

High-performance GC septa with reduced sticking.

Each batch must pass:

- Bleed test for low contamination
- Stick test for low injection port adhesion
- Stable durometer for consistent use

Thermo Scientific TR-Green Septa

Extended life with less coring

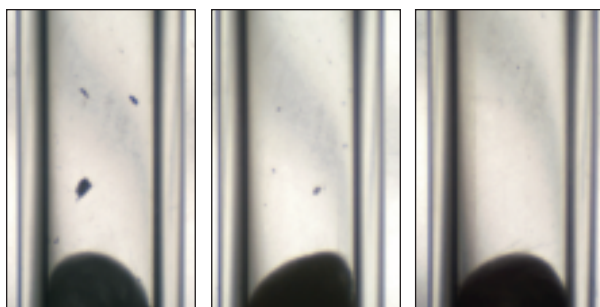


Figure 1: Core formation after 200 injections with a rounded-tip needle; manual injections with syringe guide.

Design Features

Thermo Scientific TR-Green septa are individually molded for an exact fit in the GC inlet. Materials and process parameters are chosen to make our TR-Green a true low-bleed green septum. A small chamfer (dimple) is added in the center of the septum to guide needles to the same spot with every injection. This helps reduce coring which can lead to contamination and shorter life.

Coring

Cores typically form when the syringe needle enters the septum at slightly different locations. Chunks of septum material between closely spaced channels can fall or be pushed into the liner by subsequent injections. See Figure 1. Multiple channels may be especially prevalent with manual injections.

A chamfer (CenterGuide™) is molded into the TR-Green septa to help guide the sampling needle to the same point at each injection. Generally, only one channel path is formed, to greatly reduce the possibility of coring by the disruption of contiguous needle channels. See Figure 1.

Sticking and Hardening

Sticking may occur when septa are left too long in a hot injection port. Sticking after a relatively short time is a sign of poor-quality silicone. Some septa do not stick because they harden quickly, and with increasing brittleness there is less tendency to stick. Others are protected somewhat from sticking by silicone extractables, or bleed. Each lot of TR-Green is tested for low sticking in a GC injection port.

Both green and red septa can have good high temperature properties, if the compounds are chosen properly. See Figure 2. The choice of septum by the user should be made based on analysis requirements.

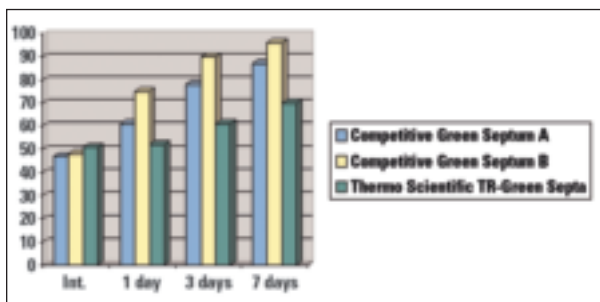


Figure 2: Shore A Durometer/7 Day 290 °C Hardening Test

Bleed

Each lot of TR-Green septa is tested for low bleed. A core of septum material of known size is placed directly into a GC injection port liner, at a setpoint of 250 °C. Volatile matter, or bleed, is detected by FID during a ramped temperature run, see Figure 3. GC inlets are often designed to minimize bleed by incorporating a septum purge flow, to flush away volatiles. Bleed can still be an issue as cores are pushed into the liner by the needle. TR-Green septa minimizes contamination with both low bleed and low core production.

Injection Life

We test for the injection life of septa in conditions close to actual use, by piercing multiple times with autosampler syringe needles under controlled conditions. Our TR-Green septum typically attains hundreds of injections before failure. In addition, the CenterGuide chamfer helps reduce the incidence of early failure through core formation.

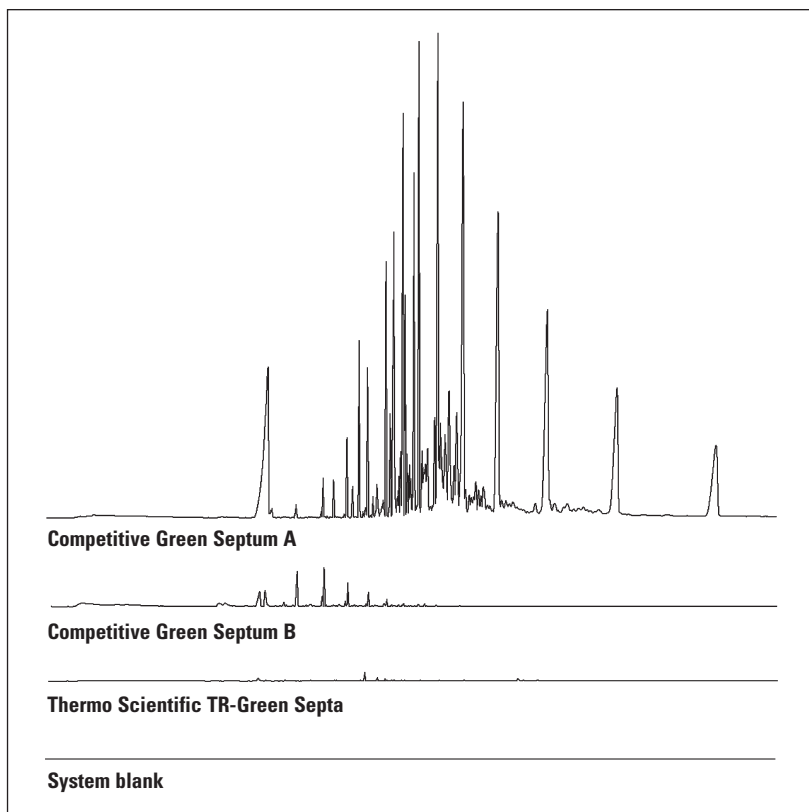


Figure 3: Bleed Comparison

Ordering Information

Description	Part Number	Qty
TR-Green 17 mm Septa	313G3211	PK 50
TR-Green 12.7 mm Septa	313G3228	PK 50
TR-Green 11 mm Septa	313G3230	PK 50
TR-Green 9 mm Septa	313G3240	PK 50



For more information, visit the **Chromatography Resource Center** at www.thermo.com/columns

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