

Horizon Technology's integrated family of automated products provides a total solution for a new level of speed, accuracy, simplicity, and safety in sample preparation.

Visit our web site for detailed application notes, product specifications, accessories, and international distributors.

TOTAL SOLUTIONS FOR AUTOMATED SAMPLE PREPARATION OF DRINKING AND WASTE WATER

Helping Analytical Labs Meet Their Business Objectives



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HORIZON TECHNOLOGY HELPS ANALYTICAL LABS MEET THEIR BUSINESS OBJECTIVES

Horizon Technology, Inc., is a leading manufacturer of automated Sample Preparation Systems for the analysis of organic compounds in aqueous samples and Oil & Grease testing. Environmental testing laboratories who follow EPA methods for semi-volatile organics, Oil & Grease, DRO's, TPH, Pesticides and Explosives have found our complete, automated sample preparation systems increase productivity, improve the accuracy of their results and lower operating costs.

Understanding the challenges today's laboratory managers face, our total solutions will help you:

- ▶ Lower operating costs
- ▶ Decrease sample turn-around times
- ▶ Improve the quality and consistency of results
- ▶ Reduce solvent usage and disposal costs
- ▶ Limit exposure to solvents

Markets Served by Horizon Technology

- ▶ Biopharmaceutical
- ▶ Environmental Monitoring
- ▶ Food and Beverage
- ▶ Industrial Chemical
- ▶ Homeland Security
- ▶ Petrochemical
- ▶ Pharmaceutical

Your Challenges

The determination of organic analytes in drinking water and wastewater samples are analyses carried out by many environmental testing laboratories worldwide. Traditional methodologies typically involve manual separatory funnel or continuous liquid-liquid extraction (CLLE) of the water samples with solvents. The extract is dried using specially prepared anhydrous sodium sulfate, concentrated through an evaporation step and analyzed using conventional GC, GC/MS and HPLC. These methods are labor intensive, use large amounts

of solvents, and require contaminate free glassware. Demands have been placed upon environmental testing laboratories to increase sample throughput, shorten sample turnaround times, achieve reproducible results, provide lower detection limits, and reduce harmful solvent vapor emissions to the atmosphere.

How Can You Meet Your Goals and Maximize Your Resources?

AUTOMATE THE SAMPLE PREPARATION PROCESS

AUTOMATE SAMPLE EXTRACTION

Labs can meet this challenge by optimizing a Solid Phase Extraction (SPE) method based on the Horizon Technology SPE-DEX® 4790 instrumentation, that is rugged, fast, cost-effective, and achieves low MDLs and reproducible results.

Horizon Technology SPE-DEX® 4790 units are programmable, multipurpose, automated SPE systems, capable of processing aqueous samples directly from their original sampling containers. Up to eight extractors can be run at the same time, or on an independent time basis.

Once initiated, each SPE-DEX® 4790 unit sequentially delivers all the necessary solvents to precondition the sorbent material within the SPE disk, passing the water sample through either a 47mm disk, 50mm disk, or a cartridge - and after a preset air dry time - extracts the sorbed analytes from the disk into a collection vessel using the required amounts of solvents. Labs routinely extract from 20ml to 8L water samples using this technology.



AUTOMATE DRYING AND CONCENTRATION

Once the samples are extracted, the next step is usually drying the extract of any water. Traditionally this is accomplished with specially prepared anhydrous sodium sulfate, a manual time intensive process which has inherent issues with the limited amount of water it can absorb due to the fact it is a chemical separation, and can cause low recovery rates of analytes. Horizon Technology's DryDisk™ Separation Membrane eliminates this issue.

The DryDisk™ is a hydrophobic membrane utilizing GORE-TEX® process filtration media that has been specifically designed to remove residual water from water sample extractions. By eliminating the need for chemical drying with sodium sulfate, the DryDisk™ reduces laboratory waste and insures complete capture of the water from the entire solvent phase extraction, resulting in faster and more consistent recovery of analytes. Unlike sodium sulfate, which can retain water-soluble compounds, resulting in lower analyte recoveries, the proprietary DryDisk™ separation membrane technology utilizes the principle of selective permeability, a physical separation that removes residual water from solvent extracts without retaining the analytes of interest. This eliminates the tedious multi-step process associated with chemical drying techniques.

Once the samples are extracted and dried, the next step is to concentrate them to the desired volume, for injection into an analytical instrument for analysis. The Horizon Technology DryVap™ System fully automates extract drying and concentrating of water sample extracts prior to GC, GC-MS and HPLC analysis. The DryVap™ System provides all the benefits of the traditional Kuderna-Danish(KD) method by controlling solvent condensation to maintain high recoveries of the more volatile compounds, and also incorporates the nitrogen blow down as part of its closed system.



Concentration is accomplished by a unique combination of heat, nitrogen sparge gas and vacuum, to gently and rapidly evaporate the solvent in a fraction of the time and labor, with superior results. Each variable can be optimized to maximize the recovery of analytes. Once the

evaporation has begun, an internal thermocouple senses when the solvent level approaches the top of the heater, and automatically turns off the immersion heater. The endpoint volume is accomplished by a gentle stream of nitrogen gas and vacuum. When finished the vacuum is turned off, while turning the nitrogen gas on for five seconds. This nitrogen blanket ensures that the sample can remain in the individually sealed tubes for a considerable period of time without any loss of analyte. This unique combination of functionality ensures exceptional speed, while maintaining high and consistent results.

PROTECT THE ENVIRONMENT FROM HARMFUL VAPORS

The Horizon Technology Reclaimer™ SRS solvent recovery system condenses and converts vapors generated by the DryVap® Concentrator System back into liquid form, and captures them into a solvent resistant collection bottle. Designed specifically to handle solvent vapors, the Reclaimer™ SRS operates at -18C and is capable of condensing and capturing approximately 95% of the solvent vapor. Minimal space is required, as the system is designed to fit under standard laboratory benches. Bench top operation is also possible. The removable bottom frame with built in wheel casters allows the system to be easily moved around the laboratory. The bottom frame assembly is designed to house the vacuum pump, again saving valuable laboratory space.



CERTIFIED FOR AUTOMATION SPE DISKS

The Atlantic Disk uses divinyl benzene (DVB) adsorbent and is designed and certified for automation with the SPE-DEX® 4790 Automated Extractor from Horizon Technology. Each lot of Atlantic disks are tested and certified for automation by Horizon Technology giving you guaranteed results and consistency.



Atlantic SPE Disks have received excellent reviews from labs running EPA Method 8081B, EPA Method 8082A and PAHs - for both recovery rates and cost savings. Atlantic SPE Disks are available in 47mm size.