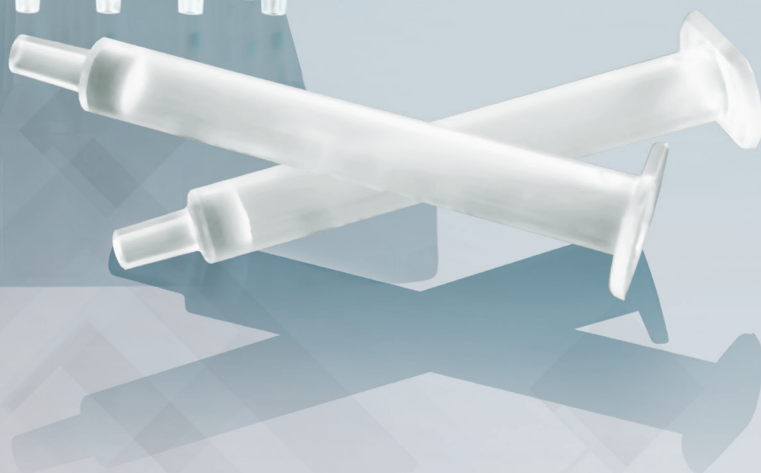
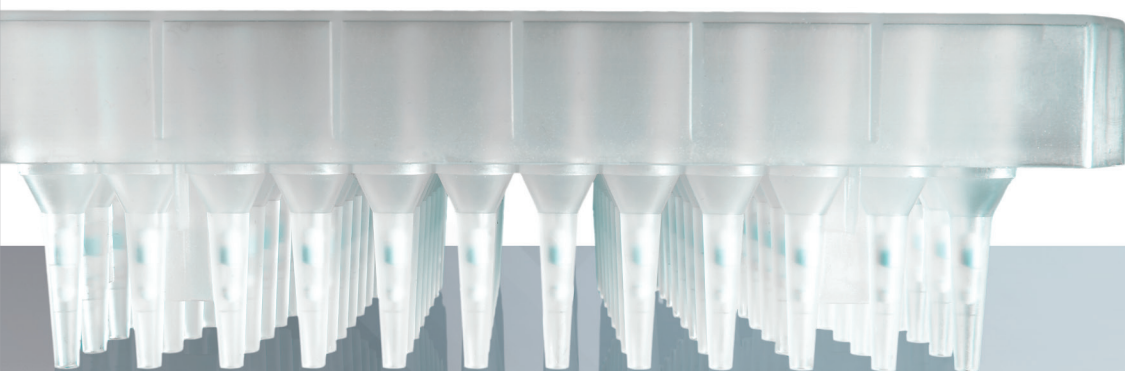


[SAMPLE PREPARATION SOLUTIONS]

Simplify Sample Preparation



Waters
THE SCIENCE OF WHAT'S POSSIBLE.®



[ENSURE OPTIMUM RESULTS]

Whether you are working with simple or complex matrices, biological or non-biological samples, acidic, basic, or neutral molecules, no one offers more proven sample preparation tools for LC-MS analysis than Waters. Waters' innovative solutions are the result of years of practical analytical experience stemming from customer-focused involvement in the cutting edge areas of mass spectrometry, HPLC, UPLC[®], and sample preparation. Our sample preparation solutions aim to provide the desired level of sensitivity, while being mindful of laboratory workflow.



WATERS SAMPLE PREPARATION PRODUCTS:

- Improve analytical performance
- Remove interferences
- Concentrate analytes of interest
- Enhance analyte signal
- Reduce unwanted noise
- Simplify workflows

THE MOST VERSATILE AND SELECTIVE SOLID-PHASE EXTRACTION TOOL

In 1996, Waters revolutionized SPE technology with the introduction of Oasis[®] HLB. This novel water-wettable, polymeric sorbent permanently changed the SPE marketplace. Since then, in response to the growing demands of the marketplace, we have expanded the Oasis family of sorbents.

Covered by nine U.S. patents*, the Oasis family of solid-phase extraction products are designed to simplify and improve sample preparation. By combining the right sorbent chemistry, device format, and methodology, sample clean up can be optimized for GC-MS or LC-MS analyses.

* U.S. patents 5,882,521 (1996), 5,976,376 (1998), 6,106,721 (1999), 6,254,780 (2001), 6,322,695 (2001), 6,468,422 (2002), 6,726,842 (2004), 6,773,583 (2004), 6,723,236 (2004)

Formats



Oasis μElution Plates

- Patented μElution plate design*
- Enabling technology facilitates elution volumes as low as 25 μL
- No evaporation and reconstitution necessary, just elute and shoot
- Ideal for small sample volumes
- Concentrates samples up to 15x
- Easily automated for reliable high-throughput SPE

* U.S. patent 6,723,236



Oasis 96-well Extraction Plates

- Innovative two-stage well design
- High throughput and high recovery
- Available in 5 mg, 10 mg, 30 mg, and 60 mg per well formats
- Easily automated for reliable high-throughput SPE



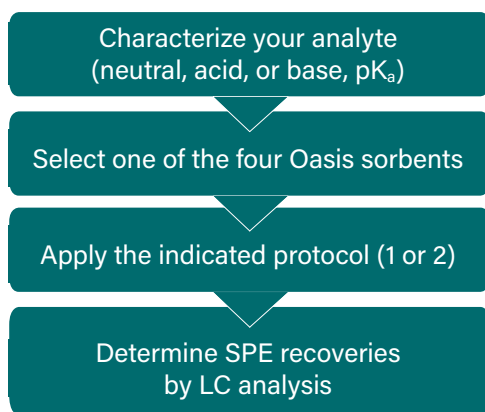
Oasis Syringe Barrel Cartridges

- Ultra-clean syringe barrel and frits
- Available in cartridges ranging from 1 cc to 60 cc
- Flangeless syringe-barrel cartridges available in 1 cc, 3 cc, and 6 cc
- "Plus" style cartridges designed for manual and automated instrument use
- Additional formats available for specific robotic instruments
- Custom cartridges format and chemistry available on request

SPE Methodology

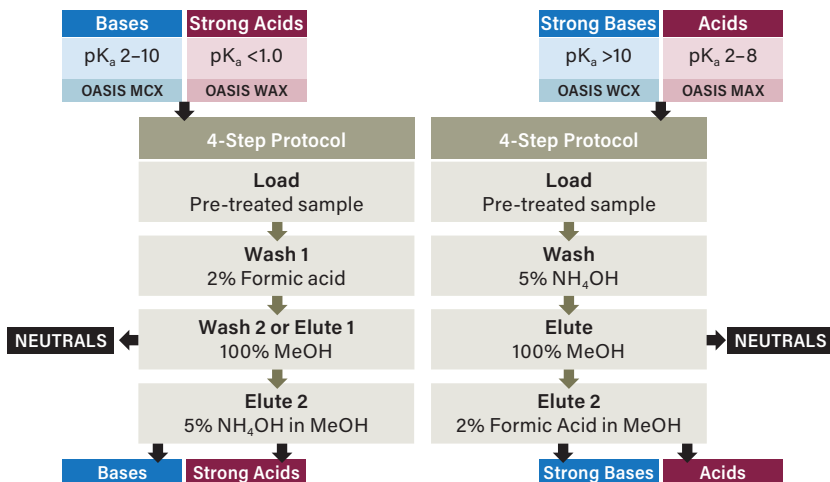
The Oasis 2x4 Method is a simple, logical approach to the selection of an SPE sorbent and protocol. Two protocols and four sorbents provide the flexibility to extract acids, bases, and neutrals with high SPE recoveries while removing matrix components that may interfere with analysis.

Follow the simple steps outlined in this flow chart here to achieve high recoveries and the cleanest extracts:



Oasis 2x4 Sorbent Selection Guide

Oasis 2 x 4 Method Development Protocol



Oasis Glass Cartridges

- Ultra-clean glass syringe with Teflon® Frit
- Optimized for trace analysis at parts-per-trillion (PPT) level suitable for endocrine disruptor analysis
- Available in 5 cc (200 mg) configuration



Oasis On-line Columns

- Rugged, reproducible, ultra-fast, on-line analysis
- Compatible with all on-line HPLC analysis systems
- Wide choice of configurations, particle sizes, and sorbent chemistries
- Achieve sensitivity equal to off-line SPE techniques
- UPLC compatible direct connect for use on the ACQUITY UPLC Systems



Oasis On-line Cartridges

- UPLC compatible cartridges for use on the ACQUITY UPLC® Online SPE Manager
- HPLC compatible cartridges for use with the Spark Holland Prospekt-2/Symbiosis System
- Cartridges available with different sorbent chemistries
- High recovery and reproducible results for a wide range of compounds

Sorbents

Reversed Phase

Oasis PRiME HLB

Patent pending Hydrophilic-Lipophilic Balance sorbent optimized to reduce matrix interferences with reversed-phase retention for all compound classes

Oasis HLB

Hydrophilic-Lipophilic Balance copolymeric sorbent with reversed-phase retention for all compound classes

Mixed-Mode Ion Exchange

Oasis MCX

Mixed-mode Cation-eXchange and reversed-phase copolymeric sorbent for basic compound retention

Oasis MAX

Mixed-mode Anion-eXchange and reversed-phase copolymeric sorbent for acidic compound retention

Oasis WCX

Mixed-mode Weak Cation-eXchange and reversed-phase copolymeric sorbent for strongly basic compound retention

Oasis WAX

Mixed-mode Weak Anion-eXchange and reversed-phase copolymeric sorbent for strongly acidic compound retention

Watch our demonstration video to see how easy it is to use Oasis PRiME HLB.

www.waters.com/oasis

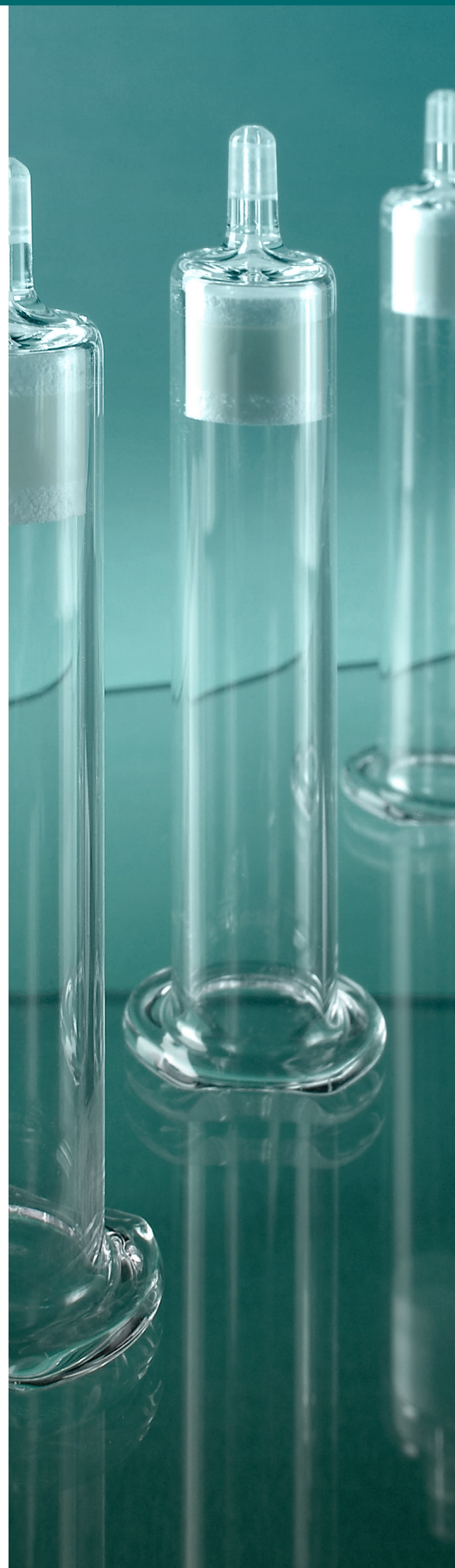


Product Information

Description	Literature Code
Oasis Reference Cards	720005685EN
Oasis Sample-Extraction Products Brochure	720001692EN
Beginner's Guide to SPE (Solid-Phase Extraction)	715003405
Waters Sorbent Selection Guide for Solid-Phase Extraction Wall Chart	720002007EN
Oasis µElution Plates	720000467EN

► Search by literature code at waters.com

► Log on to www.waters.com/MDtools for the sample preparation method development tool





Oasis PRiME HLB

THE FIRST OF ITS KIND SOLID-PHASE EXTRACTION SORBENT THAT SETS THE PERFORMANCE STANDARD FOR ROUTINE ANALYSES.

Simpler

Easy, efficient protocols

The Oasis PRiME HLB copolymer is extremely water-wettable, making it possible to eliminate the condition and equilibration steps that are absolutely essential when using silica based or other polymeric sorbents. This saves valuable sample processing time and costly solvent purchase and disposal.

Faster

Faster, more even flows across cartridges and plates with less plugging

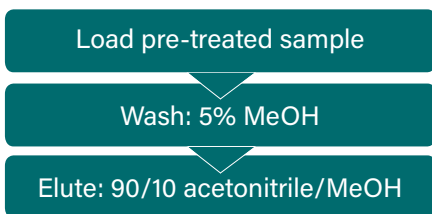
Oasis PRiME HLB has been designed to increase speed, within the device and in your workflow. Flow times through the device are 30–50% faster for urine and plasma. Desired flow rates are achieved using less vacuum or positive pressure than required with other SPE devices.

Even Cleaner

The optimally designed sorbent removes more than 95% of common matrix interferences like proteins, salts and phospholipids

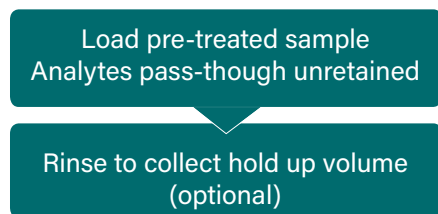
Choose the sample preparation method that meets your analytical needs.

3 step clean-up (Catch and Release)



Use 3 step solid-phase extraction to remove the most matrix interferences, including salts, phospholipids and proteins. This technique also allows for sample concentration/enrichment. Perfectly suited for routine bioanalytical sample clean up.

2 step clean-up (Pass-through)



Use 2 step sample cleanup to remove matrix interferences quickly if your beginning sample solution is high organic and concentration and/or salt removal is not required. Perfectly suited for multiple residue screening of veterinary drugs, pesticides, and mycotoxins in various food samples.

THE MOST REFERENCED AND WIDELY USED SAMPLE PREPARATION TECHNOLOGY

Since its introduction in 1978 as the first commercially available SPE device, Sep-Pak[®] silica products have been recognized throughout the world as the most referenced SPE device for rapid sample preparation. With thousands of references, Sep-Pak brand products have been designed to solve an array of sample preparation challenges. Sep-Pak SPE products include a diverse selection of sorbents and formats, making it ideally suited for all types of GC, HPLC, and UPLC applications.

Cartridge, 96-well plate, and 96-well μ Elution plate formats are available.

Formats



Sep-Pak Cartridges

- Ultra-clean syringe barrel and frits
- Available in cartridges ranging from 1 cc to 35 cc
- "Plus" style cartridges designed for manual and automated instrument use
- Short, long, and light cartridges with male and female Lure outlets
- Custom cartridges available upon request



Sep-Pak tC₁₈ 96-well μ Elution Plate

- Silica-based bonded phase with strong hydrophobicity
- Ideal for small sample volumes
- No evaporation and reconstitution necessary, just elute and shoot
- Easily automated for reliable high-throughput SPE



Sep-Pak 96-well Extraction Plates

- Available in tC₁₈ (25 mg, 40 mg, and 100 mg per well) and Accell Plus QMA (100 mg) phases
- High throughput and recovery
- Easily automated for reliable high-throughput SPE

Sorbents

Normal Phase	Reversed Phase	Reversed or Normal Phase
<p>Silica Polar surface used to adsorb analytes from non-polar solvents</p>	<p>C₁₈ Monofunctionally bonded silica phase, a Waters original</p>	<p>Aminopropyl (NH₂) Moderately polar silica-based bonded phase with a weakly basic surface</p>
<p>Alumina (A, B, & N) An activated grade of alumina available in acidic (A), basic (B), and neutral (N) surface chemistries</p>	<p>tC₁₈ Tri-functionally bonded silica phase with increased hydrolytic stability</p>	<p>Cyanopropyl (CN) Silica-based bonded phase with low hydrophobicity</p>
<p>Florisol™ A silica and magnesium co-precipitate, this polar, highly active, weakly basic sorbent is for adsorption of low to moderately polar compounds from nonaqueous solutions</p>	<p>C₈ Bonded silica phase with moderate hydrophobicity</p>	<p>Diol Moderately polar, neutral, silica-based bonded phase</p>
<p>tC₂ Bonded silica phase with low hydrophobicity</p>	<h3>Food and Environmental</h3>	
<h3>Silica-based Ion Exchange</h3> <p>Accell™ Plus QMA Silica-based, hydrophilic, strong anion exchanger with a 300Å pore size</p>	<p>AC2 Activated carbon used to detect Dioxane (EPA Method 522) and concentrate pesticides and herbicides in water. Required product for Unregulated Contaminant Monitoring Rule 3 (UCMR3)</p>	<p>PoraPak™ RDX Hydrophobic polymer for analysis of explosives in ground and surface water (EPA-8330)</p>
<p>Accell Plus CM Silica-based, hydrophilic, weak cation exchanger with a 300Å pore size</p>	<p>PS2 Styrene-divinyl benzene copolymer used to concentrate pesticides and herbicides in water</p>	<p>Carbon Black/Aminopropyl Two layer sorbent bed used for pesticide cleanup in food matrices</p>
<p>PSA Silica-based, primary-secondary amine for weak anion exchange</p>	<p>DNPH Silica Acidified dinitrophenylhydrazine reagent coated on silica and used in air analysis of aldehydes and ketones (EPA-TO-11A, ASTM D-5791)</p>	<p>Carbon Black/PSA Two layer sorbent bed used for pesticide cleanup in food matrices</p>
	<p>XPosure™ Acidified dinitrophenylhydrazine reagent coated on silica and used for indoor air monitoring of aldehydes and ketones</p>	<p>Sep-Pak Dry Anhydrous Na₂SO₄ for removal of residual water from non-aqueous extracts</p>
		<p>Ozone Scrubber Potassium iodide cartridge is used in series with Sep-Pak DNPH and XPosure cartridges to remove ozone interferences</p>

Product Information

www.waters.com/seppak

Description	Literature Code
Sep-Pak Sample-Extraction Products	720000860EN
Beginner's Guide to SPE (Solid-Phase Extraction)	715003405
Waters Sorbent Selection Guide for Solid-Phase Extraction Wall Chart	720002007EN

► Search by literature code at waters.com

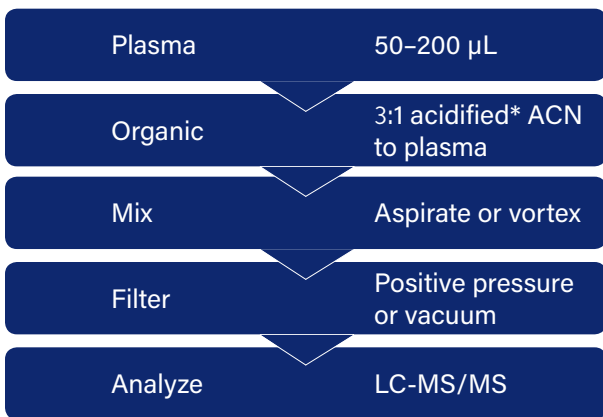


A STREAMLINED SOLUTION TO BIOLOGICAL MATRIX CLEANUP

The Ostro™ Pass-Through Sample Preparation Plate provides a simple solution for the cleanup of biological matrices. Requiring minimal to no method development, this technology is quick to implement into your laboratory's workflow. The Ostro Plate produces cleaner sample extracts resulting in more sensitive analyses, higher sample throughput, reduced instrument downtime, and increased laboratory productivity.



Basic Ostro Protocol



*To disrupt any protein-drug interactions.

- Watch a short demonstration video to see how easy it is to use the Ostro Plate.

www.waters.com/ostro



Product Information

Description	Literature Code
Ostro Sample Preparation Products Brochure	720001692EN
Beginner's Guide to SPE (Solid-Phase Extraction)	715003405
Waters Sorbent Selection Guide for Solid-Phase Extraction Wall Chart	720002007EN

► Search by literature code at waters.com



FLEXIBLE, COMPLIANT SAMPLE PREPARATION SOLUTIONS FOR RAPID, MULTI-RESIDUE SCREENING

QuEChERS (an acronym for Quick, Easy, Cheap, Effective, Rugged and Safe) methods offer a simple and straightforward sample preparation technique ideal for multi-residue analysis for pesticides, veterinary drugs, and mycotoxins in a wide variety of food and agricultural products. DisQuE™ dispersive sample preparation products are conveniently packaged with pre-weighed sorbents and buffers in pouches and tubes as described in regulatory methods and protocols.



QuEChERS simplified protocols offer:

- Decreases sample preparation time
- Efficient and cost effective sample preparation
- Consistent, high quality sorbents and packaging

Watch a short demonstration video to see how easy it is to prepare food and agricultural products for multi-residue pesticide analysis.

www.waters.com/disque



Product Information

Description	Literature Code
DisQuE Dispersive Sample Preparation Brochure	720003048EN
Beginner's Guide to SPE (Solid-Phase Extraction)	715003405
Waters Sorbent Selection Guide for Solid-Phase Extraction Wall Chart	720002007EN

► Search by literature code at waters.com

PoraPak™ Rxn

Post Synthesis Cleanup

SIMPLIFIED REACTION CLEANUP

Waters offers PoraPak™ Rxn, a family of polymer-based chromatography products for superior cleanup of synthetic reactions. Designed specifically for synthetic organic chemists, PoraPak Rxn products are available in two chemistries: PoraPak Rxn CX, a strong cation-exchange sorbent and PoraPak Rxn RP, a reversed-phase sorbent.



What makes PoraPak sorbents ideal for synthesis cleanup?

- Hard material that does not develop increasing back pressure with flow
- Little swelling or shrinking across a range of solvents and pH extremes
- Low hydraulic resistance enables flow by gravity
- Extreme pH tolerance without dissolution or hydrolysis, both limitations of silica based sorbents

Watch this short demonstration video to see how fast, simple, and cost effective PoraPak Rxn really is.

www.waters.com/porapak



Product Information

Description	Literature Code
PoraPak Rxn Brochure	720002747EN
Beginner's Guide to SPE (Solid-Phase Extraction)	715003405
Waters Sorbent Selection Guide for Solid-Phase Extraction Wall Chart	720002007EN

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CERTIFIED

LCMS
CERTIFIEDTruView™ LCMS
CERTIFIED

ASSURED CLEANLINESS FOR LC-MS ANALYSIS

As instrument technology and sensitivity evolve, the need for and importance of clean, high-quality autosampler vials and solvent and mobile phase bottles has become paramount. Waters recognizes this challenge and has set the market standard for ultra-clean products that improve your laboratory productivity by reducing sample reanalysis costs, ultimately saving time.



Certified Vials

Waters offers a broad range of LCGC and LCMS certified vials that are held to tight dimensional tolerances and certified to have cleanliness that meets the demands of today's sensitive instrumentation and detection. Our newly available TruView™ LCMS Certified Vials are manufactured to reduce analyte adsorption for low analyte concentration.

Benefits of Certified Vials

- Prevent ghost peaks stemming from contaminants
- Eliminate unexplained masses in MS
- Eliminate potential of needle damage due to tight dimensional specifications

To select the best vial solution for your system and application requirements, visit www.waters.com/vials

Certified Containers

Waters Certified Containers are the cleanest and highest quality containers in the industry. These solvent and mobile phase bottles are uniquely manufactured to stringent standards to prevent extraneous peaks and baseline noise stemming from organic contaminants. These containers are available in 250 mL, 500 mL, and 1 L sizes and can be used on any liquid chromatography system, including UPLC, LC-UV, and LC-MS.

Benefits of Certified Containers

- Eliminate contamination
 - Improve the accuracy and sensitivity of your measurements
 - Increase signal to noise
 - Reduce downtime, cut costs, and increase productivity
- www.waters.com/cleancontainers

Product Information

Description	Literature Code
Waters Sample Vials and Accessories Brochure	720001818EN
TruView LCMS Certified Vials	720004096EN
Certified Containers Product Solution	720004631EN

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