

## 1.4.04-00 Viscosity measurements with the falling ball viscometer



## What you can learn about ...

- Liquid
- Newtonian liquid
- Stokes law
- Fluidity
- Dynamic and kinematic viscosity
- Viscosity measurements

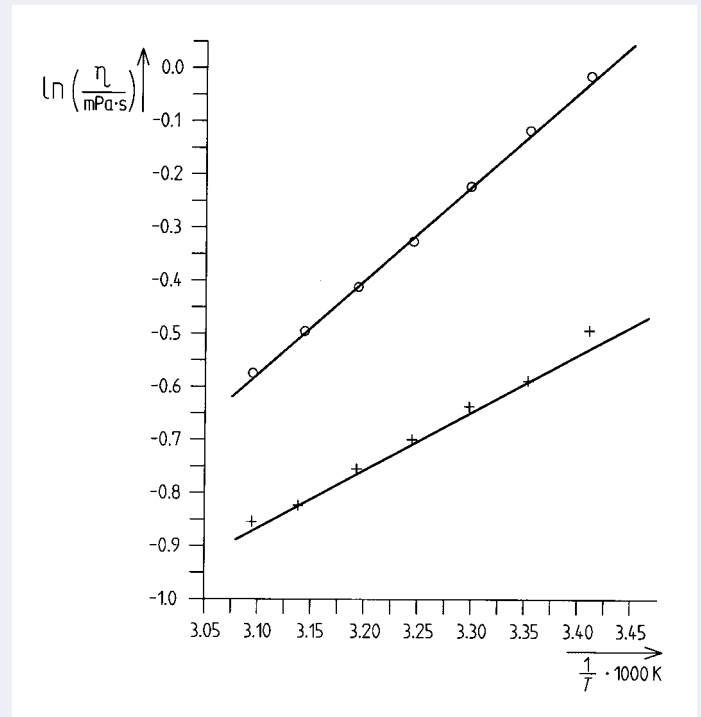
## Principle:

Due to internal friction among their particles, liquids and gases have different viscosities. The viscosity, a function of the substance's structure and its temperature, can be experimentally determined, for example, by measuring the rate of fall of a ball in a tube filled with the liquid to be investigated.

## What you need:

Falling ball viscometer	18220.00	1
Thermometer, 24...+51°C, f. 18220.00	18220.02	1
Immersion thermostat A100	46994.93	1
Accessory set for A100	46994.02	1
Bath for thermostat, Makrolon	08487.02	1
Retort stand, $h = 750$ mm	37694.00	1
Right angle clamp	37697.00	1
Universal clamp with joint	37716.00	1
Pyknometer, calibrated, 25 ml	03023.00	1
Volumetric flask 100 ml, IGJ12/21	36548.00	9
Glass beaker, tall, 150 ml	36003.00	11
Glass beaker, short, 250 ml	36013.00	1
Pasteur pipettes, 250 pcs	36590.00	1
Rubber caps, 10 pcs	39275.03	1
Hose clip, $d = 8-12$ mm	40996.01	6
Rubber tubing, i.d. 7 mm	39282.00	6
Stopwatch, digital, 1/100 sec.	03076.01	1
Laboratory balance, data outp. 620 g	45023.93	1
Wash bottle, plastic, 500 ml	33931.00	2
Methanol, 500 ml	30142.50	2
Water, distilled, 5 l	31246.81	1

**Complete Equipment Set, Manual on CD-ROM included**  
**Viscosity measurements with the falling ball viscometer**  
**P2140400**



Temperature dependence of the dynamic viscosity  $\eta$  of water (o) and methanol (+), respectively.

## Tasks:

1. Measure the viscosity of methanol-water mixtures of various composition at a constant temperature,
  2. of water as a function of the temperature and
  3. of methanol as a function of temperature.
- From the temperature dependence of the viscosity, calculate the energy barriers for the displaceability of water and methanol.