SGE® Inlet liners

FREQUENTLY ASKED QUESTIONS

SGE® inlet liners

Choose confidence in your analysis

1) Q. What is a GC inlet liner? What is the purpose of an inlet liner?

A. A GC inlet liner is typically a borosilicate glass tube providing a sample path through the injection port (inlet) to the GC column.

The inlet liner assists with sample vaporization by the inlet liner geometry and packing material increasing heated surface area; sample protection via chemically deactivated borosilicate glass; and column protection from non-volatile sample contaminants with inlet liner packing material such as quartz wool or glass frits, trapping non-volatile sample components and preventing them from entering the column.

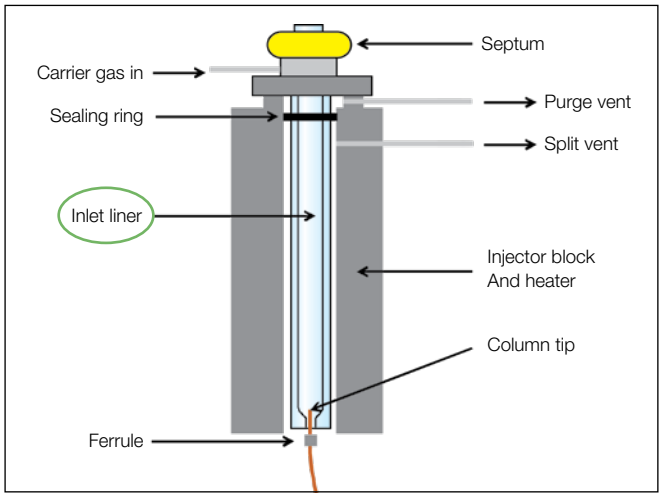

Figure 1. GC inlet components within a split/splitless injector

2) Q. What's the difference between standard SGE® inlet liners and SGE OptChem™ inlet liners?

A. Standard SGE deactivation applies a proprietary thin film to the inlet liner, which is chemically deactivated and stable at high temperatures. SGE OptChem utilizes a unique thick-film deactivation, which is optimized for highly sensitive applications.

3) Q. Why should I use inlet liners which are pre-packed with quartz wool, rather than packing it myself?

A. While self-installing quartz wool into an inlet liner, it is difficult to completely avoid breakage of the wool fibers. Broken fibers will increase chemically active sites within the inlet liner and can also scratch the interior surface of the inlet liner, causing further activity issues.

SGE inlet liners are deactivated after wool insertion to ensure any active sites exposed are rendered inert. This increases the reproducibility of the analysis.

4) Q. Can I send used/dirty liners back to Trajan for cleaning and/or re-deactivation?

A. No, Trajan does not offer this service. For best results, Trajan recommends that used/dirty liners to be discarded and replaced with new liners.

5) Q. What does "inlet liner geometry" refer to? How does it affect inlet liner performance?

A. Various geometry and quartz wool options in the SGE inlet liner range allows the user to select the optimal liner choice for their specific application.

The SGE inlet liner range is color coded by geometry, making it easy to choose the inlet liner you need.

Figure 2. Example of SGE inlet liner colors

Figure 3. Example of SGE OptChem inlet liner colors

6) Q. Can I clean my GC inlet liners?

A. We do not recommend cleaning inlet liners. All liners manufactured by Trajan are deactivated and certified for high performance. During cleaning the deactivation will be removed. Deactivating the cleaned liner in the laboratory will still result in the presence of active sites that can adsorb sample components and cause peak tailing, with potential loss of sensitivity and reproducibility.

7) Q. Are SGE OptChem inlet liners compatible with the same injection solvents as SGE standard inlet liners?

A. As a general rule, if the solvent is not harmful to the GC column, then it will also not harm the inlet liner. This is true for both SGE OptChem and SGE standard inlet liners.

8) Q. How do I select the correct inlet liner for my analysis?

A. Please see our *Selection Guide - GC inlet liners* on our website for more information on which liner to choose for your analysis.

9) Q. How can I avoid loss of high boiling point compounds?

A. Trajan recommends using an SGE inlet liner with wool to avoid unnecessary loss of high boiling point compounds.Many inlet liner designs include deactivated quartz wool packing, some of the reasons for this are:

- Provides additional surface area for complete volatilization of the sample to minimize sample discrimination.
- Traps non-volatile components and septum particles from reaching the column.
- Wipes any sample from the syringe needle, thereby increasing reproducibility and preventing sample residue build-up at the septum.

10) Q. My results are showing low sensitivity/low response. Can a different inlet liner increase sensitivity?

A. There are several factors which can affect sensitivity, such as inlet temperature being too high or too low. In the case that the inlet temperature is too low, raising the inlet temperature and using an SGE ConnecTite™ inlet liner will help increase sensitivity by minimizing sample loss.

11) Q. Can the inlet liner help reduce baseline noise?

A. Contamination in the inlet liner can cause an increase in baseline noise. Change your inlet liner regularly to minimize noise issues.

12) Q. Can the inlet liner extend the lifetime of my GC column?

A. A wool-packed or fritted inlet liner can help increase GC column lifetime:

- Quartz wool or glass frits can assist in homogenization of evaporated analytes and solvent in the inlet. They also help transfer the analytes to the GC column entrance.
- Wool or glass frits act as a filter by blocking non-volatile impurities from entering the GC column.

13) Q. How often should I change my inlet liner?

A. The lifetime of inlet liners is difficult to predict, as it will vary greatly depending on the nature of the samples being introduced.

- If headspace injection is being used, only vapors will enter the GC inlet and the inlet liner can remain clean for months.
- If 'dirty' samples are injected, it may be necessary to inspect the inlet liner daily.
- In all cases, as soon as the inlet liner has residue visibly building up inside, it should be swapped for a new inlet liner.

14) Q. Can the inlet liner reduce peak tailing?

A. Peak tailing can have several different causes, one of which is a dirty inlet liner, which increases active sites interacting with the injected sample as it is introduced to the GC column. If peak tailing persists, you may want to consider replacing ferrules, septa and o-rings, installing a guard column and/or using a different solvent for your analysis. Please contact techsupport@trajanscimed.com for further information or advice.

15) Q. What are the benefits of using an SGE OptChem bottom taper inlet liner with glass frit?

A. The SGE OptChem taper inlet liner with glass frit and pre-fitted CRS ONE o-ring provides the same benefits as a bottom taper inlet liner with packed quartz wool, plus some additional advantages:

- The glass frit exhibits improved density distribution compared with wool-packed liners. Since the glass frit has a consistent porosity, the gas flow rate through the liner is more uniform compared to packed wool, which increases reproducibility.
- Using a frit removes any risk of wool breakage, which can expose active sites within the inlet liner and reduce the sensitivity of the analysis.

Information and support

Visit www.trajanscimed.com or contact techsupport@trajanscimed.com

Specifications are subject to change without notice.