

Membrane Choice in Syringe Filters for Aqueous Buffers - HPLC Primer

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Overview

Selecting the correct syringe filter membrane is essential for obtaining reliable and reproducible HPLC results. Aqueous buffers are common in HPLC, dissolution testing, and routine sample preparation, but their composition varies widely.

Because of this variability, choosing the best membrane requires understanding solvent compatibility, extractables, and the behavior of your specific sample.

General Membrane Recommendations for Aqueous Buffers

For most laboratory workflows involving aqueous mobile phases, water-based buffers, or dissolution media, the two most commonly recommended membrane types are:

1. Hydrophilic Nylon

Nylon membranes are widely used because they offer:

- Excellent compatibility with water and most aqueous buffers
- High mechanical strength and durability
- Low extractables in water-based systems
- Good flow rates and fast filtration
- Nylon is often the first choice for general HPLC sample prep.

2. PES (Polyethersulfone)

PES membranes are another strong candidate due to:

- Very low extractables, especially in purely aqueous systems
- High flow rates
- Suitability for biological samples and dissolution media
- Strong resistance to many water-based solutions

PES is often preferred when extremely low extractables are required.

Why Sample-Specific Testing Is Important

While Nylon and PES are ideal starting points, the best membrane depends on your sample and its solvent. Some samples can interact with membranes in unexpected ways, leading to:

- Adsorption of analytes

- Subtle peak distortions
- Retention time shifts
- Loss of sensitivity

Because of these potential interactions, the most reliable approach is:

1. Analyze your sample without filtration.
2. Analyze the same sample after filtration using Nylon or PES.
3. Compare chromatograms.

There should be no meaningful change in peak shape, retention, or recovery. If differences occur, switching membranes—or pre-rinsing—may be necessary.

Practical Tip

If your buffer contains unusual components (detergents, proteins, strong salts, or viscous media), testing both membranes helps determine which provides the most stable and artifact-free results.

AQ™ Syringe Filter Resources

For membrane options, part numbers, chemical compatibility data, and product images:

- Click [HERE](#) for AQ™ brand syringe filter ordering information.
- Attachments: White Paper: MICROSOLV Filters Equivalency pdf [Download File](#)

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MicroSolv Technology Corporation

9158 Industrial Blvd. NE, Leland, NC 28451

Tel: (732) 380-8900

Fax: (910) 769-9435

Email: customers@mtc-usa.com

Website: www.mtc-usa.com