



armfield

SEDIMENTATION STUDIES APPARATUS

W2
issue 6

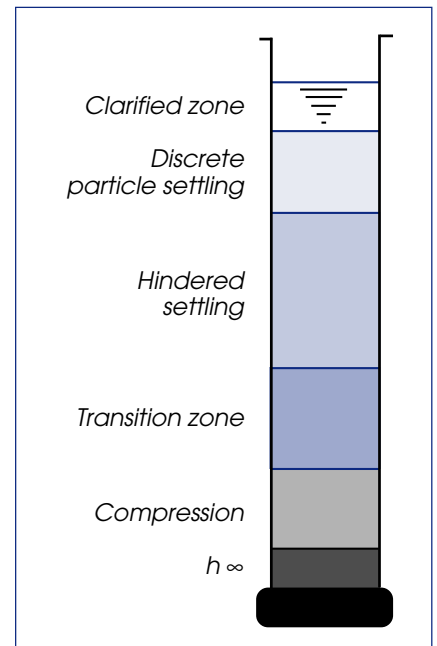


Fig 1: Settling regimes

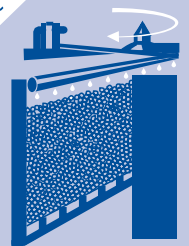
The Armfield Sedimentation Studies Apparatus provides a facility for studying the basic physical processes involved in sedimentation.

DEMONSTRATION CAPABILITIES

- *effect of initial concentration on sedimentation rates*
- *construction of settling rate curves from a single batch test*
- *effect of initial suspension height on sedimentation rates*
- *effect of particle size distribution*
- *use of flocculating additives.*

Water Treatment Processes

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DESCRIPTION

Sedimentation is a process used widely in the clarification of water and wastewater. Particles settle from suspension in different ways, depending on the concentration of the suspension and the characteristics of the particles. The simplest type of sedimentation is the settling of a dilute suspension of particles which have little or no tendency to flocculate. In these circumstances, the prediction of clarification rates and their scale-up to plant design is relatively straightforward. For higher concentrations where inter-particle effects become significant and where agglomeration may take place, different regimes of settling rate occur, known as 'zone' settling (fig 1). Information from batch tests for such systems forms a vital part of the search for the optimum design and operation of industrial sedimentation tanks.

The Armfield Sedimentation Studies Apparatus allows demonstration of these different characteristics for any chosen sediment/water system.

Five equal sized glass cylinders are mounted vertically on a backboard incorporating measuring scales. Each of the cylinders may be removed from the board for washing, filling and mixing of the solid particles. Solutions containing different amounts of suspension can be placed in the cylinders and the differences in sedimentation rate observed by measuring the changes in height of the various solid/liquid interfaces with respect to time (e.g. fig 2).

The equipment includes the following accessories necessary for a self-contained facility: stop clock, three plastic beakers of 2 litre capacity, specific gravity bottle. An accurate balance (not supplied) is required for weighing the solids. The whole apparatus is bench-mounted and provided with back lighting.

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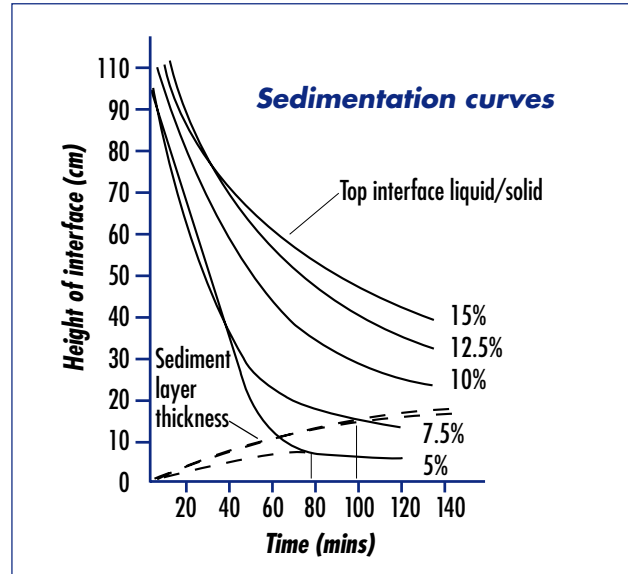


Fig 2: Typical sedimentation curves

ORDERING SPECIFICATION

- Five graduated, 1m long x 51mm bore cylinders mounted vertically on a backboard.
- Cylinders are illuminated from behind and removable for cleaning.
- Supply includes stopclock, three 2 litre capacity plastic beakers and a specific gravity bottle.
- Demonstration capabilities:
 - effect of initial concentration on sedimentation rates
 - construction of settling rate curves from a single batch test
 - effect of initial suspension height on sedimentation rates
 - effect of particle size distribution
 - use of flocculating additives.

RECOMMENDED INSTRUMENTS

Triple Beam Top Loading Balance

Capacity: 2610g

Sensitivity: 0.1g

Tare: 225g

SERVICES REQUIRED

Electrical supply:

W2-A: 220-240V/1ph/50Hz

W2-B: 120V/1ph/60Hz

OVERALL DIMENSIONS

Height: 1.14m

Width: 0.70m

Depth: 0.43m

SHIPPING SPECIFICATION

Volume: 0.80m³

Gross weight: 90kg

Specifications may change without notice
iss6/5k/0503/San.