1. GC troubleshooting can be daunting and time-consuming so, when facing peak and resolution issues, where is the best place to start?

The inlet is the most common place where problems happen in gas chromatography. This is because:

- The inlet is subjected to very high temperatures.
- There are multiple consumables involved in the inlet that need routine maintenance.
- Some inlet modes, such as splitless injection, are a slow process, meaning that target analytes and the inlet can interact with each other before the sample enters the column.

2. I work with dirty samples which produce a residue on my liner after approximately 100 injections. Can I scrub/sonicate my liner and reuse it?

It is not recommended to scrub/sonicate your liners. Residue formation indicates contamination. More specifically, this shows that the sample contains non-volatile

impurities, in which case it is recommended to replace your liner rather than clean it. Sonication can alter the liner's deactivation, and scrubbing can create scratches and active sites. As a result, you can have several chromatography problems such as poor quantitation, analyte breakdown, poor reproducibility, peak asymmetry, etc.

Analysis of dirty samples, samples with wide boiling points, or samples with wide molecular weights can be enhanced by choosing a Zebron PLUS liner with quartz wool. Liners packed with wool can prevent non-volatile compounds from entering the column and improve sample vaporization for a more robust, reproducible analysis.

3. Can I pack or re-pack my liner with wool?

Though the upfront cost of self-packing your liner may seem attractive, the time and headaches caused by resulting tailing or irreproducible peaks can be sizeable! Self-packed wool fibers commonly break during installation and any existing deactivation on the liner can also be scratched or damaged.

Liners should not be packed or re-packed. Scratches in the deactivation layer are likely to occur when removing wool from the liner or re-pack them with new wool. Also, when wool is forcefully inserted or removed, these scratches could expose active sites, resulting in peak tailing and poor reproducibility.

Pre-packed Zebron PLUS liners undergo the deactivation process with the quartz wool already in place, which ensures that any active sites that form during packing are not exposed. Its novel touchless packaging and pre-installed O-ring prevent contamination during installation.

4. I am using an inert column for my analysis, and I still see peak tailing. What could be the reason for this?

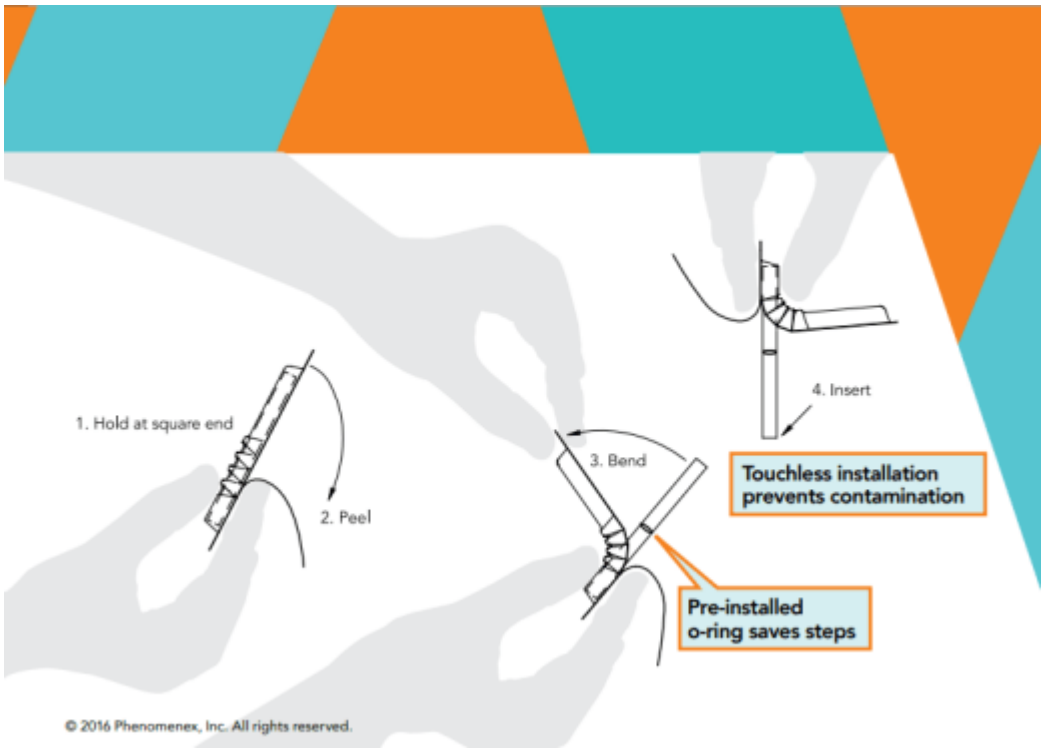
For analysis of active compounds, it is crucial to use both a highly inert column and a highly inert liner. The liner is the first place of potential analyte interaction during GC analysis; it is important that your analytes are not adsorbed. Zebron PLUS liners undergo a rigorous deactivation process and are tested for inertness to ensure reliable results when working with highly active compounds such as underivatized acids and active bases.

5. Does the Zebron PLUS liner with wool improve my GC column lifetime?

Yes. Zebron PLUS liners are packed with Quartz wool, which serves two purposes:
a) Quartz wool promotes homogenous vaporization of analytes and solvent in the inlet to effectively transfer them to the head of the GC column.
b) Quartz wool acts as a filter, trapping non-volatile impurities and preventing them from proceeding further into the GC column.

6. How can I prevent contamination during liner installation?

To avoid inlet liner contamination during installation you need to take every reasonable step to make sure the inlet stays clean. This can be challenging even when wearing gloves as lint or other residuals that aren't visible to the naked eye may be present thus contaminate the inlet liner during installation. Zebron Plus GC comes with a pre-installed O-ring and presented in a novel packaging system that offers touchless installation to prevent contamination.



7. Does the color of a glass liner represent deactivation?

No. The color of the liner does not determine its inertness. In fact, varying colors can be easily added to liners by using metal salts during manufacturing. The inertness of the liner stems from the deactivation process that the liner undergoes, rather than its color alone.

8. How often should I change my Zebron PLUS liner?

The frequency at which a liner must be changed can be hard to predict as it depends entirely on the sample matrix. It is essential to periodically check and maintain your liner. In general, if you perform a headspace injection, only the vapors enter the GC inlet, so the liner will remain clean for months. However, with a neat matrix injection, it is necessary to check the liner at least twice a week to ensure that it is free of residues. Once a visible residue is noticed, it is time to change the liner. Find the right liner for your system.

9. I am using an inert column and inert liner but still see asymmetric peak shapes in chromatogram. What's the cause?

Asymmetry in peak shapes can have several causes. The most common are:

- A contaminated inlet liner or column
- Activity in the inlet liner or column if the missing peak is an active compound
- Dead volume due to poorly installed liner or column

- The inlet liner inertness is inadequate
- The column in use, if you are analyzing active compounds, is not a deactivated column.

10. Our GC systems are from different manufactures. Do you have a cross-reference guide for liner selection?

Zebron PLUS Liners come in a wide selection of geometry to fit instruments from any manufacturer. A complete cross-reference guide is in the Zebron PLUS GC Inlet Liners Guide.

Find more than 40 tips and hints for GC troubleshooting in the GC Troubleshooting Guide!