Performance PerSPECtives

Waters® Alliance™ Filtration System

An innovative approach to HPLC sample filtration that raises standards for ease of use and productivity.

The Alliance Filtration System dramatically changes the way sample filtration is performed for Alliance™ HPLC systems. Up to 24 samples can be simultaneously filtered into vials held in a Waters 2690 Separation Module sample carousel. The Alliance Filtration system is comprised of a manifold which houses the Alliance sample carousel and a specially designed Pall Gelman Laboratory AcroPrep™ disposable filter plate containing 24 membrane filters. (Waters brochure WP120)

Material and Labor Requirements for filtration of 24 samples

Syringe Filter Technique	**Alliance Filtration System**
24 disposable syringes 24 syringe filters	24 disposable pipette tips 1 AcroPrep filter plate
25 minutes	**5 minutes**

Some of the advantages the Alliance Filtration System has over the conventional syringe filter device technique:

Ease of Use: No need to use cumbersome, individually wrapped disposable syringes. With the Alliance Filtration System you can use disposable pipette tips which are less costly and easier to use.

Saves Time: The conventional syringe filter technique is a one-at-a-time filtration process. With the Alliance Filtration System, you can simultaneously filter up to 24 samples, in only seconds, saving both time and labor.

Saves Space: Using the conventional syringe filter technique requires significant bench space. The Alliance Filtration System is compact and requires much less bench space.

Affordable: When factoring in material and labor costs, the Alliance Filtration system is comparable in cost to the conventional syringe filter technique.

Improves Productivity: The conventional syringe filter technique requires 25 minutes of labor per carousel. The Alliance Filtration System improves productivity in your lab by saving 20 minutes in labor time per carousel.

Waters

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Results from Various Experiments

HPLC Certification

Pall Gelman Laboratory HPLC certification ensures that analytical results will not be compromised by extractable filtration materials. To verify low levels of UV-detectable extractables, statistically representative samples of the entire AcroPrep filter plate line are randomly taken and tested for compatibility with common HPLC solvents using various chromatographic tests. For a complete list of compatible solvents see Waters brochure WP120.

Evaporation Test

Purpose: The purpose of this test was to determine the approximate time that the Alliance filtration manifold may be kept under vacuum after filtration is completed before significant loss of volatile solvent (methylene chloride) occurs. 10 replicate tests of 20 ug/mL of n-heptadecane were filtered, the vacuum left on for various times, and recovery determined by GC/FID.

Results:

Samples removed within seconds after filtration complete
n-heptadecane Recovery - 97.8% RSD - 3.3%
No detectable loss of methylene chloride

Samples removed one minute after filtration complete
n-heptadecane Recovery - 101% RSD - 3.0%
Minimal or no loss of methylene chloride

Samples removed 10 minutes after filtration complete
n-heptadecane Recovery - 188% RSD - 17.5%
Significant loss of methylene chloride

Cross Contamination

Purpose: The purpose of this test was to determine if any vial-to-vial cross contamination occurred when filtering. A 0.45 um AcroPrep GHP Filter Plate and 0.45 um Nylon AcroPrep Filter Plate were each tested. Solvents tested were water, acetonitrile, 0.1%(aq.) sodium dodecyl sulfate (SDS) and methanol.

Results: Detected no cross contamination of adjacent vials with solvent to the 0.01% level as determined via GC/FID.

Data provided by M.S.Young and M. Capparella