

Thomson SINGLE StEP® Filter Vials

Sample filtration that's economical, eco-friendly, and fast!

- Easy-to-use vials offer fast sample filtration and require only a squeeze of your fingers.
- Color-coded caps allow easy identification of 0.2 µm or 0.45 µm membranes in PVDF, PTFE, PES, or nylon.
- Pre-slit PTFE/silicone caps help eliminate broken autosampler needles and cored septa.
- Low dead volume units feature rugged polypropylene vial and insert with 450 µL loading capacity.
- Fit most standard 12x32 mm autosamplers, including UHPLC instruments.



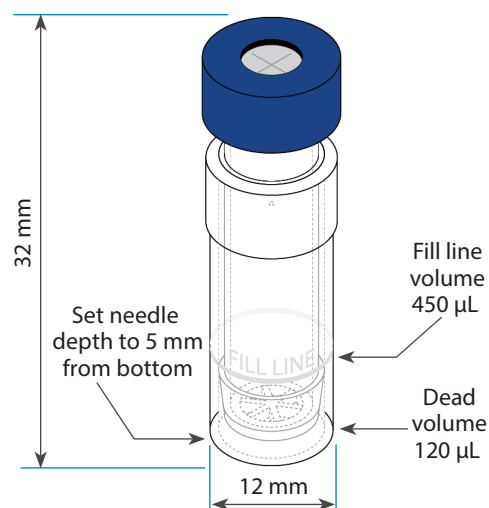
Patented Thomson SINGLE StEP® filter vials speed up sample preparation and analysis. The incorporated vial plunger contains an integrated membrane that filters samples with just one squeeze—a SINGLE StEP® process to minimize sample loss while saving time and money.

SINGLE StEP® vials are less cumbersome and safer to use than conventional sample preparation methods. Even with a luer lock syringe and filter, it is difficult to ensure a tight connection and complete sample transfer. At best, some sample remains in the syringe; at worst, the sample ends up on your bench. Avoid these irritating—and potentially hazardous—situations with Thomson SINGLE StEP® filter vials.

By doing away with the syringe and the syringe filter, as well as the time required to perform sample filtration using them, you can cut your sample prep costs in half (Figure 2). Thomson SINGLE StEP® filter vials are also more eco-friendly because there is far less waste, not to mention more space on your bench!

Pre-slit caps ensure a clean, no-hassle aliquot draw, helping eliminate broken needles and cored septa. Thomson SINGLE StEP® filter vials are also compatible with most standard autosamplers, such as Agilent, Shimadzu, and Waters—even UHPLC instrumentation.

Figure 1: The patented design of Thomson SINGLE StEP® filter vials allows you to perform sample clean-up in the same vial that goes into your autosampler.



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Table I: Many common drugs and compounds of interest in clinical/toxicology or drinking water samples are compatible with Thomson SINGLE StEP® filter vials.

| Drug Name | PVDF 0.2 µm | PES 0.2 µm | PTFE 0.2 µm | PES 0.45 µm | PVDF 0.45 µm |
|--|----------------|---------------|----------------|----------------|-----------------|
| Acebutolol | | X | | | |
| Acetylsalicylic Acid | | X | | | |
| Alpha1-Proteinase Inhibitor (Human) | | | | | X |
| Alprenolol | | X | | | |
| Amiloride | | X | | | |
| p-Aminobenzoic Acid (PABA) | | | | | X |
| p-Aminosalicylic Acid | | | X | | |
| Amphotericin B for Injection USP | | | | | X |
| Atenolol | | X | | | |
| Azathioprine | | | | X | X |
| Azodicarbonamide | | X | | | |
| Bleomycin Sulfate | | | X | | |
| Caffeine | | X | | | |
| Cetirizine | | | | X | X |
| Chlorothiazide | | X | | | |
| Chloramphenicol | | X | | | |
| Cimetidine | | X | | | |
| Ciprofloxacin | | X | | | |
| Cisplatin, Cisplatin Injection | | | X | | |
| Cyclosporine A | X | | | | |
| Cytarabine | | | X | | |
| Daunorubicin | | | X | | |
| DE-310 | | X | | | |
| Diclofenac | | | | | X |
| Enalapril | | X | | | |
| Ethionamide | | | X | | |
| Factor IX Complex Heat-Treated | | | | | X |
| 5-Fluorouracil | | | X | | |
| (18F) Fluoromisonidazole, Misonidazole | X | | | | |
| Gatifloxacin | | | | X | X |
| Hydrochlorothiazide | | X | | | |
| Ibuprofen | | | | X | X |
| Isoniazid | | | X | | |

| Drug Name | PVDF 0.2 µm | PES 0.2 µm | PTFE 0.2 µm | PES 0.45 µm | PVDF 0.45 µm |
|--------------------------------|----------------|---------------|----------------|----------------|-----------------|
| Isonicotinic Acid | | | X | | |
| Ketamine | | X | | | |
| Las 35917 | | | | | X |
| Levofloxacin | | | | X | X |
| Lomefloxacin | | | | X | X |
| Methyl Gag; NSC-32946 | | | X | | |
| Metoprolol | | X | | | |
| Mitomycin | | | X | | |
| Morphazinamide | | | X | | |
| Nadolol | | X | | | |
| Nicotinic Acid | | | X | | |
| Paclitaxel | X | | | | |
| Pefloxacin | | | | X | X |
| Pentoxifylline (PTX) | X | | | | |
| Phenytoin | | | | | X |
| Pyrazinamide | | | X | | |
| Pyrimethamine | | | | X | X |
| Ranitidine | | X | | | |
| Rifampicin | | | | X | X |
| Sabeluzole | | | | | X |
| Streptokinase | | | | | X |
| Sulfadiazine | | | | | X |
| Sulphasalazine | | X | | | |
| Sulpiride | | X | | | |
| Terbutaline | | X | | | |
| Thiotepa Parenteral Sterile | | | X | | |
| Timolol | | X | | | |
| Tobramycin Vincristine Sulfate | | | X | | |
| Tranexamic Acid | | X | | | |
| Triamcinolone Acetonide | | X | | | |
| Triazinate; NSC-139105 | | | X | | |
| Tropicamide | | | | X | |
| Vinblastine Sulfate | | | X | | |

For a complete list of references showing the successful use of Thomson SINGLE StEP® vials in the above applications, visit <http://htslabs.com/techcenter/filtration/compound-index/index.php#1>

Figure 2: Thomson SINGLE StEP® filter vials are an economical alternative when compared to material and time costs of conventional filtration.

| | | | |
|-------------------|---------------|--------------------|---------------|
| Vial | \$0.30 | Filter Vial | \$2.20 |
| Cap | \$0.30 | | |
| Syringe | \$0.20 | | |
| Syringe Filter | \$1.25 | | |
| Labor* (3 min) | \$1.25 | Labor* (15 sec) | \$0.10 |
| Total | \$3.30 | Total | \$2.30 |

*Calculated based on a \$25/hour labor rate.

Table II: Easily choose your vial based on the class of compound you will be working with.

| Membrane | Properties | Compound Class | Incompatible With |
|----------|---|---|--|
| 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) |

Nylon, PES, PVDF—hydrophilic applications; PTFE—hydrophobic applications
*For detailed compatibility, see Table III

Dirty samples and complex matrices can cause interference and make quantification difficult. SINGLE StEP® vials alleviate matrix challenges, making them ideal for clinical, environmental, food safety, and other labs! As demonstrated in Tables I–III, they are also compatible with a wide variety of solvents, mobile phases, and compounds of interest.

After using Thomson SINGLE StEP® filter vials themselves, Restek's technical experts are certain that you'll find them to be a convenient and worthy replacement to your current sample filtration technique. Free sample 5-packs are available for your evaluation—simply add “-247” to any cat.#. Contact Restek Customer Service or your local Restek representative today!



Table III: Most solvents and mobile phases used in liquid chromatography are also compatible with SINGLE STEP® filter vials.

| Solvent / Mobile Phase | HOUSINGS | FILTERS | | | |
|---|--------------------|--------------------------------|--------------------------------|-------------------------|-------------|
| | PP (polypropylene) | PTFE (polytetrafluoroethylene) | PVDF (polyvinylidene fluoride) | PES (polyether sulfone) | NYL (nylon) |
| Acetic Acid (glacial) <i>acid, organic</i> | TST | R | R | R | NR |
| Acetone <i>ketone</i> | R | R | NR | NR | R |
| Acetonitrile (ACN) <i>nitrile</i> | R | R | TST | NR | R |
| Alconox, 1% <i>surfactant/detergent</i> | TST | TST | TST | TST | TST |
| Ammonium Hydroxide <i>caustic</i> | TST | R | R | NR | TST |
| Ammonium Sulfate (saturated) <i>salt, aqueous solution</i> | R | R | NR | TST | R |
| Amyl Acetate <i>ester</i> | TST | R | R | R | TST |
| Amyl Alcohol <i>alcohol</i> | R | R | R | R | TST |
| Benzene <i>HC, aromatic</i> | NR | R | R | NR | R |
| Benzyl Alcohol <i>HC aromatic/alcohol</i> | NR | R | R | TST | TST |
| Boric Acid (aqueous solution) <i>acid, inorganic</i> | R | R | TST | R | R |
| Butyl Acetate <i>ester</i> | TST | R | TST | NR | R |
| Butyl Alcohol <i>alcohol</i> | R | R | R | R | R |
| Carbon Tetrachloride <i>HC, halogenated</i> | NR | R | R | NR | TST |
| Cellosolve (ethyl) <i>glycol ether</i> | R | R | TST | R | R |
| CHAPS (aqueous solution) <i>surfactant/detergent</i> | TST | TST | TST | TST | TST |
| Chloroform <i>HC, halogenated</i> | NR | R | R | NR | NR |
| Cyclohexanone <i>ketone</i> | NR | R | NR | NR | R |
| Diethyl Pyrocarbonate, 0.2% <i>carboxylic anhydride</i> | TST | TST | TST | TST | TST |
| Dimethyl Sulfoxide (DMSO) <i>sulfoxide</i> | R | R | NR | NR | R |
| Dimethylacetamide <i>amide</i> | R | R | NR | NR | NR |
| Dimethylformamide <i>amide</i> | R | R | NR | TST | R |
| Dioxane <i>ether</i> | R | R | R | TST | R |
| Ethers <i>ether</i> | NR | R | R | TST | R |
| Ethyl Acetate <i>ester</i> | TST | R | R | NR | R |
| Ethyl Alcohol <i>alcohol</i> | R | R | R | R | TST |
| Ethylene Glycol <i>glycol</i> | R | R | R | R | R |
| Formaldehyde <i>aldehyde</i> | R | R | R | TST | R |
| Formic Acid, 50% <i>acid, organic</i> | R | R | R | TST | NR |
| Freon® (TF or PCA) <i>HC, halogenated</i> | R | R | R | TST | R |
| Gasoline <i>HC</i> | NR | R | R | R | R |
| Glycerine (Glycerol) <i>glycol</i> | R | R | R | R | R |
| Guanidine Hydrochloride, 6M <i>salt, aqueous solution</i> | TST | R | TST | TST | TST |
| Guanidine Thiocyanate, 5M <i>salt, aqueous solution</i> | TST | R | TST | TST | TST |
| Helium <i>gas</i> | R | R | TST | TST | R |
| Hexane <i>HC, aliphatic</i> | NR | R | R | R | R |
| Hydrochloric Acid, 1N (HCL) <i>acid, inorganic</i> | R | R | R | R | R |
| Hydrochloric Acid, 6N (HCL) <i>acid, inorganic</i> | TST | R | TST | R | TST |
| Hydrochloric Acid, conc. (HCL) <i>acid, inorganic</i> | NR | R | NR | TST | NR |
| Hydrofluoric Acid <i>acid, inorganic</i> | NR | R | NR | NR | NR |
| Hydrogen <i>gas</i> | R | R | R | TST | R |
| Hydrogen Peroxide, 3% <i>peroxide</i> | R | R | R | TST | R |
| Hydrogen Peroxide, 30% <i>peroxide</i> | TST | R | R | TST | TST |
| Hydrogen Peroxide, 90% <i>peroxide</i> | R | R | R | TST | NR |

| Solvent / Mobile Phase | HOUSINGS | FILTERS | | | |
|--|--------------------|--------------------------------|--------------------------------|-------------------------|-------------|
| | PP (polypropylene) | PTFE (polytetrafluoroethylene) | PVDF (polyvinylidene fluoride) | PES (polyether sulfone) | NYL (nylon) |
| HYPO (aqueous solution) <i>salt, aqueous solution</i> | R | R | R | TST | R |
| Isobutyl Alcohol <i>alcohol</i> | R | R | R | R | TST |
| Isopropyl Acetate <i>ester</i> | TST | R | R | NR | R |
| Isopropyl Alcohol <i>alcohol</i> | R | R | R | R | TST |
| Kerosene <i>HC</i> | TST | TST | R | R | R |
| Lactic Acid, 50% <i>acid, organic/alcohol</i> | R | R | TST | TST | TST |
| Lubrol PX (aqueous solution) <i>surfactant/detergent</i> | TST | TST | TST | TST | TST |
| Methyl Ethyl Ketone (MEK) <i>ketone</i> | R | R | NR | NR | R |
| Mercaptoethanol, 0.1M <i>alcohol/mercaptan</i> | TST | TST | TST | TST | TST |
| Methyl Acetate <i>ester</i> | TST | R | NR | NR | R |
| Methyl Alcohol <i>alcohol</i> | R | R | R | R | TST |
| Methylene Chloride <i>HC, halogenated</i> | NR | R | NR | NR | TST |
| Methyl Isobutyl Ketone (MIBK) <i>ketone</i> | NR | R | NR | NR | R |
| Mineral Spirits <i>HC</i> | NR | R | R | R | R |
| Nitric Acid, 6N <i>acid, inorganic</i> | TST | R | R | R | NR |
| Nitric Acid (concentrated) <i>acid, inorganic</i> | NR | TST | NR | TST | NR |
| Nitrobenzene <i>HC, aromatic</i> | NR | R | R | TST | R |
| Nitrogen <i>gas</i> | TST | R | R | TST | R |
| Nonidet-P40 (aqueous solution) <i>surfactant/detergent</i> | TST | TST | TST | TST | TST |
| Ozone <i>gas</i> | NR | R | R | TST | NR |
| Paraldehyde <i>aldehyde</i> | TST | R | TST | TST | R |
| Pentane <i>HC, aliphatic</i> | NR | R | R | R | R |
| Petroleum Ether <i>ether</i> | TST | R | R | TST | R |
| Phenol (aqueous solution) <i>phenol</i> | NR | R | R | TST | NR |
| Potassium Hydroxide, 3N <i>caustic</i> | R | R | R | TST | R |
| Pyridine <i>amine</i> | R | R | NR | NR | TST |
| Silicone Oils <i>silicone</i> | R | R | R | TST | R |
| Sodium Carbonate (aqueous solution) <i>salt, aqueous solution</i> | R | R | R | TST | TST |
| Sodium Chloride (aqueous solution) <i>salt, aqueous solution</i> | R | R | R | TST | R |
| Sodium Dodecyl Sulfate <i>surfactant/detergent</i> | TST | TST | TST | TST | TST |
| Sodium Hydroxide, 3N <i>caustic</i> | R | R | R | R | R |
| Sodium Hydroxide (concentrated) <i>caustic</i> | R | R | R | R | NR |
| Sulfuric Acid (concentrated) <i>acid, inorganic</i> | NR | R | TST | NR | NR |
| TCA (aqueous solution) <i>acid, organic</i> | R | R | R | TST | TST |
| Tetrahydrofuran (THF) <i>ether</i> | NR | R | NR | TST | R |
| Toluene <i>HC, aromatic</i> | NR | R | R | R | R |
| Trichloroethane <i>HC, halogenated</i> | NR | R | TST | NR | TST |
| Trichloroethylene <i>HC, halogenated</i> | NR | R | R | NR | TST |
| Tween 20 (aqueous solution) <i>surfactant/detergent</i> | TST | R | TST | TST | TST |
| Urea, 8M <i>salt, aqueous solution</i> | R | R | R | TST | R |
| Water (Brine) <i>salt, aqueous solution</i> | R | R | R | TST | R |
| Xylene <i>HC, aromatic</i> | NR | R | R | TST | R |

R = recommended NR = not recommended TST = testing recommended; limited or no data available

Thomson SINGLE StEP® Filter Vials

- Easy-to-use vials offer fast sample filtration and require only a squeeze of your fingers.
- Color-coded caps allow easy identification of 0.2 µm or 0.45 µm membranes in PVDF, PTFE, PES, or nylon.
- Pre-slit PTFE/silicone caps help eliminate broken autosampler needles and cored septa.
- Low dead volume units feature rugged polypropylene vial and insert with 450 µL loading capacity.
- Fit most standard 12x32 mm autosamplers, including UHPLC instruments.



Simply squeeze particulates and contaminants out of your sample!

| | Porosity | Color | qty. | cat.# |
|---|----------|------------|---------|-------|
| Nylon | 0.2 µm | black cap | 100-pk. | 25891 |
| | 0.45 µm | pink cap | 100-pk. | 25892 |
| PES (polyethersulfone) | 0.2 µm | grey cap | 100-pk. | 25897 |
| | 0.45 µm | orange cap | 100-pk. | 25898 |
| PTFE (polytetrafluoroethylene) | 0.2 µm | green cap | 100-pk. | 25893 |
| | 0.45 µm | blue cap | 100-pk. | 25894 |
| PVDF (polyvinylidene difluoride) | 0.2 µm | red cap | 100-pk. | 25895 |
| | 0.45 µm | yellow cap | 100-pk. | 25896 |

Patent No. 7,790,117

Free Sample 5-Packs available! Simply add "-247" to any cat.#.