

---

## TODAY'S OPTIONS FOR COLUMN CHOICE AND COLUMN DESIGN IN GC-PROCESS TYPE APPLICATIONS

Jaap de Zeeuw, Tom Vezza and Gary Stidsen

Restek Corporation, Weerhaan 9, 4336 KT, Middelburg, The Netherlands,  
jaap.dezeeuw@restek.com

The majority of Process type applications are still done using Packed column combinations. The reliability, flexibility and sometimes for price reasons the packed columns are still widely used. Despite of this, the capillary column has made a firm introduction in Process and is more and more utilized.

Size, materials, stationary phases, deactivations are still key for a successful application.

On the packed side, special deactivations have become available to deal with tough matrix. Also micropacked columns have found their way into many analyzer systems.

In process also miniaturization is an ongoing development to cut down run time and gathering as close -as possible-real time data. Chip injection/detection techniques are already commercialized. The hart of many systems is still the capillary column. Fused silica columns have proven to work well, though there is a wish to use metal columns also.

As many process applications deal with volatile materials and only a few compounds have to be measured, backflush and heartcut techniques are commonly used. Instead of using valves this can be done with flow-switching (live/deans) switching.

Today's GC's also offer users friendly configurations to set up flow switching applications, where we can make perfect use of backflush columns.

In order to deal with flow switching, it's important that flow restrictions of columns are as constant as possible. New generation PLOT columns fused silica as well as metal, show to be promising on this aspect. Also the metal capillary columns can be designed in a way to deal with pressure shocks in a much more gentle way. An overview is presented what is possible with today's column technologies and where we still have challenges.