



# SEPTACULAR!

Precision-molded, low-bleed  
septas from Restek.

**HRM**alytic **RESTEK** '07  
Australian Distributors **TECH**nology  
Tel: 03 9762 2034 Fax: 03 9761 1169 [www.chromtech.net.au](http://www.chromtech.net.au) [info@chromtech.net.au](mailto:info@chromtech.net.au)

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# AVOID SEPTUM PROBLEMS



## Septum Handling

All septa, regardless of their composition, puncturability, or resistance to thermal degradation, will be a source of problems if they are mishandled. Always use clean forceps or wear clean cotton gloves when handling septa; do not handle them with bare fingers, nor with powdered latex gloves—contaminants such as finger oils, perfumes, make-up, fingernail polish, skin creams, hand soaps, and talcum can be absorbed into the septum and will bleed from the septum during your analyses.

Also, follow septum and instrument manufacturers' recommendations when installing a septum. Overtightening a septum nut invariably will reduce septum lifetime by increasing septum coring and splitting problems.

## Septum Bleed

All septa contain various amounts of volatile materials (e.g., silicone oils, phthalates) that can be released when the septum is heated to analysis temperatures. Septum bleed occurs when these volatiles from the septum collect on the column, then elute from the column and create baseline disturbances or extraneous (ghost) peaks in the chromatogram. This problem is prevalent in temperature-programmed analyses, because the septum volatiles collect on the column during the oven cool-down and initial hold periods. Capillary columns require much lower gas flow rates than packed columns, therefore septum volatiles are more concentrated, and bleed problems are more pronounced in capillary GC systems.

Because most GCs are equipped with a septum purge, septum bleed generally will disappear within 30 minutes after installing a new septum and exposing it to normal injector temperatures. All Restek septa eliminate this conditioning period because they are pre-conditioned and can be used without delay.

## Why are Low-Bleed Septa Important?

Either baseline rise or extraneous peaks caused by septum bleed can interfere with identification and quantification of target analytes. And, because septum bleed is inconsistent, method reproducibility can be a problem. Using low-bleed septa can minimize these effects and help produce more reliable results.

## SEPTUM HANDLING TIPS

- Handle septa carefully, to prevent contamination.
- Minimize bleed—use pre-conditioned, low-bleed septa.
- Follow septum and instrument manufacturers' recommendations.

## Why Does Septum Puncturability Matter?

A septum that can be penetrated cleanly and easily by a syringe needle has a longer life, and consistent injections made through such a septum help ensure accurate results. The soft silicone rubber from which all Restek septa are manufactured is specially formulated for chromatographic performance, which ensures our septa are easy to puncture.

# HANDY septum size chart

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

## What Septum Configurations are Available, and for Which GCs?

Restek has fashioned septa for all major brands of gas chromatographs and injectors. Use the septum size chart to determine the septum diameter for your instrument, or measure an old septum if your model is not listed.

## Which Septa Should I Use?

Thermolite® septa are a proven low-bleed champion. With a maximum temperature of 340°C, there are very few applications for which Thermolite® septa are not suitable.

IceBlue™ septa are ideal for analysts using inlet temperatures of 250°C or below, or using solid phase microextraction (SPME) sampling techniques. IceBlue™ septa will accommodate puncturing from the large needles used in SPME, and still assure consistent injections and long lifetime.

BTO® septa are bleed and temperature optimized with a maximum temperature of 400°C, for the most demanding GC and GC/MS applications. They retain remarkable softness and puncturability at high temperatures. The CenterGuide™ can help reduce coring when used with tapered (rounded-tip) needles.



**Thermolite® Septa**  
Usable to 340°C



**IceBlue™ Septa**  
Usable to 250°C



**BTO® Septa**  
Usable to 400°C



## 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.



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 (3/8")	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.



Septum Diameter	50-pk.	100-pk.
9mm	27156	27157
9.5mm (3/8")	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



### DID YOU KNOW?

Restek offers an extensive selection of inlet liners for all major gas chromatographs and injectors, including innovative Siltek® deactivated liners. For details, request the *Inlet Supplies Guide* (lit. cat. #59893C) or visit us online at [www.restek.com](http://www.restek.com)

### Inlet Liner Removal Tool

Easily remove liner from injector—no more burned fingers.



qty.	cat.#
3-pk.	20181

## 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.



Septum Diameter	50-pk.	100-pk.
5mm CenterGuide™	27100	27101
6mm (1/4")	27102	27103
9mm CenterGuide™	27104	27105
9.5mm (3/8")	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

## Merlin Microseal™ Septa for Agilent GCs

- Allow operation from 2 to 100psi (400 Series) or 2 to 30psi (300 Series).
- Top wiper rib improves resistance to particulate contamination; can be taken apart for cleaning.
- High resistance to wear—greatly reduces shedding of septum particles into the injection port liner, eliminating a major source of septum bleed and ghost peaks.
- Longer life—reduces the risk of septum leaks during extended automated runs.
- Maximum temperature—Agilent 6890, 5890 Series II: 325°C; Agilent 5890A: 300°C.

### Microseal™ High-Pressure Septa, 400 Series

Microseal™ High-Pressure Septa, 400 Series (100psi)	Merlin#	Similar to Agilent#	cat.#
Standard kit (nut, 2 septa)	404	Not offered	22810
Starter kit (nut, 1 septum)	405	5182-3442	22811
Nut kit (1 nut, fits 300 & 400 series septa)	403	5182-3445	22809
High-pressure replacement septum (1 septum)	410	5182-3444	22812



### Microseal™ Septa, 300 Series

Microseal™ Septa, 300 Series (30psi)	Merlin#	Similar to Agilent#	cat.#
Standard kit (nut, 2 septa)	304	5181-8833	22813
Starter kit (nut, 1 septum)	305	5181-8816	22814
Microseal replacement septum (1 septum)	310	5181-8815	22815
Replacement PTFE washers (2-pk.)	311	5182-0853	22808





## Septum Puller

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



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



Restek Trademarks: IceBlue, Thermolite, Siltek, Restek logo. Other Trademarks: Auto SYS (PerkinElmer); QCC (Finnigan Corp.); TRACE (ThermoQuest Corp.); BTO, CenterGuide (Chromatography Research Supplies, Inc.); Microseal (Merlin Instrument Co.).

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**HR**OMalytic **RESTEK** '07  
Australian Distributors **ECH**nology  
Tel: 03 9762 2034 Fax: 03 9761 1169 [www.chromtech.net.au](http://www.chromtech.net.au) [info@chromtech.net.au](mailto:info@chromtech.net.au)

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