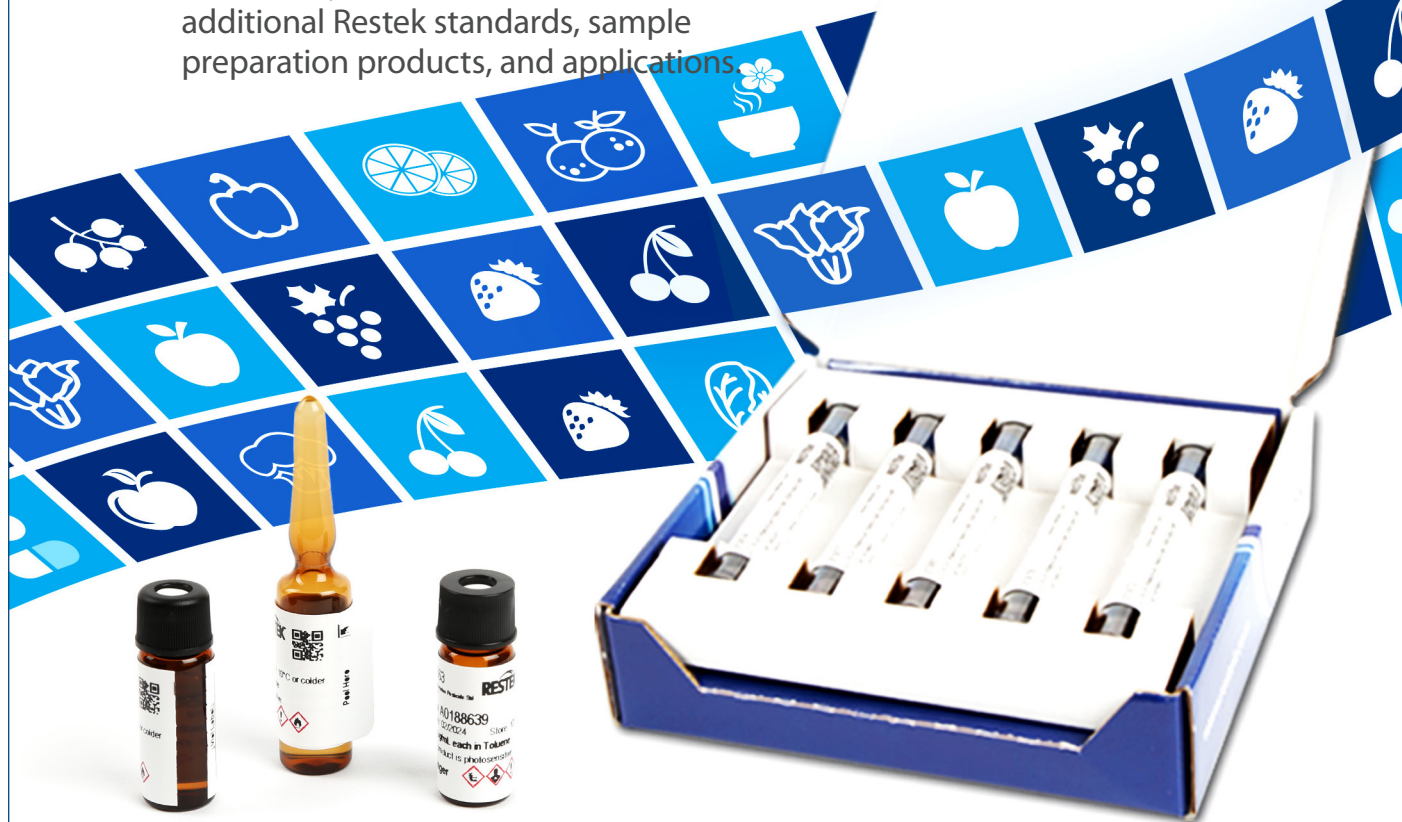


Certified Reference Materials

# Accurately Quantify 380 Pesticides

## Using LC-MS/MS and GC-MS/MS

- CRM kits include comprehensive lists of pesticides of global concern.
- Optimized chromatography methods available using Raptor LC and Rxi GC columns by mass spec.
- Complete your full workflow solution with additional Restek standards, sample preparation products, and applications.



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## Accurately Quantify 380 Pesticides Using LC-MS/MS and GC-MS/MS with Restek's Multiresidue Pesticide CRM Kits

- Accurately detect and quantify pesticides of global environmental and food safety concern in a wide range of matrices.
- Formulated and grouped for maximum long-term stability.\*
- Quantitatively tested to confirm composition; detailed support documentation provided.
- Optimized multiresidue pesticide method is offered free of charge; downloadable XLS file includes conditions and transition tables.
- Certified reference material (CRM) manufactured and QC-tested in Restek's ISO-accredited labs satisfies your ISO requirements.

\* NOTE: When combining a large number of compounds with different chemical functionalities, mix stability can be an issue. In formulating these standards, we extensively studied all the compounds involved, then grouped them into as few mixes as possible while still ensuring maximum long-term stability and reliability. For quantitative analysis, we recommend analyzing each mix separately to ensure accurate results for every compound.

For full compound lists, chromatograms, and analysis conditions, visit  
[www.restek.com/multiresidue](http://www.restek.com/multiresidue)



### Custom Solutions

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## LC Multiresidue Pesticide Kit

Full kit contains 204 compounds of interest, covering many LC-determined pesticides listed by government agencies; individual ampuls also sold separately. For chromatograms and optimized multiresidue pesticide method including conditions and transition tables, visit [www.restek.com/multiresidue-LC](http://www.restek.com/multiresidue-LC)

### Cat. # 31972: LC Multiresidue Pesticide Standard #1 (13 components)

#### Organophosphorus Compounds

100 µg/mL each in acetonitrile, 1 mL/ampul  
Acephate (30560-19-1)  
Carbaryl (Sevin) (63-25-2)  
Dicrotophos (141-66-2)  
Dimethoate (60-51-5)  
Dimethomorph (110488-70-5)  
Isocarboxim (24353-61-5)  
Methamidophos (10265-92-6)  
Mevinphos (7786-34-7)  
Monocrotophos (6923-22-4)  
Omethoate (1113-02-6)  
Temephos (Abate) (3383-96-8)  
Trichlorfon (Dylox) (52-68-6)  
Vamidothion (Vamidoate) (2275-23-2)

### Cat. # 31973: LC Multiresidue Pesticide Standard #2 (16 components)

#### Carbamate/Uron Compounds

100 µg/mL each in acetonitrile, 1 mL/ampul  
Alanycarb (83130-01-2)  
Aldicarb (116-06-3)  
Aldicarb sulfone (1646-88-4)  
Aldicarb sulfoxide (1646-87-3)  
Benfuracarb (82560-54-1)  
Butocarboxim (34681-10-2)  
Butoxycarboxim (34681-23-7)  
Ethiofencarb (29973-13-5)  
Furathiocarb (65907-30-4)  
Methabenzthiazuron (18691-97-9)  
Methiocarb (2032-65-7)  
Methomyl (16752-77-5)  
Oxamyl (23135-22-0)  
Tebuthiuron (34014-18-1)  
Thidiazuron (51707-55-2)  
Thiophanate-methyl (23564-05-8)

### Cat. # 31974: LC Multiresidue Pesticide Standard #3 (38 components)

#### Carbamate/Uron Compounds

100 µg/mL each in acetonitrile, 1 mL/ampul  
Bendiocarb (22781-23-3)  
Bifenazate (149877-41-8)  
Carbofuran (1563-66-2)  
Chlorfluazuron (71422-67-8)  
Chloroxuron (1982-47-4)  
Chlortoluron (15545-48-9)  
Cycluron (2163-69-1)  
Diethofencarb (87130-20-9)  
Diflubenuron (35367-38-5)  
Dioxacarb (6988-21-2)  
Diuron (330-54-1)  
Fenobucarb (BPMC) (3766-81-2)  
Fenoxycarb (72490-01-8)  
Fenuron (101-42-8)  
Flufenoxuron (101463-69-8)  
Fluometuron (2164-17-2)  
Forchlorfenuron (68157-60-8)  
Hexaflumuron (86479-06-3)  
3-Hydroxycarbofuran (16655-82-6)  
Indoxacarb (173584-44-6)  
Iprovalicarb (140923-17-7)

Isoprocureb (2631-40-5)  
Isoproturon (34123-59-6)  
Linuron (330-55-2)  
Lufenuron (103055-07-8)  
Metobromuron (3060-89-7)  
Monolinuron (1746-81-2)  
Neburon (555-37-3)  
Novaluron (116714-46-6)  
Pirimicarb (23103-98-2)  
Promecarb (2631-37-0)  
Propham (122-42-9)  
Propoxur (Baygon) (114-26-1)  
Pyraclostrobin (175013-18-0)  
Siduron (1982-49-6)  
Teflubenzuron (83121-18-0)  
Thiobencarb (28249-77-6)  
Triflururon (64628-44-0)

### Cat. # 31975: LC Multiresidue Pesticide Standard #4 (63 components)

#### Organonitrogen Compounds

100 µg/mL each in acetonitrile, 1 mL/ampul  
Abamectin (71751-41-2)  
Acetamiprid (135410-20-7)  
Ametryn (834-12-8)  
Amiratz (33089-61-1)  
Azoxytobin (131860-33-8)  
Benalaxyl (71626-11-4)  
Benzoximate (29104-30-1)  
Boscalid (188425-85-6)  
Butafenacil (134605-64-4)  
Carbetamide (16118-49-3)  
Carfentrazon ethyl (128639-02-1)  
Chlorantraniliprole (500008-45-7)  
Clofentezine (74115-24-5)  
Cymoxanil (57966-95-7)  
Cyprodinil (121552-61-2)  
Cyromazine (66215-27-8)  
Dimoxystrobin (149961-52-4)  
Dinotefuran (165252-70-0)  
Doramectin (117704-25-3)  
Eprinomectin (123997-26-2)  
Famoxadon (131807-57-3)  
Fenazaquin (120928-09-8)  
Fenhexamid (126833-17-8)  
(E)-Fenpyroximate (134098-61-6)  
Fonicamid (158062-67-0)  
Fluzinam\*\* (79622-59-6)  
Fludioxonil (131341-86-1)  
Fluoxastobin (361377-29-9)  
Flutolanil (66332-96-5)  
Furalaxyl (57646-30-7)  
Halofenozide (112226-61-6)  
Imazalil (35554-44-0)  
Imidacloprid (138261-41-3)  
Ivermectin (70288-86-7)  
Kresoxim methyl (143390-89-0)  
Mandipropamid (374726-62-2)  
Mepanipyrim (110235-47-7)  
Meprothion (55814-41-0)  
Metaflumizone (139968-49-3)  
Metalaxyl (57837-19-1)  
Methoxyfenozide (161050-58-4)  
Moxidectin (113507-06-5)

Myclobutanil (88671-89-0)  
Nitenpyram (120738-89-8)  
Oxadixyl (77732-09-3)  
Picoxystrobin (117428-22-5)  
Piperonyl butoxide (51-03-6)  
Prochloraz (67747-09-5)  
Prometon (1610-18-0)  
Pymetrozine (123312-89-0)  
Pyracarbolid (24691-76-7)  
Pyrimethanil (53112-28-0)  
Pyriproxyfen (95737-68-1)  
Quinoxifen (124495-18-7)  
Rotenone (83-79-4)  
Sebumeeton (26259-45-0)  
Spiroxamine (118134-30-8)  
Tebufenozide (112410-23-8)  
Tebufenpyrad (119168-77-3)  
Terbumeton (33693-04-8)  
Triadimefon (43121-43-3)  
Trifloxystrobin (141517-21-7)  
Zoxamide (156052-68-5)

### Cat. # 31976: LC Multiresidue Pesticide Standard #5 (30 components)

#### Organonitrogen Compounds

100 µg/mL each in acetonitrile, 1 mL/ampul  
Acibenzolar-S-methyl (135158-54-2)  
Bupirimate (41483-43-6)  
Buprofezin (69327-76-0)  
Carboxin (5234-68-4)  
Clethodim (99129-21-2)  
Clothianidin (210880-92-5)  
Cyazofamid (120116-88-3)  
Ethiprole (181587-01-9)  
Ethofumesate (26225-79-6)  
Fenamidone (161326-34-7)  
Fipronil (120068-37-3)  
Flubendiamide (272451-65-7)  
Flufenacet (Fluthiamide) (142459-58-3)  
Hexythiazox (78587-05-0)  
Mefenacet (73250-68-7)  
Mesotrione (104206-82-8)  
Methoprotrotyne (841-06-5)  
Metribuzin (21087-64-9)  
Prometryne (7287-19-6)  
Propargite (2312-35-8)  
Prothioconazole (178928-70-6)  
Pyridaben (96489-71-3)  
Simetryn (1014-70-6)  
Sulfentrazon (122836-35-5)  
Terbutryn (886-50-0)  
Thiabendazole (148-79-8)  
Thiacloprid (111988-49-9)  
Thiamethoxam (153719-23-4)  
Thiofanox (39196-18-4)  
Tricyclazole (Beam) (41814-78-2)

### Cat. # 31977: LC Multiresidue Pesticide Standard #6 (28 components)

#### Organonitrogen Compounds

100 µg/mL each in acetonitrile, 1 mL/ampul  
Baycor (Biteranol) (55179-31-2)  
Bromuconazole (116255-48-2)  
Cyproconazole (94361-06-5)

Diclobutrazol (75736-33-3)  
Difenoconazole (119446-68-3)  
Diniconazole (83657-24-3)  
Epoxiconazole (133855-98-8)  
Etaconazole (60207-93-4)  
Ethinilol (23947-60-6)  
Etozazole (153233-91-1)  
Fenarimol (60168-88-9)  
Fenbuconazole (114369-43-6)  
Fluquinconazole (136426-54-5)  
Flusilazole (85509-19-9)  
Flutriafol (76674-21-0)  
Fuberidazole (3878-19-1)  
Hexaconazole (79983-71-4)  
Ipconazole (125225-28-7)  
Metconazole (125116-23-6)  
Nuarimol (63284-71-9)  
Paclobutrazol (76738-62-0)  
Penconazole (66246-88-6)  
Propiconazole (Tilt) (60207-90-1)  
Tebuconazole (107534-96-3)  
Tetraconazole (112281-77-3)  
Triadimenol (55219-65-3)  
Triflumizole (68694-11-1)  
Triticonazole (131983-72-7)

### Cat. # 31978: LC Multiresidue Pesticide Standard #7 (7 components)

#### Organonitrogen Compounds

100 µg/mL each in acetonitrile, 1 mL/ampul  
Emamectin-benzoate (155569-91-8)  
Fenpropimorph (67564-91-4)  
Spinetoram (J&L) (935545-74-7)†  
Spinosad (A&D) (168316-95-8)††  
Spirodiclofen (148477-71-8)  
Spiromesifen (283594-90-1)  
Spirotetramat (203313-25-1)

### Cat. # 31979: LC Multiresidue Pesticide Standard #8

#### Organonitrogen Compounds

100 µg/mL each in acetonitrile, 1 mL/ampul  
Hydramethylnon (67485-29-4)

### Cat. # 31980: LC Multiresidue Pesticide Standard #9 (7 components)

#### Carbamate/Uron Compounds

100 µg/mL each in acetonitrile, 1 mL/ampul  
Aminocarb (2032-59-9)  
Desmedipham (13684-56-5)  
Formetanate HCL (23422-53-9)  
Mexacarbate (Zectran) (315-18-4)  
Monceren (Pencycuron) (66063-05-6)  
Phenmedipham (13684-63-4)  
Propamocarb free base (24579-73-5)

### Cat. # 31981: LC Multiresidue Pesticide Standard #10

#### Carbamate/Uron Compounds

100 µg/mL each in methanol, 1 mL/ampul  
Carbendazim (10605-21-7)

| Description                   | Conc. in Solvent                      | CRM? | Min Shelf Life on Ship Date | Shipping Conditions | Storage Temp.    | qty. | cat.# |
|-------------------------------|---------------------------------------|------|-----------------------------|---------------------|------------------|------|-------|
| LC Multiresidue Pesticide Kit | Contains 1 mL each of these mixtures. | Yes  | 6 months                    | On Ice              | -20 °C or colder | kit  | 31971 |

\* Note: When combining a large number of compounds with different chemical functionalities, mix stability can be an issue. In formulating these standards, we extensively studied the 204 compounds involved, then grouped them into a few mixes as possible while still ensuring maximum long-term stability and reliability. For quantitative analysis, we recommend analyzing each mix separately to ensure accurate results for every compound.

\*\* Note: In this standard, fluzinam should only be used for qualitative analysis. A single-component standard (cat.# 31982) is available for quantitative analysis.

†This reference material contains both the Spinetoram J and L isomers (187166-40-1 and 187166-15-0); however, CAS# 935545-74-7 is displayed on the certificate as this is the neat material dissolved in the solution. CAS# 935545-74-7 is a blend of Spinetoram J and L and the ratio of each material isomer are displayed on your certificate of analysis.

††This reference material contains Spinosad A and D isomers (131929-60-7 and 131929-63-0); however, CAS# 168316-95-8 is displayed on the certificate as this is the neat material dissolved in the solution. CAS# 168316-95-8 is a blend of Spinosad A and D and the ratio of each material isomer are displayed your certificate of analysis.



## GC Multiresidue Pesticide Kit

Comprehensive 203-compound kit covers food safety lists by the FDA, USDA, and other global governmental agencies; individual ampuls also sold separately. For chromatograms and optimized multiresidue pesticide method including conditions and transition tables, visit [www.restek.com/multiresidue-GC](http://www.restek.com/multiresidue-GC)

### Cat. # 32563: GC Multiresidue Pesticide Standard #1 (16 components)

#### Organophosphorus Compounds

100 µg/mL each in toluene, 1 mL/ampul  
Azinphos ethyl (2642-71-9)  
Azinphos methyl (86-50-0)  
Chlorpyrifos (2921-88-2)  
Chlorpyrifos methyl (5598-13-0)  
Diazinon (333-41-5)  
EPN (2104-64-5)  
Fenitrothion (122-14-5)  
Isazophos (42509-80-8)  
Phosalone (2310-17-0)  
Phosmet (732-11-6)  
Pirimiphos ethyl (23505-41-1)  
Pirimiphos methyl (29232-93-7)  
Pyraclofos (89784-60-1)  
Pyraclofos (13457-18-6)  
Pyridaphenthion (119-12-0)  
Quinalphos (13593-03-8)

### Cat. # 32564: GC Multiresidue Pesticide Standard #2 (40 components)

#### Organochlorine Compounds

100 µg/mL each in toluene, 1 mL/ampul  
Aldrin (309-00-2)  
α-BHC (319-84-6)  
β-BHC (319-85-7)  
δ-BHC (319-86-8)  
γ-BHC (Lindane) (58-89-9)  
Chlorbenside (103-17-3)  
cis-Chlordane (5103-71-9)  
trans-Chlordane (5103-74-2)  
Chlorfenson (Ovex) (80-33-1)  
Chloroneb (2675-77-6)  
2,4'-DDD (53-19-0)  
4,4'-DDD (72-54-8)  
2,4'-DDE (3424-82-6)  
4,4'-DDE (72-55-9)  
2,4'-DDT (789-02-6)  
4,4'-DDT (50-29-3)  
4,4'-Dichlorobenzophenone (90-98-2)  
Dieldrin (60-57-1)  
Endosulfan I (959-98-8)  
Endosulfan II (33213-65-9)  
Endosulfan ether (3369-52-6)  
Endosulfan sulfate (1031-07-8)  
Endrin (72-20-8)  
Endrin aldehyde (7421-93-4)  
Endrin ketone (53494-70-5)  
Ethylan (Perthane) (72-56-0)  
Fenson (80-38-6)  
Heptachlor (76-44-8)  
Heptachlor epoxide (isomer B) (1024-57-3)  
Hexachlorobenzene (118-74-1)  
Isodrin (465-73-6)  
2,4'-Methoxychlor (30667-99-3)  
4,4'-Methoxychlor olefin (2132-70-9)  
Mirex (2385-85-5)  
cis-Nonachlor (5103-73-1)  
trans-Nonachlor (39765-80-5)  
Pentachloroanisole (1825-21-4)  
Pentachlorobenzene (608-93-5)  
Pentachlorothioanisole (1825-19-0)  
Tetradifon (116-29-0)

### Cat. # 32565: GC Multiresidue Pesticide Standard #3 (25 components)

#### Organonitrogen Compounds

100 µg/mL each in toluene:acetonitrile (99:1), 1 mL/ampul  
Benfluralin (1861-40-1)  
Biphenyl (92-52-4)  
Chlorothalonil (1897-45-6)  
Dichlofluanid (1085-98-9)  
Dichloran (99-30-9)  
3,4-Dichloroaniline (95-76-1)  
2,6-Dichlorobenzonitrile (Dichlobenil) (1194-65-6)  
Diphenylamine (122-39-4)  
Ethalfuralin (55283-68-6)  
Fluchloralin (33245-39-5)  
Isopropalin (33820-53-0)  
Nitrilin (4726-14-1)  
Nitrofen (1836-75-5)  
Oxyfluorfen (42874-03-3)  
Pendimethalin (40487-42-1)  
Pentachloroaniline (527-20-8)  
Pentachlorobenzonitrile (20925-85-3)  
Pentachloronitrobenzene (Quintozone) (82-68-8)  
Prodiamine (29091-21-2)  
Profluralin (26399-36-0)  
2,3,5,6-Tetrachloroaniline (3481-20-7)  
Tetrachloronitrobenzene (Tecnazene) (117-18-0)  
THPI (Tetrahydrophthalimide) (1469-48-3)  
Tolylfluorid (731-27-1)  
Trifluralin (1582-09-8)

### Cat. # 32566: GC Multiresidue Pesticide Standard #4 (28 components)

#### Organonitrogen Compounds

100 µg/mL each in toluene, 1 mL/ampul  
Acetochlor (34256-82-1)  
Alachlor (15972-60-8)  
Allidochlor (93-71-0)  
Clomazone (Command) (81777-89-1)  
Cycloate (1134-23-2)  
Diallate (cis & trans) (2303-16-4)  
Dimethachlor (50563-36-5)  
Diphenamid (957-51-7)  
Fenpropathrin (39515-41-8)  
Fluquinconazole (136426-54-5)  
Flutolanil (66332-96-5)  
Linuron (330-55-2)  
Metazachlor (67129-08-2)  
Methoxychlor (72-43-5)  
Metolachlor (51218-45-2)  
N-(2,4-Dimethylphenyl)formamide (60397-77-5)  
Norflurazon (27314-13-2)  
Oxadiazon (19666-30-9)  
Pebulate (1114-71-2)  
Pretilachlor (51218-49-6)  
Prochloraz (67747-09-5)  
Propachlor (1918-16-7)  
Propanil (709-98-8)  
Propisochlor (86763-47-5)  
Propyzamide (23950-58-5)  
Pyridaben (96489-71-3)  
Tebufenpyrad (119168-77-3)  
Triallate (2303-17-5)

### Cat. # 32567: GC Multiresidue Pesticide Standard #5 (34 components)

#### Organonitrogen Compounds

100 µg/mL each in toluene, 1 mL/ampul  
Atrazine (1912-24-9)  
Bupirimate (41483-43-6)  
Captafol (2425-06-1)  
Captan (133-06-2)  
Chlorfenapyr (122453-73-0)  
Cyprodinil (121552-61-2)  
Etofenprox (80844-07-1)  
Etridiazole (2593-15-9)  
Fenarimol (60168-88-9)  
Fipronil (120068-37-3)  
Fludioxonil (131341-86-1)  
Fluridone (Sonar) (59756-60-4)  
Flusilazole (85509-19-9)  
Flutrafol (76674-21-0)  
Folpet (133-07-3)  
Hexazinone (Velpar) (51235-04-2)  
Iprodione (36734-19-7)  
Lenacil (2164-08-1)  
MGK-264 (113-48-4)  
Myclobutanil (88671-89-0)  
Paclobutrazol (76738-62-0)  
Penconazole (66246-88-6)  
Procymidone (32809-16-8)  
Propargite (2312-35-8)  
Pyrimethanil (53112-28-0)  
Pyriproxyfen (95737-68-1)  
Tebuconazole (107534-96-3)  
Terbacil (5902-51-2)  
Terbutylazine (5915-41-3)  
Triadimefon (43121-43-3)  
Triadimenol (55219-65-3)  
Tricyclazole (Beam) (41814-78-2)  
Triflumizole (68694-11-1)  
Vinclozolin (50471-44-8)

### Cat. # 32568: GC Multiresidue Pesticide Standard #6 (18 components)

#### Synthetic Pyrethroid Compounds

100 µg/mL each in toluene, 1 mL/ampul  
Acrinathrin (101007-06-1)  
Anthraquinone (84-65-1)  
Bifenthrin (82657-04-3)  
Bioallethrin (584-79-2)  
Cyfluthrin (68359-37-5)  
lambda-Cyhalothrin (91465-08-6)  
Cypermethrin (52315-07-8)  
Deltamethrin (52918-63-5)  
Fenvalerate (51630-58-1)  
Flucythrinate (70124-77-5)  
tau-Fluvalinate (102851-06-9)  
cis-Permethrin (61949-76-6)  
trans-Permethrin (61949-77-7)  
Phenothrin (cis & trans) (26002-80-2)  
Resmethrin (10453-86-8)  
Tefluthrin (79538-32-2)  
Tetramethrin (7696-12-0)  
Transfluthrin (118712-89-3)

### Cat. # 32569: GC Multiresidue Pesticide Standard #7 (10 components)

#### Herbicide Methyl Esters

100 µg/mL each in toluene, 1 mL/ampul  
Acephinocyl (57960-19-7)  
Bromopropylate (18181-80-1)  
Carfentrazone ethyl (128639-02-1)  
Chlorobenzilate (510-15-6)  
Chlorpropham (101-21-3)  
Chlozolate (84332-86-5)  
DCPA methyl ester (Chlorthal-dimethyl) (1861-32-1)  
Fluazifop-*p*-butyl (79241-46-6)  
Metalaxyl (57837-19-1)  
2-Phenylphenol (90-43-7)

### Cat. # 32570: GC Multiresidue Pesticide Standard #8 (24 components)

#### Organophosphorus Compounds

100 µg/mL each in toluene, 1 mL/ampul  
Bromfenvinfos-methyl (13104-21-7)  
Bromfenvinfos (33399-00-7)  
Bromophos ethyl (4824-78-6)  
Bromophos methyl (2104-96-3)  
Carbophenothion (786-19-6)  
Chlorfenvinfos (470-90-6)  
Chlorthiophos (60238-56-4)  
Coumaphos (56-72-4)  
Edifenphos (17109-49-8)  
Ethion (563-12-2)  
Fenamiphos (22224-92-6)  
Fenchlorphos (Ronnell) (299-84-3)  
Fenthion (55-38-9)  
Iodofenphos (18181-70-9)  
Leptophos (21609-90-5)  
Malathion (121-75-5)  
Methacrifos (62610-77-9)  
Profenofos (41198-08-7)  
Prothiofos (34643-46-4)  
Sulfotepp (3689-24-5)  
Sulprofos (35400-43-2)  
Terbufos (13071-79-9)  
Tetrachlorvinphos (22248-79-9)  
Tolclofos-methyl (57018-04-9)

### Cat. # 32571: GC Multiresidue Pesticide Standard #9 (8 components)

#### Organophosphorus Compounds

100 µg/mL each in toluene, 1 mL/ampul  
Disulfoton (298-04-4)  
Fonofos (944-22-9)  
Methyl parathion (298-00-0)  
Mevinphos (7786-34-7)  
Parathion (ethyl parathion) (56-38-2)  
Phorate (298-02-2)  
Piperonyl butoxide (51-03-6)  
Triazophos (24017-47-8)

| Description                   | Conc. in Solvent                      | CRM? | Min Shelf Life on Ship Date | Shipping Conditions | Storage Temp.   | qty. | cat.# |
|-------------------------------|---------------------------------------|------|-----------------------------|---------------------|-----------------|------|-------|
| GC Multiresidue Pesticide Kit | Contains 1 mL each of these mixtures. | Yes  | 6 months                    | Ambient             | 10 °C or colder | kit  | 32562 |

# Restek is Your Complete Supplier for World-Class LC-MS/MS and GC-MS/MS Multiresidue Pesticide Analysis.

We carry certified reference materials, analytical columns, sample preparation products, and accessories.

## Labeled Pesticide Residue Internal Standards for Food Analysis

Isotopically labeled to provide the best approach for pesticide residue quantification.

| Description                | CAS #        | Conc. in Solvent                      | CRM? | Min Shelf Life on Ship Date | Max Shelf Life on Ship Date | Shipping Conditions | Storage Temp.   | qty. | cat.# |
|----------------------------|--------------|---------------------------------------|------|-----------------------------|-----------------------------|---------------------|-----------------|------|-------|
| Atrazine-d5                | 163165-75-1  | 100 µg/mL in acetonitrile, 1 mL/ampul | Yes  | 6 months                    | 36 months                   | Ambient             | 10 °C or colder | ea.  | 31984 |
| Carbaryl-d7                | 362049-56-7  | 100 µg/mL in acetonitrile, 1 mL/ampul | Yes  | 6 months                    | 31 months                   | Ambient             | 10 °C or colder | ea.  | 31985 |
| Diazinon-d10 (diethyl-d10) | 100155-47-3  | 100 µg/mL in acetonitrile, 1 mL/ampul | Yes  | 6 months                    | 36 months                   | Ambient             | 10 °C or colder | ea.  | 31986 |
| Dichlorvos-d6              | 203645-53-8  | 100 µg/mL in acetone, 1 mL/ampul      | Yes  | 3 months                    | 12 months                   | Ambient             | 10 °C or colder | ea.  | 31987 |
| Dimethoate-d6              | 1219794-81-6 | 100 µg/mL in acetonitrile, 1 mL/ampul | Yes  | 6 months                    | 36 months                   | Ambient             | 10 °C or colder | ea.  | 31988 |
| Diuron-d6                  | 1007536-67-5 | 100 µg/mL in acetonitrile, 1 mL/ampul | Yes  | 6 months                    | 31 months                   | Ambient             | 10 °C or colder | ea.  | 31989 |
| Linuron-d6                 | 1219804-76-8 | 100 µg/mL in acetonitrile, 1 mL/ampul | Yes  | 6 months                    | 31 months                   | Ambient             | 10 °C or colder | ea.  | 31990 |

## QuEChERS Internal Standard Mix for GC-MS Analysis

(6 components)

PCB 18 (37680-65-2), 50 µg/mL  
PCB 28 (7012-37-5), 50 µg/mL  
PCB 52 (35693-99-3), 50 µg/mL

Triphenylmethane (519-73-3), 10 µg/mL  
Triphenylphosphate (115-86-6), 20 µg/mL  
Tris(1,3-dichloroisopropyl)phosphate (13674-87-8), 50 µg/mL

| Conc. in Solvent            | CRM? | Min Shelf Life on Ship Date | Max Shelf Life on Ship Date | Shipping Conditions | Storage Temp.   | qty. | cat.# |
|-----------------------------|------|-----------------------------|-----------------------------|---------------------|-----------------|------|-------|
| In acetonitrile, 5 mL/ampul | Yes  | 6 months                    | 75 months                   | Ambient             | 10 °C or colder | ea.  | 33267 |



## QuEChERS Performance Standards Kit

Contains 1 mL each of these mixtures. 31153: QuEChERS Performance Standard A 31154: QuEChERS Performance Standard B 31155: QuEChERS Performance Standard C 300 µg/mL each in acetonitrile/acetic acid (99.9:0.1), 1 mL/ampul. Blend equal volumes of all three ampuls for a 100 µg/mL final solution.

**Cat. # 31153: QuEChERS Performance Standard A (16 components)**  
Acephate (30560-19-1)  
Azinphos methyl (86-50-0)  
Chlorpyrifos (2921-88-2)  
Coumaphos (56-72-4)  
Diazinon (333-41-5)  
Dichlofluanid (1085-98-9)  
Dichlorvos (DDVP) (62-73-7)  
Dimethoate (60-51-5)  
Fenthion (55-38-9)

Malathion (121-75-5)  
Methamidophos (10265-92-6)  
Mevinphos (7786-34-7)  
Omethoate (1113-02-6)  
Phosalone (2310-17-0)  
Pirimiphos methyl (29232-93-7)  
Propargite (2312-35-8)  
  
**Cat. # 31154: QuEChERS Performance Standard B (7 components)**  
γ-BHC (Lindane) (58-89-9)

Chlorothalonil (1897-45-6)  
4,4'-DDT (50-29-3)  
Dicofol (Kelthane) (115-32-2)  
Endosulfan sulfate (1031-07-8)  
Endrin (72-20-8)  
2-Phenylphenol (90-43-7)  
  
**Cat. # 31155: QuEChERS Performance Standard C (17 components)**  
Bifenthrin (82657-04-3)  
Captan (133-06-2)

Carbaryl (Sevin) (63-25-2)  
Cyprodinil (121552-61-2)  
Deltamethrin (52918-63-5)  
Fenhexamid (126833-17-8)  
Fenpropathrin (39515-41-8)  
Folpet (133-07-3)  
Imazalil (35554-44-0)  
Iprodione (36734-19-7)  
Metalaxyl (57837-19-1)  
Methiocarb (2032-65-7)  
Myclobutanil (88671-89-0)  
cis-Permethrin (61949-76-6)

trans-Permethrin (61949-77-7)  
Thiabendazole (148-79-8)  
Vinclozolin (50471-44-8)

| Description                        | CRM? | Min Shelf Life on Ship Date | Shipping Conditions | Storage Temp.   | qty. | cat.# |
|------------------------------------|------|-----------------------------|---------------------|-----------------|------|-------|
| QuEChERS Performance Standards Kit | Yes  | 3 months                    | Ambient             | 10 °C or colder | kit  | 31152 |



### Raptor ARC-18 LC Columns (USP L1)

- Ideal for high-throughput LC-MS/MS applications with minimal sample preparation.
- Well-balanced retention profile for better detection and integration of large, multiclass analyte lists.
- Sterically protected to endure low-pH mobile phases without sacrificing retention or peak quality.
- Part of Restek's Raptor LC column line featuring 1.8, 2.7, and 5  $\mu\text{m}$  SPP core-shell silica.

| ID                                                          | Length | qty. | cat.#   |
|-------------------------------------------------------------|--------|------|---------|
| <b>2.7 <math>\mu\text{m}</math> Particles Raptor ARC-18</b> |        |      |         |
| 2.1 mm                                                      | 100 mm | ea.  | 9314A12 |

For more column dimensions and Raptor phases, visit [www.restek.com/raptor](http://www.restek.com/raptor)



### Rxi-5ms Columns (fused silica)

low-polarity phase; Crossbond diphenyl dimethyl polysiloxane

- Ideal for pesticides in food.
- General-purpose columns that can be used for phenols, residual solvents, drugs of abuse, pesticides, semivolatiles, PCB congeners (e.g., Aroclor mixes), and solvent impurities.
- Tested and guaranteed for ultra-low bleed; improved signal-to-noise ratio for better sensitivity and mass spectral integrity.
- Temperature range: -60  $^{\circ}\text{C}$  to 330/350  $^{\circ}\text{C}$ .
- Equivalent to USP G27 and G36 phases.

| ID      | df                 | Length | Temp. Limits                      | qty. | Similar to Part #                            | cat.# |
|---------|--------------------|--------|-----------------------------------|------|----------------------------------------------|-------|
| 0.25 mm | 0.25 $\mu\text{m}$ | 30 m   | -60 to 330/350 $^{\circ}\text{C}$ | ea.  | Agilent 190915-433UI; Phenomenex 7HG-G032-11 | 13423 |

For more column dimensions and Rxi phases, visit [www.restek.com/rxi](http://www.restek.com/rxi)



### Low-Pressure GC (LPGC) Column Kit

Leverage Your MS Vacuum to Significantly Speed Up Separations

**NEW!**

- 3x faster multiresidue pesticides analysis in foods.
- Factory-coupled, leak-free kit makes setting up LPGC as simple as a column change.
- Ideal for speeding up GC-MS and GC-MS/MS methods.
- Integrated transfer line reduces background and stabilization time.

Restek's low-pressure GC column kit has been specifically designed to easily install into your GC-MS or GC-MS/MS system, making it simpler to take advantage of the speed boost that is possible with low-pressure GC-MS (LPGC-MS). This kit is comprised of two factory-coupled columns:

| Temp. Limits                      | Includes                                                                                                                                                                   | qty. | cat.# |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|
| -60 to 340/340 $^{\circ}\text{C}$ | Factory-coupled restrictor column (5 m x 0.18 mm ID) and Rtx-5ms analytical column (15 m, 0.53 mm ID, 1 $\mu\text{m}$ plus 1 m integrated transfer line on the outlet end) | kit  | 11800 |

Learn more about Restek LPGC at [www.restek.com/lpgc](http://www.restek.com/lpgc)

## Q-sep QuEChERS Extraction Salts

Free-flowing salts transfer easily and completely. Convenient slim packets fit perfectly into tubes to prevent spills.

| Description                                 | Material                                                                         | Method              | qty.                  | cat.# |
|---------------------------------------------|----------------------------------------------------------------------------------|---------------------|-----------------------|-------|
| Q-sep QuEChERS Extraction Kit               | 4 g MgSO <sub>4</sub> , 1 g NaCl with 50 mL Centrifuge Tube                      | Original unbuffered | 50 packets & 50 tubes | 25848 |
| Q-sep QuEChERS Extraction Salt Packets Only | 4 g MgSO <sub>4</sub> , 1 g NaCl                                                 | Original unbuffered | 50 packets            | 25847 |
| Q-sep QuEChERS Extraction Kit               | 4 g MgSO <sub>4</sub> , 1 g NaCl, 1 g TSCD, 0.5 g DHS with 50 mL Centrifuge Tube | European EN 15662   | 50 packets & 50 tubes | 25850 |
| Q-sep QuEChERS Extraction Salt Packets Only | 4 g MgSO <sub>4</sub> , 1 g NaCl, 1 g TSCD, 0.5 g DHS                            | European EN 15662   | 50 packets            | 25849 |
| Q-sep QuEChERS Extraction Kit               | 6 g MgSO <sub>4</sub> , 1.5 g NaOAc with 50 mL Centrifuge Tube                   | AOAC 2007.01        | 50 packets & 50 tubes | 25852 |
| Q-sep QuEChERS Extraction Salt Packets Only | 6 g MgSO <sub>4</sub> , 1.5 g NaOAc                                              | AOAC 2007.01        | 50 packets            | 25851 |

DHS – disodium hydrogen citrate sesquihydrate; MgSO<sub>4</sub> – magnesium sulfate; NaCl – sodium chloride; NaOAc – sodium acetate; TSCD – trisodium citrate dihydrate

For our full line of extraction salts, dSPE cleanup tubes, and more for QuEChERS analysis, **visit [www.restek.com/quechers](http://www.restek.com/quechers)**



## Thomson SINGLE StEP Standard Filter Vials

Easy-to-use vials offer fast sample filtration and require only a squeeze of your fingers.

| Description                                                   | Color              | Porosity | qty.    | cat.#             |
|---------------------------------------------------------------|--------------------|----------|---------|-------------------|
| <b>Nylon</b>                                                  |                    |          |         |                   |
| Thomson SINGLE StEP Standard Filter Vial                      | black preslit cap  | 0.2 µm   | 100-pk. | 25891             |
|                                                               | pink preslit cap   | 0.45 µm  | 100-pk. | 25892             |
| <b>PES (polyethersulfone)</b>                                 |                    |          |         |                   |
| Thomson SINGLE StEP Standard Filter Vial                      | grey preslit cap   | 0.2 µm   | 100-pk. | 25897             |
| <b>PTFE (polytetrafluoroethylene)</b>                         |                    |          |         |                   |
| Thomson SINGLE StEP Standard Filter Vials with Screw-Top Caps | green preslit cap  | 0.2 µm   | 100-pk. | 28307 <b>NEW!</b> |
|                                                               | blue preslit cap   | 0.45 µm  | 100-pk. | 28306 <b>NEW!</b> |
| <b>PVDF (polyvinylidene fluoride)</b>                         |                    |          |         |                   |
| Thomson SINGLE StEP Standard Filter Vial                      | red preslit cap    | 0.2 µm   | 100-pk. | 25895             |
|                                                               | yellow preslit cap | 0.45 µm  | 100-pk. | 25896             |

Patent No. 7,790,117

Also available in eXtreme, low-evaporation, and nano versions at **[www.restek.com/singlestep](http://www.restek.com/singlestep)**





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