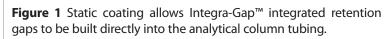
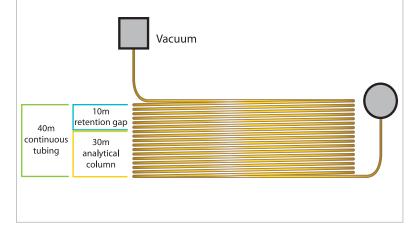
Using Guard Columns and Retention Gaps in GC (Part 2) Continued from page 2.

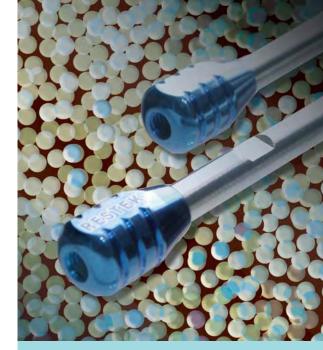
Segment coating technology eliminates problematic connections Both retention gaps and guard columns must be coupled to the analytical column. While there are several types of effective coupling devices, all can create dead volume and can be a potential source of leaks and reactivity. Segment coating technology allows the retention gap or guard column to be built directly in the same piece of tubing as the analytical column, eliminating the connector and associated risks. This technology, available from Restek, is termed Integra-Guard[™] or Integra-Gap[™] and is based on the static coating method. In this process the capillary column is filled with a coating solution of stationary phase in a volatile solvent. The column is sealed on one end and on the other side a vacuum is applied. The solvent is evaporated and the dissolved polymer is deposited on the inside deactivated wall of the fused silica column. The static coating method allows columns to be coated by segment. When filling, for example, a 40m capillary with the coating solution, only 30m are filled. The first 10m remain uncoated, having only the deactivation treatment (Figure 1). This method deposits the stationary phase only in a designated portion of the capillary, creating the Integra-Guard[™] or the Integra-Gap[™]. The advantages of this technology are clear: eliminating the connector removes a potential source of leaks and reduces dead volume. Additionally, maintenance is faster and simpler since there is no manual connection to make.

Guard columns and retention gaps are useful tools to the practicing chemist, and it is important to understand the difference between them. While they help protect analytical columns and focus samples, respectively, they are also a source of potential problems, such as leaks. Segment coating technology offers a better solution—integrated columns containing both the guard or gap section and the analytical column together in a single piece of tubing. These Integra-GuardTM and Integra-GapTM columns are a simple, effective solution; they eliminate the risks of a separate connection and provide stable, accurate data.





For more information on Integra-Gap™ technology, see "Selecting a GC Column for Glycerin in Biodiesel" on page 10.



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