

Reference Guide



SGE Inlet liners

by **TRAJAN**

Inlet Liners

Spot the Difference in the SGE Lineup

Choosing the right inlet liner and injection parameter can increase peak areas and reduce detection limits by up to 300%.¹

Customer research shows that a significant number of GC users don't understand the importance of inlet liner selection, or how it contributes to their analysis. The SGE inlet liner range aims to make it simple for all gas chromatographers to select the right liner.

To optimize your results for different sample types, inlet liners are color coded by geometry for ease of selection.

Confidence in Quality Assurance

- SGE inlet liners have the lowest level of Endrin degradation and DDT degradation when compared to competitor results.
- Every batch is tested for activity using the EPA 8081B method. A 5 ppm standard is used to validate that every batch has less than 3% Endrin degradation and less than 1% DDT degradation.
- Each pack includes a batch certificate with quality assurance test results.

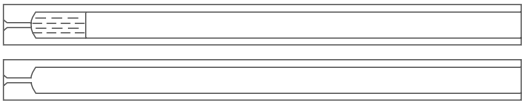


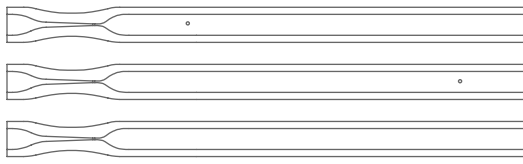
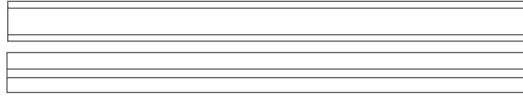

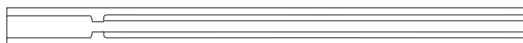


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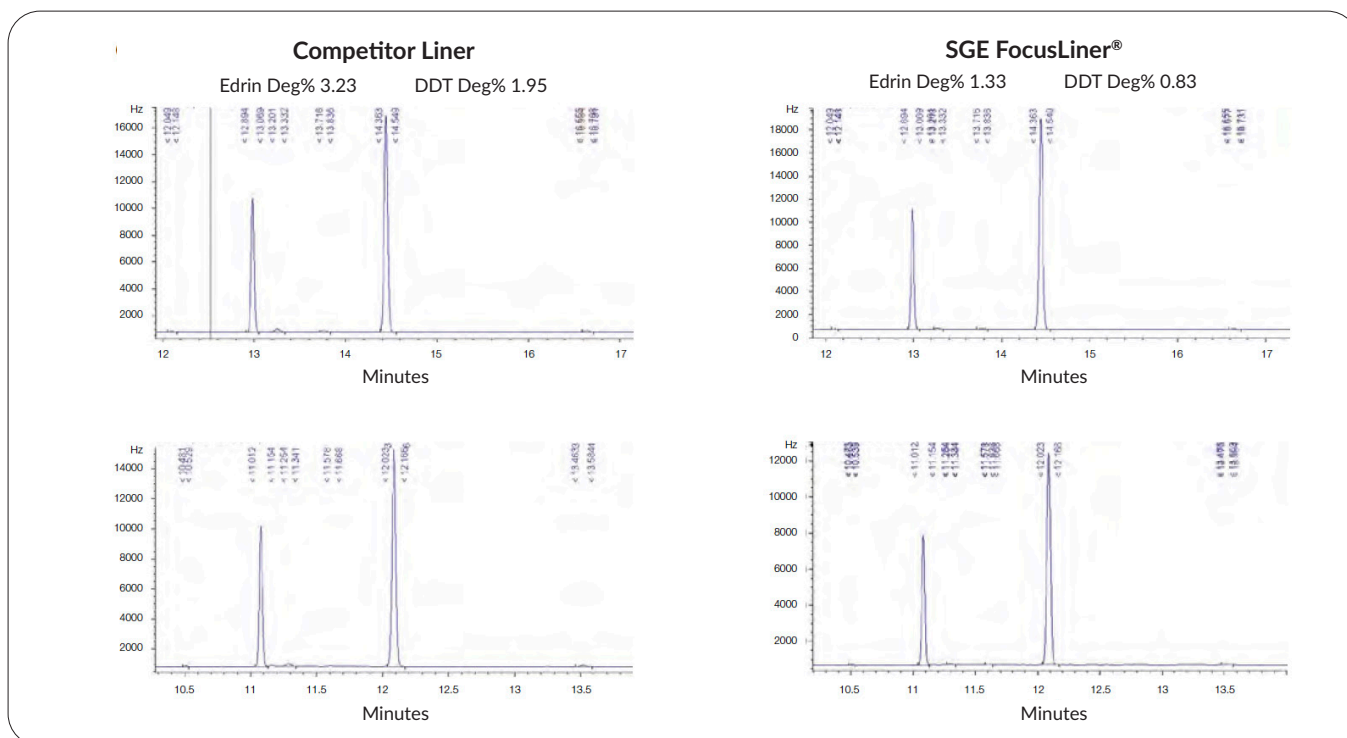
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Easy to Choose

Color	Injection Technique	Sample Types	Liner Geometry
Dark Green	Splitless	<ul style="list-style-type: none"> Trace level analyses. Active compounds. 	Taper / Gooseneck 
Blue	Split	<ul style="list-style-type: none"> General purpose. Concentrated samples. Dirty samples. 	FocusLiner® 
Aqua	Splitless	<ul style="list-style-type: none"> Trace level analyses. Dirty samples. Wide boiling point range. 	Tapered FocusLiner® 
Orange	Direct	<ul style="list-style-type: none"> Trace level analyses. Active compounds. 	ConnectTite 
Purple	Split Splitless	<ul style="list-style-type: none"> General purpose. Concentrated samples. Dirty samples (only if quartz wool is present) Gaseous samples (also Purge and Trap, Headspace). 	Straight 
Yellow	Splitless LVI	<ul style="list-style-type: none"> Trace level analyses. Low boiling point compounds. Active compounds. 	Double Taper 
Gray	PTV LVI	<ul style="list-style-type: none"> Trace level analyses. Large volume injections. 	PTV/LVI 

1. Kende, A et al. Chromatographia, 2006; 63 (3/4): 181-7

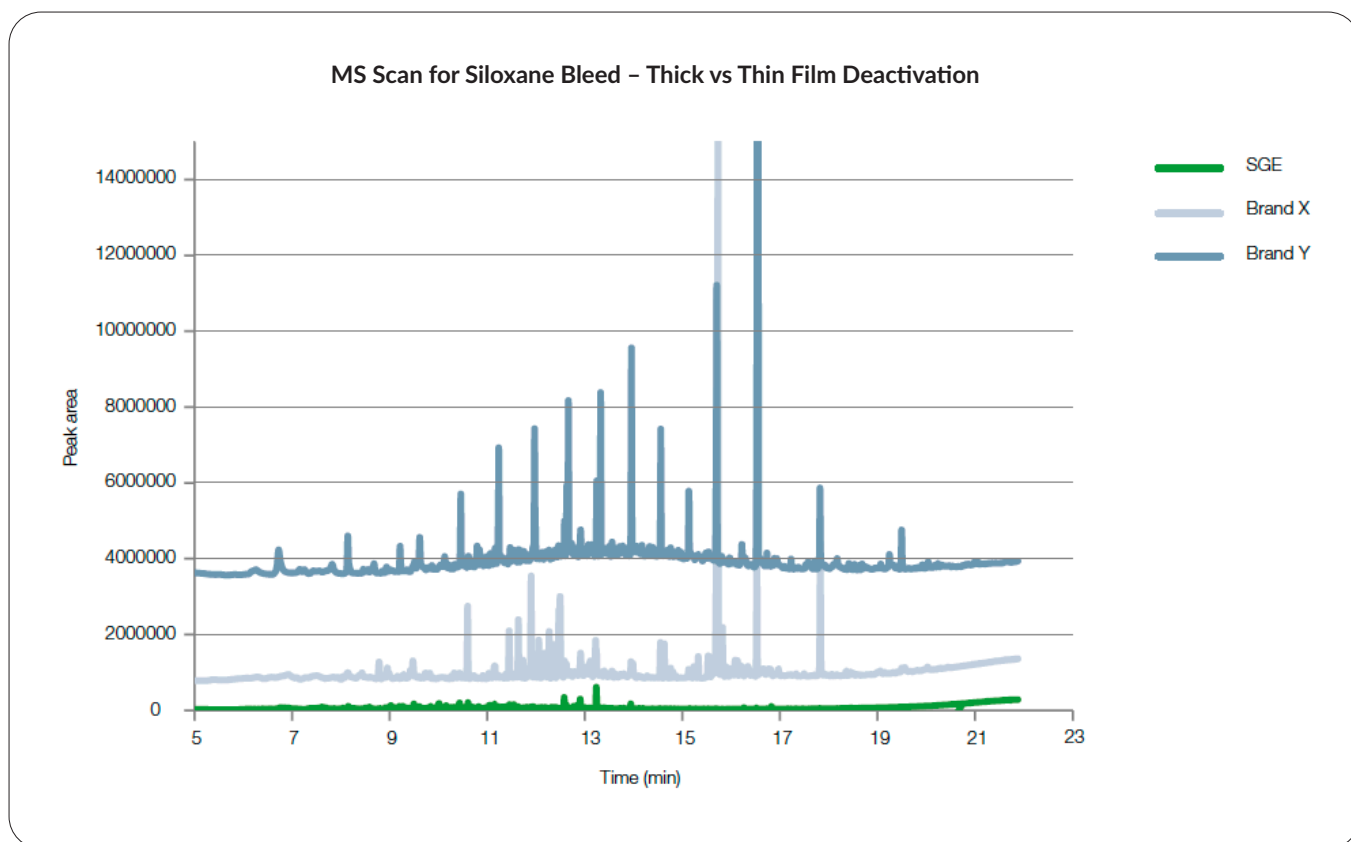
Liner Comparison Endrin and DDT % Breakdown



If the Edrin or DDT breakdown is 3% or higher it is a fail.

Confidence in Your Trace Analysis

SGE inlet liners have the lowest siloxane bleed due to unique thin film deactivation - making them the liner of choice for sensitive MS analysis.



Column Part Number	054101		
Phase	BPX5	Purge On (Split) Vent Flow	20 mL/min
Column	30 m x 0.25 mm x 0.25 µm	Carrier Gas	He
Initial Temperature	50 °C	Carrier Gas Flow	1.2 mL/min
Rate	20 °C/min	Injection Mode	No Injection – Gas Flow for 5 mins
Final Temperature	350 °C, 2.2 min	Injection Temperature	350 °C
Detector	MS		

Confidence in Your Analysis

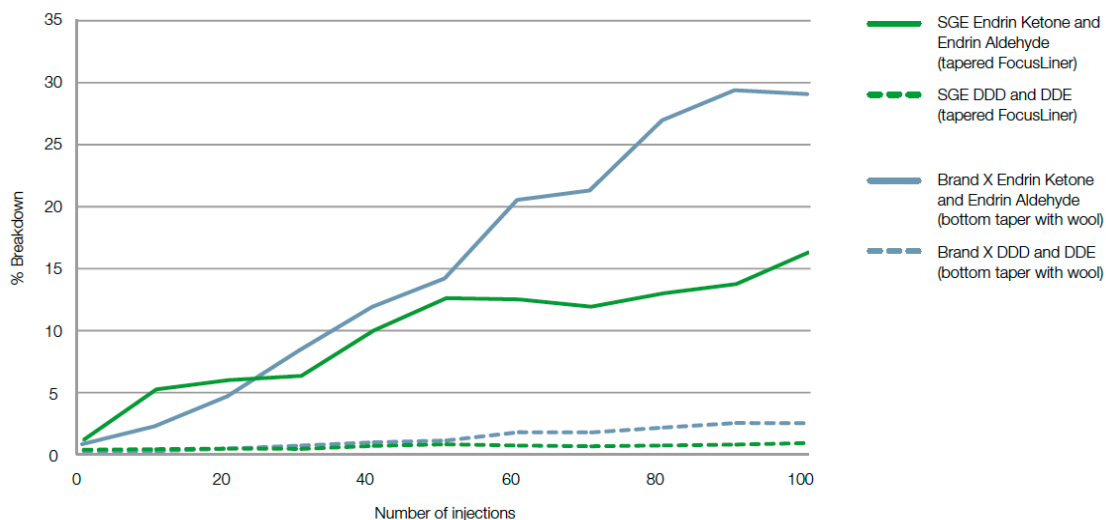
Whether for routine analysis, difficult probes, or trace analysis, have confidence in your analysis with SGE inlet liners. While bottom taper with wool is considered the best geometry for trace analysis, the SGE FocusLiner® delivers optimal performance in all applications.

A unique proprietary “thin film” process guarantees every surface of every SGE inlet liner, including the wool is fully deactivated. Tests show this deactivation provides an excellent analysis whether you are testing trace pesticides, difficult probes such as 2,4-dinitrophenol, or amphetamines.

Confidence for Routine Analysis - Injection After Injection

- SGE tapered FocusLiner shows improved performance compared with a competitor’s premium deactivated liner.
- Choose the tapered FocusLiner to ensure your analysis is uncompromised injection after injection.

50 ppb 100 repeat injections comparison Endrin and DDT % breakdown

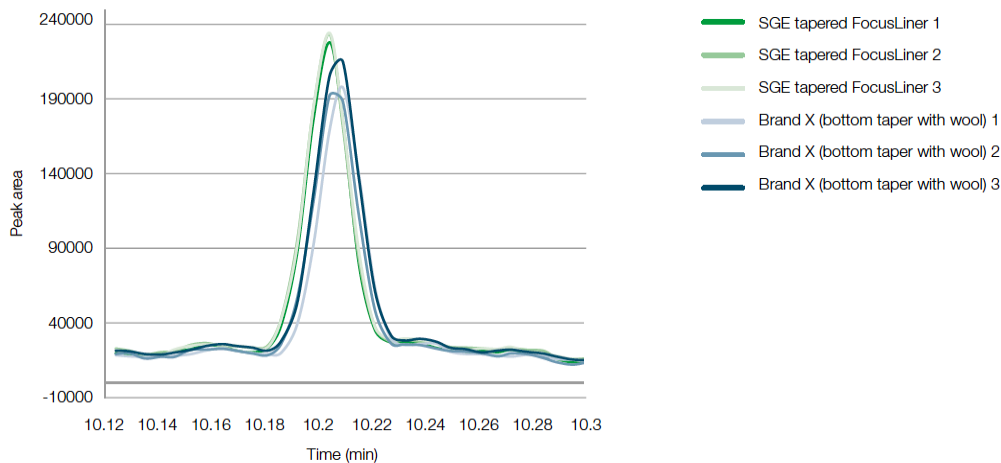


50 ppm Endrin and DDT test mix, 1 µL splitless injection at 250 °C, HT grade septa (PN: 041898)

Confidence with Difficult Probes Such as 2,4-dinitrophenol

Reproducible performance with the right choice in liner geometry.

Liner comparison 0.5 ng 2,4-dinitrophenol



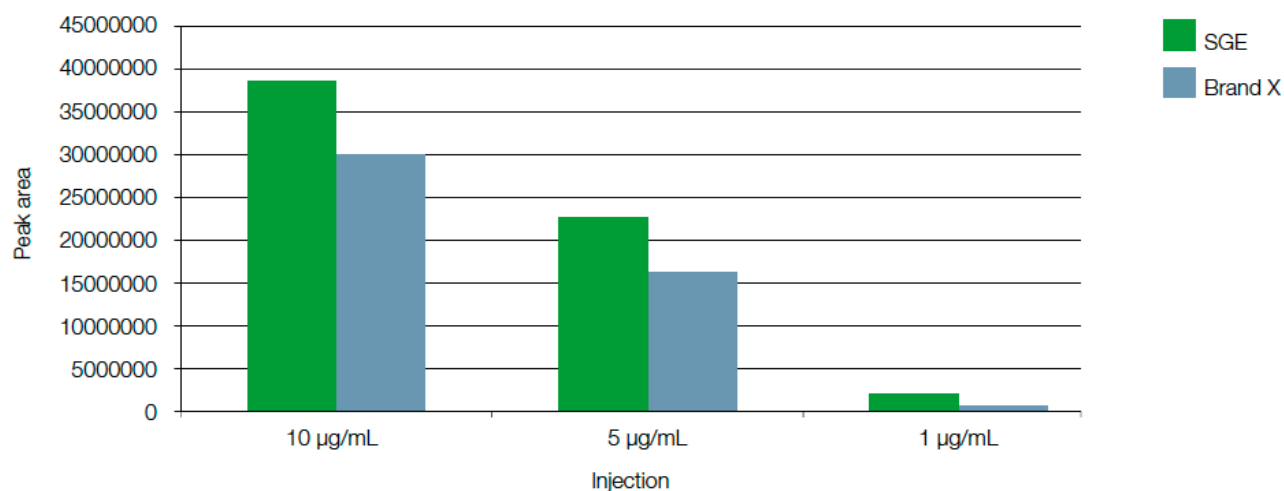
Column Part Number	054101		
Phase	BPX5	Rate 3	30°C/min
Column	30 m x 0.25 mm x 0.25 µm	Final temperature	350°C, 1 min
Sample	50 °C	Detector	MS
		Carrier gas	He, 4.9 psi
		Carrier gas flow	1.2 mL/min
Initial temperature	40°C	Injection volume	1 µL
Rate 1	10° C/min to 80 °C	Injection temperature	200 °C
Rate 2	20 °C/min to 190 °C, 2 min	Full scan / SIM	Full scan 50-550

Easy to Use

- Packs of 1, 5 and 25 liners.
- Complete with instrument appropriate o-rings or sealing rings.
- Each pack supplied with quality assurance test results.
- 5 and 25 blister packs are perforated enabling easy division, while maintaining liner integrity.



Liner comparison 2,4-dinitrophenol



Column Part Number	054101		
Phase	BPX5	Detector	FID 300 °C
Column	30 m x 0.25 mm x 0.25 µm	Carrier Gas	He
Sample	2,4-dinitrophenol (in DCM) 10 µg/mL	Carrier Gas Flow	1.5 mL/min
Initial Temperature	20 °C/min	Injection Volume	1 µL
Rate	10 °C/min to 80 °C	Injection Temperature	250 °C
Final Temperature	150 °C, 2.2 min		

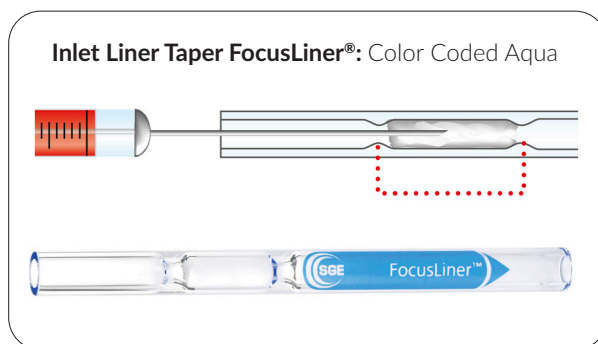
Inlet Liner Taper FocusLiner®

Spot the Difference in the SGE Lineup!

The SGE inlet liner range aims to make it simple for all gas chromatographers to select the correct liner.

Choosing the right inlet liner and injection parameters can increase peak areas and reduce detection limits by up to 300%.

- Easy to choose - color coded by geometry to simplify your selection.
- Easy to use - contains o-rings so you're ready to go.
- Confidence in your analysis - certified deactivation.



Features and Benefits

The SGE FocusLiner® uses a unique design to hold the quartz wool in the correct position.

- Bottom taper focuses sample onto the head of the column and minimizes contact with metal parts of the inlet.
- A taper at the top aids in minimizing sample flashback.
- Ensures quartz wool remains in the correct position in the liner.
- Excellent reproducibility results from the wiping of the sample from the syringe needle and the prevention of droplet formation. The wiping of the needle by the quartz wool prevents droplet formation ensuring excellent reproducibility.
- Two focus points in the liner ensures quartz wool remains in the optimum location.
- The presence of the quartz wool improves vaporization minimizing high molecular weight discrimination.

Recommended Applications

The Taper FocusLiner® is recommended for the following sample or injection modes:

- Trace level analysis.
- Splitless.
- Dirty sample.
- Wide boiling point range.

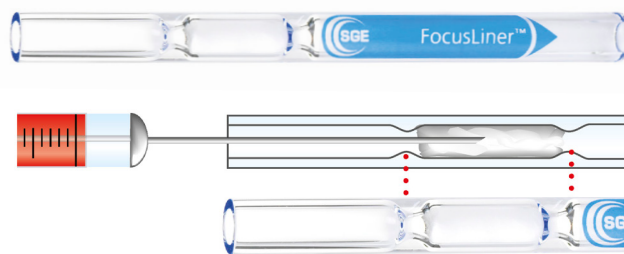
Inlet Liner Straight

- The SGE inlet liner range aims to make it simple for all gas chromatographers to select the correct liner.
- Choosing the right inlet liner and injection parameters can increase peak areas and reduce detection limits by up to 300 %.
- Easy to choose - color coded by geometry to simplify your selection.
- Easy to use - contains o-rings so you're ready to go.
- Confidence in your analysis - certified deactivation.

Features and Benefits

- Straight liners facilitate higher split flows.
- Narrow bore straight liners facilitate fast GC work.
- Small injection volumes of less than 0.5 µL are best used.
- Narrow bore straight liners improve focusing of gaseous samples (purge, trap and headspace).

Inlet Liner Taper FocusLiner®: Color Coded Aqua



Product Specifications

Taper FocusLiner available for Agilent, PerkinElmer, Shimadzu, Thermo Scientific, and Varian/Bruker injectors.

Injector	Length (mm)	OD (mm)	ID (mm)
Agilent	78.5	6.3	4
Agilent	78.5	6.3	2.3
PerkinElmer	92	6.2	4
Shimadzu	99	5	3.4
Shimadzu	95	5	3.4
Thermo	105	8	5
Thermo	78.5	6.3	4
Thermo	78.5	6.3	2.3
Bruker/Varian	78.5	6.3	2.3
Bruker/Varian	54	5	3.4
Bruker/Varian	72	6.3	4

Inlet Liner Straight: Color Coded Purple



Recommended Applications

Straight liners are recommended for the following sample or injection modes:

- General purpose.
- Concentrated samples.
- Dirty samples (only if quartz wool is present).
- Gaseous samples.
- Purge and trap.
- Headspace.
- Split/splitless.

Product Specifications

Straight liners available for Agilent, PerkinElmer, Shimadzu 2010, 17A, 2014 and 2025 injectors, Thermo Scientific, and Varian/Bruker 1177 & 1078/1079 injectors.

OptChem™ inlet liner

Confidence In Your Analysis


SGE OptChem™ inlet liners provide optimal performance with advanced coating technologies in an easy to use format for GC and GCMS.

OptChem deactivation extends the existing SGE inlet liner range with familiar designs, with CRS ONE o-rings and touchless packaging.

- Easy to choose - color coded by geometry to simplify your selection.
- Easy to use - ready to install touchless packaging with pre-fitted CRS ONE o-rings.
- Confidence in your analysis - certified deactivation.

Features and Benefits

- OptChem deactivation is a unique thick film which limits breakdown, ensuring minimal loss of sample and increased system sensitivity.
- Quality tested to USEPA 8081: organochlorine pesticides, and USEPA 8270: semivolatile organic compounds to ensure a high level of inertness.
- Pre-fitted with CRS ONE o-rings to reduce contamination from handling.
- Touchless packaging format reduces the risk of contamination during installation.
- Recyclable packaging - less waste to landfill.



Recommended Application

Suitable for trace level analysis, volatile and organochlorine pesticides (OCPs), pesticides, persistent organic pollutants (POPs), brominated flame retardants (BFRs), dirty samples, and general purpose GC and GCMS.

Product Specifications

Available for industry standard injectors.

Length	OD	ID	Example instrument compatibility
78.5 mm	6.3 mm	<ul style="list-style-type: none"> • 4 mm • 2.3 mm • 1.2 mm • ConnecTite 	<ul style="list-style-type: none"> • Agilent Intuvo 9000, 8890, 8860, 7890, 7890B, 7820A, 6890, 6850, 5890 and 4890 • Bruker/Varian 1177 • Lucidity GC-FID • PerkinElmer GC 2400, Clarus 690 and 590 • Scion Instruments 8500 and 8300 • Thermo Scientific TRACE 1610, 1600, 1300 series and GC Ultra

Inlet Liners

Inlet Liners FocusLiner

Description	Part No.
Inlet Liners 4 mm ID FocusLiner, Length 78.5 mm, Pkg. 5	CL-100001
Inlet Liners 4 mm ID FocusLiner, Length 78.5 mm, Pkg. 25	CL-100013
Shimadzu 2010/17A Inlet Liners 3.4 mm ID FocusLiner, Length 95 mm, Pkg. 5	CL-100010
PerkinElmer Inlet Liners 2 mm ID FocusLiner, Length 86.2 mm, Pkg. 5	CL-100011
Optic FocusLiner, Length 81 mm, Pkg. 5	CL-100018

Inlet Liners Taper FocusLiner

Inlet Liners 4 mm ID Tapered FocusLiner, Length 78.5 mm, Pkg. 1	CL-100003
Inlet Liners 4 mm ID Tapered FocusLiner, Length 78.5 mm, Pkg. 5	CL-100002
Inlet Liners 4 mm ID Tapered FocusLiner, Length 78.5 mm, Pkg. 25	CL-100005
Shimadzu 2010/17A Inlet Liners 3.4 mm ID Tapered FocusLiner, on Wool, Length 95 mm, Pkg. 5	CL-100009
Bruker/Varian Taper FocusLiner 3.4 mm ID, Length 54 mm, Pkg. 5	CL-100008

Inlet Liners

Straight Inlet Liners

Description	Part No.
Inlet Liners 1.2 mm ID Straight, Length 78.5 mm, Pkg. 5	CL-100006
Inlet Liners with Quartz Wool 4 mm ID, Length 78.5 mm, Pkg. 5	CL-100000
Inlet Liners, Quartz, 2 mm ID Straight, Length 78.5 mm, Pkg. 5	CL-100004
Inlet Liners with Quartz Wool 4 mm ID, Length 78.5 mm, Pkg. 25	CL-100014
Inlet Liners 4 mm ID Straight, Length 78.5 mm, Pkg. 25	CL-100015

Taper Inlet Liners

Inlet Liners Tapered with Quartz Wool 4 mm ID, Length 78.5 mm, Pkg. 5	CL-100007
Inlet Liners Tapered with Quartz Wool 4 mm ID, Length 78.5 mm, Pkg. 25	CL-100012
Inlet Liners Tapered 4 mm ID, Length 78.5 mm, Pkg. 25	CL-100016

Double Tapered Inlet Liners

Inlet Liners 4 mm ID Double Taper, Length 78.5 mm, Pkg. 25	CL-100017
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OptChem Taper Inlet liners

OptChem Taper Inlet Liner w/Quartz Wool, pre-fitted CRS ONE O-Ring, 4 mm ID, Length 78.5 mm, Pkg. 5	CL-100019
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Inlet Liner Replacement Parts

Viton O-Ring Seal for Agilent Liners 6.3 mm OD, Pkg. 10	CL-100021
Viton O-Ring Seal for Shimadzu 2010/2014 Liners 5 mm OD, Pkg. 10	CL-100022
O-Ring for Inlet Liners, FKM, B010, 6.1 mm ID, 9.3 mm OD, Pkg. 10	CL-100023
Graphite Sealing O-Ring 6.35 mm, Pkg. 10	CL-100020