

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 LC 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 lock 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 lock tip, creating a more secure connection that can withstand higher filtration pressure.

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



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 LC, 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.

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 | LC 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 Lock Inlet

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

Cellulose Acetate, Nylon, PES, PVDF—hydrophilic applications; PTFE—hydrophobic applications
Syringe filters are for laboratory use only.

Contact your Restek representative and order yours today!

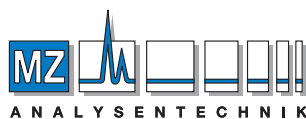
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Top 10 Reasons to Use Restek Syringe Filters

- 1 Protect any analytical system.
- 2 Extend LC column lifetime.
- 3 Achieve more reproducible analyses.
- 4 Variety of membranes, porosities, and diameters available.
- 5 Luer lock 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 for easy identification.
- 8 Convenient dispenser box.
- 9 FREE sample pack available.
Add "-248" to the part number.
- 10 LOW, LOW PRICES.



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