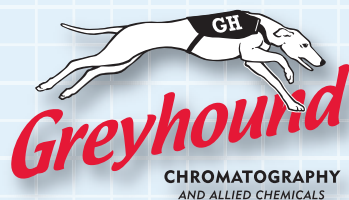




Injection Port Liners GC Inlet Septas and GC Ferrules



Environment...People...Greyhound



For many years the name of Greyhound Chromatography has been synonymous with supplying the highest quality products to laboratories around the world.

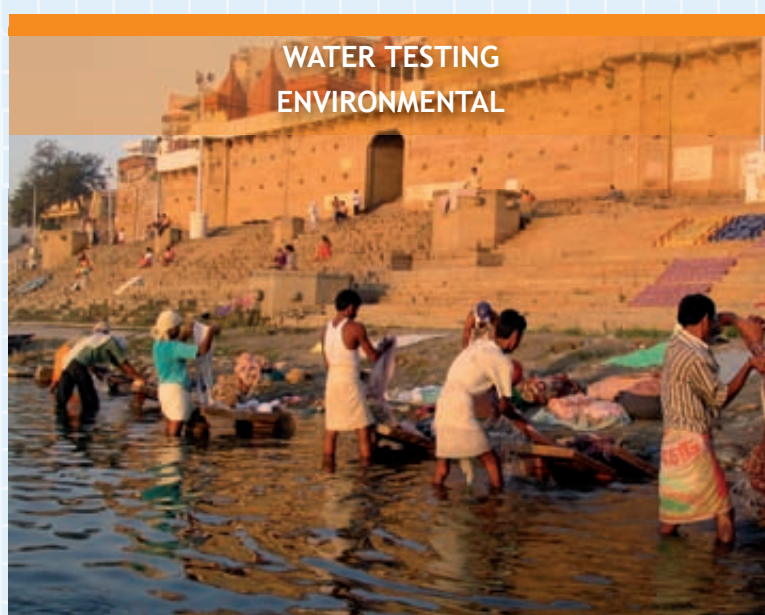
Our extensive range covers all areas of Environmental, Petrochemical, Food, Forensics, Chemical and Pharmaceutical analysis. Backed by our technical services team, 'Greyhound' is the preferred source amongst today's analysts.

This brochure focuses on our comprehensive range of injection port liners.

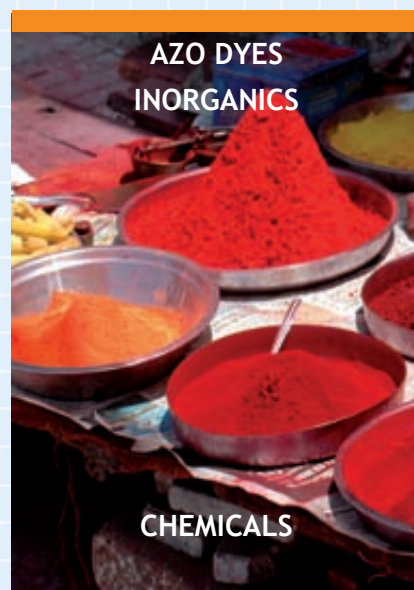
Our customer support has been delivering analytical solutions since 1981, assisting laboratories worldwide to be more efficient, accurate and able to make the world's environment a better place for us all.



PESTICIDES HERBICIDES CROP SCIENCES



WATER TESTING
ENVIRONMENTAL



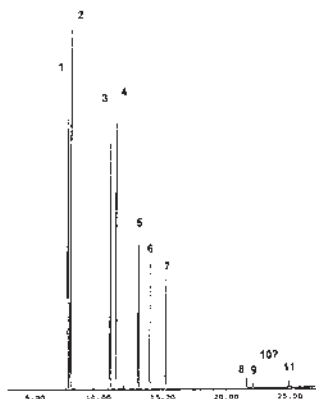
AZO DYES
INORGANICS

CHEMICALS

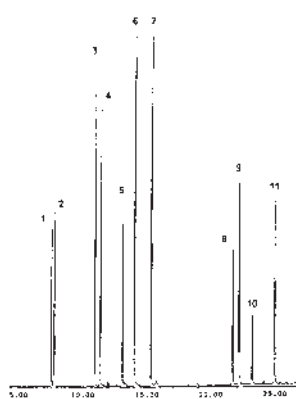
Injection Port Liners

- Polysiloxane deactivated borosilicate glass (quartz where noted)
- Guaranteed inert for phenols, organic acids and bases.
- Glass wool is deactivated.

NON-DEACTIVATED LINER



DEACTIVATED LINER



Our extensive range of injection port liners provide a superior, clean, non-adsorptive surface for your sample. Replacing the liner on a regular basis will protect the capillary column from potentially harmful non-volatiles which might otherwise deposit on the column.

Liners help protect the vaporised sample from contacting the metal wall of the inlet as the sample flows onto the column. Deactivated glass wool may be used as an aid to sample vaporisation, to minimise discrimination based on boiling point and to provide a surface on which non-volatiles can be trapped. The simplest liner - a straight tube - gives all-round good performance at a low cost. The single-taper liner improves on the straight tube type by minimising sample vapour contact with metal at the bottom of the injection port. Liner designs are further optimised for specific injection techniques.

Splitless Liners - are designed to lead the sample vapour onto the column with the minimum level of hindrance, so are usually without baffles or restrictions. Tapered ends can be used to minimise sample breakdown and to better confine the sample vapour to the liner. Glass wool can be used to protect the column from non-volatiles and as an aid to complete vaporisation.

Split Liners - are designed with mixing chambers and tortuous flow paths to facilitate the full vaporisation of the sample before reaching the split point. Designs to accomplish this include the cup splitter, which completely reverses the flow of the carrier gas in one section and liners with integral glass frits. Deactivated glass wool can also be helpful. The outside diameter of the split liners are slightly smaller than splitless liners, approx. 0.2mm, for easy flow of carrier gas outside the liner at higher split ratios.

Note the difference between a properly deactivated liner and a non-deactivated liner. Both phenol runs were performed on the same column and GC under identical conditions except for the liners.

Column: Bonded Trifluoropropyl Polysiloxane
30m x 0.25mm ID x 0.2mm film

Temp: 50°C. (7°/min) to 270°C.

Injector: 225°C.

Detector: MSD, Interface temp. 290°C.

Carrier: Helium 30cm/sec.

- 1 Phenol
- 2 2-Chlorophenol
- 3 2, 4-Dimethylphenol
- 4 2, 4-Dichlorophenol
- 5 3-Nitrophenol
- 6 4-Chloro-3-methylphenol
- 7 2, 4, 6-Trichlorophenol
- 8 4-Nitrophenol
- 9 Pentachlorophenol
- 10 2, 4-Dinitrophenol
- 11 4, 6-Dinitro-2-methyl phenol

For this reason there are two different I.D. Graphite seals for some lines of split and splitless liners.

Direct Liners - is a term used by some manufacturers for liners in which the sample passes from an outside sampler such as headspace or purge and trap, directly through the inlet onto the column. These are also used with wide-bore capillaries or packed columns. The internal volume is typically low.

Focus Liners - are designed to overcome the quartz wool shifting problem which can be experienced with some liners. Using a simple but effective design, the quartz wool is held in the correct position by means of two tapered sections in the liner. 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 volatilization of the liquid sample. A Relative Standard Deviation (RSD) of 5-10% is common for a straight-through liner. With a FocusLiner, a RSD of less than 1% is easily achievable.

FluoroLiner™ - use a different approach to glass surface passivation. Whereas common deactivation techniques either mask or covalently bind surface silanols, the FluoroLiner™ surface is designed to reduce surface residence time for flash vaporization injectors and to encourage efficient vaporization from PTV surfaces. FluoroLiners offer the same degree of inertness for conventional activity tests and can improve trace analysis and the introduction of samples in polar solvents. A further benefit is that FluoroLiners can increase the recovery of analytes which are either unstable or prone to adsorption.

Agilent Technologies Instruments

HP4890, HP5890, HP6850 & HP6890 GCs

Description	ID (mm)	OD (mm)	Length (mm)	Similar Item No.	Qty	Cat. No.
Splitless Liner	2.0	6.5	79		5	52-100000
Splitless Liner, Quartz	2.0	6.5	79	5181-8818 18740-80220	5	52-100002
Splitless Liner, Quartz	2.0	6.1	78.5		5	092004
Split / Splitless Liner	4.0	6.3	79	210-3003	5	52-100004
Split / Splitless Liner, Quartz	4.0	6.3	79		5	52-100006
Split / Splitless Liner with Deactivated Glass Wool	4.0	6.3	79	19251-60540	5	52-100008
Split Liner with Cup	4.0	6.3	79	18740-80190	5	52-100010
Split Cup Liner with Deactivated Glass Wool	4.0	6.3	79		5	52-100012
Split Cup Liner with OV-1/Chromosorb W-HP 80/100	4.0	6.3	79	18740-60840	5	52-100014
Single Taper Liner	2.0	6.5	79		5	52-100016
Single Taper Liner	4.0	6.5	79	5181-3316	5	52-100018
Single Taper Liner with Deactivated Glass Wool	4.0	6.5	79	5062-3587	5	52-100020
Double Taper Liner	4.0	6.5	79	5181-3315	5	52-100022
Split / Splitless FocusLiner™	4.0	6.3	78.5		5 25	092002* 092219
Split / Splitless Tapered FocusLiner™	4.0	6.3	78.5		5 25	092003* 092011
Split / Splitless FAST FocusLiner™	2.3	6.3	78.5		5 25	092005 092008
Split / Splitless Tapered FAST FocusLiner™	2.3	6.3	78.5		5 25	092111 092115
Direct Straight-through Liner	1.2	6.3	78.5		5 25	092016 092224
Splitless Liner with Recessed Gooseneck	2.0	6.3	78.5		5	092013
Split / Splitless Liner with Recessed Gooseneck & Quartz Wool	4.0	6.3	78.5		5 25	092010 092223

* Also available in FluoroLiner; a fluoro deactivation treatment. To order, add "F" at the end of the part number e.g. 092002F



Agilent Technologies Instruments

Packed Column GCs HP5880, HP5890 & HP6890

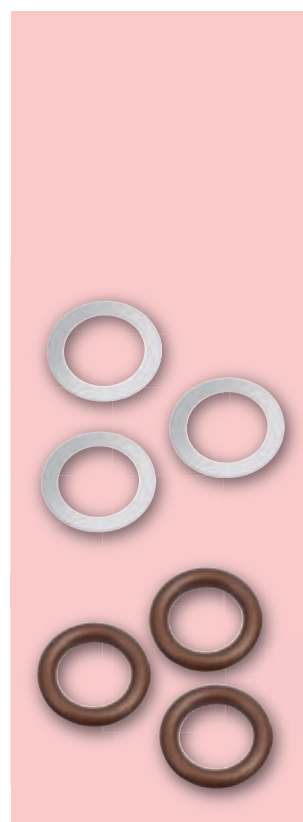
Description	ID (mm)	OD (mm)	Length (mm)	Similar Item No.	Qty	Cat. No.
Universal Packed Injection Liner, Deactivated	1.8	3	93	5181-3382	1	52-100030
Universal Packed Injection Liner, Not Deactivated	1.8	3	93	5080-8732	1	52-100032

Graphite Liner Seals for Agilent Instruments

Description	Similar Item No.	Qty	Cat. No.
Graphite Liner Seals, 6.35mm ID (For temperatures up to 450°C.)	5180-4168	10	50-100050
Graphite Liner Seals, 6.52mm ID For temperatures up to 450°C.)	5180-4173	10	50-100051

Viton O-Rings for Agilent Instruments

Description	Qty	Cat. No.
Viton O-Rings, fit split (6.3mm OD) and splitless (6.5mm OD) liners (For temperatures up to 300°C.)	10	50-100180



Perkin Elmer Instruments

Perkin Elmer AutoSystem™ & Clarus 500



Description	ID (mm)	OD (mm)	Length (mm)	Similar Item No.	Qty	Cat. No.
Split Liner	4.0	6.2	92	N610-1052	5	52-100040
Split Liner with Deactivated Glass Wool	4.0	6.2	92		5	52-100042
Splitless Liner	2.0	6.2	92	N612-1372	5	52-100044
Split / Splitless FocusLiner™	4.0	6.2	92		5 25	092092* 09209225
Split / Splitless Tapered FocusLiner™	4.0	6.2	92		5 25	092095 09209525
Split / Splitless Liner, AutoSystem XL (PSS Injector)	2.0	4.0	86.2		5	092098
Split / Splitless FocusLiner™ AutoSystem XL (PSS Injector)	2.0	4.0	86.2		5	092101*
Sintered Glass Liner, Large Volume Injection (LVI) (PSS Injector)	0.78/2.4	4.0	86.2		5	092244

* = Also available in FluoroLiner; a fluoro deactivation treatment. To order, add "F" at the end of the part number e.g. 092092F





Perkin Elmer Instruments


Perkin Elmer 8000 and Sigma Series

Style	ID (mm)	OD (mm)	Length (mm)	Similar Item No.	Qty	Cat. No.
Dimple Splitter	3.4	5.0	100	0330-5181	5	52-100046
						
Splitless Liner	2.5	5.0	100	0330-5180	5	52-100048
						

Perkin Elmer Packed Column GCs

Style	ID (mm)	OD (mm)	Length (mm)	Similar Item No.	Qty	Cat. No.
Glass Liner for AutoSystem	3.0	6.0	112	N610-1048	5	52-100050
						
Glass Liner for 8000 series and Sigma 2000	2.5	6.35	101	0330-2221	5	52-100052
						

PTV Liner

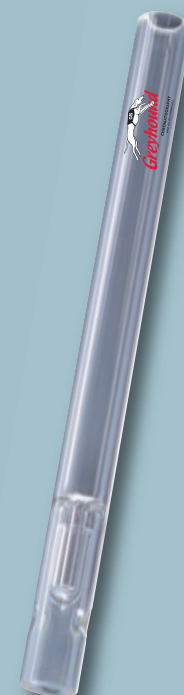
Style	ID (mm)	OD (mm)	Length (mm)	Qty	Cat. No.
Recessed Gooseneck	1.0	2.0	88	5	092097
					

Graphite Liner Seals for Perkin Elmer Instruments

Description	Similar Item No.	Qty	Cat. No.
Graphite Liner Seals, for Auto SYS XL PSS (For temperatures up to 450°C.)	N610-1751	10	50-100054

Viton O-Rings for Perkin Elmer Instruments

Description	Similar Item No.	Qty	Cat. No.
Viton O-Rings, for 6.2mm OD Inlet Liners (For temperatures up to 300°C.)		10	50-100184
Viton O-Rings for PerkinElmer PSS (For temperatures up to 300°C.)	N6101747	10	50-100056



Shimadzu Capillary GCs

Shimadzu 14, 15A and 16 (SPL-14 Injector)

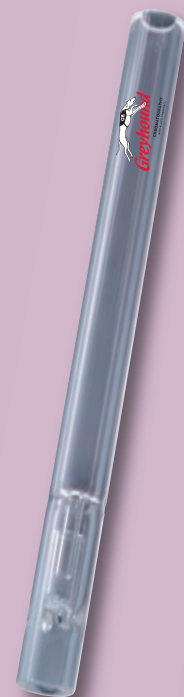
Description	ID (mm)	OD (mm)	Length (mm)	Similar Item No.	Pack Size	Part No.
Split Liner 14A	1.0	5.0	99	221-32544-01	5	52-100080
Splitless Liner 14A	0.8	5.0	99	221-32544-00	5	52-100082
Split / Splitless FocusLiner™	3.4	5.0	99		5	092065
Split / Splitless Tapered FocusLiner™	3.4	5.0	99		5	092066
Split / Splitless Liner with 2.0mm Middle Gooseneck	3.4	5.0	99		5	092082
Split / Splitless Liner with Single Taper	3.4	5.0	99		5	0920831
Splitless Liner, Direct, Wide Bore for 9A & 16A GCs	3.4	5.0	139		5	092084

Shimadzu 17A (SP-17 Injector) & 2014

Description	ID (mm)	OD (mm)	Length (mm)	Pack Size	Part No.
Split / Splitless FocusLiner™	3.4	5.0	95	5	092062*
Split / Splitless Tapered FocusLiner™	3.4	5.0	95	5	092068*
Split / Splitless Liner with Recessed Gooseneck and Quartz Wool	3.4	5.0	95	5	092061
Split, Straight-through Liner	3.4	5.0	95	5	092064
Split / Splitless Liner with Middle Gooseneck	3.4	5.0	95	5	092085*
Splitless, Straight-through Liner	2.6	5.0	95	5	0920861
Direct Liner, for 0.53mm ID Column	2.6	5.0	95	5	092087
SPME Liner	0.75	5.0	95	5	092089

Shimadzu 2010(SPL-2010 Injector)

Description	ID (mm)	OD (mm)	Length (mm)	Pack Size	Part No.
Split / Splitless Tapered FocusLiner™	3.4	5.0	95	5	092058*
Split / Splitless FocusLiner™	3.4	5.0	95	5	092059*



Shimadzu Capillary GCs

Shimadzu 2010 (SPL-2010 Injector) *continued*

Description	ID (mm)	OD (mm)	Length (mm)	Pack Size	Part No.
Split, Straight-through Liner™	3.4	5.0	95	5	092064
Splitless, Straight-through Liner	2.6	5.0	95	5	0920861
Split / Splitless Liner with Single Taper	3.4	5.0	95	5	092071*†
Split / Splitless Liner with Middle Gooseneck	3.4	5.0	95	5	092077*

* = Also available in FluoroLiner, a fluoro deactivation treatment. To order, add "F" at the end of the part number e.g. 092062F † = Can be used in 2014 Injector

Graphite Liner Seals for Shimadzu Instruments

Style	Qty	Cat. No.
Graphite Liner Seals for 14, 15A & 16 (SPL-14 Injector) (For temperatures up to 450°C.)	10	50-100055
Graphite Liner Seals for 17A (SPL-17 Injector) (For temperatures up to 450°C.)	10	50-100056

Viton O-Rings for Shimadzu Instruments

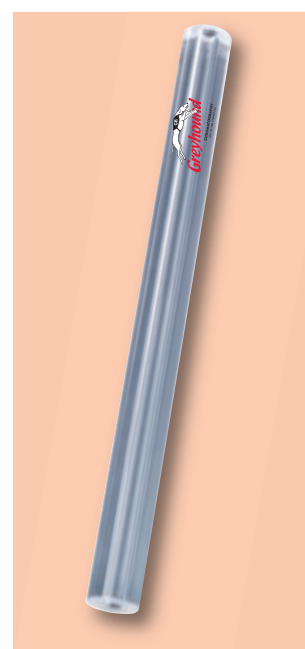
Description	Similar Item No.	Pack Size	Part No.
Viton O-Rings for 2010 & 2014 (SPL-2010 & SPL-2014 Injectors) (For temperatures up to 300°C.)	036-11203-84	10	50-100186



Thermo Instruments

ThermoQuest 8000 and TRACE™

Description	ID (mm)	OD (mm)	Length (mm)	Similar Item No.	Pack Size	Part No.
Splitless FocusLiner™ (for use with 70mm Needle)	5.0	8.0	105	453T2895	5	092045*
Split FocusLiner™ (for use with 50mm Needle)	5.0	8.0	105	453T1905	5	092048*
					5	092049*
Splitless Liner with Single Taper	3.0	8.0	105	453 20032	5	52-100064
Splitless Liner with Single Taper	5.0	8.0	105	453 20033	5	52-100066
SPME Liner	0.8	8.0	105		5	092148
Splitless, Straight-through Liner	3.0	8.0	105		5	092147



Thermo Instruments

ThermoQuest 8000 and TRACE™ continued

Description	ID (mm)	OD (mm)	Length (mm)	Similar Item No.	Pack Size	Part No.
Split, Straight-through Liner	5.0	8.0	105		5	52-100062
FocusLiner™	5.0	8.0	105		5	092046
					25	09204625
Split, Straight-through Liner	3.0	8.0	105	453 20031	5	52-100060
For Wide Bore Columns	3.0	8.0	105	453 00310	5	52-100068
Cup Liner	5.0	8.0	105		5	52-100070
Sintered Glass, Large Volume	0.78/1.8	2.75	120		5	092155

* = Also available in FluoroLiner; a fluoro deactivation treatment. To order, add "F" at the end of the part number e.g. 092045F

PTV Liner

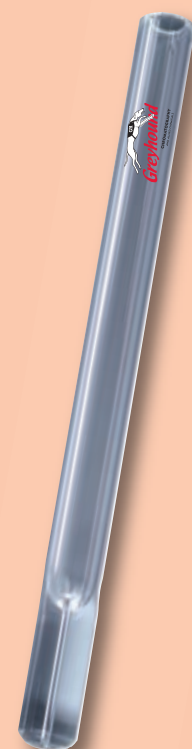
Description	ID (mm)	OD (mm)	Length (mm)	Similar Item No.	Pack Size	Part No.
Trace 2000 PTV Liner	2.0	2.75	120	453 22045	5	52-100072

Thermo Mega Series 4000, 5000 and 6000

Description	ID (mm)	OD (mm)	Length (mm)	Pack Size	Part No.
Split / Splitless with Recessed Gooseneck & Quartz Wool	3.0	5.0	79.5	5	092041
Split, Straight-through Liner	3.0	5.0	79.5	5	092044
Splitless, Straight-through Liner	2.0	5.0	79.5	5	092047

Thermo 9001 and GCQ GCs

Description	ID (mm)	OD (mm)	Length (mm)	Qty	Cat. No.
Splitless Liner	2.0	6.5	79	5	52-100000
Splitless Liner, Quartz	2.0	6.5	79	5	52-100002
Splitless Liner, Quartz	2.0	6.1	78.5	5	092004
Split / Splitless Liner	4.0	6.3	79	5	52-100004
Split / Splitless Liner, Quartz	4.0	6.3	79	5	52-100006

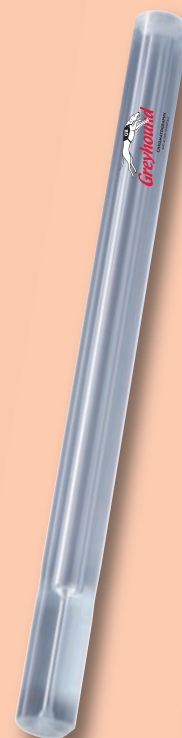


Thermo Instruments

Thermo 9001 and GCQ GCs *continued*

Description	ID (mm)	OD (mm)	Length (mm)	Qty	Cat. No.
Split / Splitless Liner, Quartz	4.0	6.3	79	5	52-100006
Split / Splitless Liner with Deactivated Glass Wool	4.0	6.3	79	5	52-100008
Split Liner with Cup	4.0	6.3	79	5	52-100010
Split Cup Liner with Deactivated Glass Wool	4.0	6.3	79	5	52-100012
Split Cup Liner with OV-1/Chromosorb W-HP 80/100	4.0	6.3	79	5	52-100014
Single Taper Liner	2.0	6.5	79	5	52-100016
Single Taper Liner	4.0	6.5	79	5	52-100018
Single Taper Liner with Deactivated Glass Wool	4.0	6.5	79	5	52-100020
Double Taper Liner	4.0	6.5	79	5	52-100022
Split / Splitless FocusLiner™	4.0	6.3	78.5	5 25	092002* 092219
Split / Splitless Tapered FocusLiner™	4.0	6.3	78.5	5 25	092003* 092011
Split / Splitless FAST FocusLiner™	2.3	6.3	78.5	5 25	092005 092008
Split / Splitless Tapered FAST FocusLiner™	2.3	6.3	78.5	5 25	092111 092115
Direct Straight-through Liner	1.2	6.3	78.5	5 25	092016 092224
Splitless Liner with Recessed Gooseneck	2.0	6.3	78.5	5	092013
Split / Splitless Liner with Recessed Gooseneck & Quartz Wool	4.0	6.3	78.5	5 25	092010 092223

* = Also available in FluoroLiner; a fluoro deactivation treatment. To order, add "F" at the end of the part number e.g. 092002F



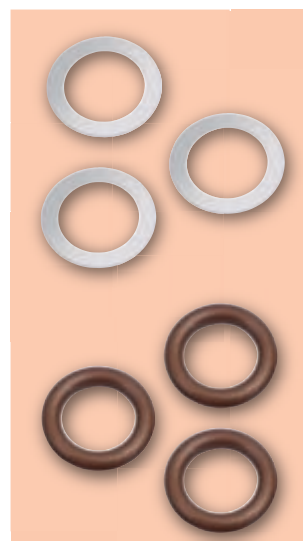
Thermo Instruments

Graphite Liner Seals for Thermo Instruments

Description	Qty	Cat. No.
Graphite Sealing Ring 8mm (For Thermo 8000 & Trace GCs) (For temperatures up to 450°C.)	1	50-100035
Graphite Sealing Rings, 6.35mm ID (For temperatures up to 450°C.)	10	50-100050
Graphite Sealing Rings, 6.52mm ID (For temperatures up to 450°C.)	10	50-100051

Viton O-Rings for Thermo Instruments

Description	Pack Size	Part No.
Viton O-Rings (For temperatures up to 300°C.)	10	50-100180



Varian Instruments








Varian 1177 Injector

Description	ID (mm)	OD (mm)	Length (mm)	Qty	Cat. No.
Splitless Liner	2.0	6.5	79	5	52-100000
Splitless Liner, Quartz	2.0	6.5	79	5	52-100002
Splitless Liner, Quartz	2.0	6.1	78.5	5	092004
Split / Splitless Liner	4.0	6.3	79	5	52-100004
Split / Splitless Liner, Quartz	4.0	6.3	79	5	52-100006
Split / Splitless Liner with Deactivated Glass Wool	4.0	6.3	79	5	52-100008
Split Liner with Cup	4.0	6.3	79	5	52-100010
Split Cup Liner with Deactivated Glass Wool	4.0	6.3	79	5	52-100012
Split Cup Liner with OV-1/Chromosorb W-HP 80/100	4.0	6.3	79	5	52-100014
Single Taper Liner	2.0	6.5	79	5	52-100016
Single Taper Liner	4.0	6.5	79	5	52-100018
Single Taper Liner with Deactivated Glass Wool	4.0	6.5	79	5	52-100020
Double Taper Liner	4.0	6.5	79	5	52-100022






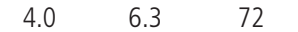

Varian Instruments

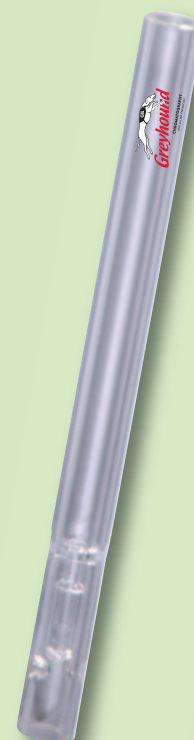
Varian 1177 Injector

Description	ID (mm)	OD (mm)	Length (mm)	Qty	Cat. No.	
Split / Splitless FocusLiner™		4.0	6.3	78.5	5	092002*
					25	092219
Split / Splitless Tapered FocusLiner™		4.0	6.3	78.5	5	092003*
					25	092011
Split / Splitless FAST FocusLiner™		2.3	6.3	78.5	5	092005
					25	092008
Split / Splitless Tapered FAST FocusLiner™		2.3	6.3	78.5	5	092111
					25	092115
Direct Straight-through Liner		1.2	6.3	78.5	5	092016
					25	092224
Splitless Liner with Recessed Gooseneck		2.0	6.3	78.5	5	092013
Split / Splitless Liner with Recessed Gooseneck & Quartz Wool		4.0	6.3	78.5	5	092010
					25	092223

* = Also available in FluoroLiner; a fluoro deactivation treatment. To order, add "F" at the end of the part number e.g. 092002F

Varian 1075 and 1077 Injectors

Style	ID (mm)	OD (mm)	Length (mm)	Similar Item No.	Qty	Cat. No.
Split FocusLiner™	4.0	6.3	72		5	092022
Splitless FocusLiner™ with Top-end Restriction		4.0	6.3	74	5	092026
					25	
Split, Tapered FocusLiner™	4.0	6.3	72		5	092025
Split FocusLiner™ with Top-end Restriction		4.0	6.3	72	5	092028
					25	
Split FAST FocusLiner™	2.3	6.3	72			092113
Split Liner with Quartz Wool	4.0	6.3	72	01-900109-01	5	52-100132
Splitless Liner with Slots at Both Ends		2.0	6.3	74	5	092024
					25	092228
Open Split Liner	4.0	6.3	72	16-000830-00	5	52-100130
Frit Split Liner		4.0	6.3	72	5	01-900109-03
					5	52-100134
Splitless Liner, Borosilicate Glass		2.0	6.3	74	5	03-949437-90
					5	52-100136
Splitless Liner, Quartz	2.0	6.3	74	03-949437-00	5	52-100138



Varian Instruments

Varian 1078 and 1079 Injectors

Style	ID (mm)	OD (mm)	Length (mm)	Qty	Cat. No.
Split / Splitless FocusLiner™	3.4	5.0	54	5	092037*
Split / Splitless Tapered FocusLiner™	3.4	5.0	54	5	092036*
Straight-through Liner	0.5	5.0	54	5	092031
Split / Splitless Liner with Single Taper	3.4	5.0	54	5	092038*
Splitless Liner with Single Taper	2.0	5.0	54	5	092039*
Sintered Glass, Large Volume Injection (LVI) Liner	1.8/3.4	5.0	54	5	092245
SPME Liner	0.75	5.0	54	5	092117
Double Taper Liner	3.4	5.0	54	5	52-100144

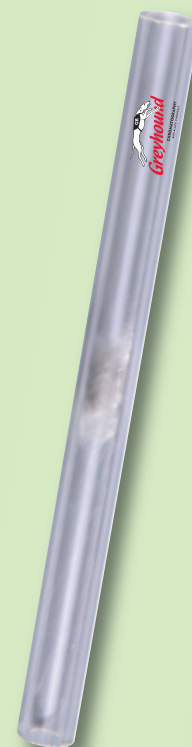
* = Also available in FluoroLiner; a fluoro deactivation treatment. To order, add "F" at the end of the part number e.g. 092038F

Varian 1093 and 1094 Injectors

Style	ID (mm)	OD (mm)	Length (mm)	Similar Item No.	Qty	Cat. No.
SPI Liner, (Restriction=0.25mm)	0.5	4.6	54	01-900109-06 03-918332-01	5	52-100140
SPI Liner, (Restriction=0.25mm)	0.8	4.6	54	01-900109-07 03-918332-02	5	52-100142
SPI Liner, (Restriction=0.5mm) For 0.53mm ID On-column	0.8	4.6	54		5	092034

Varian Packed Column Injectors

Style	ID (mm)	OD (mm)	Length (mm)	Qty	Cat. No.
Packed Column Liner for Varian Flash Injectors	3	6.3	72	1 5	092232 092233



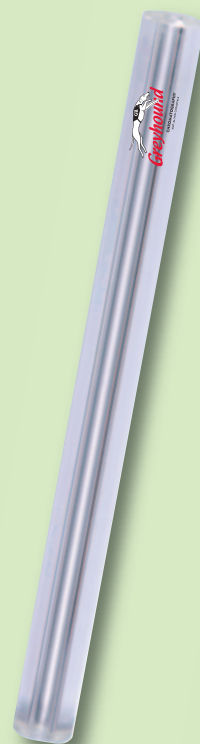
Varian Instruments

Graphite Liner Seals For Varian Instruments

Description	Similar Item No.	Qty	Cat. No.
Graphite Liner Seals, 6.35mm (For temperatures up to 450°C.)		10	50-100050
Graphite Liner Seals, 6.52mm (For temperatures up to 450°C.)		10	50-100051
Graphite Liner Seals, (For Varian 1075 and 1077 Injectors) (For temperatures up to 450°C.)		10	50-100050
Graphite Liner Seals, 5mm (For Varian 1078 and 1079 Injectors) (For temperatures up to 450°C.)	392611919 392534201	10	0726217

Viton O-rings For Varian Instruments

Description	Qty	Cat. No.
Viton O-Rings (For Varian 1177 Injector) (For temperatures up to 300°C.)	10	50-100180



GC Inlet Septa

Septum Cross Reference Guide

Instrument	Septum Diameter (mm)							
	5	9	9.5	11	11.5	12.7	17	Plug
Agilent / HP								
5880A, 5890, 6850, 6890				•				
5700, 5880			•					
On column injection	•							
Purged packed column				•				
Fisons / Carlo Erba								
8000 series							•	
Perkin Elmer								
Sigma series				•				
8000 series				•				
AutoSystem / AutoSystem XL				•				
Clarus				•				
Shimadzu								
All								•
Thermo								
Trace, Focus Split / Splitless							•	
9001, GCQ			•					
PTV Injector						•		
Varian								
1177 injector		•						
1040 / 41 / 60 / 61			•					
1075 / 77 / 78 / 79					•			
1093 / 94 SPI					•			

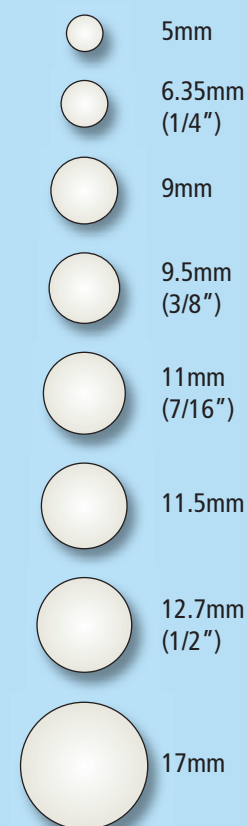
BTO Septa

- Low-bleed at higher temperatures
- Maximum temperature 400°C.
- Virtually eliminates injection port sticking
- Pre-conditioned, packaged in glass to prevent contamination
- Each batch GC-FID tested
- Idea for use with low-bleed, "Mass Spec" capillary columns
- Precision moulded septa with a recess guide on the injection side to guide the injection side to guide the syringe needle to the same point with every injection and minimise septum coring.

BTO Septa (Bleed and Temperature Optimised) are designed for the most demanding GC and GC/MS applications. BTO Septa are formulated to extend low bleed and outstanding mechanical properties of premium GC septa to the highest temperature applications. It retains remarkable softness and pierceability at high temperatures, with extremely low bleed. Septa are 3mm thick, except Shimadzu style plug septa and are packaged in glass vials.

Cat. No.	Description	Qty
51-100070	Septa BTO 5mm with guide (Pk/50)	Pk/50
51-100071	Septa BTO 1/4" (6.35mm) (Pk/50)	Pk/50
51-100072	Septa BTO 9mm with guide (Pk/50)	Pk/50
51-100073	Septa BTO 3/8" (9.5mm) (Pk/50)	Pk/50
51-100074	Septa BTO 10mm (Pk/50)	Pk/50
51-100075	Septa BTO 11mm (7/16") with guide (Pk/50)	Pk/50
51-100075-100	Septa BTO 11mm (7/16") with guide (Pk/100)	Pk/100
51-100076	Septa BTO 11.5mm with guide (Pk/50)	Pk/50
51-100077	Septa BTO 1/2" (12.7mm) with guide (Pk/50)	Pk/50
51-100078	Septa BTO 17mm with guide (Pk/50)	Pk/50
51-100079	Septa BTO Shimadzu (Pk/50) Pk/50	Pk/50

Septa Diameter (actual size)



51-100075



Septa with Guide

GC Inlet Septa

Advanced Green Septa

- True low-bleed high temperature green septa
- Maximum temperature 400°C.
- Recess guide on the injection side to guide the syringe needle to the same point with every injection and minimise septum coring.

Advanced Green Septa are specifically designed to combining significantly longer injection life, low bleed and low injection port adhesion. Advanced Green Septa can be used for all your critical analysis. Packaged in glass vials for high purity. Septa are 3mm thick, except Shimadzu-style plug septa.

Cat. No.	Description	Qty
51-100060	Septa AG3 5mm with guide (Pk/50)	Pk/50
51-100061	Septa AG3 9mm with guide (Pk/50)	Pk/50
51-100062	Septa AG3 3/8" (9.5mm) (Pk/50)	Pk/50
51-100063	Septa AG3 11mm (7/16") with guide (Pk/50)	Pk/50
51-100063-100	Septa AG3 11mm (7/16") with guide (Pk/100)	Pk/100
51-100064	Septa AG3 11.5mm with guide (Pk/50)	Pk/50
51-100065	Septa AG3 1/2" (12.7mm) (Pk/50)	Pk/50
51-100066	Septa AG3 1/2" (12.7mm) with guide (Pk/50)	Pk/50
51-100067	Septa AG3 17mm (Pk/50)	Pk/50
51-100068	Septa AG3 for Shimadzu (Pk/50)	Pk/50

Marathon Septa

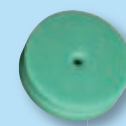
- Outstanding lifetime
- Premium septum for autosamplers
- Pre-drilled for extremely reliable performance
- Up to 400 injections per septum
- Maximum temperature setting 400°C
- Recess guide on the injection side to guide the syringe needle to the same point with every injection and minimise septum coring.

Marathon Septa typically achieve 400 injections without failure, when used with a dome-tip needle and autosampler or needle guide. The pre-guided versions of the Marathon Septa channel the needle through the same spot with each injection, which helps eliminate the common type of coring which occur on the first injection. Marathon septa are also ideal for standard manual injection GC and GC/MS. Septa are 3mm thick, except Shimadzu-style plug septa. Septa are packaged in glass vials.

Cat. No.	Description	Qty
51-100090	Septa Marathon 5mm with guide (Pk/25)	Pk/25
51-100090-50	Septa Marathon 5mm with guide (Pk/50)	Pk/50
51-100091	Septa Marathon 9mm with guide (Pk/25)	Pk/25
51-100091-50	Septa Marathon 9mm with guide (Pk/50)	Pk/50
51-100092	Septa Marathon 3/8" (9.5mm) (Pk/25)	Pk/25
51-100092-50	Septa Marathon 3/8" (9.5mm) (Pk/50)	Pk/50
51-100093	Septa Marathon 7/16" (11mm) with guide (Pk/25)	Pk/25
51-100093-100	Septa Marathon 7/16" (11mm) with guide (Pk/100)	Pk/100
51-100093-50	Septa Marathon 7/16" (11mm) with guide (Pk/50)	Pk/50
51-100094	Septa Marathon 11.5mm with guide (Pk/25)	Pk/25
51-100094-50	Septa Marathon 11.5mm with guide (Pk/50)	Pk/50
51-100095	Septa Marathon 17mm (Pk/25)	Pk/25
51-100095-50	Septa Marathon 17mm (Pk/50)	Pk/50
51-100096	Septa Marathon for Shimadzu (Pk/25)	Pk/25
51-100096-50	Septa Marathon for Shimadzu (Pk/50)	Pk/50



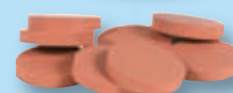
51-100063



Septa with Guide



51-100068



51-100095-50



51-100093



51-100096

GC Inlet Septa

SGE Septa

Type	Material	Durability	Resealing	Bleed	Solvent Resistance	Tear Resistance	Max. Temp. °C
CS	PTFE coated silicone (one face)	Good	Good	Very good	Excellent	Good	200
TCS	PTTFE coated triple-layer silicone	Excellent	Very good	Excellent	Excellent	Very good	280
TCSD	Pre-drilled TCS septa	Excellent	Excellent	Excellent	Excellent	Excellent	280
Auto-Sep	Silicone	Excellent	Excellent	Very good	Excellent	Very good	320
Auto Sep 7	PTFE coated silicone (one face)	Excellent	Excellent	Excellent	Excellent	Excellent	350
Enduro Blue	Silicone	Excellent	Excellent	Excellent	Excellent	Excellent	350

Hamilton Septa

High Temperature Septa

- Preconditioned PTFE/silicone rubber septa, 0.125" (3mm) thick
- Average life: 100 injections with a 26s gauge needle
- Maximum operating temperature 212°C
- 12 per pack

Three Layer Septa

- Preconditioned silicone rubber septa, 0.150" (3.8mm) thick
- Average life: 100 injections with a 26s gauge needle
- Maximum operating temperature 200°C
- 12 per pack

Diameter (mm)	High Temp Septa	Triple Layer Septa
5		76022
6.35	75801	76001
7	75810	76010
8	75802	76002
9	75803	76003
9.5	75804	76004
10	75805	76005
11	75807	76007
12	75813	76013
12.7	75806	76006
13		76009
13.5		76014
14		76015
15		76016
16		76008
16.7		76017
17.5		76018
18		76019
19		76020

GC Ferrules

Vespel® Ferrules - (10 per pack)

- Upper temperature limit: 350°C
- 100% high-temperature DuPont polyimide
- Precision-drilled ID; no imperfections from moulding
- One-piece design requires no back ferrule
- Fairly hard; tends to seal permanently to the column



Vespel Ferrules



1/16" Vespel Ferrules:
Blank, 0.5mm ID, Straight



50-100112



50-100105



50-100120

Description	Part No.
Straight Ferrules - for tubing with ODs as listed	
1/16" Ferrules	50-100112
1/8" Ferrules	50-100126
1/4" Ferrules	50-100117

Blank Ferrules - no holes	
1/16" Blank Ferrules	50-100103
1/8" Blank Ferrules	50-100118
1/4" Blank Ferrules	50-100113

Capillary Column Ferrules	For Tube Size	Part No.
1/16" to 0.3 mm	0.10 - 0.18 mm ID	50-100104
1/16" to 0.4 mm	0.25 mm ID	50-100106
1/16" to 0.5 mm	0.32 mm ID	50-100108
1/16" to 0.8 mm	0.53 mm ID	50-100109
1/16" to 1.0 mm	0.65 mm ID	50-100110
1/16" to 1.2 mm	0.75 mm ID	50-100111
1/16" to 0.4 mm - Agilent style*	0.25 mm ID	50-100100
1/16" to 0.5 mm - Agilent style*	0.32 mm ID	50-100101
1/16" to 0.8 mm - Agilent style*	0.53 mm ID	50-100102
1/16", 2-hole, 0.4 mm ea	0.25 mm ID	50-100105
1/16", 2-hole, 0.5 mm ea	0.32 mm ID	50-100107

Reducing Ferrules		
1/8" to 0.4 mm	0.25 mm ID	50-100119
1/8" to 0.5 mm	0.32 mm ID	50-100121
1/8" to 0.8 mm	0.53 mm ID	50-100123
1/8" to 1.0 mm	0.65 mm ID	50-100124
1/8", 2-hole, 0.5 mm ea	0.32 mm ID	50-100120
1/8", 2-hole, 0.8mm ea	0.53 mm ID	50-100122
1/8" to 1/16"	1/16" OD	50-100125
1/4" to 6 mm	6 mm OD	50-100116
1/4" to 1/16"	1/16" OD	50-100114
1/4" to 1/8"	1/8" OD	50-100115

* Short ferrule for Agilent inlet systems: 4890, 5890 and 6890

GC Ferrules

Vespel / Graphite Ferrules - (10 per pack)

- Upper temperature limit: 400°C
- Made from quality DuPont polyimide/graphite blend
- Recommended for GC/MS interface applications
- One-piece design requires no back ferrule



Description	Part No.
Straight Ferrules - for tubing with ODs as listed	
1/16" Ferrules	50-100152
1/8" Ferrules	50-100170
1/4" Ferrules	50-100162
1/2" Ferrules, 5/pk	50-100153

Blank Ferrules - no holes	
1/16" Blank Ferrules	50-100144
1/8" Blank Ferrules	50-100163
1/4" Blank Ferrules	50-100154

Capillary Column Ferrules	For Tube Size	Part No.
1/16" to 0.3 mm		50-100145
1/16" to 0.4 mm	0.25 mm ID	50-100147
1/16" to 0.5 mm	0.32 mm ID	50-100149
1/16" to 0.8 mm	0.53 mm ID	50-100150
1/16" to 1.0 mm	0.65 mm ID	50-100151
1/16" to 1.2 mm	0.75 mm ID	50-100171
1/16", 2-hole, 0.4 mm ea	0.25 mm ID	50-100146
1/16", 2-hole, 0.5 mm ea	0.32 mm ID	50-100148
1/16" to 0.3 mm - Agilent style*	0.10 mm ID	50-100140
1/16" to 0.4 mm - Agilent style*	0.25 mm ID	50-100141
1/16" to 0.5 mm - Agilent style*	0.32 mm ID	50-100142
1/16" to 0.8 mm - Agilent style*	0.53 mm ID	50-100143

Reducing Ferrules		
1/8" to 0.4 mm	0.25 mm ID	50-100164
1/8" to 0.5 mm	0.32 mm ID	50-100166
1/8" to 0.8 mm	0.53 mm ID	50-100168
1/8", 2-hole, 0.5 mm ea	0.32 mm ID	50-100165
1/8", 2-hole, 0.8 mm ea	0.53 mm ID	50-100167
1/8" to 1/16"	1/16" OD	50-100169
1/4" to 0.4 mm	0.25 mm ID	50-100155
1/4" to 0.5 mm	0.32 mm ID	50-100156
1/4" to 0.8 mm	0.53 mm ID	50-100157
1/4" to 1/16"	1/16" OD	50-100158
1/4" to 6 mm	6 mm OD	50-100160
1/4" to 1/8"	1/8" OD	50-100159

* Short ferrule for Agilent inlet systems: 4890, 5890 and 6890



1/16" Vespel/Graphite Ferrules Blank, 0.5mm ID, Straight



50-100149



50-100149



1/16" Short Ferrule for Agilent GCs

GC Ferrules

PTFE Ferrules - (10 per pack)

- Upper temperature limit 250°C
- 100% PTFE; completely inert
- One-piece design requires no back ferrule



Description	Part No.
-------------	----------

Straight Ferrules - for tubing with ODs as listed	
---	--

1/16" Ferrules	50-100052
1/8" Ferrules	50-100026
1/4" Ferrules	50-100018
3/8" Ferrules	50-100033
1/2" Ferrules, 5/pk	50-100016
3/4" Ferrules, 5/pk	50-100032

Blank Ferrules - no holes	
---------------------------	--

1/16" Blank Ferrules	50-100007
1/8" Blank Ferrules	50-100025
1/4" Blank Ferrules	50-100017

Capillary Column Ferrules	For Tube Size	Part No.
---------------------------	---------------	----------

1/16" to 0.4 mm	0.25 mm ID	60-100010
1/16" to 0.5 mm	0.32 mm ID	50-100012
1/16" to 0.8 mm	0.53 mm ID	50-100013
1/16" to 1.0 mm	0.65 mm ID	50-100014
1/16" to 1.2 mm	0.75 mm ID	50-100015
1/16", 2-hole, 0.4 mm ea	0.25 mm ID	50-100009
1/16", 2-hole, 0.5 mm ea	0.32 mm ID	50-100011

Short Ferrules for Agilent Inlets*		
------------------------------------	--	--

1/16" to 0.4 mm	0.18 mm ID	50-100000
1/16" to 0.5 mm	0.25-0.32 mm ID	50-100002
1/16" to 0.8 mm	0.53 mm ID	50-100004
1/16" to 1.0 mm	0.53-0.65 mm ID	50-100006
1/16" to 1/16" straight ferrule	1/16" OD	50-100008

* Short ferrule for Agilent inlet systems: 4890, 5890 and 6890



1/16" Graphite Ferrules
Blank, 0.5mm ID,
Straight

1/16" Graphite Ferrules
Blank, 0.5mm ID,
Straight

GC Ferrules

Graphite Ferrules - (10 per pack)

- Upper temperature limit: 450°C
- High-purity Graphite; preferred for capillary GC use
- Ideal for glass-to-metal connections; doesn't stick to glass
- Precision formed; flash-free ID
- Reusable if not over-tightened
- One-piece design requires no back ferrule



Description		Part No.
Reducing Ferrules	For Tube Size	
1/8" to 0.4 mm	0.25 mm ID	50-100027
1/8" to 0.5 mm	0.32 mm ID	50-100029
1/8" to 0.8 mm	0.53 mm ID	50-100030
1/8", 2-hole, 0.5 mm ea	0.32 mm ID	50-100028
1/18" to 1/16" OD	1/16" OD	50-100031
1/4" to 0.5 mm	0.32 mm ID	50-100019
1/4" to 0.8 mm	0.53 mm ID	50-100020
1/4" to 4 mm	4 mm OD	50-100023
1/4" to 6 mm	6 mm OD	50-100024
1/4" to 1/16"	1/16" OD	50-100021
1/4" to 1/8"	1/8" OD	50-100022

Specialty Ferrules / Liner Seals	
5 mm, for Shimadzu 5 mm OD columns	50-100034
0.5 mm ID (M8 nut), for ThermoFinnigan (formerly CE)	50-100003
0.8 mm ID (M8 nut), for ThermoFinnigan (formerly CE)	50-100005
Cup Ferrule for Thermo, 0.25 mm ID (M4 nut)	50-100040
Cup Ferrule for Thermo, 0.35 mm ID (M4 nut)	50-100041
Cup Ferrule for Thermo, 0.45 mm ID (M4 nut)	50-100042
Cup Ferrule for Thermo, 0.8 mm ID (M4 nut)	50-100043
8 mm Graphite Liner Seal for ThermoFinnigan Trace GC	50-100035



50-100021



50-100041



50-10003

50-100034



50-100035

GC Ferrules

Graphite Ferrules - (10 per pack)

- Upper temperature limit: 450°C
- High-purity Graphite; preferred for capillary GC use
- Ideal for glass-to-metal connections; doesn't stick to glass
- Precision formed; flash-free ID
- Reusable if not over-tightened
- One-piece design requires no back ferrule



PTFE Ferrules



50-100068

Description	Part No.
Straight Ferrules - for tubing with ODs as listed	
1/16" Ferrules	50-100061
1/8" Ferrules	50-100076
3/16" Ferrule	50-100083
1/4" Ferrules	50-100069
Blank Ferrules - no holes	
1/16" Blank Ferrules	50-100060
1/8" Blank Ferrules	50-100076
1/4" Blank Ferrules	50-100068
Capillary Column Ferrules	For Tube Size
1/16" to 0.3 mm	50-100062
1/16" to 0.4 mm	0.25 mm ID 50-100063
1/16" to 0.5 mm	0.32 mm ID 50-100064
1/16" to 0.8 mm	0.53 mm ID 50-100065
1/16" to 1.0 mm	0.65 mm ID 50-100066
1/16" to 1.2 mm	0.75 mm ID 50-100067
Reducing Ferrules	
1/8" to 0.4 mm	0.25 mm ID 50-100078
1/8" to 0.5 mm	0.32 mm ID 50-100079
1/8" to 0.8 mm	0.53 mm ID 50-100081
1/8" to 1/16"	1/16" OD 50-100082
1/4" to 6 mm	6 mm OD 50-100074
1/4" to 1/16"	1/16" OD 50-100071
1/4" to 1/8"	1/8" OD 50-100072
1/4" to 3/16"	3/16" OD 50-100073

* Short ferrule for Agilent inlet systems: 4890, 5890 and 6890

Accessories

Cat. No.	Description
11-100020	Septa Pick
11-100022	Septum Needle Guide For 3/16" Hole
11-100022	Injection Port Cleaning Kit
11-100024	Ferrule Remover Set
11-100026	Injection Liner Cleaning Kit



Septa Pick



Needle Guide



Injection Port Cleaning Kit



Ferrule Remover



Injection Liner Cleaning Kit



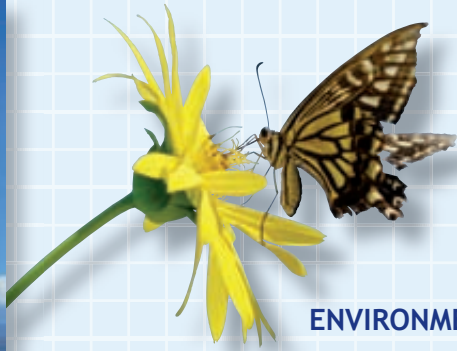
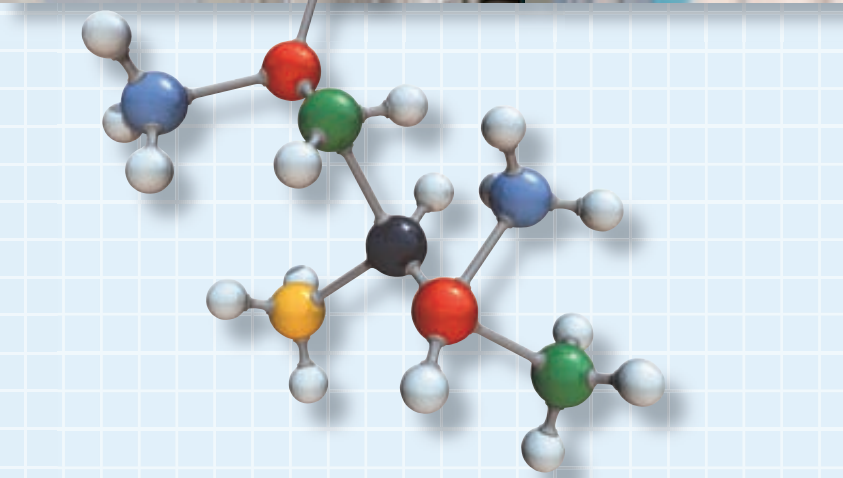
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PHARMACEUTICALS FOOD



FORENSICS



ENVIRONMENTAL



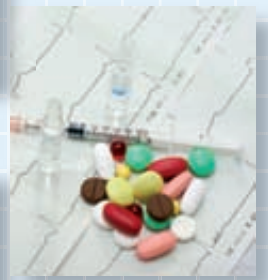
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