

[ OSTRO PASS-THROUGH SAMPLE PREPARATION PRODUCT ]

The **Simpler** Way  
to **Cleaner** Samples



**Ostro**<sup>™</sup>  
PASS-THROUGH  
SAMPLE PREPARATION PRODUCT

**Waters**

THE SCIENCE OF WHAT'S POSSIBLE.®

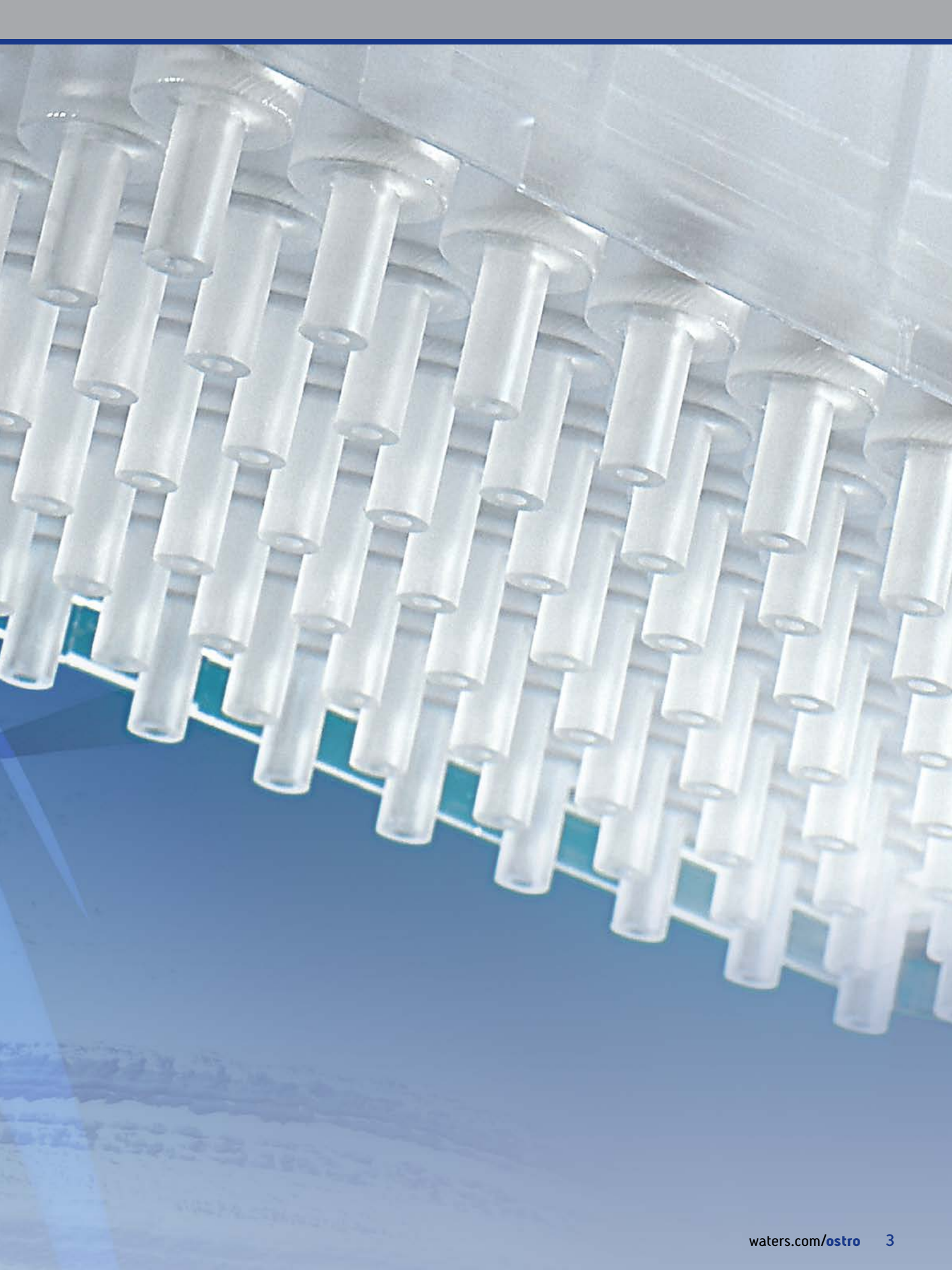


SIMPLE

EASY

EFFICIENT

DEPENDABLE



# SIMPLE

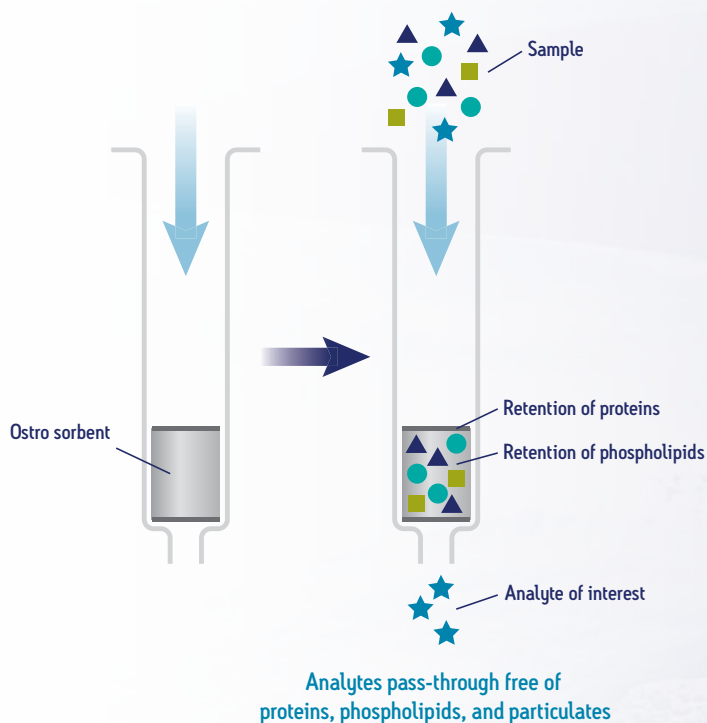
The Ostro™ Pass-Through Sample Preparation Product provides scientists with a simple solution for sample cleanup. Ostro was designed with speed and simplicity in mind, providing the following features:

- Easy, fast, and generic protocol that works with a wide variety of complex sample matrices
- Sorbent removes proteins, particulates, and more than 95% of phospholipids
- 96-well plate format enables higher throughput and is compatible with automation

Laboratories using the Ostro Pass-Through Sample Preparation Product are able to analyze samples quickly and easily while benefitting from:

- Rapid sample processing with little-to-no method development required
- Reproducible sample cleanup leading to more predictable analyses
- Less system downtime caused by contamination of columns and instruments from dirty samples

## Ostro Pass-Through Sample Preparation Product Methodology



**Step 1:** Add sample (50–200  $\mu\text{L}$ )

**Step 2:** Add solvent (1% formic acid in acetonitrile)\*

**Step 3:** In-well mixing (vigorous pipette aspiration or vortex)

**Step 4:** Pass sample through using vacuum, positive pressure or centrifuge

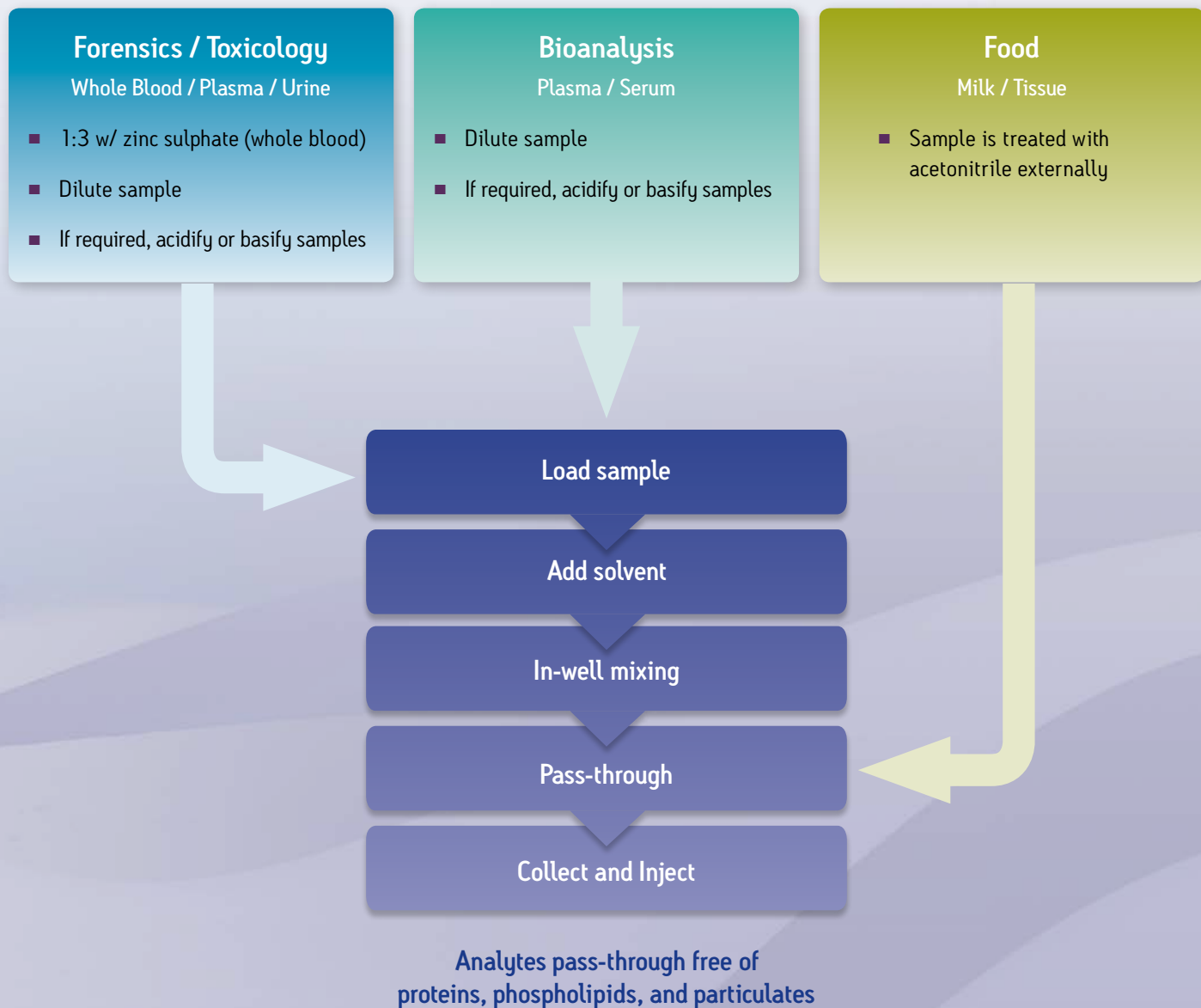
**Step 5:** Collect and analyze

\* Typically a ratio of solvent to sample is 3:1 (3 parts solvent to 1 part sample)

# EASY

## Primary Application Areas

Suggested generic protocols for a variety of applications and matrices using Ostro Pass-Through Sample Preparation:



Need even cleaner samples or sample concentration? Try solid phase extraction (SPE).

The Beginner's Guide to SPE is a must read for anyone starting out in analytical chromatography as well as seasoned chemists looking to add solid-phase extraction to their skill set.

### Product Information

Description	Literature Code
Beginner's Guide to SPE (Solid-Phase Extraction)	715003405

Search by literature code at [waters.com](http://waters.com)



# EFFICIENT

Easy implementation and speed are critical components to the success of every laboratory. With little time for method development, the most attractive techniques are simple and generic unless the higher selectivity and sensitivity provided by SPE (solid-phase extraction) is required. Techniques often considered simple include PPT (protein precipitation), LLE (liquid-liquid extraction) and SSLE (solid-supported liquid extraction). However, the actual implementation of these techniques uncovers their short comings. For example, PPT does not remove phospholipids which can build up on the analytical column and contaminate the MS source. This can contribute to matrix effects and reduce MS sensitivity. If LLE or SSLE is chosen, significant method development is often required in order to obtain optimal recoveries for diverse analyte sets, thus transforming them into more complex, time-consuming, non-generic techniques.

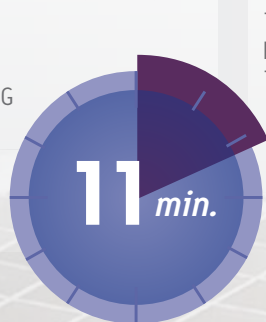
	Ostro	PPT	LLE	SSLE	SPE
Requires method development			✓	✓	✓
Highest analyte selectivity					✓
Direct injection of eluates	✓	✓			✓
Simple	✓	✓			
High throughput	✓	✓	✓	✓	✓
Phospholipid removal	✓			✓	✓
Highest sensitivity					✓
Clean extracts	✓		✓	✓	✓
Fast	✓	✓			
Environmentally friendly	✓	✓			✓

*This table illustrates the advantages of Ostro Pass-Through Sample Preparation compared to PPT, LLE, SSLE and SPE. Ostro provides the fastest, most efficient path to cleaner samples.*

## Ostro Pass-Through Sample Preparation

1. Add sample (3 min)
2. Add solvent (2 min)
3. In-well mixing (3 min)
4. Pass-through (3 min)

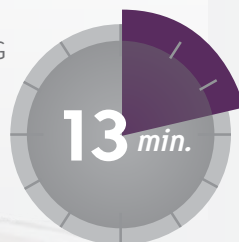
TOTAL PROCESSING TIME:



## PPT

1. Add sample (3 min)
2. Add acetonitrile (2 min)
3. Mix (3 min)
4. Filter/Centrifuge (5 min)

TOTAL PROCESSING TIME:



## LLE

1. Add sample (2 min)
2. Add extraction solvent (2 min)
3. Mix (1 min)
4. Centrifuge (5 min)
5. Transfer (2 min)
6. Evaporate (5 min)
7. Reconstitute (2 min)
8. Vortex (1 min)

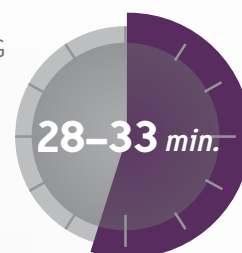
TOTAL PROCESSING TIME:



## SSLE

1. Add sample (3 min)
2. Wait (5–10 min)
3. Add extraction solvent (2 min)
4. Wait (5–10 min)
5. Extract (1 min)
6. Evaporate (5 min)
7. Reconstitute (2 min)

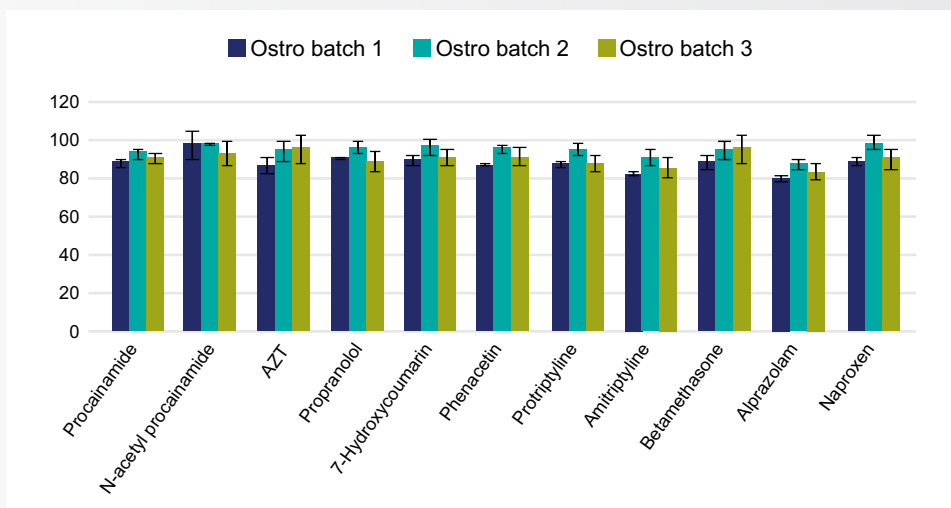
TOTAL PROCESSING TIME:



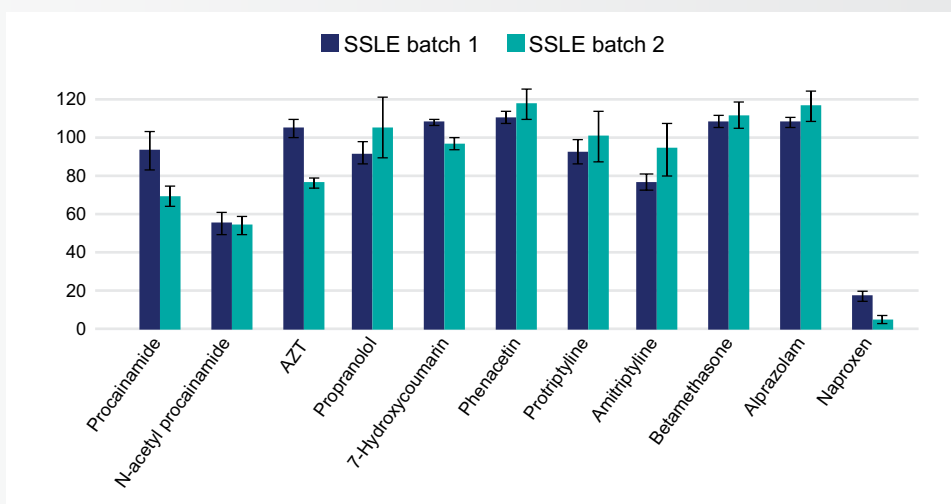
# DEPENDABLE

Waters strives to provide laboratories with reproducible, predictable performance. Ostro Pass-Through Sample Preparation Product delivers excellent recoveries across multiple batches of products to give scientists confidence in analyses.

## Ostro Batch-to-Batch Recovery and Reproducibility Equals 4%



## SSLE Batch-to-Batch Recovery and Reproducibility Equals 15%



These graphs illustrate the difference in batch-to-batch recovery and reproducibility achieved when comparing these two techniques using the same sample. The batch-to-batch recovery and reproducibility with the SSLE plate was 15%, while the Ostro Pass-Through Sample Preparation Plate resulted in only a 4% difference.

## Ordering Information

Description	Quantity/Box	Part Number
Ostro Pass-Through Sample Preparation Plate (96-well)	1	186005518

## Additional Resources

Description	Literature Code	URL
Waters Quality Parts®, Chromatography Columns, and Supplies Catalog	720005101	<a href="http://waters.com/catalog">waters.com/catalog</a>
Waters ASR e-Catalog		<a href="http://asr.waters.com">asr.waters.com</a>

Search by literature code at [waters.com](http://waters.com)



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# Waters

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