LITERATURE

Solid Phase Microextraction

SPME Application Guide

This guide contains 110 new references and a total of over 600 references categorized by application, analyte/matrix, and extraction condition.

To request a copy of the SPME Guide, request T199925.

New SPME Methods

ASTM* D6438-99 – "Standard Test Method for Acetone, Methyl Acetate, and Parachlorobenzotrifluoride Content of Paints and Coatings by Solid Phase Microextraction-Gas Chromatography", Vol. 6.01. This method is used for the determination of the listed compounds in paints and coatings by SPME headspace sampling and GC analysis.

ASTM* D6520-00 - "Standard Practice for the Solid Phase Microextraction (SPME) of Water and its Headspace for the Analysis of Volatile and Semi-Volatile Organic Compounds", Vol. 11.02. This practice covers the procedures for the extraction of volatile and semi-volatile organic compounds from water and its headspace using SPME.

*ASTM methods are not available from Supelco but may be obtained from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or at the ASTM Store on the ASTM web site, **www.astm.org**

AWWA Method 6040 – Constituent Concentration by Gas Extraction – published in Standard Methods for the Examination of Water and Wastewater, available from the American Water Works Association (AWWA), (**www.standardmethods.org**) (method not available from Supelco)

Journal Article

"Optimization of Extraction Conditions and Fiber Selection for Semivolatile Analytes Using Solid-Phase Microextraction". Journal of Chromatographic Science, Vol. 238, July, 2000. Bob Shirey, Supelco R/D Chemist, has written a research article that discusses the use of SPME for the extraction of semivolatiles from water samples.

For a reprint of Bob Shirey's paper, request T400234.

Discovery SPE-96 Well Plates

Four product profiles and an Application Note are available from Supelco on the Discovery DSC SPE-96 Plates. These profiles describe four of the phases currently available, how and for what compounds they may be used with, and the product specifications of each phase. The Application Note describes a number of bio-analytical applications using pharmaceutical compounds.

Discovery DSC-Si SPE-96 Plate - An acid washed silica. Our 96 well format enables you to quickly and effectively clean samples or remove baseline impurities in combinatorial chemistry applications.

For more information, request T400173.

Discovery DSC-PS/DVB SPE-96 Plate - A polystyrene-divinylbenzene material that retains hydrophobic compounds which contain some hydrophilic functionality, especially aromatics.

For more information, request T400174.

Discovery DSC-18 SPE-96 Plate - A polymerically bonded trifunctional C18 silica used to extract, isolate, purify and concentrate pharmaceuticals from biological fluids and other aqueous media.

For more information, request T400171.

Discovery DSC-18Lt SPE-96 Plate - A monomerically bonded C18 used to extract moderately polar to non-polar compounds from aqueous media, such as biological fluids.

For more information, request T400172.

Discovery SPE-96 Plates - We measure the recoveries of a number of acidic, basic, and neutral test analytes at various spike concentrations. In addition, we compare the effects of elution volume vs. recovery. Finally, we compare the performance of our Discovery SPE-96 well plates against competitor extraction plates.

For more information, request T300165, Application Note 165, Discovery SPE-96 Well Plates

SAMPLE PREPARATION PERFORMANCE TIP

Proper pH Selection Will Improve Your SPE Extractions

Analysts who have the task of developing cartridge or 96-well SPE applications can improve extractions through proper pH selection. Using pH to modify the form of the analyte can improve its retention, selectivity, and recovery. To improve retention of a basic compound when performing reverse phase SPE, adjust the pH of the sample matrix to at least 2 pH units above the target analyte's pKa. This will neutralize the analyte's basic ionizable functional groups further facilitating the non-polar retention mechanisms associated with reverse phase separations. Subsequent wash step(s) using an aqueous solution in conjunction with an organic modifier will often remove impurities co-extracted onto the sorbent bed. Increasing the pH of the wash solution can minimize compound loss when stronger wash solutions (higher organic concentration) are required. In contrast, a decrease in pH will aid in the elution of basic compounds of interest. In conclusion, one can dramatically increase extraction efficiency and recoveries by paying close attention to the proper pH selection when developing an SPE method.

For more information request T197910, Guide to Solid Phase Extraction, and T700002, Instructions for Using Discovery SPE-96 Well Plates.

An Trinh -
LC Product Manager