

Consumables for Environmental Sample Preparation



Superior Alternatives to Liquid-Liquid Extractions

Benefits of SPE Disks

- » Use less solvent than typical Liquid-Liquid Extractions (LLE)
- » Increase sample throughput
- » Process clean and dirty samples (drinking, sea, waste, ground water, etc.)
- » Eliminate emulsions
- » Process a wide range of sample volumes (mL to multi L)
- » Provide comparable or better recoveries than LLE
- » Easily automated methods



LLE

- » Labor intensive
- » High solvent consumption
- » Emulsion forming



A Full Spectrum of Solutions for both Semi-Volatile Organics and Oil & Grease

Semi-Volatile Organic Compounds



Atlantic® ReadyDisks



Atlantic® SPE Disks



Biotage® Horizon 5000



DryVap® Concentrator system

Oil and Grease EPA 1664 A and B



Pacific® SPE O&G Disks



Biotage® Horizon 3100 Oil and Grease Extractor



SpeedVap® IV Solvent Evaporation System



Biotage® Solvent Recovery OG

Biotage Offers Labs a Flexible Approach to SPE

Automated

- » Improves accuracy and precision
- » Simplifies complex methods
- » Reduces operator involvement
- » Process clean and/or dirty aqueous samples

Manual

- » Low cost
- » Handles large volumes
- » Perfect for low throughput labs



Biotage® Horizon 5000



Biotage® VacMaster™ Disk



Semi-Volatile Organic Compounds

Atlantic® SPE Disks

Biotage designs, tests and certifies Atlantic SPE Disks to be compatible with automated or manual SPE methods. These 47 mm disks extract a wide range of sample matrices and work ideally in extracting analytes from drinking water, surface water, sea water and particulate-laden wastewater. Lot certified batches ensure consistent results for lab testing needs.

Atlantic SPE Disks (and Pre-Filters) are also “Certified for Automation” specifically for use with the Biotage® Horizon 5000 Automated Extraction System. Automation improves the reproducibility of your results, while reducing time and labor. By eliminating emulsions, re-extraction and re-sampling issues, Atlantic SPE Disks result in more consistent results than liquid-liquid extractions.

Atlantic® 8270 One Pass SPE Disks

This disk contains media with 3 analyte retention mechanisms that significantly simplifies the extraction process with the benefit of reduced labor, faster extraction times and elimination of high pH precipitates. This multi-mode disk chemistry enables the retention of over 100 target semi-volatile compounds with a sample pH of 2. Now acidic, neutral and basic analytes can be retained in a single water extraction step using this 47 mm disk. For extremely hydrophilic compounds, the optional Carbon Cartridge* is placed after the One Pass disk to scavenge the sample effluent for light-end semi-volatile organics (LSVO). In this configuration all classes of compounds from EPA Method 8270/625 are automatically captured, eluted off the media and ready for drying and concentration.

Atlantic® SPE Disk Specifications – For Extraction of Organic Compounds

Product Features	C18: Bonded Silica Packing	DVB: Divinylbenzene	8270 One Pass	HLB: Hydrophilic-Lipophilic Balanced		
				HLB-L	HLB-M	HLB-H
Part Number	47-2346-02	47-2346-06	47-2346-11	47-2346-08	47-2346-09	47-2346-10
Qty. Per Pack	24	24	24	40	30	24
Lot Certification	✓	✓	✓	✓	✓	✓
Disk Format	47 mm	47 mm	47 mm	47 mm	47 mm	47 mm
Sorbent Conditions	Silica based, endcapped	Resin based DVB	Resin based w/custom cation exchange properties	Resin based (styrene/DVB copolymer)	Resin based (styrene/DVB copolymer)	Resin based (styrene/DVB copolymer)
pH Range	2-7	1-14	2-12	1-14	1-14	1-14
Unique Properties	Low water retention	Resistant to accidental over-drying	Allows for extraction of acidic, basic and neutral compounds at pH 2. *Combine with Carbon Cartridge for EPA 8270/625 analytes	Reduced glass fiber content. Reduced evaporation times for EPA Method 1694. Choose low (L), medium (M) or high (H) capacity based on organic sample concentrations. Hydrophilic-Lipophilic, reversed phase ratio of two monomers (n-vinylpyrrolidone and lipophilic divinylbenzene)		



For water sample analysis of semi-volatile compounds, the Biotage® Horizon 5000 Automated Extraction System processes aqueous samples directly from original containers. The system performs all extraction steps while minimizing solvent consumption.



SPE is an ideal solution for dirty samples. Atlantic® Pre-Filters, used with the Atlantic SPE Disks, dramatically increase sample flow rate without compromising recoveries.

Atlantic® ReadyDisk



Single-use Solid Phase Extraction (SPE) Disks

Atlantic® ReadyDisks are solid phase extraction (SPE) disks, pre-assembled into disposable holders and are used for extracting organic and semi-volatile organic compounds from aqueous matrices. The ReadyDisks are designed for single-use extractions with maximum speed and convenience in mind.

Atlantic® ReadyDisk Specifications – For Extraction of Organic Compounds*

Product Features	ReadyDisk C18		ReadyDisk DVB
	Standard	High Capacity	
Part number	47-6005	47-6006	47-6001
Qty. Per Pack	24	24	24
Lot Certification	✓	✓	✓
Disk Format	Nominal 47 mm with disposable holder	Nominal 47 mm with disposable holder	Nominal 47 mm with disposable holder
Sorbent Conditions	Silica based, endcapped	Silica based, endcapped	Resin based DVB
pH Range	2–7	2–7	1–14
Unique Properties	Low water retention	Low water retention. Higher capacity for improved retention of polar analytes	Resistant to accidental drying

*Atlantic® ReadyDisks are suitable for automated or manual extraction of water samples with low particulate levels.

SPE Cartridge for PFAS Analysis

ISOLUTE® 101 cartridges are packed with polystyrenedivinylbenzene (SDVB) SPE media, and deliver high, reproducible recoveries of perfluorinated alkyl acids (PFAAs) in drinking water, with LC-MS/MS analysis, as specified in EPA method 537.



ISOLUTE® 101 500 mg/ 6 mL cartridge (p/n 101-0050-C) for PFAS analysis.

SPE Cartridge for Paraquat/Diquat Analysis

ISOLUTE® C8(EC) 500 mg/6 mL cartridges contain C8 modified silica, endcapped to reduce losses of paraquat and diquat. The cartridges can be used in automated or manual extraction.



ISOLUTE® C8(EC) 500 mg/ 6 mL cartridge (p/n 291-0050-C) for paraquat/diquat analysis.

Oil and Grease

Pacific® Premium SPE Disks

Pacific Premium Oil and Grease SPE Disks provide fast flow rates for dirty samples while offering high recovery values for the oil and grease fraction of the sample. These disks blend various diameters of high quality borosilicate glass micro-fibers; the upper surface of each disk provides a greater porosity, essential for handling particulate heavy samples, and the bottom layer, comprised of smaller micro-fibers and packing material, retains the oil and grease fraction.

Pacific® SPE Disks

Pacific SPE Disks are economical alternatives to the higher performance Premium Disks, available in both a 47 mm and 90 mm size.

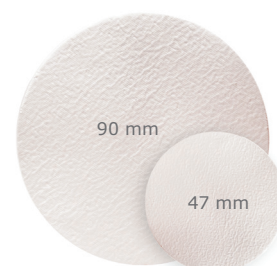
The Biotage Advantage: A Choice of SPE Disks

Both Pacific and Pacific Premium disks offer proven reliability and lot certification for reliable results. Pacific Pre-Filters enable Pacific disks to achieve high efficiency rates when processing dirty samples.

Oil & Grease QC Standards for EPA Method 1664

Biotage offers two choices of QC Standards (spiking solution) for oil and grease analysis, including multi-use vials or convenient one time use tube packs. Standards can be stored at ambient temperature. Features include:

- » Lot certification
- » NIST traceability
- » Clearly marked expiration dates
- » Certificate of Analysis
- » Dissolved in 99.5% acetone



SPE Disk Specifications – For Extraction of Oil and Grease

Product Features	Pacific Premium		Pacific	
	47 mm	90 mm	47 mm	90 mm
Part Number	1664-47-PHT	1664-100-PHT	1664-47-HT	1664-90-HT
Qty. Per Pack	50	50	50	50
Lot Certification	✓	✓	✓	✓
EPA Method	1664A 1664A (w/modifications) 1664B	1664A 1664A (w/modifications) 1664B	1664A 1664A (w/modifications) 1664B	1664A 1664A (w/modifications) 1664B
Unique Properties	High Performance Choice (developed to address 1664A with modifications*) *Reduced glass fiber content equates to less water retention. Binder free to reduce extractor maintenance requirements.		Economical Choice for manual or automated Oil and Grease extraction.	



Speed-Vap™ IV Solvent Evaporation System. Provides safe and fast evaporation of n-hexane solvent for oil and grease extractions. Bench-top operation frees up valuable hood space, offers controlled evaporation for easy, reliable gravimetric results and reduces exposure to hazardous solvents. Cut evaporation times in half.



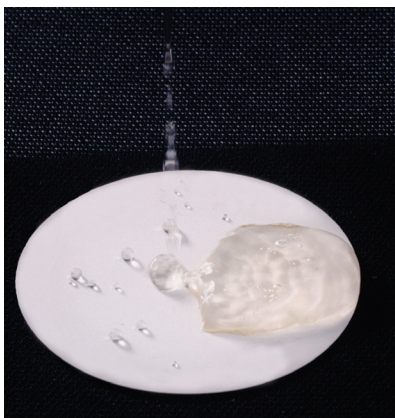
Biotage® Horizon 3100. Automatically extracts oil and grease from a wide range of 'clean' or 'dirty' aqueous samples using EPA Method 1664. These systems support Biotage Pacific™ and Pacific™ Premium SPE disks.

Drying and Concentration

65 mm DryDisk®-R Separation Membrane

The DryDisk-R Separation Membrane significantly reduces the labor involved in removing residual water from non-polar organic solvents, up to twenty times faster than traditional sodium sulfate methods.

- » Fast and simple - no measuring, drying or careful storage to avoid re-absorption of water.
- » Replaces multi-step chemical drying process.
- » Infinite capacity for removing residual water from solvent extracts.
- » Eliminates disposal of used sodium sulfate.
- » Works on emulsified samples.
- » Automated using the DryVap® Concentrator System.



Dry Disk-R membrane creates a physical barrier for water. (P/N 40-1000-HT)

50 mL DryDisk® Disposable Barrel

The DryDisk 50 mL Barrel is a disposable sample preparation accessory that provides a fast and simple approach for removing residual water from non-polar solvents.

- » Easy operation - DryDisk® integrates with barrel, no assembly required.
- » Removes residual water from smaller volume, non-polar solvent extracts.
- » Replaces conventional sodium sulfate drying.
- » Compatible with industry standard SPE vacuum manifolds such as the Biotage® VacMaster™ and Biotage® VacMaster™ Disk.
- » Disposable - discard the barrel after use, no messy clean-up.

Solvent Drying System

The Solvent Drying System (SDS 101) simplifies and accelerates solvent drying in sample preparation. The system consists of the DryDisk Separation Membrane, PTFE Membrane Holder Assembly, precision controlled Vacuum Regulator, and Docking Bracket Assembly.



P/N 49-2486-01



P/N SDS-101

DryDisk® Specifications – For Drying and Concentration

Product Features	65 mm Separation Membrane	50 mL Disposable Barrel	Solvent Drying System
Part Number	40-1000-HT	49-2486-01	SDS-101-19/22*
Qty. Per Pack	100	36	1

*Also available in 24/40 taper. P/N SDS-101-24/40.



DryDisk®. Designed for use on the DryVap® Solvent Concentrator, this DryDisk® assembly provides a large glass reservoir area from which solvent extracts can be efficiently and automatically dried prior to final concentration. This accessory is compatible with the 65 mm DryDisk-R Separation Membrane and fits perfectly onto any DryVap. Also compatible with the Biotage® VacMaster™ Disk for manual drying.



DryVap®. For a variety of applications the DryVap® Concentrator System, when used with the DryDisk®, automates the removal of water while concentrating samples through evaporation of extraction solvent for GC, GC/MS, and HPLC/MS analysis.

EPA Method Selection Guide

EPA Method Number/ Sample Type	Typical Analytes	Atlantic® SPE Disk or SPE Cartridge	Part Number	Atlantic® ReadyDisk	Part Number
500 Series/Drinking Water					
506	Phthalate and adipate esters (plasticizers)	C18	47-2346-02	C18	47-6005
507	N and P containing pesticides	C18	47-2346-02	C18	47-6005
508.1	Organochlorine pesticides, herbicides and organohalides	C18	47-2346-02	C18	47-6005
515	Chlorinated acids	DVB	47-2346-06	DVB	47-6001
522	1,4 Dioxane	Carbon cartridge	49-2620-01		
525.2	Phthalates, herbicides, PAHs	C18/HLB-M	47-2346-02/ 47-2346-09	C18	47-6005
525.3	Phthalates	DVB/HLB-M	47-2346-06/ 47-2346-09	DVB	47-6001
526	Semi-volatile organic compounds (SVOC)	DVB/HLB-M	47-2346-06/ 47-2346-09	DVB	47-6001
527	Selected pesticides and flame retardants	DVB	47-2346-06	DVB	47-6001
528	Phenols	DVB/HLB-M	47-2346-06/ 47-2346-09	DVB	47-6001
529	Explosives and related compounds	DVB	47-2346-06	DVB	47-6001
531	Methylcarbamates	HLB-M	47-2346-09		
532	Phenylurea compounds	C18/HLB-M	47-2346-02/ 47-2346-09	C18	47-6005
537	PFAS compounds	ISOLUTE® 101 cartridge	101-0050-C		
548	Endothall	C18/HLB-M	47-2346-02/ 47-2346-09	C18	47-6005
550.1	PAHs	C18	47-2346-02	C18	47-6005
552.1	Haloacetic acids	HLB-M	47-2346-09		
553.1	Benzidines and N containing pesticides	C18/DVB	47-2345-02/ 47-2346-06	C18/DVB	47-6005/ 47-6001
554	Carbonyls	HLB-M	47-2346-09		
600 Series/Wastewater*					
608	Organochlorine Pesticides and PCBs	C18	47-2346-02		
625.1	Base/Neutrals and Acids	One Pass/HLB-M/H with Carbon Cartridge	47-2346-11/ 47-2346-09/ 47-2346-10		
1600 Series/Wastewater*					
1613	Dioxins and Furans	C18/DVB	47-2345-02/ 47-2346-06		
1614	PBDEs (polybrominated diphenyl ethers)	C18/DVB	47-2345-02/ 47-2346-06		
1657	Formaldehyde, furfural	C18/DVB	47-2345-02/ 47-2346-06		
1668	Chlorinated biphenyls	C18/DVB	47-2345-02/ 47-2346-06		
1694	PPCPs (Pharmaceutical and personal care products)	HLB M/L	47-2346-09/ 47-2346-08		

EPA Method Number/ Sample Type	Typical Analytes	Atlantic® SPE Disk or SPE Cartridge	Part Number	Atlantic® ReadyDisk	Part Number
8000 Series/Ground Water					
8015	Nonhalogenated Organics	DVB	47-2346-06	DVB	47-6001
8061	Phthalate esters	C18/DVB	47-2345-02/ 47-2346-06	C18/DVB	47-6005/ 47-6001
8081	Organochlorine Pesticides	C18/DVB/HLB-M	47-2346-02/ 47-2346-06/ 47-2346-09	C18/DVB	47-6005/ 47-6001
8082	PCBs	C18/DVB/HLB-M	47-2346-02/ 47-2346-06/ 47-2346-09	C18/DVB	47-6005/ 47-6001
8141	Organophosphorus Compounds	DVB	47-2346-06	DVB	47-6001
8151	Chlorinated Herbicides	DVB	47-2346-06	DVB	47-6001
8270D	Semi-volatile Organic Compounds	8270 One Pass/ HLB-M/H with Carbon Cartridge (Full list)	47-2346-11/ 47-2346-09/ 47-2346-10		
8315	Carbonyl Compounds	C18/DVB/HLB-M	47-2346-02/ 47-2346-06/ 47-2346-09	C18/DVB	47-6005/ 47-6001
8318	N-methylcarbamates	HLB	47-2346-08, -09, -10		
8330	Nitroaromatics and Nitramines	DVB/HLB-M	47-2346-06/ 47-2346-09	DVB	47-6001
Emerging Contaminants					
Pharmaceutical Compounds		HLB M/L	47-2346-09/ 47-2346-08		
Endocrine Disrupters		HLB M/L	47-2346-09/ 47-2346-08		
Carbaryl		C18	47-2346-02	C18/HC-C18	47-6005/ 47-6006
Microcystins		C18	47-2346-02	C18/HC-C18	47-6005/ 47-6006
Nonyl phenol (Surfactant)		DVB	47-2346-06	DVB	47-6001
Bisphenol A		DVB	47-2346-06	DVB	47-6001
Carbamates		HLB-M	47-2346-09		
Paraquat and Diquat		ISOLUTE® C8(EC) Cartridge	291-0050-C		

Note: High capacity Atlantic® ReadyDisk C18-HC (part number 47-6006) may be substituted in methods where the standard Atlantic® ReadyDisk C18 does not give sufficient retention of more polar analytes.

* Atlantic® ReadyDisks are not recommended for wastewater samples with a high level of particulates

Ordering Information

SPE Consumables for Semi-Volatile Compounds

Part Number	Description	Quantity
Atlantic® SPE Disks		
47-2346-02	Atlantic C18 Disk, 47 mm	24
47-2346-13	Atlantic High Capacity C18 Disk, 47 mm	24
47-2346-06	Atlantic DVB Disk, 47 mm	24
47-2346-11	Atlantic 8270 One Pass Disk, 47 mm	24
47-2346-08	Atlantic HLB-L Disk, 47 mm	40
47-2346-09	Atlantic HLB-M Disk, 47 mm	30
47-2346-10	Atlantic HLB-H Disk, 47 mm	24
49-2620-01	One-Pass Carbon Cartridge Max Detect	16
Atlantic® Pre-Filters		
FFAP-47-HT	Atlantic Fast Flow Pre-Filter 47 mm – Coarse 5.0 µm	50
FFAP-100-HS1	Atlantic Fast Flow Pre-Filter 90 mm – Fine 1.0 µm	50
FFAP-100-HS5	Atlantic Fast Flow Pre-Filter 90 mm – Coarse 5.0 µm	50
Atlantic® ReadyDisks		
47-6005	Atlantic ReadyDisk C18	24
47-6006	Atlantic ReadyDisk HC-C18	24
47-6001	Atlantic ReadyDisk DVB	24
SPE Cartridges		
101-0050-C	ISOLUTE® 101 500 mg/6 mL	30
291-0050-C	ISOLUTE® C8(EC) 500 mg/6 mL	30

Compatible with Manual and Automated SPE Systems.

SPE Consumables for Oil & Grease

Part Number	Description	Quantity
Pacific®/Pacific® Premium Oil & Grease Disks		
1664-47-PHT	Pacific Premium 47 mm Oil & Grease Disk	50
1664-100-PHT	Pacific Premium 90 mm Oil & Grease Disk	50
1664-47-HT	Pacific 47 mm Oil & Grease Disk	50
1664-90-HT	Pacific 90 mm Oil & Grease Disk	50
Pacific® Pre-Filters		
FFP-47-HT	Pacific O&G Fast Flow Pre-Filter 47 mm	50
FFP-90-HT	Pacific O&G Fast Flow Pre-Filter 90 mm	50

Consumables for Solvent Drying

Part Number	Description	Quantity
DryDisk®		
40-1000-HT	DryDisk-R 65 mm	100
49-2486-01	DryDisk Barrel, 50 mL	36
50-0914	Assembly 65 mm Complete, DryDisk	1
SDS-101-19/22	Solvent Drying System (19/22 taper)	1
SDS-101-24/40	Solvent Drying System (24/40 taper)	1
27-0731-01	Solvent Drying System Reservoir, 65 mm, DryDisk	1
50-0749-01	Solvent Drying System - SDS 101 Manifold Assembly, DryDisk®	1

Additional Consumables and Accessories

Part Number	Description	Quantity
Oil & Grease Standards		
50-003-HT	Oil & Grease Standards, 26 mL	4
50-021-HT	Oil & Grease Standards, 40 mg	20
Weigh Pans		
50-002-HT	Oil & Grease Aluminium Weighing Pans, 70 mm, 55 mL	100
50-002-02-HT	Oil & Grease Aluminium Weighing Pans, 105 mm, 125 mL	100



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