Sample Preparation
by Solid Phase Extraction (SPE)

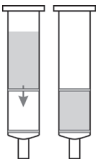
Solid Phase Extraction:
For reliable and consistent extractions, follow the easy step-by-step sequence described here. If you would like technical assistance, contact technical service at 1-800-356-1688 or 1-814-353-1300, ext. 4, or support@restek.com

1. Choose Tube Size:
- Match sample volume to tube size/packed bed weight.
- Match analyte load to bed weight or exchange capacity of tube packing.

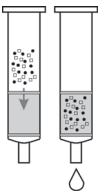
Sample Volume	Analyte Load	Tube Size	Bed Wt.
1-10 mL	2-6 mg	1 mL	100-300 mg
10-100 mL	6-1,000 mg	3 mL	300-500 mg
100 mL-1 L	>1,000 mg	6 mL	500+ mg

*These are approximations that must be adjusted to specific sample and analyte characteristics.

2. Conditioning:
- All SPE tubes should be conditioned to wet and settle the bed, activate the packing materials, and remove any residual process materials (e.g., fines).
- Use 1 to 2 column volumes of conditioning solution(s) recommended in the table on page 2.
- Use a high flow rate.
- Packing bed should remain wet before adding sample.

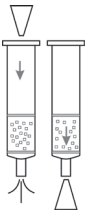


3. Sample Addition:
- Adjust pH and dilute sample, if necessary, before adding to tube.
- Pass sample completely through tube (~5 mL/min; rapid dropwise).

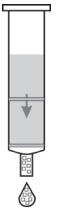


4. Washing:
- Use weak/dilute solutions; limit amount to a maximum of 1 to 2 column volumes.
- Pass solutions quickly and completely through tube.

5. Drying:
(when necessary)
- Use analytical-grade, inert gas such as nitrogen, or draw vacuum through tube until packing appears dry.
- Use caution when drying semivolatiles; always dry for minimum suggested length of time required (i.e., 1-10 minutes).

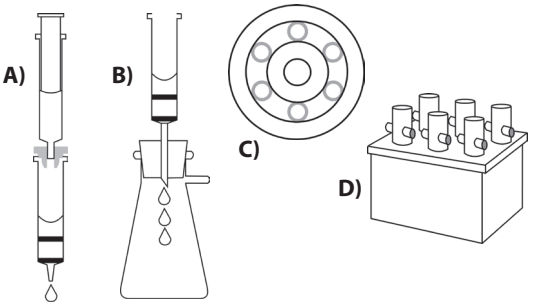


6. Elution:
- Use strong solvent or buffer solution.
- Allow initial soak time on packing to ensure maximum extraction efficiency.
- Pass through tube at a slow, dropwise rate.
- Obtain a more complete extraction by eluting with multiple small volumes.
- Total amount of extraction solvent should not exceed 1 to 5 column volumes.



Tubes may be processed by any of the techniques shown.

A) Positive pressure
B) Vacuum-sidearm flask
C) Centrifuge
D) Vacuum-manifold



EXTRACTION METHOD	PACKING	POLARITY	SAMPLE MATRIX	CONDITIONING SOLUTION(S)	ELUTION SOLUTION
reversed phase	C18, carbon	packing & analyte are nonpolar	polar, often aqueous	a) methanol, then water or buffer (same as sample), or b) final extraction solvent, then water miscible solvent, then water or buffer	nonpolar solvent or mixed solvent solution
normal phase	silica, Florisil®, carbon	packing & analyte are polar	nonpolar, often an organic solvent	fresh solvent (same as sample)	fresh solvent

Contact Technical Service at 1-800-356-1688, 1-814-353-1300, ext. 4, or support@restek.com (or contact your Restek representative) if you have any questions about this product or any other Restek product.

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