

GC Essentials

Instrument Supplies








HROMalytic **RESTEK** '07
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RESTEK



Chromatography Products

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Splitless Liners for Agilent GCs

	Benefits/Uses	ID*/OD & Length (mm)	Similar to Agilent part #	ea.	cat.# 5-pk.	25-pk.
 2mm Splitless	trace samples <2 μ L	2.0 ID 6.5 OD x 78.5	5181-8818 (ea.) 5183-4703 (5-pk.) 5183-4704 (25-pk.)	20712	20713	20714
 4mm Splitless	trace samples >2 μ L	4.0 ID 6.5 OD x 78.5	210-3003 (ea.) 210-3003-5 (5-pk.)	20772	20773	20774
 Siltek® 4mm Splitless	trace samples >2 μ L	4.0 ID 6.5 OD x 78.5	—	20772-214.1	20773-214.5	20774-214.25
 4mm Splitless (quartz) w/ Wool	trace samples >2 μ L	4.0 ID 6.5 OD x 78.5	—	22403	22404	—
 4mm Gooseneck Splitless w/ Wool	trace samples >2 μ L	4.0 ID 6.5 OD x 78.5	5062-3587 (ea.) 5183-4693 (5-pk.) 5183-4694 (25-pk.)	22405	22406	22407



Split Liners for Agilent GCs

	Benefits/Uses	ID*/OD & Length (mm)	Similar to Agilent part #	ea.	cat.# 5-pk.	25-pk.
 4mm Split w/ Wool	universal, use with Agilent 7673 autosampler	4.0 ID 6.3 OD x 78.5	19251-60540 (ea.) 5183-4691 (5-pk.) 5183-4692 (25-pk.)	20781	20782	20783
 Siltek® 4mm Split w/ Wool	universal, use with Agilent 7673 autosampler	4.0 ID 6.3 OD x 78.5	—	20781-213.1	20782-213.5	20783-213.25


Split/Splitless Liners for Agilent GCs

	Benefits/Uses	ID*/OD & Length (mm)	Similar to Agilent part #	ea.	cat.# 5-pk.	25-pk.
 Low Pressure Drop Liner w/ Wool	universal, use with Agilent 6890 GCs	4.0 ID 6.3 OD x 78.5	5183-4647 (ea.) 5183-4701 (5-pk.)	21032	21033	—
 Low Pressure Drop Liner w/ Wool	universal, use with Agilent 6850 GCs	4.0 ID 6.3 OD x 78.5	5183-4711 (ea.) 5183-4712 (5-pk.) 5183-4713 (25-pk.)	20994	20995	20996



Splitless Liners for Varian 1075/1077 GCs

	Benefits/Uses:	ID*/OD & Length (mm)	Similar to Varian part #	ea.	cat.# 5-pk.	25-pk.
 2mm Splitless	trace samples <2 μ L	2.0 ID 6.3 OD x 74	01-900109-05	20721	20722	20723
 4mm Splitless	trace samples >2 μ L	4.0 ID 6.3 OD x 74	01-900109-05	20904	20905	20906



Split Liners for Varian 1075/1077 GCs

	Benefits/Uses:	ID*/OD & Length (mm)	Similar to Varian part #	ea.	cat.# 5-pk.	25-pk.
 Splitter w/ Wool	universal, use with rapid autosamplers	4.0 ID 6.3 OD x 72	01-900109-01	20792	20793	20794

Split Liners for Varian 1177 GCs

	Benefits/Uses:	ID*/OD & Length (mm)	Similar to Varian part #	ea.	cat.# 5-pk.	25-pk.
 4mm Split w/Glass Frit	universal	4.0 ID 6.3 OD x 78.5	39-26119-36	21045	21046	—
 4mm Split w/ Wool	universal	4.0 ID 6.3 OD x 78.5	39-26119-34	—	21079	—

Liners for Varian 1078/1079 GCs



	Benefits/Uses:	ID*/OD & Length (mm)	Similar to Varian part #	ea.	cat.# 5-pk.	25-pk.
 1078/1079 Split w/ Frit	dirty samples, non-active compounds	3.4 ID 5.0 OD x 54	03-918464-00	21708	21709	—
 1078/1079 Splitless	trace samples <2 μ L	2.0 ID 5.0 OD x 54	03-918466-00	21711	21712	—

All liners are
100%
deactivated



All liners are shipped intermediate polarity (IP) deactivated unless otherwise requested.

*Nominal ID at syringe needle expulsion point.



Split/Splitless Liners for Shimadzu 17A, 2010, & 2014 GCs

	Benefits/Uses:	ID*/OD & Length (mm)	Similar to Shimadzu part #	ea.	cat.# 5-pk.	25-pk.
 Split/Splitless w/ Wool	universal, for most common analyses	3.5 ID 5.0 OD x 95	221-41444-00	20955	20956	20957
 Siltek* Split/Splitless w/ Wool	universal, for most common analyses	3.5 ID 5.0 OD x 95	—	20955-213.1	20956-213.5	20957-213.25



Splitless Liners for PerkinElmer GCs

	Benefits/Uses:	ID*/OD & Length (mm)	Similar to PE part #	ea.	cat.# 5-pk.	25-pk.
 Splitless (2mm ID)	trace samples	2.0 ID 5.0 OD x 100	N6502007	20730	20731	20732
 Auto SYS™ Splitless	headspace, purge & trap	1.0 ID 6.2 OD x 92.1	N6502006	21272	21273	21274

Split Liners for PerkinElmer GCs

	Benefits/Uses:	ID*/OD & Length (mm)	Similar to PE part #	ea.	cat.# 5-pk.	25-pk.
 Baffle Splitter	universal, for most common analyses	3.5 ID 5.0 OD x 100	N6502008	20736	20737	—
 Cup Splitter	high & low MW compounds	3.5 ID 5.0 OD x 100	—	20739	20740	—

Splitless Liners for Thermo Scientific TRACE™ & Focus SSL

	Benefits/Uses:	ID*/OD & Length (mm)	Similar to TS part #	ea.	cat.# 5-pk.	25-pk.
 Splitless (3mm ID)	trace samples	3.0 ID 8.0 OD x 105	453 20032	20942	20943	20944
 Siltek* Splitless (3mm ID)	trace samples	3.0 ID 8.0 OD x 105	—	20942-214.1	20943-214.5	20944-214.25

Viton® O-Rings for Agilent GCs

- Fit split (6.3mm OD) or splitless (6.5mm OD) liners.

Description	Max. temp.	Similar to Agilent part #	qty.	cat.#
Viton® O-Rings for Agilent GCs	250°C	5180-4182	25-pk.	20377

Graphite O-Rings for Agilent and Varian 1177 GCs

- Excellent thermal stability at injection port temperatures up to 450°C!

Description	Max. temp.	Similar to Agilent part #	Restek cat.#	
			10-pk.	50-pk.
Graphite O-rings for split liners (6.35mm ID)	450°C	5180-4168	20296	20297
Graphite O-rings for splitless liners (6.5mm ID)	450°C	5180-4173	20298	20299

Liner Seals for Varian 1078/1079

Description	Max. temp.	Similar to Varian part #	qty.	cat.#
5mm Graphite Liner Seals for Varian 1078/1079 GCs	450°C	392611919 392534201	10-pk.	22683

Silicone O-Rings for PerkinElmer Auto SYS™ GCs

Description	Max. temp.	Similar to PE part #	qty.	cat.#
Silicone O-Rings for PerkinElmer Auto SYS™ GCs	250°C	N6101374	10-pk.	20262

Graphite O-Rings for PerkinElmer Auto SYS™ XL PSS

Description	Max. temp.	Similar to PE part #	qty.	cat.#
Graphite O-Rings for PerkinElmer Auto SYS™ XL PSS	450°C	N610-1751	10-pk.	21475
Graphite O-Rings for PerkinElmer Auto SYS™ XL PSS	450°C	N610-1751	25-pk.	21476

Viton® O-Rings for PerkinElmer PSS

Description	Max. temp.	Similar to PE part #	qty.	cat.#
Viton® O-Rings for PerkinElmer PSS	250°C	N6101747	10-pk.	20366





Graphite Sealing Ring for TRACE™ and Focus SSL Instruments

Description	Max. temp.	Similar to TF part #	qty.	cat.#
Graphite Sealing Ring	450°C	290-334-06	ea.	21898
Graphite Sealing Rings	450°C	290-334-06	2-pk.	21899



Viton® O-Rings for Shimadzu 17A, 2010, and 2014 GCs

Description	Max. temp.	Similar to Shimadzu part #	qty.	cat.#
Viton® O-Rings for Shimadzu 17A, 2010, and 2014 GCs	250°C	036-11203-84	10-pk.	21477



Graphite O-Rings for Shimadzu 17A, 2010, and 2014 GCs

Description	Max. temp.	Similar to Shimadzu part #	qty.	cat.#
Graphite O-Rings for Split Liners	450°C	221-48393-91	5-pk.	20243
Graphite O-Rings for Splitless Liners	450°C	221-47222-91	5-pk.	20244

Vespel® Ferrules

- 100% high-temperature polyimide.
- Stable to 350°C.
- Durable, leak-tight.

Graphite Ferrules

- Pre-conditioned to eliminate out-gassing.
- High-purity, high-density graphite.
- Smoother surface and cleaner edges than conventional graphite ferrules.
- Contain no binders that can off-gas or adsorb analytes.
- Stable to 450°C.

Vespel®/Graphite Ferrules

- 60%/40% Vespel®/graphite blend, offering the best combination of sealing and ease of workability.
- Seal with minimal torque, reusable, and preferred for vacuum and high-pressure uses.
- Stable to 400°C.
- Recommended for mass spec transfer lines.

Capillary Ferrules—For 1/16-Inch Compression-Type Fittings

Ferrule ID	Fits Column ID	qty.	Vespel®	Graphite	Vespel®/Graphite
0.3mm	< 0.18mm	10-pk.	22213	20233	20275
0.4mm	0.18/0.25/0.28mm	10-pk.	22214	20200	20211
0.4mm	0.18/0.25/0.28mm	50-pk.	—	20227	20229
0.5mm	0.32mm	10-pk.	22215	20201	20212
0.5mm	0.32mm	50-pk.	—	20228	20231
0.6mm	0.28mm**	10-pk.	—	—	20232
0.8mm	0.45/0.53mm	10-pk.	22216	20202	20213
0.8mm	0.45/0.53mm	50-pk.	—	20224	20230
1.0mm	0.75mm*	10-pk.	22217	21058	24912
1.2mm	0.75mm	10-pk.	22218	—	—
1.6mm	1.00mm*	10-pk.	—	21060	—



Compact Ferrules—For Agilent 5890/6890/6850 GCs

Ferrule ID	Fits Column ID	qty.	Graphite	Vespel®/Graphite
0.4mm	0.25/0.28mm	10-pk.	20250	20238
0.4mm	0.25/0.28mm	50-pk.	20251	20239
0.5mm	0.32mm	10-pk.	21007	20248
0.5mm	0.32mm	50-pk.	21008	20249
0.8mm	0.45/0.53mm	10-pk.	20252	20263
0.8mm	0.45/0.53mm	50-pk.	20253	20264
1.0mm	0.75mm*	10-pk.	21059	21056
1.6mm	1.00mm*	10-pk.	21061	21057



*For micropacked columns.

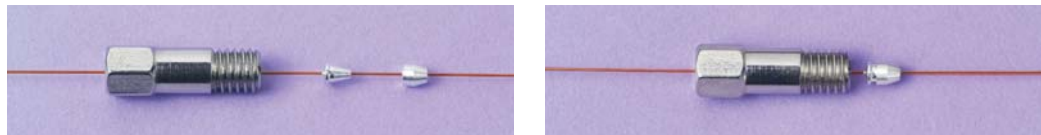
**For 0.28mm MXT® columns.

Alumaseal™ Ferrules*

- No more ferrule fragments in the transfer line; aluminum construction—will not crack or fragment.
- No retightening required after temperature cycles—excellent for GC/MS.
- Eliminate out-gassing, make leak-tight seals, for less detector noise.
- Unique two-piece design permanently locks on fused silica tubing without causing breakage.
- Will not stick in fittings, unlike Vespel® or graphite.
- Stable to 550°C.
- Use with any 1/16" compression-type fitting.

Ferrule ID	Fits Column ID	qty.	cat.#
0.4mm	0.25mm	10-pk.	21472
0.5mm	0.32mm	10-pk.	21473
0.8mm	0.53mm	10-pk.	21474

*Patent pending.



Unique two-piece design permanently locks onto fused silica tubing.



Dual Vespel® Ring Inlet Seals

- Vespel® ring embedded in bottom surface eliminates need for washer.
- Vespel® ring embedded in top surface reduces operator variability by requiring minimal torque to seal.
- Prevents oxygen from permeating the carrier gas, increasing column lifetime.
- To minimize breakdown and adsorption of active compounds, use Siltek®-treated or gold-plated seals.

Washerless, Leak-Tight Seals for Agilent GCs

0.8mm ID Dual Vespel® Ring Inlet Seal	2-pk.	10-pk.
Siltek®	21242	21243
Gold-Plated	21240	21241
Stainless Steel	21238	21239
1.2mm ID Dual Vespel® Ring Inlet Seal	2-pk.	10-pk.
Siltek®	21248	21249
Gold-Plated	21246	21247
Stainless Steel	21244	21245



**One-piece design!
No washer needed!**

Patent pending.

Replacement Inlet Seals with Washers for Agilent 5890/6890/6850 Split/Splitless Injection Ports

- Special grade of stainless steel that is softer and deforms more easily, creating a better seal.
- Increases column lifetime because oxygen cannot permeate into the carrier gas.
- Reduced noise benefits high-sensitivity detectors (e.g., ECDs, MSDs).
- To minimize breakdown and adsorption of active compounds, use Siltek®-treated or gold-plated seals.
- **All seals include washers.**

Single-Column Installation (0.8mm Opening)	Similar to Agilent part #	2-pk.	10-pk.
Siltek®		21319	21320
Gold-Plated	18740-20885	21317	21318
Stainless Steel	18740-20880	21315	21316
0.25/0.32mm ID Dual-Column Installation (1.2mm Opening)		2-pk.	10-pk.
Siltek®		21307	21308
Gold-Plated		21305	21306
Stainless Steel		20390	20391
0.53mm ID Dual-Column Installation (1/16-inch opening)		2-pk.	10-pk.
Stainless Steel		20392	20393



Note: The 1.2mm inlet seal is recommended for use with Vespel®/graphite ferrules or when installing two columns using a two-hole ferrule.



tech tip

Always use the Manual Injection Septum Nut (for 26-gauge needles) for on-column injections.

Septum Nuts for use with Agilent 5890/6890/6850 Split/Splitless Injectors

- Ensure a leak-tight injection port, increase septum lifetime, and decrease maintenance requirements.
- Thread design and needle guide allow easy penetration and prevent premature septum coring.
- Manual injection septum nut allows use of 26-gauge needles for on-column injections.
- Made of high-quality stainless steel.

Description	Similar to Agilent part #	qty.	cat.#
Autosampler & PTV Septum Nut (for 23-gauge needles)	18740-60835	ea.	20631
Manual Injection Septum Nut (for 26-gauge needles)	18740-60835	ea.	21309



Knurled Septum Nuts for Agilent 5890/6890/6850 GC Split/Splitless Injectors

- Tighten easily without the use of a wrench.
- Ensure a leak-tight injection port, increase septum lifetime, and decrease maintenance requirements.
- Thread design and needle guide allow easy penetration and prevent premature septum coring.
- High-quality stainless steel construction.

Description	qty.	cat.#
Knurled Septum Nut, Autosampler (for 23-gauge needles)	ea.	21479
Knurled Septum Nut, Manual Injection (for 26-gauge needles)	ea.	21478



Stainless Steel Septum Nuts for Varian GCs

- Maintain a sharper knife edge longer than the original equipment aluminum design.
- Greatly minimize septum fragmentation and increase septum lifetime.
- 26-gauge needle guide for on-column injections.

Description	Similar to Varian part #*	qty.	cat.#
26 Gauge Needle Guide Septum Nut	03-949666-01	ea.	21310
Standard (23-Gauge Needle Guide) Septum Nut	03-949666-01	ea.	21304

*Similar to Varian part # 03-949666-01, except Restek nuts are not equipped with remote-start capabilities.



Septum Nut for Shimadzu 17A, 2010, & 2014 GCs

- One piece design for ease of installation and removal.
- Made of clear anodized aluminum and high-quality stainless steel.

Description	Similar to Shimadzu part #	qty.	cat.#
Septum Nut for Shimadzu 17A, 2010, and 2014 GCs	221-41286-00 221-44584-00	ea.	22079



Septum Cap for PerkinElmer Auto SYS™ XL

- Made of clear anodized aluminum and high-quality stainless steel.
- Meets or exceeds OEM performance.

Description	Similar to PE part #	qty.	cat.#
Septum Cap for PerkinElmer Auto SYS™ XL	N6100153	ea.	22322



Septum Holder Kit for TRACE™ 2000 Series

- Includes septum support and holder.
- Made from high quality stainless steel.

Description	Similar to TF part #	qty.	cat.#
Septum Holder Kit for TRACE™ 2000 Series	23303015 350054335	ea.	21299

Thermolite® Septa

- Precision molding assures consistent, accurate fit.
- Usable to 340°C inlet temperature.
- Excellent puncturability.
- Preconditioned and ready to use.
- Do not adhere to hot metal surfaces.
- Packaged in non-contaminating glass jars.



new!

Septum Diameter	25-pk.	50-pk.	100-pk.
5mm (3/16")	27120	27121	27122
6mm (1/4")	27123	27124	27125
7mm	27126	27127	27128
8mm	27129	27130	27131
9mm	27132	27133	27134
9.5mm (7/8")	27135	27136	27137
10mm	27138	27139	27140
11mm (7/16")	27141	27142	27143
11.5mm	27144	27145	27146
12.5mm (1/2")	27147	27148	27149
17mm	27150	27151	27152
Shimadzu Plug	27153	27154	27155

IceBlue™ Septa

- Precision molding assures consistent, accurate fit.
- Usable to 250°C inlet temperature.
- General-purpose septa.
- Excellent puncturability.
- Preconditioned and ready to use.
- Do not adhere to hot metal surfaces.
- Packaged in non-contaminating glass jars.
- Ideal for SPME.



new!

Septum Diameter	50-pk.	100-pk.
9mm	27156	27157
9.5mm (7/8")	27158	27159
10mm	27160	27161
11mm (7/16")	27162	27163
11.5mm	27164	27165
12.5mm (1/2")	27166	27167
17mm	27168	27169
Shimadzu Plug	27170	27171

BTO® Septa

- Precision molding assures consistent, accurate fit.
- CenterGuide™ design requires less force for initial penetration.
- Usable to 400°C inlet temperature.
- Preconditioned and ready to use.
- Do not adhere to hot metal surfaces.
- Packaged in non-contaminating glass jars.
- Each batch GC-FID tested.
- Bleed and temperature optimized; ideal for demanding GC and GC/MS applications.



new!

Septum Diameter	50-pk.	100-pk.
5mm CenterGuide™	27100	27101
6mm (1/4")	27102	27103
9mm CenterGuide™	27104	27105
9.5mm (7/8")	27106	27107
10mm	27108	27109
11mm (7/16") CenterGuide™	27110	27111
11.5mm CenterGuide™	27112	27113
12.5mm (1/2") CenterGuide™	27114	27115
17mm CenterGuide™	27116	27117
Shimadzu Plug	27118	27119

HANDY Septum Size Chart

Instrument	Septum Diameter (mm)
Agilent (HP)	
5880A, 5890, 6890, 6850, PTV	11
5700, 5880	9.5/10
On-Column Injection	5
Thermo Scientific	
TRACE™ GC	17
GCQ w/TRACE™, PTV	17
8000 series	17
Finnigan (TMQ)	
GC 9001	9.5
GCQ	9.5
QCQ™	9.5
TRACE™ 2000	9.5
Gow-Mac	
6890 series	11
All other models	9.5
PerkinElmer	
Sigma series	11
900,990	11
8000 series	11
Auto SYS™	11
Auto SYS™ XL	11
Pye/Unicam	
All models	7
Shimadzu	
All models	Plug
SRI	
All models	Plug
Tracor	
540	11.5
550,560	9.5
220,222	12.5
Varian	
Injector type:	
Packed column	9.5/10
Split/splitless	
1078/1079	10/11
1177	9
1075/1077	11



Septum Puller

- Keep several on hand in your laboratory—can be used in many different ways.
- Use hooked end for removing septa and O-rings; pointed end works well for removing stuck ferrules or fragments.



Remove septum without damaging an expensive weldment.



Dislodge a stuck ferrule quickly and easily—without scoring the fitting.

Description	qty.	cat.#
Septum Puller	ea.	20117

Inlet Liner Removal Tool

- Easily remove liner from injector—no more burned fingers.
- Made from high-temperature silicone.
- Won't chip or crack the liner.



No more burned fingers!



Gently push the liner removal tool onto the liner in the injection port, with a slight circular motion.



Slowly pull the liner out of the injection port.



Use the liner removal tool to place a new liner into the injection port, avoiding hot metal surfaces.

Description	qty.	cat.#
Inlet Liner Removal Tool	3-pk.	20181

Injector Wrench for Agilent 5890/6890/6850 GCs

- Use to remove the septum nut and weldments during GC maintenance.
- High-quality stainless steel construction.
- Meets original equipment performance.



Description	Similar to		
	Agilent part #	qty.	cat.#
Injector Wrench for Agilent 5890/6890/6850 GCs	19251-00100	ea.	22065

Injector Wrench for Shimadzu 17A, 2010, and 2014 GCs

- Designed specifically for removing Shimadzu injection ports.
- High-quality stainless steel construction.



Description	Similar to Shimadzu		
	part #	qty.	cat.#
Injector Wrench for Shimadzu 17A, 2010, and 2014 GCs	221-46977-00	ea.	21159

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