

Puncture! Pierce! Puncture! Pierce!

The fierce repetition and rage,

Of a needle that is 26 gauge.

Or was that 26s?

Yes!

Deliver the sample to a place none finer,

Than the hot interior of an inlet liner!

But once more I find that I must withstand,

Not only puncture,

But heat on demand.

Poem by Zachary Woodward - Technical Specialist, Phenomenex

The septa in a GC injection port are undoubtedly the least interesting component of any GC method, but we can at least imagine the septa to have a promising career in community theatre. There are some considerations towards GC septa that are worth noting, as the septa serves to isolate the environment within an injection port. The primary considerations are temperature tolerance and receptiveness towards injection needles, particularly during methods that entail split or spitless injections of liquid sample.

The first consideration is of course to match the dimensions of the septa to your instrument. Another simple consideration is a preference for a GuideRight™ hole, which facilitates the ability of thin needles to pierce the septa without the risk of bending the needle. Some septa specify their Durometer rating, which expresses the hardness of a material. The numbers expressed for septa (often 40 - 60) are relative to the diameter of a typical needle, with a lower number indicating a softer material. The GuideRight™ hole eases the piercing of septa that have a higher Durometer rating that is often synonymous with higher temperature tolerance.



Temperature tolerance is another consideration for the septa, as are the number of injections that septa can withstand. Hot temperatures can induce bleed from the septa, which manifests as repetitious and sequential silicon peaks in a chromatogram. Septa with low temperature tolerances are suitable for headspace injections during residual solvent analysis, as the analyte has already volatilized prior to entering the injection port. Hotter temperatures are often necessary within a split or splitless injection port to assure volatilization when injecting liquid samples. Be mindful of high-temperature septa that are formulated to minimize bleed and to permit repetitious injections before the septa becomes “cored.” Excessive injections can puncture septa to the point of developing a permanent hole through which volatilized sample can escape, leading to inconsistent recoveries.

Optimal septa are those that are low-bleed, have a temperature tolerance of 400 °C, can withstand 100 - 150 injections before becoming cored, and feature a GuideRight™ hole to facilitate needle entry. Thank you for your attention, and I wish you well.

If you have any questions or would like more information about GC septa, reach out to us today and speak with a one of our technical specialists through our free online portal - **Chat Now**.

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