Object of the experiment

1. Demonstrating the heat convection in a liquid caused by uneven warming

Setup

Observation
The coloured water starts circulating in the tube.

Evaluation
The water warmed up in the tube expands. Therefore its density decreases, and it rises in the leg of the tube.

When the water has left the heat source, it cools down and, due to its increased density, sinks in the other leg of the tube.

Because of the temperature differences in the water, heat convection arises in the tube.

Apparatus

1 Convection apparatus ........................................389 18
1 Colouring, red, 10 g .........................................309 42
1 Spoon-ended spatula, stainless steel, 120 mm ........666 963
1 Measuring beaker, PP, 1000 ml ..........................604 211
1 Stand rod, 75 cm, 12 mm diam. .........................300 43
1 Leybold multiclamp ........................................301 01
1 Universal clamp ..............................................666 555
1 Stand base, V-shape, small ...............................300 02
1 Butane gas burner ..........................................666 711
1 Butane cartridge, 190 g, set of 3 .......................666 712ET3

Carrying out the experiment

- Set up the glass tube in the stand material, and fill it with water.
- Using the spatula put some colouring into the fitting.
- Warm the glass tube at one of the lower corners with small, non-luminous flame.
- Observe the coloured water in the glass tube.