

Student experiment  
(5th - 10th grade)

## Low-cost gas chromatography

🕒 Time: 15 min.

### Safety:

safety glasses



### Instruments:

- Kappenberg gas chromatograph
- computer with analysis software
- 2 disposable syringes (1 ml)

### Chemicals:

- a typical camping gas cylinder
- Bunsen burner gas (H: 220; P: 210-377-381-403)

### Preparation:

- Set up the Kappenberg gas chromatograph and hook it to a computer.
- Set up the software to measure the resulting data.
- Fill one disposable syringe half full of Bunsen burner gas, then fill the remaining half with air.
- Repeat using camping gas and a second syringe.

### Experiment:

- Start measurements and release the Bunsen burner gas into the aperture after 10 seconds. Measure for 5 minutes, then stop the measurements and wait for roughly 3 minutes more.
- Repeat the procedure for the camping gas and graph the results on the same diagram as the first sample.

### Observations:

Two curves in different colors are created, which can be compared to one another.

### Results:

Gas chromatography allows us to determine the composition of gas mixtures. The Bunsen burner gas is almost all propane. Since the camping gas sample shows a peak at the same position, we can assume that propane is also a component. However, the second peak is probably due to the presence of butane gas, a common fuel in lighters, gas cylinders for grills, etc.