

Septum Selection Guide

Septa for use with general chromatography vials

PTFE/Red Rubber Septa: (PTFE/RR)

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.

NOTE: C4000-30 and C4000-51 series feature high quality red rubber with a thin (0.003") layer of PTFE. C4011-1A, C40911-98 series, C4011-51 series C4008-1A and C4008-98 series feature high quality medium durometer red rubber with a thin (0.015") layer of PTFE.

Seal 2000™ : PTFE/High Performance Red Rubber

Seal 2000 is a high purity, PTFE/Synthetic Red Rubber septum that provides a reduced background level for specific GC applications employing sensitive detectors such as ECD or NPD. Seal 2000 has resealing characteristics similar to PTFE/Red Rubber. Seal 2000 is offered pre-inserted into an aluminum seal only.

PTFE/Silicone Septa: (T/S)

High quality, pure silicone is laminated to 0.005" thick 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.

PTFE/Silicone septa are offered in a standard formulation as well as a soft durometer formulation recommended for applications where ease of needle penetration is important

PTFE/Silicone/PTFE Septa: (T/S/T)

A layer is 0.003" 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 T/S/T 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. T/S/T septa provide superior performance with Agilent 1050, 1090 1100 or any autosampler employing a large diameter, blunt tip needle.

PTFE Septa

A solid disk of 0.010" thick 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.

Pre-slit PTFE/Red Rubber Septa:

A PTFE/Red Rubber septum is provided with a thin 0.003" PTFE layer laminated to our standard red rubber and slit through the center to provide 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 PTFE/Silicone Septa:

A PTFE/Silicone septum is provided with a thin 0.005" PTFE layer laminated to our high purity silicone and slit through the center to provide 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 50 μ L of sample from a 2mL vial.

Polyethylene (PE) Septa:

Polyethylene septa are offered as single piece caps where the septum is molded as a part of the cap. The surface for needle penetration is 0.01" thick allowing for use with thin gauge needles. Polyethylene septa are not resealable and intended for single injection use.

Polypropylene (PP) Septa:

Chemically resistant polypropylene septa are available as 0.01" thick disks inserted into aluminum crimp seals. The surface for needle penetration is 0.01" thick allowing for use with thin gauge needles. Polypropylene septa are not resealable and intended for single use.

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.

20mm Headspace Septa

Gray Butyl Stopper: (C4020-30)

An economical septum for low temperature (125°C), or low-pressure applications. The Gray Butyl Stopper does not provide a PTFE barrier. This septum is not suitable for use with alkanes, benzene, chlorinated solvents or cyclohexane. Gray butyl stoppers offer good sealing characteristics for fixed gases and low molecular weight compounds

Ivory PTFE/Red Rubber Septa: (C4020-34)

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 PurePak™ Septa: (C4020-32)

PurePak 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 packed in a glass Purepak jar to assure 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.

Gray PTFE/Molded Black Butyl Septa: (C4020-36)

C4020-36 is a molded septum featuring 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.

Black Rubber Septa: (C4020-40)

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.

PTFE Aluminum Foil (High Temperature Septum - C4020-37)

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.