TRAJAN | VWR®

SilTite FingerTite®

SGE

SGE Syringes | Septa | SGE Inlet liners
GC connections

GC supplies

Instrument quick pick guide

TRAJAN

In the laboratory today, the time spent and the precision required for sample preparation are key investments in an efficient workflow. Having spent that time and effort in sample preparation it then becomes critical to maintain the integrity of the sample as it is delivered to the separation and detection steps of the analysis. This is why we in Trajan Scientific and Medical are focused on delivering a portfolio of high performance GC injection port liners, GC columns, connections and fittings all with the specific and aggregate intent of ensuring the sample is not compromised on its journey to the detection system.

Our portfolio is built on the strength and world class heritage of SGE GC supplies portfolio. In each of our manufacturing operations around the world, our products are built to exacting performance standards so that you can rely on their performance accuracy and precision.

With a strong team of design chemists and production engineers, and an extensive network of application based industry opinion leaders, our portfolio of GC consumables continues to develop within Trajan. This means you as a user in the laboratory can be assured of your sample integrity through collection, injection, separation and detection, optimizing your analysis.

We are confident that in this selection guide you will be able to identify and select the correct consumables for your application. If you don't, please contact us and we can investigate a custom solution for you.

As a major provider of tools and components for the analytical industry, Trajan is manufacturing product in the USA, Malaysia and Australia and we continue to service our valued customers around the world via a connected group of commercial and distribution facilities in Europe, in the Americas, in Asia and Australia. This supply chain is ably supported by a strong field technical team around the world.

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SGE Syringes

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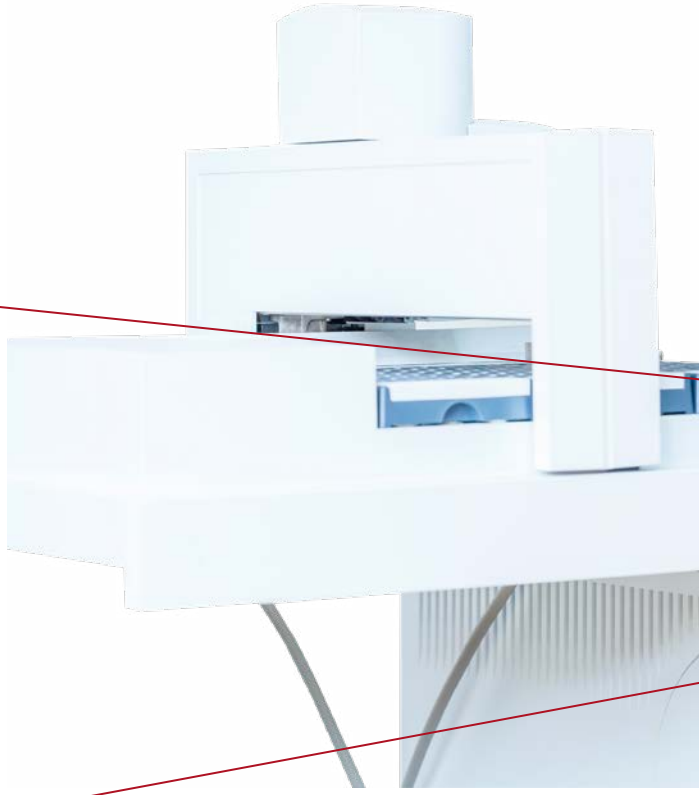
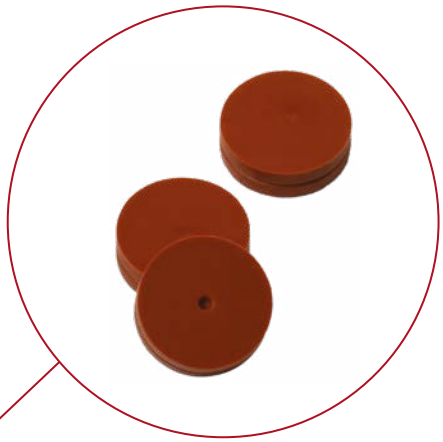
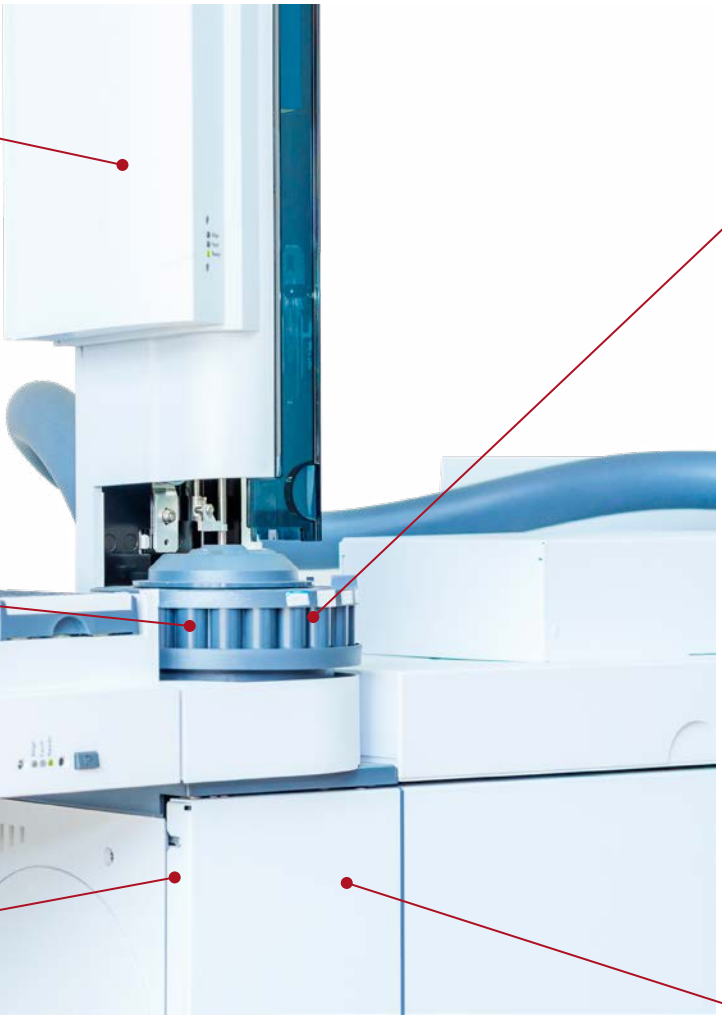


Ferrules

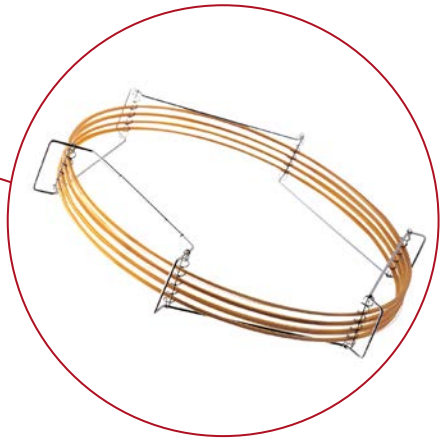


Septa



The combination of components selected for your instrument also make an important contribution to successful separations.

Choose Trajan to improve your chromatography.



SGE GC columns

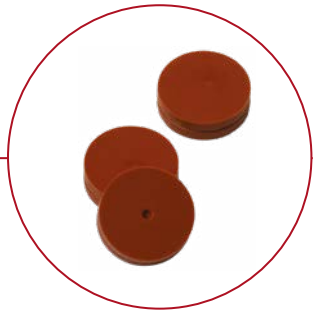
SGE Syringes

SGE Syringes for autosamplers incorporate a vibrant color scheme, distinguished by volume, enabling easy identification of syringes installed in instruments.

Choose from a comprehensive range of SGE Syringe options including plunger protection, removable or fixed needles, a range of needle gauge and length options as well as needle tip style alternatives.

Color	Syringe volumes			
Yellow	1000 nL (1 µL)		1 mL	1000 mL (1 L)
Lime	5000 nL (5 µL)	5 µL	5 mL	
Dark orange		10 µL	10 mL	
Green		25 µL	25 mL	
Purple		50 µL	50 mL	
Aqua		100 µL	100 mL	
Gray		250 µL	2.5 mL	2000 mL (2 L)
Light orange	500 nL (0.5 µL)	500 µL		500 mL (0.5 L)

Septa



The role of septa for GC analysis is key as many chromatographic problems are caused by use of inappropriate septa material or inappropriate handling of the septa.

Desired septa attributes:

- Reliably seal against the carrier gas pressure in the inlet.
- Capable of being pierced and resealed time after time.
- Must not contaminate or bleed material into the chromatographic system.

Material	Max operating temperature	Key features
GP grade	275°C	Low temperature applications
EC grade	350°C, 300°C for 17 mm size	Low bleed
MN grade	350°C, 300°C for 17 mm size	Premium septa for autosamplers
HT grade	400°C, 330°C for 17 mm size	Outstanding mechanical properties for the highest temperature applications

SGE Inlet liners

The SGE Inlet liner is where the sample is introduced and vaporized into the gaseous phase. The design of the liner is crucial, as is liner deactivation, to ensure reproducible and accurate chromatography.

Color	Injection technique	Sample types	Liner geometry
Green	Splitless	• Trace level analyses • Active compounds	Taper/gooseneck
Blue	Split	• General purpose • Concentrated samples • Dirty samples	FocusLiner®
Aqua	Splitless	• Trace level analyses • Dirty samples • Wide boiling point range	Tapered FocusLiner®
Dark orange	Direct	• Trace level analyses • Active compounds	ConnecTite
Purple	Split/splitless	• General purpose • Concentrated samples • Dirty samples (only if quartz wool is present) • Gaseous samples (also purge and trap, headspace)	Straight
Yellow	Splitless LVI	• Trace level analyses • Low boiling point compounds • Active compounds	Double taper
Gray	PTV LVI	• Trace level analyses • Large volume injections	PTV/LVI

Connectors and ferrules

GC connections are designed to minimize time spent on installation, and are suitable for a wide range of applications.

Poorly defined or selected connections can lead to an increase in dead volume, leaks and mismatched tubing sizes after temperature cycling.

Material	Uses	Advantages	Limitations
100% Graphite	FID, NPD, high temperature	• Easy-to-use stable seal • Higher temperature limit • Can be easily removed • Can be re-used	• Not for MS or oxygen-sensitive detectors • Soft, easily deformed or destroyed • Possible system contamination
15% Graphite/ 85% Vespel	MS and oxygen-sensitive detectors	• Long lifetime • High temperature limit • MS compatible	• Cannot be re-used • Must be re-tightened after initial temperature cycles
SilTite® metal	MS and oxygen-sensitive detectors	• Long lifetime • High temperature limit • MS compatible	• Cannot be re-used

SGE autosampler syringes

All needles are 42 mm long with a cone tip.

Agilent 7673, 7683, 7693A & 6850 ALS

Volume	Needle gauge (OD mm)	Description	VWR Cat. No. Syringe	Pack size	VWR Cat. No. Spare needle	Pack size
Fixed dual gauge needle						
5 µL	23-26s (0.63/0.47)	5 µL fixed needle Agilent syringe with 4.2 cm 0.63/0.47 mm OD cone tipped dual gauge needle	60362-718	1	–	–
10 µL	23-26s (0.63/0.47)	10 µL fixed needle Agilent syringe with 4.2 cm 0.63/0.47 mm OD cone tipped dual gauge needle	60362-722	1	–	–
10 µL gas tight	23-26s (0.63/0.47)	10 µL fixed needle Agilent syringe with GT plunger and 4.2 cm 0.63/0.47 mm OD cone tipped dual gauge needle	60362-726	1	–	–
Fixed straight needle						
5 µL	26 (0.47)	5 µL fixed needle Agilent syringe with 4.2 cm 0.47 mm OD cone tipped needle	60361-050	1	–	–
5 µL (m)	23 (0.63)	5 µL fixed needle Agilent syringe with 4.2 cm 0.63 mm OD cone tipped needle	60361-054	1	–	–
10 µL	26 (0.47)	10 µL fixed needle Agilent syringe with 4.2 cm 0.47 mm OD cone tipped needle	60361-104	1	–	–
10 µL (m)	23 (0.63)	10 µL fixed needle Agilent syringe with 4.2 cm 0.63 mm OD cone tipped needle	60361-110	1	–	–
10 µL (m) gas tight	23 (0.63)	10 µL fixed needle Agilent syringe with GT plunger & 4.2 cm 0.63 mm OD cone tipped needle	60361-112	1	–	–
Removable dual gauge needle						
0.5 µL	23-26s (0.63/0.47)	0.5 µL NanoVolume Agilent syringe with 4.2 cm 0.63/0.47 mm OD dual gauge cone tipped needle	60362-736	1	60362-748	1*
10 µL gas tight	23-26s (0.63/0.47)	10 µL removable needle Agilent syringe with GT plunger and 4.2 cm 0.63/0.47 mm OD cone tipped dual gauge needle	60362-742	1	60362-746	2
Removable straight needle						
0.5 µL	26 (0.47)	0.5 µL NanoVolume Agilent syringe with 4.2 cm 0.47 mm OD cone tipped needle	60361-008	1	60361-272	1*
0.5 µL (m)	23 (0.63)	0.5 µL NanoVolume Agilent syringe with 4.2 cm 0.63 mm OD cone tipped needle	60361-010	1	60361-274	1*
1 µL	23 (0.63)	1.0 µL NanoVolume Agilent syringe with 4.2 cm 0.63 mm OD cone tipped needle	60362-624	1	89400-928	1*
10 µL	26 (0.47)	10 µL removable needle Agilent syringe with 4.2 cm 0.47 mm OD cone tipped needle	60361-108	1	14225-728	2
10 µL (m)	23 (0.63)	10 µL removable needle Agilent syringe with 4.2 cm 0.63 mm OD cone tipped needle	60361-116	1	60361-310	2

(m) Suitable for use with the Merlin Microseal™ injector.
* Denotes spare needle and plunger kit.

Septa

Choose from a number of different septa types:

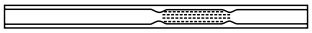
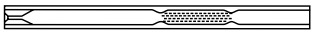
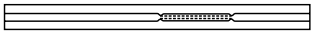
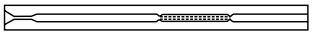
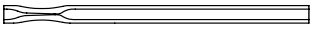
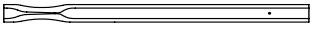
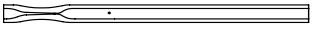
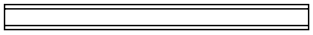
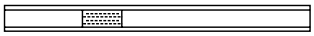
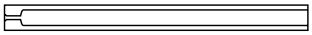
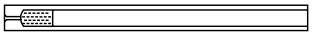
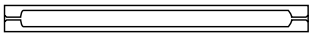
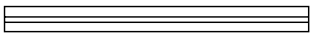
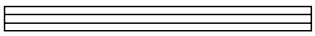
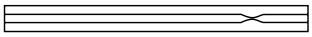
GP = For non-demanding routine applications.
EC = Combines significantly longer injection life, low bleed and low injection port adhesion.
MN = Premium septa for autosamplers, up to 400 injections per septum.
HT = Bleed and temperature optimized, combined with outstanding mechanical properties.

Type	Material	Durability	Resealing	Solvent resistance	Tear resistance	Maximum temperature
GP	Silicone	Good	Good	Excellent	Good	275°C
EC	High temperature silicone	Excellent	Excellent	Excellent	Excellent	350°C
MN	High temperature silicone	Excellent	Excellent	Excellent	Excellent	350°C
HT	BTO silicone	Excellent	Excellent	Excellent	Excellent	400°C

Septa continued

Diameter (mm)	Type	Pack size	VWR Cat. No.
For Agilent 7890, 6890,5890, 5880, 4890, 6850			
11	GP	50	60361-506
11	EC	25	89205-416
11	MN	50	14225-856
11	HT	25	89205-430

SGE Inlet liners

Description and geometry	OD (mm)	ID (mm)	Length (mm)	Pack size	VWR Cat. No.
For Agilent 5890, 6850, 6890, 7890 and 4890					
 Split/splitless FocusLiner	6.3	4	78.5	5	60362-506
				25	60362-590
 Split/splitless tapered FocusLiner	6.3	4	78.5	5	60362-664
				25	14226-448
 Split/splitless FAST FocusLiner	6.3	2.3	78.5	5	14226-444
				25	14226-446
 Split/splitless tapered FAST FocusLiner	6.3	2.3	78.5	5	14226-470
				25	14226-474
 ConnecTite liner standard	6.3	4	78.5	5	89205-574
 ConnecTite liner top hole	6.3	4	78.5	5	89205-578
 ConnecTite liner bottom hole	6.3	4	78.5	5	89205-582
 Split, straight-through liner	6.3	4	78.5	5	60362-510
				25	60362-594
 Split, with quartz wool	6.3	4	78.5	5	60362-504
				25	60362-592
 Split/splitless with single taper	6.3	4	78.5	5	60362-516
				25	60362-602
 Split/splitless with single taper (quartz wool)	6.3	4	78.5	5	60362-520
				25	87003-016
 Split/splitless with double taper	6.3	4	78.5	5	60362-518
				25	60362-604
 Direct, straight-through liner	6.3	1.2	78.5	5	60362-514
				25	60362-596
 Split/splitless quartz, straight-through liner	6.1	2	78.5	5	60362-508
 Splitless with recessed gooseneck	6.3	2	78.5	5	14226-450
 Split/splitless recessed gooseneck (quartz wool)	6.3	4	78.5	5	60362-512

O-rings and sealing rings

Description	Usage	Pack size	VWR Cat. No.
Viton o-ring	Temperatures up to 300°C. Suitable for liners with OD of 6.3 mm	10	60361-576
Graphite sealing ring	Temperatures up to 450°C. Suitable for all inlet liners above except 092004 and 09200401	10	60362-682
Graphite sealing ring	Temperatures up to 450°C. Suitable for use with liners 092004 and 09200401	10	60362-684

SilTite FingerTite® ferrules

Description	Column ID	Ferrule ID	Pack size	VWR Cat. No.
SilTite FingerTite Agilent INJ/FID kit	0.1-0.25 mm	0.4 mm	*	97051-946
SilTite FingerTite Agilent capillary/FID kit	0.1-0.25 mm	0.4 mm	*	89232-154
SilTite FingerTite Agilent INJ/MS kit	0.1-0.25 mm	0.4 mm	*	97051-948
SilTite FingerTite Agilent INJ/FID kit	0.53 mm	0.7 mm	*	89232-150
SilTite FingerTite Agilent injector kit	0.53 mm	0.7 mm	*	89232-152
Replacement parts				
SilTite FingerTite ferrule 0.4 mm	0.1-0.25 mm	0.4 mm	10	97051-958
SilTite FingerTite ferrule 0.5 mm	0.32 mm	0.5 mm	10	97051-960
SilTite FingerTite ferrule 0.7 mm	0.53 mm	0.7 mm	10	89232-196
SilTite FingerTite blanking ferrule	–	–	2	97051-962
SilTite FingerTite female nut	–	–	5	97051-964
SilTite FingerTite INJ base seal	0.1-0.25 mm	–	2	97051-966
SilTite FingerTite capillary adapter	–	–	1	89232-140
SilTite FingerTite MS adapter	–	–	1	89232-142
SilTite FingerTite FID detector	–	–	1	89232-144
SilTite FingerTite injector	0.1-0.25 mm	–	1	89232-146

* Each starter kit includes all the parts necessary to convert one GC system (one injector and one detector) to the SilTite FingerTite system. In addition there are five SilTite FingerTite nuts, ten SilTite FingerTite ferrules, and a ferrule install tool which allows you to seat the ferrule in the correct position on the capillary column.

Ferrules

Instrument	Column ID	Ferrule ID	Pack size	VWR Cat. No.
15% Graphite/85% Vespel® ferrules				
Injectors and detectors at atmospheric pressure e.g. FID	0.1-0.25 mm	0.4 mm	10	60361-614
	0.32 mm	0.5 mm	10	60361-616
	0.53 mm	0.8 mm	10	60361-618
	for 1/8" OD packed columns	1/8"	10	60361-604
	for 1/4" OD packed columns	1/4"	10	60361-602
GCMS interface connection	0.1-0.25 mm	0.4 mm	10	60361-600
	0.32 mm	0.5 mm	10	60361-578
	0.53 mm	0.8 mm	10	60361-586
100% graphite ferrules				
Injectors and detectors at atmospheric pressure e.g. FID (not for GCMS)	0.1-0.32 mm	0.5 mm	10	60362-634
	0.45-0.53 mm	0.8 mm	10	60362-636
	for 1/8" OD packed columns	1/8"	10	60361-546
	for 1/4" OD packed columns	1/4"	10	60362-686
SilTite® metal ferrules				
GCMS interface connection (starter kit)	0.1-0.25 mm	0.4 mm	10*	14226-368
	0.32 mm	0.5 mm	10*	14226-370
	0.53 mm	0.8 mm	10*	14226-372
Split/splitless injectors (starter kit)	0.1-0.25 mm	0.4 mm	10#	14226-396
	0.32 mm	0.5 mm	10#	14226-398
	0.45-0.53 mm	0.8 mm	10#	14226-400
	1/32"	0.81 mm	10#	10799-744
Replacement SilTite metal ferrules				
All connections	0.1-0.25 mm	0.4 mm	10	14226-376
	0.32 mm	0.5 mm	10	14226-378
	0.53 mm	0.8 mm	10	14226-380
	1/32"	0.81 mm	10	10799-820
Replacement SilTite nuts				
GCMS interface connection	–	–	5	14226-384
Split/splitless injector	–	–	5	14226-388
Replacement SilTite base seals				
Split/splitless injector	–	–	2	14226-420
	–	–	10	14226-422

* Includes ten ferrules, two SilTite nuts. # Includes ten ferrules, two SilTite nuts and two SilTite inlet base seals.

SGE autosampler syringes

All needles are 70 mm long with a cone tip style.

PerkinElmer AutoSystem

Volume	Needle gauge (OD mm)	Description	VWR Cat. No. Syringe	Pack size	VWR Cat. No. Spare needle	Pack size	VWR Cat. No. Spare plunger	Pack size
Fixed needle								
5 µL	26 (0.47)	5 µL fixed needle PerkinElmer syringe with 7 cm 0.47 mm OD cone tipped needle	60361-060	1	–	–	–	–
5 µL	23 (0.63)	5 µL fixed needle PerkinElmer syringe with 7 cm 0.63 mm OD cone tipped needle	60361-062	1	–	–	–	–
5 µL gas tight	26 (0.47)	0.5 µL NanoVolume Agilent syringe with 4.2 cm 0.47 mm OD cone tipped needle	60361-064	1	–	–	60361-226	2
5 µL gas tight	23 (0.63)	5 µL fixed needle PerkinElmer syringe with GT plunger and 7 cm 0.63 mm OD cone tipped needle	60361-066	1	–	–	60361-226	2
50 µL	23 (0.63)	50 µL fixed needle PerkinElmer syringe with 7 cm 0.63 mm OD cone tipped needle	60362-196	1	–	–	–	–
Removable needle								
0.5 µL	26 (0.47)	0.5 µL NanoVolume PerkinElmer syringe with 7 cm 0.47 mm OD cone tipped needle	60361-018	1	60361-366	1*	–	–
0.5 µL (m)	23 (0.63)	0.5 µL NanoVolume PerkinElmer syringe with 7 cm 0.63 mm OD cone tipped needle	60361-020	1	14225-622	1*	–	–

* Denotes spare needle and plunger kit.

Septa

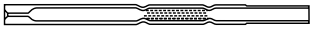
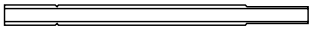
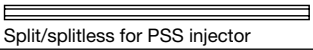
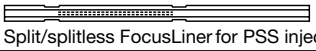
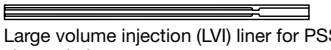
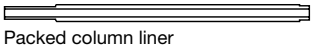
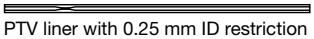
Choose from a number of different septa types:

GP = For non-demanding routine applications.
EC = Combines significantly longer injection life, low bleed and low injection port adhesion.
MN = Premium septa for autosamplers, up to 400 injections per septum.
HT = Bleed and temperature optimized, combined with outstanding mechanical properties.

Type	Material	Durability	Resealing	Solvent resistance	Tear resistance	Maximum temperature
GP	Silicone	Good	Good	Excellent	Good	275°C
EC	High temperature silicone	Excellent	Excellent	Excellent	Excellent	350°C
MN	High temperature silicone	Excellent	Excellent	Excellent	Excellent	350°C
HT	BTO silicone	Excellent	Excellent	Excellent	Excellent	400°C

Diameter (mm)	Type	Pack size	VWR Cat. No.
For PerkinElmer AutoSystem and Clarus 500, 600			
11	GP	48	60361-506
11	EC	25	89205-416
11	MN	48	14225-856
11	HT	25	89205-430

SGE Inlet liners

Description and geometry	OD (mm)	ID (mm)	Length (mm)	Pack size	VWR Cat. No.
For PerkinElmer AutoSystem and Clarus 500, 600					
 Split/splitless single tapered liner	6.2	4	92	5	10799-844
 Split/splitless FocusLiner	6.2	4	92	5	60362-568
				25	10799-854
 Split/splitless tapered FocusLiner	6.2	4	92	5	60362-652
				25	10001-538
 Split, straight-through liner	6.2	4	92	5	60362-574
				25	10799-860
 Splitless, straight-through liner	6.2	2	92	5	60362-576
 Split/splitless for PSS injector	4	2	86.2	5	14226-466
 Split/splitless FocusLiner for PSS injector	4	2	86.2	5	14226-468
 Large volume injection (LVI) liner for PSS injector, sintered glass	4	2	86.2	5	60362-618
 Packed column liner	6	3	112	5	60362-614
PTV liner					
 PTV liner with 0.25 mm ID restriction (recessed gooseneck)	2	1	88	5	60362-572

O-rings and sealing rings

Description	Usage	Pack size	VWR Cat. No.
Viton o-ring	Temperatures up to 300°C. For use with 6.2 mm OD liners	10	14226-294
Graphite Vespel sealing ring for PSS system	Temperatures up to 325°C. For use with 4 mm OD liners	10	10799-840

SilTite FingerTite ferrules

Description	Column ID	Ferrule ID	Pack size	VWR Cat. No.
SilTite FingerTite PerkinElmer injector/GCMS starter kit	0.1-0.25 mm	0.4 mm	*	89232-188
SilTite FingerTite PerkinElmer injector/FID starter kit	0.1-0.25 mm	0.4 mm	*	89232-182
Replacement parts				
SilTite FingerTite ferrule 0.4 mm	0.1-0.25 mm	0.4 mm	10	97051-958
SilTite FingerTite ferrule 0.5 mm	0.32 mm	0.5 mm	10	97051-960
SilTite FingerTite ferrule 0.7 mm	0.53 mm	0.7 mm	10	89232-196
SilTite FingerTite blanking ferrule	–	–	2	97051-962
SilTite FingerTite female nut	–	–	5	97051-964

* Each starter kit includes all the parts necessary to convert one GC system (one injector and one detector) to the SilTite FingerTite system. In addition there are five SilTite FingerTite nuts, ten SilTite FingerTite ferrules, and a ferrule install tool which allows you to seat the ferrule in the correct position on the capillary column.

Ferrules

Instrument	Column ID	Size of nut	Ferrule ID	Pack size	VWR Cat. No.
15% Graphite/85% Vespel ferrules					
For injectors and detectors at atmospheric pressure e.g. FID	0.1-0.25 mm	1/16"	0.4 mm	10	60361-600
	0.1-0.25 mm	1/8"	0.4 mm	10	60361-608
	0.32 mm	1/16"	0.5 mm	10	60361-578
	0.32 mm	1/8"	0.5 mm	10	60361-606
	0.45-0.53 mm	1/16"	0.8 mm	10	60361-586
	0.45-0.53 mm	1/8"	0.8 mm	10	60361-610
	for 1/8" OD packed columns	1/8"	1/8"	10	60361-604
	for 1/4" OD packed columns	1/4"	1/4"	10	60361-602
100% graphite ferrules					
Injectors and detectors at atmospheric pressure e.g. FID (not for GCMS)	0.1-0.32 mm	1/16"	0.5 mm	10	60361-572
	0.1-0.32 mm	1/8"	0.5 mm	10	60361-568
	0.45-0.53 mm	1/16"	0.8 mm	10	60361-570
	0.45-0.53 mm	1/8"	0.8 mm	10	60631-574
	1/8" OD packed columns	1/8"	1/8"	10	60361-566
	1/4" OD packed columns	1/4"	1/4"	10	60361-562
SilTite metal ferrules					
GCMS interface connection (starter kit)	0.1-0.25 mm	–	0.4 mm	10*	14226-368
	0.32 mm	–	0.5 mm	10*	14226-370
	0.53 mm	–	0.8 mm	10*	14226-372
Replacement SilTite ferrules					
GCMS interface connection	0.1-0.25 mm	–	0.4 mm	10	14226-376
	0.32 mm	–	0.5 mm	10	14226-378
	0.53 mm	–	0.8 mm	10	14226-380
	1/32"	–	0.81 mm	10	10799-820
Replacement SilTite nuts					
SilTite metal nuts	–	–	–	5	14226-384

* Includes ten ferrules, two SilTite nuts.

SGE autosampler syringes

All needles are 42 mm long with a cone tip style.

Shimadzu AOC14, AOC17 and AOC20

Volume	Needle gauge (OD mm)	Description	VWR Cat. No. Syringe	Pack size	VWR Cat. No. Spare needle	Pack size	VWR Cat. No. Spare plunger	Pack size
Fixed needle								
5 µL	23 (0.63)	0.5 µL fixed needle Shimadzu syringe with 4.2 cm 0.63 mm OD cone tipped needle	60362-186	1	–	–	–	–
Removable needle								
0.5 µL	26 (0.47)	0.5 µL NanoVolume Shimadzu syringe with 4.2 cm 0.47 mm OD cone tipped needle	60361-014	1	14225-618	1*	–	–
0.5 µL	23 (0.63)	0.5 µL NanoVolume Shimadzu syringe with 4.2 cm 0.63 mm OD cone tipped needle	60362-622	1	14225-620	1*	–	–
10 µL	26 (0.47)	10 µL removable needle Shimadzu syringe with 4.2 cm 0.47 mm OD cone tipped needle	60361-132	1	60362-632	2	–	–
10 µL	23 (0.63)	10 µL removable needle Shimadzu syringe with 4.2 cm 0.63 mm OD cone tipped needle	60361-134	1	60361-316	2	–	–
10 µL gas tight	23 (0.63)	10 µL removable needle Shimadzu syringe with GT plunger and 4.2 cm 0.63 mm OD cone tipped needle	60362-188	1	60361-316	2	60362-678	2

* Denotes spare needle and plunger kit.

Septa

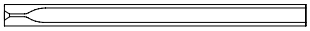
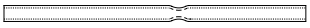
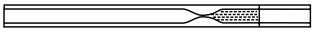
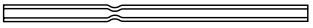
Choose from a number of different septa types:

- Enduro blue = For non-demanding routine applications.
- EC = Combines significantly longer injection life, low bleed and low injection port adhesion.
- HT = Bleed and temperature optimized, combined with outstanding mechanical properties.

Type	Material	Durability	Resealing	Solvent resistance	Tear resistance	Maximum temperature
Enduro blue	High temperature silicone	Excellent	Excellent	Excellent	Excellent	350°C
EC	High temperature silicone	Excellent	Excellent	Excellent	Excellent	350°C
HT	BTO silicone	Excellent	Excellent	Excellent	Excellent	400°C

Type	Pack size	VWR Cat. No.
Shimadzu GC-2030, GC-2014, GC-2010 and GC-17A		
Enduro blue	50	14217-534
EC	50	89205-424
HT	50	89205-438

SGE Inlet liners

Description and geometry	OD (mm)	ID (mm)	Length (mm)	Pack size	VWR Cat. No.
For GC-2030 (SPL-2030 injector), GC-2014 (SPL-2014 injector), GC-2010 (SPL-2010 injector) and GC-17A (SPL-17A injector)					
Split/splitless FocusLiner*	5	3.4	95	5	10799-832
 Split/splitless tapered FocusLiner*	5	3.4	95	5	10799-830
 Split/splitless FocusLiner	5	3.4	95	5	60362-548
 Split/splitless tapered FocusLiner	5	3.4	95	5	60362-672
 ConnectTite liner standard	5	3.4	95	5	89205-586
 ConnectTite liner top hole	5	3.4	95	5	89205-590
 ConnectTite liner bottom hole	5	3.4	95	5	89205-594
 Split, straight-through liner	5	3.4	95	5	14226-460
 Splitless, straight-through liner	5	2.6	95	5	60362-562
 Split/splitless with single taper	5	3.4	95	5	10799-834
 Split/splitless with middle gooseneck	5	3.4	95	5	10799-836
 Split/splitless with recessed gooseneck and quartz wool	5	3.4	95	5	14226-458
 Split/splitless with middle gooseneck	5	3.4	95	5	60362-558
 ConnecTite™ (0.53 mm ID columns)	5	2.6	95	5	60362-564
 SPME liner	5	0.75	95	5	14226-464

* When using a standard 42 mm needle for autosamplers, the sample will be injected on top of the wool for this liner.

O-rings and sealing rings

Description	Usage	Pack size	VWR Cat. No.
Viton o-ring	Temperatures up to 300°C. For GC-2030 (SPL-2030 injector), GC-2014 (SPL-2014 injector) and GC-2010 (SPL-2010 injector)	10	10799-842
Graphite sealing ring	Temperatures up to 450°C. For GC-17A (SPL-17A injector)	10	14233-666

SilTite FingerTite ferrules

Description	Column ID	Ferrule ID	Pack size	VWR Cat. No.
SilTite FingerTite Shimadzu GC-2030 and GC-2010 INJ/FID starter kit	0.1-0.25 mm	0.4 mm	*	89232-176
SilTite FingerTite Shimadzu GC-2030 and GC-2010 INJ/MS starter kit	0.1-0.25 mm	0.4 mm	*	89232-170
SilTite FingerTite Shimadzu GC-2030 and GC-2010 INJ/FID starter kit	0.53 mm	0.7 mm	*	89232-178

SilTite FingerTite ferrules continued

Description	Column ID	Ferrule ID	Pack size	VWR Cat. No.
Replacement parts				
SilTite FingerTite ferrule 0.4 mm	0.1-0.25 mm	0.4 mm	10	97051-958
SilTite FingerTite ferrule 0.5 mm	0.32 mm	0.5 mm	10	97051-960
SilTite FingerTite ferrule 0.7 mm	0.53 mm	0.7 mm	10	89232-196
SilTite FingerTite ferrule blanking	–	–	2	97051-962
SilTite FingerTite female nut	–	–	5	97051-964

* Each starter kit includes all the parts necessary to convert one GC system (one injector and one detector) to the SilTite FingerTite system. In addition there are five SilTite FingerTite nuts, ten SilTite FingerTite ferrules, and a ferrule install tool which allows you to seat the ferrule in the correct position on the capillary column.

Ferrules

Column ID	Description	Pack size	VWR Cat. No.
GC-2030, GC-2014, GC-2010 and GC-17A detector/injectors (not for MS interfaces or QP2010 injector)			
0.10-0.32 mm ID columns	100% graphite	10	60361-550
0.45-0.53 mm ID columns	100% graphite	10	60361-552
5 mm OD packed columns	100% graphite	10	60361-538
0.10-0.25 mm ID columns	SilTite metal - initial installation	10*	14226-408
0.10-0.25 mm ID columns	SilTite ferrules	10	14233-536
0.32 mm ID columns	SilTite metal - initial installation	10*	14226-410
0.32 mm ID columns	SilTite ferrules	10	10799-822
0.45-0.53 mm ID columns	SilTite metal - initial installation	10*	14226-412
0.53 mm ID columns	SilTite ferrules	10	10799-824
n/a	SilTite metal nuts - slotted	5	10799-736
QP5000/5050 standard MS interface			
QP5000-I 0.10-0.25 mm ID columns	15% Graphite/85% Vespel ferrules	10	60362-668
QP5000-I 0.32 mm ID columns	15% Graphite/85% Vespel ferrules	10	60362-670
QP5000-II & QP5050 0.10-0.25 mm ID columns	15% Graphite/85% Vespel ferrules	10	60361-594
QP5000-II & QP5050 0.32 mm ID columns	15% Graphite/85% Vespel ferrules	10	60361-596
0.10-0.25 mm ID columns	SilTite metal - initial installation	10*	14233-668
0.10-0.25 mm ID columns	SilTite ferrules	10	14233-536
0.32 mm ID columns	SilTite metal - initial installation	10*	10799-738
0.32 mm ID columns	SilTite ferrules	10	10799-822
0.53 mm ID columns	SilTite ferrules	10	10799-824
n/a	SilTite metal nuts - QP5000/5050 standard MS interface	5	10799-740
QP5000/5050 wide bore MS interface, QP2010 injector and QP2010 standard MS interface			
0.10-0.25 mm ID columns	15% Graphite/85% Vespel ferrules	10	60361-600
0.32 mm ID columns	15% Graphite/85% Vespel ferrules	10	60361-578
0.45-0.53 mm ID columns	15% Graphite/85% Vespel ferrules	10	60361-586
0.10-0.25 mm ID columns	SilTite metal - initial installation	10*	14226-386
0.10-0.25 mm ID columns	SilTite ferrules	10	14226-376
0.32 mm ID columns	SilTite metal - initial installation	10*	14226-370
0.32 mm ID columns	SilTite ferrules	10	14226-378
0.45-0.53 mm ID columns	SilTite metal - initial installation	10*	14226-372
0.45-0.53 mm ID columns	SilTite ferrules	10	14226-380
n/a	SilTite metal nuts	5	14226-384
Replacement SilTite nuts			
GC-2030/GC-2010 GCMS system		5	14226-384
GC-2030/GC-2010 GCMS system with QP5000 series MS		5	14226-384
GC-2030/GC-2014/GC-2010 GC injectors and atmospheric detectors		5	14226-384
QP5000 jet separator MS interface		5	14226-384
QP5000 direct MS interface		5	10799-740
All injectors jet separator (starter kit), except GC-2030/GC-2014/GC-2010		5	10799-736

* Includes ten ferrules, two SilTite nuts.

SGE autosampler syringes

All needles have a cone tip style.

Thermo Scientific TriPlus RSH

Volume	Needle gauge (OD mm)	Needle length (mm)	Description	VWR Cat. No.	Pack size
Removable needle					
5 µL	23 (0.47)	57	5 µL removable needle CTC RTC and Thermo RSH syringe with 5.7 cm 0.63 mm OD cone tipped needle	89236-148	1
5 µL	26 (0.47)	57	5 µL removable needle CTC RTC and Thermo RSH syringe with 5.7 cm 0.47 mm OD cone tipped needle	89236-152	1
10 µL	23 (0.47)	57	10 µL removable needle CTC RTC and Thermo RSH syringe with 5.7 cm 0.63 mm OD cone tipped needle	89236-182	1
10 µL	26 (0.47)	57	10 µL removable needle CTC RTC and Thermo RSH syringe with 5.7 cm 0.47 mm OD cone tipped needle	89236-190	1
Fixed needle					
10 µL	23 (0.63)	57	10 µL fixed needle CTC RTC and Thermo RSH syringe with 5.7 cm 0.63 mm OD cone tipped needle	89236-166	1
10 µL gas tight	23 (0.63)	57	10 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.63 mm OD cone tipped needle	89236-168	1
10 µL	23 (0.63)	85	10 µL fixed needle CTC RTC and Thermo RSH syringe with 8.5 cm 0.63 mm OD cone tipped needle	89236-170	1
10 µL gas tight	23 (0.63)	85	10 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.63 mm OD cone tipped needle	89236-172	1
10 µL	26 (0.47)	57	10 µL fixed needle CTC RTC and Thermo RSH syringe with 5.7 cm 0.47 mm OD cone tipped needle	89236-174	1
10 µL gas tight	26 (0.47)	57	10 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.47 mm OD cone tipped needle	89236-176	1
10 µL	26 (0.47)	85	10 µL fixed needle CTC RTC and Thermo RSH syringe with 8.5 cm 0.47 mm OD cone tipped needle	89236-178	1
10 µL gas tight	26 (0.47)	85	10 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.47 mm OD cone tipped needle	89236-180	1

Septa

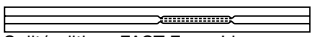
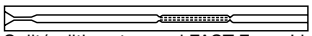
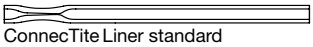
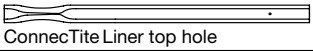
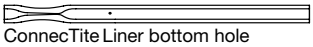
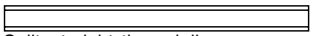
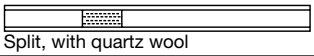
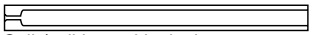
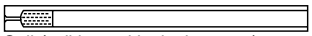
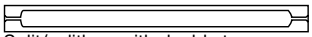
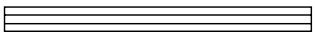
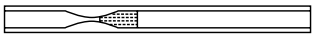
Choose from a number of different septa types:

GP = For non-demanding routine applications.
EC = Combines significantly longer injection life, low bleed and low injection port adhesion.
MN = Premium septa for autosamplers, up to 400 injections per septum.
HT = Bleed and temperature optimized, combined with outstanding mechanical properties.

Type	Material	Durability	Resealing	Solvent resistance	Tear resistance	Maximum temperature
GP	Silicone	Good	Good	Excellent	Good	275°C
EC	High temperature silicone	Excellent	Excellent	Excellent	Excellent	350°C
MN	High temperature silicone	Excellent	Excellent	Excellent	Excellent	350°C
HT	BTO silicone	Excellent	Excellent	Excellent	Excellent	400°C

Diameter (mm)	Type	Pack size	VWR Cat. No.
For Thermo Scientific TRACE 1300 Series GC			
11	GP	48	60361-506
11	EC	25	89205-416
11	MN	48	14225-856
11	HT	25	89205-430

SGE Inlet liners

Description and geometry	OD (mm)	ID (mm)	Length (mm)	Pack size	VWR Cat. No.
For Thermo Scientific TRACE 1300 Series GC					
 Split/splitless FocusLiner	6.3	4	78.5	5	60362-506
				25	60362-590
 Split/splitless tapered FocusLiner	6.3	4	78.5	5	60362-664
				25	14226-448
 Split/splitless FAST FocusLiner	6.3	2.3	78.5	5	14226-444
				25	14226-446
 Split/splitless tapered FAST FocusLiner	6.3	2.3	78.5	5	14226-470
				25	14226-474
 ConnecTite Liner standard	6.3	4	78.5	5	89205-574
 ConnecTite Liner top hole	6.3	4	78.5	5	89205-578
 ConnecTite Liner bottom hole	6.3	4	78.5	5	89205-582
 Split, straight-through liner	6.3	4	78.5	5	60362-510
				25	60362-594
 Split, with quartz wool	6.3	4	78.5	5	60362-504
				25	60362-592
 Split/splitless with single taper	6.3	4	78.5	5	60362-516
				25	60362-602
 Split/splitless with single taper (quartz wool)	6.3	4	78.5	5	60362-520
				25	87003-016
 Split/splitless with double taper	6.3	4	78.5	5	60362-518
				25	60362-604
 Direct, straight-through liner	6.3	1.2	78.5	5	60362-514
				25	60362-596
 Split/splitless quartz, straight-through liner	6.1	2	78.5	5	60362-508
 Splitless with recessed gooseneck	6.3	2	78.5	5	14226-450
 Split/splitless recessed gooseneck (quartz wool)	6.3	4	78.5	5	60362-512
				25	14226-482

O-rings and sealing rings

Description	Usage	Pack size	VWR Cat. No.
For Thermo Scientific TRACE 1300 Series GC			
Viton o-ring	Temperatures up to 300°C. Suitable for liners with OD of 6.3 mm	10	60361-576
Graphite sealing ring	Temperatures up to 450°C. Suitable for all inlet liners above except 092004 and 09200401	10	60362-682
Graphite sealing ring	Temperatures up to 450°C. Suitable for use with liners 092004 and 09200401	10	60362-684

SilTite FingerTite ferrules

Description	Column ID	Ferrule ID	Pack size	VWR Cat. No.
For Thermo Scientific TRACE 1300 Series GC				
SilTite FingerTite INJ/FID starter kit	0.1-0.25 mm	0.4 mm	*	97051-946
SilTite FingerTite capillary/FID starter kit	0.1-0.25 mm	0.4 mm	*	89232-154
SilTite FingerTite INJ/MS starter kit	0.1-0.25 mm	0.4 mm	*	97051-948
Replacement parts				
SilTite FingerTite ferrule 0.4 mm	0.1-0.25 mm	0.4 mm	10	97051-958
SilTite FingerTite ferrule 0.5 mm	0.32 mm	0.5 mm	10	97051-960
SilTite FingerTite ferrule 0.7 mm	0.53 mm	0.7 mm	10	89232-196
SilTite FingerTite ferrule blanking	–	–	2	97051-962
SilTite FingerTite female nut	–	–	5	97051-964
SilTite FingerTite INJ base seal	0.1-0.25 mm	–	2	97051-966
SilTite FingerTite MS adapter	–	–	1	89232-142
SilTite FingerTite injector	0.1-0.25 mm	–	1	89232-146

* Each starter kit includes all the parts necessary to convert one GC system (one injector and one detector) to the SilTite FingerTite system. In addition there are five SilTite FingerTite nuts, ten SilTite FingerTite ferrules, and a ferrule install tool which allows you to seat the ferrule in the correct position on the capillary column.

Ferrules

Instrument	Column ID	Ferrule ID	Pack size	VWR Cat. No.
SilTite metal ferrules				
GCMS interface connection (starter kit)	0.1-0.25 mm	0.4 mm	10*	14226-424
	0.32 mm	0.5 mm	10*	14226-426
	0.53 mm	0.8 mm	10*	14226-428
For TRACE 1300 split/splitless injectors (starter kit)	0.1-0.25 mm	0.4 mm	10	14226-396
	0.32 mm	0.5 mm	10	14226-398
	0.45-0.53 mm	0.8 mm	10	14226-400
	1/32"	0.81 mm	10	10799-744
Replacement SilTite nuts				
SilTite metal nuts	–	–	5	14226-384

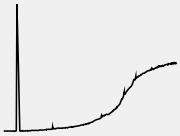
* Includes ten ferrules, two SilTite nuts.

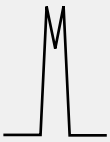
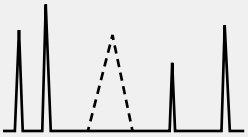
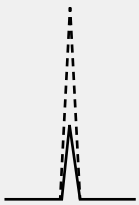
Ferrules continued

Instrument	Column ID	Ferrule ID	Pack size	VWR Cat. No.
15% Graphite/85% Vespel ferrules				
For TRACE 1300 injectors and detectors at atmospheric pressure e.g. FID	0.1-0.25 mm	0.4 mm	10	60361-614
	0.32 mm	0.5 mm	10	60361-616
	0.53 mm	0.8 mm	10	60361-618
	for 1/8" OD packed columns	1/8"	10	60361-604
	for 1/4" OD packed columns	1/4"	10	60361-602
For TRACE 1300 GCMS interface connection	0.1-0.25 mm	0.4 mm	10	60361-600
	0.32 mm	0.5 mm	10	60361-578
	0.53 mm	0.8 mm	10	60361-586
100% graphite ferrules				
For TRACE 1300 injectors and detectors at atmospheric pressure e.g. FID (not for GCMS)	0.1-0.32 mm	0.5 mm	10	60362-634
	0.45-0.53 mm	0.8 mm	10	60362-636
	for 1/8" OD packed columns	1/8"	10	60361-546
	for 1/4" OD packed columns	1/4"	10	60362-686
Replacement SilTite metal ferrules				
For All GCMS interface connections	0.1-0.25 mm	0.4 mm	10	10799-812
	0.32 mm	0.5 mm	10	10799-814
	0.53 mm	0.8 mm	10	10799-816
	1/32"	0.81 mm	10	10799-818
For TRACE 1300 connections	0.1-0.25 mm	0.4 mm	10	14226-376
	0.32 mm	0.5 mm	10	14226-378
	0.53 mm	0.8 mm	10	14226-380
	1/32"	0.81 mm	10	10799-820
Replacement SilTite nuts				
SilTite metal nuts	–	–	5	10799-810
For TRACE 1300 GCMS interface connection	–	–	5	14226-384
For TRACE 1300 split/splitless injector	–	–	5	14226-388
Replacement SilTite base seals				
For TRACE 1300 split/splitless injector	–	–	2	14226-420
	–	–	10	14226-422

* Includes ten ferrules, two SilTite nuts. # To be used in combination with brass nut (part no. 1034085).

Expert tips

Problem	Reason	Resolution
No column flow	Incorrect gas flow rate	Check carrier gas flow and adjust
	Incorrect septa	Replace septa/injector seal with EC septa
	Issue with column	Visually check column integrity i.e. is it broken? Remove section if small enough or replace column
High column bleed	Exceeding maximum column temperature	Check published maximum temperature and replace column if necessary
	Incorrect gas flow rate	Check carrier flow rates/velocity are correct for column/length - adjust if necessary
	Incorrect column installation	Check column has not moved in detector
	System leaks	Check for leaks produced during initial heating
	Saturated purifier	Check the oxygen gas purifier is not saturated - replace if necessary
	Detector temperature	Make sure detector temperature is higher than final column temperature if possible
	Dirty detector	Check cleanliness of detector - clean if necessary
	Insufficient column conditioning	Recondition column - re-run conditioning program
	Column performance	Cut 50 cm from the front end of the column
Retention time shifts	Incorrect temperature program	Check temperature program
	Incorrect injector temperature	Check injector temperature
	Poor injection technique	Ensure manual injection technique is consistent#
	Incorrect gas flow rate	Check carrier gas flow rate/velocity
	System leaks	Check for injector leaks
	Solvent variability	Ensure same solvent being used
	Column contamination	Rinse or replace column
	Column performance	Cut 50 cm from the front end of the column
	Phase breakdown	Replace column
Phase breakdown	System leaks	Check for leaks and repair
	Saturated oxygen traps	Check oxygen traps and replace if necessary
	Exceeding maximum column temperature	Check published maximum temperature and replace column if necessary
	Column contamination	Rinse or replace column
	Damage due to sample	Do not inject strong acid or base samples
Poor or no detector response for all peaks	Injection technique	Ensure correct injection technique for concentration of analyte
	Incorrect liner	Check correct liner is used for injection technique
	Blocked syringe	Check syringe needle is not blocked nor plunger is not leaking
	Split ratio	Check split ratio if using split technique
	Injector temperature	Check injector temperature is correct
	Detector temperature	Check detector temperature is correct
	Flow rates	Check flow rates of detector gas(es)
	Sample concentrations	Verify concentrations of sample
Detector problems	PID - Dirty window	Clean or replace window
	ELCD - Faulty reactor tube	Replace tube
	ELCD - Contaminated alcohol	Use fresh alcohol
	ELCD - Incorrect alcohol flow rate	Adjust alcohol flow rate
	ECD - Impurities in nitrogen	Use pure nitrogen or use a gas filter
	ECD - Dirty detector	Clean the detector
	NPD - Bad bead	Replace the bead
	FID - Partially blocked jet	Clean jet
	FPD - Incorrect gas flow rates	Adjust gas flow rate
	FPD - Incorrect filter installed	Replace filter with correct version
	TCD - Flow rates	Adjust gas flow rate

Problem	Reason	Resolution
Peak fronting 	Column overload	Reduce sample concentration or injection volume
	Incorrect polarity of column for compound	Use correct column
Peak tailing 	Column is active	Remove first meter of column; recheck; replace column if necessary
	Active inlet liner	Replace liner with clean, deactivated liner
	Incorrect column for analysis	Use correct column
	Incorrect column installation	Check inlet and outlet connections, and for any cold spots
Split peaks 	Poor injection technique	Refine injection technique
	Mixed solvents	Use only single solvent system
	Poor resolution	Use different column or change temperature profile
Ghost peaks 	Run GC without injection; if ghost peaks disappear then the problem is probably the syringe or solvent; if ghost peaks are still evident then the problem is either the septum or the breakdown of the phase	
	Contaminated syringe or solvents	Clean syringe thoroughly and replace solvents
	Septum bleed	Replace with new EC septum
	Breakdown of column phase	Choose different phase which restricts breakdown
	Too large an injection volume	Decrease injection volume
Specific peaks low response 	Column is active	Remove first meter of column; recheck; replace column if necessary
	Active inlet liner	Replace liner with clean, deactivated liner
	Incorrect calculation of sample	Verify calculations
	FID altered gas flows	Readjust gas flows

GC supplies

Instrument quick pick guide

Trajan has a range of SGE GC columns that meet the requirements of todays challenging separations.

Visit us at www.trajanscimed.com or contact your distribution partner for assistance and further information.

Approved distribution partner:

VWR Corporate Headquarters, Building One, Suite 200,
100 Matsonford Road, Radnor, PA 19087-8660

Tel: (+1) 610 386-1700
Web: www.us.vwr.com

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