

DISSOLUTION ACCESSORIES

The Single Source for all your Dissolution Accessories

Technical Bulletin



Doc: 800.002.1

Filtering your samples.

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When performing dissolution tests a sample moment have to be detergent. For the sampling, you can use a full-automated sampling mechanism, a flow through system, or sample with cannulas. The USP set some rules/guidelines for sampling:

“Sampling position should be midway between top of the basket/blade and top of fluid no closer than 1 cm to side of Vessel.”

Reliable sampling has to be accurate and repeatable so different variables have to take in to account. One of the variables is filtration. Filtration is needed to remove or to stop particles dissolving in the media.

Filtration can be performed during or after sampling moments. A cannula filter, in-line/disc filter or syringe filters can be used.

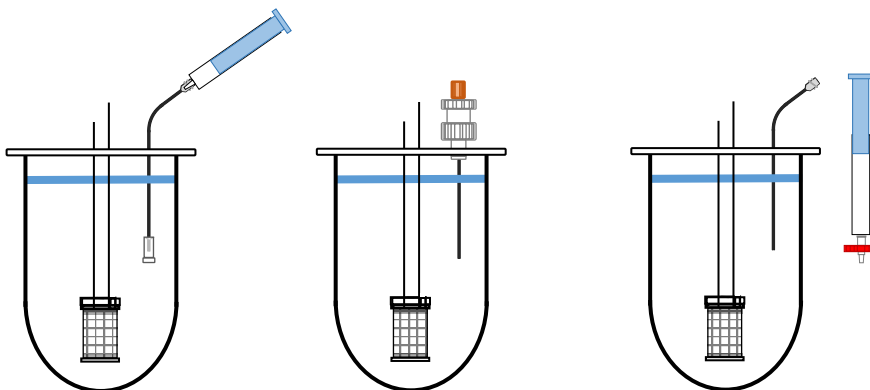


Figure 1 Use of cannula filter(left), In line filtering (middle) or off line filtering (right)

Cannula filter, filter tips and filter disks.

These filters are manufactured from porous UHMWPE(Poly ethylene). Cannula filter and filter tips are placed on the end of a cannula, filter disks are placed in a compartment at the beginning of the cannula. All filters are designed to filter out large particles. All three have their field of purpose.

Cannula filters have a large surface area and optimized flow rate for an ideal choice in applications with high presence of particulates. The filters vary in pore size 1 to 70 μm and are available for several cannula diameters. These filters are also available in PVDF(polyvinylidene fluoride).

Filter tips are used with low quantities of particulates and flowrates. These are used on bigger diameter cannula. Because of the housing the surface area is on the bottom of such a filter tip. Pore sizes vary between 2 to 45 μm .

Filter disks are used in special housings on the top of the cannula. Mostly used in low volume cannula and designed to keep the filtering process outside the vessel. Available in sizes 10,45,70,90 μm .

















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Filter type	Inside diameter	Compatible brands	Available pore size	Remarks
 	1/8" 3.2mm	<ul style="list-style-type: none"> • Caleva • Electrolab • Erweka • Hanson • Pharmatest • Sotax 	1, 4, 10, 20, 35, 45, 70µm	-
 	1/16" 1.6mm	<ul style="list-style-type: none"> • Distek • Hanson 	1, 4, 10, 35, 40, 70µm	-
 	1/8" 3.2mm	<ul style="list-style-type: none"> • Agilent • Varian • VanKel • Logan 	1, 4, 10, 20, 35, 40, 70µm	-
 	1/16" 1.6mm	<ul style="list-style-type: none"> • Agilent • Varian • VanKel • Logan 	1, 4, 10, 20, 35, 40, 70µm	No tygon tubing needed on cannula
 	1/8" 3.2mm	<ul style="list-style-type: none"> • General • Electrolab 	1, 4, 10, 20, 35, 40, 70µm	Full flow
 	1/8" 3.2mm	<ul style="list-style-type: none"> • Agilent • Varian • VanKel 	2, 5, 10, 20, 45µm	Filter tips
 	-	<ul style="list-style-type: none"> • Distek 	10, 45, 70, 90µm	Filter disks
 	-	<ul style="list-style-type: none"> • Electrola 		Stainless steel sintered

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Syringe filters.

The filtration is achieved by pushing the sample through a membrane with a syringe or other luer-connection device. Syringe filters allow you to control the rate of flow, which can be critical with delicate samples. Syringe filters also allow you to filter into nearly any tube, vial, column or tubing. The filter consist of a membrane in a Polypropylene housing. Sizes can vary (13, 25 and 33 mm) to reduce dead volume.

Membranes available

- CA Cellulose acetate membrane. Because of their unique strength and extremely low binding characteristics, cellulose acetate filters are ideal for protein and enzyme filtrations, tissue culture media sterilization, cold sterilization and biological fluid filtration
- GF Glass fiber membrane has a larger porosity able to remove large particulates without clogging. Application, glass fiber membranes are used for preliminary filtration or filtration of media that is difficult to filter. Used as a pre-filter in conjunction with another membrane, typically with RC, CA, Nylon and PVDF. The three dimensional filter surface provides much greater intake capacity for contaminating particles than two-dimensional membranes provide. Glass fiber is inert to solvents, acids and bases.
- HP PTFE membrane in a PP housing can be used to filter solvents and strong acids. Although PTFE is inherently hydrophobic, it can made hydrophilic by pre-wetting the membrane with methanol and the rinsing with water.
- NY Nylon membrane, exhibit near zero extractables, are very resistant to solvents and most chemicals and would be the first choice for filtration of chromatography samples.
- PB PTFE membrane filter units with hydrophobic Fluoropore membrane are ideal for sterilizing gases, venting sterile container, and sterilizing or clarifying organic solutions.
- PP Polypropylene Hydrophobic membrane has wide chemical compatibility with organic solvents. Low non-specific protein binding. Applications: Filtration of biological samples, filtration of aggressive organic solutions. They are attacked by few substances and are relatively inert (except for strong oxidizing agents). They are highly stable and can be used for both aqueous and organic media.
- PS Polysulfone membrane, Low protein binding, which make them well suited for filtration of biological samples.
- PT Polyester membrane

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PV PVDF membrane with good solvent resistance. Low UV absorbing extractables and low non-specific binding. Applications: General biological filtration, filtration of samples where high protein recovery is desired. Polyvinylidene fluoride membranes are used where high protein recovery is desired. It has slight hydrophilic properties and can be used for clear filtration and sterilization of aqueous solutions.

RC Regenerated Cellulose membrane are optimal for filtering organic solvents because of their strong chemical resistance. Regenerated cellulose is a pure cellulose which has been treated in a chemical bath for better chemical resistance. Regenerated cellulose has a lower molecular weight and the structure is not as orderly as it is for other cellulose.

The syringe filters are available in pore sizes 0.2µm and 0.45µm. Glass fiber filters also in 1µm and 5 µm.

Automation Syringe filters.

These Filters are available in all membrane varieties. However since they are used in filter changer equipment. They have a different body.

Advantages:

- No filter squeezing due to specially designed support, thick walls and “dome” shaped housing
- Smooth filter to filter release so no Filter sticking
- Consist filter dimensions for smooth operation in automated equipment.

Unique traceability:

- Every syringe filter has a printed lot number, the membrane material and the pore size printed on the edge of the filter. Every filter will be supplied with a Certificate of Analysis