

QuEChERS Products

For Extraction and Cleanup of Pesticide Residue Samples

- Fast, simple sample cleanup.
- Variety of formats, to meet all needs.
- Custom products prepared on request.

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QuEChERS SPE Cartridges

Quick, Easy, Cheap, Effective, Rugged, and Safe, the QuEChERS (“catchers”) method is based on work done and published by the US Department of Agriculture Eastern Regional Research Center in Wyndmoor, PA.¹ Researchers there were looking for a simple, effective, and inexpensive way to extract and clean pesticide residues from the many varied sample matrices with which they routinely worked. They had been using the Modified Luke Extraction Method, which is highly effective and rugged, but is both labor and glassware intensive, leading to a relatively high cost per sample. Solid phase extraction also had been effective, but the complex matrices the investigators were dealing with required multiple individual cartridges and packings to remove the many classes of interferences, adding costs and complexity to the process. A new method would have to remove sugars, lipids, organic acids, sterols, proteins, pigments and excess water, any of which often are present, but still be easy to use and inexpensive.

The researchers developed a simple two-step procedure. First, the homogenized samples are extracted and partitioned, using an organic solvent and salt solution. Then, the supernatant is further extracted and cleaned, using a dispersive SPE technique. Multiple adsorbents are placed in a centrifuge tube, along with the 1mL of organic solvent and the extracted residues partitioned from step 1. The contents are thoroughly mixed, then centrifuged, producing a clean extract ready for a variety of GC or HPLC analytical techniques.² Validation and proficiency data for the QuEChERS method are available for a wide variety of pesticides in several common food matrices at www.quechers.com

Using the dispersive SPE approach, the quantity and type of adsorbents, as well as the pH and polarity of the solvent, can be easily adjusted for differing matrix interferences and “difficult” analytes. Results from this approach have been verified and modified at several USDA and Food and Drug Administration labs, and the method now is widely accepted for many types of pesticide residue samples.

Restek products make this approach even simpler. We offer QuEChERS extraction products in a variety of standard sizes and formats. The centrifuge tube format, available in 2mL and 15mL sizes, contains magnesium sulfate (to partition water from organic solvent) and PSA* adsorbent (to remove sugars and fatty acids), with or without graphitized carbon (to remove pigments and sterols) or C18 packing (to remove nonpolar interferences). The PSA and graphitized carbon packings also are available in a 6mL packed bed SPE cartridge, with Teflon® frits, for whenever a standard SPE format is preferred. Custom products are available by quote request. If you are frustrated by the time and cost involved with your current approach to pesticide sample cleanup, we suggest you try this simple and economical new method.

SPE Cartridge	qty.	cat#
QuEChERS SPE 2mL Micro-Centrifuge Cartridge		
Packed with 150mg Magnesium Sulfate and 50mg PSA	100-pk.	26124
QuEChERS SPE 2mL Micro-Centrifuge Cartridge		
Packed with 150mg Magnesium Sulfate, 50mg PSA, and 50mg Graphitized Carbon	100-pk.	26123
QuEChERS SPE 2mL Micro-Centrifuge Cartridge		
Packed with 150mg Magnesium Sulfate, 50mg PSA, and 50mg C18	100-pk.	26125
QuEChERS SPE 15mL Centrifuge Cartridge		
Packed with 900mg Magnesium Sulfate, 300mg PSA, and 150mg Graphitized Carbon	50-pk.	26126
QuEChERS SPE 6mL SPE Cartridge		
Packed with 200mg Graphitized Carbon and 400mg PSA, Teflon® Frits	30-pk.	26127
QuEChERS SPE 6mL SPE Cartridge		
Packed with 250mg Graphitized Carbon and 500mg PSA, Teflon® Frits	30-pk.	26128
QuEChERS SPE 6mL SPE Cartridge		
Packed with 500mg Graphitized Carbon and 500mg PSA, Teflon® Frits	30-pk.	26129

*PSA—primary and secondary amine exchange material.

References

1. Anastassiades, M., S.J. Lehotay, D. Stajnbaher, F.J. Schenck, *Fast and Easy Multiresidue Method Employing Acetonitrile Extraction/Partitioning and “Dispersive Solid-Phase Extraction” for the Determination of Pesticide Residues in Produce*, J AOAC International, 2003, vol 86 no 22, pp 412-431.
2. Schenck, F.J., *SPE Cleanup and the Analysis of PPB Levels of Pesticides in Fruits and Vegetables*. Florida Pesticide Residue Workshop, 2002.

References not available from Restek.

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