temperature
  - Gas flow rate
  - Depth of water
  - Diffuser arrangement
  - Water composition

Recommended Instruments:

- Stop clock
- Triple-beam top-loading balance
- 100ml measuring cylinder
- Compressed airline or compressor

Requirements:

- Mains Power 220 – 240V 1Ph, 50Hz
- Water Supply

Note: Specifications are subject to change.

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