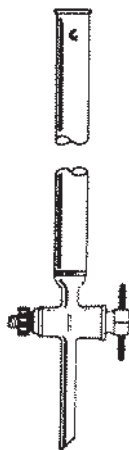


10· Sample Preparation





Liquid Chromatography Column

GLASSWARE

Liquid Chromatography Columns

These have a coarse glass frit at the bottom end, and come with or without PTFE stopcock. Also available without frit; please call for information.

Description	Item No.
10 mm ID x 300 mm Glass Column with Frit	AUC476310
10 mm ID x 300 mm Glass Column with Frit and Stopcock	AUC477310
19 mm ID x 400 mm Glass Column with Frit and Stopcock	AUC477419
22 mm ID x 400 mm Glass Column with Frit and Stopcock	AUC477422

SOLID PHASE EXTRACTION

Solid Phase Extraction cartridges from GIBNIK provide fast and efficient sample clean-up and concentration prior to analysis. Our cartridges use medical grade polypropylene tubes, porous polyethylene frits, and highly reproducible sorbents. All of our SPE syringe cartridges are equipped with male Luer tips, for versatility in connections and processing.

Choosing the Proper Packing Type

Reversed Phase - C18, C8, C4, C2 and Phenyl bonded phases are available and offer a variety of selectivities. Non-polar to moderately polar compounds in a polar matrix are retained by reversed-phase sorbents. Reversed-phase packings require conditioning with an organic solvent followed by an aqueous solvent prior to use. Elution of moderately polar compounds is often accomplished with mid-polarity solvents while non-polar compounds require less polar solvents.

Normal Phase - Silica, Florisil, Amino, Cyano, Diol and Alumina are usually used to retain polar compounds from non-polar matrices. Conditioning is carried out with a non-polar solvent. Elution is accomplished with more polar solvents. Compounds with pH basic functional groups are readily retained by silica. However, very polar compounds such as carbohydrates can be irreversibly retained on silica surface. In this case, a bonded and mid-polarity phase such as Diol or Amino is a better choice.

Ion Exchange - Strong anion (SAX) and cation (SCX) exchangers are available. Anions and cations are retained on the corresponding resin by exchanging the anion or cation in the buffers, 0.1 M - 0.5 M, or by changing the pH of elution solvent such that the sample compound is no longer charged. These resins are silica based and lose some exchange capacity with increasing organic solvent content in the sample.



SPE Cartridges

General Extraction Protocols

Reversed Phase

- Rinse packing bed with 3 - 5 mL methanol. Rinse with 3 - 5 mL water or buffer. Do not let packing dry.
- Apply sample solution to the top of the packing bed. Push or draw through the bed at 1-5 mL/min. Collect sample for analysis if desired compound has passed through the bed without being retained.
- If desired compound was retained, wash off weakly retained interfering compounds with a polar solvent.
- Elute desired compound with 1 -2 mL of non-polar solvent and collect for analysis.

Normal Phase

- Rinse packing bed with 3 - 5 mL of a non-polar solvent. Do not let packing dry.
- Apply sample solution to the top of the packing bed. Push or draw through the bed at 1-5 mL/min. Collect sample for analysis if desired compound has passed through the bed without being retained.
- If desired compound was retained, wash off weakly retained interfering compounds with a non-polar solvent.
- Elute desired compound with 1 - 2 mL of polar solvent and collect for analysis.

Ion Exchange

- Rinse packing bed with 5 mL deionized water or low-ionic strength buffer.
- Apply sample solution to the top of the packing bed. Push or draw through the bed at 1-2 mL/min. Collect sample for analysis if desired compound has passed through the bed without being retained.
- If desired compound was retained, wash off weakly retained interfering compounds with deionized water or low-strength buffer.
- Elute analyte with 1 - 5 mL of a high salt concentration solution, or change elution buffer pH so analyte is no longer ionized.

Reverse Phase SPE Cartridges, Non-Polar

Description	Qty	Item No.
C18 (ODS)		
C18, 100 mg/ 1 mL	100/pk	AUC186311
C18, 200 mg/ 3 mL	50/pk	AUC186312
C18, 500 mg/ 3 mL	50/pk	AUC186313
C18, 500 mg/ 6 mL	50/pk	AUC186314
C18, 1000 mg/ 6 mL	30/pk	AUC186315
C8 (Octyl)		
C8, 100 mg/ 1 mL	100/pk	AUC186321
C8, 200 mg/ 3 mL	50/pk	AUC186322
C8, 500 mg/ 3 mL	50/pk	AUC186323
C8, 500 mg/ 6 mL	50/pk	AUC186324
C8, 1000 mg/ 6 mL	30/pk	AUC186325
Phenyl		
Phenyl, 100 mg/ 1 mL	100/pk	AUC186341
Phenyl, 200 mg/ 3 mL	50/pk	AUC186342



SPE Cartridges

SAMPLE PREPARATION



SPE Cartridges

Non-Silica SPE Cartridges

<u>Description</u>	<u>Qty</u>	<u>Item No.</u>
Alumina A		
Alumina A, 500 mg/ 3 mL	50/pk	AUC186463
Alumina A, 500 mg/ 6 mL	50/pk	AUC186464
Alumina A, 1000 mg/ 6 mL	30/pk	AUC186465
Alumina B		
Alumina B, 100 mg/ 1 mL	100/pk	AUC186471
Alumina B, 500 mg/ 3 mL	50/pk	AUC186473
Alumina B, 500 mg/ 6 mL	50/pk	AUC186474
Alumina B, 1000 mg/ 6 mL	30/pk	AUC186475
Alumina N		
Alumina N, 500 mg/ 3 mL	50/pk	AUC186483
Alumina N, 500 mg/ 6 mL	50/pk	AUC186484
Alumina N, 1000 mg/ 6 mL	30/pk	AUC186485
Florisil		
Florisil, 100 mg/ 1 mL	100/pk	AUC186491
Florisil, 200 mg/ 3 mL	50/pk	AUC186492
Florisil, 500 mg/ 3 mL	50/pk	AUC186493
Florisil, 500 mg/ 6 mL	50/pk	AUC186494
Florisil, 1000 mg/ 6 mL	30/pk	AUC186495

Normal Phase SPE Cartridges, Polar

Description	Qty	Item No.
Silica		
Silica, 100 mg/ 1 mL	100/pk	AUC186361
Silica, 200 mg/ 3 mL	50/pk	AUC186362
Silica, 500 mg/ 3 mL	50/pk	AUC186363
Silica, 500 mg/ 6 mL	50/pk	AUC186364
Silica, 1000 mg/ 6 mL	30/pk	AUC186365
Diol		
Diol, 100 mg/ 1 mL	100/pk	AUC186391
Diol, 200 mg/ 3 mL	50/pk	AUC186392
Diol, 500 mg/ 3 mL	50/pk	AUC186393
Cyano (CN)		
Cyano, 100 mg/ 1 mL	100/pk	AUC186381
Cyano, 200 mg/ 3 mL	50/pk	AUC186382
Cyano, 500 mg/ 3 mL	50/pk	AUC186383
Cyano, 500 mg/ 6 mL	50/pk	AUC186384
Amino (NH₂)		
Amino, 100 mg/ 1 mL	100/pk	AUC186371
Amino, 200 mg/ 3 mL	50/pk	AUC186372
Amino, 500 mg/ 3 mL	50/pk	AUC186373
Amino, 500 mg/ 6 mL	50/pk	AUC186374
Amino, 1000 mg/ 6 mL	30/pk	AUC186375



SPE Cartridges

Ion Exchange SPE Cartridges

Description	Qty	Item No.
SAX		
SAX, 100 mg/ 1 mL	100/pk	AUC186411
SAX, 200 mg/ 3 mL	50/pk	AUC186412
SAX, 500 mg/ 3 mL	50/pk	AUC186413
SAX, 500 mg/ 6 mL	50/pk	AUC186414
SAX, 1000 mg/ 6 mL	30/pk	AUC186415
SCX		
SCX, 100 mg/ 1 mL	100/pk	AUC186421
SCX, 200 mg/ 3 mL	50/pk	AUC186422
SCX, 500 mg/ 3 mL	50/pk	AUC186423

VACUUM MANIFOLDS

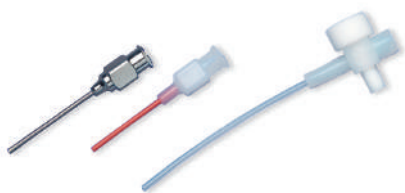


Vacuum Manifold
SPE Cartridges not included

- 12 and 24-port manifolds
- Glass chamber for visual monitoring
- Accepts standard male luer devices

Vacuum manifolds allow the processing of multiple samples simultaneously. Manifold systems come complete with components shown below. Includes polypropylene needles; stainless steel or PTFE needles are available separately.

- Glass chamber
- Vacuum valve and gauge
- Polypropylene lid
- Stopcock valves
- Collection rack plates
- Support posts for collection racks
- Retaining clips for collection racks
- Lid legs
- Manifold inlet caps
- Polypropylene needles



Needles: Stainless steel, polypropylene, PTFE
with control valve

Description

Item No.

Manifolds

12 Position Vacuum Manifold, Complete	AUC61000
24 Position Vacuum Manifold, Complete	AUC61200

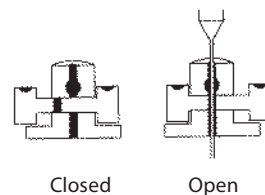
Accessories for 12 Position Vacuum Manifold

Glass Chamber	AUC61002
Cover with Gasket & 12 Stopcocks	AUC61003
Gaskets, 2/pk	AUC61004
Vacuum Valve, Gauge and Glass Block	AUC61006
Needles, Polypropylene, 12/pk	AUC61019
Stopcocks, 12/pk	AUC61015

MININERT® VALVES & REACTION VIALS

Mininert Valves

These are unique push-button PTFE vial closures featuring inertness and syringe access without exposure of the vial contents. When used with a glass vial, only PTFE and glass are in contact with the sample. A silicone rubber gasket above the PTFE valve stem (isolated from the contents) provides a seal for the needle and prevents leakage or exposure of the contents during sampling. Push the green button to open, insert the needle and take sample, withdraw the needle, then push the red button to close. The needle seal septum may be replaced as needed with the valve closed to avoid exposing contents. Mininert Valves can be used up to 105°C. 12/pk.



Description	Thread Size	Item No.
13 mm Screw Cap Mininert Valve	13-425	AUC614158
15 mm Screw Cap Mininert Valve	15-425	AUC614160
18 mm Screw Cap Mininert Valve	18-400	AUC614161
20 mm Screw Cap Mininert Valve	20-400	AUC614170
24 mm Screw Cap Mininert Valve	24-400	AUC614163
20 mm Crimp Cap Mininert Valve	NA	AUC614250
Replacement Septa, 50/pk	NA	AUC644350
Septum Installing Tool, each	NA	AUC644850



AUC614163

Mininert Valves for use with Miniature Tubing

These are now available with 1/4-28 threads and can be used with Cheminert® and other similar miniature connectors to create an almost endless number of piping and plumbing combinations. They are quick-acting and tight-sealing and are suitable for low-pressure applications requiring positive, on/off fluid control.

Description	Qty	Item No.
1/4-28 Male to Mininert	each	AUC631201
1/8" Male NPT to Mininert	each	AUC631202
1/4-28 Female to Mininert	each	AUC631203
1/8" Female NPT to Mininert	each	AUC631204
1/4-28 Male to 1/4-28 Male Mininert	each	AUC631205
1/4-28 Female to 1/4-28 Female Mininert	each	AUC631206



AUC614250

Reaction Vials

These are useful for micro and semi-micro scale reactions or concentration work. The vials have thick walls, conical tapered interiors and come complete with PTFE-faced silicone liners and open-hole screw caps. Vials have graduation marks (except 0.1 and 0.3 mL). Made from borosilicate glass. 12/pk.

Description	Thread Size	Item No.
0.1 mL Reaction Vials	8-425	AUC099400
0.3 mL Reaction Vials	13-425	AUC099410
1.0 mL Reaction Vials	13-425	AUC099420
3.0 mL Reaction Vials	20-400	AUC099430
5.0 mL Reaction Vials	20-400	AUC099440
10.0 mL Reaction Vials	24-400	AUC099450

Reaction vials are also available in amber.



AUC631201



Reaction Vials, 5 mL and 1 mL

SYRINGE FILTERS, DISPOSABLE SYRINGES

Syringe Filters

GIBNIK offers a wide range of syringe filters for most of your sample clean up applications. Filter housings are made from polypropylene and have luer hubs to fit all luer lock syringes. Two membrane materials are available; nylon (hydrophilic) for general filtration of aqueous samples and many solvents, and PTFE for gases, air virtually all solvents, and highly corrosive acids and bases. PTFE can be used with aqueous samples by pre-wetting with methanol.

- 4 mm size - Low sample hold-up; hold up is less than 10 µl. 100/pk
- 17 mm size - For general laboratory sampling. Filters have higher sample capacity than the 4 mm size. Maximum pressure for filtering is 5 bar (75 psi). 100/pk
- 30 mm size - For all around lab use. The 30 mm diameter allows greater through-put when hold-up of some sample is not critical. Maximum pressure is 5 bar (75 psi). 100/pk



Syringe Filters

Description	Item No.
4 mm Nylon Filter, 0.2 micron	AUC189000
4 mm Nylon Filter, 0.45 micron	AUC189001
4 mm PTFE Filter, 0.2 micron	AUC189002
4 mm PTFE Filter, 0.45 micron	AUC189003
17 mm Nylon Filter, 0.2 micron	AUC186502
17 mm Nylon Filter, 0.45 micron	AUC186503
17 mm PTFE Filter, 0.2 micron	AUC186500
17 mm PTFE Filter, 0.45 micron	AUC186501
30 mm Nylon Filter, 0.2 micron	AUC186055
30 mm Nylon Filter, 0.45 micron	AUC186054
30 mm PTFE Filter, 0.2 micron	AUC186057
30 mm PTFE Filter, 0.45 micron	AUC186058

Disposable Syringes

These disposable syringes are useful for sample preparation, especially when used with our syringe filters. Syringes are made from polypropylene and polyethylene and are silicone-free. Extractables are minimized compared with rubber-tipped plunger syringes. Syringes are individually wrapped in sterile "peel packs." 100/pk.



Disposable Syringe

Description	Item No.
3 mL Disposable Syringe	AUC186603
5 mL Disposable Syringe	AUC186605
10 mL Disposable Syringe	AUC186610
20 mL Disposable Syringe	AUC186620

SAMPLE CONCENTRATION, EVAPORATORS

Adjustable Mini-Vap

This is a versatile concentrator/evaporator for use with a single container. Adjustable design allows use with any size vessel from mini-vial to 250 mL beaker. It is nickel-plated for resistance to solvents and dilute acids, and comes with instructions.

Description	Item No.
Adjustable Mini-Vap (Single)	AUC201001



AUC201001

6-Port Mini-Vap

This concentrator/evaporator handles up to six miniature vials or containers simultaneously. It comes with six stainless steel needles, a nickel-plated needle valve, and 3 feet of plastic tubing. The needle valve allows fine control of the nitrogen or dry air flow for the evaporator. Instructions are included.

Description	Item No.
6-Port Mini-Vap	AUC201006

Replacement Parts

4" Stainless Steel Luer Needles, 6/pk	AUC201007
Spare Luer Lock Adapters, 6/pk	AUC201114
O-Ring Seal, 6/pk	AUC201115
Plastic End Caps, 100/pk	AUC205122



AUC201006

SAMPLE PREPARATION



Fixed volume pipettes

NEW HAMILTON SOFTGRIP™ PIPETTES

- Best overall accuracy and precision
- Fully autoclavable
- Ergonomic by design
- Made in the U.S.A.

The new SoftGrip boasts an enlarged ejector button, dual needle volume indicator, slimmer ejector sleeve, redesigned plunger button, and a more stain resistant grip. These modifications have enhanced the functionality of the SoftGrip while maintaining the principles of quality, ergonomics, and functionality that made the SoftGrip popular.

Fixed Volume Pipettes - 5 µl - 1 mL



Volume Adjustment

Volume	Color	At 100% of Pipette Volume		Item No.
		Accuracy within +/- %	Precision within +/- %	
5 µl	Steel Blue	4.10	0.75	ACH1708-03
10 µl	Purple	0.80	0.40	ACH1708-05
25 µl	Forest Green	0.80	0.30	ACH1708-07
50 µl	Sandstone	0.60	0.30	ACH1708-09
100 µl	Violet	0.50	0.20	ACH1708-11
200 µl	Mustard	0.40	0.18	ACH1708-13
250 µl	Burnt Orange	0.40	0.18	ACH1708-15
500 µl	Olive Green	0.40	0.18	ACH1708-19
1 mL	Sky Blue	0.30	0.12	ACH1708-21

Adjustable Volume Pipettes



New Pipette Plunger Design

Volume	Increments µl	Color	At 10% of Pipette Volume		At 100% of Pipette Volume		Item No.
			Accuracy +/- %	Precision +/- %	Accuracy +/- %	Precision +/- %	
2.5 - 25 µl	0.02	Forest Green	4.50	1.50	0.80	0.20	ACH1708-34
10 - 100 µl	0.2	Violet	1.80	0.70	0.60	0.15	ACH1708-36

Hamilton Pipette Accessories

AdvanTip™ Non-Filter Tips

AdvanTip precision pipette tips for routine high-throughput work where an extensive range of universal tips and multiple packaging options are needed to meet laboratory requirements. Tips include extended length, filter tips, and macrovolume tips. Hamilton pipette tips are universal-fit and deliver outstanding accuracy and precision. AdvanTip products are certified to be free of RNase, DNase and pyrogens.

Description	Total Tips	Item No.
10 µl, 96/rack, 10 racks/box	960	ACH11006-01
200 µl, 96/rack, 10 racks/box	960	ACH11006-03



Pipette Tips

AdvanTip Filtered Tips

Use filter tips for the ultimate protection against contamination when working in applications such as PCR, DNA amplification and sequencing, and other techniques involving the use of vaporous, radioactive, biohazardous or corrosive materials.

Description	Total Tips	Item No.
10 µl, 96/rack, 10 racks/box	960	ACH1007-02
300 µl, 96/rack, 10 racks/box	960	ACH1007-07

SoftGrip Pipette Stand

Single or multi-channel pipette rack keeps pipettes in easy reach. Constructed of a heavy, non-skid, metallic casting.

Description	Item No.
Six Position Pipette Stand	ACH53578-01



ACH53578-01