



4 ways to speed up Gas Chromatography

without having to **upgrade** your system.

Using Fast GC is an effective way to streamline your workflow. Research has shown it can reduce run times by up to ten times that of a conventional GC, although this can have an impact on resolution which must be taken into consideration before implementation.

Nevertheless, finding the time for fast GC techniques such as method optimization can be challenging. Here we present four simple ways to reduce analysis time on your GC set up. Whilst these do require a little time to implement, your lab can reap rewards quickly.

Use a shorter column

By reducing the length of your capillary column, you can shorten analysis times considerably, even when running the carrier gas at the same linear velocity. Oven programs will be faster, meaning the maximum temperature is reached more quickly. Separation can be slightly affected, so be careful of co-elution.



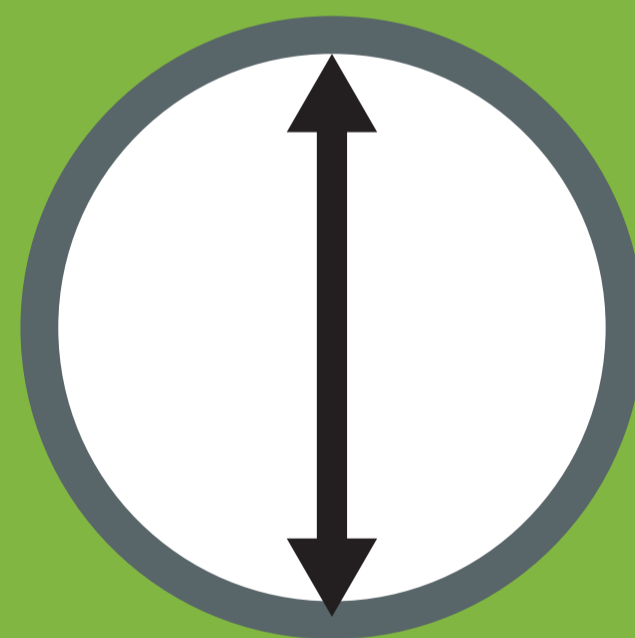
Use a faster carrier gas

Hydrogen is half as viscous as helium, making it about twice as fast at the same temperature and pressure meaning significantly faster separations. The great thing about hydrogen is that you can safely make it in the laboratory using a hydrogen generator, offering a cheap gas solution. Hydrogen has better efficiency than helium at higher linear velocities so your sample will separate well, even at high flow rates.



Use a smaller diameter capillary

Working on a very similar principle as a shorter column, replacing a 30 m × 0.25 mm capillary with a 20 m × 0.15 mm capillary can reduce run times by a factor of 2, this should provide the same efficiency when using the same carrier gas.



Use a different temperature program



With a faster oven program rate, you will see quicker elution with a far more compact show of peaks in your results. Though the elution temperature of components may result in different peak separations during this process, increasing the analysis temperature for an isothermal analysis will decrease analysis time. This may result in some loss of resolution, but only if the temperature is increased too fast for your analysis.

