

Student experiment
(5th - 10th grade)

Determination of the density of liquids

🕒 Time: max 15 min.

Safety:

Independent of which liquid is being tested. Spirits are highly flammable

safety glasses



Instruments:

- a scale
- 1ml disposable syringe

Chemicals:

- distilled water
- Various liquids (e.g. water, spirits, etc.)

Experiment:

- Weigh and record the weight of the empty syringe.
- Add exactly 1ml of the liquid to be tested to the syringe, making sure no air bubbles are allowed. Fill the syringe, hold the tip upwards and thwack it several times with your fingernail before squeezing the excess air out of it. Then invert the syringe and empty it to exactly the 1 ml mark.
- Weigh the syringe and record its weight. Repeat the above steps until all liquids have been tested.
- Calculate the mass of 1 ml of each of the liquid using the recorded values from your chart.

Results:

Density, ρ , can be calculated using the formula $\rho = m / V$. The mass of the sample is "m" and the volume is "V". (We can assume that 1 cubic centimeter = 1 ml for water under normal conditions.)

Disposal:

Water and spirits can be poured down the drain. Disposal of other liquids depends on their identity. Always ask your teacher if you are unsure of how to safely dispose of something.