

- **Quick and easy way to determine pesticide residues in fruit and vegetables**
- **No automation nor high solvent usage**
- **Determine wide range of pesticide types**
- **High recoveries and accurate results**

QuEChERS Dispersive SPE Products

For determining pesticide residues in fruit, vegetables and other foods



Thermo Scientific offers a range of QuEChERS dispersive SPE products for effective multi-residue pesticide analysis. The products have been produced under strict manufacturing conditions, ensuring excellent reproducibility in analysis and products that are free from any potential contaminants.

The QuEChERS method has been developed in order to overcome the problems associated with Multi Residue Pesticide analysis. QuEChERS is an acronym for **Quick, Easy, Cheap, Effective, Rugged and Safe**. It is a simple preparation and clean-up technique for the analysis of multiple pesticide residues in high moisture food samples.

Since the development and publication of the method by Anastassiades and Lehotay et al in 2003, QuEChERS has been gaining significant popularity. It is the method of choice for food analysis because it combines several steps and extends the range of pesticides recovered over older, more tedious extraction methods.

The QuEChERS method has primarily been used for the analysis of fruits and vegetables. However, it has recently been utilized as the sample preparation method of choice for a full range of food products such as honey, nut meats, soybeans, animal feeds, foliage and other foods. The broad utility and ease of use makes the method an excellent choice for residue analysis.

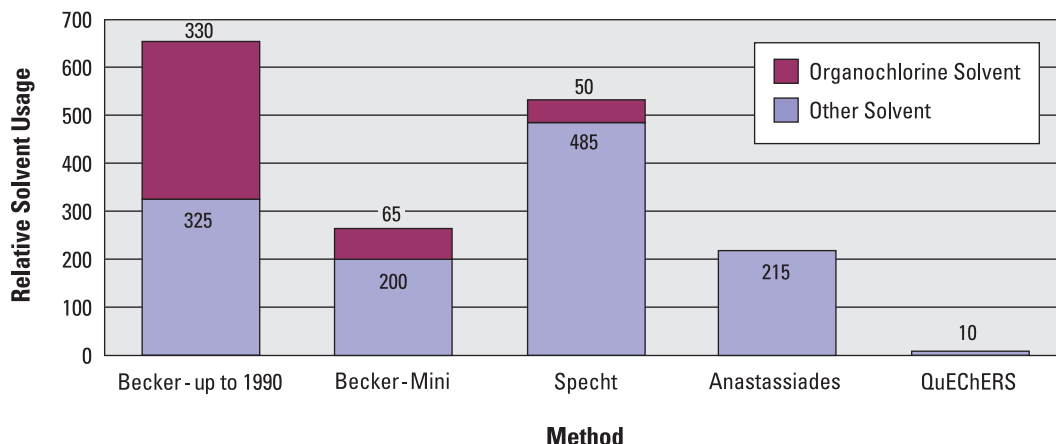
Weigh 10 g of Sample (50 mL Teflon-Tube)	
Add 10 mL Acetonitrile	Shake Vigorously 1 min.
Add to QuEChERS Product 60105-211 (containing 4g MgSO ₄ & 1g NaCl)	Shake Vigorously 1 min.
Add IS TD-Solution	Shake 30 s and Centrifuge
Take Aliquot and Add to a QuEChERS Clean-up Product	Shake 30 s and Centrifuge
(Add 0.1% HAC and "Analyte Protectants")	
GC-MS and LC-MS	

This table shows the typical, simple QuEChERS procedure for multi-residue pesticide analysis.

Benefits of QuEChERS Products

- High sample throughput – 8 samples in under 30 minutes
- Determination of a large number of pesticides
- No laborious steps and no need for automation
- Less solvent usage than conventional sample preparation methods
- Wide pesticide range (polars, pH-dependent compounds)
- Extract in acetonitrile – GC & LC amenable
- High recoveries and accurate results
- Pre-prepared products eliminate possible contamination in products

Relative Solvent Consumption of Multi-Residue Methods



This diagram shows the relative solvent consumption of QuEChERS products compared with other techniques used for multi-residue pesticide analysis.

Ordering Information

Thermo Scientific QuEChERS Extraction Products	Application	Part Number
50 mL PP centrifuge tube with 6 g Anhydrous Magnesium Sulfate, 1.5 g Anhydrous Sodium Acetate, 250 Pk	Listed in the AOAC for the extraction of pesticide residues using the QuEChERS method. Its primarily used to preserve base sensitive compounds such as chlorothalonil, dichlofluanid, tolylflunid, folpet, captafol, captan from non-acidic matrices	60105-210
50 mL PP centrifuge tube with 4 g Anhydrous Magnesium Sulfate, 1 g Sodium Chloride, 250 Pk	Used for extraction of pesticide residues using the QuEChERS method. It is preferred over 60105-210 when base sensitive compounds are not present or are not of analytical interest. Eliminating the buffer allows a cleaner extract, and NaCl aids in the extraction of the analytes	60105-211
50 mL PP Centrifuge Tube with 6g MgSO ₄ & 750 mg Disodium Citrate Sesquihydrate, 250 Pk	This is the European version of 60105-210 and is used for the extraction of pesticide residues. It is preferred over 60105-210 when base sensitive compounds are not an issue.	60105-212

Thermo Scientific QuEChERS Clean-up Products	Application	Part Number
2 mL micro-centrifuge tubes with 150 mg Anhydrous Magnesium Sulfate, 50 mg PSA & 50 mg Carbon, 100 Pk	Dispersive SPE product for removing polar organic acids, some sugars and lipids which may cause some loss of planar pesticides. Designed for use with a 2 mL aliquot of supernatant	60105-202
2 mL micro-centrifuge tubes with 150 mg Anhydrous Magnesium Sulfate, 50 mg PSA, 100 Pk	Dispersive SPE product for removing polar organic acids, some sugars and lipids. Designed for use with a 2 mL aliquot of supernatant	60105-203
2 mL micro-centrifuge tubes with 150 mg Anhydrous Magnesium Sulfate, 50 mg PSA & 50 mg endcapped C18	Dispersive SPE product for removing polar organic acids, sterols, some sugars and lipids. Designed for use with a 2 mL aliquot of supernatant	60105-204
15 mL centrifuge tubes with 900 mg Anhydrous Magnesium Sulfate, 300 mg PSA & 150 mg Carbon, 50 Pk	Dispersive SPE product for removing polar organic acids, some sugars and lipids. This product will cause the loss of planar pesticides. Designed for use with a 10 mL aliquot of supernatant	60105-205
15 mL centrifuge tubes with 900 mg Anhydrous Magnesium Sulfate, 300 mg PSA & 150 mg endcapped C18, 50 Pk	Dispersive SPE product for removing polar organic acids, sterols, some sugars and lipids. Designed for use with a 10 mL aliquot of supernatant	60105-206
6 mL columns with 200 mg graphatized carbon on top, 400 mg PSA on bottom, separated by a teflon frit, 30 Pk	Used in the Schenck variation of QuEChERS, this product removes pigments, polar organic acids, some sugars and lipids from an aliquot of extract	60105-207
6 mL columns with 250 mg graphatized carbon on top, 500 mg PSA on bottom, separated by a teflon frit, 30 Pk	Used in the Schenck variation of QuEChERS, this product removes pigments, polar organic acids, some sugars and lipids from an aliquot of extract	60105-208
6 mL columns with 500 mg graphatized carbon on top, 500 mg PSA on bottom, separated by a teflon frit, 30 Pk	Used in the Schenck variation of QuEChERS, this product removes pigments, polar organic acids, some sugars and lipids from an aliquot of extract	60105-209

Sample packs of the above products are available upon request.

©2008 Thermo Fisher Scientific Inc. All rights reserved. All trademarks are the property of Thermo Fisher Scientific Inc. and its subsidiaries. Specifications, terms and pricing are subject to change. Not all products are available in all countries. Please consult your local sales representative for details.



Thermo Electron Corporation, Bellefonte, PA is ISO Certified.
Thermo Hypersil Ltd., Runcorn, UK is ISO Certified.

PS20466_E 08/08M

Africa +43 1 333 5034 127	Denmark +45 70 23 62 60	Japan +81 45 453 9100	Sweden/Norway/Finland +46 8 556 468 00
Australia +61 2 8844 9500	Europe-Other +43 1 333 5034 127	Latin America +1 608 276 5659	Switzerland +41 61 48784 00
Austria +43 1 333 50340	France +33 1 60 92 48 00	Middle East +43 1 333 5034 127	UK +44 1442 233555
Belgium +32 2 482 30 30	Germany +49 6103 408 1014	Netherlands +31 76 579 55 55	USA +1 800 532 4752
Canada +1 800 530 8447	India +91 22 6742 9434	South Africa +27 11 570 1840	www.thermo.com
China +86 10 8419 3588	Italy +39 02 950 591	Spain +34 914 845 965	

Thermo

SCIENTIFIC