

CE 116

Cake and Depth Filtration



*** Cake and depth filtration with different suspensions and filter medium layers**

Technical Description

With CE 116 the processes in depth filtration and cake filtration can be observed and investigated. The suspension (water and diatomite as the solid) flows from the hopper into the top of the filter element, where the solids are separated off. The filtrate flows through a flow meter into the drain. The filter element has a porous filter medium at the bottom. In cake filtration, the filter medium provides the foundation for build-up of the filter cake. In depth filtration, the filter medium supports the bulk solids (filter medium layer; gravel). A two-tube manometer measures the pressure loss over the filter element.

The well-structured instructional material sets out the fundamentals and provides a step-by-step guide through the experiments.

Learning Objectives / Experiments

- fundamentals of filtration: Darcy's equation
- depth filtration with different bulk solids and suspensions
- cake filtration with different suspensions
- identification of characteristic filtration values

Specification

- [1] fundamentals of cake and depth filtration
- [2] filter element with sintered filter medium on its bottom to capture the particles
- [3] pressure loss measurement with 2-tube manometer
- [4] height-adjustable filler hopper made of DURAN glass
- [5] flow meter with needle valve for adjustment

Technical Data

Filter element

- filter chamber height: 8,5cm
- inside diameter: approx. 3,7cm
- cross-sectional area: approx. 11cm²
- tube material: DURAN glass

Filter medium, sintered filter SIKA 100

- pore size: 100µm
- thickness: 2mm
- material: sintered metal

Measuring ranges

- flow meter: 40...360ml/min
- 2-tube manometer: 0...500mmWC
- thermometer: -10...100°C

2 measuring cups

- 1.000ml, scale division: 10ml
- 100ml, scale division: 2ml

Dimensions and Weight

LxWxH: 450x410x1.000mm

Weight: approx. 20kg

Required for Operation

Drain recommended,
balance to register the filtrate quantity

Scope of Delivery

- 1 experimental unit
- 1 packing unit of gravel (1...2mm)
- 1 packing unit of diatomite
- 2 measuring cups
- 1 stopwatch
- 1 thermometer
- 1 set of instructional material

Order Details

083.11600 CE 116 Cake and Depth Filtration