

Although we wish our GC column would always perform perfectly, there are times when issues rear their ugly heads. When this happens, it can be difficult to know what the problem is and how to get back on track. In this post, we will cover the top tips for troubleshooting GC columns.

Identifying GC Column Problems

Problems with the GC column typically show themselves in the peak quality. When peaks do not appear as expected, meaning they are either split, tailing, too small or too wide, you know there is an issue. These issues are most likely related to one of three following problems: GC column trimming, GC column installation, GC column conditioning, and GC column temperature. Let's look at each in detail.

GC Column Trimming

Prior to installing a GC column for the first time, it should be properly trimmed. If it isn't, you can get high column bleed and incorrect peak shapes. If the ends of the new GC column are flame-sealed, each end needs to have a minimum of 10 cm trimmed off it, using straight, smooth cuts that are perfectly perpendicular to the wall of the column.

If the trimming of the GC column end is angled or rough, it can result in split or tailing peaks. For this reason, it is recommended to check the accuracy of the cut angle using a

magnifying glass or microscope to check the edge for roughness.

GC Column Installation

Once your GC column is properly trimmed, you must install it. While installing, follow the manufacturer's instructions to the letter. In general, the issues with column installation include:

- Installed too high at the inlet: Quantitative reproducibility is compromised.
- Installed too low at the inlet: Broadening of the peaks (due to extra dead-volume).
- Installed too high at the detector: High baseline noise (flame-based detectors may also produce spikes).
- Installed too low at the detector: Broadening of the peaks.

GC Column Conditioning

After the installation of the GC column, you need to condition it to get it ready for use. To do this, install it at the inlet, turn on the gas, and allow it to flow at an ambient temperature for 10-15 minutes. The goal here is to get rid of any oxygen and moisture in the column. Then condition the column by increasing the temperature of the oven by 10°C per minute until you reach the gradient maximum.

Once conditioned, you should follow it up with regular maintenance schedule to keep the GC columns free of contaminants. If there are contaminants or blockage or some other reason for the flow to be problematic, you can end up with issues like:

- Peak tailing
- A change in peak size
- Background noise
- Ghost peaks
- Selective sensitivity loss
- Shortened GC column lifetime

GC Column Temperature

GC column temperature can affect your results as well. If the temperature is too low, you can end up with a broad solvent front. When your column temperature is too high, it can result in selective sensitivity loss. In addition, changes in GC column temperature can also result in:

- Peak fronting
- Split peaks
- Baseline drift

Since every aspect of GC column trimming, GC column installation, and GC column care can affect the outcome of your analyses, it is critical that you ensure the very best care of your GC column from day one.

If you have any questions about GC column care, GC column maintenance, or would like more information about GC columns, chat online with one of our technical specialists -

Chat Now.

Share with friends and coworkers:

- [Click to email a link to a friend \(Opens in new window\)](#)
- [Click to share on Twitter \(Opens in new window\)](#)
- [Click to share on Facebook \(Opens in new window\)](#)
- [Click to share on Pinterest \(Opens in new window\)](#)
- [Click to share on LinkedIn \(Opens in new window\)](#)
- [Click to share on Tumblr \(Opens in new window\)](#)
- [Click to share on Reddit \(Opens in new window\)](#)

Summary



Article Name

Troubleshooting GC Column Problems

Description

It is critical to identify and troubleshoot column problems for proper care of your GC columns. See our tips for solving GC column problems!

Publisher Name

Phenomenex

Publisher Logo

