

Solvent and Buffer Compatibility of Alcott Autosamplers

Alcott Chromatography manufactures two families of HPLC Autosamplers, the Model 708 family and the Model 718 family. Both families are built upon the same, basic chassis and share similar materials of construction. The materials of construction were chosen for their durability and compatibility in a variety of environments and operating conditions. However, the following guidelines are provided to insure the maximum usefulness of each instrument.

Plumbing

The plumbing materials that sample and Mobile Phase solutions come in contact with are 300 series stainless steel, Nitronic 60, PEEK, and Teflon®. These materials are inert under most HPLC conditions although alternates are available for special applications. Regardless of the material of construction, always flush the Autosampler's plumbing with plenty of distilled water after using buffered or corrosive samples. Precipitation of salts will cause plugging of the flow passages.

The standard, internal Valco valve used in both families of autosamplers, is composed of Nitronic 60, a form of stainless steel chosen for its ease of machineability. It should not be used with buffered samples or Mobile Phases, especially those using halogenated salts! Valves made of Hastelloy C or Titanium are recommended for use with buffered samples or Mobile Phases. Alternate rotor seal materials are also available!

Vials and Caps

The Model 708 family of Positive Displacement Autosamplers uses special sample vials which are available in either Type II Borosilicate glass or polypropylene. Type II Borosilicate vials are available in clear glass for most sample types, and amber glass for photosensitive samples. The polypropylene vials are recommended for aqueous applications and all FilterCap™ applications.

The standard vial cap used with Model 708 family of Positive Displacement Autosamplers is made of "Food Grade" (low additive) polyethylene. They are compatible with most commonly used HPLC solvents. However, strong organic solvents such as Methylene Chloride, Chloroform, and Tetrahydrofuran can attack the caps by extracting residual monomer and additives from the cap's surface layers. This can cause poor performance by retarding the cap's sliding action as it is driven into the vial. Caps pre-extracted with Methylene Chloride exhibit no problems when using these solvents.

Table 1 is a list of compatible solvents for use with the Model 708 family of Positive Displacement Autosamplers.

The Model 718 family of Variable Volume Autosamplers were designed to be used with any "off-the-shelf" 12 × 32 mm, 8 × 45 mm, or 15 × 45 mm sample vials. These vials are available from many different vendors and are made of an assortment of materials. Choose the vials and caps made of the material best suited for your application.

FilterCaps

FilterCaps, designed for use with the Model 708 family of Autosamplers, are constructed of polypropylene. They are compatible with most common HPLC solvents but are not recommended for samples dissolved in Hexane or Heptane. These solvents may cause polypropylene to swell making the filter membrane impermeable.

| Table 1: Compatible HPLC Solvents |
|--|
| Acetic Acid Acetone Acetonitrile All Aliphatic Alcohols All Aliphatic Hydrocarbon Solvents* Buffers (pH from 1 to 14, Ionic strength less than 2 M)** Ethyl Acetate n,n-Dimethyl Formamide Water |
| 708 Caps Should Be Presoaked in Methylene Chloride Before Using |
| Chloroform Methylene Chloride Tetrahydrofuran |
| * Not for use with FilterCaps or Polypropylene Vials ** Concentrated mineral acids, such as Hydrochloric, Nitric, and Sulfuric not recommended! |