

1. Syringe Types

Key to selecting the right syringe for your application is to identify your sample type and determine the smallest volume to be dispensed or injected. Hamilton offers two types of syringes, GASTIGHT and MICROLITER, which differ in the design of the plunger.

GASTIGHT Syringes for Gases and Liquids

GASTIGHT syringes have a precision-machined PTFE plunger tip which creates a leak-free seal. With the tight fit, the tip essentially wipes the interior of the syringe barrel free of sample. This feature is particularly useful with heterogeneous samples as it reduces the chance that a deposit will occur and cause the plunger to freeze.

The GASTIGHT series still requires careful and regular cleaning to minimize deposits on the glass which might score the soft PTFE plunger tip and resulting in a leak. Replacement plunger assemblies are available for GASTIGHT syringes. However, a replacement plunger should not be put into a barrel which still contains deposits because the new plunger tip is likely to be scored by the deposit after only a few strokes. It is important to remember that over time, the increased friction created by the tight seal may cause the PTFE tip to wear out and the plunger will have to be replaced.

MICROLITER Syringes for Liquids

MICROLITER syringes incorporate a hand-fitted stainless steel plunger with a finely bored syringe barrel. These syringes are ideal for homogenous samples that are not prone to precipitation or bonding with glass.

Under the proper conditions, plunger wear is minimal and the life of a MICROLITER syringe is almost unlimited. However, when using heterogeneous solutions with a MICROLITER syringe, the user must be especially diligent about cleaning the syringe after each use. For more information, see our *Guide to Maintaining and Using Hamilton Syringes*.

In some cases, even diligent cleaning is not sufficient and the barrel will become soiled. The deposits on the glass will compromise the tight tolerances between the glass and the plunger resulting in a frozen plunger. Plungers for MICROLITER syringes cannot be interchanged or replaced if damaged. For heterogeneous solutions, a GASTIGHT syringe is the best option.