Technical Note

S-SL Maintenance Guide

June 2025, SCION Instruments, Applications Department, V.1

How does the split/splitless injector work?

The SCION Instruments Split/Splitless (SSL/ 1177) injector shown in Figure 1, is designed to operate in two modes; split and splitless. This can be programmed in the instrument method.

A split/splitless program allows customers to work with a wide range of sample concentrations. Within CompassCDS, you can easily switch between the two modes based on the concentration of the samples.

The SSL injector is isothermal, so it can only be programmed to a constant temperature during analysis. The injector temperature is application dependant but should be set high enough to ensure that any target analytes, sample matrix, and diluent are all volatilized effectively in the injector. Capillary columns are commonly used with the SSL injector. Learn more about SCION's injectors in our Injectors Guide. It is important to note that liner and solvent choice, method temperature and injection volume are crucial to SSL injection and if not chosen correctly can cause issues such as backflash.

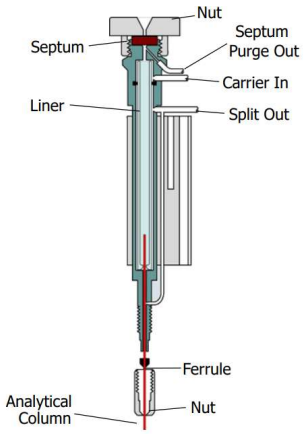

Figure 1 S/SL (1177) injector diagram

Maintenance schedule

It is recommended to have a maintenance schedule within your laboratory. The frequency of which maintenance will be required is based on the applications being run in your laboratory and the sample matrix. Performing maintenance is important to prevent contamination and optimize the system reliability and reproducibility. Regular maintenance includes changing the liner, septum and O-ring. See Table 1 as an example of how to track SSL maintenance.

Table 1 Example maintenance schedule

Date	Liner	O-ring	Septum
2-June-2025	Yes	Yes	Yes
2-July-2025	Yes	Yes	No

Carrying out regular maintenance

Make sure that you work in a clean workspace to prevent contamination and always wear clean gloves!

Before beginning any maintenance on the SSL injector make sure that the injector is cooled down below 100°C. Then turn OFF the column flow.

- Unscrew the top of the injector, take out the septum with tweezers or clean gloves.
- Unscrew both screws and lift up the injector head.
- Take out the liner which will be attached to the O-ring.

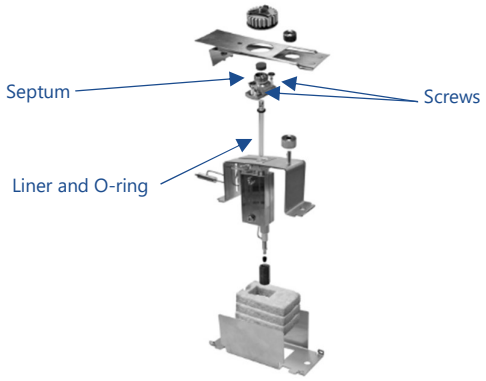

Figure 2 S/SL (1177) injector expanded

Replace the septa, liner and O-ring and reassemble the injector. Heat up the injector to the method temperature. Now you can turn ON the flow. Check if the desired pressure is reached and perform a leak check. For a tutorial video, see our YouTube channel. For more information on liner choice, see our S-SL liner guide.

Other maintenance

The SSL injector has two split filters, the charcoal and moisture filters. These filters must be maintained in order to prevent damage to your GC'S Electronic Flow Controller (EFC). For the majority of laboratories changing these filter annually is sufficient and would be conducted by a service engineer as part of an annual service.

Baking

If you are experiencing issues with high levels of contamination in your SSL injector and have changed the septa and liner then it may be necessary for you to "bake out" the injector. To bake out the injector set it to 300 °C for about 2 hours. Before running samples, return to method temperature and run three blank injections to determine if there has been an improvement.