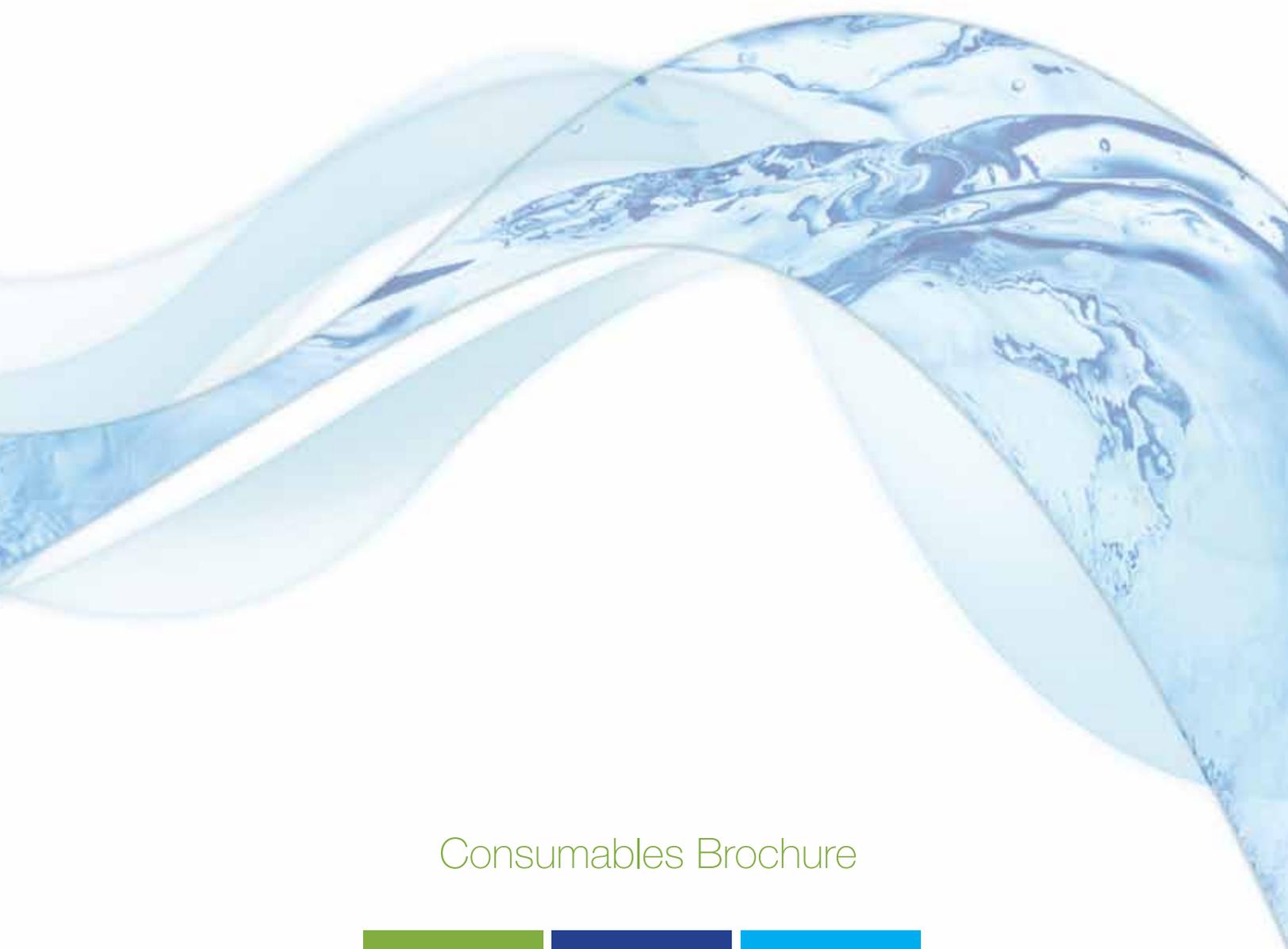




Advancing the power of SPE



Consumables Brochure



# 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 large sample volumes (8 liters)
- 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 & Oil and Grease



## Horizon Technology Offers Labs a Flexible Approach to SPE:

### Automated

- ✓ Increases throughput with fast flow rate
- ✓ Improves accuracy and precision
- ✓ Simplifies complex methods
- ✓ Reduces operator involvement
- ✓ Processes clean and/or dirty aqueous samples



SPE-DEX 4790 Automated Extraction System

### Manual

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



SPE Vacuum Manifold

# Organic, Semi-volatile Compounds



## Atlantic™ SPE Disks

Horizon Technology 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 insure consistent results for lab testing needs.

Atlantic SPE Disks (and Pre-Filters) are also "Certified for Automation" specifically for use with the Horizon Technology SPE-DEX 4790 Automated Extractor System. Automation benefits include less solvent, as well as reduced time and labor. By eliminating emulsions, re-extraction and re-sampling issues, Atlantic SPE Disks result in more consistent results than Liquid-Liquid Extractions.



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™ 8270 One Pass SPE Disks

Our new Atlantic 8270 One Pass SPE Disk contains three mechanisms for analyte retention. By incorporating mixed phase properties along with hydrophilic and lipophilic characteristics, this new chemistry enables extraction of a broad spectrum of acidic, neutral and basic semi-volatile compounds at a single pH of 2. The One Pass Disk offers extremely consistent data and eliminates the need to run the same water sample twice for extraction of acid and basic compounds. Cost-effective and time-saving, it provides efficient extraction of over 117 semi-volatile compounds, processing 'whole water samples' including sediment and other common particulates.

### 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	Reduced glass fiber content. Reduced evaporation times for EPA Method 1694. Choose L, M or H based on organic sample concentrations. Hydrophilic-Lipophilic, reversed phase ratio of two monomers (n-vinylpyrrolidone and lipophilic divinylbenzene).		

## Total Solutions



Developed by Horizon Technology, our J.T. Baker Manifold Adaptor Kit enables the use of Atlantic SPE disks. Contact Horizon for other manual SPE alternatives.

Part Number: 50-0812-01



For environmental water sample analysis of semi-volatile compounds, the SPE-DEX 4790 Automated Extraction System processes aqueous samples directly from original containers. The system performs all extraction steps while minimizing solvent consumption.

# Oil and Grease

## Pacific™ Premium SPE Disks

Pacific Premium Oil and Grease SPE Disks provide fast flow rates with 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.

## Oil & Grease QC Standards for EPA Method 1664

Horizon offers two choices of QC Standards (spiking solution) for oil and grease analysis, including multi-use vials or convenient, one-time use Snip & Pour 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



**Pacific Pre-Filters** enable Pacific disks to achieve high efficiency rates when processing dirty samples.

## The Horizon Advantage: A Choice in SPE Disks

### SPE DISK SPECIFICATIONS - For Extraction of Oil & Grease

Product Features	Pacific Premium		Pacific	
	47 mm	90/100 mm	47 mm	90/100 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	<i>High Performance Choice (developed to address 1664A with modifications*)</i> <i>*Reduced glass fiber content equates to less water retention.</i>		<i>Economical Choice for manual or automated Oil &amp; Grease extraction</i>	

**Both Pacific and Pacific Premium disks offer proven reliability & lot certification for reliable results.**



*The Speed-Vap™ III 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!*



*The SPE-DEX 1000XL and 3000XL (shown) automatically extract oil and grease from a wide range of 'clean' or 'dirty' aqueous samples using EPA Method 1664. These systems support Horizon Technology's Pacific™ and Pacific™ Premium SPE disks.*

# Drying and Concentration

## 65mm DryDisk® Separation Membrane

The DryDisk 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 waiting for phase separation.
- 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.
- Supports up to eight simultaneous samples manually.
- Automated using the DryVap® Concentrator System.



40-705-HT

**Dry Disk membrane** creates a physical barrier for water.

## 50mL 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 third-party SPE vacuum manifolds.
- Disposable - discard the barrel after use, no messy clean-up.



49-2486-01

## Solvent Drying System

Horizon's 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.



SDS-101

### DRYDISK SPECIFICATIONS - For Drying and Concentration

Product Features	65 mm Separation Membrane	50 ml Disposable Barrel	Solvent Drying System
Part Number	40-705-HT	49-2486-01	SDS-101-19/22*
Qty per pack	50	36	1

\* Also available in 24/40 taper. Part number SDS-101-24/40



Designed for use on Horizon's 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 Horizon's 65 mm DryDisk Separation Membranes and fits perfectly onto any DryVap.



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

# The leader in automated sample preparation

## Markets served by Horizon Technology include:

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



## Applications for disk-based solid phase extraction

Known Endocrine Disrupters	EPA Methods	Water Sample Type	Compounds Associated	Compatible Horizon Atlantic Disks
Organochlorine Pesticides	508, 506, 608, 8081	Drinking, Solid Waste	DDT, DDD and DDE, Endosulfan and Endosulfan sulfate	C18(608) C18/DVB or HLB-M
PCBs	8082, 508, 608	Solid Waste, Drinking	Polychlorinated Biphenyls (PCBs)	DVB or HLB -M
Bisphenol A	N/A	Drinking, Waste	Bisphenol A	C-18
PBDEs	1614	Waste	Polybrominated Diphenyl Ethers	C-18
Alkylphenols	N/A	Drinking, Waste	Nonylphenol	C-18
Dioxins & Furans	1613/8290	Waste, Ground	Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs)	C18 or DVB
Phthalates	8016A, 525.2	Drinking, Ground, Solid Waste	Diethyl Phthalate (DEP), Di(2-ethylhexyl) Phthalate (DEHP)	C-18 or DVB
Herbicides	525.2 508	Drinking	Atrazine	C-18
Hormones / Sex Steroids		Drinking	Estrogens and Androgens	HLB-M
PAHs	525.2, 8270	Drinking, Ground, Solid Waste	Poly-aromatic Hydrocarbons or Polynuclear Aromatic Hydrocarbons	C-18, DVB or HLB-M
PPCPs	1694	Waste	Pharmaceutical and personal care products	HLB-M, HLB-H



Horizon  
technology

[www.horizontechninc.com](http://www.horizontechninc.com)

## About Us

Since 1993, Horizon Technology has provided a total solutions approach to the automation of disk-based solid phase extraction. By blending a wealth of chemistry knowledge, applications know-how, instrument and disk manufacturing expertise, with our commitment to customer service, we proudly support today's environmental laboratories. We continue to evolve as a company, developing the world's most widely accepted automated SPE solutions while providing exceptional value for environmental water monitoring efforts around the globe.

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South America, Canada

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# EPA Method Disk Selection Guide

EPA Method No./ Sample type	Atlantic/Pacific SPE Disk or Carbon Cartridge	Horizon Technology Disk Product No.
<b>500 Series/Drinking Water</b>		
506	C18	47-2346-02
507	C18	47-2346-02
508.1	C18	47-2346-02
515	DVB	47-2346-06
522	Carbon Cartridge	49-2620
525	C18/HLB-M	47-2346-02 /47-2346-09
526	DVB/HLB-M	47-2346-06/47-2346-09
527	DVB	47-2346-06
528	DVB/HLB-M	47-2346-06/47-2346-09
529	DVB	47-2346-06
531	HLB-M	47-2346-09
532	C18/HLB-M	47-2346-02 /47-2346-09
548	C18/HLB-M	47-2346-02 /47-2346-09
550.1	C18	47-2346-02
552.1	HLB-M	47-2346-09
553.1	C18/DVB	47-2346-02 /47-2346-06
554	HLB-M	47-2346-09
<b>600 Series/Wastewater</b>		
608	C18	47-2346-02
625	HLB-M/H	47-2346-09/47-2346-10
<b>1600 Series/Wastewater</b>		
1613	C18/DVB	47-2346-02 /47-2346-06
1614	C18/DVB	47-2346-02 /47-2346-06
1657	C18/DVB	47-2346-02 /47-2346-06
1664	Pacific/Pacific Premium	1664-100-PHT/1664-47-PHT
1668	C18/DVB	47-2346-02 /47-2346-06
1694	HLB-M/L	47-2346-09/47-2346-08
<b>8000 Series/Ground Water</b>		
8015	DVB	47-2346-06
8061	C18/DVB	47-2346-02 /47-2346-06
8081	C18/DVB/HLB-M	47-2346-02 /47-2346-06/ 47-2346-09
8082	C18/DVB/HLB-M	47-2346-02 /47-2346-06/ 47-2346-09
8141	DVB	47-2346-06
8151	DVB	47-2346-06
8270	8270 One Pass/HLB-M/H With Carbon Cartridge (Full List)	47-2346-11/47-2346-09/ 47-2346-10
8315	C18/DVB/HLB-M	47-2346-02 /47-2346-06/ 47-2346-09
8318	HLB	47-2346-08, 09, 10
8330	DVB/HLB-M	47-2346-06/47-2346-09
<b>Emerging Contaminants</b>		
Pharmaceutical Compounds	HLB-M/L	47-2346-09/47-2346-08
Endocrine Disruptors	HLBM/L	47-2346-09/47-2346-08
Carbaryl	C18	47-2346-02
Microcystins	C18	47-2346-02
Nonyl Phenol (surfactant)	DVB	47-2346-06
Bisphenol A	DVB	47-2346-06
Carbamates	HLB-M	47-2346-09



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# Horizon Technology Consumables Ordering Guide

## SPE Consumables for Semi-volatile Compounds

ATLANTIC™ 47 mm SPE DISKS	PART NUMBER
Atlantic™ C18	47-2346-02
Atlantic™ DVB	47-2346-06
Atlantic™ 8270 One Pass	47-2346-11
Hydrophilic-Lipophilic Balanced	
Atlantic™ HLB-L	47-2346-08
Atlantic™ HLB-M	47-2346-09
Atlantic™ HLB-H	47-2346-10
ATLANTIC™ PRE-FILTERS	PART NUMBER
Atlantic™ Pre-filter 47 mm	FFAP-47-HT
Atlantic™ Pre-filter 100 mm - Fine	FFAP-100-HS1
Atlantic™ Pre-filter 100 mm - Coarse	FFAP-100-HS5
Carbon Cartridge	49-2620

*Compatible with Manual & Automated SPE Systems*

## SPE Consumables for Oil & Grease

PACIFIC™ / PACIFIC™ PREMIUM OIL & GREASE DISKS	PART NUMBER
Pacific™ Premium 47 mm	1664-47-PHT
Pacific™ Premium 100 mm	1664-100-PHT
Pacific™ 47 mm	1664-47-HT
Pacific™ 90 mm	1664-90-HT
PACIFIC® PRE-FILTERS	PART NUMBER
Pacific™ Pre-filter 47 mm	FFP-47-HT
Pacific™ Pre-filter 90 mm	FFP-90-HT

*Designed specifically for use with Horizon Technology SPE-DEX® 3000XL Automated Extractor System*

## Consumables for Solvent Drying

DRYDISK®	PART NUMBER
Separation Membrane	40-705-HT
50 mL Disposable Barrel	49-2486-01
65 mm Assembly	50-0914
Solvent Drying System (19/22 taper)	SDS-101-19/22
Solvent Drying System (24/40 taper)	SDS-101-24/40

## Additional Consumables / Accessories

OIL & GREASE STANDARDS	PART NUMBER
Vials (26 mL each, 4 vials/box)	50-003-HT
Snip & Pour (10 mL tubes)	50-021-HT
WEIGH PANS	PART NUMBER
70 mm (55 mL, 100/box)	50-002-HT
105 mm (125 mL, 100/box)	50-002-02-HT