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.
- Formulated for maximum long-term stability.
- Manufactured and QC-tested in our ISO-accredited labs.

RESTEK Pure Chromatography www.restek.com

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 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.

31971

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.

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)
- Isocarbophos (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)
- Diflubenzuron (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)
- Isoprocarb (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)
- Triflumuron (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)
- Amitraz (33089-61-1)
- Azoxystrobin (131860-33-8)
- Benalaxyl (71626-11-4)
- Benzoximate (29104-30-1)
- Boscalid (188425-85-6)
- Butafenacil (134605-64-4)
- Carbetamide (16118-49-3)
- Carfentrazone 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)
- Fenpyroximate (111812-58-9)
- Flonicamid (158062-67-0)
- Fluazinam** (79622-59-6)
- Fludioxonil (131341-86-1)
- Fluoxastrobin (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)
- Mepronil (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)
- Quinoxyfen (124495-18-7)
- Rotenone (83-79-4)
- Secbumeton (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)
- Methoprotryne (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)
- Sulfentrazone (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 (Bitertanol) (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)
- Ethirimol (23947-60-6)
- Etoxazole (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)
- Spirodiclofen (148477-71-8)
- Spinosad (168316-95-8)
- Spirotetramat (203313-25-1)
- Spinetoram (J&L) (935545-74-7)
- Spiromesifen (283594-90-1)

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

32562

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.

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)
- Pyrazophos (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)
- Ethalfluralin (55283-68-6)
- Fluchloralin (33245-39-5)
- Isopropalin (33820-53-0)
- Nitralin (4726-14-1)
- Nitrofen (1836-75-5)
- Oxyfluorfen (42874-03-3)
- Pendimethalin (40487-42-1)
- Pentachloroaniline (527-20-8)
- Pentachlorobenzonitrile (20925-85-3)
- Pentachloronitrobenzene (Quintozene) (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)
- Tolylfluanid (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)
- Flutriafol (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)
- Terbuthylazine (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
- Acequinocyl (57960-19-7)
- Bromopropylate (18181-80-1)
- Carfentrazone ethyl (128639-02-1)
- Chlorobenzilate (510-15-6)
- Chlorpropham (101-21-3)
- Chlozolinate (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)
- Bromfenvinphos (33399-00-7)
- Bromophos ethyl (4824-78-6)
- Bromophos methyl (2104-96-3)
- Carbophenothion (786-19-6)
- Chlorfenvinphos (470-90-6)
- Chlorthiophos (60238-56-4)
- Coumaphos (56-72-4)
- Edifenphos (17109-49-8)
- Ethion (563-12-2)
- Fenamiphos (22224-92-6)
- Fenchlorphos (Ronnel) (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

Figure 1: LC Multiresidue Pesticide Standard #1 (cat.# 31972) on Ultra Aqueous C18 by LC-MS/MS.

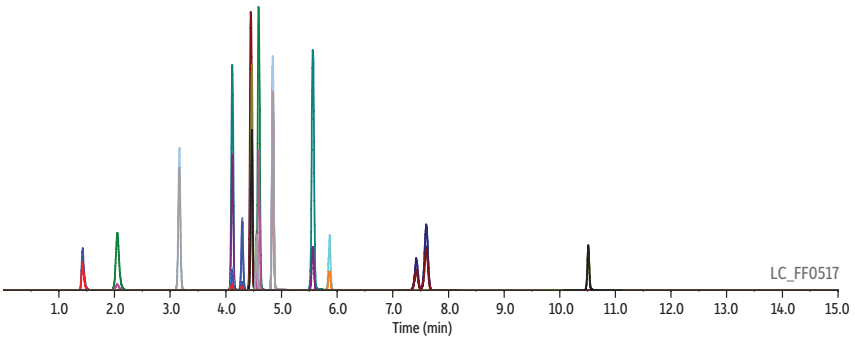
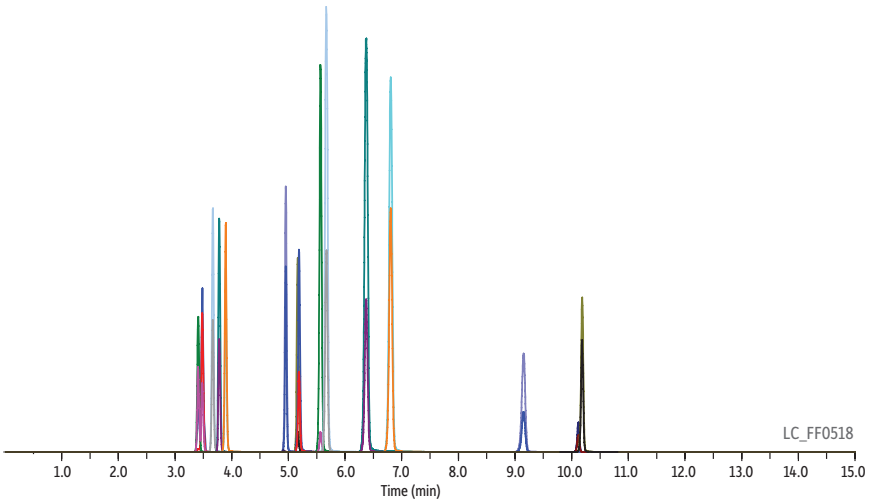


Figure 2: LC Multiresidue Pesticide Standard #2 (cat.# 31973) on Ultra Aqueous C18 by LC-MS/MS.



For notes, see page 8.

Figure 3: LC Multiresidue Pesticide Standard #3 (cat.# 31974) on Ultra Aqueous C18 by LC-MS/MS.

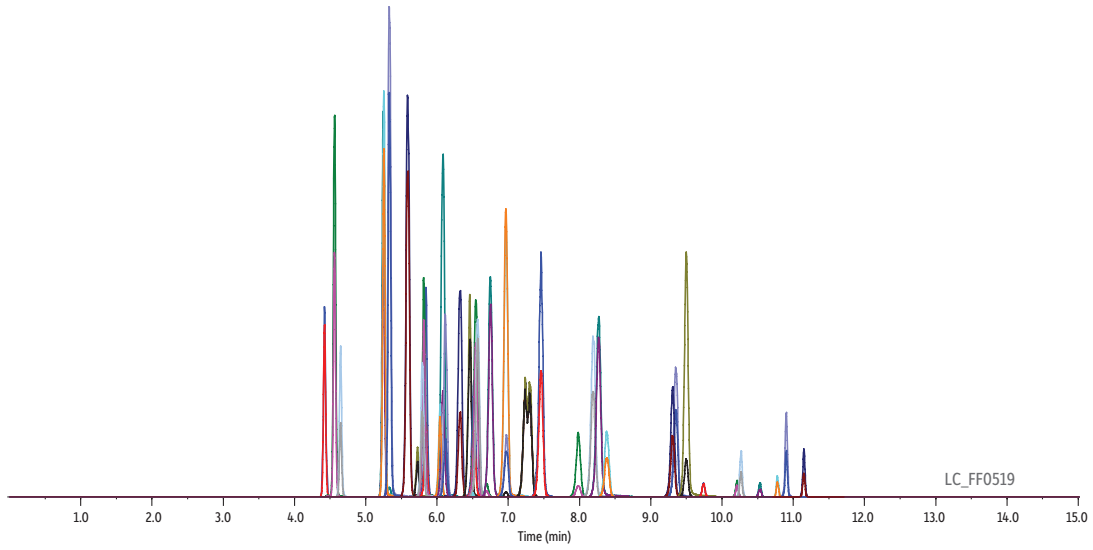
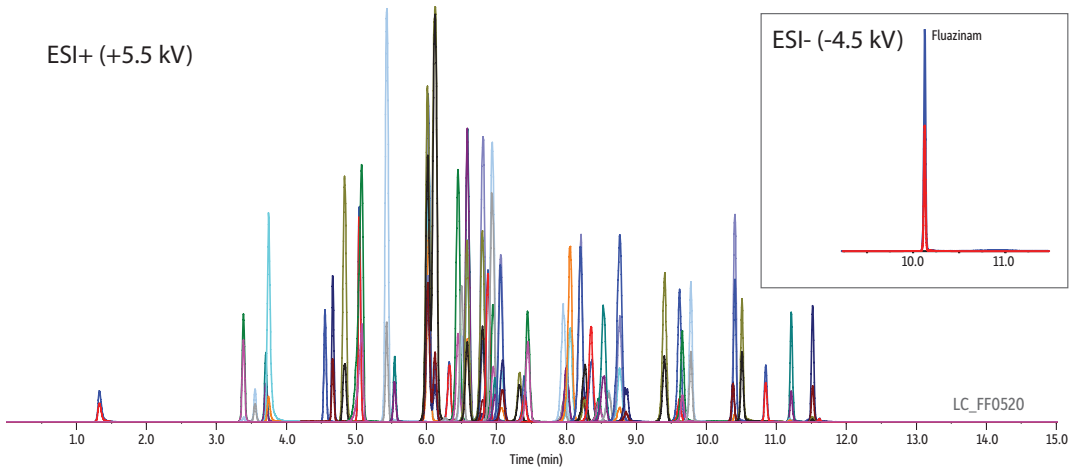


Figure 4: LC Multiresidue Pesticide Standard #4 (cat.# 31975) on Ultra Aqueous C18 by LC-MS/MS.



For notes, see page 8.

Figure 5: LC Multiresidue Pesticide Standard #5 (cat.# 31976) on Ultra Aqueous C18 by LC-MS/MS.

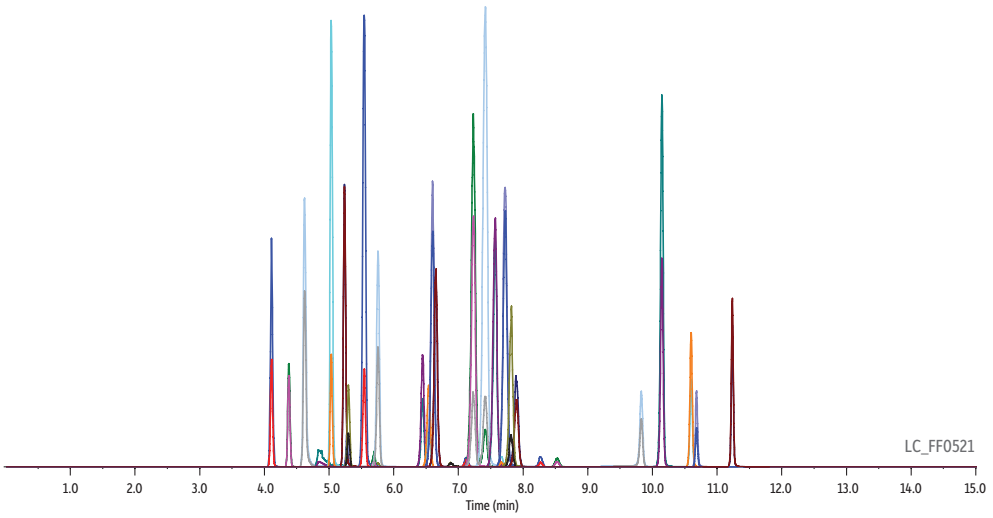


Figure 6: LC Multiresidue Pesticide Standard #6 (cat.# 31977) on Ultra Aqueous C18 by LC-MS/MS.

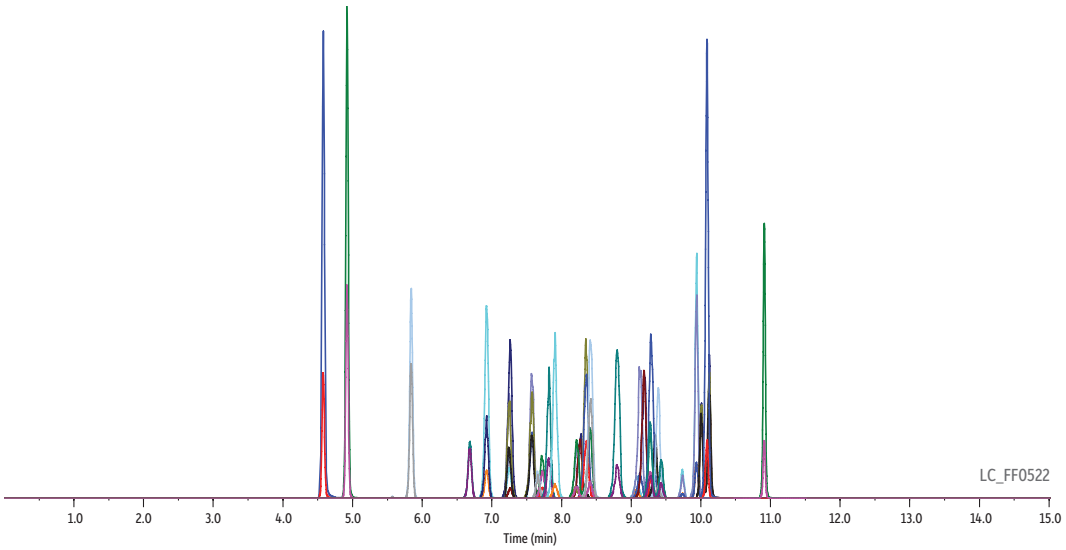
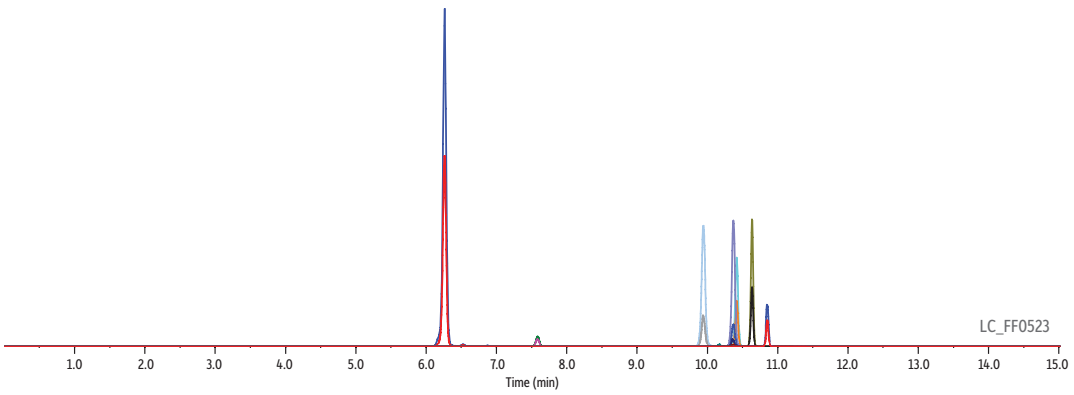


Figure 7: LC Multiresidue Pesticide Standard #7 (cat.# 31978) on Ultra Aqueous C18 by LC-MS/MS.



For notes, see page 8.

Figure 8: LC Multiresidue Pesticide Standard #8 (cat.# 31979) on Ultra Aqueous C18 by LC-MS/MS.

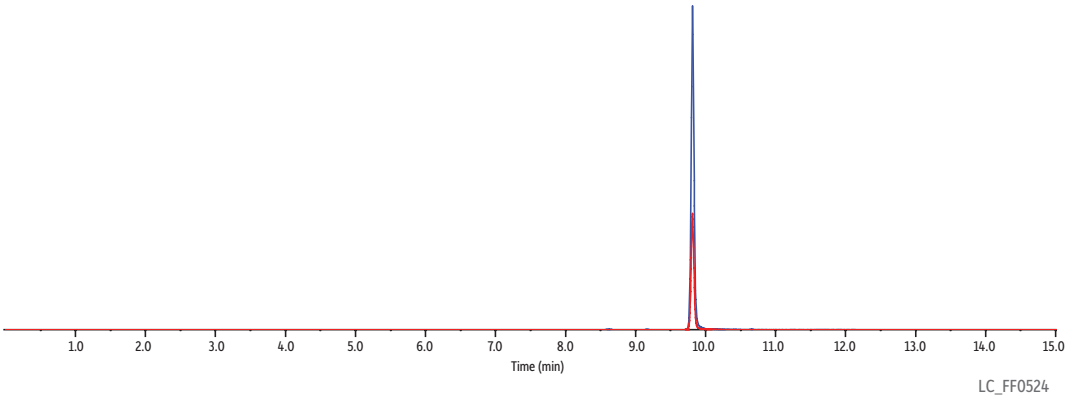


Figure 9: LC Multiresidue Pesticide Standard #9 (cat.# 31980) on Ultra Aqueous C18 by LC-MS/MS.

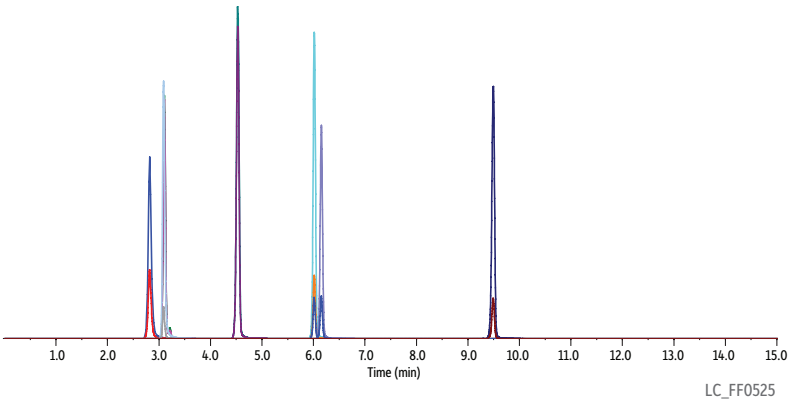
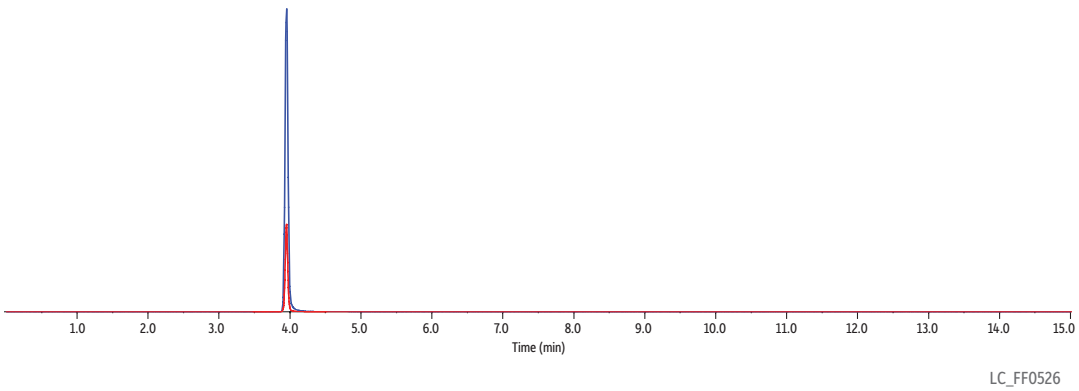


Figure 10: LC Multiresidue Pesticide Standard #10 (cat.# 31981) on Ultra Aqueous C18 by LC-MS/MS.



For compound list, see page 3. For conditions, retention times, and transitions, visit www.restek.com/multiresidue

NOTES: 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, and 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.

Figure 11: GC Multiresidue Pesticide Standard #1(cat.# 32563)-OPP on Rxi-5ms by GC-MS.

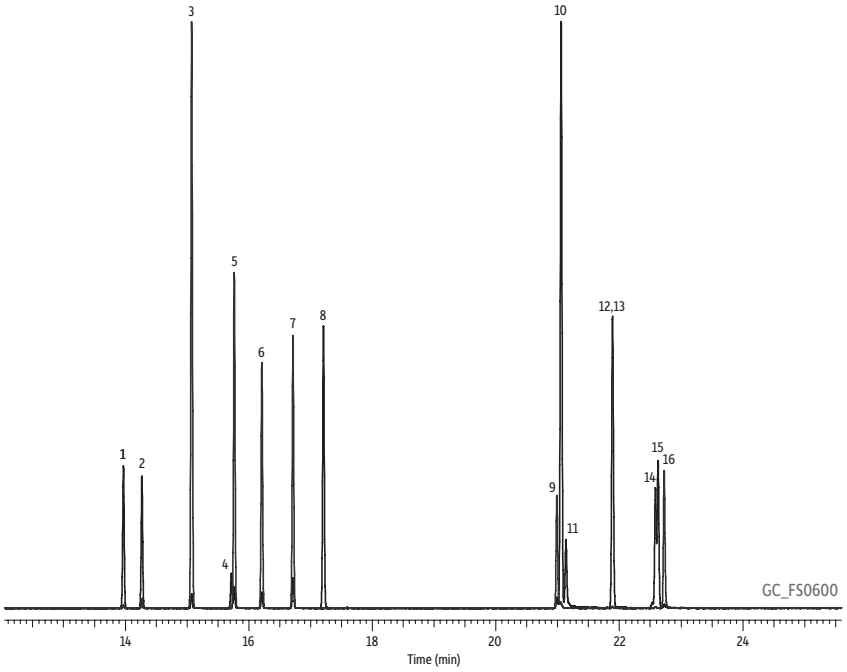
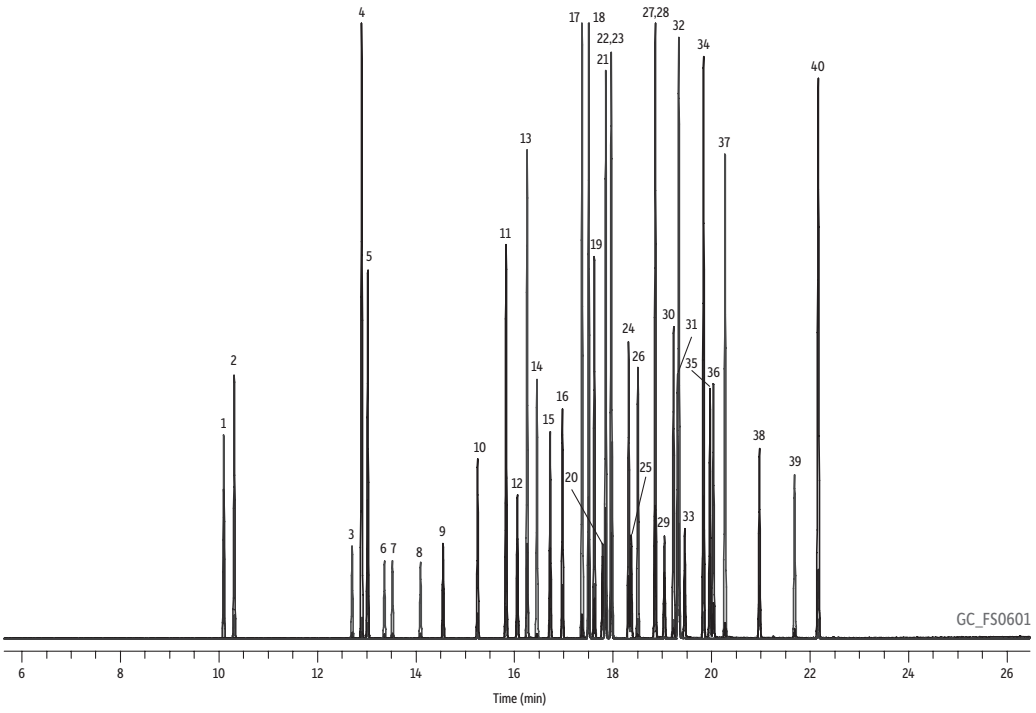


Figure 12: GC Multiresidue Pesticide Standard #2 (cat.# 32564)-OCP on Rxi-5ms by GC-MS.



For notes, see page 12.

Figure 13: GC Multiresidue Pesticide Standard #3 (cat.# 32565)-ONP on Rxi-5ms by GC-MS.

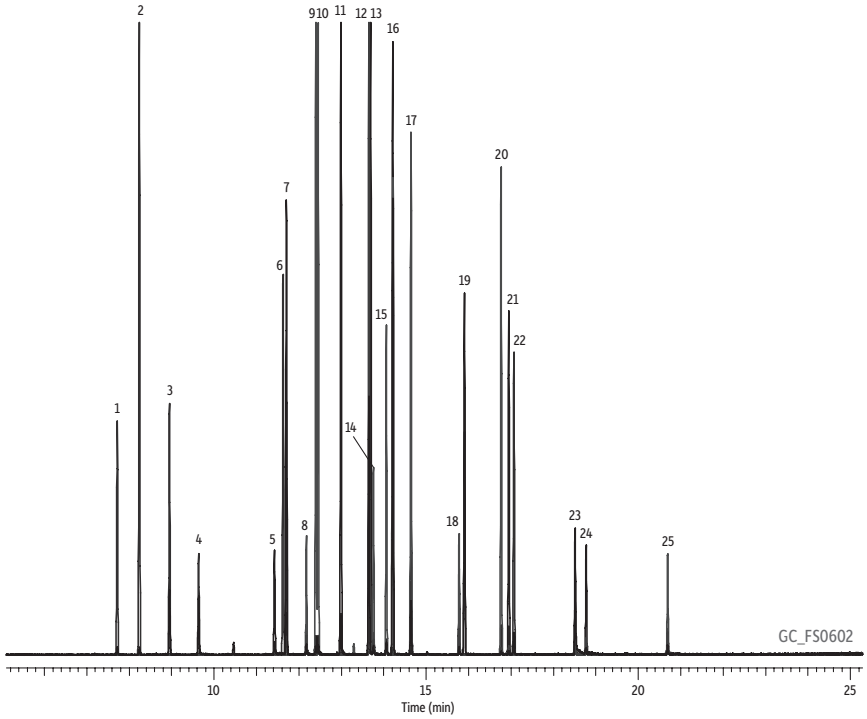
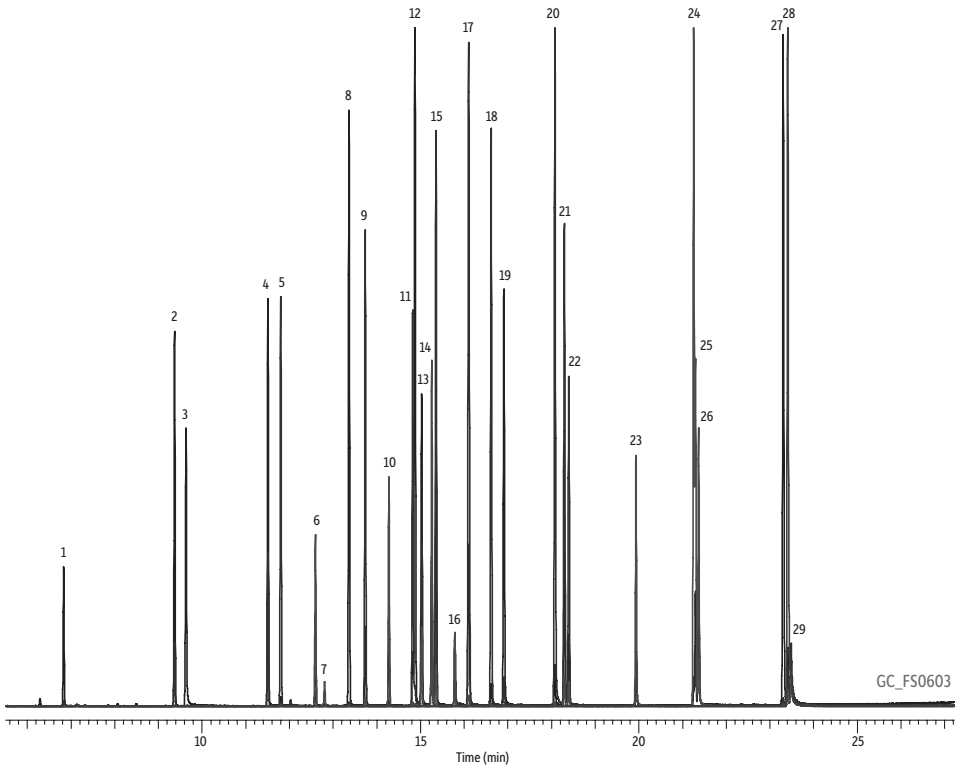


Figure 14: GC Multiresidue Pesticide Standard #4 (cat.# 32566)-ONP on Rxi-5ms by GC-MS.



For notes, see page 12.

Figure 15: GC Multiresidue Pesticide Standard #5 (cat.# 32567)-ONP on Rxi-5ms by GC-MS.

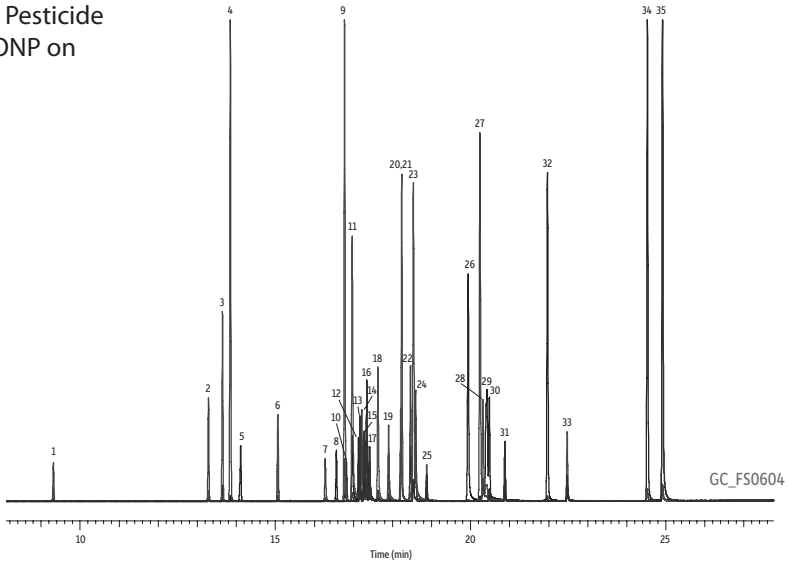


Figure 16: GC Multiresidue Pesticide Standard #6 (cat.# 32568)-SPP on Rxi-5ms by GC-MS.

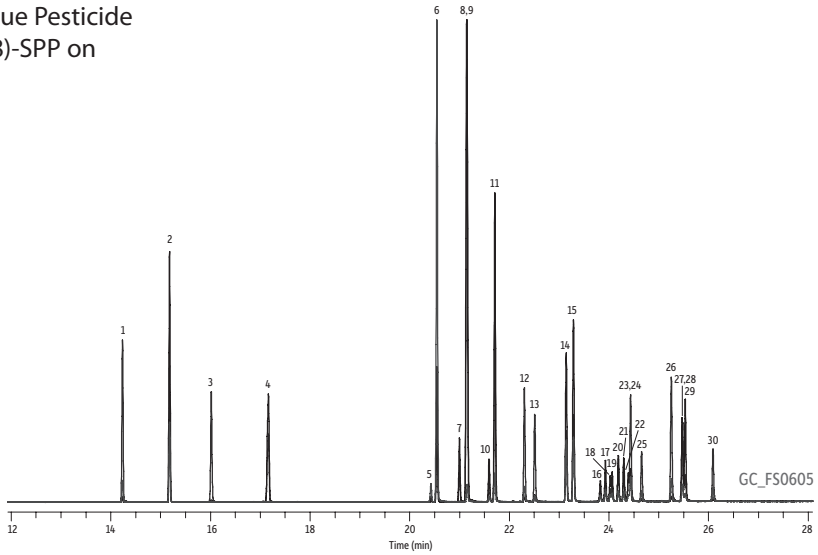
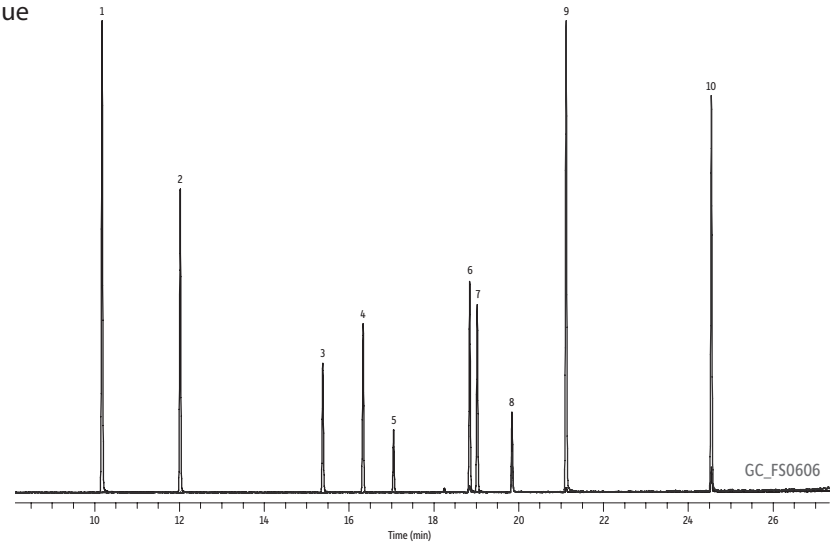


Figure 17: GC Multiresidue Pesticide Standard #7 (cat.# 32569)-HME on Rxi-5ms by GC-MS.



For notes, see page 12.

Figure 18: GC Multiresidue Pesticide Standard #8 (cat.# 32570)-OPP on Rxi-5ms by GC-MS.

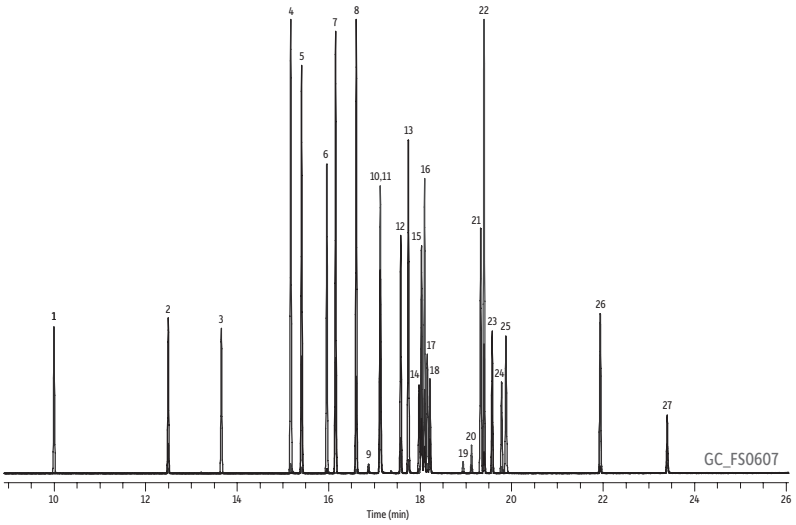
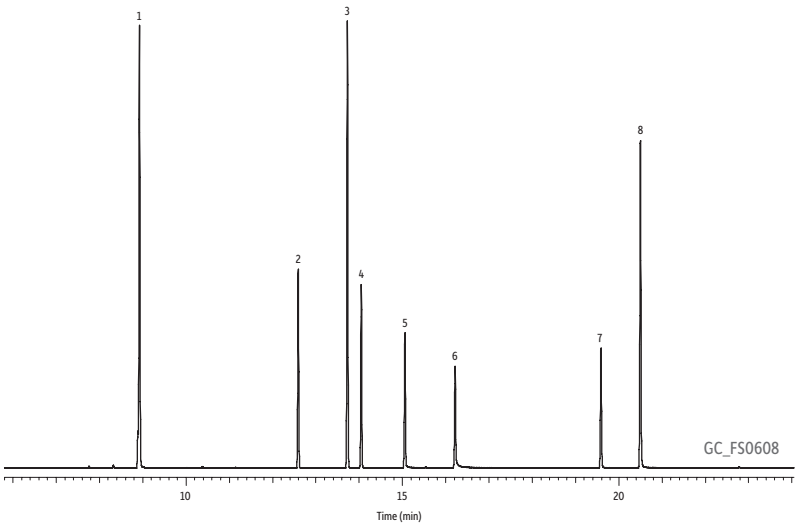


Figure 19: GC Multiresidue Pesticide Standard #9 (cat.# 32571)-OPP on Rxi-5ms by GC-MS.



For compound list, see page 8. For conditions, retention times, and transitions, visit www.restek.com/multiresidue

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 203 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.

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.

Ultra Aqueous C18 Columns (USP L1)

The Restek Aqueous C18 is a rugged, reversed-phase column with a well-balanced retention profile. It can effectively retain more types of solutes than a conventional C18 and is ideal for multicomponent LC-MS analyses. The general-purpose Aqueous C18 boasts high reproducibility and compatibility with many mobile phase conditions—even 100% aqueous. And when used with a gradient, it eliminates the all-too-common issue of multiple compounds eluting near the column void time.

Stationary Phase Category:	modified C18 (L1)
Ligand Type:	proprietary polar modified and functionally bonded C18
Particle:	3 µm or 5 µm, spherical
Pore Size:	100 Å
Carbon Load:	15%
End-Cap:	no
Surface Area:	300 m2/g
pH Range:	2.5 to 8
Maximum Temperature:	80 °C

ID	Length	qty.	cat.#
3 µm Particles			
2.1 mm	30 mm	ea.	9178332
	50 mm	ea.	9178352
	100 mm	ea.	9178312
	150 mm	ea.	9178362
3.0 mm	30 mm	ea.	917833E
	50 mm	ea.	917835E
	100 mm	ea.	917831E
	150 mm	ea.	917836E
4.6 mm	30 mm	ea.	9178335
	50 mm	ea.	9178355
	100 mm	ea.	9178315
	150 mm	ea.	9178365

ID	Length	qty.	cat.#
5 µm Particles			
2.1 mm	30 mm	ea.	9178532
	50 mm	ea.	9178552
	100 mm	ea.	9178512
	150 mm	ea.	9178562
	200 mm	ea.	9178522
	250 mm	ea.	9178572
3.0 mm	30 mm	ea.	917853E
	50 mm	ea.	917855E
	100 mm	ea.	917851E
	150 mm	ea.	917856E
	200 mm	ea.	917852E
	250 mm	ea.	917857E
4.6 mm	30 mm	ea.	9178535
	50 mm	ea.	9178555
	100 mm	ea.	9178515
	150 mm	ea.	9178565
	200 mm	ea.	9178525
	250 mm	ea.	9178575

ordering notes

Certificates of analysis for new Restek LC columns are now provided electronically. To view and download, visit www.restek.com/documentation then enter your cat.# and serial #.

Labeled Pesticide Residue Internal Standards for Food Analysis

- Isotopically labeled to provide the best approach for pesticide residue quantification.
- Multiple options let you choose internal and surrogate standards that will mitigate matrix effects.
- Economically priced and compatible with both LC-MS and GC-MS applications; even helpful for optimizing LC-MS/MS system performance.
- Certified reference material (CRM) manufactured and QC-tested in Restek's ISO-accredited labs—satisfy your ISO requirements.

Description	CAS #	Conc. in Solvent	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	6 months	36 months	Ambient	10 °C or colder	ea.	31984
Carbaryl-d7	362049-56-7	100 µg/mL in acetonitrile	6 months	31 months	Ambient	10 °C or colder	ea.	31985
Diazinon-d10 (diethyl-d10)	100155-47-3	100 µg/mL in acetonitrile	6 months	36 months	Ambient	10 °C or colder	ea.	31986
Dichlorvos-d6	203645-53-8	100 µg/mL in acetone	3 months	12 months	Ambient	10 °C or colder	ea.	31987
Dimethoate-d6	1219794-81-6	100 µg/mL in acetonitrile	6 months	36 months	Ambient	10 °C or colder	ea.	31988
Diuron-d6	1007536-67-5	100 µg/mL in acetonitrile	6 months	31 months	Ambient	10 °C or colder	ea.	31989
Linuron-d6	1219804-76-8	100 µg/mL in acetonitrile	6 months	31 months	Ambient	10 °C or colder	ea.	31990

Volume is 1 mL/ampul.

Rxi-5ms Columns (fused silica)

low-polarity phase; Crossbond diphenyl dimethyl polysiloxane

- General-purpose columns for semivolatiles, phenols, amines, residual solvents, drugs of abuse, pesticides, PCB congeners (e.g., Aroclor mixes), solvent impurities.
- Most inert column on the market.
- Tested and guaranteed for ultra-low bleed; improved signal-to-noise ratio for better sensitivity and mass spectral integrity.
- Temperature range: -60 °C to 330/350 °C.
- Equivalent to USP G27 and G36 phases.

ID	df	Length	qty.	cat.#
0.10 mm	0.10 µm	10 m	ea.	13401
	0.18 µm	20 m	ea.	13402
0.18 mm	0.30 µm	20 m	ea.	13409
	0.36 µm	20 m	ea.	13411
	0.33 µm	12 m	ea.	13497
0.20 mm	0.33 µm	25 m	ea.	13498
	0.33 µm	50 m	ea.	13499
	0.25 µm	15 m	ea.	13420
	0.25 µm	30 m	ea.	13423
	0.25 µm	30 m	6-pk.	13423-600
	0.25 µm	60 m	ea.	13426
	0.40 µm	30 m	ea.	13481
0.25 mm	0.50 µm	15 m	ea.	13435
	0.50 µm	30 m	ea.	13438
	0.50 µm	60 m	ea.	13441
	1.00 µm	15 m	ea.	13450
	1.00 µm	30 m	ea.	13453
	1.00 µm	60 m	ea.	13456

ID	df	Length	qty.	cat.#
	0.25 µm	15 m	ea.	13421
	0.25 µm	30 m	ea.	13424
	0.25 µm	60 m	ea.	13427
	0.50 µm	15 m	ea.	13436
0.32 mm	0.50 µm	30 m	ea.	13439
	0.50 µm	60 m	ea.	13442
	1.00 µm	15 m	ea.	13451
	1.00 µm	30 m	ea.	13454
	1.00 µm	60 m	ea.	13457
	0.25 µm	15 m	ea.	13422
	0.25 µm	30 m	ea.	13425
	0.50 µm	15 m	ea.	13437
	0.50 µm	30 m	ea.	13440
0.53 mm	1.00 µm	15 m	ea.	13452
	1.00 µm	30 m	ea.	13455
	1.00 µm	30 m	6-pk.	13455-600
	1.50 µm	15 m	ea.	13467
	1.50 µm	30 m	ea.	13470

ordering notes

Custom lengths and film thicknesses available. Call Technical Service at 800-356-1688 or 814-353-1300, ext. 4, or contact your Restek representative.

SAVE MONEY! Get six columns for the price of five. Call 800-356-1688, ext. 3, or your Restek representative for details!

Restek's New Leak Detector

Redesigned and better than ever, our new leak detector is an essential tool for troubleshooting and routine maintenance of your gas chromatograph. Don't risk damaging your system or losing sensitivity; check for leaks often and protect your GC column and instrument with a Restek leak detector!

Leak Detector Specifications

Detectable Gases:	Helium, nitrogen, argon, carbon dioxide, hydrogen*
Battery:	Rechargeable nickel-metal hydride (NiMH) internal battery pack (12 hours normal operation)
Ambient Temperature:	50–98.6 °F (10–37 °C)

Humidity Range:	0–97%
Warranty:	One year
Certification/Compliance:	CE (EU, Korea, Japan, Australia); CSA/UL tested, not listed; WEEE; CEC; China RoHS 2; UKCA

Indoor Use Only

Avoid using liquid leak detectors on a GC! Liquids can be drawn into the system and/or into the leak detector.

*Caution: The Restek electronic leak detector should only be used to detect trace amounts of hydrogen in a noncombustible environment. It is NOT designed for determining leaks in a combustible environment. A combustible gas detector should be used for determining combustible gas leaks under any condition. When using it to detect hydrogen, the Restek electronic leak detector may only be used for determining trace amounts in a GC environment.

ProFLOW 6000 Flowmeter

With its wide range of capabilities, the ProFLOW 6000 flowmeter simplifies gas flow measurement in the lab. Real-time measurements can be made for various types of flow paths, including continually changing gas types.

Flowmeter Specifications

Type of Flowmeter:	Volumetric
Battery:	2-AA
Operating Temp. Range:	32–120 °F (0–48 °C)

Warranty:	One-year warranty (excludes recalibration)
Certification/Compliance:	CE, Ex, Canadian ICES-003, WEEE, RoHS 2, China RoHS 2, UKCA

Patented

Description	Includes	qty.	cat.#
Dynamic Duo Combo Pack (Restek Leak Detector and ProFLOW 6000 Flowmeter)	Restek Electronic Leak Detector (cat.# 28500) & ProFLOW 6000 Flowmeter (cat.# 22656)	kit	22654

QuEChERS Products Simplify Multiresidue Pesticide Analysis

QuEChERS Reference Standards

Ready to use for QuEChERS extractions—no dilutions necessary.

Pesticide analysis is fast and simple using QuEChERS methods. Use these cost-effective QuEChERS standards for even greater lab efficiency. Standards are compatible with all major methods, including mini-multiresidue, AOAC, and European procedures. Save time with convenient mixes or make your own blend using our full line of single-component solutions.

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

Q-sep QuEChERS Extraction Salts

- Free-flowing salts transfer easily and completely.
- Easy-open packets eliminate the need for a second empty tube for salt transfer.
- Convenient slim packets fit perfectly into tubes to prevent spills.
- Ready-to-use tubes, no glassware required.
- Pre-weighed, ultra-pure extraction salts.
- Ideal for original unbuffered, AOAC (2007.01), and European (EN 15662) QuEChERS methods.

25847

QuEChERS methods are fast, easy, and cost-effective, and Restek Q-sep products make QuEChERS procedures even easier. No specialized glassware is required when you're using Q-sep extraction packets and tubes. Free-flowing extraction salts and salt packets that fit easily into the extraction tubes make transferring the salts to your sample mess-free and easy.

Description	Material	Method	qty.	cat.#
Q-sep QuEChERS Extraction Kit	4 g $MgSO_4$, 1 g NaCl with 50 mL Centrifuge Tube	Original unbuffered	50 packets & 50 tubes	25848
Q-sep QuEChERS Extraction Salt Packets Only	4 g $MgSO_4$, 1 g NaCl	Original unbuffered	50 packets	25847
Q-sep QuEChERS Extraction Kit	4 g $MgSO_4$, 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 $MgSO_4$, 1 g NaCl, 1 g TSCD, 0.5 g DHS	European EN 15662	50 packets	25849
Q-sep QuEChERS Extraction Kit	6 g $MgSO_4$, 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 $MgSO_4$, 1.5 g NaOAc	AOAC 2007.01	50 packets	25851

DHS – disodium hydrogen citrate sesquihydrate; $MgSO_4$ – magnesium sulfate; NaCl – sodium chloride; NaOAc – sodium acetate; TSCD – trisodium citrate dihydrate

ordering notes

Certificates of analysis for this product are provided electronically. To view and download your certificate, simply visit www.restek.com/documentation

Q-sep QuEChERS dSPE Tubes for Extract Cleanup

Fast, Simple Sample Prep for Multiresidue Pesticide Analysis

- Packaged in foil subpacks of 10 for enhanced protection and storage stability.
- Ready-to-use tubes, no glassware required.
- Pre-weighed, ultra-pure sorbents.
- Support original unbuffered, AOAC (2007.01), European (EN 15662), and mini-multiresidue QuEChERS methods.

26215

Description	Material	Method	Type	Volume	qty.	cat.#
Foodstuffs with fats and waxes (e.g., cereals, avocado, nuts, seeds, and dairy)						
Q-sep QuEChERS dSPE Tubes	150 mg $MgSO_4$, 25 mg PSA, 25 mg C18-EC	Mini-multiresidue	2 mL Micro-Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (1 mL Extract)	2 mL	100-pk.	26216
	150 mg $MgSO_4$, 50 mg C18-EC	—	2 mL Micro-Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (1 mL Extract)	2 mL	100-pk.	26242
	150 mg $MgSO_4$, 50 mg PSA, 50 mg C18-EC	AOAC 2007.01	2 mL Micro-Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (1 mL Extract)	2 mL	100-pk.	26125
	1200 mg $MgSO_4$, 400 mg PSA, 400 mg C18-EC	AOAC 2007.01	15 mL Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (6 mL and 8 mL Extract)	15 mL	50-pk.	26221
	1200 mg $MgSO_4$, 400 mg C18-EC	—	15 mL Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (6 mL and 8 mL Extract)	15 mL	50-pk.	26244
	900 mg $MgSO_4$, 150 mg PSA, 150 mg C18-EC	—	15 mL Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (6 mL and 8 mL Extract)	15 mL	50-pk.	26226
General fruits and vegetables (e.g., celery, head lettuce, cucumber, melon)						
Q-sep QuEChERS dSPE Tubes	150 mg $MgSO_4$, 50 mg PSA	AOAC 2007.01	2 mL Micro-Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (1 mL Extract)	2 mL	100-pk.	26124
	150 mg $MgSO_4$, 25 mg PSA	Original unbuffered, EN 15662, mini-multiresidue	2 mL Micro-Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (1 mL Extract)	2 mL	100-pk.	26215
	1200 mg $MgSO_4$, 400 mg PSA	AOAC 2007.01	15 mL Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (6 mL and 8 mL Extract)	15 mL	50-pk.	26220
	900 mg $MgSO_4$, 150 mg PSA	Original unbuffered, EN 15662	15 mL Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (6 mL and 8 mL Extract)	15 mL	50-pk.	26223
General purpose (wide variety of sample types, including fatty and pigmented fruits and vegetables)						
Q-sep QuEChERS dSPE Tubes	150 mg $MgSO_4$, 50 mg PSA, 50 mg C18-EC, 7.5 mg GCB	—	2 mL Micro-Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (1 mL Extract)	2 mL	100-pk.	26243
	900 mg $MgSO_4$, 300 mg PSA, 300 mg C18-EC, 45 mg GCB	—	15 mL Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (6 mL and 8 mL Extract)	15 mL	50-pk.	26245
Highly pigmented fruits and vegetables (e.g., red peppers, spinach, blueberries)						
Q-sep QuEChERS dSPE Tubes	150 mg $MgSO_4$, 25 mg PSA, 7.5 mg GCB	Mini-multiresidue, EN 15662	2 mL Micro-Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (1 mL Extract)	2 mL	100-pk.	26218
	150 mg $MgSO_4$, 50 mg PSA, 50 mg C18-EC, 50 mg GCB	AOAC 2007.01	2 mL Micro-Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (1 mL Extract)	2 mL	100-pk.	26219
	900 mg $MgSO_4$, 150 mg PSA, 45 mg GCB	EN 15662	15 mL Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (6 mL and 8 mL Extract)	15 mL	50-pk.	26225
	900 mg $MgSO_4$, 300 mg PSA, 150 mg GCB	—	15 mL Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (6 mL and 8 mL Extract)	15 mL	50-pk.	26126
Pigmented fruits and vegetables (e.g., strawberries, sweet potatoes, and tomatoes)						
Q-sep QuEChERS dSPE Tubes	150 mg $MgSO_4$, 25 mg PSA, 2.5 mg GCB	Mini-multiresidue, EN 15662	2 mL Micro-Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (1 mL Extract)	2 mL	100-pk.	26217
	150 mg $MgSO_4$, 50 mg PSA, 50 mg GCB	AOAC 2007.01	2 mL Micro-Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (1 mL Extract)	2 mL	100-pk.	26123
	1200 mg $MgSO_4$, 400 mg PSA, 400 mg C18-EC, 400 mg GCB	AOAC 2007.01	15 mL Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (6 mL and 8 mL Extract)	15 mL	50-pk.	26222
	900 mg $MgSO_4$, 150 mg PSA, 15 mg GCB	EN 15662	15 mL Centrifuge Tubes Prefilled with dSPE Materials for Cleanup (6 mL and 8 mL Extract)	15 mL	50-pk.	26224

Note: No entry in the Method column refers to dSPE formulations not specifically included in one of the cited references. These products can be used to accommodate the various needs of specific matrices not directly met by the cited references.

Multiple sorbents are used to extract different types of interferences.
$MgSO_4$—removes excess water.
PSA (primary and secondary amine)—removes sugars, fatty acids, organic acids, and anthocyanine pigments.
C18-EC (end-capped)—removes nonpolar interferences.
GCB (graphitized carbon black)—removes pigments, sterols, and nonpolar interferences.

QuEChERS Performance Standards Kit

- Designed for use in all QuEChERS methods for pesticides in fruits and vegetables, including the original unbuffered method, AOAC 2007.01, and EN 15662.
- Kit contains organochlorine, organonitrogen, organophosphorus, and carbamate pesticides commonly used on fruits and vegetables.
- Volatile, polar, active, base-sensitive, and nonvolatile compounds are included to allow comprehensive evaluation of QuEChERS extraction and cleanup efficiencies, and optimization of GC and LC instrumental conditions.
- Ideal for initial method evaluations and ongoing method performance validations.
- Analytes are divided into three ampuls based on compatibility for maximum stability and shelf life.*
- Precise formulations improve data quality and operational efficiency; spend more time running samples and less time sourcing and preparing standards.
- Quantitatively analyzed to confirm the composition and stability of each mixture.

**When combining compounds with different functionalities, chemical stability can be an issue. The analytes in this kit are separated into three mixes to ensure maximum long-term storage stability. For analysis, a fresh working standard should be prepared by combining the three kit mixes in a 1:1:1 ratio to prepare a 100 µg/mL working standard solution. Once blended, Restek does not recommend storing working standards or subsequent dilutions for future use.*

Contains 1 mL each of these mixtures. 31153: QuEChERS Performance Standard A 31154: QuEChERS Performance Standard B 31155: QuEChERS Performance Standard C

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)
gamma-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)

Conc. in Solvent	CRM?	Min Shelf Life on Ship Date	Shipping Conditions	Storage Temp.	qty.	cat.#
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.	Yes	3 months	Ambient	10 °C or colder	kit	31152

Simply squeeze particulates and contaminants out of your sample!

Thomson SINGLE StEP Filter Vials

Remove Particulates Quickly and Reliably

- Easy-to-use vials offer fast sample filtration and require only a squeeze of your fingers.
- Fit most standard 12 x 32 mm autosamplers, including UHPLC instruments.

Thomson SINGLE StEP Standard Filter Vials

- Recommended for samples containing less than 10% solid particulates.
- Minimize sample loss by eliminating multiple transfers.
- Color-coded caps allow easy identification of 0.2 µm or 0.45 µm membranes in PVDF, PTFE, PES, or nylon.
- Preslit PTFE/silicone caps help eliminate broken autosampler needles and cored septa.
- Rugged polypropylene vial houses insert with 450 µL loading capacity and low dead volume (120 µL).

25894

Description	Color	Porosity	qty.	cat.#
Nylon				
Thomson SINGLE StEP Standard Filter Vial	black preslit cap	0.2 µm	100-pk.	25891
	pink preslit cap	0.45 µm	100-pk.	25892
PES (polyethersulfone)				
Thomson SINGLE StEP Standard Filter Vial	grey preslit cap	0.2 µm	100-pk.	25897
PTFE (polytetrafluoroethylene)				
Thomson SINGLE StEP Standard Filter Vial	green preslit cap	0.2 µm	100-pk.	25893
	blue preslit cap	0.45 µm	100-pk.	25894
PVDF (polyvinyldifluoride)				
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

Thomson SINGLE StEP Low-Evaporation Filter Vials

- Enhanced evaporation prevention technology, and no preslit in the cap membrane ensures less than 0.4% evaporation over 24 hours.
- Color-coded caps allow easy identification of 0.2 µm or 0.45 µm membranes in PVDF, PTFE, or nylon.
- Rugged polypropylene vial houses insert with 450 µL loading capacity and low dead volume (120 µL).

Description	Color	Porosity	qty.	cat.#
Nylon				
Thomson SINGLE StEP Low-Evaporation Filter Vials	black cap	0.2 µm	100-pk.	25870
	purple cap	0.45 µm	100-pk.	25871
PTFE (polytetrafluoroethylene)				
Thomson SINGLE StEP Low-Evaporation Filter Vials	green cap	0.2 µm	100-pk.	25868
	blue cap	0.45 µm	100-pk.	25872
PVDF (polyvinyldifluoride)				
Thomson SINGLE StEP Low-Evaporation Filter Vials	red cap	0.2 µm	100-pk.	25869
	yellow cap	0.45 µm	100-pk.	25873

Thomson SINGLE StEP eXtreme Filter Vials

- Provide multilayer filtration for viscous samples and samples containing up to 30% solid particulates.
- Allow compounds to be separated from matrix, resulting in both higher signal-to-noise ratios and more differentiated peaks.
- Color-coded caps allow easy identification of 0.2 µm or 0.45 µm membranes in PVDF, PTFE, PES, or nylon.
- Preslit PTFE/silicone caps help eliminate broken autosampler needles and cored septa.
- Rugged polypropylene vial houses insert with 450 µL loading capacity and low dead volume (120 µL).

Description	Color	Porosity	qty.	cat.#
Nylon				
Thomson SINGLE StEP eXtreme Filter Vials	black preslit cap	0.2 µm	100-pk.	25878
	pink preslit cap	0.45 µm	100-pk.	25879
PES (polyethersulfone)				
Thomson SINGLE StEP eXtreme Filter Vials	grey preslit cap	0.2 µm	100-pk.	25880
PTFE (polytetrafluoroethylene)				
Thomson SINGLE StEP eXtreme Filter Vials	green preslit cap	0.2 µm	100-pk.	25874
	blue preslit cap	0.45 µm	100-pk.	25875
PVDF (polyvinyldifluoride)				
Thomson SINGLE StEP eXtreme Filter Vials	red preslit cap	0.2 µm	100-pk.	25876
	yellow preslit cap	0.45 µm	100-pk.	25877

Thomson SINGLE StEP Nano Filter Vials

- Ultra-low dead volume allows you to filter as little as 10 µL of sample and still obtain enough filtrate to make a 2 µL injection.
- Color-coded caps allow easy identification of 0.2 µm or 0.45 µm membranes in PVDF, PTFE, PES, or nylon.
- Available with either standard or preslit PTFE/silicone caps. Standard caps minimize evaporation and preslit caps help eliminate broken autosampler needles and cored septa.
- Rugged polypropylene vial houses insert with 250 µL loading capacity and extremely low dead volume (8 µL).

Description	Color	Porosity	qty.	cat.#
Nylon				
Thomson SINGLE StEP Nano Filter Vials	black standard cap	0.2 µm	100-pk.	25866
	black preslit cap	0.2 µm	100-pk.	25886
PES (polyethersulfone)				
Thomson SINGLE StEP Nano Filter Vials	grey standard cap	0.2 µm	100-pk.	25867
	grey preslit cap	0.2 µm	100-pk.	25887
PTFE (polytetrafluoroethylene)				
Thomson SINGLE StEP Nano Filter Vials	green standard cap	0.2 µm	100-pk.	25862
	green preslit cap	0.2 µm	100-pk.	25882
	blue standard cap	0.45 µm	100-pk.	25863
	blue preslit cap	0.45 µm	100-pk.	25883
PVDF (polyvinyldifluoride)				
Thomson SINGLE StEP Nano Filter Vials	red standard cap	0.2 µm	100-pk.	25864
	red preslit cap	0.2 µm	100-pk.	25884
	yellow standard cap	0.45 µm	100-pk.	25865
	yellow preslit cap	0.45 µm	100-pk.	25885

Accessories for Filter Vials

Description	qty.	cat.#
Toggle Press for eXtreme Filter Vials	ea.	25860
Filter Vial Press, Multi-Use: 8 Positions for 30 mL Filter Vials & 48 Position for Autosampler Ready Filter Vials	ea.	25861

25861

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from Restek

- **Established expertise.** We put our decades of experience in food safety analysis to work for you.
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