



Features

- Designed for the measurement of molecular diffusivities
- Self-contained unit complete with a diffusion cell, a diffuser vessel, a stirrer system and a conductivity meter.

Tesca Liquid Diffusion Coefficient Apparatus is designed for measurement of molecular diffusivity & contains a diffusion cell, transparent diffuser vessel. The diffusion cell has been designed for fast diffusion rates in liquids to minimize long observation period. The cell basically consists of a honeycomb of accurately dimensioned capillaries, positioned between two liquids of differing concentration of the solute whose diffusion coefficient is to be studied.

During the experiment, students shall place a small volume of concentrated solution on one side of the honeycomb. At the beginning, the other side of the honeycomb consists of a large volume of pure solvent (water). The solute diffuses from high concentration side to the low side, causing the concentration within the larger volume to increase. The mixture is continually stirred while the increase in concentration is continuously monitored using a conductivity meter. Detailed Operation & Maintenance Manual is provided along with the trainer.

Specifications

- Diffusion Cell
 - Material: borosilicate glass
 - OD: 10 mm (+/- 1mm)
 - Thickness: 1.5 mm (+/- 1mm)

- Capillary: 1 mm (+/- 0.1mm) (bore) x 5 mm (+/- 0.5 mm) x 97 no's made of PVC
- Diffuser Vessel
 - Capacity: 1.0 litre
 - Material: Clear Acrylic
 - OD.: 100 mm
 - Thickness: 3mm (+/- 0.1 mm)
 - Height: 200 mm (+/- 10 mm)
- Conductivity Meter
 - Range: 0- 1,999 $\mu\text{S}/\text{cm}$
- Magnetic Stirrer
 - Range: 0 to 1,500 rpm (max.: 2000 rpm)
 - Electricity: 240V AC, 1-phase, 50 Hz

Experimental Capabilities

- Measurement of mass transfer rates.
- Measurement of diffusion coefficients.
- The effect of concentration upon diffusion coefficient.
- First order unsteady state process analysis.
- Familiarisation with laboratory instruments to obtain data for industrial process design.
- Required Services:
 - Electric Supply 230 V AC, 6 A, Single Phase, Earthed.
 - Water Supply: Cold tap water supply & Drainage

Note: Specifications are subject to change.

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