



GAS CHROMATOGRAPHY

FocusLiner™ For Split/Splitless Injection

- Proven to improve reproducibility up to 10 fold
- Preferred liner for split/splitless injection
- Fixed quartz wool wipes needle tip during injection
- Highly deactivated
- Ideal for dirty samples



FocusLiner™

Inlet liner selection



Figure 1.

The two tapered sections secure the quartz wool plug effectively wiping the needle tip during injection. This results in improved reproducibility.

The major contributor to poor reproducibility in split and splitless analyses is the transfer of the sample from the syringe needle, control of the vaporisation process and movement of sample through the liner. The position of the quartz wool in the inlet liner is also critical. The quartz wool is normally present in the inlet liner to mix and homogenise the vapor prior to splitting and entering the column. More importantly, however, is the location of the quartz wool relative to the needle tip of the syringe during injection. At the point of injection the needle tip must penetrate the quartz wool to maximise vapourisation of the sample and to wipe any droplets that form on the needle tip, before removal from the injector. Unfortunately, there is no guarantee that once the liner is installed in the injector, the quartz wool plug will stay in the correct position.

SGE FocusLiner™ – The explanation

The SGE FocusLiner™ overcomes the quartz wool shifting problem. Using a simple but effective design, the quartz wool is held in the correct position by means of two tapered sections in the liner (Figure 1). The tapered sections are located to ensure that the needle tip penetrates the secured quartz wool plug wiping any residue liquid sample from the needle tip while providing sufficient surface area for volatilisation of the liquid sample. Current liner designs which utilise quartz wool to improve vaporisation are frequently positioned incorrectly. Compounding the problem, the unsecured quartz wool plug can be easily dislodged without the chromatographer's knowledge by repeated injections (Figure 2). Each insertion of the needle tip can progressively move the plug until no further contact is made. Dislodging the plug can also occur through a sudden change in inlet pressure. For instance, removing the column from the injector or changing the septum can cause a sudden pressure change in the injector resulting in the movement of the plug.

Conventional Liner

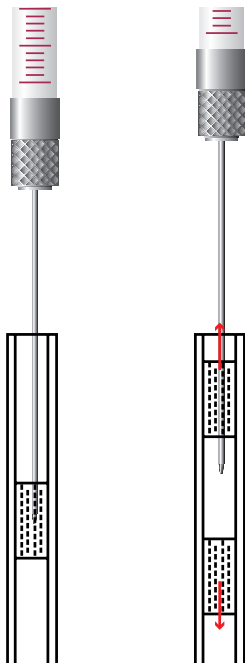


Figure 2a.

Quartz wool plug is in the position to wipe needle tip.

Figure 2b.

Quartz wool plug can be removed in either direction preventing the needle wiping or sample vapourisation processes.

SGE FocusLiner™ reproducibility

A Relative Standard Deviation (RSD) of 5-10% is common for a straight through liner. With the SGE FocusLiner™, a RSD of less than 1% using external standard calibration is easily achievable showing the effectiveness of the secured quartz wool.

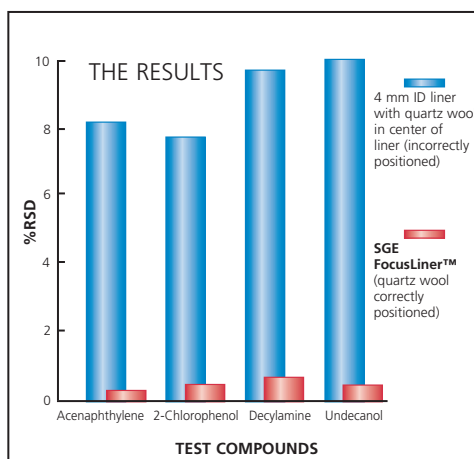



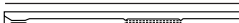



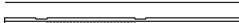



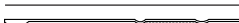

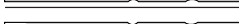

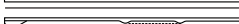
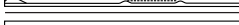
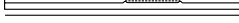
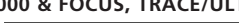


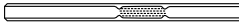




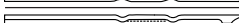








Figure 3.

%RSD values for test compounds using different quartz wool positions.

Description	ID (mm)	OD (mm)	Length (mm)	Pack Size	Part No.
Agilent Technologies HP4890, HP5890, 6850, 6890 & 7890					
 Split / Splitless FocusLiner	4.0	6.3	78.5	5	092002
 Split / Splitless Tapered FocusLiner	4.0	6.3	78.5	5	092003
 Split / Splitless FAST FocusLiner	2.3	6.3	78.5	5	092005
 Split / Splitless Tapered FAST FocusLiner	2.3	6.3	78.5	5	092111
ATAS Optic Injectors					
 Split / Splitless FocusLiner	3.0	5.0	81	5	092272
PerkinElmer AutoSystem™ & Clarus 400, 500 & 600					
 Split / Splitless FocusLiner	4.0	6.2	92	5	092092
 Split / Splitless Tapered FocusLiner	4.0	6.2	92	5	092095
 Split / Splitless FocusLiner (PSS injector)	2.0	4.0	86.2	5	092101
Shimadzu 2010 Injector					
 Split / Splitless Tapered FocusLiner	3.4	5.0	95	5	092058
 Split / Splitless FocusLiner	3.4	5.0	95	5	092059
Shimadzu SPL-17 & 2014 Injector					
 Split / Splitless FocusLiner	3.4	5.0	95	5	092062
 Split / Splitless Tapered FocusLiner	3.4	5.0	95	5	092068
Shimadzu SPL-14 Injector					
 Split / Splitless FocusLiner	3.4	5.0	99	5	092065
 Split / Splitless Tapered FocusLiner	3.4	5.0	99	5	092066
Thermo Finnigan 9001, GCQ					
 Split / Splitless FocusLiner	4.0	6.3	78.5	5	092002
 Split / Splitless Tapered FocusLiner	4.0	6.3	78.5	5	092003
 Split / Splitless FAST FocusLiner	2.3	6.3	78.5	5	092005
 Split / Splitless Tapered FAST FocusLiner	2.3	6.3	78.5	5	092111
Thermo Scientific 8000 & FOCUS, TRACE/ULTRA™					
 Splitless FocusLiner (with 70mm Needle)	5.0	8.0	105	5	092045
 Splitless FocusLiner with Top-end Restriction (with 70mm Needle)	5.0	8.0	105	5	092046
 Split FocusLiner (with 50mm Needle)	5.0	8.0	105	5	092048
 Splitless FocusLiner (for use with 50mm Needle)	5.0	8.0	105	5	092049
Varian 1075 & 1077 Injector					
 Split FocusLiner	4.0	6.3	72	5	092022
 Split, Tapered FocusLiner	4.0	6.3	72	5	092025
 Splitless FocusLiner with Top-end Restriction	4.0	6.3	74	5	092026
 Split FocusLiner with Top-end Restriction	4.0	6.3	72	5	092028
 Split, FAST FocusLiner	2.3	6.3	72	5	092113
Varian 1078 & 1079 Injector					
 Split / Splitless FocusLiner	3.4	5.0	54	5	092037
 Split / Splitless Tapered FocusLiner	3.4	5.0	54	5	092036
Varian 1177 Injector					
 Split / Splitless FocusLiner	4.0	6.3	78.5	5	092002
 Split / Splitless Tapered FocusLiner	4.0	6.3	78.5	5	092003
 Split / Splitless FAST FocusLiner	2.3	6.3	78.5	5	092005
 Split / Splitless Tapered FAST FocusLiner	2.3	6.3	78.5	5	092111

FocusLiner™ Sealing Rings

Agilent Technologies
HP4890, HP5890, 6850, 6890 & 7890

Viton O-Ring*	10	0726532
Graphite Sealing Ring†	10	0726005

PerkinElmer

Viton O-Ring*		
AutoSystem™ & Clarus 400, 500 & 600, except PSS Injector	10	0726536

Shimadzu

Graphite Sealing Ring†		
For 14, 15A, & 16 (SPL-14 Injector)	10	0726001
For 17A (SPL-17 Injector)	10	0726007
Viton O-Ring*		
2010/2014	10	0726533

Thermo Scientific/Finnigan

Graphite Sealing Ring†		
For 8000, Focus GC & Trace/Ultra GCs	10	0726004
Viton O-Ring*		
For 9001 and GCQ GCs	10	0726532
Graphite Sealing Ring†		
For 9001 and GCQ GCs	10	0726005

Varian

Viton O-Ring*		
For 1177 Injector	10	0726532
Graphite Sealing Ring†		
For 1177 Injector	10	0726005
Graphite Sealing Ring†		
For 1075 & 1077 Injectors	10	072601
For 1078 & 1079 Injectors	10	0726217

* Can be used at temperatures up to 300°C

† Can be used at temperatures above 250°C

Technical Information:

For on-line technical presentations on split/splitless analysis, inlet liner selection, correct column installation and many more helpful troubleshooting hints, visit:

www.sge.com/support



For more information on the full range of SGE's GC supplies, please visit:
www.sge.com



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