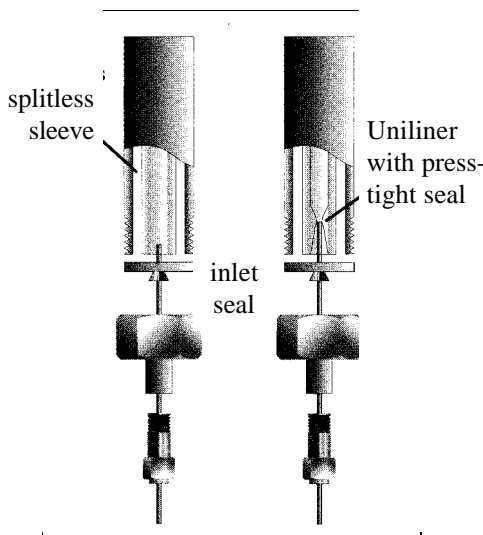




Direct Injection Sleeves

Direct Injection Mode Using a Uniliner Sleeve - An Alternative to Splitless!

Many problems associated with splitless analysis occur because the column inlet is not physically connected to the inlet sleeve. Because there is a gap around the outside of the column and inside of the sleeve, the sample vapors deposit on the metal inlet parts or fall below the tip of the column and are swept out of the split vent during the purge-on mode. The diagram below illustrates how the incorporation of a gentle presstight taper can eliminate contact with the hot catalytic metal disk surface (inlet seal) by making a leak-tight connection at the end of the column and sleeve.



A Uniliner sleeve prevents the sample from contacting metal parts at the base of a splitless injection port, which eliminates many problems such as reduced response of high molecular weight compounds, adsorption, and catalytic Resorption in the inlet, providing overall higher sensitivity.

A splitless injection mimics a direct injection while the inlet is configured to the purge-off mode by the action of a solenoid. The purge on mode simply sweeps from the inlet the sample vapors that may have contacted the metal inlet seal. Analysts can replace splitless sleeves with Unilinear sleeves and obtain additional benefits over a traditional splitless analysis. The adsorption of active compounds is greatly reduced, the area of higher molecular weight compounds is increased (i.e., less discrimination), and, because all of the sample is delivered to the head of the column, sensitivity over conventional splitless analysis is enhanced.

Unilinear sleeves can be used as direct replacements for splitless sleeves. They are easily installed in a splitless inlet in almost the same manner as a splitless sleeve except that they must be operated continuously in the purge-off mode. The tight seal between the column inlet and the presstight taper prevents the sample from being lost out of the split vent. Unilinear sleeves should be operated at column flow rates ranging between 5 and 10cc/min. to minimize peak tailing and to sharpen early eluting peaks.

The taper is designed to accommodate either 0.32 or 0.53mm ID columns. Request Restek's Guide to Direct Injections for more information on operating and optimizing direct injections

Cyclo Unilinear Sleeve

The glass screw provides an excellent vaporization surface for high and low molecular weight samples. Dirt is trapped on the first turn of the screw, reducing subsequent residue/sample interaction. In comparison to liners packed with wool, Cyclo-Uniliner sleeves provide as many as five times the number of dirty sample injections before calibration curves degrade. Since Cyclo-Uniliner sleeves are deactivated as a unit, they are ideal for active samples.

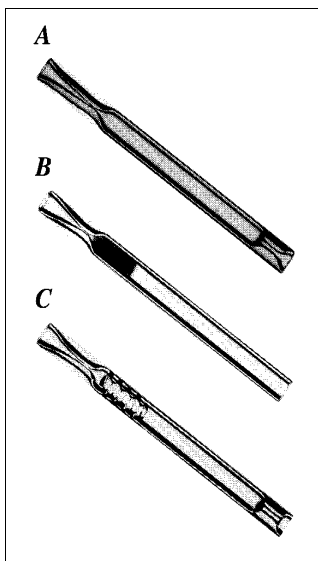
(A) Standard Unilinear Sleeve

The buffer volume chamber serves to contain the sample vaporization cloud and prevents contact with the metal injection port parts. Peak tailing is reduced and larger injection volumes can be made. Because of the hour glass design, samples should be relatively clean or dirt may be funneled into the column inlet.

(B) Open-top Unilinear Sleeve

Open-top Unilinear sleeves are ideal for extremely dirty samples because they are packed with fused silica wool that traps dirt and sample residue.

Contaminated wool is easily replaced and the sleeve can be cleaned with nylon brushes or pipe cleaners.



See the following pages for instrument specific DI sleeves:

Hewlett-Packard: 252, Variar: 263, Shimadzu: 267, Perkin-Elmer: 271 and Carlo-Erba: 271.