Constant Velocity Student Kit 1003502

Instruction Sheet

05/18 MEC/ALF

1. Safety instructions

Although plastic, the tubes may crack or break.

- Do not expose the tubes to mechanical stress, heat or chemicals.
- Do not let the tubes fall.

The tubes contain mineral oils with small amounts of colorants and other additives. Spilled fluid can cause stains.

- Absorb the spilled fluid with rags, and then clean up with soapy water. Stains may be removed by ordinary procedures such as the use of laundry stain removers.

2. Description

This set of equipment enables students to investigate the concept of velocity by means of student experiments.

It consists of three coloured plastic tubes in which an air bubble rises at constant velocity in a viscous liquid, provided the tubes are aligned vertically. Since the viscosities differ, the velocities also differ.

The position of the air bubble is plotted against time. The three different resulting straight lines lead to a definition of velocity.

3. Technical data

Length:	500 mm approx.
Diameter:	13 mm approx.

4. Operation

To perform the experiments, the following equipment is also required:

1 Mechanical stop watch, 15 min	1003369
1 Pocket measuring tape, 2 m	1002603
1 Water-soluble pen	

- Work with a partner. One student holds the tube, the other measures the time.
- Find out how long it takes the bubble to rise from the bottom of the tube to the top, when the tube is held vertically.

- Hold the tube not quite horizontal, so the bubble is at one end and does not move. Mark the position as point zero.
- When the student watching the clock says "Start!", quickly turn the tube upright and move one finger following the bubble along the tube.
- When your partner says "Stop!" stop moving your finger and mark this spot.
- Measures the distance from where the bubble began, to this spot.
- Record the time and distance in the table.
- Determine the distances for different times.
- Plot the data on a graph.
- Repeat the experiment with the other tubes.

5. Storage and cleaning

- Store the tubes in the original cardboard container, out of direct sunlight.
- Do not store the tubes in a chemical storeroom.
- Clean the tubes, if necessary, with mild non-abrasive dish soap.

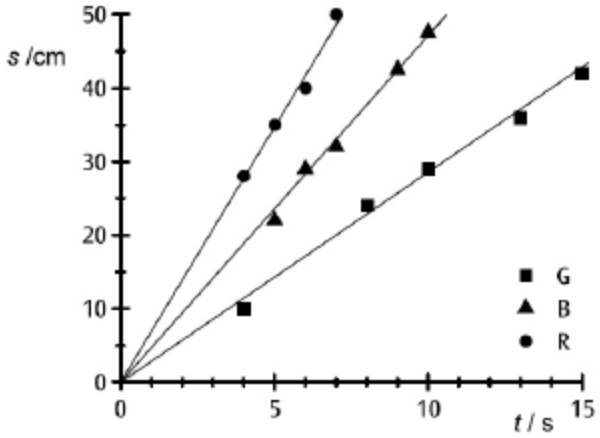

Fig. 1 Example of a displacement-time graph for air bubbles