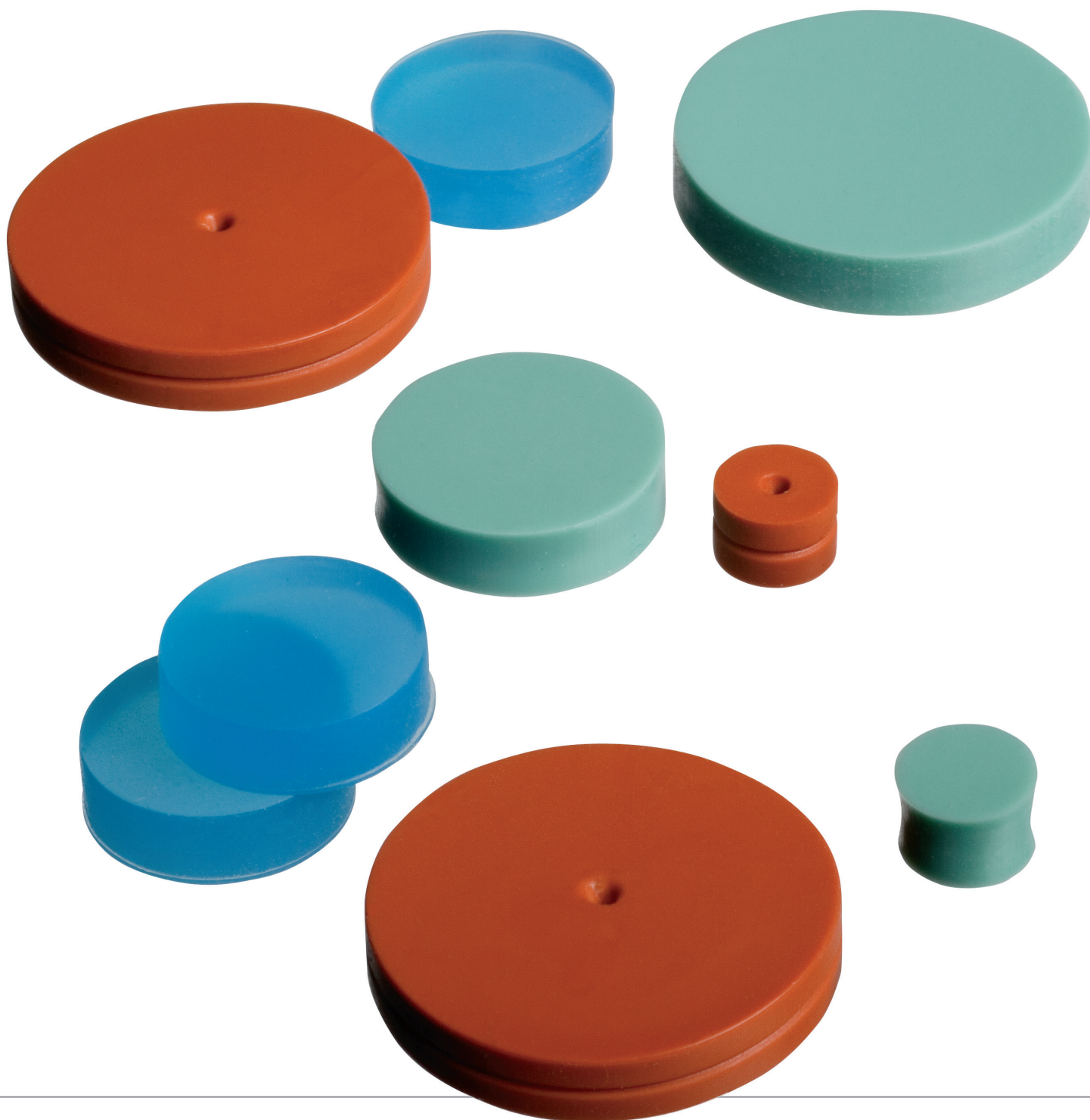


# Septacular!

Precision-Molded, Low-Bleed Septa From Restek



Innovative Chromatography Products

[www.restek.com](http://www.restek.com) • 1-800-356-1688 • 1-814-353-1300



## Septum Handling TIPS

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

## HANDY septum size chart

Instrument		Septum Diameter (mm)
Agilent (HP)	5880A, 5890, 6850, 6890, 7890, 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
PerkinElmer	Sigma series	11
	900,990	11
	8000 series	11
	Auto SYS	11
	Auto SYS XL	11
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
	1078/1079	10/11
	1177	9
	1075/1077	11



# 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 preconditioned 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.

## 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.

## 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 proven low-bleed champions. 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 design can help reduce coring when used with tapered (rounded-tip) needles.

## Restek Thermolite® Septa

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



Septum Diameter	25-pk.	50-pk.	100-pk.
5mm (1/16")	27120	27121	27122
6mm (1/8")	27123	27124	27125
7mm	27126	27127	27128
8mm	27129	27130	27131
9mm	27132	27133	27134
9.5mm (3/16")	27135	27136	27137
10mm	27138	27139	27140
11mm (7/16")	27141	27142	27143
11.5mm	27144	27145	27146
12.7mm (1/2")	27147	27148	27149
17mm*	27150	27151	27152
Shimadzu Plug	27153	27154	27155

Note: Due to differences in inlet design, the actual septum temperature for a given inlet setpoint can vary by manufacturer. Restek recommends using only BTO® septa in Thermo Scientific instruments.

\*For 17 mm injectors, the maximum temperature is 330 °C.

## Restek IceBlue® Septa

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



Septum Diameter	50-pk.	100-pk.
9mm	27156	27157
9.5mm (3/16")	27158	27159
10mm	27160	27161
11mm (7/16")	27162	27163
11.5mm	27164	27165
12.7mm (1/2")	27166	27167
17mm	27168	27169
Shimadzu Plug	27170	27171

Note: Due to differences in inlet design, the actual septum temperature for a given inlet setpoint can vary by manufacturer. Restek recommends using only BTO® septa in Thermo Scientific instruments.

## BTO® Septa

- Usable to 400 °C inlet temperature.
- Precision molding assures consistent, accurate fit.
- Partial predrilled CenterGuide design.
- Preconditioned and ready to use.
- Do not adhere to hot metal surfaces.
- Packaged in precleaned 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 (1/8")	27102	27103
9mm CenterGuide	27104	27105
9.5mm (3/16")	27106	27107
10mm	27108	27109
11mm (7/16") CenterGuide	27110	27111
11.5mm CenterGuide	27112	27113
12.7mm (1/2") CenterGuide	27114	27115
17mm CenterGuide*	27116	27117
Shimadzu Plug	27118	27119

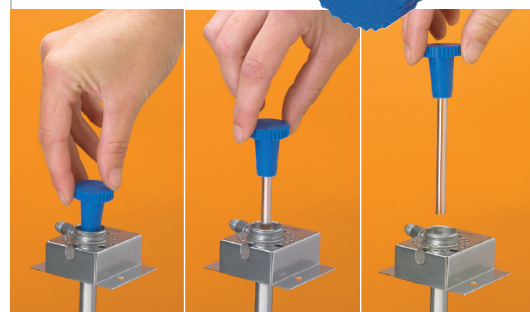
Note: Due to differences in inlet design, the actual septum temperature for a given inlet setpoint can vary by manufacturer. Restek recommends using only BTO® septa in Thermo Scientific instruments.

\*For 17 mm injectors, the maximum temperature is 330 °C.



## 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.



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





Instrument	Maximum Injection Port Temperature
Agilent 5890A	300 °C
Agilent 7890, 6890, 5890 Series II	325 °C
PerkinElmer, Varian	350 °C
Shimadzu	450 °C

**Note:** Merlin Microseal septa require a 23-gauge (0.63 mm, 0.025") needle or probe with a blunt, truncated conical tip. Compatible syringes and replacement needles are available at [www.restek.com](http://www.restek.com).

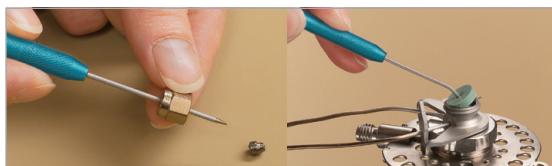
## Merlin Microseal Septa

- Eliminate septum coring and associated contamination from septum crumbs in the inlet liner.
- Long lifetime due to innovative ring design and consistently low needle insertion force.
- Available for general purpose (3-100 psi) and low pressure (1 to 45 psi) operation.
- For use with 23 gauge (0.63 mm, 0.025") needle or probe with blunt, truncated, conical tip.

The design of Merlin Microseal septa incorporates two separate sliding seal mechanisms. Since the needle or probe tip moves through the ring seals without puncturing them, no coring occurs and the bleed and ghost peaks that can result from damaged septa are prevented.

Three adapters are available for PerkinElmer and Varian inlets, while no adapter is required for the Agilent inlet. Installation is simple, requiring no modification of the injection port. Compatible with Shimadzu models GC-2010 and GC-2025 only.

Description	Merlin#	Similar to	cat.#
General Purpose Kit for Agilent GCs (3 to 100 psi) Includes: Nut & 2 General Purpose (#410) Microseals	404		22810
General Purpose Kit for Agilent GCs (3 to 100 psi) Includes: Nut & 1 General Purpose (#410) Microseal	405	Agilent 5182-3442	22811
Low Pressure Kit for Agilent GCs (1 to 45 psi) Includes: Nut & 2 Low Pressure (#310) Microseals	304	Agilent 5181-8833	22813
Low Pressure Kit for Agilent GCs (1 to 45 psi) Includes: Nut & 1 Low Pressure (#310) Microseal	305	Agilent 5181-8816	22814
General Purpose Kit for PerkinElmer GCs (3 to 100 psi) Includes: Nut, Adapter, O-ring, & 2 General Purpose (#410) Microseals	51-12	PE N9303344	22781
General Purpose Kit for Shimadzu GCs (3 to 100 psi) Includes: Nut, Adapter, O-ring, & 2 General Purpose (#410) Microseals	61-12		22972
General Purpose Kit for Varian 1078/1079 GCs Includes: Nut, Adapter, O-ring, & 1 General Purpose (#410) Microseal	21-11		22779
General Purpose Kit for Varian 1177 GCs Includes: Nut, Adapter, O-ring, & 1 General Purpose (#410) Microseal	22-11		22780
<b>Replacement Microseals</b>			
General Purpose Microseal (most applications, 3 to 100 psi)	410	Agilent 5182-3444	22812
Low Pressure Microseal (1 to 45 psi)	310	Agilent 5181-8815	22815
Microseal for SPME Applications (3 to 100 psi)	21-01	PE N9303345	22782
Replacement Microseal Nut	403	Agilent 5182-3445	22809



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

Remove septum without damaging an expensive weldment.

## Septum Puller

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

Description	qty.	cat.#
Septum Puller	ea.	20117

Visit [www.restek.com/septa](http://www.restek.com/septa) for a complete product listing.

**Contact your Restek representative and order yours today!**

Visit [www.restek.com/Contact-Us](http://www.restek.com/Contact-Us) to find a distributor or representative near you.

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