

Soil Monitoring Product Guide

Filters and systems for sample preparation

The earth is a complex matrix of physical and chemical characteristics. This dynamic composition is critical to all aspects of life, from food production to environmental ecosystems. As the human population grows and industrialization increases, mother earth becomes an even more precious resource. Heavy industry, both past and present, is a large source of heavy metal pollutants that can become a health risk to man, animals, and plants. Fertilizers, pesticides, and other pollutants permeate through soil and find their way into groundwater. These problems are on the rise and so the need to monitor the soil ecosystem becomes a growing importance. Establishing a soil profile is an intricate and time consuming process but many industries such as agriculture, mining, land development, and land remediation share this need.

ADVANTEC MFS, Inc. offers a large array of high quality products for sample preparation. Many of the most widely used methods of testing require a soil sample to undergo a liquid extraction or digestion process. The extract is then filtered and analyzed by a specific instrument for the analyte of interest. Sample preparation for instrumental analysis is a critical step and should not be overlooked. Using high quality products upstream, ensures the best possible results downstream.



Analytical methods and procedures are validated by the laboratory. There are various techniques for any one test. Whichever particular variation is selected, the principle is the same: separation of the compounds in the sample via extraction, often-times sample clarification by filtration, followed by analysis of the filtrate with the appropriate detector selected for the compounds of interest.

TEST METHOD	APPLICATION DESCRIPTION	ADVANTEC FILTER GRADE	REFERENCE GRADE
USEPA 1311	Toxicity Characteristic Leaching Procedure(TCLP)	GF75	What GF/F
USEPA 1310B	Extraction Procedure(EP) Toxicity Test	GC90	Milli AP15
		GS25	Milli AP20
		DP70	Milli AP25
		A045A_ (MCE 0.45)	Milli HAWP
USEPA 1312	Synthetic Precipitation Leaching Procedure(SPLP)	GF75	What GF/F
USGS FLT 5-D3	Field Leach Test(FLT)	25AS045AN	
USEPA 1664A (ASTM5520B)	Oil & Grease	No.5B	What 40
NV DEP, 1996	Meteoric Water Mobility Procedure(MWMP)	A045A_ (MCE 0.45)	
USEPA 3050B	Acid Digestion Sediments/Sludges/Soils	No.5A	What 41
USEPA 8151A	Chlorinated Herbicides	No.1	What 1
USEPA 1668B	Chlorinated Biphenyl Congeners	GD120	What GF/D
NCR-13	P, K, Mg, Ca, Zn, Fe, Cu, B, S, Cl ⁻	No.5C, 6, 231	What 42, 2
NCR-13	Mn	No.1	What 1

ADVANTEC® Filters for Sample Preparation

Mixed Cellulose Esters(MCE) membranes are highly porous filters that offer superior flow rates. Advantec MCE membranes are Triton-free and biologically inert. They have a broad range of laboratory applications from sample clarification to sterilizing biological fluids. Advantec offers a wide selection of pore sizes, colors, diameters, plain or gridded, and sterile or non-sterile.

Pore Size, µm	Color/ Surface	Sterile	Diameter, mm	Quantity per pack	Catalog #
0.45	White/Plain	No	47	100	A045A047A
0.45	White/Plain	No	142	25	A045A142C

Advantec offers a variety of membrane polymers, pore sizes, and diameters. Please see our product catalog for the complete selection.



Qualitative and Quantitative Filter Papers are manufactured from 100% alpha cotton cellulose of the highest quality. Advantec quantitative grades are double acid washed then rinsed in ultrapure water. Our long-established quality control measures ensure the best product consistency, reproducibility, and superior performance. Advantec offers the cleanest papers on the market.



Type	Grade	Particle Retention (μm)	Thickness, mm	Weight, g/m^2	Flow Time* (sec)
Qualitative	No.1	Course (6)	0.20	90	Fast (45)
Qualitative	No.2	Medium (5)	0.26	125	Fast (80)
Qualitative	No.231	Medium (5)	0.18	95	Medium (130)
Quantitative	No.3	Medium (5)	0.23	113	Fast (130)
Quantitative	No.5A	Course (7)	0.22	97	Fast (60)
Quantitative	No.5B	Medium (4)	0.21	108	Medium (195)
Quantitative	No.5C	Fine (1)	0.22	118	Slow (570)
Quantitative	No.6	Medium (3)	0.20	103	Slow (300)

*Flow time is the time in seconds required to filter 100mL of distilled water at 20°C under pressure supplied by a 10 cm water column through a 10 cm^2 section of filter.

Ordering information: Available in disks of standard diameters (cm): 4.25, 5.5, 7.0, 9.0, 11.0, 12.5, 15.0, 18.5, 24.0 Catalog #'s are specified by grade followed by diameter, Example: NO112.5CM, NO5B9.0CM Other grades and diameters are available.

Glass Fiber Filters are a dense matrix of 100% borosilicate microfibers. These filters are chemically resistant and biologically inert. Advantec Glass fiber depth filters have superior loading capacity and high flow rates. Grades with binder offer increased wet strength and minimal fiber release. Binder-free grades can withstand temperatures up to 550°C.



Grade	Particle Retention, μm	Weight, g/m^2	Thickness, mm	Flow Time* sec	Binder
GC50	0.5	48	0.19	28	None
GF75	0.3	75	0.35	84	None
GD120	0.5	123	0.51	14	None
GC90	0.9	100	0.30	20	Organic
GS25	0.6	70	0.22	15	Organic
DP70	0.6	170	0.52	20	Organic

*Flow time is the time in seconds required to filter 1000 mL of distilled water at 20°C under differential pressure of 5.7 psi through a 9.6 cm^2 section of filter.

Ordering information: Available in disks of standard diameters (mm): 21, 24, 25, 26, 37, 45, 47, 55, 70, 90, 110, 125, 142, 150 Catalog #'s are specified by grade followed by diameter, Example: GF75142MM, DP7047MM Other grades and diameters are available.

Syringe Filter Units offer a convenient and compact solution for fast filtration and sample preparation prior to instrumental analysis. Advantec DISMIC syringe filters are designed to maximize sample recovery. Our pigment-free polypropylene housing along with our membrane selection ensure low extractables and broad chemical compatibility for use with a range of samples and solvents.



DISMIC-PTFE for IC were designed specifically for sample prep for Ion Chromatography and HPLC analysis. Advantec combines a hydrophilic PTFE membrane with a high purity housing to provide a universal filter unit with the lowest extractables on the market.

DISMIC-PVDF offers low protein binding and extractables. Provides fast flow rate and good resistance to mild aqueous organic solutions.

DISMIC-Nylon is compatible with aqueous and alcoholic solutions as well as most HPLC solvents. Offers negligible organic extractables.

Membrane	Hydrophilic PTFE		PVDF		Nylon	
Pore size (μm)	0.20	0.45	0.22	0.45	0.20	0.45
Diameter (mm)	13		17		25	
Filtration area (cm^2)	0.9		1.4		4.0	
Sterility	Non-Sterile		Non-Sterile		Non-Sterile	
Quantity (Packed)	50 (blister packs)		50 (bulk pack)		100 (bulk pack)	
Catalog #	13HP020CN	13HP045CN	17VP022AN	17VP045AN	25NP020AN	25NP045AN

Inlet/outlet are standard Luer connections.

Please see our Syringe Filter brochure to view our full selection of syringe filters

ADVANTEC® Filter Holders and Accessories

Description	Catalog #
Stainless Steel Pressure Holder w/ Reservoir (PTFE coating available)	142mm, 1.5L capacity, 316ss 302400
Glass Filter Holder	47mm, glass support, 300mL funnel 311400
Glass Filter Holder w/ PTFE Seal	47mm, PTFE support, 300mL funnel 351620
Polysulfone Aseptic Holder	47mm, 300mL funnel, cover 501030
All-Glass Holder	47mm, glass support 40/35 joint, 300mL funnel, 1L flask 311420
Stainless Steel Manifold	3-place, standard cup, 2-way valve 353100 6-place, standard cup, 2-way valve 353300
PVC Manifold	3-place, standard cup, 2-way valve 313400 6-place, standard cup, 2-way valve 313600
Vacuum Pressure Pump	115V 800800 220V 800801
pH Test Paper	Range 0-14, roll (9mm x 5.5M) W-R
Filterceps	Beveled smooth tips 17800000



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