

## Septum Selection Guide

Septa Material	Advantages	Chemical Resistance	Applications	Max Temp
PTFE	Economical	Excellent	For single use only	225 °C
PTFE/SILICONE	Excellent resealing capabilities	Excellent until punctured; Not suitable for chlorosilanes	multiple injections then moderate resistance	200 °C
Pre Slit PTFE/SILICONE	Reduces coring; Prevents vacuum from inside of vial	Excellent until punctured than moderate resistance	multiple injections	200 °C
PTFE/SILICONE/PTFE	Resistant to coring; Autoclavable	Excellent	Above average resealing; Multiple injections or applications with long periods between injections	200 °C
PTFE/RED RUBBER	Economical	Excellent until punctured	Moderate resealability; Not recommended for holding samples for further analysis	90 °C
Polyethylene	Economical	Good; Not resealable	For single injection use only	175 °C
Polypropylene	Economical	Good; Not resealable	For single injection use only	175 °C
Gray Chlorobutyl Rubber	Very Economical	Not suitable for chlorinated solvents alkanes, benzenes or cyclohexanes	Suitable for low pressure applications	100 °C

### Septa for use with general chromatography vials

#### PTFE/Red Rubber Septa:

PTFE/Red Rubber septa are the most popular and economical choice for general gas chromatography applications. These septa are used primarily for routine analysis in gas chromatography with FID, TCD and FPD detectors. PTFE/Red Rubber offers moderate resealability and excellent chemical inertness before puncture. The low durometer of red rubber allows for easy needle penetration even with thin bore GC needles. PTFE/Red Rubber septa are not recommended for multiple injections over long time periods or retention of samples for further analysis.

A pre-slitted PTFE/Red Rubber septum provides for easier needle penetration as well as to release the vacuum that forms when a large volume of sample is withdrawn from a vial. This

septum provides chromatographic characteristics similar to that of a septum without a slit except that the ability to withstand exposure to aggressive solvents is slightly lessened.

Part No	Description	UOM
AR0-5646-13	Verex Seal, 11mm Dia., Snap, PTFE/Rubber, natural	1000/Pk
AR0-5740-13	Verex Seal, 11mm Dia., Crimp, PTFE/Rubber, silver	1000/Pk
AR0-5741-13	Verex Seal, 11mm Dia., Crimp, PTFE/Rubber, red	1000/Pk
AR0-5742-13	Verex Seal, 11mm Dia., Crimp, PTFE/Rubber, blue	1000/Pk
AR0-5743-13	Verex Seal, 11mm Dia., Crimp, PTFE/Rubber, green	1000/Pk
AR0-574G-13	Verex Seal, 11mm Dia., Crimp, PTFE/Rubber, gold	1000/Pk
AR0-8942-13	Verex Cap (pre-assembled), 9mm, Screw top, w/ PTFE/Rubber septa, blue	1000/Pk
AR0-89A2-13	Verex Cap (pre-assembled), 9mm, Screw top, w/ PTFE/Rubber preSlit septa, blue	1000/Pk

### PTFE/Silicone Septa:

High quality, pure silicone is laminated to PTFE to give a pure, highly inert septum with excellent resealing characteristics even after repeated punctures. PTFE/Silicone septa are the preferred product for use in most HPLC and GC applications where resealability and high purity are critical. Works well for applications where ease of needle penetration is important.

A PTFE/Silicone with slitted septum allows for easier needle penetration as well as to release the vacuum that forms when a large volume of sample is withdrawn from a vial. This septum provides chromatographic characteristics similar to that of a septum without a slit except that the ability to withstand exposure to aggressive solvents is slightly lessened. Pre-slit septa are highly recommended improving injection to injection reproducibility with autosamplers withdrawing greater than 50µL of sample from a 2mL vial, due to possible cavitation (vacuum).

Part No	Description	UOM
AR0-5652-13	Verex Seal, 11mm Dia., Snap, PTFE/Silicone, blue	1000/Pk
AR0-5656-13	Verex Seal, 11mm Dia., Snap, PTFE/Silicone, natural	1000/Pk
AR0-5672-13	Verex Seal, 11mm Dia., Snap, PTFE/Silicone preSlit, blue	1000/Pk
AR0-5676-13	Verex Seal, 11mm Dia., Snap, PTFE/Silicone preSlit, natural	1000/Pk
AR0-5780-13	Verex Seal, 11mm Dia., Crimp, PTFE/Silicone, silver	1000/Pk
AR0-8057-13	Verex Cap (pre-assembled), 10-425, w/ PTFE/Silicone septa, black	1000/Pk
AR0-8057-13-B	Verex Cap (pre-assembled), 10-425, w/ Bonded-in PTFE/Silicone septa, black	1000/Pk
AR0-8077-13	Verex Cap (pre-assembled), 10-425, w/ PTFE/Silicone preSlit septa, black	1000/Pk
AR0-8077-13-B	Verex Cap (pre-assembled), 10-425, w/ Bonded-in PTFE/Silicone preSlit septa, black	1000/Pk
AR0-8357-13	Verex Cap (pre-assembled), 13-425, w/ PTFE/Silicone septa, black	1000/Pk
AR0-8357-13-B	Verex Cap (pre-assembled), 13-425, w/ Bonded-in PTFE/Silicone septa, black	1000/Pk
AR0-8557-13-B	Verex Cap (pre-assembled), 24-414, w/ Bonded-in PTFE/Silicone septa, black	1000/Pk
AR0-8834-13	Verex Cap (pre-assembled), 8-425, w/ PTFE/Silicone septa, yel, w/Flange 1000/Pk	1000/Pk
AR0-8857-13	Verex Cap (pre-assembled), 8-425, w/ PTFE/Silicone septa, black	1000/Pk
AR0-8857-13-B	Verex Cap (pre-assembled), 8-425, w/ Bonded-in PTFE/Silicone septa, black	1000/Pk
AR0-8867-13	Verex Cap (pre-assembled), 8-425, w/ PTFE/Silicone/PTFE septa, black	1000/Pk
AR0-8877-13	Verex Cap (pre-assembled), 8-425, w/ PTFE/Silicone preSlit septa, black	1000/Pk
AR0-8877-13-B	Verex Cap (pre-assembled), 8-425, w/ Bonded-in PTFE/Silicone preSlit septa, black	1000/Pk
AR0-8951-13-B	Verex Cap (pre-assembled), 9mm, Screw top, w/ Bonded-in PTFE/Silicone septa, red	1000/Pk
AR0-8952-13	Verex Cap (pre-assembled), 9mm, Screw top, w/ PTFE/Silicone septa, blue	1000/Pk
AR0-8952-13-B	Verex Cap (pre-assembled), 9mm, Screw top, w/ Bonded-in PTFE/Silicone septa, blue	1000/Pk



## Accessory Product Data Sheet



### Septum Selection Guide

Part No	Description	UOM
AR0-8952-13-C	Verex Cert+ Cap (pre-assembled), 9mm, Screw top, w/ Bonded-in PTFE/Silicone septa, blue	1000/Pk
AR0-8952-13-M	Verex Cert+MSQ Cap (pre-assembled), 9mm, Screw top, w/ Locked-Fit MSQ PTFE/Silicone septa, blue	1000/Pk
AR0-8956-13-B	Verex Cap (pre-assembled), 9mm, Screw top, w/ Bonded-in PTFE/Silicone septa, natural	1000/Pk
AR0-8957-13	Verex Cap (pre-assembled), 9mm, Screw top, w/ PTFE/Silicone septa, black	1000/Pk
AR0-8957-13-B	Verex Cap (pre-assembled), 9mm, Screw top, w/ Bonded-in PTFE/Silicone septa, black	1000/Pk
AR0-8962-13	Verex Cap (pre-assembled), 9mm, Screw top, w/ PTFE/Silicone/PTFE septa, blue	1000/Pk
AR0-8967-13	Verex Cap (pre-assembled), 9mm, Screw top, w/ PTFE/Silicone/PTFE septa, black	1000/Pk
AR0-8972-13	Verex Cap (pre-assembled), 9mm, Screw top, w/ PTFE/Silicone preSlit septa, blue	1000/Pk
AR0-8972-13-B	Verex Cap (pre-assembled), 9mm, Screw top, w/ Bonded-in PTFE/Silicone preSlit septa, blue	1000/Pk
AR0-8972-13-C	Verex Cert+ Cap (pre-assembled), 9mm, Screw top, w/ Bonded-in PTFE/Silicone preSlit septa, blue	1000/Pk
AR0-8977-13	Verex Cap (pre-assembled), 9mm, Screw top, w/ PTFE/Silicone preSlit septa, black	1000/Pk
AR0-8977-13-B	Verex Cap (pre-assembled), 9mm, Screw top, w/ Bonded-in PTFE/Silicone preSlit septa, black	1000/Pk

#### PTFE/Silicone/PTFE Septa:

A layer of PTFE is laminated to each side of high purity, medium durometer silicone to form a septum that is the most resistant to coring while maintaining good resealing characteristics. The PTFE/Silicone/PTFE septum is recommended for the most critical applications such as ultra trace analysis or where there is a longer time between injections or for internal standard methods. PTFE/Silicone/PTFE septa provide superior performance with Agilent 1050, 1090, 1100, 1200 or any autosampler employing a large diameter, blunt tip needle.

Part No	Description	UOM
AR0-8867-13	Verex Cap (pre-assembled), 8-425, w/ PTFE/Silicone/PTFE septa, black	1000/Pk
AR0-8962-13	Verex Cap (pre-assembled), 9mm, Screw top, w/ PTFE/Silicone/PTFE septa, blue	1000/Pk
AR0-8967-13	Verex Cap (pre-assembled), 9mm, Screw top, w/ PTFE/Silicone/PTFE septa, black	1000/Pk

#### PTFE Septa:

A solid disk of PTFE offers superior chemical inertness against the most aggressive solvents. The thin membrane allows for easy penetration by most needles. PTFE septa are not resealable. They should be used with relatively short cycle times or single injection methods.

#### Polyethylene (PE) Septa:

The Pico Pure (PP) cap is made in one molded piece of inert, chemically resistant polyethylene. The starburst slits allows for easy needle penetration, even by large autosampler needles, such as on Waters and Agilent systems. Developed for high-sensitivity applications, especially in the LCMS Market, the purity of this cap for extractables is well below the picogram range. This high-grade polyethylene does not have the contamination issues PTFE/Silicone septa show at low levels of detection, while also sealing exceptionally well. The Pico Pure cap will puncture with far less force than needed to puncture a PTFE/Silicone septa, thus minimizing instrument wear and tear as well as downtime. The septa are not resealable and are intended for single use.

Part No	Description	UOM
AR0-89P6-13-C	Verex Cert+ Cap (one-piece), 9mm Screw top, Polyethylene w/ Starburst preSlit, natural	1000/Pk

#### Polypropylene (PP) Septa:

411 Madrid Avenue  
Torrance, CA 90501

Tel: 310-212-0555  
Fax: 310-328-7768

[www.phenomenex.com](http://www.phenomenex.com)  
[info@phenomenex.com](mailto:info@phenomenex.com)

Polypropylene septa are offered as single piece caps where the septum is molded as a part of the cap. The surface for needle penetration is relatively thin allowing for use with thin gauge needles. Polyethylene septa are not resealable and intended for single injection use.

No selections currently in the Verex line.

#### **Viton Septa:**

Viton offers the maximum chemical resistance for a wide variety of solvents. Viton has limited resealing capacity and should not be used for applications requiring multiple injections with long run times. Viton septa are highly recommended for use with chlorinated solvents. Due to its intrinsic hardness, Viton septa are not suitable for use with 32 gauge needles or high injection speeds.

No selections currently in the Verex line.

## **Headspace Septa**

#### **Gray Butyl Septa:**

The Gray Butyl septum with PTFE barrier is an economical solution for low temperature (100 °C), low-pressure applications. This septum is restricted for use with many solvents, and is not compatible with alkanes, benzene, chlorinated solvents or cyclohexane. Gray butyl offers good sealing characteristics for fixed gases and low molecular weight compounds.

Part No	Description	UOM
AR0-52A0-13	Verex Seal, 20mm Dia., PTFE/Gray Butyl Rubber, Pressure Release, silver	1000/Pk
AR0-52C5-13	Verex Seal, 20mm Dia., PTFE/Gray Butyl Rubber, magnetic cap	1000/Pk

#### **Ivory PTFE/Red Rubber Septa:**

PTFE/Red Rubber Septa offer good solvent resistance, good resealing characteristics and resistant to coring. They are an economical choice where a PTFE barrier is desired. The recommended operating temperature range for this septum is -40 to 100 °C

#### **PTFE White Silicone Septa:**

PTFE/Silicone septa are an excellent choice for the analysis of volatile organic compounds at low concentrations or operation at higher conditioning temperatures. The septa are manufactured for low background, low permeability and the highest performance of any headspace septum. Septa pre-fitted into aluminum seals are recommended to minimize handling prior to injection.

PTFE/Silicone septa provide excellent re-sealing characteristics and broad chemical compatibility. The recommended operating temperatures are between -60 and 200 °C.

Part No	Description	UOM
AR0-5220-13	Verex Seal, 20mm Dia., PTFE/Silicone Press. Release, silver	1000/Pk
AR0-5250-13	Verex Seal, 20mm Dia., PTFE/Silicone, silver	1000/Pk
AR0-5255-13	Verex Seal, 20mm Dia., PTFE/Silicone, magnetic cap	1000/Pk

**Gray PTFE/Molded Black Butyl Septa:**

This molded septum features a PTFE faced center surface that does not extend to the edges of the septum. The PTFE center area provides good resistance to a wide variety of solvents. The center puncture area is resistant to coring and will reseal even after several punctures. The black butyl outer sealing edge conforms well to the rim of the vial affecting a more positive seal. The operating temperature range for this septum is from -20 to 125 °C.

No selections currently in the Verex line.

**Black Rubber Septa:**

Black rubber septa are molded from a higher density rubber compound compared to the standard red rubber. This septum has characteristics similar to the gray butyl stopper with a slightly smaller temperature range of -20 to 100 °C. The Black Rubber septum is an economical choice for applications where reduced levels of vapor penetration are desired. Black rubber septa should be used with sturdier injection needles.

No selections currently in the Verex line.

**PTFE Aluminum Foil:**

Aluminum backing on this septum provides an effective vapor barrier along with high temperature compatibility. The operating temperature range for this septum is -60 to 220 °C.

No selections currently in the Verex line.