Simplify Sample Prep and Protect Analytical Equipment With Syringe Filters

- **Cost-effective, reliable filtration.**
- **Protect analytical columns and instruments.**
- **Achieve more reproducible analyses.**

The importance of clean sample extracts in maintaining analytical instrumentation cannot be overstated. Particulates commonly found in extracts can quickly damage instrument components, causing costly downtime and repair. Chromatographic columns, injectors, detectors, and small diameter tubing are easily plugged by particulates. Even if plugging does not occur, the slow accumulation of particles over time can affect flow rates and create interferences that reduce overall reproducibility. Clean extracts will greatly extend the life of costly chromatographic columns and replacement parts, particularly for HPLC systems.

Sample cleanup to remove particulates can be accomplished through the use of inexpensive and easy-to-use syringe filters. These membranes vary in properties and should be selected based on matrix and solvent characteristics (Table I). With a female Luer-Lok® inlet and male slip outlet, the syringe filter easily fits onto the end of the disposable syringe containing the sample, as shown in Figure 1. The extract is gently pushed through the filter into a sample vial for injection, removing damaging particulates from the final extract. This connection can be further strengthened by using a syringe with a Luer-Lok® tip, creating a more secure connection that can withstand higher filtration pressure.

With a variety of syringe filters available, understanding the role of diameter, pore size, and membrane will aid in proper selection. Sample volume will determine the choice of diameter, ensuring that the filter is not overloaded. Porosity is dependent on application and, in the case of HPLC, the particle size of the column packing. Tables II and III provide guidelines for selecting filter size and porosity. Use these guides to select the right filter for your application. Investing in inexpensive syringe filters is a cost-effective way to reduce variability and protect expensive equipment.

Figure 1 Rugged, cost-effective syringe filters simplify sample prep and protect analytical columns and instruments.

Table I Membrane selection guide.

Membrane	Properties	Applications	Incompatible with
Cellulose Acetate	hydrophilic	aqueous solutions	organic solvents
Nylon	hydrophilic, low protein binding	bases, HPLC solvents, alcohols, aromatic hydrocarbons	acids, aggressive halogenated hydrocarbons, proteins
PES	hydrophilic, low protein binding, fast flow rates	filtration of buffers & culture media	—
PVDF	hydrophilic, low protein binding	alcohols, biomolecules	bases, esters, ethers, ketones
PTFE	hydrophobic	organic solvents, acids, alcohols, bases, aromatics	aqueous samples without pre-wetting (to avoid high backpressure)

Cellulose Acetate, Nylon, PES, PVDF—hydrophilic applications; PTFE—hydrophobic applications

Table II Size selection guide.

Size	Sample volume
4 mm ID	<1 mL
13 mm ID	1-10 mL
25 mm ID	10-100 mL
30 mm ID	100-200 mL

Table III Porosity selection guide.

Porosity	HPLC column compatibility
0.22 μm	Use with ≤3 μm packings, or to remove microbial growth
0.45 μm	Use with >3 μm packings

More Choices. Same Great Savings!

Syringe Filters with Luer-Lok® Inlet

- Luer-Lok® inlet offers leak-tight syringe connection.
- Variety of filter types, porosities, and diameters.
- Color coded for easy identification.
- Rugged polypropylene housing.
- Autoclavable to 121 °C for 15 minutes.
- Quantity break pricing for greater savings.

Size	Porosity	Color	quantity	cat.#
Cellulose Acetate				
4mm	0.22µm	green	100-pk.	23972 NEW!
4mm	0.45µm	blue	100-pk.	23973 NEW!
13mm	0.22µm	green	100-pk.	26156
13mm	0.45µm	blue	100-pk.	26155
25mm	0.22µm	green	100-pk.	26158
25mm	0.45µm	blue	100-pk.	26157
30mm	0.22µm	green	100-pk.	23982 NEW!
30mm	0.45µm	blue	100-pk.	23983 NEW!
Nylon				
4mm	0.22µm	yellow	100-pk.	23970 NEW!
4mm	0.45µm	pink	100-pk.	23971 NEW!
13mm	0.22µm	yellow	100-pk.	26146
13mm	0.45µm	pink	100-pk.	26147
25mm	0.22µm	yellow	100-pk.	26148
25mm	0.45µm	pink	100-pk.	26149
30mm	0.22µm	yellow	100-pk.	23980 NEW!
30mm	0.45µm	pink	100-pk.	23981 NEW!
PES (polyethersulfone)				
4mm	0.22µm	white	100-pk.	23978 NEW!
4mm	0.45µm	blue	100-pk.	23979 NEW!
13mm	0.22µm	white	100-pk.	23966 NEW!
13mm	0.45µm	blue	100-pk.	23967 NEW!
25mm	0.22µm	white	100-pk.	23968 NEW!
25mm	0.45µm	blue	100-pk.	23969 NEW!
30mm	0.22µm	white	100-pk.	23988 NEW!
30mm	0.45µm	blue	100-pk.	23989 NEW!
PTFE (polytetrafluoroethylene)				
4mm	0.22µm	purple	100-pk.	23974 NEW!
4mm	0.45µm	orange	100-pk.	23975 NEW!
13mm	0.22µm	purple	100-pk.	26142
13mm	0.45µm	orange	100-pk.	26143
25mm	0.22µm	purple	100-pk.	26144
25mm	0.45µm	orange	100-pk.	26145
30mm	0.22µm	purple	100-pk.	23984 NEW!
30mm	0.45µm	orange	100-pk.	23985 NEW!
PVDF (polyvinyldifluoride)				
4mm	0.22µm	brown	100-pk.	23976 NEW!
4mm	0.45µm	red	100-pk.	23977 NEW!
13mm	0.22µm	brown	100-pk.	26150
13mm	0.45µm	red	100-pk.	26151
25mm	0.22µm	brown	100-pk.	26152
25mm	0.45µm	red	100-pk.	26153
30mm	0.22µm	brown	100-pk.	23986 NEW!
30mm	0.45µm	red	100-pk.	23987 NEW!

Cellulose Acetate, Nylon, PES, PVDF—hydrophilic applications; PTFE—hydrophobic applications

Top 10 Reasons to Use Restek Syringe Filters

1. Protect any analytical system.
2. Extend HPLC column lifetime.
3. Achieve more reproducible analyses.
4. Variety of membranes, porosities, and diameters available.
5. Luer-Lok® inlet provides strong, leak-tight syringe connection to withstand filtration pressure.
6. Rugged construction—autoclavable to 121 °C for 15 minutes (75 psi).
7. Color coded by membrane and porosity, for easy identification.
8. Reusable storage container.
9. FREE sample pack available. Add "-248" to the part number.
10. LOW, LOW PRICES.

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