Substances are made up of particles
Structure of substances and particle motion

Brownian motion in gases

Object of the experiment

1. Demonstrating Brownian motion in a smoke chamber

Setup

- Use 100x magnification.
- Position the focus of the optics lamp in the centre of the smoke chamber.

Apparatus

1 Smoke chamber	372 51
1 monocular student's microscope M805	662 078
1 BMS EcoCam III video and USB camera	MIK74703
1 Q-Fix tubing clamp, 1…5 mm	604 451
1 Lamp housing with cable	450 60
1 Bulbs, 12 V/30 W, E14, set of 2	450 521
1 Condenser with diaphragm holder	460 20
1 Transformer, 6/12 V	521 210
1 Saddle base	300 11
1 Petri dish	664 181
1 Funnel, Boro 3.3, 80 mm diam.	665 004
1 Disposable syringe, 1 ml, with Lues fitting	665 957

Additionally required:
1 Monitor

Carrying out the experiment

With incense cone:

- Light the incense cone, and put it on the Petri dish.
- Put the funnel over the cone for a short time, and draw the smoke from the opening of the funnel using the syringe.
- Blow the smoke from the syringe into the smoke chamber.

With cigarette:

- Blow cigarette smoke from your mouth into the chamber.
- In order to minimize convection, close the hose ends with the caps.
- Focus the microscope, and observe the movements of the particles on the screen.

Evaluation

The smoke particles visible on the screen perform irregular zigzag movements.

These zigzag movements result from collisions of the smoke particles with the air molecules, which are in thermal motion.

The observed movements of the smoke particles are called Brownian motion.

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