

Restek Essentials

2011 Vol 3, 5, 2015.2



7 Pesticide Methods on 1 Column Pair!

- Improved resolution
- Faster analyses
- Less downtime

Learn more about the RDX™-CLP® silica column set on page 11!

Come visit Restek
at these upcoming events:

JUNE 2011
19-23 | 36th International Symposium on High Performance Liquid Phase Separations and Related Techniques (HPLC 2011) - Budapest, Hungary

JULY 2011
17-20 | 48th Annual Florida Pesticide Residue Workshop (FPWW) - St. Pete Beach, FL, USA

AUGUST 2011
15-19 | National Environmental Monitoring Conference (NEMCO) - Denver, Washington, USA
21-25 | 31st International Symposium on Halogenated Persistent Organic Pollutants - Dioxin 2011 - Brussels, Belgium

Checkout www.restek.com/events for a full calendar!

What's New!

Expanded Line of Syringe Filters
Glass Labware
Ultra Biphenyl & Ultra PFP Propyl Columns
Rt®-Alumina BOND/CFC Columns
ProFLOW 6000 Electronic Flowmeter
Sky™ Inlet Liners
.....

Great Savings!

Buy Column Kits and Save
Buy One Inlet Seal 10-Pack, Get One 10-Pack Free
.....



Get the widest range of alternate selectivity available—with just 4 columns!

RESTEK USLC™
Ultra Selective Liquid Chromatography™

You'll find fast, effective method development at www.restek.com/uslc

Come visit Restek
at these upcoming events:

NOVEMBER 2011

What's New!

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RESTEK eSSENTIALS Must-Have Solutions for Your Lab
2015.2 2015.2

Raptor
HPLC Columns

Combine the speed of SPP with the resolution of USLC™ technology for fast, efficient method development that delivers:

- Drastically faster analysis times.
- Substantially improved resolution.
- Increased sample throughput with existing instrumentation.
- Dependable reproducibility.

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Restek's PLOT Column Family — The Benchmark for Performance!
— PAGE 4 —

MLE Capillary Tool Kits
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ALSO IN THIS ISSUE:

RESTEK
Pure Chromatography

Replacement Parts for Waters AQUITY UPLC® Systems
Certified Reference Materials (CRM) for HPLC Analysis
Sample Preparation for Pesticides by LC

www.restek.com

2015.2



7 Pesticide Methods on 1 Column Pair!

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Learn more about our **Rtx®-CLPesticides** column set on page 11!



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More Choices. Same Great Savings!

NEW!
Expanded
Line!

Syringe Filters with Luer-Lok® Inlet

- Luer-Lok® inlet offers leak-tight syringe connection.
- Variety of filter types, porosities, and diameters.
- Color coded for easy identification.
- Rugged polypropylene housing.
- Autoclavable to 121 °C for 15 minutes.

Syringe filters are
for laboratory use only.

FREE
sample packs.
Just add “-248” to
the catalog number.

Size	Porosity	Color	qty.	cat.#
Cellulose Acetate				
4mm	0.22µm	green	100-pk.	23972 NEW!
4mm	0.45µm	blue	100-pk.	23973 NEW!
13mm	0.22µm	green	100-pk.	26156
13mm	0.45µm	blue	100-pk.	26155
25mm	0.22µm	green	100-pk.	26158
25mm	0.45µm	blue	100-pk.	26157
30mm	0.22µm	green	100-pk.	23982 NEW!
30mm	0.45µm	blue	100-pk.	23983 NEW!
Nylon				
4mm	0.22µm	yellow	100-pk.	23970 NEW!
4mm	0.45µm	pink	100-pk.	23971 NEW!
13mm	0.22µm	yellow	100-pk.	26146
13mm	0.45µm	pink	100-pk.	26147
25mm	0.22µm	yellow	100-pk.	26148
25mm	0.45µm	pink	100-pk.	26149
30mm	0.22µm	yellow	100-pk.	23980 NEW!
30mm	0.45µm	pink	100-pk.	23981 NEW!
PES (polyethersulfone)				
4mm	0.22µm	white	100-pk.	23978 NEW!
4mm	0.45µm	blue	100-pk.	23979 NEW!
13mm	0.22µm	white	100-pk.	23966 NEW!
13mm	0.45µm	blue	100-pk.	23967 NEW!
25mm	0.22µm	white	100-pk.	23968 NEW!
25mm	0.45µm	blue	100-pk.	23969 NEW!
30mm	0.22µm	white	100-pk.	23988 NEW!
30mm	0.45µm	blue	100-pk.	23989 NEW!
PTFE (polytetrafluoroethylene)				
4mm	0.22µm	purple	100-pk.	23974 NEW!
4mm	0.45µm	orange	100-pk.	23975 NEW!
13mm	0.22µm	purple	100-pk.	26142
13mm	0.45µm	orange	100-pk.	26143
25mm	0.22µm	purple	100-pk.	26144
25mm	0.45µm	orange	100-pk.	26145
30mm	0.22µm	purple	100-pk.	23984 NEW!
30mm	0.45µm	orange	100-pk.	23985 NEW!
PVDF (polyvinylidene fluoride)				
4mm	0.22µm	brown	100-pk.	23976 NEW!
4mm	0.45µm	red	100-pk.	23977 NEW!
13mm	0.22µm	brown	100-pk.	26150
13mm	0.45µm	red	100-pk.	26151
25mm	0.22µm	brown	100-pk.	26152
25mm	0.45µm	red	100-pk.	26153
30mm	0.22µm	brown	100-pk.	23986 NEW!
30mm	0.45µm	red	100-pk.	23987 NEW!

Cellulose Acetate, Nylon, PES, PVDF—hydrophilic applications, PTFE—hydrophobic applications

NEW! High-Quality Glass Labware at an Inviting Price

- Kuderna-Danish Evaporator, Snyder Columns and Concentrator Tubes
- Soxhlet Extraction Apparatus
- Erlenmeyer and Class A Volumetric Flasks
- Auto-Zero and Squeeze-O-Matic Burets
- Separatory Funnels
- Repeating Pipettes
- Impingers



Buy today at www.restek.com/glassware

Extraction Cells for ASE® Systems

- Meets or exceeds original equipment manufacturer's performance.
- Cell bodies are serialized for easy sample identification.
- Polished inner surfaces make cleaning easier.

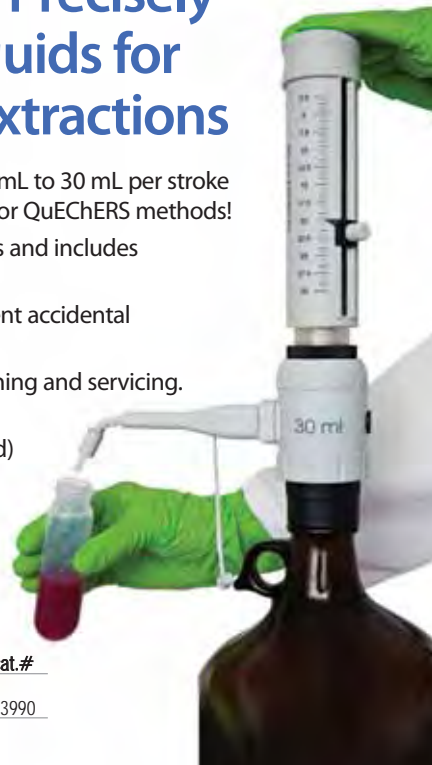


For complete product listing for ASE® systems, visit www.restek.com/ase

Accurately & Precisely Dispense Liquids for QuEChERS Extractions

- Set output volume from 2.5 mL to 30 mL per stroke (0.5 mL increments)—ideal for QuEChERS methods!
- Base features 30 mm threads and includes four adaptors.
- Safety discharge helps prevent accidental dispensing.
- Easy to disassemble for cleaning and servicing.
- Individually calibrated per ISO 8655 (certificate included) and can be recalibrated by user.
- Excellent chemical compatibility and 100% autoclavability.

Description	qty.	cat.#
Q-sep Bottle Top Solvent Dispenser, 2.5 mL - 30 mL	ea.	23990





RESTEK USLC™

Ultra Selective Liquid Chromatography™

- **Unique 4-column set offers the widest range of reversed phase selectivity available:**
 - Aqueous C18
 - IBD
 - Biphenyl
 - PFP Propyl
- **Efficient and effective method development.**
- **Fits any HPLC or UHPLC instrumentation.**

Improve your separations—learn how at
www.restek.com/USLC



Two Unique USLC™ Phases Are
Now Available on Ultra-High Purity Silica!



Ultra Biphenyl and Ultra PFP Propyl Columns

- Expanded selectivity options now include:
 - Ultra Biphenyl for aromatic and/or unsaturated compounds.
 - Ultra PFP Propyl for basic analytes.
- Excellent for mass spectrometry.

View our complete offering at
www.restek.com/ultra



QuickSplit Post-Column Flow Splitters



Fluid resistor technology eliminates adjustments to capillary tubing for optimizing split ratio. Wide range of interchangeable resistors available.

Fixed Flow Splitters for HPLC & LC/MS

- Split ratio not affected by changes in viscosity or pressure.
- High operating pressure limit: 10,000 psi (68,948 kPa).
- Low dead volume—negligible effect on analyte bandwidth.
- Total flow: 0.1–5.0 mL/min.

Adjustable Flow Splitter

- Adjustable metering valve gives convenient control of split ratio.
- Split ratio not affected by changes in viscosity or pressure.
- High operating pressure limit: 5,000 psi (34,474 kPa).
- Low dead volume—negligible effect on analyte bandwidth.
- Total flow: 0.1–5.0 mL/min.

Description	Split Ratio	qty.	cat.#
Binary Fixed, Post Column	100:1	ea.	25326
	50:1	ea.	25327
	20:1	ea.	25328
	10:1	ea.	25329
	5:1	ea.	25330
Replacement Fixed Resistor Set, Post Column	100:1	ea.	25331
	50:1	ea.	25332
	20:1	ea.	25333
	10:1	ea.	25334
	5:1	ea.	25335
Adjustable, Post Column	5:1 to 100:1	ea.	25336
	1:1 to 20:1	ea.	25337
	50:1 to 1000:1	ea.	26416
Replacement Adjustable Resistor Set, Post Column	5:1 to 100:1	ea.	25338
	1:1 to 20:1	ea.	25339

HPLC Mixers

An efficient cross-flow shearing mechanism and interchangeable cartridges produce vortex shear mixing over a wide range of flows.

- Reduced baseline noise.
- Increased sensitivity.
- Improved gradient accuracy, for more reproducible results.
- Increased reaction efficiency in post-column derivatization.

HyperShear Static In-Line Mixers

Choose stainless steel or PEEK construction.

Volume	Stainless Steel		PEEK	
	qty.	cat.#	qty.	cat.#
1µL	ea.	26409	ea.	26410
25µL	ea.	26411	ea.	26412
50µL	ea.	25341	ea.	26413
150µL	ea.	25342	ea.	26414
250µL	ea.	25343	ea.	26415

Ternary Tee Mixer

Stainless steel construction.

Description	Volume	qty.	cat.#
Ternary Tee Mixer	25µL	ea.	25138

In-Line Check Valves for HPLC

- Self-priming cartridge valve restricts flow to one direction.
- Prevents fluids from back-flowing into column after a pump failure.
- Low flow resistance and low internal volume for rapid closure.
- Operates independently of gravity.
- Protected from contamination by ¼" diameter 2 µm frit.
- Crush-proof construction.



Description	Max Pressure	qty.	cat.#
Check Valve, Soft Seat, for HPLC, 1/16" Fittings, 1/4-28, Stainless Steel, Includes Nuts and Ferrules	15,000psi	ea.	26405
Check Valve with 1/8" Ball Cartridge, 48µL internal volume	15,000psi	ea.	26417
Check Valve Replacement 1/8" Ball Cartridge, 48µL internal volume	15,000psi	ea.	26418
UHP Check Valve with 1/8" Ball Cartridge, 48µL internal volume	30,000psi	ea.	26419
UHP Check Valve Replacement 1/8" Ball Cartridge, 48µL internal volume	30,000psi	ea.	26420
Check Valve with 3/16" Ball Cartridge, 60µL internal volume	15,000psi	ea.	26421
Check Valve Replacement 3/16" Ball Cartridge, 60µL internal volume	15,000psi	ea.	26422



Get Whole Air Sampling Without a Pump

Canister Passive Sampling Kits

Grab Sampling Kits

- Use with 1, 3, or 6 L canisters, for qualitative grab air sampling.
- Variety of orifice sizes, for fast sampling from 5 to 60 minutes.
- 1/4" compression fitting connects directly to canister valve inlet.
- Replaceable frit protects orifice and valve from particulates.
- Sample inlet design minimizes water entry into sampling train.
- Individual replacement components available.



Canister Volume/Sampling Time (min.)			Flow (mL/min.)	Orifice Size	Siltek Treated Sampling Kits cat.#
1 Liter	3 Liter	6 Liter			
60	—	—	15	0.0018"	26280
30	—	—	20	0.0020"	26281
15	60	—	45	0.0030"	26282
—	30	60	80	0.0040"	26283
5	15	30	150	0.0055"	26284
—	—	15	300	0.0080"	26285
—	5	—	390	0.0090"	26286
—	—	5	>1,000	0.0130"	26287

Also available in stainless steel. Air sampling canisters sold separately at www.restek.com

Integrated Sampling Kits

- Provide accurate integrated sampling without a sampling pump.
- Siltek® treated components ensure accurate sampling of active components.
- Excellent for sampling times from 0.5 hour to 125 hours.



Canister Volume/Sampling Time					Flow (mL/min.)	Orifice Size	Siltek Treated Sampling Kits
400cc	1 Liter	3 Liter	6 Liter	15 Liter			
8 hour	24 hour	48 hour	125 hour	—	0.5–2	0.0008"	24217
2 hour	4 hour	12 hour	24 hour	60 hour	2–4	0.0012"	24160
1 hour	2 hour	6 hour	12 hour	30 hour	4–8	0.0016"	24161
—	1 hour	4 hour	8 hour	20 hour	8–15	0.0020"	24162
—	—	2 hour	3 hour	8 hour	15–30	0.0030"	24163
—	—	—	1.5 hour	4 hour	30–80	0.0060"	24164
—	—	—	0.5 hour	1 hour	80–340	0.0090"	22101

Also available in stainless steel. Air sampling canisters sold separately at www.restek.com

Dual Canister Sampling Manifold

Stainless Steel
& Sulfinert®
Treated



- Duplicate sampling with all size canisters using 1 or 2 flow controllers.
- Precise dimensions (9.5" wide x 3.5" high) provide accurate splitting of sample between two canisters.
- One-piece design means fewer leaks.
- Thick walled stainless steel tubing is rugged enough for field use.
- 1/4" compression connections.

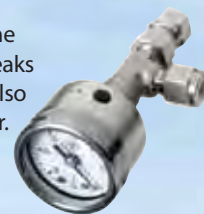
Note: Do not use the DCSM as a handle to pick up 2 canisters!

Description	Stainless Steel cat.#	Sulfinert Treated cat.#
Dual Canister Sampling Manifold	24998	24999

Soil Gas Sampler

Stainless Steel & Sulfinert® Treated

This unique grab sampler is specifically designed for soil gas sampling by allowing the connection of tubing coming from the soil gas sample port. The innovative design minimizes connections and leaks and houses a critical orifice in the tee fitting. It also incorporates a vacuum gauge and 2 µm frit filter.



Assembled sampler includes:

- Stainless steel tee with orifice.
- 1 1/2" vacuum gauge (–30" Hg to 0" Hg).
- 2 µm frit filter for insertion into 1/4" compression sample inlet.
- 1/4" port connector to canister valve.

Sampling Time for 6 L Canister			Siltek Treated Soil Gas Sampler Kit cat.#	Stainless Steel Soil Gas Sampler Kit cat.#
Flow	Orifice Size			
20 min.	210 mL/min.	0.0065"	22935	22930
30 min.	150 mL/min.	0.0055"	22936	22931
1 hr.	80 mL/min.	0.0040"	22937	22932
4 hr.	19 mL/min.	0.0020"	22938	22933
10 hr.	6 mL/min.	0.0014"	22939	22934

Air sampling canisters sold separately at www.restek.com



Biodiesel Solutions

Rtx®-Biodiesel TG Columns

Easy-to-use fused-silica columns meet ASTM and EN standard criteria.

- Linearity for all reference compounds exceeds method requirements.
- Low column bleed at 380 °C.
- Alumaseal® connector provides leak-free connection; guard column extends column life.

Description	temp. limits	cat.#
10m, 0.32mm ID, 0.10µm	to 330/380°C	10292
10m, 0.32mm ID, 0.10µm with 2m x 0.53mm ID Retention Gap	to 330/380°C	10291
15m, 0.32mm ID, 0.10µm	to 330/380°C	10294
15m, 0.32mm ID, 0.10µm with 2m x 0.53mm ID Retention Gap	to 330/380°C	10293

MXT®-Biodiesel TG Columns

Choose robust metal columns for reliable stability up to 430 °C!

- Fast analysis times and sharp mono-, di-, and triglyceride peaks.
- Stable at 430 °C for reliable, consistent performance.
- Integra-Gap® built-in retention gap on 0.53 mm ID column eliminates column coupling completely.

Description	temp. limits	cat.#
14m, 0.53mm ID, 0.16µm with 2m Integra-Gap*	-60 to 380/430°C	70289
10m, 0.32mm ID, 0.10µm	-60 to 380/430°C	70292
10m, 0.32mm ID, 0.10µm with 2m x 0.53mm Retention Gap**	-60 to 380/430°C	70290
15m, 0.32mm ID, 0.10µm	-60 to 380/430°C	70293
15m, 0.32mm ID, 0.10µm with 2m x 0.53mm Retention Gap**	-60 to 380/430°C	70291
2m x 0.53mm MXT Biodiesel TG Retention Gap		70294

*Total column length = 16 meters.

**Connected with low-dead-volume MXT connector.



Biodiesel Calibration Standards

Determining Free and Total Glycerin in B100 Biodiesel Methyl Esters by GC

Compound	Solvent	Conc.	cat.# (ea.)
(s)-(-)-1,2,4-butanetriol	pyridine	1,000	33024
(s)-(-)-1,2,4-butanetriol (5mL)	pyridine	1,000	33032
diolein (1,3-di[<i>cis</i> -octadecenoyl] glycerol)	pyridine	5,000	33022
glycerin	pyridine	500	33020
monolein (1-mono[<i>cis</i> -9-octadecenoyl] -rac-glycerol)	pyridine	5,000	33021

Compound	Solvent	Conc.	cat.# (ea.)
monopalmitin	pyridine	5,000	33026
tricaprin			
(1,2,3-tricaprinoyl)glycerol)	pyridine	8,000	33025
tricaprin (1,2,3-tricaprinoyl)glycerol) (5mL)	pyridine	8,000	33033
triolein (1,2,3-Tri[<i>cis</i> -octadecenoyl] glycerol)	pyridine	5,000	33023

Volume is 1mL/ampul unless otherwise noted.

Concentration is µg/mL unless otherwise noted.



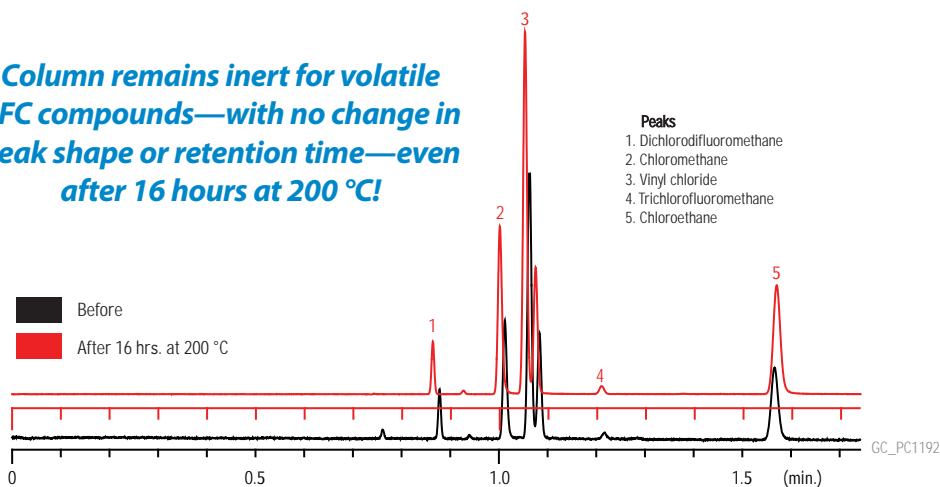
Improve Accuracy and Reproducibility for CFC-Type Compounds

Rt®-Alumina BOND/CFC Column

- Fused silica PLOT column with highly selective alumina adsorbent.
- Improved inertness for chlorofluorocarbon (CFC)-type compounds.
- Separates most CFCs.
- High retention and capacity for CFCs.
- Reproducible results, even after exposure to elevated temperatures.

ID	df	temp. limits	30-Meter
0.53mm	10µm	to 200°C	19763

*Column remains inert for volatile
CFC compounds—with no change in
peak shape or retention time—even
after 16 hours at 200 °C!*



Visit www.restek.com for chromatogram conditions; just search for GC_PC1192.

Turn to Restek for all of your PLOT columns!

Available Phases:

Rt®-Q-BOND	Rt®-Msieve 5A	MXT®-Alumina BOND/Na ₂ SO ₄
Rt®-QS-BOND	Rt®-Alumina BOND/Na ₂ SO ₄	MXT®-Q-BOND
Rt®-S-BOND	Rt®-Alumina BOND/KCl	MXT®-S-BOND
Rt®-U-BOND	Rt®-Alumina BOND/CFC	MXT®-Msieve 5A

We offer a full line of fused silica and metal PLOT columns as well as particle traps. For a complete list and specifications, visit www.restek.com/plot

MXT[®] Capillary Columns

Ideal for High Temperature GC Analysis



Stainless steel MXT[®] columns are your best choice for high temperature chromatography or any other situation where the potential for column breakage is too high to rely on fused silica. For field instruments, process GCs, GCs with small ovens, and more, reach for Restek MXT[®] columns!

- Metal tubing won't become brittle at high temperatures (430 °C).*
- Exclusive Siltek[®] layer makes the internal surface as inert as deactivated fused silica.
- Can be tightly coiled well under 4.5" without breaking, even under stress.
- Column efficiency (Trennzahl value) is similar to that of fused silica.

MXT[®] Columns Are Sized to Order!

For your convenience, not only are MXT[®] columns available in the standard 4.5" coil diameter, but they also are available in 3.5" and 6" coil diameters. Whether you're using them in a process GC or a benchtop GC, our MXT[®] columns will be a perfect fit.

Available Phases:

MXT [®] -1	MXT [®] -35	MXT [®] -65	MXT [®] -2887	MXT [®] -502.2
MXT [®] -5	MXT [®] -50	MXT [®] -WAX	MXT [®] -1HT SimDist	MXT [®] -Volatiles
MXT [®] -20	MXT [®] -200	MXT [®] -65TG	MXT [®] -1 SimDist	MXT [®] -624
MXT [®] -1301	MXT [®] -1701	MXT [®] -Biodiesel TG	MXT [®] -500 SimDist	Guard tubing

* Maximum temperature of finished column may vary by phase.

Visit www.restek.com/mxt for a complete product listing of Restek MXT[®] columns and accessories as well as detailed technical specifications!



Eliminate Loss of Resolution and Retention Time Shifts

Restek's bonded Stabilwax® columns are manufactured under an optimized process that results in stable selectivity at temperatures up to 260 °C with no changes in retention time. They outperform any other wax column, even those that claim to be rated for MS or high-temperature applications.

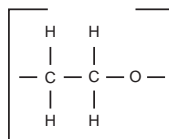
Stabilwax® Columns (fused silica)

(polar phase; Crossbond® Carbowax® polyethylene glycol)

- Excellent inertness for active compounds.
- 260 °C maximum operating temperature.

ID	id	temp. limits	length	cat. #
0.25mm	0.25µm	40 to 250/260°C	30m	10623
0.32mm	0.25µm	40 to 250/260°C	30m	10624
0.32mm	0.50µm	40 to 250/260°C	30m	10639
0.32mm	1.00µm	40 to 240/260°C	30m	10654
0.53mm	1.00µm	40 to 240/260°C	30m	10655

Stabilwax® Structure



Guaranteed column-to-column reproducibility

Run High-Temperature Analyses of Polar and Halogenated Compounds

Because it is stable at high temperatures, the uniquely selective fused silica Rtx®-200 column is ideal for a wide range of solvents and halogenated compounds. Paired with an Rtx®-5 column, it also makes an excellent confirmation column. For exceptional thermal stability, low bleed, and superior inertness—even with ECDs, NPDs, and MSDs—reach for midpolarity Rtx®-200 columns.

Rtx
GCColumns

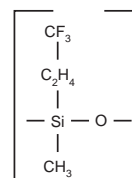
Rtx®-200 Columns (fused silica)

(midpolarity phase; Crossbond® trifluoropropylmethyl polysiloxane)

- Temperature range: -20 °C to 340 °C
- Equivalent to USP G6 phase
- Similar phases: DB-200, DB-210.

ID	id	temp. limits	length	cat. #
0.25mm	0.25µm	-20 to 320/340°C	30m	15023
0.25mm	0.50µm	-20 to 310/330°C	30m	15038
0.32mm	0.25µm	-20 to 320/340°C	30m	15024
0.32mm	1.00µm	-20 to 290/310°C	30m	15054
0.53mm	0.25µm	-20 to 310/330°C	30m	15025
0.53mm	1.00µm	-20 to 290/310°C	30m	15055

Rtx®-200 Structure





7 Pesticide Methods on 1 Column Pair!

Analyze Pesticides, PCBs, and More on a Single Rtx®-CLPesticides Column Set

Get improved resolution, faster analyses, and less downtime with an Rtx®-CLPesticides and Rtx®-CLPesticides2 column set for multiple GC/ECD methods. Instead of changing columns between methods, you can save time by using the same column set to analyze:

- Chlorinated pesticides.
- PCBs.
- Herbicides.
- Haloacetic acids.
- Other halogenated compounds.

This specialized column set has a unique selectivity and outperforms other column sets offered specifically for multiple GC/ECD methods!



For specifications and a competitive column comparison, go to
www.restek.com/RtxCLP7

Buy a Column Kit and Save!

Analytical columns, guard columns, and connectors are available separately, but you can save big just by ordering one of our recommended combinations packed in a convenient, pre-built kit!

Rtx®-CLPesticides Column Kits (0.25mm ID)

(Note: Columns are not preconnected in these kits.)

Rtx-CLPesticides Kit (0.25mm ID) cat.# 11199 (kit)

Includes:	cat.#
30m, 0.25mm ID, 0.25µm Rtx-CLPesticides Column	11123
30m, 0.25mm ID, 0.20µm Rtx-CLPesticides2 Column	11323
Universal Angled "Y" Press-Tight Connector, Deactivated	20403-261
5m, 0.25mm ID Siltek Guard Column	10026

Rtx®-CLPesticides Column Kits (0.32mm ID)

(Note: Columns are not preconnected in these kits.)

Rtx-CLPesticides Kit (0.32mm ID) cat.# 11196 (kit)

Includes:	cat.#
30m, 0.32mm ID, 0.32µm Rtx-CLPesticides Column	11141
30m, 0.32mm ID, 0.25µm Rtx-CLPesticides2 Column	11324
Universal Angled "Y" Press-Tight Connector, Deactivated	20403-261
5m, 0.32mm ID Siltek Guard Column	10027

Rtx®-CLPesticides Column Kits (0.53mm ID)

(Note: Columns are not preconnected in these kits.)

Rtx-CLPesticides Kit (0.53mm ID) cat.# 11197 (kit)

Includes:	cat.#
30m, 0.53mm ID, 0.50µm Rtx-CLPesticides Column	11140
30m, 0.53mm ID, 0.42µm Rtx-CLPesticides2 Column	11340
Universal Angled "Y" Press-Tight Connector, Deactivated	20403-261
5m, 0.53mm ID IP Deactivated Guard Column	10045

Don't forget your reference standards!

Add "-530" or "-535" to the catalog number of an Rtx®-CLPesticides column kit and save even more on your order.

Description	suffix #
Organochlorine Pesticide Mix AB #1 (cat.# 32291)	-530
Organochlorine Pesticide Mix AB #2 (cat.# 32292)	-535



Great Deal!

Buy One 10-Pack of Inlet Seals and Get One 10-Pack FREE!

Replacement Inlet Seals for Agilent GCs



Single-Column Installation

0.8mm ID Replacement Inlet Seal

Gold-Plated*, 2 x 10-pks.

Siltek Treated, 2 x 10-pks.

Restek cat.#

21318-409B

21320-409B

1st 10-pk.

List Price

List Price

2nd 10-pk.
Special Promo

FREE

FREE

0.25/0.32mm ID Dual-Column Installation

1.2mm ID Replacement Inlet Seal

Gold-Plated, 2 x 10-pks.

Siltek Treated, 2 x 10-pks.

21306-409B

21308-409B

List Price

List Price

FREE

FREE

0.8mm ID Cross-Disk Inlet Seal

Gold-Plated, 2 x 10-pks.

Siltek Treated, 2 x 10-pks.

20476-409B

20474-409B

List Price

List Price

FREE

FREE

*0.8mm ID gold-plated inlet seal is similar to Agilent part #18740-20885.

Note: The 1.2mm inlet seal is recommended when installing 2 columns using a two-hole Vespel® /graphite ferrule.

Dual Vespel® Ring Inlet Seals Washerless, leak-tight seals for Agilent GCs



restek innovation!

0.8mm ID Dual Vespel Ring Inlet Seal

Gold-Plated, 2 x 10-pks.

Siltek Treated, 2 x 10-pks.

Restek cat.#

21241-409B

21243-409B

1st 10-pk.

List Price

List Price

2nd 10-pk.
Special Promo

FREE

FREE

1.2mm ID Dual Vespel Ring Inlet Seal

Gold-Plated, 2 x 10-pks.

Siltek Treated, 2 x 10-pks.

21247-409B

21249-409B

List Price

List Price

FREE

FREE

0.8mm ID Dual Vespel Ring Cross-Disk Inlet Seal

Gold-Plated, 2 x 10-pks.

Siltek Treated, 2 x 10-pks.

22084-409B

22086-409B

List Price

List Price

FREE

FREE

Simply place your order referencing the catalog number from the tables above. Offer ends August 31, 2011. Discount cannot be combined with any other offers. Distributor participation may vary.

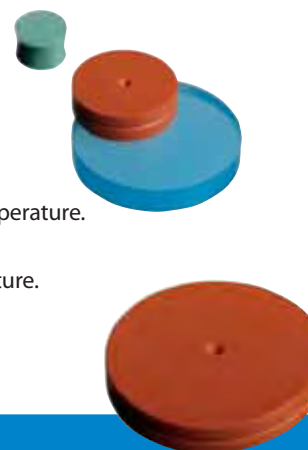
Super Septa!

- Precision molded.
- Preconditioned and ready to use.
- Packaged in precleaned jars.

Restek Thermolite® Septa Usable to 340 °C inlet temperature.

Restek IceBlue® Septa Usable to 250 °C inlet temperature.

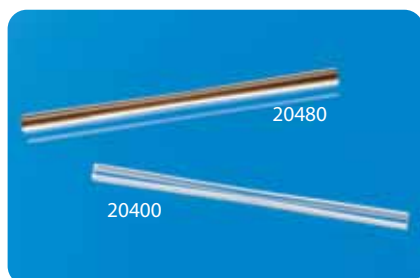
BTO® Septa Usable to 400 °C inlet temperature.



Get a Leak-Tight Seal Between Fused Silica Capillary Columns

Use a Press-Tight® Connector

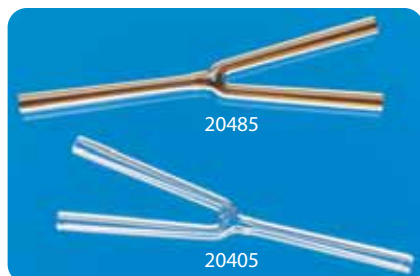
- Deactivated Press-Tight® connectors maintain complete inertness for the GC flow path.
- Siltek® treated connectors are ideal for organochlorine pesticides analysis.
- Fit column ODs from 0.33–0.74 mm (Restek 0.1 mm–0.53 mm ID).



Universal Press-Tight® Connectors

- Connect a guard column to an analytical column.
- Repair a broken column.
- Connect a column outlet to a transfer line.

Description	5-pk.	25-pk.	100-pk.
Universal Press-Tight Connectors	20400	20401	20402
Universal Press-Tight Connectors, Deactivated	20429	20430	
Universal Press-Tight Connectors, Siltek Treated	20480	20449	



Universal "Y" Press-Tight® Connectors

An alternative method of performing dual-column confirmational analyses!

- Split sample flow onto two columns—perform confirmation analysis with a single injection.
- Split a single column flow to two detectors.

Description	ea.	3-pk.
Universal "Y" Press-Tight Connector	20405	20406
Universal "Y" Press-Tight Connector, Deactivated	20405-261	20406-261
Universal "Y" Press-Tight Connector, Siltek Treated	20485	20486

Need a different type of connector? You'll find it at www.restek.com

Accurate Results Start with Reliable Equipment



Restek Electronic Leak Detector

Cat.# 22839



Restek ProFLOW 6000 Electronic Flowmeter

Cat.# 22656





NEW!

True Blue Performance

Exceptionally inert, Sky™ inlet liners with **state-of-the-art deactivation** improve trace level analysis.

- Increase accuracy and precision
- Lower detection limits
- Use wool with confidence



Sky™
Inlet Liners



www.restek.com/sky

Patent pending

Sky™ Inlet Liners for Agilent GCs

Splitless Liners for Agilent GCs	ID OD x Length	Similar to Agilent part #	ea.	cat.# 5-pk.	25-pk.
 Sky 2mm Splitless	2.0mm 6.5mm x 78.5mm	5181-8818 (ea.) 5183-4703 (5-pk.) 5183-4704 (25-pk.)	23313.1	23313.5	23313.25
 Sky 2mm Splitless w/Wool	2.0mm 6.5mm x 78.5mm		23314.1	23314.5	23314.25
 Sky 2mm Single Taper/Gooseneck	2.0mm 6.5mm x 78.5mm		23315.1	23315.5	23315.25
 Sky 2mm Single Taper/Gooseneck w/Wool	2.0mm 6.5mm x 78.5mm		23316.1	23316.5	23316.25
 Sky 4mm Straight	4.0mm 6.3mm x 78.5mm	210-3003 (ea.) 210-3003-05 (5-pk.)	23301.1	23301.5	23301.25
 Sky 4mm Straight w/Wool	4.0mm 6.3mm x 78.5mm	19251-60540 (ea.) 5183-4691 (5-pk.) 5183-4692 (25-pk.)	23300.1	23300.5	23300.25
 Sky 4mm Single Taper/Gooseneck	4.0mm 6.5mm x 78.5mm	5181-3316 (ea.) 5183-4695 (5-pk.) 5183-4696 (25-pk.)	23302.1	23302.5	23302.25
 Sky 4mm Single Taper/Gooseneck w/Wool	4.0mm 6.5mm x 78.5mm	5062-3587 (ea.) 5183-4693 (5-pk.) 5183-4694 (25-pk.)	23303.1	23303.5	23303.25
 Sky 4mm Double Taper/Gooseneck	4.0mm 6.5mm x 78.5mm	5181-3315 (ea.) 5183-4705 (5-pk.) 5183-4706 (25-pk.)	23308.1	23308.5	23308.25
 Sky 4mm Cyclo Double Taper/Gooseneck	4.0mm 6.5mm x 78.5mm		23310.1	23310.5	23310.25
Split Liners for Agilent GCs	ID OD x Length	Similar to Agilent part #	ea.	cat.# 5-pk.	25-pk.
 Sky 4mm Straight w/Wool	4.0mm 6.3mm x 78.5mm	19251-60540 (ea.) 5183-4691 (5-pk.) 5183-4692 (25-pk.)	23304.1	23304.5	23304.25
 Sky 4mm Precision Liner w/Wool	4.0mm 6.3mm x 78.5mm	210-4004-5 (5-pk.)	23305.1	23305.5	23305.25
 Sky 4mm Cyclosplitter	4.0mm 6.3mm x 78.5mm		23312.1	23312.5	23312.25
Split/Splitless Liners for Agilent GCs	ID OD x Length		ea.	cat.# 5-pk.	
 Sky Low Pressure Drop Liner w/Wool	4.0mm 6.3mm x 78.5mm		23309.1	23309.5	
Direct Injection Liners for Agilent GCs (for 0.25/0.32/0.53mm ID Columns)	ID OD x Length	Similar to Agilent part #	ea.	cat.# 5-pk.	25-pk.
 Sky Drilled Uniliner (hole near bottom)	4.0mm 6.3mm x 78.5mm	G1544-80730 (ea.)	23306.1	23306.5	
 Sky Drilled Uniliner (hole near bottom) w/Wool	4.0mm 6.3mm x 78.5mm		23307.1	23307.5	
 Sky Drilled Uniliner (hole near top)	4.0mm 6.3mm x 78.5mm		23311.1	23311.5	23311.25

Sky™ Inlet Liners are also available for PerkinElmer, Shimadzu, Thermo Scientific, and Varian GCs.

Visit www.restek.com/sky for a full product listing of Sky™ Inlet Liners.



MegaMix[®]

Time-Saving MegaMix[®] Environmental Reference Mixes

- Largest number of target analytes in one mix.
- Formulated for maximum stability.
- Available for a wide variety of methods.

www.restek.com/megamix

**Free datapacks
available online!**

www.restek.com/documents

ISO 9001:2008
cert. # FM80397

Lit. Cat.# GNES1326-INT

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Get the widest range
of alternate selectivity
available—with just
4 columns!

RESTEK USLC™

Ultra Selective
Liquid Chromatography™

You'll find fast, effective
method development at
www.restek.com/uslc



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at these upcoming events:

NOVEMBER 2011

1–4 | RAFA • Prague, Czech Republic

14–17 | EAS • Somerset, NJ, USA

For the full calendar, go to
www.restek.com/events

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AOAC QuEChERS Standards	15



True Blue Performance

Exceptionally inert, Sky™ inlet liners with a new **state-of-the-art deactivation** improve trace level analysis.

Sky™
Inlet Liners

- **Increase accuracy and precision** by preventing loss of sensitive analytes—even when using wool.
- **Achieve lower detection limits** for a wide range of active compounds.
- **Ensure liner-to-liner reproducibility** through consistent manufacturing and extensive testing.

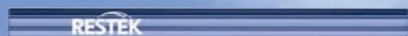


Patent pending

**Sky™ inlet liners are available in
1-, 5-, and 25-packs for all common GCs:**

Agilent • PerkinElmer • Shimadzu • Thermo Scientific • Varian

Choose from a wide variety of configurations and styles:



2mm Splitless



4mm Cyclo Double Taper Gooseneck



Low Pressure Drop Precision Liner w/Wool



Auto SYS XL PSS Split/Splitless w/Wool



3.5mm Precision Liner w/Wool



3.5mm Single Taper Gooseneck



5mm Straight



5mm Splitless



4mm Split Liner w/Glass Frit



4mm Single Taper Gooseneck

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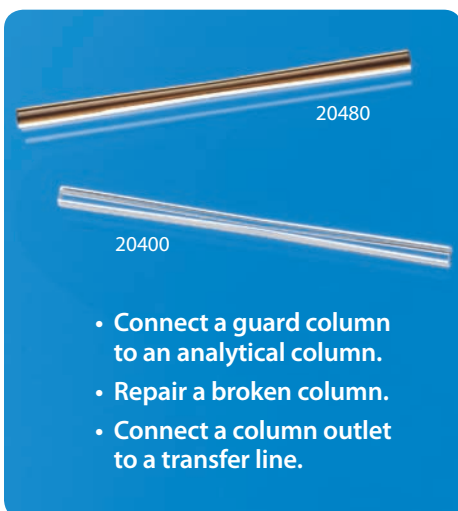
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Gas Generators From Restek

Affordable, Reliable, and Safe

Save on Hydrogen, Zero Air, Nitrogen,
and LC/MS Generators as well
as FID Gas Stations!

Go to www.restek.com/gas for more information.



Get a Leak-Tight Seal Between Fused Silica Capillary Columns

Use a Universal Press-Tight® Connector

- Deactivated Press-Tight® connectors maintain complete inertness for the GC flow path.
- Siltek® deactivated connectors are ideal for organochlorine pesticides analysis.
- Fit column ODs from 0.33–0.74 mm (Restek 0.1 mm–0.53 mm ID).

Description	5-pk.	25-pk.	100-pk.
Universal Press-Tight Connectors	20400	20401	20402
Universal Press-Tight Connectors, Deactivated	20429	20430	
Universal Press-Tight Connectors, Siltek Deactivated	20480	20449	

Visit www.restek.com/press-tight for more!

Reversible Flip Seal™ inlet seals *last twice as long* for the same price!

- Reversible design lets you flip the inlet seal and use it twice as many times.
- Vespe!® ring embedded in top and bottom surface eliminates need for a washer.
- Highly inert gold- and Siltek®-deactivated seals reduce breakdown and adsorption of active compounds, maximizing component transfer to GC column.
- Lower leak rate compared to original equipment manufacturer's metal inlet seals.

restek innovation!
Patented



0.8mm ID Flip Seal Dual Vespe! Ring Inlet Seal	2-pk.	10-pk.
Gold-Plated	23407	23409
Siltek Deactivated	23408	23410
1.2mm ID Flip Seal Dual Vespe! Ring Inlet Seal	2-pk.	10-pk.
Gold-Plated	23411	23413
Siltek Deactivated	23412	23414
Flip Seal Dual Vespe! Ring Inlet Seal Kit	qty.	cat.#
Includes: gold-plated 0.8mm ID inlet seal, reducing nut adaptor, 1/16" SS nut	kit	23406

Note: The Flip Seal requires a special reducing nut adaptor fitting, which is included in the kit. The Flip Seal Adaptor can be used with standard 1/16" ferrules.

For a complete product listing, visit www.restek.com/flip



Choose Silcosteel® Regulators for Exceptional Inertness and Corrosion Resistance

Single and dual stage regulators are available with Silcosteel® surface treatment. This proprietary passivation process, developed by SilcoTek™, provides excellent inertness for sulfur and mercury calibration standards and improved corrosion resistance over bare 316L stainless steel or other more expensive alloys.

Silcosteel® treated sampling and transfer systems allow oil and gas exploration companies, chemical and petrochemical plants, and refineries to obtain accurate sulfur and mercury data every time with no delay, sample errors, or false readings, down to part-per-billion (ppb) levels. Analysts charged with monitoring sulfur and mercury levels in process streams can save thousands of dollars in improved yields, better test cycle times, and improved system reliability.

Outlet pressure: 0 to 100 psig Inlet gauge: 0 to 4000 psig
Outlet gauge: 30" – 0 to 200 psig Outlet assembly: diaphragm valve, 1/4" tube fitting



Applications:

- CEM Continuous Emission Monitoring
- Environmental Stack and Gas Emission Standards
- Low level sulfur and mercury analysis
- Reactive or corrosive gases
- Off-shore platform systems
- Corrosive and salt water exposure

Description	qty.	cat.#
Single-Stage Regulator		
CGA 330 (H ₂ S and other reduced sulfurs)	ea.	21361-5
CGA 350 (H ₂ , P ₂)	ea.	21361-6
CGA 660 (NO, NO ₂ , SO ₂)	ea.	21361-11
Dual-Stage Regulator		
CGA 330 (H ₂ S and other reduced sulfurs)	ea.	21360-2
CGA 350 (H ₂ , P ₂)	ea.	21360-7
CGA 660 (NO, NO ₂ , SO ₂)	ea.	21360-12

For other CGA fittings, please contact your local Restek representative.

Our complete line of regulators can be found at www.restek.com/regulators

Precleaned VOA Sampling Vials Arrive Ready to Use

- Container, liner, and closure cleaned and assembled.
- Open top caps.
- Teflon® faced 0.125" silicone septa.
- Each case lot numbered.

Description	Volume	Color	Material	Screw-Thread Size	qty.	cat.#
Precleaned VOA Vials	20mL	Clear	Glass	24mm/400	72-pk.	21798
Precleaned VOA Vials	20mL	Amber	Glass	24mm/400	72-pk.	21799
Precleaned VOA Vials	40mL	Clear	Glass	24mm/400	72-pk.	21796
Precleaned VOA Vials	40mL	Amber	Glass	24mm/400	72-pk.	21797
Collection Vials for ASE 200	60mL	Clear	Glass	24mm/400	72-pk.	26121
Collection Vials for ASE 200	60mL	Amber	Glass	24mm/400	72-pk.	26122
Replacement Septa, 24mm x 0.125"			Teflon-lined silicone		100-pk.	24694



21798

26122



Super Septa!

- Preconditioned and ready to use.
- Precision molding assures consistent, accurate fit.
- Do not adhere to hot metal surfaces.
- Packaged in precleaned glass jars.

Restek IceBlue® Septa—Usable to 250 °C inlet temperature.

BTO® Septa*—Usable to 400 °C inlet temperature.

* Note: For 17mm injectors, the maximum temperature is 330°C. Due to the injection port temperatures, Restek recommends using only BTO® septa in Thermo Scientific instruments.

Restek Thermolite® Septa

- Usable to 340 °C inlet temperature.
- Excellent puncturability.
- A Restek exclusive!



Septum Diameter	25-pk.	50-pk.	100-pk.
5mm (3/16")	27120	27121	27122
6mm (1/4")	27123	27124	27125
7mm	27126	27127	27128
8mm	27129	27130	27131
9mm	27132	27133	27134
9.5mm (3/8")	27135	27136	27137
10mm	27138	27139	27140
11mm (7/16")	27141	27142	27143
11.5mm	27144	27145	27146
12.7mm (1/2")	27147	27148	27149
17mm	27150	27151	27152
Shimadzu Plug	27153	27154	27155

Visit www.restek.com/septa for a complete listing.

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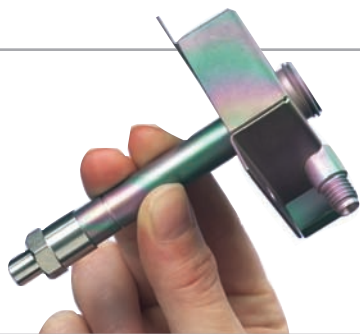
ProFLOW 6000 Electronic Flowmeter

- Measures volumetric flow for most gases across a range of 0.5–500 mL/min.*
- Accuracy of $\pm 2\%$ of flow reading or ± 0.2 mL/min., whichever is greater.
- NIST traceable calibration.

Description	qty.	cat.#
Restek ProFLOW 6000 Electronic Flowmeter with Hard-Sided Carrying Case	ea.	22656
ProFLOW 6000 Recalibration Service	ea.	22656-R

*The flowmeter is designed to measure clean, dry, non-corrosive gases.

Visit www.restek.com/flowmeter for product features.



Repair and Upgrade Your Agilent GC!

Did you know that Restek, your trusted source for top-quality GC columns and accessories, also offers a whole line of innovative replacement products for Agilent GCs? From injector to detector, the GC accessory parts you need are at www.restek.com/gcacc



Restek Offers a Complete Line of Ferrules for Convenient One-Stop Shopping



Vespal® Ferrules

- 100% high-temperature polyimide.
- Stable to 350 °C.
- Durable, leak-tight.

Graphite Ferrules

- Preconditioned to eliminate out-gassing.
- High-purity, high-density graphite.
- Smoother surface and cleaner edges than conventional graphite ferrules.
- No binders to off-gas or adsorb analytes.
- Stable to 450 °C.

Vespal®/Graphite Ferrules

- 60%/40% Vespal®/graphite blend, offering great sealing and ease of workability.
- Seal with minimal torque, reusable, and preferred for vacuum and high-pressure.
- Stable to 400 °C.
- Recommended for mass spec transfer lines.

Capillary Ferrules for 1/16-Inch Compression-Type Fittings

Ferrule ID	Fits Column ID	qty.	Vespal	Graphite	Vespal/Graphite
0.3mm		10-pk.	22213	20233	20275
0.4mm	0.10/0.15/0.18/0.25/0.28mm	10-pk.	22214	20200	20211
0.4mm	0.10/0.15/0.18/0.25/0.28mm	50-pk.	—	20227	20229
0.5mm	0.32mm	10-pk.	22215	20201	20212
0.5mm	0.32mm	50-pk.	—	20228	20231
0.6mm	0.28mm**	10-pk.	—	—	20232
0.8mm	0.45/0.53mm	10-pk.	22216	20202	20213
0.8mm	0.45/0.53mm	50-pk.	—	20224	20230
1.0mm	0.75mm*	10-pk.	22217	21058	24912
1.2mm	0.75mm*	10-pk.	22218	—	—
1.6mm	1.00mm*	10-pk.	—	21060	—

Compact Ferrules for Agilent 5890/6890/6850/7890 GCs

Ferrule ID	Fits Column ID	qty.	Graphite	Vespal/Graphite
0.4mm	0.25/0.28mm	10-pk.	20250	20238
0.4mm	0.25/0.28mm	50-pk.	20251	20239
0.5mm	0.32mm	10-pk.	21007	20248
0.5mm	0.32mm	50-pk.	21008	20249
0.8mm	0.45/0.53mm	10-pk.	20252	20263
0.8mm	0.45/0.53mm	50-pk.	20253	20264
1.0mm	0.75mm*	10-pk.	21059	—
1.6mm	1.00mm*	10-pk.	21061	—

*For micropacked columns. **For 0.28 mm MXT columns.



Introducing New Alumina MAPD PLOT Columns in Fused Silica and Metal!

Restek PLOT columns have set a new standard with better bonding and greater efficiency than similar columns from competitors. The superior stabilization technology and wide range of deactivations that are the foundation of our PLOT column line have now been used to develop **Rt®- and MXT®-Alumina BOND/MAPD PLOT columns**. These new columns, available in metal and fused silica, are **stable up to 250 °C** and provide better temperature stability than any other alumina MAPD PLOT column on the market!

Rt®-Alumina BOND/MAPD Columns (fused silica PLOT)

ID	df	temp. limits	30-Meter	50-Meter
0.32mm	5µm	to 250°C	19779	19780
0.53mm	10µm	to 250°C	19777	19778

MXT®-Alumina BOND/MAPD Columns (Siltek®-treated stainless steel PLOT)

ID	df	temp. limits	3.5" coil 30-Meter	7" diameter 11-pin cage 30-Meter
0.53mm	10µm	to 250°C	79728-273	79728

The Restek PLOT column family—a new benchmark for performance!

Feature	Benefit
Full product line based on next generation PLOT column technology.	<ul style="list-style-type: none">• Superior column performance.• Porous polymer, alumina, and molecular sieve PLOT columns all available from a single source.
New bonding process minimizes particle release.	<ul style="list-style-type: none">• Reduced column blockage.• Reliable protection for instrument parts.
Consistent flow characteristics.	<ul style="list-style-type: none">• Stable retention times.• Predictable performance with Deans and related flow switching techniques.
Outstanding peak symmetry.	<ul style="list-style-type: none">• Improved accuracy for impurity analysis of gases, solvents, and hydrocarbons.
Many products also available in metal MXT® capillary column tubing.	<ul style="list-style-type: none">• Rugged material withstands rough handling and shock.• Small coil diameters are perfect for tight spaces, such as process or field instruments.



3-IN-1 TECHNOLOGY

Highest Inertness • Lowest Bleed • Exceptional Reproducibility

Lower Detection Limits with Ground-Breaking Column Technology

Rxi® technology unifies outstanding inertness, low bleed, and high reproducibility into a single high performance column line. Take variation out of the equation and get the most consistent results for trace level analysis with Rxi® columns.

phases available

- Rxi®-1ms
- Rxi®-1HT
- Rxi®-5ms
- Rxi®-5Sil MS
- Rxi®-5HT
- Rxi®-XLB
- Rxi®-624Sil MS
- Rxi®-35Sil MS
- Rxi®-17
- Rxi®-17Sil MS
- Rxi® guard/retention gap columns
- Rxi® secondary columns for GCxGC (see page 10)



Make the Switch to Rxi® columns!

Experience what Rxi® did for many others

- Lower detection limits
- Better peak shape
- Accurate results



Simplify GC Analysis of Dioxins and Furans

Successfully monitoring chlorinated dioxins and furans requires the unbiased determination of 2,3,7,8-chlorine substituted congeners like highly toxic TCDDs and TCDFs. Fortunately, Restek offers proven solutions for both initial and confirmatory analyses.

Initial Analysis — Rxi®-5Sil MS Column (fused silica)

- Provides isomer specificity for 2,3,7,8-TCDD, 2,3,7,8-TCDF, and 1,2,3,7,8-PeCDD—with one column!
- Resolves 15 of the 17 tetra- through octa-chlorinated 2,3,7,8-substituted dioxins and furans.
- Known elution orders for all tetra- through octa-chlorinated dioxin and furan congeners.
- Low bleed and high thermal stability up to 350 °C.

(low polarity Crossbond® silarylene phase; similar to 5% phenyl/95% dimethyl polysiloxane)

ID	df	temp. limits	60-Meter
0.18mm	0.10µm	-60 to 320/350°C	43607
0.25mm	0.25µm	-60 to 330/350°C	13626

Confirmatory Analysis — Rtx®-Dioxin2 Column (fused silica)

- Low bleed and high thermal stability up to 340 °C for far greater life and reproducibility over cyano columns.
- Provides isomer specificity for 2,3,7,8-TCDD and 2,3,7,8-TCDF.
- Resolves 14 of the 17 tetra- through octa-chlorinated 2,3,7,8-substituted dioxins and furans.
- Known elution orders for all tetra- through octa-chlorinated dioxin and furan congeners.

(proprietary Crossbond® phase)

ID	df	temp. limits	40-Meter	60-Meter
0.18mm	0.18µm	20°C to 340°C	10759	
0.25mm	0.25µm	20°C to 340°C		10758

Ensure an inert sample pathway with Sky™ inlet liners! See page 2

Inventory available for immediate delivery!



Ultra-Clean Resin

XAD-2 Equivalent

- For adsorbing semivolatiles in air.
- Cleaned, GC tested and certified.
- Available in 100 gram quantities.

Although resin is excellent for trapping PAHs, it requires extensive clean-up because many of its impurities are PAH compounds. To save time, we do the cleaning for you! We test each batch by capillary GC/flame ionization detector to ensure cleanliness. Additional cleaning may be needed for trace residue work.

Method:	Applications
EPA TO-13A:	PAHs in Ambient Air
ASTM D6209:	PAHs in Ambient Air
EPA Method 23:	Dioxins in Stationary Source Emissions
EPA Method 0010:	Semivolatiles in Stationary Source Emissions

Ultra-Clean Resin, 100 grams

cat.# 24230



SDVB Resin

XAD-2 Equivalent

- Styrene/divinylbenzene, equivalent to XAD-2 resin.
- Untreated, packaged in 1 kg plastic containers.
- Spherical, 20 to 60 mesh particles.

Description	qty.	cat.#
SDVB Resin	1kg	24053



Restek has supplies for all your air sampling needs!
Visit www.restek.com/air

Fully Automated High-Capacity System Cleans Canisters With Ease!

- Twelve 6 L canister capacity; custom-built trays for different canister sizes.
- EPA Method TO-14A/15 compliant.
- Small footprint saves lab space.
- No computer needed—uses embedded touch screen controller.
- Save up to ten user defined methods.
- Automated system leak test.
- Isothermal oven cleans entire can AND valve more completely than band heaters.
- Includes Edwards RV-8 vacuum pump—no turbo pumps!
- One year limited warranty.

Description	qty.	cat.#
TO-Clean Oven, 120V, 60Hz	ea.	22916
TO-Clean Oven, 220/230V, 50/60Hz	ea.	22917
Optional Accessories (not included with TO-Clean Oven)		
	qty.	cat.#
Dewar, glass, 4300mL stainless steel u-tube trap	ea.	22918
Oven Cart, 29"H x 27"W x 49"D, 12 gauge steel, push handle and casters	ea.	22919
1L Option: includes tubing, fittings, and inserts for 24 1L canisters	ea.	22920
Humidification Chamber	ea.	24282

Note: Ovens are built on demand, therefore, a ten week lead time is required on all orders. A limited cancellation and return policy applies to TO-Clean ovens; contact your local Restek distributor for details.

Shipping: FedEx Ground, unless otherwise requested. Costs vary depending on ship-to location.



CE

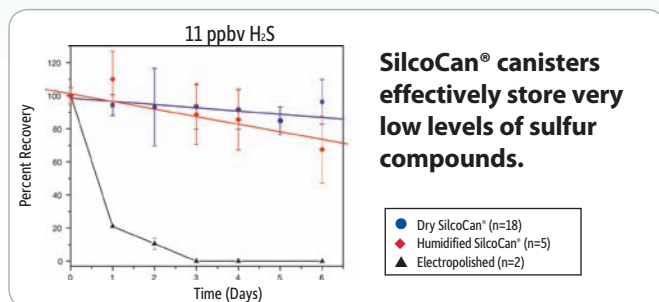


	Restek	Entech
Capacity	Twelve 6 L cans	Six 6 L cans
Software	Included	Separate

Collect Air Samples With No Change in VOC Concentration

SilcoCan® & TO-Can® Air Monitoring Canisters

- Siltek® deactivation offers excellent storage stability for sulfur VOCs at very low levels (1–20 ppbv), under dry or humid conditions.
- Variety of options, sizes, and pressure ranges available, including SUMMA can equivalent.
- Standard fittings compatible with all instrumentation and accessories.
- Repair service available to extend canister life.
- Ideal for ambient air (US EPA TO-14A, TO-15, ASTM D5466), indoor air, vapor intrusion, emergency response.



Canister Options

Sizes	1, 3, 6, 15 L
Valves	Parker® diaphragm, Swagelok® bellows
Interior Coating	Electropolished, Siltek® treated
Gauges	3 vacuum/pressure ranges

Applications

- Ambient Air (US EPA TO-14A, TO-15, ASTM D5466)
- Indoor Air
- Vapor Intrusion
- Emergency Response



GCxGC Columns

Your One Source for 2D Gas Chromatography



- Wide range of stationary phases offers orthogonal separations.
- High thermal stability increases system ruggedness.
- Unrivaled column inertness for accurate analysis of active compounds.
- 0.15, 0.18, and 0.25 mm ID formats accommodate varying sample capacities, speeds, and detectors.
- Secondary columns come in convenient 2 m lengths for economical method development.

GCxGC is a powerful technique that allows you to accurately analyze highly complex samples. A first (primary) column performs a separation, and its effluent is continually focused and "injected" by a modulator onto a second (secondary) column, where another separation occurs. By choosing columns with differing (orthogonal) phases, it is possible to identify analytes that cannot be separated by a single column alone.

Restek has been performing comprehensive two-dimensional gas chromatography since its commercial inception. Our technical experts are ready to assist you with column selection and method development, so contact us or your Restek representative today!

Columns

Restek GCxGC secondary columns can be matched with any Restek Rtx® or Rxi® primary column to create the perfect orthogonal separation for your application.

Available Phases (In order of increasing polarity):

Rxi®-1ms • Rxi®-5Sil MS • Rxi®-XLB • Rxi®-17Sil MS
Rtx®-200 • Stabilwax®

For help pairing columns, visit
www.restek.com/gcxgc-combo

Accessories



Protect Your GC and Analytical Column!

Restek Electronic Leak Detector
www.restek.com/leakdetector



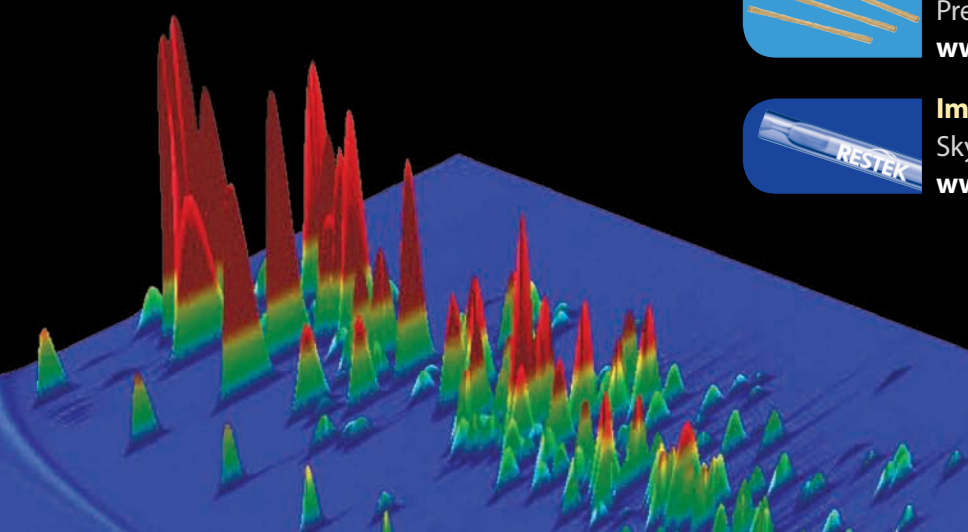
Get a Leak-Tight Seal Between Columns

Press-Tight® Connector
www.restek.com/press-tight



Improve Trace Level Analysis

Sky™ Inlet Liners
www.restek.com/sky





Go Green!

Help Save the Environment and Save Time in the Lab With Q-sep™ QuEChERS Products

REDUCE:

Easy-pour packets create far less waste than tubes of salts.



LIMITED TIME OFFER!

FREE 50-pack of salts!

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RECYCLE:

Recyclable boxes consist of at least 33% recycled cardboard.



REUSE:

Teflon® FEP tubes are reusable indefinitely under normal use.



Available for European EN 15662, AOAC 2007.01, and Original Unbuffered Methods.

Q-sep™ 3000 Centrifuge for QuEChERS



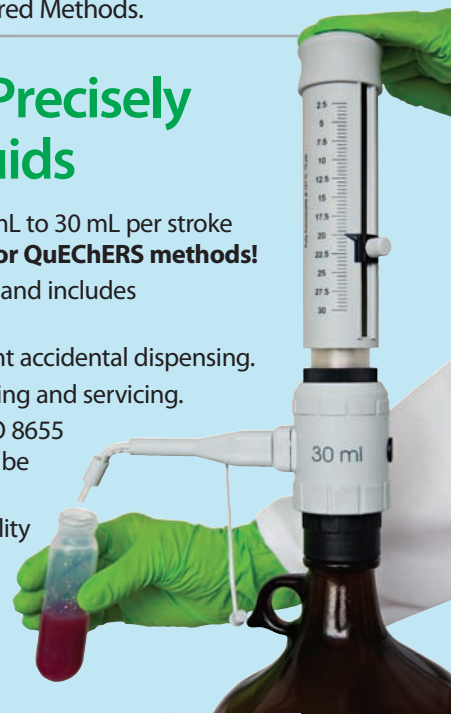
The economical Q-sep™ 3000 Centrifuge is the first specifically designed for QuEChERS methodology. This compact, quiet, yet powerful, unit spins at the 3,000 g force required by the European method. One-year warranty.

Description	qty.	cat.#
Q-sep 3000 Centrifuge, 110V	ea.	26230
Q-sep 3000 Centrifuge, 220V	ea.	26231
Replacement Accessories		
50mL Tube Carrier for Q-sep 3000 Centrifuge	2-pk.	26232
50mL Conical Tube Insert for Q-sep 3000 Centrifuge	6-pk.	26249
4-Place Tube Carrier for Q-sep 3000 Centrifuge	2-pk.	26233
2mL Tube Adaptors for Q-sep 3000 Centrifuge	4-pk.	26234

Accurately & Precisely Dispense Liquids

- Set output volume from 2.5 mL to 30 mL per stroke (0.5 mL increments)—**ideal for QuEChERS methods!**
- Base features 30 mm threads and includes four adaptors.
- Safety discharge helps prevent accidental dispensing.
- Easy to disassemble for cleaning and servicing.
- Individually calibrated per ISO 8655 (certificate included) and can be recalibrated by user.
- Excellent chemical compatibility and 100% autoclavability.

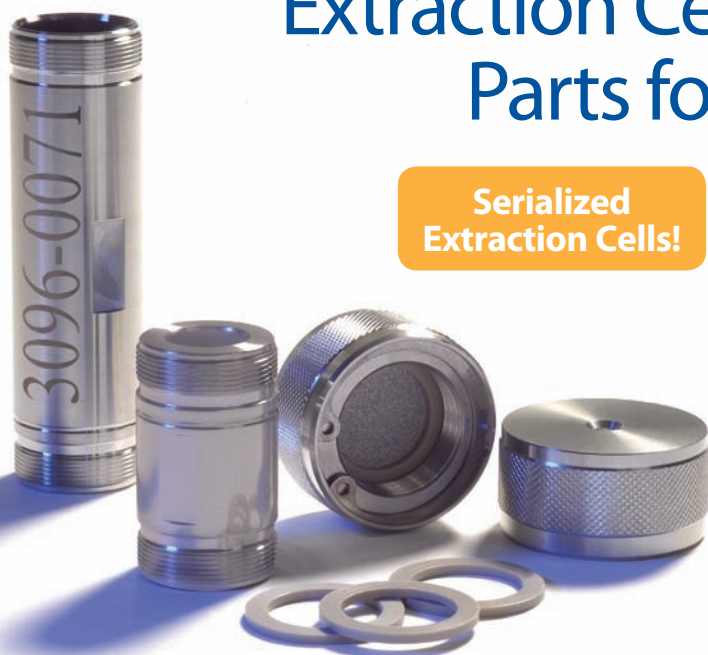
Description	qty.	cat.#
Q-sep Bottle Top Solvent Dispenser, 2.5 mL - 30 mL	ea.	23990





Extraction Cells and Replacement Parts for ASE® Systems

**Serialized
Extraction Cells!**



Autoseal Tip Assembly for ASE® 200 Systems

Diatomaceous Earth

Extraction Cell Parts for ASE® 200 Systems

Extraction Cell Parts for ASE® 300/100 Systems

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Filters for ASE® 300/100 Extraction Cells, 30mm

PEEK Washers for ASE® 200 Systems

PEEK Washers for ASE® 300/100 Systems

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Sample Collection Bottles for ASE® 300/100 Systems, 250mL

Sample Collection Vials for ASE® 200 Systems, 60mL

Tubing Assembly for ASE® 200 Systems

Valves for ASE® 100/200/300 Systems

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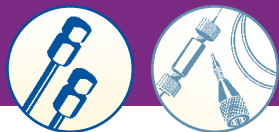
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11/12



RESTEK USLC™

Ultra Selective Liquid Chromatography™

- Unique 4-column set offers the widest range of reversed phase selectivity available:
 - Aqueous C18
 - IBD
 - Biphenyl
 - PFP Propyl
- Efficient and effective method development.
- Fits any HPLC or UHPLC instrumentation.

Download our new *LC Method Development Toolbox* application note at www.restek.com/USLC

Gain Superior LC Temperature Control With Sidewinder Products

Sidewinder LC Column Heater

- Easy to set up!
- Operation range: 5 °C above ambient to 85 °C, ± 1 °C.
- Lightweight, compact design fits in small spaces.
- Column holder can be placed in any orientation.
- Achieve optimum performance and efficiency when used in conjunction with a mobile phase pre-heater.

Description	Length	qty.	cat.#
Temperature Control Module and Column Holder	Long (25cm)	ea.	26516
Temperature Control Module and Column Holder	Short (10cm)	ea.	26517

Sidewinder LC Column Heater/Cooler

- Operation range: 5-55 °C, ± 0.2 °C.
- Ability to program multiple temperature points.
- Accommodates columns up to 30 cm in length and 7.8 mm ID.
- Compact design.
- Achieve optimum performance and efficiency when used in conjunction with a mobile phase pre-heater.

Description	qty.	cat.#
Sidewinder Heater/Cooler Temperature Control Module and Column Holder	ea.	26518

Don't Forget the Mobile Phase Pre-Heater

- Heats mobile phase before it enters a heated column.
- Minimizes temperature changes to help keep analyte peaks sharp.

Description	qty.	cat.#
15µL Mobile Phase Pre-heater, 0.010" ID	ea.	22484



LC Columns & Accessories

Biphenyl

Leading Resolution in LC for Clinical and Forensic Applications

- Optimized for a wider range of compound chemistries compared to a C18 or phenyl column.
- Perfect for drugs of abuse, pharmaceuticals, metabolites, and more.
- Ultra Biphenyl columns are lot tested with a comprehensive drug panel to ensure confidence in method reproducibility.

Find product lists, applications, and more at www.restek.com/biphenyl

Get Highly Stable Baselines From The Degasys In-Line Vacuum Degasser

- Prevents oxygen from causing flow rate instability and baseline noise.
- Prevents bubbles from forming in check valves, at connections, or in detector flow cells.
- More effective than sonication or helium sparging.



Specifications:

Residual Oxygen ¹	0.9ppm
Pressure Loss ¹	0.24psi (1.65kPa)
Internal Volume	500µL
Wetted Parts	Teflon AF, PTFE, ETFE, PPS
Max Flow Rate	7mL/min./channel
¹ At a flow rate of 1mL/min.	

Description	Voltage	qty.	cat.#
Mobile Phase Degasser (4 Channel, 7mL/min./channel)	110V	ea.	25189
Mobile Phase Degasser (4 Channel, 7mL/min./channel)	220V	ea.	25194

To prevent system damage, do not use the Degasys system with solutions containing TFA at concentrations greater than 5%.

Produce Vortex Shear Mixing Over a Wide Range of Flows

- Efficient cross-flow shearing mechanism.
- Interchangeable cartridges.
- Reduced baseline noise.
- Improved gradient accuracy, for more reproducible results.
- Increased reaction efficiency in post-column derivatization.
- Increased sensitivity.

HyperShear Static In-Line Mixers

Choose stainless steel or PEEK construction.



Volume	Stainless Steel		PEEK	
	qty.	cat.#	qty.	cat.#
1µL	ea.	26409	ea.	26410
25µL	ea.	26411	ea.	26412
50µL	ea.	25341	ea.	26413
150µL	ea.	25342	ea.	26414
250µL	ea.	25343	ea.	26415

Ternary Tee Mixers

Stainless steel construction.



Description	Volume	qty.	cat.#
Ternary Tee Mixer	25µL	ea.	25138

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Importers & Manufacturers
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Biodiesel Calibration Standards

Determining Free and Total Glycerin in B100 Biodiesel Methyl Esters by GC

Compound	Solvent	Conc.	cat.#	Compound	Solvent	Conc.	cat.#
(s)-(-)-1,2,4-butanetriol	pyridine	1,000	33024	monopalmitin	pyridine	5,000	33026
(s)-(-)-1,2,4-butanetriol (5mL)	pyridine	1,000	33032	tricaprin			
diolein (1,3-di[<i>cis</i> -octadecenyl] glycerol)	pyridine	5,000	33022	(1,2,3-tricaprinoylglycerol)	pyridine	8,000	33025
glycerin	pyridine	500	33020	tricaprin (1,2,3-tricaprinoylglycerol) (5mL)	pyridine	8,000	33033
monolein (1-mono[<i>cis</i> -9-octadecenyl]-rac-glycerol)	pyridine	5,000	33021	triolein (1,2,3-Tri[<i>cis</i> -octadecenyl] glycerol)	pyridine	5,000	33023

Volume is 1mL/ampul unless otherwise noted. Concentration is µg/mL unless otherwise noted.

Visit www.restek.com/biodiesel

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- AOAC TPP Solution 31964
- AOAC QC Spike Mix 31999

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- Largest number of target analytes in one mix.
- Formulated for maximum stability.
- Available for a wide variety of methods.

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Raptor™ LC Columns

Combine the speed of SPP with the resolution of USLC® technology for fast, efficient method development that delivers:

- Drastically faster analysis times.
- Substantially improved resolution.
- Increased sample throughput with existing instrumentation.
- Dependable reproducibility.

— PAGE 2 —



Restek's PLOT Column Family — The Benchmark for Performance!

— PAGE 4 —

MLE Capillary Tool Kits

— PAGE 8 —



ALSO IN THIS ISSUE:

RESTEK®

Pure Chromatography



Replacement Parts
for Waters ACQUITY
UPLC® Systems



Certified Reference
Materials (CRMs) for
PAH Analysis



Sample
Preparation for
Pesticides by LC



Raptor™

LC Columns

Selectivity Accelerated



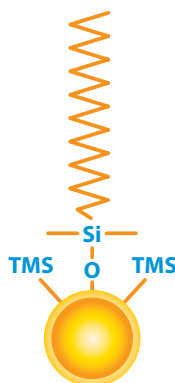
SPP speed. USLC® resolution.
A new species of column.

ALSO AVAILABLE
Raptor™ Biphenyl and
ARC-18 phases.

General-Purpose Restek® C18 Phase: Raptor™ speed, efficiency, and long-lasting ruggedness in C18

- A traditional end-capped C18 ideal for general-purpose use in reversed phase chromatography.
- Wide pH range (2–8) provides excellent data quality for many applications, matrices, and compounds.
- Offers the highest hydrophobic retention of any Raptor™ phase.
- Part of Restek's Raptor™ LC column line featuring SPP core-shell silica.

Put Raptor™ C18 columns and guards to the test today on your most challenging workflows.



Raptor™ C18 LC Columns (USP L1)

Length	2.1 mm cat.#	3.0 mm cat.#	4.6 mm cat.#
2.7 µm Columns			
30 mm	9304A32	9304A3E	9304A35
50 mm	9304A52	9304A5E	9304A55
100 mm	9304A12	9304A1E	9304A15
150 mm	9304A62	9304A6E	9304A65
5 µm Columns			
30 mm	—	930453E	—
50 mm	9304552	930455E	9304555
100 mm	9304512	930451E	9304515
150 mm	9304562	930456E	9304565
250 mm	—	—	9304575

Raptor™ EXP® Guard Columns: The Ultimate in Column Protection

To help protect your investment and further extend the life of our already-rugged Raptor™ LC columns, we mated our new superficially porous particles with patent-pending EXP® guard column hardware developed by Optimize Technologies.

Patented Titanium Hybrid Ferrules

Can be installed repeatedly without compromising high-pressure seal.

Free-Turn® Architecture

Allows you to change cartridges without breaking inlet/outlet fluid connections—and without tools.

Auto-Adjusting Connection

Provides ZDV (zero dead volume) connection to any 10-32 female port.

Flexible Design

Replace nut with longer or even tool-free options to best suit your needs.



Unidirectional Raptor™ Cartridge

In-Tandem Development

Made to pair perfectly with Raptor™ LC columns.

Superior Packing Technique

Withstands 600 bar (2.7 µm) / 400 bar (5 µm) operating pressures.

Restek® Quality

Backed by the manufacturing and QC systems you trust.

Hybrid Ferrule U.S. Patent No. 8201854, Optimize Technologies. Optimize Technologies EXP Holders are Patent Pending. Other U.S. and Foreign Patents Pending. The EXP, Free-Turn, and the Opti- prefix are registered trademarks of Optimize Technologies, Inc.



Genuine Restek® Replacement Parts for Waters ACQUITY UPLC® Systems

Keep your instrument running its best with these rock-solid, economical alternatives to high-cost vendor parts.



Description	Model #	Similar to Waters part #	qty.	cat. #
Needle Assembly, 0.010 mm ID	ACQUITY	700002644	ea.	25942
Sample Loop, 10 µL	ACQUITY, nanoACQUITY	430001326	ea.	25943
Wash Station O-Ring	ACQUITY, nanoACQUITY	700002572	ea.	25944
Metering Syringe, 100 µL	ACQUITY, nanoACQUITY	700002570	ea.	25945
Tube Assembly, Inject Outlet	ACQUITY	430001084	ea.	25946
Tube Assembly, System Outlet	ACQUITY	430001486	ea.	25947
Head Plunger Seal Kit Includes: head plunger seals (2), back-up washers (2)	ACQUITY, nanoACQUITY	700002599	kit	26428
Wash Seal	ACQUITY, nanoACQUITY	700002598	2-pk.	26429
Pump O-Ring	ACQUITY, nanoACQUITY	WAT076152	ea.	25951
In-Line Filter Assembly, Stainless Steel Frit	ACQUITY, nanoACQUITY	289003547	ea.	25952
Filter Frit Cartridge, Stainless Steel	ACQUITY	700002913	ea.	25953
Solvent Bottle Filters	ACQUITY	700003616	7-pk.	25954
Tube Assembly, SSV to In-line Filter	nanoACQUITY	430001470	ea.	25948
Tube Assembly, Transducer to Check Valve, BSM	ACQUITY, nanoACQUITY	430001121	ea.	25949
Tube Assembly, Transducer to Check Valve, QSM	ACQUITY	430002357	ea.	25950
Tube Assembly, SSV to I2V	ACQUITY	430001443	ea.	25941
Primary Check Valve	ACQUITY, nanoACQUITY	700002596	2-pk.	25955
Accumulator Check Valve (Double Ball & Seat)	ACQUITY, nanoACQUITY	700002968	2-pk.	25956
I2 Check Valve Cartridge	ACQUITY	700005165	ea.	25957
Sapphire Plungers	ACQUITY, nanoACQUITY	700002600	2-pk.	25958



High-Throughput Labs:

Add well plates and sealing mats to your next Restek order.

- Choose round bottom for reduced liquid retention, conical bottom for optimal reagent recovery.
- Increased volume adds storage capacity and improves mixing.
- Round well shape is perfect for vortexing.
- Ideal for sample collection, storage, sampling, and more.
- Fits most autosamplers.
- Meets ANSI/SBS 1-2004 recommendations.



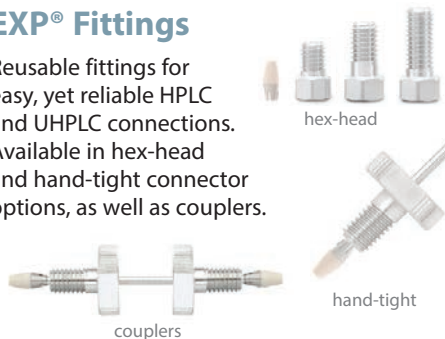
Detector Lamps

We offer a full selection of deuterium, xenon, and other replacement lamps for your HPLC system—whether Agilent, PerkinElmer, Shimadzu, Thermo, or Waters.



EXP® Fittings

Reusable fittings for easy, yet reliable HPLC and UHPLC connections. Available in hex-head and hand-tight connector options, as well as couplers.



LC Maintenance Kits

Simplify routine maintenance with these handy kits. Significant savings over instrument manufacturer prices. Wide selection for your HPLC systems.





Restek's PLOT Column Family —

The Benchmark for Performance!

- Innovative bonding process minimizes particle release, reducing column blockage and protecting instrument parts.
- More consistent flow means stable retention times in Deans and related flow switching techniques.
- Outstanding peak symmetry improves impurity analysis for gases, solvents, and hydrocarbons.

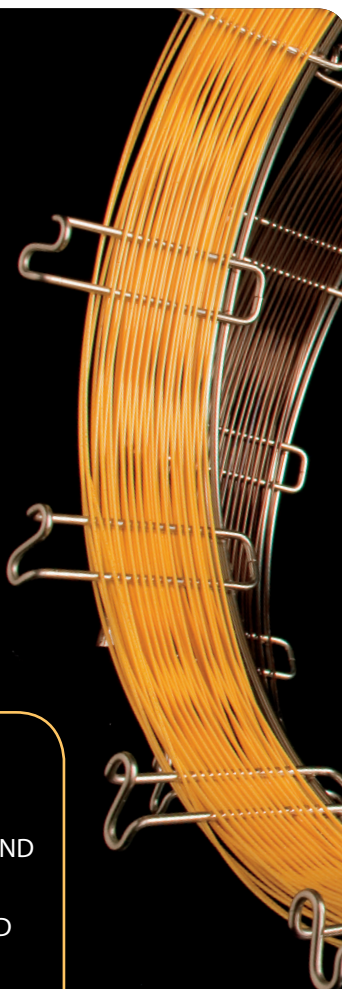
PLOT Columns Available In:

Fused Silica Rt® Column Phases:

Rt®-Alumina BOND/MAPD	Rt®-Silica BOND
Rt®-Alumina BOND/Na ₂ SO ₄	Rt®-Q-BOND
Rt®-Alumina BOND/KCl	Rt®-QS-BOND
Rt®-Alumina BOND/CFC	Rt®-S-BOND
Rt®-MSieve 5A	Rt®-U-BOND

Metal MXT® Column Phases:

MXT®-Alumina BOND/MAPD	MXT®-Q-BOND
MXT®-Alumina BOND/Na ₂ SO ₄	MXT®-S-BOND
MXT®-MSieve 5A	



PLOT Column Particle Traps

Protects detector and valves; connects between column and detector or valve. Eliminates detector spikes and scratches in valve rotors.



Natural & Refinery Gas Standards

Both natural and refinery gas standards are available in three mixes with varying concentrations and extended C6+ components.



Mini-Regulator

Ideal for use with natural gas and refinery gas standards. 0–300 psig inlet pressure range; 0–15 psig outlet.



Strong as Steel, Inert as Glass

Put the Power of Restek® Packed Columns to Work for You

- SilcoSmooth® tubing provides the inertness of glass and the durability of stainless steel, so you get accurate results for a wide range of active compounds without column breakage.
- Stable bonded stationary phases mean short conditioning times, low bleed, and long column lifetimes.
- Excellent retention time reproducibility delivers reliable, predictable results.

Order today at www.restek.com/packedGC



Product Catalogs



Mals' Cart



Leverage the outstanding inertness, low bleed, and high reproducibility of Rxi® 3-in-1 technology to gain:

- Accurate Data
- The Right Results Fast
- Maximized Instrument Uptime

Featured Rxi® Phases:

For PCB Congeners

Rxi®-XLB Columns

Unique selectivity separates PCB congeners, including 31 and 28.

Description	temp. limits	qty.	cat.#
30 m, 0.25 mm ID, 0.25 µm	30 to 340/360 °C	ea.	13723

For Glycol Ethers

Rxi®-1301Si MS Columns

High thermal stability shortens analysis times while separating key isomers.

Description	temp. limits	qty.	cat.#
30 m, 0.25 mm ID, 0.25 µm	-60 to 320 °C	ea.	16094

For Drugs of Abuse

Rxi®-5Si MS Columns

Count on stable reliable response for GC-MS analysis of derivatized drugs.

Description	temp. limits	qty.	cat.#
30 m, 0.25 mm ID, 0.25 µm	-60 to 320/350 °C	ea.	13623

Put Rxi® columns to work in your lab. Visit www.restek.com/rxi and order yours today.

Rxi® Guard/Retention Gap Columns

Highly inert Rxi® guards/retention gaps employ the same 3-in-1 technology, so they are an ideal supplement to Rxi® analytical columns.



PCB Certified Reference Materials

Restek offers an extensive line of CRMs containing PCBs and PCB congeners for a variety of U.S. and international methods.



Premium Non-Stick BTO® Septa

Plasma coating eliminates sticking in the injection port. Precision molding ensures consistent, accurate fit. Preconditioned and ready to use.



Speed Up and Simplify GC Method Development with Restek's EZGC® Online Suite

- Model chromatograms
- Get column recommendations
- Translate methods **NEW!**
- Calculate flows **NEW!**

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Upgrade the FID Jets in your Agilent GCs

Standard Version

- Engineered with a fluted tip to guide the capillary column into the jet.
- Threads specially coated for easy installation and removal.
- Special processing ensures the highest degree of cleanliness.
- Meets or exceeds original manufacturer's performance.

High-Performance Version—Siltek® Treated

- Similar to the standard version, but Siltek® treated.
- Extremely inert; for use with active compounds.

Capillary Adaptable FID Replacement Jet for Agilent 5890/6890/6850 GCs

Description (61.5 mm length)	Similar to Agilent Part #	qty.	cat.#	qty.	cat.#
Standard, 0.011-Inch ID Tip	19244-80560	ea.	20670	3-pk.	20671
High-Performance Siltek Treated, 0.011-Inch ID Tip	19244-80560	ea.	20672	3-pk.	20673

Capillary Dedicated FID Replacement Jet for Agilent 5890/6890/6850/7890 GCs

Description (43 mm length)	Similar to Agilent Part #	qty.	cat.#	qty.	cat.#
Standard, 0.011-Inch ID Tip	G1531-80560	ea.	21621	3-pk.	21682
High-Temperature, 0.018-Inch ID Tip	G1531-80620	ea.	23078	3-pk.	23079
High-Performance Siltek Treated, 0.011-Inch ID Tip	G1531-80560	ea.	21620	3-pk.	21683



ECD Make-Up Gas Kits for Agilent 6890/7890 GCs

Kits include replacement fitting, 1/4" nut, Vespel®/graphite ferrule, instrument-appropriate liner, and replacement cap. Standard ECD adaptor caps also available.

Description	qty.	cat.#
ECD Make-Up Gas Kit for Agilent 6890 (standard) Includes: replacement fitting, 1/4" nut, graphite ferrule, fused silica liner, replacement cap	kit	22638
ECD Make-Up Gas Kit for Agilent 6890 (micro) Includes: replacement fitting, 1/4" nut, graphite ferrule, micro-ECD liner, replacement cap	kit	22639
ECD Make-Up Gas Kit for Agilent 7890 Includes: replacement fitting, 1/4" nut, graphite ferrule, micro-ECD liner, replacement cap	kit	22640
ECD Adaptor Cap (standard)	ea.	22641



Agilent Autosampler Replacement Parts

Z-belts, turret tray assemblies and motors, carriage motor belts, injector mounting posts, and more—all meeting the manufacturer's performance.

Oven Shrouds

for Agilent 6890/7890 GCs

Includes heating coil and oven temperature sensor. Available in 120 V and 220 V units.



Air Diverter

for Agilent GCs

Divert hot GC exhaust up and away from the lab bench. Meets or exceeds original manufacturer's performance. Easy, tool-free install.



Replacement Chemical Traps and Parts

Easy to install: Attach to same fittings as original manufacturer's equipment.



Increased Availability and 100% Satisfaction Guaranteed

Sky®
Inlet Liners

Restek is now offering a 100% satisfaction guarantee for all Sky® inlet liners. These exceptionally inert liners are now produced with new proprietary Restek® processes and apply some of the industry's tightest testing specifications. The Sky® liners analysts want most are in stock now and guaranteed to exceed your expectations.

* Visit www.restek.com/sky for details



Choose the Right Sky® Liner

Agilent Instruments

5890/6890/7890 GC Split/Splitless Inlets

Split Injection: 23305.5 | 23312.5

Splitless Injection: 23302.5 | 23303.5

Bruker/Varian Instruments

1177 GC Split/Splitless Inlets

Split Injection: 23328.5

Splitless Injection: 23331.5 | 23332.5

PerkinElmer Instruments

CAP Split/Splitless Inlets

Split Injection: 23450.5

Splitless Injection: 23451.5

Shimadzu Instruments

17A/2010/2014 GC Split/Splitless Inlets

Split Injection: 23320.5

Splitless Injection: 23321.5 | 23336.5

Thermo Scientific Instruments

TRACE 1300 GC Split/Splitless Inlets

Split Injection: 23444.5

Splitless Injection: 23446.5 | 23447.5



View the full Sky® line at www.restek.com/sky

Viton® O-Rings

for Agilent GCs

Fit split (6.3 mm OD) or splitless (6.5 mm OD) liners.



The Claw

Never again burn your fingers removing a hot injection port liner. The Claw safely and cleanly removes liners, O-rings, or other small objects from the injection port.



Dual Vespel® Ring Inlet Seals

Washerless, leak-tight seals for your Agilent and Thermo GCs. Available in stainless steel, gold-plated, and Siltek®-treated.



Extended Capillary Column Nuts

Visible below the inlet insulating cup for easy, breakage-free column installation without removing the insulating cup.



Capillary Ferrules

We offer a full selection including 1/16" standard and HP-style ferrules. Choose Vespel®, graphite, or Vespel®/graphite material.





22186



22185



22183

Make Life Easier with an MLE Capillary Tool Kit

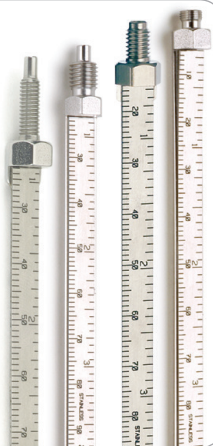
- Kits available for Agilent, Bruker/Varian, PerkinElmer, Shimadzu, and Thermo Scientific GCs.
- Kits include everything you need to perform general maintenance on your GC.
- Parts list makes reordering easy!

Description	qty.	cat.#
MLE Capillary Tool Kit for Agilent GCs	kit	22186
MLE Capillary Tool Kit for Bruker/Varian GCs	kit	22184
MLE Capillary Tool Kit for PerkinElmer GCs	kit	22185
MLE Capillary Tool Kit for Shimadzu GCs	kit	22182
MLE Capillary Tool Kit for Thermo Scientific GCs	kit	22183

Visit www.restek.com/mletoolkit for a complete listing of consumables included in MLE tool kits.

Capillary Installation Gauges

Consistently seat graphite ferrules onto column and prevent crushed column ends. Made from high-quality stainless steel.



Septum Puller

Use hooked end for removing septa and O-rings; pointed end works well for removing stuck ferrules or debris.



Wall-Mounted Cylinder Holders

Prevent injuries from falling cylinders! Cast aluminum holder secures to a wall or workbench and fits cylinders 4–15 inches in diameter.



Ceramic Scoring Wafer

Cuts fused silica tubing and MXT® metal capillary columns. Millimeter markings assist in measuring column insertion distances.



Swagelok® Fitting Kits

Includes the most common assortment of 1/8" and 1/4" fittings—choose brass or stainless steel. Parts list makes reordering easy. Sturdy toolbox offers convenient storage.





Turn to Restek® Certified Reference Materials (CRMs) for PAH Analysis

PAH Interferences Standard

The first and only certified reference material (CRM) to contain all major PAH interferences for priority PAHs. Pair with an Rxi®-PAH column and our EU 15+1 PAH standard to optimize method conditions and ensure separation of interferences and target PAHs.

Benzo[j]fluoranthene (205-82-3)	750 µg/mL
Benzo[k]fluoranthene (207-08-9)	1,000
Benzo[e]pyrene (192-97-2)	500
Perylene (198-55-0)	250
Triphenylene (217-59-4)	750

Description	Conc. in Solvent and Volume	cat.#
PAH Interferences Standard	In toluene, 1 mL/ampul	32472

EU 15+1 PAH Standard

This CRM contains the 16 major European Food Safety Authority (EFSA) PAH compounds. High-concentration (100 µg/mL) solution provides value and flexibility; dilute as needed.

Benzo(a)anthracene (56-55-3)	Cyclopenta(c,d)pyrene (27208-37-3)
Benzo(a)pyrene (50-32-8)	Dibenz(a,e)pyrene (192-65-4)
Benzo(b)fluoranthene (205-99-2)	Dibenz(a,h)anthracene (53-70-3)
Benzo(c)fluorene (3,4-Benzofluorene) (205-12-9)	Dibenzo(a,h)pyrene (189-64-0)
Benzo(g,h,i)perylene (191-24-2)	Dibenzo(a,i)pyrene (189-55-9)
Benzo(j)fluoranthene (205-82-3)	Dibenzo(a,l)pyrene (191-30-0)
Benzo(k)fluoranthene (207-08-9)	Indeno(1,2,3-cd)pyrene (193-39-5)
Chrysene (218-01-9)	5-Methylchrysene (3697-24-3)

Description	Conc. in Solvent and Volume	cat.#
EU 15+1 PAH Standard	100 µg/mL each in toluene, 1 mL/ampul	32470

EFSA PAH4 Standard

Focusing on benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, and chrysene, this high-concentration CRM is designed for greater convenience, longer shelf life, and increased long-term accuracy.

Benzo[a]anthracene (56-55-3)	Benzo[b]fluoranthene (205-99-2)
Benzo[a]pyrene (50-32-8)	Chrysene (218-01-9)

Description	Conc. in Solvent and Volume	cat.#
EFSA PAH4 Standard	1,000 µg/mL each in toluene, 1 mL/ampul	32469

SV Calibration Mix #5/610 PAH Mix

Acenaphthene (83-32-9)	Chrysene (218-01-9)
Acenaphthylene (208-96-8)	Dibenz(a,h)anthracene (53-70-3)
Anthracene (120-12-7)	Fluoranthene (206-44-0)
Benzo(a)anthracene (56-55-3)	Fluorene (86-73-7)
Benzo(a)pyrene (50-32-8)	Indeno(1,2,3-cd)pyrene (193-39-5)
Benzo(b)fluoranthene (205-99-2)	Naphthalene (91-20-3)
Benzo(k)fluoranthene (207-08-9)	Phenanthrene (85-01-8)
Benzo(ghi)perylene (191-24-2)	Pyrene (129-00-0)

Description	Conc. in Solvent and Volume	cat.#
SV Calibration Mix #5/610 PAH Mix	2,000 µg/mL each in methylene chloride, 1 mL/ampul	31011

Pinnacle® PAH LC Columns

These LC columns were developed specifically to resolve complex mixtures of polycyclic aromatic hydrocarbons (PAHs). Choose Pinnacle® II PAH columns for HPLC use or Pinnacle® DB PAH columns for UHPLC.



QuEChERS Internal Standards and Quality Control Standards

Single and multiple-component standards as specified in EN Method 15662. Support for GC and LC with selective detectors like MS. Ready to use for QuEChERS extractions—no dilutions.

Turn the page for more QuEChERS products!



Rxi®-PAH Columns Resolve Important Isobaric PAHs

- Separation of **all** EFSA PAH4 compounds: benzo[a]anthracene, chrysene, benzo[b]fluoranthene, and benzo[a]pyrene.
- **Best resolution** of chrysene from interfering PAHs, triphenylene and cyclopenta[cd]pyrene.
- **Complete separation** of benzo [b], [k], [j], and [a] fluoranthenes.
- 360 °C thermal stability allows analysis of low volatility dibenzo pyrenes.

Description	temp. limits	qty.	cat.#
40 m, 0.18 mm ID, 0.07 µm	to 360 °C	ea.	49316
30 m, 0.25 mm ID, 0.10 µm	to 360 °C	ea.	49318
60 m, 0.25 mm ID, 0.10 µm	to 360 °C	ea.	49317



Fast, Simple Sample Preparation for Multiresidue Pesticide Analysis

Ideal for High-Throughput LC Labs

EXTRACTION

Q-sep® QuEChERS Extraction Salts

- Preweighed, ultra-pure salt packets eliminate the need for a second tube.
- Go green by using packets with reusable tubes.
- Support original unbuffered, AOAC (2007.01), and European (EN 15662) QuEChERS methods.

www.restek.com/quenchers



CLEANUP

Option 1:

Q-sep® QuEChERS dSPE Tubes for Extract Cleanup



- Ready-to-use tubes; no glassware required.
- Preweighed, ultra-pure sorbents.

Option 2:

Syringe Filters with Luer Lock Inlet



- Luer lock inlet offers leak-tight syringe connection.
- Variety of filter types, porosities, and diameters.

Option 3:

Thomson SINGLE StEP® Filter Vials



- Easy-to-use vials require only a squeeze of your fingers.
- Choose from Standard, Nano, eXtreme, and Low Evaporation vials.

 A box of LC & GC Multiresidue Pesticide CRM Kits, showing a grid of small vials.

LC & GC Multiresidue Pesticide CRM Kits

Accurately quantify 380 pesticides by LC-MS/MS or GC-MS/MS with certified reference materials (CRMs) from Restek.



Rxi®-5SiI MS Columns

Our highly inert, low-bleed, general-purpose columns are ideal for GC-MS analysis of pesticides as well as semivolatiles, PAHs, phthalates, drugs, solvent impurities, hydrocarbons, and much more.

www.restek.com/rxi



Raptor™ ARC-18 LC Columns

SPP speed and USLC® resolution in a rugged column made for high-throughput LC-MS/MS. Well-balanced retention for large, multiclass analyte lists, including pesticide residues.

www.restek.com/raptor





Restek® Air Valve Excellence

RAVE™ Valves

Now Standard on SilcoCan® and TO-Can® Sampling Canisters

- **Proven long life**—engineered to exceed 15,000 cycles.
- **Leak-free performance**—helium leak tested to 1×10^{-6} mL/sec.
- **Effortless operation**—finger turn for full valve closure (only 10 in-lb).
- **Enhanced damage resistance**—valve seats are work hardened; wetted surfaces have no moving parts.

SilcoCan® Air Sampling Canisters with RAVE™ Valve

Description	1 L Volume cat.#	3 L Volume cat.#	6 L Volume cat.#	15 L Volume cat.#
2-Port RAVE Valve	27400	27404	27408	27412
2-Port Siltek-Treated RAVE Valve	27401	27405	27409	27413
3-Port RAVE Valve with Gauge*	27402	27406	27410	27414
3-Port Siltek-Treated RAVE Valve with Gauge*	27403	27407	27411	27415
without Valve	22090	22091	22092	22093

TO-Can® Air Sampling Canisters with RAVE™ Valve

Description	1 L Volume cat.#	3 L Volume cat.#	6 L Volume cat.#	15 L Volume cat.#
2-Port RAVE Valve	27416	27418	27420	27422
3-Port RAVE Valve with Gauge*	27417	27419	27421	27423
without Valve	22094	22095	22096	22097

*Range of standard gauge is -30" Hg to 60 psi.

Do not exceed canister maximum pressure of 40 psig (2.75 bar).



MTS-32 TD Multiple Tube Sequential Sampler

Allows sequential sampling of up to 32 TDU tubes. Worry-free, independent operation. Power supply and sampling pump sold separately.



ACTI-VOC Low-Flow TD Sampling Pump



Robust, low-flow pump optimized for sampling VOCs onto thermal desorption unit (TDU) sorbent tubes.

Thermal Desorption Unit (TDU) Tubes

Suitable for ppt to ppm concentrations of VOCs.

Available in conditioned & capped, unconditioned, empty, and calibration options. Stainless steel or glass.



One-year limited warranty!

Dimensions:
44" H x 48" W x 27" D
Weight:
525 lb
CE

High-Capacity TO-Clean Canister Cleaning System Improves Lab Efficiency

- **Custom Cleaning Programs:** Easily save ten methods. Simply press "start" to run.
- **Onboard Diagnostics:** Leak-check system and test valves at the touch of a button. No computer needed.
- **Adjustable Oven Control:** Clean cans and valves faster and more completely.
- **Cleaning in Half the Time:** EPA Method TO-14A/15-compliant unit holds twice the cans.



Dynamic Duo

**Restek's Leak Detector and
ProFLOW 6000 Flowmeter**
An Unbeatable Combination!

Purchase
them together
and **SAVE!**

Protect your instrument and improve data quality with this powerful pair from Restek. Checking for leaks and verifying flows before you start helps you avoid costly problems later.

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

Order today at www.restek.com/dynamic-duo

RESTEK®
Pure Chromatography

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