

Biotage® Horizon SmartPrep Extractor

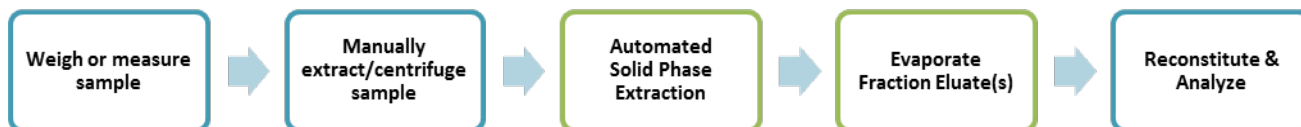
Essential Systems



Automating Solid Phase Extraction (SPE) can be simple and efficient with the SmartPrep Extractor. Designed for laboratories transitioning from manual to automated SPE, the SmartPrep Extractor focuses on the essential SPE process to run a variety of sample matrices and volumes without dedicated experts.

- **Food Safety & Packaging Migration**
- **Agriculture & Animal Health**
- **Environment & Health Monitoring**
- **Order all the parts and accessories needed at once**

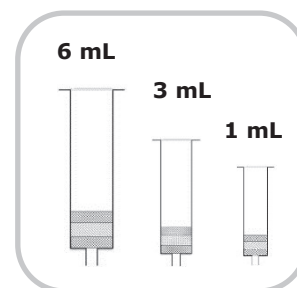
The SmartPrep Extractor Essential systems are complete with racks, sample tubes, and accessories packaged to automate the multiple manual SPE procedures within the food, agriculture, and environmental markets, while providing a consistent and simple approach to running multiple methods on the same platform.



Typical Sample Preparation Process & Highlighted Areas for Horizon Technology SmartPrep Extractor Automation and XcelVap® Evaporation

The Importance of Sample Preparation for FDA, EPA, USDA, and AOAC Methods:

- Integral part of analysis quality and reliability in the final data
- Solid phase extraction (SPE) is commonly used for:
 - Sample preparation due to its ability to use selective chemistry
 - Loading capacity onto 6-mL, 3-mL, and 1-mL cartridge sizes
 - Ease in obtaining new packing or sorbent materials for improved compound selection with large compound family analysis
- Simplifying sample preparation is the first step towards improving a laboratory's accuracy and reproducibility



SmartPrep Extractor Essentials Systems:

Automated SPE is simple with SmartPrep Extractor Essentials Systems, offering a powerful and effective laboratory tool to meet your needs for performing FDA, EPA, USDA, and AOAC methods.



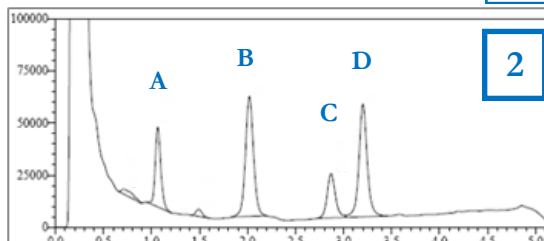
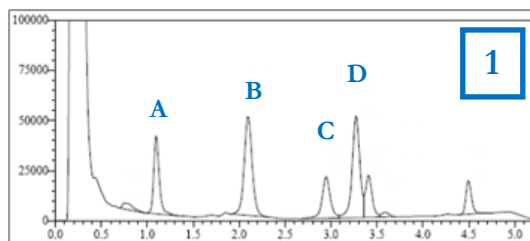
Basic 5-Step Run Mode	Advanced Run Mode	Manual Mode
<ol style="list-style-type: none"> 1. Install SPE cartridges 2. Install fraction collection tubes/vials 3. Position solvent bottles 4. Position samples 5. Import sample sequence 	<ul style="list-style-type: none"> • Method Creation • Method Development • Method Optimization • Customize Reagents & Waste Collection • Configure SPE Cartridges 	<ul style="list-style-type: none"> • System Optimization • Create/Save a Manual Sequence • Full Control for Troubleshooting

SmartPrep Extractor Essential Systems



FDA Determination of Fluoroquinolones in Fish: Automated SPE was performed for analysis of Ciprofloxacin, Enrofloxacin, Sarafloxacin, and Difloxacin using the SmartPrep Extractor on high-fat and low-fat fish samples, per the modified October 2003 FDA method.

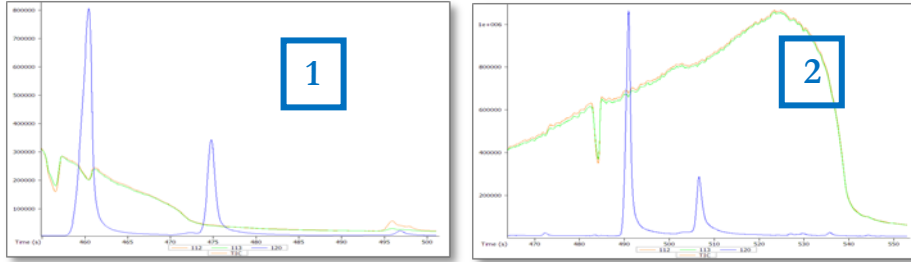
Food Safety



Above: Low-fat fish sample - 20 ppb spike (1); High-fat fish sample - 20 ppb spike (2) with fluoroquinolones: A) Ciprofloxacin, B) Enrofloxacin, C) Sarafloxacin, D) Difloxacin

Health Monitoring

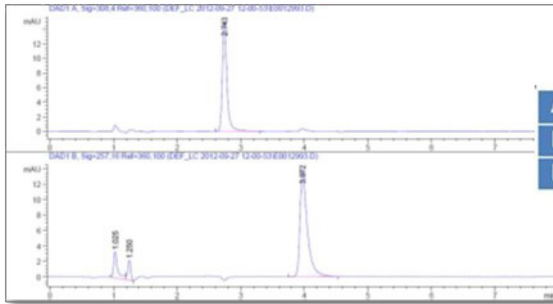
Determination of N-Acetyltyramine in Urine: Automated SPE was performed and qualitatively compared to manual SPE using the SmartPrep Extractor. A large creatine background is visible on the manual SPE spectra (spectra 2) that is not present in automated SPE spectra (spectra 1).



Above: Automated SPE of urine (1). Manual SPE of urine (2).
Blue spectra = N-Acetyltyramine and green spectra = Creatine.

Environmental Safety

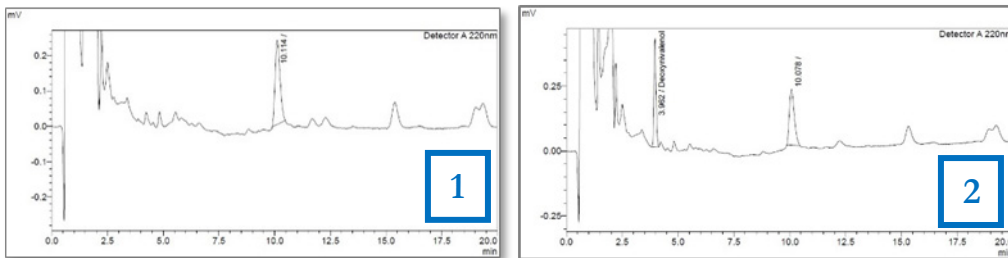
EPA 549.2 Determination of Diquat and Paraquat in Water: Automated SPE was performed to determine the amount of diquat and paraquat in 250-mL water samples using the SmartPrep Extractor. Recovery and percent relative standard deviation was calculated for seven samples.



Analyte	Recovery (n=7)	%RSD
Diquat	95.19	3.60
Paraquat	02.72	2.18

Agriculture Safety

AOAC Determination of Deoxynivalenol in Cracked Wheat: Automated SPE was performed for analysis of Deoxynivalenol (vomitoxin) using the SmartPrep Extractor on agriculture wheat samples using a modified SPE cartridge technology.

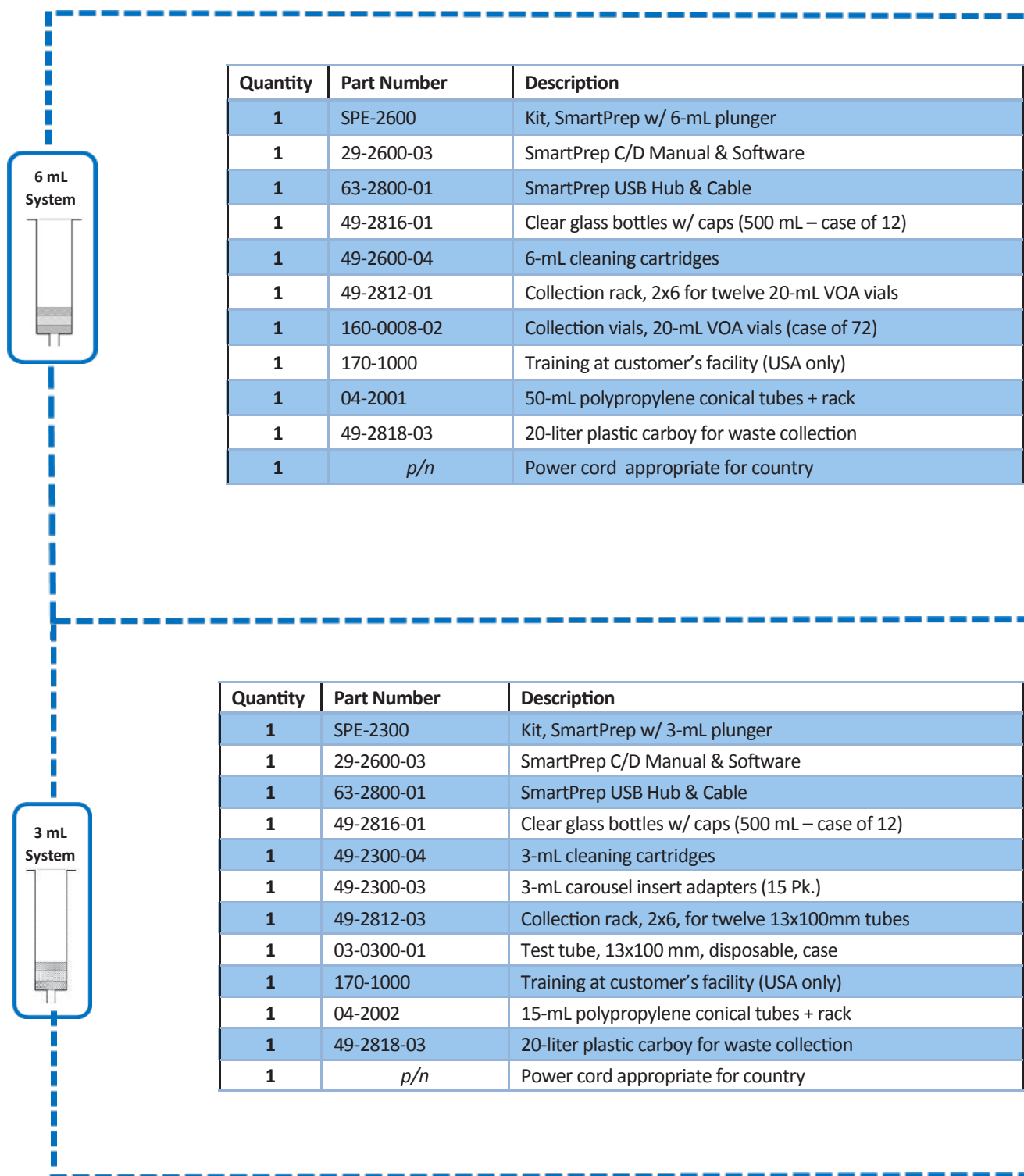


Above: Cracked wheat control sample (1); Cracked wheat 1000 µg/kg spiked sample (2) with Deoxynivalenol peak at 3.962 minutes.

Common SPE Cartridges Used for FDA, EPA, USDA, and AOAC Applications

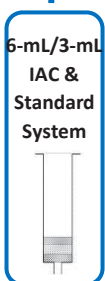
Category	Sample Matrices	Compounds	Typical SPE Cartridge
Foods >75% Water & <2% Fat	Fruits Vegetables	Organophosphorous and Organochlorine Pesticides	Florisil
Fresh Fish	Fish Shrimp	Malachite Green Chloramphenicol	Alumina, PRS
	Mussels	Okadaic Acid	Silica
	Shellfish	Saxitoxin	C18
	Fish	Microcystins	Immunoaffinity
Fried Foods	Potato Chips	Acrylamide	C18, HLB, SCX/SAX
Fresh and Processed Foods	Spinach, Milk, Baby Food, Water	Perchlorate Ion	Spherical carbon
Animal/Agriculture/Crops	Animal Tissue	Aflatoxins B1 and M1	C18
	Cereal, Grains	Trichothecenes, Zeralenone, Ochratoxin A, Deoxynivalenol	Immunoaffinity, Silica, MIPs
		Atrazine	C18, Ion Exchange
		Vitamins A, D, E	Silica, HLB
	Liver, Kidney, Muscle	Penicillin	Ion Exchange
	Hypericins	St. John's Wort	C18
	Ephedra	Plants, Herbs	C18, HLB, MIPs
	Ecdysteroids		C18, Silica
	Antioxidants	Chamomile	C18
	Animal Tissue	Carnatine	Silica, SAX
Environment	Water and Drinking Water	Chlorinated Pesticides, Herbicides, Organohalides	C18
		1,4-Dioxane	Coconut Charcoal
		Semi-Volatile Organics	C18, DVB Polymer
		Diquat, Paraquat	C8
Beverages	Wine	Carbohydrates, Flavors (Off)	C18
	Beer	Hop Acids	C18
	Orange Juice	Carotenoids	C18
	Coffee	Organic Acids, Caffeine	XAD, C18
	Red Wine	Pigments	Silica, C18, CN, Alumina, Florisil, Carbon Black
	Milk	Aflaxotin M1	C18
	Apple Juice	Patulin	MIPs
	Wine	Ochratoxin A	Immunoaffinity
	Brandy	Flavors	Phenyl

The SmartPrep Extractor Essential Systems are already configured to include the necessary components needed to order a complete system for automated SPE using either a 6-mL cartridge, a 3-mL cartridge, or a 1-mL cartridge. Order the system that fits the multiple SPE method(s) that will be automated. If additional cartridge sizes will be used, just ask about the additional accessories to include. The 6-mL/3-mL IAC & Standard System below is configured to use both standard dry 3-mL cartridges and 6-mL or 3-mL immunoaffinity cartridges, with the added option to order a standard 6 mL plunger/stripper block for a fully adaptable system for any mycotoxin cartridge.





Quantity	Part Number	Description
1	SPE-2100	Kit, SmartPrep w/ 1 mL plunger
1	29-2600-03	SmartPrep C/D Manual & Software
1	63-2800-01	SmartPrep USB Hub & Cable
1	49-2816-01	Clear glass bottles w/ caps (500 mL – case of 12)
1	49-2100-04	1-mL cleaning cartridges
1	49-2100-03	1-mL cartridge carousel insert adapters (15 Pk.)
1	49-2812-03	Collection rack, 2x6, for twelve 13x100 mm tubes
1	03-0300-01	Test tube, 13x100 mm, disposable, case
1	170-1000	Training at customer's facility (USA only)
1	04-2002	15-mL polypropylene conical tubes + rack
1	49-2818-03	20-liter plastic carboy for waste collection
1	<i>p/n</i>	Power cord appropriate for country



Quantity	Part Number	Description
1	SPE-2300	Kit, SmartPrep w/ 3 mL plunger
1	49-2600-11	6-mL and 3-mL Immunoaffinity Piercing Plunger Assy plus stripper block
1	49-2808-01	SmartPrep C/D Manual & S/Ware
1	63-2800-01	SmartPrep USB Hub & Cable
1	<i>p/n</i>	Power cord appropriate for country
1	49-2816-01	Clear glass bottles w/ caps (500 mL – case of 12)
1	49-2300-04	3-mL cleaning cartridges
1	49-2300-03	3-mL carousel insert adapters (15 Pk.)
1	49-2812-03	Collection rack, 2x6, for twelve 13x100 mm tubes
1	03-0300-01	Test tube, 13x100 mm, disposable, case
1	170-1000	Training at customer's facility (USA only)
1	04-2001	50-mL polypropylene conical tubes + rack
1	49-2818-03	20-liter plastic carboy for waste collection
1	49-2600-04	6-mL cleaning cartridges
1	49-2600-01	6-mL plunger assembly—Optional
1	49-2600-02	Cartridge stripper block for 6-mL cartridges—Optional

Additional Accessories

Order the additional SmartPrep Extractor System accessories if needed:

Part Number:

99-2810-SmartPrep Extractor containment pan to provide unit spill containment (16x24x2 inch)



Part Numbers:

49-2810-03—Kit (12) Sip Tubes, 5 inch for use in sample tubes/containers

49-2810-02—Kit (12) Sip Tubes, 10 inch for use in solvent bottles



Part Number:

49-2814-01-Kit, 3.1-micron inline filter (note: used with 5 inch or 10 inch sip tubes) (50 pk)



Part Number:

50-0027-05, Nitrogen regulator, used when additional pressure is required (not pictured)

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