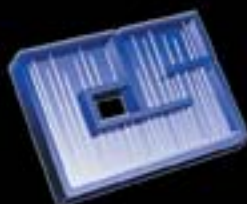


COST SAVINGS

for your Chromatography lab



**CHROMATOGRAPHIC
SPECIALTIES INC.**

COST SAVING SOLUTIONS

Customers often tell us that their lab's budget is tight and getting tighter, yet they're still expected to provide quality and timely laboratory results. A difficult challenge for sure.

Chromatographic Specialties Inc. is pleased to present our **2018 cost savings brochure**. Inside we showcase numerous consumables and instrumentation products and services **designed to help you and your lab save time, money and effort.**

Don't Spend More For Expensive Brand Name Products

- Our products, sourced from many world-class suppliers of analytical columns and supplies, perform as well or better than those offered by instrument manufacturers, often at significant savings.
- Choose CHROMSPEC™ brand products for high quality at a fraction of the price; CHROMSPEC™ is your source for affordable quality



Stock Up and Save

- Buy larger package sizes for a lower cost per unit.
- Ask us to quote on your annual product needs; discounts may be available. We can stock products for you and send them as needed. Invoicing occurs only after each shipment.



Watch For Promotions

- Visit our website for current promotions: www.chromspec.com/Promotions
- Sign up for our monthly eChronicle newsletter for updates on new promotions and specials: www.chromspec.com/e-Chronicle-Newsletter
- Take advantage of our ongoing Clearance Sale: www.chromspec.com/Clearance



Cost saving is often limited to finding the lowest prices. However, savings can also be achieved by:

Analytical Method Improvements

- Take advantage of products that can pump out results in less time, while consuming less gas or solvent and minimizing the need for retesting due to out-of-spec results
- Automate parts of the analytical process to save on labour costs (and possibly improve consistency and results)



Cost Saving Products and Services

- Use guard columns, frits and filters to extend the life of expensive analytical columns and supplies
- Use long-life detector lamps
- Take advantage of recertification programs to extend the life of standards
- Use gas generators rather than cylinders
- Repair equipment instead of replacing it
- Maintain equipment so it's in tip-top shape to prevent unexpected downtime
- And much more



This brochure will guide you through a variety of products and ideas to help achieve cost savings for you and your lab.



Technical Support

Need expert advice? Our friendly and knowledgeable Technical Support and Instrumentation Teams consist of experienced chromatographers who understand the challenges facing separation scientists. They are available to assist you with everything from method reviews, to application support and troubleshooting. This is a free service for our customers; we will not charge for helping you resolve a chromatography problem.



Instrumentation Support

Are your instruments in need of repair or service?
Are your flowmeters due for recalibration?
Do you need preventive maintenance to avoid instrument downtime?

Our Instrumentation Team is available to answer your questions and perform calibrations and repairs to your instrumentation. They can also customize instruments, and perform difficult modifications and installations to fit your specific applications or needs. See page 30 for more information.

We're a Proud Canadian Company!

- Competitive prices on all products; priced in Canadian Dollars
- Products are shipped from our warehouse in Brockville, Ontario; you'll have no customs or border shipment issues.
- Bilingual Support: our Technical, Instrumentation, Sales and Customer Service teams will be happy to assist you in either French or English.



Fast Delivery

We offer several options to ensure that you get the products you need as quickly as possible.

• Same Day Shipments

We maintain a large inventory of products to ensure automatic same day shipment of most orders placed before 2:45pm Eastern Time.

• Reserved Inventory - Release on Demand (ROD)

We can set up a special reserved inventory for you on items for which you have a high volume need or critical requirements in order to avoid potential delays.

• Computerized Delivery

We will work with you to create a Blanket Order to cover future purchases of high usage items. Just specify your preferred delivery dates and quantities, and we will ensure that your products are in stock and sent to you on those dates. Invoicing occurs after each shipment. Shipment dates and quantities can be altered upon request.



Call Us

Our receptionist, order desk, customer service and technical support departments, in fact our entire company, is staffed by real people. Are you tired of trying to negotiate your way through frustrating automated voice systems? Call us! We'll be happy to help you.



We're just a phone call away.
Contact us today and start the savings!



TABLE OF CONTENTS

GC Products

Inlet Seals for Agilent GCs.....	3
Consumables for Agilent GCs	4-5
Septa	6-7
Ferrules	8-9
Inlet Liners.....	10-11
Column Connectors.....	12-13
Columns	14-17
Replacement Parts.....	18-19
Gas Traps.....	20-21

HPLC Products

Columns	22-24
Detector Lamps	25
Consumables.....	26-28

Valves

Valves and Fittings	29
---------------------------	----

Instrumentation

Services and Solutions.....	30-31
Autosamplers.....	32-33
Purge & Trap / Thermal Desorption.....	34
Automated Sample Preparation	35-37
Rotary Evaporators.....	38
Spectrophotometers	39
Digesters	39

Tubing

Tubing.....	40
-------------	----

Sample Preparation

Solid Phase Extraction (SPE).....	41-43
QuEChERS	44
Solid Phase Microextraction (SPME)	45
Syringe Filters.....	46-47
Filter Paper.....	48
Membrane Filters.....	49

Syringes

Autosampler Syringes	50
Manual Syringes.....	51

Vials and Sample Handling

Autosampler Vials.....	52-55
Gas Sampling Bags.....	46

Spill Clean-up

Universal Spill Neutralizer	57
-----------------------------------	----

Reference Standards

Analytical Reference Materials.....	58-59
-------------------------------------	-------

Inorganic Analysis

Products for Inorganic Analysis	60
---------------------------------------	----

Throughout the brochure, look for these symbols, they'll provide information to illustrate how we can help you save time, money and effort...



Great ideas to help you and your lab reduce costs.



Tips and Tricks to help you get better results.



Save time so you can focus on other tasks or process more samples.



Think Green! Help the environment by using less solvent or generating less waste.



Volume Discounts

Higher volume purchases may qualify for greater savings.



Free samples are available for certain products. Contact us and try these products in your lab.



Contact our Technical and Instrumentation teams for more information or for assistance.



Take advantage of our limited-time special offers.

CHROMSPEC™ GC INLET SEALS FOR AGILENT GCs



An economically priced direct replacement for expensive Agilent seals!
Compare our prices and save up to 30%!

Ensure optimal GC analysis by using inert CHROMSPEC™ Gold GC Inlet Base Seals. These seals are precision machined from high grade stainless steel to provide exceptional sealing properties. The inert surface makes them suitable for analysis of active compounds such as pesticides, polychlorinated biphenyls (PCBs) and phenols. Use with split/splitless injection ports on Agilent GC 5890/6890/7890 GC systems.



Description	Equivalent to Agilent Number	Pkg. 2	Pkg. 10
CHROMSPEC™ Inlet Seal, 0.8mm ID, Single Column, Gold-Plated, for Agilent GCs	5188-5367 (Pkg. 1) 5190-2209 (Pkg. 10)	C89G08AG2 \$51.30	C89G08AG10 \$224.30
CHROMSPEC™ Inlet Seal, with Cross, 0.8mm ID, Single Column, Gold-Plated, for Agilent GCs	5182-9652 (Pkg. 1)	C89GC08AG2 \$63.50	C89GC08AG10 \$297.20



Cross Inlet Seals are ideal for use in high-flow split applications (>100 mL/min). The 2 slits allow for more gas to flow through to the Electronic Pressure Control (EPC) sensor and split vent.



GC inlet seals should be examined at least once a month for corrosion, abrasions or a build-up of non-volatile contaminants and replaced if necessary. More frequent changes may be needed for instruments with heavy usage or for labs that are analyzing dirty samples. Regular maintenance helps minimize active sites in the inlet and prevents sample adsorption.

CHROMSPEC™ seals are inert and are more durable than the competitors' soft alloy versions, so you'll change them less frequently. Less downtime = more samples run/day!

CHROMSPEC™ Gold GC Inlet Base Seals are guaranteed to meet your expectations. We offer a money-back guarantee if you are not satisfied with product performance.

CHROMSPEC™ ... The Name for Affordable Quality



CONSUMABLES FOR AGILENT GCs

Chromatographic Specialties stocks all of the Agilent GC consumables analysts rely on every day in their labs, including ferrules, septa, o-rings, gold seals, connectors and more! You can count on us for timely delivery and friendly, expert Tech Support!



You can depend on our affordable, high quality equivalents to Agilent products!

Reducing Ferrules



Graphite Ferrules have an upper temperature limit of 450°C. They are made from high purity graphite. The short ferrule design is characteristic of Agilent 5890/6890/7890 GCs.

Product Number	Description	Qty	Equivalent to Agilent Number	Price	Price (5+)
C75510	CHROMSPEC™ Ferrule, Reducing 1/16" - 0.4mm, Short, Graphite	10	500-2114	\$30.60	\$25.60
C75502	CHROMSPEC™ Ferrule, Reducing 1/16" - 0.5mm, Short, Graphite	10	5080-8853	30.60	\$25.60
C75514	CHROMSPEC™ Ferrule, Reducing 1/16" - 0.8mm, Short, Graphite	10	500-2118	30.60	\$25.60



Inlet Septa



- Bleed and temperature optimized (BTO) septa are ideal for demanding GC and GC-MS applications.
- The partially predrilled Center Guide designed for easy penetration also helps reduce needle damage.

RK23864	Restek Thermolite Plus Septa, 11mm*	50	5183-4759	\$96.00
RK23865	Restek Thermolite Plus Septa, 11mm*	100	5183-4759-100	166.00
C37017	BTO® Septa, 11mm*	50	5183-4757	93.20
C37633	Septa, AG3™, 11mm*	50	5183-4759	79.80
C664961150	CHROMSPEC™ ELB Septa, 11mm	50	5183-4761	83.50
C37500	BTO® Septa, 5mm*	50	5181-1260	81.20

* With CenterGuide

Use Thermolite Plus septa at inlet temperatures up to 350°C.
CHROMSPEC™ ELB Septa have a maximum temperature of 360°C.
BTO® Septa and Advanced Green 3 (AG3)™ Septa can be used at 400°C.



FREE FERRULE AND SEPTA SAMPLES are available!

TRY IT NOW!

Merlin Microseal Septa



No More Septum Bleed or Ghost Peaks!

MIC305	Microseal Septum Kit, Low Pressure Includes: 1 Nut & 1 Low Pressure Septum	Kit	5181-8816	\$314.70
MIC310	Microseal Septum, Low Pressure, Replacement	1	5181-8815	160.00
MIC405	Microseal Septum Kit, High Pressure Includes: 1 Nut & 1 High Pressure Septum	Kit	5182-3442	317.80
MIC410	Microseal Septum, High Pressure, Replacement	1	5182-3444	227.00
MIC2101	Microseal Septum, SPME, Replacement	1	392609902	227.00

The Microseal requires a 23 gauge (0.63 mm, 0.025 inches) syringe needle diameter and blunt, cone shaped needle to function properly.

H80343 Syringe, 701N, 10µL, 23S GA AS, 2.55" \$62.60



The Merlin Microseal has two distinct sealing mechanisms allowing it to last up to 10 times longer than traditional rubber septa, saving you time and money!

Split/Splitless Inlet Supplies



Product Number	Description	Qty	Equivalent to Agilent Number	Price
RK21884	Nut, SS, for Short HP Ferrules	2	5181-8830	\$41.10
RK22242	O-Ring, Viton, for Agilent GCs	50	5188-5365	63.20
RK22336	O-Ring, Viton, for Agilent Flip Top Assembly	10	5188-5366	24.00
RK21315	Seal, Inlet, 0.8mm, Stainless Steel	2	18740-20880	70.00
RK21316	Seal, Inlet, 0.8mm, Stainless Steel	10	—	305.60
RK21317	Seal, Inlet, 0.8mm, Gold Plated	2	5188-5367	75.00
RK21318	Seal, Inlet, 0.8mm, Gold Plated	10	5190-2209	304.80
RK21319	Seal, Inlet, 0.8mm, Siltek-Treated	2	5190-6144	95.90
RK21320	Seal, Inlet, 0.8mm, Siltek-Treated	10	5190-6145	421.00

- TIPS**
- Viton® O-Rings for Agilent GCs fit split (6.3 mm OD) or splitless (6.5 mm OD) liners.
 - The inlet seal at the base of the Agilent 5890/6890/7890 GC injection port contacts the sample and **must be changed frequently to prevent adsorption of active compounds.** In addition, septum fragments and sample residue accumulate on the disk surface, requiring disk replacement. To reduce breakdown and adsorption of active compounds, use gold-plated instead of stainless steel seals.
 - For sensitive, trace analyses of pesticides and herbicides, Siltek® deactivated inlet seals provide outstanding results.

Flame Ionization Detector (FID) Supplies



RK21000	FID Flow Measuring Adaptor	1	19301-60660	\$78.90
RK21001	FID Ignitor, for Agilent 5890/6850/6890/7890 GCs	1	19231-60680	68.60
RK21621	Capillary Dedicated FID Replacement Jet, 43mm	1	G1531-80560	67.30
RK21682	Capillary Dedicated FID Replacement Jet, 43mm	3	G1531-80560	190.00
RK20670	FID Jet, Capillary Adaptable, Standard, for Agilent 5890/6890, 61.5mm	1	19244-80560	80.00
RK20671	FID Jet, Capillary Adaptable, Standard, for Agilent 5890/6890, 61.5mm	3	19244-80560	228.00

Which FID Jet Should I Use?

TIPS

There are two FID jet configurations for Agilent GCs. The longer "adaptable" jet fits both 5890 and 6890 GCs, and can be used with capillary or packed columns. The shorter "dedicated" jet is for the FID in the 6890/7890 GC that is designed only for use with capillary columns.

FID and NPD Adapters



RK22077	Adaptor, Capillary, FID/NPD, for Agilent 5890/6890/6850 GCs	1	19244-80610	\$81.20
C76040	CHROMSPEC™ Ferrule, Straight, 1/4" - 1/4", Polyimide	10	5080-8874	52.00*
C75506	CHROMSPEC™ Ferrule, Reducing, 1/16" - 1.0mm, Short, Graphite	10	5080-8873	30.60*
C75502	CHROMSPEC™ Ferrule, Reducing, 1/16" - 0.5mm, Short, Graphite	10	5080-8853	30.60*
B4021	Nut, 1/4", Brass	24	5180-4105	43.40

* Additional cost savings when purchasing quantities of 5+:
 C76040 = \$48.00 / C75506 = \$25.60 / C75502 = \$25.60

FID Maintenance Kits

- Include the most common consumable GC supplies and tools
- All parts meet or exceed the performance specifications of the instrument manufacturer's parts

RK22179	FID Kit for 6850/6890/7890 GCs	\$999.00
RK22180	FID Kit for 5890 GCs	991.00

- TIPS**
- Graphite ferrules are soft, easy to seal, stable to 450°C, and contain no binders that might off-gas
 - Polyimide ferrules are durable, leak-tight, and stable to 350°C

We carry many more consumables and replacement parts for Agilent, Varian/Bruker, Perkin Elmer, ATAS, Thermo Scientific, Shimadzu, and more!



Our septa are divided into product lines that provide the properties you need to ensure reproducible chromatographic results.



CRS BTO® Bleed and Temperature Optimized Septa

Ideal for the most demanding GC and GC/MS applications.

Product Number	Description	Qty	Equivalent to OEM Number	Price
C37017	BTO® Septa, 11mm*	50	Agilent 5183-4757	\$93.20
C37524	BTO® Septa, 10mm	50	Varian/Bruker 8010-0221	83.00
C37504	BTO® Septa, 9.5mm	50	Varian/Bruker 8010-0219	83.00
C37035	BTO® Septa, Shimadzu Plug	50	Shimadzu 220-90290-00	88.80

* With CenterGuide



CHROMSPEC™ ELB Extremely Low Bleed Septa

Economical die-cut.

C664961150	CHROMSPEC™ ELB Septa, 11mm	50	Agilent 5183-4759	\$83.50
C6649611C	CHROMSPEC™ ELB Septa, 11mm	100	Agilent 5183-4759-100	106.70
C664969550	CHROMSPEC™ Septa, ELB, 9.5mm	50	Varian/Bruker 8010-0203	77.00
C6649695C	CHROMSPEC™ Septa, ELB, 9.5mm	100	Varian/Bruker 8010-0204	106.70
C66496SP50	CHROMSPEC™ Septa, ELB, Shimadzu Plug	50	Shimadzu 220-90547-00	77.00



CRS AG3 Advanced Green 3™ Septa

Low injection port adhesion.

C37633	Septa, AG3™, 11mm*	50	Agilent 5183-4759	\$79.80
C37638	Septa, AG3™, 11mm*	100	Agilent 5183-4759-100	142.30
C37636	Septa, AG3™, 9.5mm	50	Varian/Bruker 8010-0203	93.50
C37642	Septa, AG3™, Shimadzu Plug	50	Shimadzu 220-90547-00	93.50

* With CenterGuide



Restek Thermolite® Plus Septa

Preconditioned and ready to use.

RK23864	Restek Thermolite® Plus Septa, 11mm*	50	Agilent 5183-4759	\$96.00
RK23865	Restek Thermolite® Plus Septa, 11mm*	100	Agilent 5183-4759-100	166.00
RK23878	Restek Thermolite® Plus Septa, 10mm	50	Varian/Bruker 8010-0205	95.00
RK23877	Restek Thermolite® Plus Septa, 9.5mm	50	Varian/Bruker 8010-0203	95.00
RK23872	Restek Thermolite® Plus Septa, Shimadzu Plug	50	Shimadzu 220-90547-00	95.00

* With CenterGuide



Septum Puller

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

RK20117	Septum Puller	1		\$28.10
---------	---------------	---	--	---------



Contact our Technical Support Team for help finding the most suitable septa for your needs.

Which GC Septa should I use?

All our septa have low bleed, long injection life and excellent puncturability. Use the table below to choose your septa based on temperature limits and other properties which are most important to you.

	CRS BTO®	CHROMSPEC™ ELB	CRS Advanced Green™ (AG3)	Restek Thermolite® Plus
Temperature Limit	400°C	360°C	350°C	350°C
Preconditioned Ready-to-use		✓		✓
CenterGuide™ Easy penetration and reduced needle damage	✓		✓	✓
Molded Assures accurate fit	✓		✓	✓
Non-Stick	✓		✓	✓
Packaging	Glass Jar for High Purity	Glass Jar for High Purity	Glass Jar for High Purity	Convenient Ultra Clean Blister Packs
Colour	Red	Blue	Green	Green
Price	\$\$	\$	\$	\$\$



Handling Septa

All septa, regardless of their composition, puncturability, or resistance to thermal degradation, will be a source of problems if they are mishandled. Always use clean forceps or wear clean powderless or cotton gloves when handling septa. Do not handle them with bare fingers or with powdered latex gloves—contaminants such as finger oils, perfumes, make-up, fingernail polish, skin creams, hand soaps, and talcum can be absorbed into the septum and will bleed out during your analyses.



Septa Lifetime

GC septa can last 100 injections or more before problems start to occur.

Factors that affect the septa lifetime are needle size, inlet temperature and to a lesser extent, pressure.



TRY IT NOW!

FREE SAMPLES are available!

GC FERRULES

Chromatographic Specialties offers a wide variety of high purity ferrules, for every GC application and connection, featuring products from our two most popular brands: CHROMSPEC™ and Restek.

Standard “Universal” Ferrules



Short “Agilent Style” Ferrules



Thermo Scientific GC Ferrules



Ferrule Material	Temp Limit	Use	Advantages
Graphite (100%)	450°C	General purpose for FID, TCD or NPD	Easy to use and remove, compressible, not reusable
Graphite/polyimide (40%/60% or 15%/85%)*	350°C	For GC-MS, ECD and other sensitive detectors	Robust, long lasting, maintains seal, reusable

* The 40% graphite/60% polyimide blend offers the best combination of sealing and ease of workability. The 15% graphite/85% polyimide blend offers equivalent composition to Agilent graphite/Vespel®, with exceptionally low oxygen diffusion rates, these are recommended for GC-MS and GC-MS-MS users.



CHROMSPEC™ ferrules are economically priced compared to Agilent ferrules.



Product Number	Description	Qty	Equivalent to Agilent Number	Price per Pkg.	
				1-4	5+
CHROMSPEC™ 100% Graphite, Short Ferrules for Agilent GCs					
C75510	1/16” – 0.4mm, Short, Graphite	10	500-2114	\$30.60	\$25.60
C75502	1/16” – 0.5mm, Short, Graphite	10	5080-8853	30.60	25.60
C75514	1/16” – 0.8mm, Short, Graphite	10	500-2118	30.60	25.60
CHROMSPEC™ 15% Graphite/85% Polyimide, Short Ferrules for Agilent GCs					
C75522	1/16” – 0.4mm, Short Graphite/Polyimide**	10	5181-3323	\$50.40	\$45.40
C75524	1/16” – 0.5mm, Short Graphite/Polyimide**	10	5062-3514	50.40	45.40
C75526	1/16” – 0.8mm, Short Graphite/Polyimide**	10	5062-3512	50.40	45.40
CHROMSPEC™ 40% Graphite/60% Polyimide, Standard Ferrules					
C75003	1/16” – 0.3mm, Graphite/Polyimide	10	—	\$55.00	\$50.00
C75004	1/16” – 0.4mm, Graphite/Polyimide	10	0100-1381	55.00	50.00
C75002	1/16” – 0.425mm, Graphite/Polyimide	10	—	55.00	50.00
C75005	1/16” – 0.5mm, Graphite/Polyimide	10	—	55.00	50.00
C75008	1/16” – 0.8mm, Graphite/Polyimide	10	—	55.00	50.00
CHROMSPEC™ 100% Graphite Ferrules for Packed Columns and Fittings					
C75202	1/8” Straight Ferrule, Graphite	10	0100-1325	\$33.60	\$28.60
C75204	1/4” Straight Ferrule, Graphite	10	0100-1324	36.70	31.70
C75272	1/4” – 1/8” Reducing, Graphite	10	—	36.70	31.70
C75250	1/8” – 1/16” Reducing, Graphite	10	—	33.60	28.60

** 15% Graphite/85% Polyimide ferrules offer equivalent composition to Agilent graphite/Vespel®



FREE SAMPLES are available!



Product Number	Description	Qty	Equivalent to Agilent Number	Price
Restek 100% Graphite, Short Ferrules for Agilent GCs				
RK20250	1/16" – 0.4mm, Short, Graphite	10	500-2114	\$76.00
RK20251	1/16" – 0.4mm, Short, Graphite	50	500-2114	\$ Save More 215.90
RK21007	1/16" – 0.5mm, Short, Graphite	10	5080-8853	76.00
RK21008	1/16" – 0.5mm, Short, Graphite	50	5080-8853	\$ Save More 215.90
RK20252	1/16" – 0.8mm, Short, Graphite	10	500-2118	76.00
RK20253	1/16" – 0.8mm, Short, Graphite	50	500-2118	\$ Save More 215.90
Restek 100% Graphite, Standard Ferrules				
RK20200	1/16" – 0.4mm, Standard, Graphite	10	8010-0301	\$74.10
RK20227	1/16" – 0.4mm, Standard, Graphite	50	8010-0301	\$ Save More 235.10
RK20201	1/16" – 0.5mm, Standard, Graphite	10	8010-0302	74.10
RK20228	1/16" – 0.5mm, Standard, Graphite	50	8010-0302	\$ Save More 235.10
RK20202	1/16" – 0.8mm, Standard, Graphite	10	8010-0304	74.10
RK20224	1/16" – 0.8mm, Standard, Graphite	50	8010-0304	\$ Save More 236.70
Restek 40% Graphite/60% Polyimide, Short Ferrules for Agilent GCs				
RK20238	1/16" – 0.4mm, Short, Graphite/Polyimide	10	8010-0267	\$98.50
RK20239	1/16" – 0.4mm, Short, Graphite/Polyimide	50	8010-0267	\$ Save More 342.40
RK20248	1/16" – 0.5mm, Short, Graphite/Polyimide	10	8010-0268	98.50
RK20249	1/16" – 0.5mm, Short, Graphite/Polyimide	50	8010-0268	\$ Save More 342.40
RK20263	1/16" – 0.8mm, Short, Graphite/Polyimide	10	8010-0269	98.50
RK20264	1/16" – 0.8mm, Short, Graphite/Polyimide	50	8010-0269	\$ Save More 342.40
Restek 40% Graphite/60% Polyimide, Standard Ferrules				
RK20211	1/16" – 0.4mm, Graphite/Polyimide	10	0100-1381	\$85.80
RK20229	1/16" – 0.4mm, Graphite/Polyimide	50	0100-1381	\$ Save More 265.90
RK20212	1/16" – 0.5mm, Graphite/Polyimide	10	—	85.80
RK20231	1/16" – 0.5mm, Graphite/Polyimide	50	—	\$ Save More 265.90
RK20213	1/16" – 0.8mm, Graphite/Polyimide	10	—	85.80
RK20230	1/16" – 0.8mm, Graphite/Polyimide	50	—	\$ Save More 265.90
Restek Graphite/Polyimide Straight Ferrules for Columns and Fittings				
RK20219	1/8" Straight Ferrule, Graphite/Polyimide	10	0100-1379	\$91.60
RK27077	1/8" Straight Ferrule, Graphite/Polyimide**	10	0100-1332	128.10
RK27078	1/4" Straight Ferrule, Graphite/Polyimide**	10	0100-1331	128.10
Restek 100% Graphite Ferrules for Thermo Scientific GCs				
RK20280	1/16" – 0.4mm, Graphite (for Thermo GCs)	2	Thermo 29053488	\$50.70
RK20281	1/16" – 0.4mm, Graphite (for Thermo GCs)	10	Thermo 29053488	167.00

** 15% Graphite/85% Polyimide ferrules offer equivalent composition to Agilent graphite/Vespe^l

Ferrule Removal Kit

Useful for removing ferrules that are stuck in fittings. Each kit includes two sizes of tapered stabbers for retrieving capillary size ferrules.



VFRK1	Ferrule Removal Kit	1	\$32.00
-------	---------------------	---	---------



Ferrule Replacement

Look for the following signs that may indicate ferrule damage:

- Sample degradation or sample loss
- Background noise from oxygen diffusing into the system
- Increase in detector noise

Ferrule Size Selection

The ferrule should always have a slightly larger ID than the column OD, so that it can compress and seal around the column without damaging it.

Ferrule ID	Fits Column ID
0.4mm	0.05, 0.10, 0.15, 0.18, 0.25, 0.28mm
0.5mm	0.32mm
0.8mm	0.45, 0.53mm

Ferrules are available in many more sizes and materials, such as 100% Polyimide and PTFE.

We can also provide ferrules in custom sizes and configurations.

INLET LINERS FOR ROUTINE ANALYSES








Restek's Intermediate Polarity (IP) deactivated liners are economically priced compared to expensive Agilent liners for routine, day-to-day GC analyses!

Most GC analyses require an IP liner with a phenylmethyl deactivated surface. They can be used for a wide variety of polar and non-polar compounds, including hydrocarbons, common solvents and less sensitive analytes generally detected using FID or TCD.

For more challenging analyses consider using a more inert liner. See Restek Topaz liners on page 11.



Description	ID* OD x Length	Equivalent to Agilent Number	Product Number	Pkg. 5	5 x Pkg. 5
DI Liners for Agilent GCs (for 0.25/0.32/0.53mm ID Columns)  Double Taper Drilled Uniliner (hole near bottom) ¹	4.0mm 6.3mm x 78.5mm	G1544-80700 (Each)	RK20989	\$440.00	\$372.30
Splitless Liners for Agilent GCs  2mm Splitless ²	2.0mm 6.5mm x 78.5mm	5183-4703 (Pkg. 5) 5183-4704 (Pkg. 25)	RK20713	\$125.80	\$84.00
 Single Taper Splitless w/Deactivated Wool ³	4.0mm 6.5mm x 78.5mm	5183-4693 (Pkg. 5) 5183-4694 (Pkg. 25)	RK22406	\$140.00	\$112.70
 Double Taper Splitless ⁴	4.0mm 6.5mm x 78.5mm	5183-4705 (Pkg. 5) 5183-4706 (Pkg. 25)	RK20785	\$170.50	\$147.50
Split Liners for Agilent GCs  Split w/Deactivated Wool ⁵	4.0mm 6.3mm x 78.5mm	5183-4691 (Pkg. 5) 5183-4692 (Pkg. 25)	RK20782	\$105.00	\$90.80

¹ Trace, active samples, high recovery & linearity. Hole in Drilled Uniliner liner makes direct injection possible with EPC-equipped Agilent 6890 & 7890 GCs;

² Trace samples <2µL; ³ Trace samples >2µL; ⁴ Trace, active samples >2µL; ⁵ Universal, use with Agilent 7673 autosampler

* Nominal ID at syringe needle expulsion point

We offer Topaz and IP inlet liners for Agilent, Bruker/Varian, Perkin Elmer, Shimadzu and more! Visit www.chromspec.com/topaz and www.chromspec.com/liners for complete lists.



**Contact us for
Volume Pricing!**



Liner Maintenance

Changing inlet liners regularly is key to maintaining chromatographic performance, helping prevent problems such as:

- Sample degradation resulting in poor response
- Sample adsorption resulting in poor peak shape (tailing)
- Sample discrimination
- Irreproducibility
- Extraneous peaks from contamination or cored septum particles

Liner Changing Procedure

When changing liners, be sure to condition them at 20°C above the operating inlet temperature for a minimum of 10 minutes, after installation to remove any potential contaminants and prepare the liners for use!



A change in chromatographic performance is often indicative of a need for injector maintenance.

Contact us to discuss how to proactively maintain the injection port components and get consistently good chromatography results.

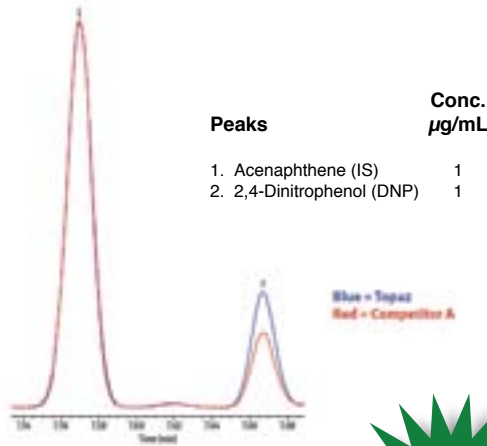
INLET LINERS FOR TRACE ANALYSES






Restek Topaz inlet liners give industry leading inertness and performance.

Restek Topaz inlet liners, with and without wool, use a state-of-the-art deactivation process creating an exceptionally inert flow path. This reduction in active sites ensures improved transfer of analytes to the column, better response, and highly symmetric peaks!

High inertness is important, especially when using wool. Comparatively testing liners using highly reactive 2,4-DNP shows less degradation when using Topaz liners. The competition simply can't compete.

Column: Rxi-5ms, 15 m, 0.25 mm ID, 0.25 μ m (RK13420)
Sample: Topaz FID liner test mix; Diluent: Methylene chloride
Injection: Inj. Vol.: 1 μ L splitless (hold 1 min.);
 Liner Topaz 4.0 mm ID single taper with wool (RK23303);
 Inj. Temp.: 250°C; Purge Flow: 40 mL/min.
Oven: Oven Temp.: 40°C (hold 1 min.) to 300°C at 18.5°C/min. (hold 1 min.)
Carrier Gas: He, constant flow; Flow Rate: 2mL/min.
Detector: FID @ 340°C; Make-up Gas Flow Rate: 45 mL/min.; Make-up Gas Type: N₂;
 Hydrogen Flow: 40 mL/min.; Air Flow: 400 mL/min.; Data Rate: 50 Hz
Instrument: Agilent 7890A GC



Description	ID OD x Length	Equivalent to Agilent Number	Product Number	Pkg. 5	5 x Pkg. 5
Split Liners for Agilent GCs  4mm Straight w/Wool	4.0mm 6.3mm x 78.5mm	5190-3164 (Pkg. 5) 5190-3168 (Pkg. 25)	RK23300	\$96.60	\$78.10
Splitless Liners for Agilent GCs  4mm Single Taper w/Wool	4.0mm 6.5mm x 78.5mm	5190-3163 (Pkg. 5) 5190-3167 (Pkg. 25)	RK23303	\$137.30	\$110.70
 4mm Single Taper	4.0mm 6.5mm x 78.5mm	5190-3162 (Pkg. 5)	RK23302	\$133.30	\$108.00
Split/Splitless Liners for Agilent GCs  Low Pressure Drop Liner w/Wool	4.0mm 6.3mm x 78.5mm		RK23467	\$212.70	\$166.20
Direct Injection Liners for Agilent GCs (for 0.25/0.32/0.53mm ID Columns)  Drilled Uniliner (hole near bottom)	4.0mm 6.3mm x 78.5mm	G1544-80730	RK23306	\$447.00	\$377.60

Topaz liners feature blister packaging developed for superior cleanliness.

The cleaner the liner, the less time you spend conditioning after changing your liner. Greater instrument uptime translates into more samples run and more profit for your lab. Get it with the unparalleled stability and cleanliness of Topaz inlet liners.



GC COLUMN CONNECTORS

Glass connectors are useful for connecting fused silica GC columns to guard columns and transfer lines; and to repair broken columns.



Undeactivated Connectors ⇒ For Routine Analyses

- Ideal for working with hydrocarbons and permanent gas (oxygen, nitrogen, methane, and carbon monoxide) analyses

Product Number	Description	Fits Column (MM OD)	Qty	Equivalent to Agilent Number	Price
Restek Press-Tight® Connectors					
RK20400	Universal, Straight	0.33 to 0.74	5	—	\$81.80
RK20401	Universal, Straight	0.33 to 0.74	25	—	<i>\$ Save More.....310.20</i>
RK20402	Universal, Straight	0.33 to 0.74	100	—	<i>\$ Save More.....938.00</i>
RK20405	Universal, “Y”	0.33 to 0.74	1	—	119.20
RK20406	Universal, “Y”	0.33 to 0.74	3	—	<i>\$ Save More.....313.20</i>
RK20403	Universal, Angled “Y”	0.33 to 0.74	1	—	117.70
RK20404	Universal, Angled “Y”	0.33 to 0.74	3	—	<i>\$ Save More.....310.20</i>

Deactivated Connectors ⇒ For Sensitive Analyses

- Recommended for sensitive analyses of solvents like alcohols, aldehydes and ketones

CHROMSPEC™ Glass Connectors					
CS83305	Universal, Straight	0.30 to 0.75	5	5190-6979 (Pkg. 10)	\$50.00
CS833025	Universal, Straight	0.30 to 0.75	25	5190-6979 (Pkg. 10)	<i>\$ Save More.....206.10</i>
Restek Press-Tight® Connectors					
RK20429	Universal, Straight	0.33 to 0.74	5	5190-6979 (Pkg. 10)	\$87.20
RK20430	Universal, Straight	0.33 to 0.74	25	5190-6979 (Pkg. 10)	<i>\$ Save More.....355.50</i>
RK20405261	Universal, “Y”	0.33 to 0.74	1	5190-6980	120.70
RK20406261	Universal, “Y”	0.33 to 0.74	3	5190-6980	<i>\$ Save More.....317.70</i>
RK20403261	Universal, Angled “Y”	0.33 to 0.74	1	—	119.20
RK20404261	Universal, Angled “Y”	0.33 to 0.74	3	—	<i>\$ Save More.....314.70</i>

MS-Connect Deactivated Connectors ⇒ For GC-MS

- Ideal for GC-MS analyses of a wide variety of pharmaceutical, forensic/toxicological and environmental compounds
- Proprietary deactivation for superior inertness
- Re-engineered inside tapers and overall lengths resulting in improved sealing properties

CHROMSPEC™ MS-Connect Connectors					
CS846610	Straight	0.30 to 0.50	10	—	\$189.50
CS8460	3-way	0.30 to 0.50	1	—	280.30

Siltek® Deactivated Connectors ⇒ For Organochlorine Pesticide & Low Level Drug Analyses

- Unlike traditional deactivations, Siltek® deactivation is not susceptible to cleavage or formation of active silanols and, therefore, greatly reduces bleed, and breakdown or adsorption of active components, compared to conventional surface coatings

Restek Press-Tight® Connectors					
RK20480	Universal, Straight	0.33 to 0.74	5	—	\$103.40
RK20449	Universal, Straight	0.33 to 0.74	25	—	<i>\$ Save More.....439.00</i>
RK20485	Universal, “Y”	0.33 to 0.74	1	—	133.00
RK20486	Universal, “Y”	0.33 to 0.74	3	—	<i>\$ Save More.....358.60</i>
RK20487	Universal, Angled “Y”	0.33 to 0.74	1	—	145.20
RK20469	Universal, Angled “Y”	0.33 to 0.74	3	—	<i>\$ Save More.....388.80</i>



Should I Use Deactivated or Undeactivated GC Connectors?

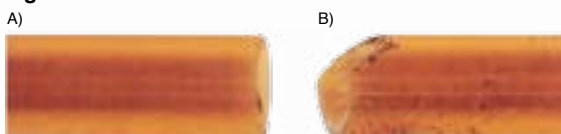
Many chromatographers prefer undeactivated GC connectors for general, routine GC analyses and have obtained very good results. For more sensitive analyses (such as solvents, pesticides, herbicides, forensic & toxicological samples, and trace GC-MS work), a deactivated connector will maintain a more inert flow path and help prevent sample adsorption or loss.



How Do I Attach Glass GC Connectors to Fused Silica Tubing?

To obtain a proper connection it is essential to begin with a perfect 90 degree cut (Figure 1). First clean the tubing with methanol and use a ceramic scoring wafer (RK20116) for the cut. Examine the end with a pocket magnifier. Assuming a good cut, push the column into the connector until the polyimide sticks to the glass surface, producing a brown ring (Figure 2). Apply a very small amount of polyimide resin (RK20445) near the opening of the glass connector and allow to air dry for 30 minutes. The polyimide resin adds mechanical strength to the connection. For a solid and tight connection, the connector should be heated, under carrier gas, to 200°C in the GC oven for 30 minutes.

Figure 1



A) The cut on the left will produce a good seal
B) The cut on the right will produce a poor seal

Figure 2



Why Use an Angled “Y”?

Angled “Y” Connector inlet and outlet ends conform to the column curvature to alleviate column-end connection strain.

Ceramic Scoring Wafer

Product Number	Description	Qty	Equivalent to Agilent Number	Price
RK20116	Ceramic Scoring Wafers	5	5181-8836	\$60.40



Restek Polyimide Resin

Securely connects a Press-Tight® connector to a fused silica column.

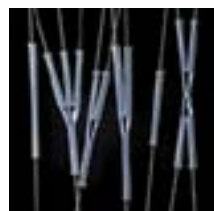
RK20445	Polyimide Resin	5g	500-1200	\$42.80
---------	-----------------	----	----------	---------



Wait! There's More...

We carry many more glass connectors, including “Y”, “T”, “X”, 3-way splitters, and defined PressFit connectors.

Please contact us for more information.



GC COLUMNS FOR TRACE ANALYSIS



Analyze more samples per day and purchase fewer Rxi® columns compared to the competition.



Less Troubleshooting = more time to run samples!

Rugged polymers are cross-bonded and anchored to an extremely inert deactivation surface, resulting in a column that can take whatever abuse you throw at it. This rugged, inert design increases column lifetime and helps to reduce column maintenance, column replacement, instrument recalibration, and the potential need for method revalidation compared to other columns.

Get the Right Results, Fast!

High column efficiency and inertness allow for faster analyses with lower detection limits, especially for trace-level GC-MS analyses.

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



Outstanding Inertness



Low Bleed



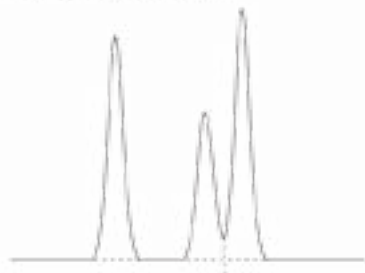
High Reproducibility

Rxi® columns don't just give you the right results; they give you the right results fast.

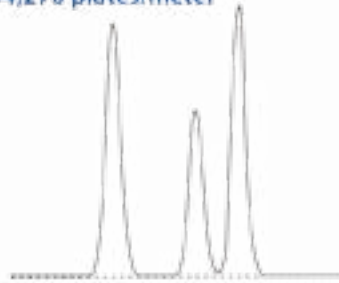
Thermal stability with low column bleed lets you run your instrument at higher oven temperatures, reducing analysis times and increasing sample throughput. And, the efficiency of an Rxi® column generates sharp, narrow peaks, so target analytes are still separated at high temperatures!

Higher efficiency (i.e. more plates per meter) means better separations on an Rxi® column.

Non-Restek
N=3,900 plates/meter



Restek® Rxi® Technology
N=4,270 plates/meter

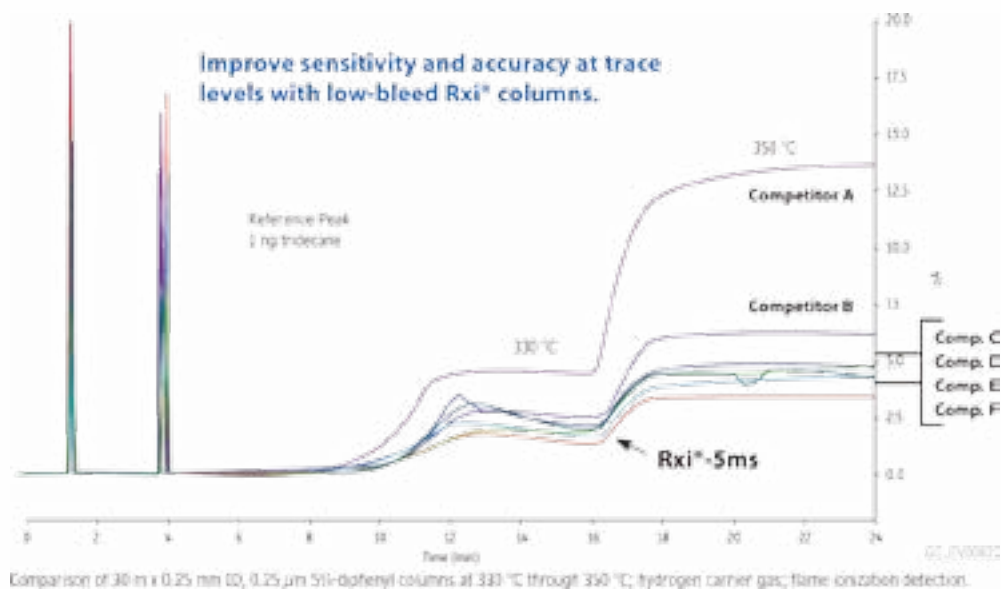


RESTEK
Pure Chromatography

GC COLUMNS FOR TRACE ANALYSIS

Rxi® GC columns have the lowest bleed among major brands of columns

Rxi® columns are more stable than other manufacturers' columns, so they generate less bleed and reduce background to further improve signal-to-noise ratios, enhance sensitivity, and lower detection limits. These qualities make low-bleed Rxi® columns the perfect choice for trace-level, GC-MS analyses.



Column bleed is the degradation and elution of the stationary phase at elevated temperatures. Lower bleed columns inherently last longer.

The Best Column For Your Next Method is an Rxi® Column

Choosing the right stationary phase can make all the difference to the success of your analysis. Restek has developed a wide selection of stationary phases that span the polarity range, so you can easily select a perfectly matched Rxi® column that helps you run faster and produce unbeatable results.



Rxi® low-bleed MS columns exceed the requirements of the most sensitive mass spectrometers.

Use Rxi® “Sil” Columns for Mass Spec

By combining arylene chemistry with Rxi® technology, Restek has developed a subgroup of phases containing silarylene copolymers that offer even more exceptional thermal stability. Higher thermal stability results in lower bleed, making Rxi® “Sil” columns perfect for MS or highly sensitive applications.

Put Rxi® GC Columns to Work in Your Lab Today!

You owe it to yourself, your data, and your customers to put the best GC column into your instrument. Rxi® columns are the right choice for improving the speed and accuracy of your results.

Contact our Technical Support Team to discuss your application today!

GC COLUMNS FOR TRACE ANALYSIS

Restek Rxi® GC Columns

Product Number	Description	Equivalent to Agilent Number	Price
RK13323	Rxi®-1ms, 30m x 0.25mm x 0.25 µm	122-0132UI	\$602.00
RK13952	Rxi®-1HT, 30m x 0.25mm x 0.25 µm	—	789.00
RK13423	Rxi®-5ms, 30m x 0.25mm x 0.25 µm	19091S-433I	598.00
RK13623	Rxi®-5Sil MS, 30m x 0.25mm x 0.25 µm	122-5532UI	615.00
RK13923	Rxi®-5HT, 30m x 0.25mm x 0.25 µm	—	789.00
RK13723	Rxi®-XLB, 30m x 0.25mm x 0.25 µm	122-1232	635.00
RK16094	Rxi®-1301Sil MS, 30m x 0.25mm x 0.25 µm	CP9053	687.00
RK13868	Rxi®-624Sil MS, 30m x 0.25mm x 1.40 µm	122-1334UI	608.00
RK13823	Rxi®-35Sil MS, 30m x 0.25mm x 0.25 µm	122-3832UI	770.00
RK49318	Rxi®-PAH, 30m x 0.25mm x 0.10 µm	—	763.00
RK13523	Rxi®-17, 30m x 0.25mm x 0.25 µm	122-1732	565.00
RK14123	Rxi®-17Sil MS, 30m x 0.25mm x 0.25 µm	122-4732	635.00
RK10059	Rxi® Guard / Retention Gap, 10m x 0.25mm	—	129.50
RK10064	Rxi® Guard / Retention Gap, 10m x 0.32mm	—	147.10
RK10073	Rxi® Guard / Retention Gap, 10m x 0.53mm	—	192.90



Use Rxi® Guard/Retention Gap Columns to protect your analytical column and help focus analytes.

For Glass Connectors and cutting tips, see page 12.



Many more Rxi® GC Columns and Guards are available.

Visit www.chromspec.com/rxi

We carry a wide variety of Restek Rxi®, Rtx®, MXT®, packed and micropacked columns.

We also offer other GC columns such as CHROMSPEC packed columns, ValcoBond and ValcoPLOT (VICI);

Grace Davison (formerly Alltech), Macherey Nagel and Quadrex (CRS).

Please contact our Technical Support Team to find the column you need, fast!



Protect your instrument and column! Checking for leaks and verifying flows before you start helps you avoid costly problems later.

Restek ProFLOW 6000 and Leak Detector Combo

- Restek's New Leak Detector is an essential tool for troubleshooting and routine maintenance of your gas chromatograph.
- 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.



RK22654 Combo Pack, ProFLOW 6000 & Leak Detector V \$2,118.00

Restek Dynamic Duo - Leak Detector and ProFLOW 6000 Flowmeter Combo Pack



Avoid using liquid leak detectors on a GC. Liquids can be drawn into the system causing contamination or damage to the column or other components.

Restek MXT® Columns

⇒ For GC applications where column breakage is a concern, trust MXT® columns to deliver the robustness of steel with the inertness of fused silica

- High temperature petroleum and petrochemical applications
- Field instruments and process GCs where excessive jarring is common

MXT® columns undergo a process whereby a thin, flexible deactivation layer is bonded directly to the stainless steel surface, offering comparable efficiency and inertness to fused silica tubing, with increased durability.

Product Number	Description	Price
RK70105	MXT®-1, 15m x 0.25mm x 0.10µm	\$472.00
RK70107	MXT®-1, 30m x 0.53mm x 0.15µm	506.00
RK70109	MXT®-1, 30m x 0.28mm x 0.10µm	787.00
RK70112	MXT®-1HT SimDist, 5m x 0.53mm x 0.10µm	482.00
RK70115	MXT®-1HT SimDist, 5m x 0.53mm x 0.20µm	482.00
RK70118	MXT®-1HT SimDist, 10m x 0.53mm x 0.21µm	573.00
RK70223	MXT®-5, 30m x 0.25mm x 0.25µm	772.00
RK70252	MXT®-5, 15m x 0.53mm x 0.25µm	499.00
RK70225	MXT®-5, 30m x 0.53mm x 0.25µm	860.00
RK70199	MXT®-2887, 10m x 0.53mm x 2.65µm	361.80
RK70652	MXT®-Wax, 15m x 0.53mm x 1.0µm	499.00
RK70655	MXT®-Wax, 30m x 0.53mm x 1.0µm	860.00
RK70658	MXT®-Wax, 60m x 0.53mm x 1.0µm	1,318.00

Many more phases and column dimensions are available. The standard coil diameter for most MXT® columns is 4.5", but they can be custom coiled to meet your exact specifications (2.5–7" diameters). Please contact our Technical Support Team to discuss your requirements or for instructions on cutting and proper installation of MXT® columns!

MXT® guard columns are also available. Please inquire.

Restek MXT® Connectors

Connect transfer lines or guard columns directly to your MXT® columns without affecting your chromatography.

MXT® Low-Dead-Volume Connector Kits		
RK20397	For 0.28mm ID MXT Columns	\$94.60
RK20536	For 0.32mm ID MXT Columns	99.00
RK20394	For 0.53mm ID MXT Columns	94.60
MXT® Low-Dead-Volume "Y" Connector Kits		
RK20396	For 0.28mm ID MXT Columns	\$165.40
RK20537	For 0.32mm ID MXT Columns	175.80
RK20395	For 0.53mm ID MXT Columns	165.40

MXT® Needle Files for Cutting MXT Columns

Multi-purpose files especially useful for cutting Siltek-treated stainless steel GC columns.



RK21601	MXT® Needle Files, Pkg. 2	\$31.90
---------	---------------------------	---------



MXT®-2887 columns are your best choice for simulated distillation.

For more information, please request Literature Code **RK188**.



GC Columns in Space!



MXT® columns were chosen to be carried on the Rosetta spacecraft's Philae lander, which made history by achieving the first soft landing on a comet. When column ruggedness and durability is essential, trust MXT®.

REPLACEMENT PARTS FOR AGILENT GC AND GC/MS

Chromatographic Specialties offers an extensive line of replaceable instrument parts to keep your Agilent GC and GC-MS running at peak performance. These parts are designed to meet or even exceed the manufacturers' already-strict specifications and performance requirements.



EI and CI Filaments

Product Number	Description	Qty	Equivalent to Agilent Number	Price
RK23099	Filament, High Temperature EI for GC/MS	1	G7005-60061	\$147.50
CP420056	CI Filament for the 5973 MSD	1	G7005-60072	201.60

Electron Multiplier Replacement Horn

CP4200010200	Electron Multiplier Replacement Horn	1	05971-80103	\$1,083.00
--------------	--------------------------------------	---	-------------	------------



Split/Splitless Injection Port (Direct Replacement or Siltek® Treated) for Agilent 6890/7890/6850 GCs

RK22674	Replacement Weldment with EPC	1	G1544-60575	\$409.00
RK22672	Replacement Weldment with EPC, Siltek® Treated	1	G1544-60575	541.00
RK22673	Replacement Shell Weldment	1	G1544-80570	341.20
RK22671	Replacement Shell Weldment, Siltek Treated	1	G1544-80570	497.00
RK22686	Split/Splitless Weldment, for use with large canister type filter	1	G1544-60585	589.00
RK22670	Split/Splitless Weldment, for use with large canister type filter, Siltek® Treated	1	G1544-60585	720.00



Replacement Chemical Traps for Agilent GCs

RK22820	Replacement Split Vent Trap for Agilent 6890/6850 GCs	1	G1544-80550	\$181.70
RK21610	Replacement Chemical Trap for Agilent 5890 GCs	1	05890-61260	166.60
RK22800	Split Vent Line (32-inch) for Agilent GCs Includes: All installation hardware	2	19251-80525	83.30
RK22064	O-Rings for Agilent Trap Fittings	25	5180-4181	34.90
RK23031	Optional Split Vent Trap Assembly for Agilent 6890/6850 GCs	Kit	G1544-60610	379.10
RK23032	Replacement Traps (2) and O-Rings (4)	Kit	G1544-80530	127.40



Air Diverter for 5890/6890/7890 GCs

RK22076	Air Diverter	1	G1530-80650 19247-60510	\$271.20
---------	--------------	---	----------------------------	----------



FID Collector for Agilent 6890/6850

RK21139	FID Collector	1	G1531-20690	\$138.80
---------	---------------	---	-------------	----------



FID Maintenance Kits for Agilent GCs

- Include the most common consumable GC supplies and tools
- All parts meet or exceed performance of instrument manufacturer's parts
- Parts list makes reordering easy

RK22179	FID Kit for Agilent 6850/6890/7890 GCs	Kit	—	\$999.00
RK22180	FID Kit for Agilent 5890 GCs	Kit	—	991.00



REPLACEMENT PARTS FOR AGILENT GC AND GC/MS

Inlet Maintenance Kit for Agilent GCs

- Includes the most common consumable GC supplies and tools
- All parts meet or exceed performance of instrument manufacturer's parts
- Includes a parts list making reordering easy

Product Number	Description	Qty	Equivalent to Agilent Number	Price
RK22181	Inlet Maintenance Kit for Agilent 5890/6850/6890/7890 GCs	Kit	—	\$722.00

Drawout Plate for Agilent MSD

RK23221	Drawout Plate, 3 mm	1	05971-20134	\$143.60
RK23222	Drawout Plate, 6 mm	1	G3163-20530	520.00

Lens Insulator for Agilent MSD

RK23223	Lens Insulator	1	G3170-20530	\$567.00
---------	----------------	---	-------------	----------

Repeller for Agilent MSD

RK23224	Repeller	1	G1099-20132	\$220.20
---------	----------	---	-------------	----------

Ceramic Repeller Insulator for Agilent MSD

RK23225	Ceramic Repeller Insulator	1	G1099-20133	\$165.90
---------	----------------------------	---	-------------	----------

Source Heater Sensor and Heater Block for Agilent MSD

RK23226	Source Heater Sensor and Heater Block	1	G3170-60180	\$1,595.00
---------	---------------------------------------	---	-------------	------------

Complete Ion Source Assembly for Agilent MSD

RK23227	Complete Ion Source Assembly	1	G3170-65750	\$4,625.00
---------	------------------------------	---	-------------	------------

We carry many more replacement parts for Agilent, Varian/Bruker, Thermo Scientific, Perkin Elmer, Shimadzu and other GC models.

Free Literature!



Genuine Restek Replacement Parts Catalog for Agilent GCs

An extensive catalog of consumer-replaceable instrument parts, tools, accessories, and supplies needed to keep your Agilent GC running at top performance.

Literature Code RK20 (PDF Only)

Visit www.chromspec.com/rk20



Agilent GC-MS Maintenance: Restek's Quick Reference Guide

Let us help you maintain—and even enhance—the performance of your instrument with Restek's line of routine GC-MS maintenance and replacement parts for Agilent mass spectrometers.

Literature Code RK203

Visit www.chromspec.com/rk203



We recommend that you condition your system after performing GC inlet maintenance to help guarantee the best results possible from the very first injection.

REPLACEMENT TRAPS FOR EXISTING GC AND GC-MS SYSTEMS

All GC manufacturers recommend the use of gas traps to:

- ⇒ Eliminate contaminants (oxygen, hydrocarbons and moisture)
- ⇒ Increase column lifetime and reduce detector interference
- ⇒ Decrease baseline noise, increase sensitivity and improve analytical accuracy

Economically Priced Replacement Traps for your Existing Agilent Gas Purification System

Advanced Filter System (AFS) Gas Traps

⇒ **Applications:** GC and GC-MS, ECD, ICP

- Removes oxygen, hydrocarbons and moisture
- High capacity and efficiency in a single cartridge
- Can supply 4 GCs for at least one year when used with 99.995% pure gas
- Easy cartridge replacement – twist on/off
- Double seal construction for safety, especially for use with hydrogen
- Check valves protect gas lines from ambient air during cartridge replacement, maximizing column and system lifetime



Product Number	Description	Equivalent to Agilent Number	Qty	Price
C36301	AFS I Complete Kit, 1/8" Fittings	G3440-60004	1	\$859.00
C36323	AFS I Replacement Cartridge Kit (Reconditioned)	G3440-69003	1	364.20
C36321	AFS I Replacement Cartridge	G3440-60003	1	547.00

Replacement Purifiers for Agilent GC-MS and LC-MS Systems

VICI Metronics Gas Specific Purifiers

- Reduce gas impurities from high PPM to low PPB levels
- Decrease baseline noise and increase GC-MS sensitivity
- Remove oxygen, hydrocarbons and moisture

Purification is optimized with a multiple bed format. Each bed functions at a lower contaminant concentration, resulting in a series of contaminant concentration gradients across the length of the gas purifier.



VMSP1001	Helium Purifier, 1/8"	5182-3467, RMSH-2	1	\$322.10
VMSP2001	Hydrogen Purifier, 1/8"	5182-3425, RMSHY-2	1	322.10
VMSP3002	Nitrogen Purifier, 1/4"	G1946-80047, RMSN-4	1	322.10

GAS TRAPS FOR NEW GC AND GC-MS SYSTEMS

Set up a New, Flexible Gas Purification System

Restek Super Clean® Gas Traps

Suitable for the purification of GC gases with low contamination to a better than 6.0 grade (99.9999%) purity.

- Several trap designs for single or multiple contaminant removal
- “Quick connect” fittings for easy, leak-tight changes
- High purity at max flow of 2L/min.
- Trap life is approx 1 year with one GC system



Product Number	Description	Equivalent to Agilent Number	Qty	Price
RK21983	Helium-Specific Carrier Gas Cleaning Kit (for GC-MS)	CP17988	1	\$862.00
RK22019	Carrier Gas Cleaning Kit	—	1	706.00
RK21982	Replacement Helium-Specific Gas Trap	CP17973	1	398.70
RK22020	Replacement Triple Trap	—	1	227.10
RK22022	Replacement Fuel Gas Trap (removes moisture and hydrocarbons)	—	1	279.60
RK22028	Ultra-High Capacity Moisture Trap	CP17971	1	201.80
RK22029	Ultra-High Capacity Oxygen Trap	CP17970	1	201.80
RK22030	Ultra-High Capacity Hydrocarbon Trap	CP17972	1	201.80
RK22025	Single position trap base plate	CP7988	1	402.00
RK22026	2-position trap base plate	CP738407	1	741.00
RK22027	3-position trap base plate	—	1	1,053.00

The traps are connected to a base plate, installed into the gas line. Standard base plate inlet/outlet fittings accept 1/8" tubing.

Restek Electronic Maintenance Indicator for Gas Filters

- Progressively displays real-time gas filter status
- Warns you when maintenance for a gas filter is due and prevents unplanned downtime
- Audiovisual warning system ensures maintenance is done on time



RK22645	Maintenance Indicator for Gas Filters	—	1	\$116.50
---------	---------------------------------------	---	---	----------

Choose our Most Economical Purification Option for New Systems

CHROMSPEC™ GC Gas Traps

- Economically priced in-line traps
- Consider using the large, 750cc traps for additional cost savings and less frequent trap changes!



C36035	Indicating Moisture Trap, 400cc, 1/8"	MT400-2	1	\$151.20
C36086	Non-Indicating Moisture Trap, 750cc, 1/8"	BMT-2	1	331.50
C36060	Oxygen Trap, 100cc, 1/8"	OT1-2	1	136.90
C36082	Oxygen Trap, 750cc, 1/8"	BOT-2	1	336.60
C36100	Hydrocarbon Trap, 200cc, 1/8"	HT200-2	1	125.50
C36090	Hydrocarbon Trap, 750cc, 1/8"	BHT-2	1	309.80

Traps are available with 1/8" or 1/4" tube fittings.

CHROMSPEC™ ...The Name for Affordable Quality



Traps should be placed vertically for maximum efficiency and to prevent channeling.



Rugged, inert columns last longer so you can run more samples.

Triart Columns

Simplified HPLC method development

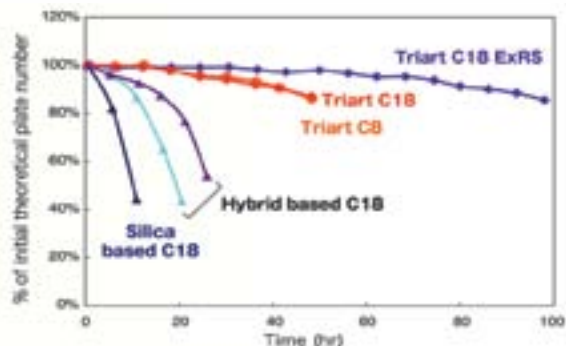
- Extreme chemical stability allows you to choose from a range of separation conditions to optimize selectivity without changing columns
- pH resistant from 1-12 (C8, C18 columns)
- Can be used with 0-100% organic or aqueous solvents
- Stable to 70°C



- High physical strength and a broad range of particle sizes allow columns to be used on a wide range of instruments
- Microreactor production avoids delamination of organic and inorganic layers
- 1000 MPa (bar) / 14,500 psi limit for UHPLC
- 1.9µm, 3µm, 5µm analytical columns and up to 50µm preparative columns

Stability of Triart columns at high pH.

Conditions: Phosphate buffer (pH 11.5), 40°C.

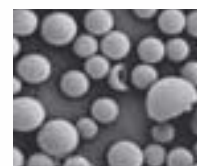


Avoid Delamination

Triart C18



Other Hybrid Particle



Mode	Reversed Phase					HILIC
	C18	C18 ExRS	C8	Phenyl	PFP	Diol-HILIC
Product name	C18	C18 ExRS	C8	Phenyl	PFP	Diol-HILIC
Base material	Multi-layered organic/inorganic hybrid					
Stationary phase	-C ₁₈ H ₃₇	-C ₁₈ H ₃₇ Trifunctional for Steric selectivity	-C ₈ H ₁₇			
Bonding type	Polymeric					
Particle size	1.9 µm, 3 µm, 5 µm					
Pore size	120 Å					
End-capping	Yes				No	No
Carbon loading	20%	25%	17%	17%	15%	12%
pH range	1 - 12			1 - 10	1 - 8	2 - 10
Temperature limit (recommendation)	70°C for pH 1 - 7 50°C to pH 12			50°C		
100% aqueous mobile phase compatibility	Yes	No	No	Yes	Yes	-

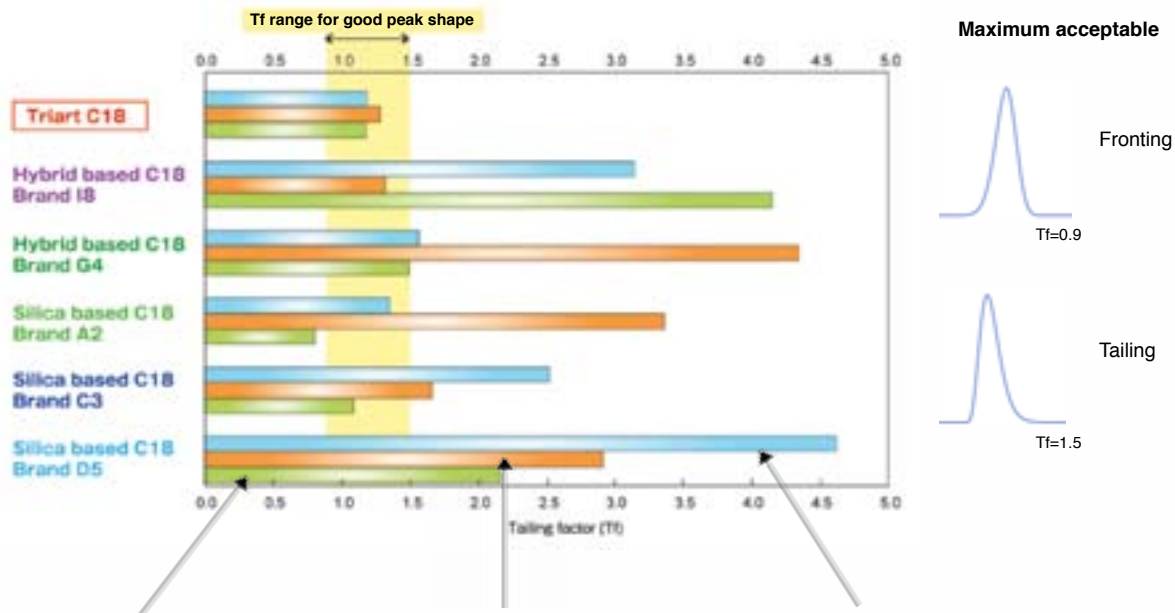
Make fewer compromises and simplify your HPLC method development.

Contact our Technical Support Team for more information.

Excellent separations for even your most miserable analyses

Use pH where it's needed most: for selectivity, not to fix peak shape

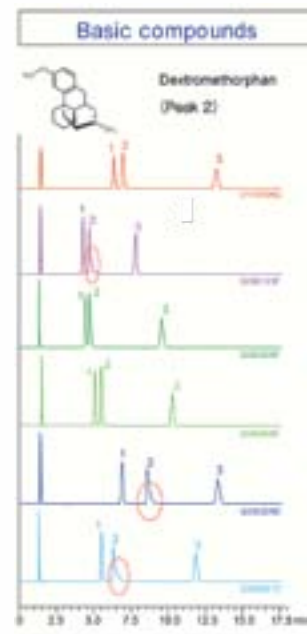
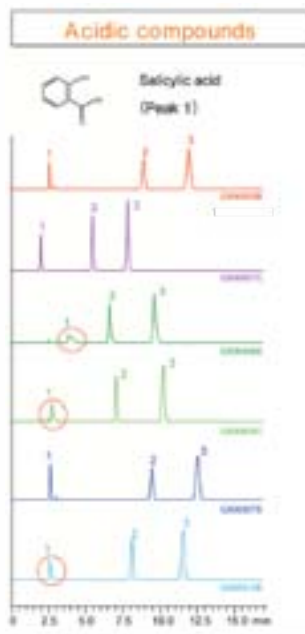
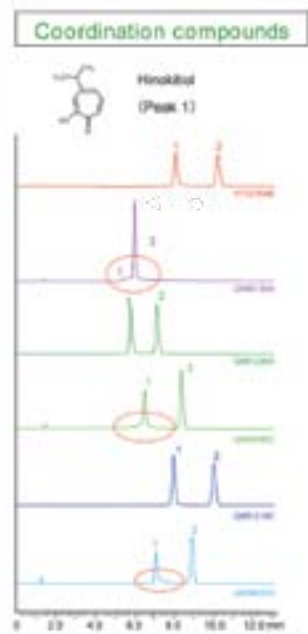
Difficult analytes don't need complicated mobile phases to obtain symmetrical peaks. Triart is so inert, simple mobile phases provide excellent peak shapes even for acids, bases and metal chelators.



60% 0.1% Phosphoric acid :
40% Acetonitrile

75% 10mM acetate buffer pH 4.2;
25% Acetonitrile

65% 20mM phosphate buffer pH 6.9;
35% Acetonitrile



Triart is tested to work well for difficult analytes and conditions...Imagine what it can do with easy analytes!

To see Triart put to the test under more conditions, request Literature Code **YM10**, or visit www.chromspec.com/ymc-triart.

HPLC Columns...

Look what we have to offer!

Chromatographic Specialties has access to a broad range of HPLC brands and manufacturers. Our Technical Support Team is available to help you find the optimal HPLC column for fast, effective and reliable method development.

YMC — Meteoric, Triart, YMC-Pack *Pro*, YMC-Ultra HT *Pro*, YMC-Pack, Chiral ART



Restek — Force™, Raptor™, Ultra, Roc™, Viva™, Pinnacle DB™



MACHEREY-NAGEL — Nucleodur®, Nucleoshell®, Nucleosil®



HAMILTON — PRP®, HxSil

HiChrom — Genesis®, Apex™, Apollo™, Alltima™ HP, Partisil®, PartiSphere®, Prevail™, Vydac

KNAUER — Blue Shell, Blue Orchid, Bluespher, Eurospher I & II, Eurocel, Eurokat, Eurosil Bioselect

REGIS — IAM, RAM Direct Injection

REGIS CHIRAL — Alpha Burke 2, DACH-DNB, Leucine, Phenylglycine, Pirkle 1-J, β -Gem 1, ULMO, Whelk-O®, RegisCell™, RegisPack™, ChiroSil®

THERMO — Accucore™, Hypersil®, Hypersil Gold™, Hypercarb, BioBasic™

MICRO-TECH — Capillary LC Columns

OROCHEM — Orosil - simple replacement for Inertsil-based applications

PERKIN-ELMER — Brownlee™, Aquapore™, Polypore

PICKERING LABORATORIES — Application matched columns for turn-key Post Column Derivatization

ZIRCHROM — ZirChrom®, Sachtopore - Zirconia and Alumina columns for high temperature and extreme pH applications

PLUS — Emerald, Envirodur, Lichrosorb®, Lichrospher®, Matrix, Monitor, Polygosil, Polygoprep, Silicycle ... and many more

CHROMSPEC™ REPLACEMENT DEUTERIUM LAMPS



Prices up to 40% lower compared to products from Agilent, Waters and other manufacturers!

All CHROMSPEC™ replacement lamps are fully guaranteed and manufactured to the same standards as original equipment manufacturer (OEM) lamps, but at a greatly reduced cost.

- Fully guaranteed with a 1,000 or 2,000 hour pro-rated warranty
- Each lamp is carefully designed to match the OEM product specifications

Bright Ideas for Lamps...

Handle with care

Deuterium lamps produce a plasma ball approximately 0.5mm in diameter. Disturbing the filaments by even tenths of a millimeter will wreck the alignment of your bulb.

Shelf-life is not warranty life

Lamps stored away from jostling and bumping last a long time. If you keep a spare bulb for a year before using it, we will still be there to support you.

Clean lamps are happy lamps

Wear cotton or thin rubber gloves to protect your lamp from fingerprints. Wipe all lamp bulbs down with IPA before installing.

Track your operating time

CHROMSPEC™ brand lamps are produced in accordance with RoHS rules. Record bulb use by tracking on-off times in a lab book or calculate working hours per/day and number of days. These are accurate for warranty questions.

Warranties

A 1,000 or a 2,000 hour lamp doesn't need to be replaced when its warranty runs out. A 1,000 hour warranty says we expect a lamp to last *at least* 1,000 hours. All lamps in the table are rated for 2000 hours (long life).

Lamps have turn-offs too

If your instrument will be left unused for more than a few hours, turn the lamp off to preserve its useful life. If it will be less than two hours until your next run, leave it on. The thermal cycling and warm-up time will offset the advantages of turning the lamp off.



Product Number	Model	Equivalent to Original Manufacturer Number	Type	Price
For Agilent				
C55D401AGLL	1100 VWD (G1314A)	G1314-60100	D2	\$605.00
C55D501AGLL	1100, 1200 DAD, 1100 MWD - Long Life	2140-0813 / 5181-1530 / 5182-1530	D2	786.00
C55D801AGLL	1260, 1290 DAD - Long Life	5190-0917	D2	577.00
For Waters				
C55D401WALL	966 2996 DAD	WAT057760 / WAT052586	D2	\$626.00
C55D501WALL	Alliance 2487, 2488	WAS081142	D2	626.00
For Shimadzu				
C55D101SHLL	SPD10A, 10AS, 10AV, 10AVP, M10AVP, 20A, 20AV	228-34016-02	D2	\$511.00
C55D301SHLL	LC2010	228-37401-00	D2	521.00
For Varian				
C55D301VALL	Vista 5000, 5500, UV50/100/200, 9050, Prostar 310	0391615691	D2	\$633.00
C55D401VALL	Prostar 330 DAD	0393570502	D2	626.00
C55D501VALL	Prostar 325, 335	110715400	D2	612.00

All lamps in table are Double life lamps with 2,000 hour warranties.

Select Tungsten and Xenon lamps are also available. Many lamps are also available in packages of 6.

We also offer lamps for the following instruments: Beckman, Biorad, Bruker, Dionex, Gilson, Hitachi, Jasco, Jenway, Knauer, Kontron, Perkin Elmer, Shimadzu (including SPD10A, 10AS, 10AV, 10AVP, M10AVP and LC2010), TSP, Varian (including Vista 5000, 5500, UV50/100/200, 9050, Prostar 310, 325, 330, 335), and many more.



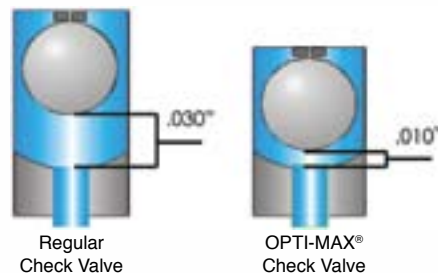
For more information, or for tips on how to install your lamp, visit www.chromspec.com/lamps

OPTI-MAX® Check Valves ⇨ Superior Performance



An economical option for faster and easier maintenance on HPLC and UHPLC instruments.

- **Less down-time:** Change check valves without removing tubing with Free-Turn® Housings
- **Faster valve response:** OPTI-MAX® cartridge design operates with 1/3 the ball travel of standard check valves.
- Ceramic balls are also denser than ruby, helping them seat even faster.
- Ceramic balls avoid sticky varnish formation in acetonitrile¹
- **Better sealing:** OPTI-MAX® cartridges have 1/4 the industry standard leak rate (3 bubbles / sec vs. 12 bubbles / sec)
- Available in HPLC (6,000psi / 400 bar) and UHPLC (18,000 psi / 1,250 bar or >20,000psi / 1,400 bar)



Reduced ball travel: OPTI-MAX® (right) has 1/3 of typical check valve travel, for more precise valve operation and faster seating.

Product Number	Description	Qty	Equivalent to Original Manufacturer Number	Price
M107602004	OPTI-MAX® Ceramic Single Ball and Seat Cartridge, Rated to 18,000 psi / 1,250 Bar Pressure	2	—	\$391.20
M108602004	OPTI-MAX® Ceramic Double Ball and Seat Cartridge, Rated to 20,000+ psi / 1,400+ Bar Pressure	2	—	420.00



M107602004

For Agilent 1100 and 1200 HPLCs

M275601330	OPTI-MAX® Outlet Housing & Cartridge, HPLC	1	G1311-60012 G1312-60012	\$290.00
M105602004	OPTI-MAX®, Replacement Cartridges, 1/8" Ball, HPLC	2	—	305.00
M273804713	OPTI-MAX®, Replacement Cartridge for Active Inlet Valve, 600 bar	1	5062-8562	257.20
M277801330	OPTI-MAX® Outlet Check Valve Conversion Kit for Agilent 1260, UHPLC	Kit	—	Inquire



M108602004

For Waters Alliance HPLCs

OPTI-MAX® cartridges have the same external dimensions as Waters Performance PLUS® cartridges and can be used in the same holders.

M104602004	OPTI-MAX®, Replacement Cartridges, 1/16", HPLC	2	700000254	\$346.60
------------	--	---	-----------	----------

For Shimadzu LC-30 UHPLCs

M344605135	OPTI-MAX® Inlet Housing, with Stainless Steel / Ceramic Cartridge, 1/16" Single Ball and Seat	1		\$482.00
M344605139	OPTI-MAX® Outlet Housing, with Stainless Steel / Ceramic Cartridge 1/16" Double Ball and Seat	1		437.00
M348605140	OPTI-MAX® Conversion Kit (2 inlets, 2 outlets)	Kit		1,567.00



M275601330

Also available in more sizes and with ruby/sapphire balls and seats.

¹ (Dolan, J. Check Valves and Acetonitrile. LCGC North America. v. 26, n. 6 pp 532-538)

OPTI-SEAL® Plunger Seals



OPTI-SEAL® UHMW-PE plunger seals reduce HPLC maintenance for Reversed Phase methods.

- UHMW-PE seals **last longer** than PTFE seals in water and polar organic solvents
- **Reduced filter maintenance:** UHMW-PE is designed to shed strands that sit on frits rather than plug them.
- **Less chance of leaching:** made from natural UHMW-PE, eliminating dyes or pigments that can contaminate your results

Visit www.chromspec.com/opti-seal-solvent for the Solvent Compatibility Guide.

Product Number	Description	Qty	Equivalent to Original Manufacturer Number	Price
----------------	-------------	-----	--	-------

For Agilent 1100 and 1200 HPLCs

M273601570	Plunger Seal, UHMW-PE, OPTI-SEAL®	1	0905-1420	\$77.50
M273601571	Plunger Seal, UHMW-PE, OPTI-SEAL®	10	0905-1420	725.00

For Waters Alliance HPLCs

M393602596	Plunger Seal, UHMW-PE, OPTI-SEAL®	1	WAT270938	\$72.00
M393602603	Plunger Seal, UHMW-PE, OPTI-SEAL®	2	WAT270938	135.30
M393602597	Plunger Seal, UHMW-PE, OPTI-SEAL®	10	WAT270938	625.00

Note: The Waters Alliance system is designed for reversed phase methods. If you need greater seal life for normal phase with an Alliance system, contact us for information on ITB™ seals.



M393602596

Pistons and Seals

For Agilent 1100 and 1200 HPLCs

M273601572	Plunger Seal, ITB™ PTFE	1	5063-6589	\$57.60
M273601573	Plunger Seal, ITB™ PTFE	10	5063-6589	559.00
RK22482	Plunger Seal, PTFE w/ Graphite	2	5063-6589	109.80
RK22483	Plunger Seal, PTFE w/ Graphite	10	5063-6589	475.00
M273400658	Plunger, Sapphire	1	5063-6586	185.00
M273602364	Wash Seal, UHMW-PE, OPTI-SEAL®	1	0905-1175	60.60
M273602851	Gasket, Wash Seal	6	5062-2484	38.10

For Waters Alliance HPLCs

M393602858	Tube Seals, Seal Wash	4	WAT270940	\$218.50
M393602860	Plunger Seal, Seal Wash	2	WAT271018	119.70
M393402180	Sapphire Plunger	1	WAT270959	260.10



M393402180

Purge and Mixing Valves

For Agilent 1100 and 1200 HPLCs

C56018AG	Frits, PTFE, Purge Valve	5	01018-22707	\$36.00
M273102853	Seal Cap, 2-in-1 (Replaces two part Agilent cap with a single part)	1	5067-4728	32.10
UAG131167701T	Valve, Multi-Channel Gradient	1	G1311-67701	1,990.00



Single piece design is easier to use than the Agilent part.
No assembly required and no gold disc that can pop out of the PE ring.



M273102853
on Agilent Purge
Valve Base



Lower cost than brand name parts, with no compromise in quality.

Filters

Product Number	Description	Qty	Equivalent to Original Manufacturer Number	Price
----------------	-------------	-----	--	-------

For Waters Alliance HPLCs

M390403524	Filter Insert Assembly, 2 μ m	1	WAT088084	\$28.20
------------	-----------------------------------	---	-----------	---------



M390403524

Autosampler Parts

For Agilent 1100 and 1200 HPLCs

M273103212	Rotor Seal Assembly, Polyimide	1	0100-1853	\$129.90
RK26424	Stator Face Assembly	1	0100-1851	362.40
C56028AG	Needle	1	G1313-87201	96.00
M273103329	Needle Seat Assembly with Convenient 1 Piece Ferrule	1	G1329-87101	190.90
M273103146	Needle Seat Assembly with 2 Piece Ferrule	1	G1329-87101	207.30



M273103329



Needle Seat Assembly with 1 piece ferrule is easily installed with less hassle than 2 piece ferrules, without compromising sealing pressure.

For Waters Alliance HPLCs

M393001106	Injector Wash Frit	3	WAT005106	\$98.00
M393001114	PTFE Washer, HPLC	6	WAT005135	67.40
H80024	Syringe, 250 μ L, 1725 for WISP	1	WAT073109	167.40
H80020	Syringe, 25 μ L, 1702 for WISP	1	-	175.40

Save More!

Larger pack sizes and customized Preventive Maintenance (PM) Kits are available.

PerfectPeak® HPLC In-Line Mixers

Up to 60% better baseline noise reduction and detection limits versus comparable volume mixers

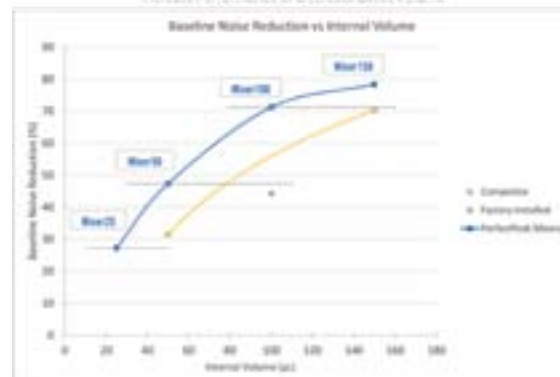
3D printed mixers create unique mixing pathways.

- Improved mixing performance over comparable competitor or factory installed mixers
- Compatible with a wide range of flow rates
- Easy installation in any HPLC system with compact bodies and standard 10-32 connections
- Competitive pricing compared to other after market mixers

Perfect PEAK



Increase Performance or Decrease Dwell Volume



Product Number	Description	Qty	Price
C18MIXER25	HPLC / UHPLC Static Mixer, 25 μ L	1	\$920.00
C18MIXER50	HPLC / UHPLC Static Mixer, 50 μ L	1	920.00
C18MIXER100	HPLC / UHPLC Static Mixer, 100 μ L	1	920.00
C18MIXER150	HPLC / UHPLC Static Mixer, 150 μ L	1	920.00



- Valves for LC and GC - 360 µm to 1/4" tubing
- For injection, stream selection, trapping, column switching
- Pressure resistance up to 20,000 psi for UHPLC
- Manual, pneumatic, or electrically-actuated
- Wide range of metal and polymeric fittings and tubing



Is it time to repair or replace your valves?

VICI Valves can be found factory installed in many instruments and can easily be retrofitted to replace other existing valves.

Chromatographic Specialties can:

- Locate the proper repair parts for original valves
- Recommend appropriate valves when replacements are needed

Chromatographic Specialties has over 50 years of experience getting the right parts to meet our customer's needs.

Chromatography is our Specialty

Whatever your instrumentation needs are...
We can make it work!

- Customization
- Turnkey Systems
- Automation
- Process Integration
- Installation
- Maintenance and Repairs
- Training

Our professional in-house Instrumentation Specialists provide affordable expert advice, service and support on any GC, HPLC and Sample Preparation system.

Contact us for a free consultation!



Chromatography

GCs

High End, Portable and Low Cost Options



HPLCs

Analytical, Preparative, GPC, Biochromatography



Universal Autosamplers for GC and LC



Sample Preparation

Automated SPE

for Environmental, Clinical, Forensic, Dioxin Applications



GC Sample Introduction, Purge and Trap, and Thermal Desorption



Sample Concentrators



And More....

Customization

We specialize in designing custom analytical systems and providing solutions that are not commercially available in order to meet your specific application requirements. We will sign a non-disclosure agreement, so you can rest assured that your information will be kept confidential and the solution will be tailored to your needs.

Our custom capabilities include:

- Modification of existing GCs and LCs
- Addition of a new injector, detector, or autosampler
- System automation
- Custom electronics and software
- ...and much more, call us!

Turnkey Systems

We can develop a system that is optimized and ready to use for your application. Our experts will install the instrument at your facility and train you on how to use it to get the results you need. You will be able to start analyzing samples right away, without worrying about complicated method development.

Process Chromatography Integration

For fully automated analyses, we can integrate your chromatography system to work seamlessly within your industrial process. If you need to monitor your analysis closely, we can connect it to your Distributed Control System (DCS).

Gas Generators with Backup and Alarm Systems

We can design and install a gas generator system with a remotely located backup cylinder. A warning system will tell you that the backup has been engaged, and can be set up to send phone, text or email notifications.



Multi column/multi detector GC for low level atmospheric gases



Custom sampling device for sealed container

Contact us for a



Custom VOC sample splitting system



SRI GC with pulse discharge detector for low PPB work

We offer you the best available solutions from a wide range of world renowned manufacturers.

We can customize any product to meet your specific needs.

HTA AUTOSAMPLERS

Are you spending more time fixing your old autosampler than running samples?



Buying a NEW HTA autosampler can cost less than repairing your old unit!

For more than 25 years, HTA has been a leading European manufacturer of GC and LC Autosamplers. Their systems are sold worldwide, both under the HTA brand and as the original manufacturer for major GC and LC brands.

HTA HT3000A Liquid GC Autosampler



**SPECIAL
OFFER**

Are you having problems with your old 7673 or 7683 autosampler?

Get a new HT3000A Liquid GC autosampler for **only \$9,750**

This system includes:

- 121 vial tray
- Remote start cable
- Mounting bracket
- 2 year warranty

Compatible with all GC brands.

Offer valid until December 31st, 2018



HTA HT2800T Autosampler

⇒ Static Headspace

⇒ SPME

⇒ Liquid Injection



All-in-one Unit

- Lowest cost of ownership in the industry
- Superior thermal stability for SPME and headspace modes
- Touch screen control for exceptional ease of use
- 5+5 flexibility: 5 minutes to switch between modes, 5 minutes to switch between GCs
- Works on all GC systems and allows for dual injector configurations on most platforms
- Mounting design allows for injector maintenance without moving the autosampler
- Optional CFR 21 Part 11 compliant software

Contact our Instrumentation Team for more information.



HTA HT2000H Series Headspace Autosamplers

Straight forward processing

- Vials are transported into the heated six-position incubator for preconditioning
- Sample is simultaneously heated and shaken to rapidly attain equilibrium

Proven superior technology

- High performance, gas-tight heated syringe eliminates dead volume and absorption effects typical of sample loops and transfer lines, which can impede analyte detection at very low levels

	HT2100H	HT2000H	HT2000HT
Sample Capacity	14 samples; 20 or 10mL	42 samples; 20, 10 or 6mL (1 removable rack)	42 samples; 20, 10 or 6mL (1 removable rack)
User Interface	Keypad	Touch Screen	Touch Screen
Oven Position(s)	1	6	3
Oven Temp. Range	Off; 40-150°C	Off; 40-170°C	Off; 40-300°C
Shaking Capability	Yes (Sussultatory)	Yes (Orbital)	Yes (Orbital)



HTA HT1000I Series Spectroscopy Autosamplers

- Compatible with a wide range of spectroscopy applications including ICP-OES, ICP-MS and AA
- Can be controlled by most popular ICP and AA software
- Optimized layout to save bench space
- 6 Removable racks for continuous feeding
- Cleans the sample probe internally and externally to avoid cross contamination



	HT1001I	HT1101I	HT1002I	HT1102I
Sample Capacity	89 samples 80x10mL and 9x50mL	89 samples 80x10mL and 9x50mL	54 samples 50mL	54 samples 50mL
Peristaltic Pump	No	Yes	No	Yes

HTA HPLC Liquid Chromatography Autosamplers

HTA offers a range of liquid chromatography autosamplers (HPLC, UHPLC, NanoLC, Preparative LC, LC-MS, and IC). These systems can be added to any type of analyzer with a quick, trouble-free installation.

Whatever your sample throughput, we have a solution for you: from 10 to 176+ sample vessel capacity.

Cooling and biocompatible options are available to handle most complex samples.

Contact our Instrumentation Team for more information.



PURGE & TRAP / THERMAL DESORPTION

Purge and Trap Concentrator for CTC-PAL Autosamplers

The CDS 7000 has been a workhorse in the industry for years. The 7000C delivers the same combination of qualities that made the 7000 such a popular choice, **but is now compatible with your CTC-PAL autosampler.**

- Proven, reliable performance
- Easy operation - integrates seamlessly with PAL software
- Options:
 - Hot water rinse
 - Heated sparge vessel
 - Electronic mass flow controller
 - Internal standard addition module



CDS 7350 / 7450 / 7500 Series Autosamplers



Economical Air and Water Volatiles Analysis.

⇒ With modular towers, it is like having 3 systems in 1!

- CDS 7350 Purge & Trap Autosampler ⇒ **Water only**
- CDS 7450 Purge & Trap Autosampler ⇒ **Water / Soil / Dynamic Headspace**
- CDS 7500 Thermal Desorption Autosampler ⇒ **Sorbent Tubes for Air Sampling**

With this modular platform, you can easily upgrade from the 7350 water-only autosampler to the 7450 or 7500 with a simple swap of towers. Changing from one mode to another can be accomplished in a matter of minutes!

- 72 positions with removable sample trays for 40mL VOA vials or TD tubes
- Switch between water, soil and dynamic headspace modes in seconds
- Switching to thermal desorption takes only minutes
- Connects to existing CDS 7000E systems as well as other concentrators and/or desorbers on the market
- Performing multiple methods on one GC or GC/MS significantly reduces costs and saves bench space
- Competitively priced



CDS 7350 (Water only)



CDS 7450 (Water & Soil)



CDS 7500 (TD Tubes)

Contact our Instrumentation Team for more information.

LC_{Tech} DEX_{Tech} 16

⇒ A revolution in PCB, PBDE, BFR and Dioxin sample clean-up



The lowest operating cost per sample of any system, even manual processing.

- Lowest cost for consumable sets
- Lowest solvent use: Only 146mL needed per sample (including conditioning, loading and elution)



- **Complete sample clean-up automation for up to 16 samples**
Processes 16 samples one after another without any manual working steps in between
- **Cross-contamination free sample loading**
The column remains sealed until use and the injection loop is rinsed between samples to reliably prevent cross-contamination
- **Fastest purification time of any system**
High pressure column and low dead volume allow for purification times as low as 34 minutes
- **Unbeatable safety features**
Leak detection, overpressure detection, waste sensor, password protected software

For video, please visit:

www.lctech.de/en/news/videos/dioxin-analysis-videos.html



Why choose an automated system?

- Process more samples in less time
- Minimize human error and increase reproducibility
- Reduce hands-on time so you can focus on other tasks



Contact us for a **FREE** consultation and a Return on Investment calculation.



AUTOMATED SAMPLE PREPARATION

SPE-DEX® 5000 Automated Extraction ⇨ For High Throughput Labs

The SPE-DEX® 5000 Automated Extraction System is a programmable, multipurpose SPE system, capable of processing aqueous samples directly from their original containers.



Use automation to help you save time and money for your high throughput water analysis.

- Uses less solvent
- Collects organic and waste water separately for proper and economical disposal
- Less chance of emulsions, providing more predictable and increased productivity
- Better reproducibility between technicians
- Requires less attention for good results
- Use the bottle of your choice

Increase your productivity:

- Use up to four modules connected to one PC allowing up to 12 samples to be run at once
- A 4L water sample will take around 15 to 20 minutes to be processed depending on the amount of suspended particles
- All valves and pumps are internal to the system, requiring less bench space



XcelVap® Automated Sample Concentration

The XcelVap® Automated Evaporation System is an easy-to-use, compact benchtop laboratory concentrator that provides rapid, gentle evaporation of up to 54 sample extracts ranging in size up to 200mL each. Evaporation is accomplished by combining consistent heat, controlled sparge gas, and active venting of the solvent vapors.

- Multi-step automated pressure profiling for optimum speed with the most reproducible recoveries
- Nozzles can be individually changed by the user, simplifying maintenance and reducing operating costs
- Interchangeable racks accommodate practically any glassware on the market
- Easy water bath management with water level sensor and front draining
- Small footprint, portrait orientation and exhaust venting help to avoid the need for placement in a fume hood

**Compare the XcelVap®
to the competition!**



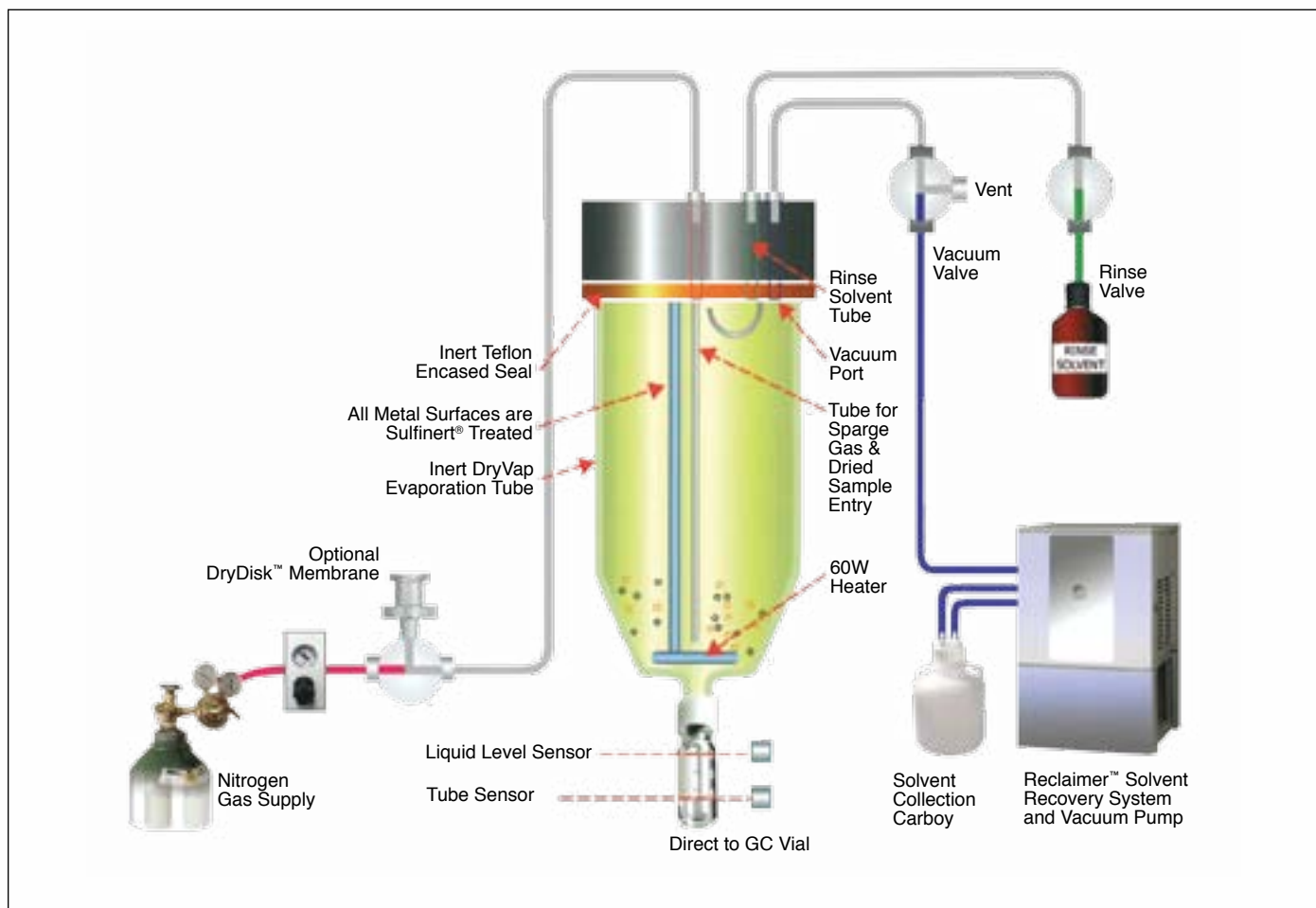
Visit www.chromspec.com/evaporation for more information.

DryVap® Concentration System

⇒ Perfect for the analysis of volatile samples

The DryVap® Concentrator system sets new standards for rapid sample concentration with built in drying, for the highest reproducibility of results. Designed for environmental applications, the system automatically removes water and concentrates samples through evaporation of the extraction solvent.

- The condensation mimics the Kuderna–Danish cloud, which improves the recovery of volatile compounds
- Tight seal on vessel: no loss of volatile analytes or cross-contamination
- Rapid evaporation of sample due to the use of a vacuum
- Automatic endpoint detection



Make it an all-in-one unit and combine it with:

- The DryDisk™ separation membrane to remove water from your sample automatically in line with your solvent
- A reclaimer solvent recovery system to recover the solvent vapors



More instruments are available for automated sample preparation.
Contact us for a free consultation.

LabTech ROTARY EVAPORATORS



Entry level to high-end models, at prices 30-40% less than other well-known manufacturers.

Labtech offers a wide variety of rotary evaporators. With innovative designs, LabTech rotary evaporators are solid, durable and economical.



Vacuum Pump

Rotary Evaporator

Chiller

Entry Level System

- Stainless steel bath
- Chiller temperature control range: -5° to $+35^{\circ}\text{C}$ with a stability of $\pm 0.3^{\circ}\text{C}$
- Vacuum pump pumping speed: 30L/min

Advanced System

- PTFE coated bath
- Chiller temperature control range: -20°C to $+35^{\circ}\text{C}$ with a stability of $\pm 0.1^{\circ}\text{C}$
- Vacuum pump pumping speed: 50L/min
- Motorized vertical lift
- Built-in vacuum controller

Basic System

Rotary Evaporator EV311H
Water Chiller H50-500
Vacuum Pump VP30

Optional Vacuum Controller Available

Advanced System

Rotary Evaporator EV311VAC-V
Water Chiller H150-1500
Vacuum Pump VP50

Complete Package less than \$6,500

Complete Package less than \$14,000

More models and options are available. Contact us for more details.

LabTech offers robust, low-cost and full-featured solutions for your laboratory.



LabTech UV/Vis Spectrophotometers

- Sealed optical system to avoid contamination
- Real time symmetric double beam system for increased accuracy and measurement stability
- Wide wavelength range from 190nm to 1100nm
- Five slits: 0.5nm, 1nm, 2nm, 3nm, and 5nm
- Compact optical path and electronic systems with small footprint
- Few moving parts in the system to guarantee the highest stability



Model	BlueStarA	UV8100B	UV9100B
Optical System	C-T monochromator, Holographic Grating		
	Split Beam	Split Beam	Double Beam
Wavelength Range	190~1100nm		
Spectrum Bandwidth	2 nm	1nm, 2nm	
Photometric Method	—	Transmittance, Absorbance, Energy	
Absorbance Range	-3 ~ 3ABS		
Wavelength Accuracy	±0.8 nm	±0.3 nm	
Wavelength Repeatability	0.2nm	0.2 nm	0.1nm
Product Number	LTIBSA	LTIU8B	LTIU9B
Price	\$5,202	\$6,762	\$9,230

More models are available. Contact us for more information.

LabTech DigiBlock Digesters

⇒ DigiBlock digesters have been accepted for use in several EPA Methods.

- Digestion, evaporation and constant-volume maintenance in a single instrument - eliminates the possibility of sample loss and contamination during sample transfer
- Excellent thermal conductivity ensures temperature variance of less than ±1.5°C @150°C
- Over-heat protection and corrosion resistance
- Programmable multipoint heating function satisfies different heating requirements (optional add-on)



Model	ED16S	ED16	EHD20
	⇒ Especially suitable for microwave and pre-treatment.	⇒ Suitable for microwave acid drying. Dramatically reduces heating time.	⇒ Ideal for Kjeldahl evaporation and fast heating digestions.
Max. Power	1000W	1300W	2800W
Max. Temp.	210°C	210°C	415°C
Temp. Accuracy	±0.2°C	±0.2°C	±1.0°C
Sample Tubes	16 x 100mL	16 x 100mL	44x50mm
Digestion Holes (DxH)	44x50mm	20 x 100mL	44x50mm
Heating Material	Aluminum alloy with PTFE coating	Aluminum alloy with PTFE coating	Graphite
Product Number	LTILH7015	LTILH7013	LTILH7014
Price	\$3,139	\$2,595	\$3,930

More models and specifications are available. Please contact us for more information.

CHROMSPEC™ Chromatography Grade Tubing

Top quality tubing, cleaned to chromatography standards.

- Cleaned before shipping to provide internal surfaces that are free of oil, grease and other foreign materials
- Ready to use on sensitive GC and MS systems without fear of contamination



Chromatography Grade Clean and Oxygen Service Clean are not the same.

Both have the same goal: remove all oil, grease and debris from the inside of tubing and fittings. Once cleaned, oxygen service tubing or fittings can be lubricated or sealed with special non-flammable oils or greases. Chromatography grade tubing and connections must remain free of lubricants so they don't enter the system and affect analytical results.

Oxygen cleaning is an ASTM standard (G93). While there is no industry standard for Chromatography grade cleaning, many chromatography grade cleaning methods meet ASTM G93 standards. CHROMSPEC™ Chromatography Grade Tubing is one of them.

Custom Tubing and Fitting Services:

Custom Cleaning

Do you have tubing or fittings that need to be cleaned for chromatography or oxygen service? Contact us to request a quote.

Custom Design and Installation of laboratory gas fitting systems - by chromatographers, for chromatographers.

Contact our Instrumentation Team to find out how to make your next lab upgrade easier

Product Number	Size	Description	Price
Stainless Steel (Premium Quality, Chromatography Grade)			
C49300	1/16"	OD x 0.010" ID 316SS (Any length up to 300 ft.)	\$6.30 per ft.
C49305	1/16"	OD x 0.030" ID 316SS (Any length up to 300 ft.)	6.20 per ft.
C49306	1/16"	OD x 0.040" ID 316SS (Any length up to 300 ft.)	6.70 per ft.
C49310	1/8"	OD - 0.020" Wall 304SS (Up to 10 ft., straight lengths)	8.50 per ft.
C49315	1/8"	OD - 0.020" Wall 304SS 50 ft. continuous coils	336.20 per 50 ft.
C49320	3/16"	OD - 0.020" Wall 304SS (Up to 10 ft., straight lengths)	9.70 per ft.
C49325	1/4"	OD - 0.030" Wall 304SS (Up to 10 ft., straight lengths)	11.80 per ft.
Copper (Refrigeration Grade Cleaned)			
C49345	1/8"	OD Wall thickness 0.030"	\$59.70 per 50 ft.
C49350	3/16"	OD Wall thickness 0.030"	111.30 per 50 ft.
C49355	1/4"	OD Wall thickness 0.030"	79.60 per 50 ft.
Fluoropolymer			
C49405	1/8"	OD x 0.085" ID FEP Tubing (Max. Temp. 204°C)	\$147.90 per 100 ft.
C49415	1/4"	OD x 3/16" ID FEP Tubing	165.80 per 25 ft.
C49420	1/4"	OD x 1/8" ID PTFE Tubing	130.30 per 25 ft.

More tubing materials and dimensions are available. Contact our helpful Technical Support Team for more information. Bulk pricing is available, contact us to discuss your chromatographic tubing needs.

Do you need something more inert than stainless steel?

Ask us about Siltek / Silconert 2000 surface treatments for stainless steel. More inert than glass, and as tough as steel.



Using SPE instead of LLE can save you time and money by:

- Increasing productivity and sample throughput
- Removing interferences and helping to protect the analytical column from contaminants
- Using less solvent and glassware
- Creating less disposable waste in the lab, which helps the environment!
- Saving solvent and energy:
Less solvent use = less evaporation needed to concentrate samples = lower energy use



Extraction depends on diffusion, and that means we need small droplets of sample and solvent in close contact. In LLE, you use equal volumes of sample and solvent, and shake hard to disperse. The drawbacks are that it forms emulsions and uses large volumes of solvent compared to solubility and partitioning requirements.

SPE forces the sample through an extraction phase immobilised on small particles. The sample is extracted from the stationary phase with “just enough” solvent for dissolution. No emulsions. Little or no blowdown.

Considerations for switching to SPE:

- Are your analytes non-polar, polar or ionic? We have solutions for all three, including mixes of different classes!
- Do your analytes need to be in a buffered matrix for stability? It's very easy to pH optimize with UCT SPE.



Symptoms of a Sample in Need of Further Clean-up:

- Poor reproducibility
- Column failure (high back pressure, changing retention times)
- Incorrect quantitation on QC samples

Fixing Insufficiently Clean Samples:

- Try a different sorbent which uses the same retention mechanism (i.e. try end capped silica C18 instead of non-end capped C18)
- Change to a different retention mechanism sorbent
- Change the wash solvent
- Change the ionic strength (when using ion exchange sorbents)
- Change the pH of the load and wash
- Change the % organic of the load and wash
- Contact our Technical Support Team to discuss your application and current method

SOLID PHASE EXTRACTION (SPE)

Since 1986, UCT has been a respected leader in supplying SPE products to the drug testing, pharmaceutical, clinical, environmental and agricultural industries. Their wide range of highly reproducible SPE columns gives chromatographers a consistent extraction technique, and their expertise in silane manufacturing allows greater control of the chemical process involved in producing high quality bonded phases.

UCT's commitment to ensuring customer satisfaction is accomplished by delivering on these promises: top-quality, dependable SPE products, and unmatched technical support.

UCT Clean-Up®

⇒ **General Applications: Polar, Non-polar, Ionic**

Clean-Up® Hydrophobic

- Composed of a silica backbone bonded with hydrocarbon chains.
- Used to extract compounds which exhibit non-polar or neutral characteristics.
- C18 phase is the most widely used for non-polar interactions.

Clean-Up® Hydrophilic

- Composed of a silica backbone bonded with carbon chains containing polar functional groups.
- Compounds typically extracted include analytes which have polar groups, including amines, hydroxyls and carbonyls.
- Elution is performed by strong polar solvents.

Clean-Up® Anion Exchange

- Anion exchange sorbents contain positively charged functional groups that interact and retain negatively charged anions, such as acids.
- Strong anion exchange sorbents contain quaternary ammonium groups that have a permanent positive charge in aqueous solutions; whereas weak anion exchange sorbents use amine groups which are charged when the pH is below about 9.
- To elute the analyte from either the strong or weak sorbent, the stationary phase is washed with a solvent that neutralizes the charge of either the analyte, the stationary phase, or both.

Clean-Up® Co-polymeric

- Combine hydrophobic and ion exchange phases on every particle,
- Retain either charged, neutral or both analytes at once



We can help you choose from over 50 different chemistries in over 40 sizes or column formats to get the product that's right for you.

UCT Clean Screen®

⇒ **Forensic and Clinical Applications**

High volumes and fast turn-arounds for complex matrices and demanding accuracy levels.

Clean Screen® DAU ⇒ Efficient clean-up from complex samples

Combined reversed phase and cation exchange mechanism optimized for drug of abuse screening. Contact us for standardised applications to capture and analyse acid, basic, and neutral drugs in one clean-up with excellent recovery and reproducibility.

Clean Screen® Xcel ⇒ Fast clean-up for simple samples

SPE optimized for basic drugs (Xcel I) and THC metabolites (Xcel II). Fewer extraction steps with lower sample size requirements and cleaner extracts.

Contact us for more information.



Free Catalogue!

Get the UCT Solid Phase Extraction Products catalogue.

Request Literature Code **UCT27**

Macherey-Nagel CHROMABOND® HLB

⇒ Hydrophilic analytes from polar matrices



Finally, a cost saving alternative to Oasis® HLB!

NEW!

Hydrophilic-lipophilic balanced N-vinylpyrrolidone-divinylbenzene resin for SPE.

Capturing hydrophilic analytes from polar matrices is a challenge. They often cannot be retained by C18 / C8-modified silica or hydrophobic polymer adsorbents. **CHROMABOND® HLB's** lipophilic backbone / hydrophilic side chains work together to retain polar organic molecules.



- The direct alternative to Oasis® HLB!
- High loadability and outstanding performance
- Water wettable – even if bed runs dry, SPE can be continued
- Spherical particles for greater reproducibility
- pH stability: 1–14

Product Number	Description	Qty	Equivalent to Waters Number	Price
MCN730921P30	CHROMABOND® HLB (30 µm), 1 mL, 30mg	30	WAT094225	\$80.00
MCN730922P30	CHROMABOND® HLB (30 µm), 1 mL, 100mg	30	—	97.10
MCN730923P30	CHROMABOND® HLB (30 µm), 3 mL, 60mg	30	WAT094226	111.90
MCN730924P30	CHROMABOND® HLB (30 µm), 3 mL, 200mg	30	—	117.60
MCN730944P30	CHROMABOND® HLB (30 µm), 6 mL, 150mg	30	186003365	159.80
MCN732140	CHROMABOND® LV HLB (30 µm), 15 mL, 30mg	30	186000382	108.50
MCN732141	CHROMABOND® LV HLB (30 µm), 15 mL, 60mg	30	186000381	124.40
MCN738921010M	CHROMABOND® Multi 96, HLB (30 µm), 10mg	1	186000128	310.90
MCN738921030M	CHROMABOND® Multi 96, HLB (30 µm), 30mg	1	WAT058951	310.90
MCN730921	CHROMABOND® HLB (60 µm), 1 mL, 30mg	30	—	80.00
MCN730922	CHROMABOND® HLB (60 µm), 1 mL, 100mg	30	—	97.10
MCN730923	CHROMABOND® HLB (60 µm), 3 mL, 60mg	30	—	111.90
MCN730924	CHROMABOND® HLB (60 µm), 3 mL, 200mg	30	—	117.60
MCN730924250	CHROMABOND® HLB (60 µm), 3 mL, 200mg, Bulk pack	250	—	800.00
MCN730925	CHROMABOND® HLB (60 µm), 3 mL, 500mg	30	186004134	167.80
MCN730926	CHROMABOND® HLB (60 µm), 6 mL, 200mg	30	—	159.80
MCN730926250	CHROMABOND® HLB (60 µm), 6 mL, 200mg, Bulk pack	250	—	1,093.00
MCN730927	CHROMABOND® HLB (60 µm), 6 mL, 500mg	30	186000115	250.60
MCN730927250	CHROMABOND® HLB (60 µm), 6 mL, 500mg, Bulk pack	250	—	1,667.00
MCN730928	CHROMABOND® HLB (60 µm), 15 mL, 500mg	20	186000116	204.50
MCN730929	CHROMABOND® HLB (60 µm), 15 mL, 1000mg	20	186000117	341.60
MCN730944	CHROMABOND® HLB (60 µm), 6 mL, 150mg	30	—	159.80
MCN738920060M	CHROMABOND® Multi 96, HLB (60 µm), 60mg	1	186000679	327.50



No conditioning step is needed when using CHROMABOND® HLB due to its excellent water wettability.

TRY IT NOW!

Contact our Technical Support Team for application advice.

FREE SAMPLES are available!

Quick Easy Cheap Effective Rugged and Safe Extraction of Pesticides and Pollutants from Solid Samples, **useful for:**

- ⇒ Pesticides from plant produce (the original method)
- ⇒ Pesticides and veterinary drugs from meats, eggs, honey and other foods
- ⇒ Persistent organic pollutants from animal tissue or vegetation samples
- ⇒ Persistent organic pollutants from soil samples

QuEChERS is a simple universal technique to extract organic pollutants from biological samples for LC/MS or GC/MS analysis. This technique uses simple, low toxicity solvents and basic lab equipment – water and acetonitrile, a mixer and a centrifuge – to extract solid matrices in roughly 1 hour.

QuEChERS has proven to be a very useful technique and applications are expanding to cover more biological matrices every year.

Why Use UCT QuEChERS Products?

- Pre-packed products save valuable laboratory time for increased throughput
- Single use salt and dispersive SPE (dSPE) packages avoid contamination
- Best selection of QuEChERS products
- Excellent lot-to-lot reproducibility
- Custom made products are available



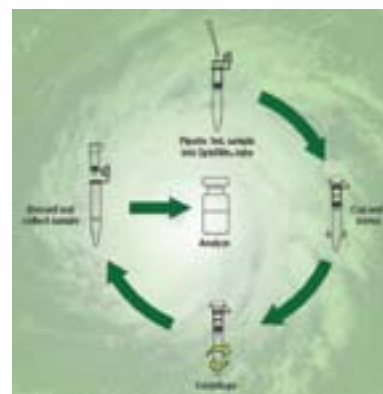
High performance products at competitive prices!

UCT SpinFiltr™

- ⇒ Makes dSPE following extraction even easier
- ⇒ 0.22µm filter ensures complete separation of sorbent from sample after centrifugation

SpinFiltr™ steps are the same as any dSPE:

1. Add sample to sorbent in upper chamber
2. Vortex/Shake
3. Spin: extract flows through membrane; sorbent, drying salt and unwanted matrix stay in the top chamber; no “pellet” of sorbent to resuspend & contaminate sample



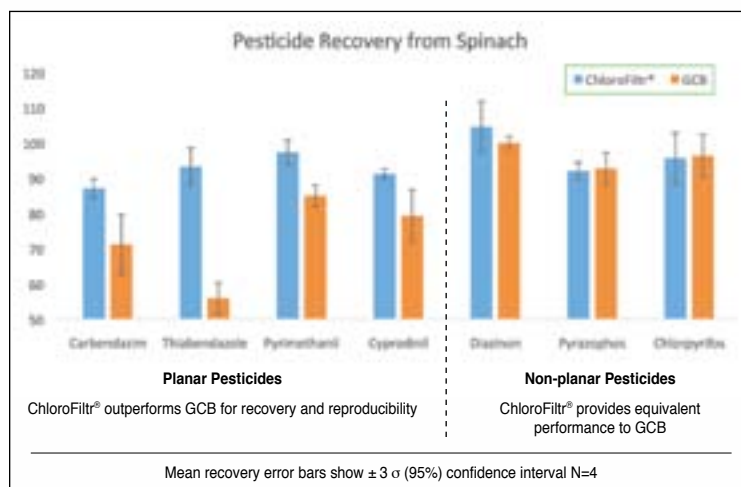
UCT QuEChERS ChloroFiltr®

- ⇒ Selectively removes chlorophyll from extracts while leaving planar pesticides behind in an acetonitrile extract

- Greater than 80% recoveries of planar pesticides, unlike carbon black clean-ups
- ChloroFiltr® has been tested against hundreds of pesticides and herbicides and has been shown to reduce chlorophyll concentration by greater than 82%

Visit www.chromspec.com/quenchers for more information.

Contact our Technical Support Team for a recommendation on the right QuEChERS kit and extraction protocol for your specific matrix.



SOLID PHASE MICROEXTRACTION (SPME)

Restek PAL SPME Arrow for manual or automated injections



Longer-lasting SPME Fibres and faster extraction for higher sample throughput.



Stronger, faster and lower limits of detection (LODs) than conventional SPME fibres

- Rugged stainless steel construction ensures longer life**
 - Arrow combines a strong stainless support with a large, durable sheath to eliminate fibre breakage
 - Unlike conventional needles, the arrow shaped tip cuts through rather than coring the septa
- Faster extraction means higher sample throughput**
 - Arrow has >4.5 times the surface area of regular SPME fibres to capture samples faster
- Better sensitivity allows lower LODs**
 - Arrow has >5 times the sorbent volume of regular SPME fibres to capture more sample.

Traditional SPME fibers break easily during routine operation.



The rugged construction of the Restek PAL SPME Arrow prevents breakage under normal use.



More Savings

Product Number	Description	Qty	Price per Pkg.	
			1-2	3+
RK27485	1.1 mm, 100 μ m, PDMS (Red): Volatiles, 60–275mw	1	\$548.00	\$520.00
RK27484	1.5 mm, 250 μ m, PDMS (Black): Volatiles, 60–275mw (high capacity)*	1	548.00	520.00
RK27488	1.1 mm, 100 μ m, Polyacrylate (Gray): Polar, semivolatile, 80–300mw	1	548.00	520.00
RK27487	1.1 mm, 120 μ m, Carbon/PDMS (Light Blue): Highly volatile, 30–225mw	1	548.00	520.00
RK27486	1.1 mm, 120 μ m, DVB/PDMS (Violet), Amines and polar compounds, 60–300mw	1	548.00	520.00
RK27489	Method Development Kit (Set of 5 - one each of above)	5	2,425.00	—

Molecular weight ranges are approximate.

* High capacity 1.5mm Arrow has >6.5x the surface area and 20x the volume of regular SPME fibres!

Optimized for PAL system autosamplers; conversion kits are available for most GCs, allowing Arrow to be used for automated or manual injections. Contact our Technical Support Team for help finding the kit you need.

We offer caps and seals specifically designed for use with traditional SPME fibers (see page 55, C221831C). Traditional SPME fibers are less sturdy than the Restek SPME Arrows and are more prone to bending. The septa in these caps and seals are thinner and easier to puncture, so there is less chance of bending the fibers.

CHROMSPEC™ SYRINGE FILTERS

CHROMSPEC™ UV Syringe Filters



Your best option for quality syringe filters at lower prices! Compare & save!

- Solvent resistant housing
- Made with North American membranes
- Sterile or non-sterile options
- GMF pre-filter option
- Pore sizes of 0.45µm and 0.22µm for HPLC and UHPLC applications
- 4mm, 13mm, 25mm and 30mm diameters
- Economical glass microfibre pre-filter options

NON STERILE

- Great performance for high throughput labs
- Ideal for HPLC-UV and GC-FID applications

STERILE

- ETO Sterilized and individually sealed to maintain sterility
- Ideal for sterile filtration and clarification



Choosing the right CHROMSPEC™ UV Syringe Filter

Nylon

- Hydrophilic, good solvent resistance and medium protein binding
- Filtration of all aqueous samples and most organic solvents
- Not recommended for acids

PTFE

- Highest solvent resistance and high protein binding
- Filtration of non-aqueous or solvent based samples
- Recommended for strong acids and bases

PVDF

- Highly resistant to most solvents and low protein binding
- General filtration of biological samples
- Filtration of all aqueous and most solvent based samples
- Filtration of proteins and tissue cultures

Mixed Cellulose Esters (MCE)

- Hydrophilic and very low protein binding
- Ideal for aqueous based samples, tissue culture and sensitive biological samples
- Low chemical resistance

PES

- Hydrophilic and low protein binding
- Ideal for aqueous based samples
- General filtration of biological samples

Polypropylene

- Hydrophobic
- High solvent resistance
- Low protein binding
- General filtration of biological samples
- Filtration of all aqueous and most solvent based samples

Regenerated Cellulose

- Hydrophilic
- Resistant to most solvents and aqueous solutions (pH range 3 -12)

Pre-Filters

- Recommended for removing particles in suspension
- Helps prevent clogging of the syringe filter membrane

Sterile

- Applications include: Cell culture media prep, mycoplasma removal, sterile filtration, including DMSO

Visit www.chromspec.com/UV for more information.

Size Selection	
Syringe Filter Size	Sample Volume
4mm	2mL
13mm	6mL
25mm	70mL
30mm	90mL



FREE SAMPLES are available!

CHROMSPEC™ ...The Name for Affordable Quality



CHROMSPEC™ UV Syringe Filters, Non-sterile				Price per Pkg. 100		
Size (mm)	Membrane Type	Pore (µm)	Product Number	1-4	5-9	10+
13	Nylon	0.22	CSUV13N201	\$57.00	\$52.00	\$47.00
13	Nylon	0.45	CSUV13N451	57.00	52.00	47.00
13	PTFE	0.22	CSUV13T201	80.00	75.00	70.00
13	PTFE	0.45	CSUV13T451	80.00	75.00	70.00
13	PVDF	0.22	CSUV13P201	75.00	70.00	65.00
13	PVDF	0.45	CSUV13P451	75.00	70.00	65.00
25	Nylon	0.22	CSUV25N201	70.00	65.00	60.00
25	Nylon	0.45	CSUV25N451	70.00	65.00	60.00
25	PTFE	0.22	CSUV25T201	85.00	80.00	75.00
25	PTFE	0.45	CSUV25T451	85.00	80.00	75.00
25	PVDF	0.22	CSUV25P201	91.00	86.00	81.00
25	PVDF	0.45	CSUV25P451	91.00	86.00	81.00

Additional sizes and membranes, syringe filters with pre-filters, and sterile filters are available. Please inquire.



Higher Volume purchases may qualify for even greater savings! Call us for details.

We also offer multi-layer pre-filters for heavier suspensions.



Pre-filters are recommended for removing particles in suspension and to help prevent clogging of the syringe filter membrane.

CHROMSPEC™ DISPOSABLE SYRINGES

- Cost effective disposable syringes designed for today's chromatography labs
- Housing and plunger made of chemically inert polypropylene and polyethylene
- Various sizes available (1, 3, 5, 10, and 20mL)
- Luer Lok and Luer Slip configurations available
- No rubber seals or silicone lubricants that may cause sample contamination



CHROMSPEC™ Disposable Syringes			Price per Pkg. 100	
Volume (mL)	Type	Product Number	1-4	5+
1	Luer Slip, Concentric	CSSYLS01	\$25.20	\$22.70
3	Luer Slip, Concentric	CSSYLS03	14.10	12.70
3	Luer Lok, Concentric	CSSYLL03	24.30	21.90
5	Luer Slip, Eccentric	CSSYLS05	19.20	17.30
5	Luer Lok, Concentric	CSSYLL05	33.20	29.90
10	Luer Slip, Eccentric	CSSYLS10	23.20	20.90
10	Luer Lok, Concentric	CSSYLL10	40.20	36.20
20	Luer Slip, Eccentric	CSSYLS20	34.00	30.60
20	Luer Lok, Concentric	CSSYLL20	58.50	52.70



Filter paper with high purity and consistency at great prices!

Ahlstrom-Munksjö Qualitative, Quantitative and Glass Fibre Filtration Products

This well-established and popular European brand is now available in Canada from Chromatographic Specialties Inc.

Ideal for a wide range of laboratory applications:

- Liquid clarification
- Soil analysis
- Food and beverage testing
- Qualitative analytical separation for precipitates and buffer filtration
- Pre-weighed filters for suspended solids analysis



The following is a selection of our most popular filter paper offerings. Check out our prices compared to what you are currently paying.



Did you know? Munktell, part of the Ahlstrom-Munksjö group, has been making scientific filter paper in Sweden since 1815.



Product Number	Ahlstrom-Munksjö Grade	Equivalent Whatman Grade	Equivalent Whatman Product Number	Diameter (cm)	Price per Pkg. 100	
					1-9	10+
Qualitative						
HL60101100	601	1	1001-110	11	\$14.10	\$12.00
HL63101500	631	4	1004-150	15	17.70	15.10
HL63101850	631	4	1004-185	18.5	25.80	22.00
Quantitative						
HL05401500	54	41	1441-150	15	59.00	50.20
HL05401850	54	41	1441-185	18.5	79.40	67.50
HL38801500	388	54	1454-150	15	43.50	37.00
HL38801850	388	54	1454-185	18.5	72.30	61.50
Glass Fibre						
HL11101250	111	GF/A	1820-125	12.5	131.90	112.20
HL13101100	131	GF/C	1822-110	11	154.40	131.30
HL15101500	151	GF/F	1825-150	15	389.80	331.40

Ahlstrom-Munksjö supplies a full range of filtration papers and products, including other grades and diameters (2.5 to 50cm). Please inquire.



FREE SAMPLES are available!



Contact us for a quote on your annual filter paper needs. Further discounts may be available for larger quantities.

Ahlstrom-Munksjö Filtration Products Catalogue



Literature Code AH01 (PDF Only)

Visit www.chromspec.com/ah01



We have conversion tables for many filter brands. In most cases, we can provide Ahlstrom-Munksjö grade filter paper that is equivalent to your current product. Contact our Technical Team for assistance.

CHROMSPEC™ MEMBRANE FILTERS



Paying too much for your filters? Compare and save!



Membrane filters are microporous films with specific pore size specifications. The membranes retain particles and microorganisms that are larger than the pore specification, acting as a physical barrier and holding back the particles on the surface of the membrane.

CHROMSPEC™ Membrane Filters are available in a range of membranes, diameters and porosities that make them suitable for a wide range of analytical and life science applications.

Applications

- HPLC mobile phase filtration
- Isolation of discrete colonies of bacteria
- Drinking water monitoring
- Bacterial monitoring in pharmaceutical, food and beverage samples, cosmetics and electronics

Ask about our Vacuum Filtration Glassware.

Image: Product Number N419380 Wheaton 47 mm Assembly, Vacuum Filter, 1 L Flask with Fritted Glass Support



Product Number	Description	Pkg. Size	Price per Pkg.	
			1-4	5+
Nylon				
CSMFN13022	CHROMSPEC™ Membrane Filter, Nylon, 13mm, 0.22µm	100	\$25.80	\$22.00
CSMFN13045	CHROMSPEC™ Membrane Filter, Nylon, 13mm, 0.45µm	100	25.80	22.00
CSMFN25022	CHROMSPEC™ Membrane Filter, Nylon, 25mm, 0.22µm	100	33.20	28.30
CSMFN25045	CHROMSPEC™ Membrane Filter, Nylon, 25mm, 0.45µm	100	33.20	28.30
CSMFN47022	CHROMSPEC™ Membrane Filter, Nylon, 47mm, 0.22µm	100	73.80	62.80
CSMFN47045	CHROMSPEC™ Membrane Filter, Nylon, 47mm, 0.45µm	100	73.80	62.80
PTFE				
CSMFT13022	CHROMSPEC™ Membrane Filter, PTFE, 13mm, 0.22µm	100	\$29.60	\$25.20
CSMFT13045	CHROMSPEC™ Membrane Filter, PTFE, 13mm, 0.45µm	100	29.60	25.20
CSMFT25022	CHROMSPEC™ Membrane Filter, PTFE, 25mm, 0.22µm	100	44.20	37.60
CSMFT25045	CHROMSPEC™ Membrane Filter, PTFE, 25mm, 0.45µm	100	44.20	37.60
CSMFT47022	CHROMSPEC™ Membrane Filter, PTFE, 47mm, 0.22µm	100	80.90	68.80
CSMFT47045	CHROMSPEC™ Membrane Filter, PTFE, 47mm, 0.45µm	100	80.90	68.80
Mixed Cellulose Esters				
CSMFMC13022	CHROMSPEC™ Membrane Filter, Mixed Cellulose Ester, 13mm, 0.22µm	100	\$25.80	\$22.00
CSMFMC13045	CHROMSPEC™ Membrane Filter, Mixed Cellulose Ester, 13mm, 0.45µm	100	25.80	22.00
CSMFMC25022	CHROMSPEC™ Membrane Filter, Mixed Cellulose Ester, 25mm, 0.22µm	100	33.20	28.30
CSMFMC25045	CHROMSPEC™ Membrane Filter, Mixed Cellulose Ester, 25mm, 0.45µm	100	33.20	28.30
CSMFMC47022	CHROMSPEC™ Membrane Filter, Mixed Cellulose Ester, 47mm, 0.22µm	100	73.80	62.80
CSMFMC47045	CHROMSPEC™ Membrane Filter, Mixed Cellulose Ester, 47mm, 0.45µm	100	73.80	62.80

Other membranes and sizes are available. Please contact us for more information.



CHROMSPEC™ ... The Name for Affordable Quality

**FREE SAMPLES
are available!**

HAMILTON SYRINGES FOR AGILENT GC AUTOSAMPLERS



Why pay expensive brand name pricing when you can get comparable results at a lower price?

Hamilton syringes are renowned for quality, performance, reliability and long life durability.

Hamilton Syringes for Agilent 7673, 7683, 7693A and 6850 Autosamplers



Description	Each			Pkg. 6		
	Product Number	Equivalent to Agilent Number	Price	Product Number	Equivalent to Agilent Number	Price
5 μ L, N, Pt AS, 23s-26s gauge	H87993	5181-1273	\$59.10	H87994	5181-8810	\$319.40
10 μ L, N, Pt AS, 23s gauge	H80387	9301-0713	38.80	H80390	9301-0725	212.30
10 μ L, N, Pt AS, 26s gauge	H80388	9301-0714	36.50	H80389	5183-4729	212.30
10 μ L, N, Pt AS, 23s-26s gauge	H80393	5181-1267	38.80	H80391	5181-3360	212.30
10 μ L, GT, N, Pt AS, 23s-26s gauge	H80079	5181-3354	52.60	H80096	5181-3361	305.50

N = cemented (fixed) needle; GT = Gastight® syringe with PTFE tipped plunger.



Syringe Maintenance

The life of a Hamilton syringe is directly related to cleanliness and proper care. Use high purity solvents such as methanol, acetonitrile and acetone for routine cleaning; halogenated hydrocarbons should be avoided as they may damage glue joints.

Needle Gauges

23s-26s Dual Gauge	23s Gauge Needle	26s Gauge Needle
<ul style="list-style-type: none"> Durability of a 23s gauge needle with septum piercing capabilities of a 26s gauge needle Performs split/splitless and on-column injections like a 26s gauge needle 	<ul style="list-style-type: none"> Standard needle for Merlin Microseal™ and packed column injections Used for split/splitless injections, when needle life is more important than septum life 	<ul style="list-style-type: none"> Standard needle gauge for capillary split/splitless injections Fine enough for capillary on-column injections onto 0.53mm ID columns

Needle Point Styles

Point Style 2	Point Style 5	Point Style AS
<ul style="list-style-type: none"> 10-12° sharp, beveled, curved non-coring for manual injections 	<ul style="list-style-type: none"> Conical with side port for penetration without coring for manual injections 	<ul style="list-style-type: none"> Conical, non-coring designed to withstand multiple injections on autosamplers

Chromatographic Specialties Inc. has syringes that are designed to fit virtually every GC and HPLC autosampler on the market, including: Agilent, LEAP Technologies / CTC, Perkin-Elmer, Shimadzu, and many more!



Chromatographic Specialties Inc. has been offering Hamilton syringes for over 50 years!

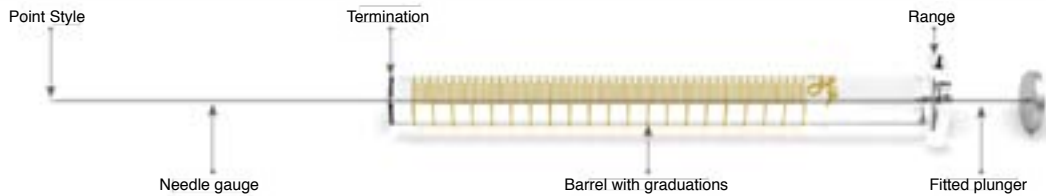
Our Technical Support Team is able to offer you assistance in selecting the syringe that best suits your requirements or to discuss proper care and maintenance techniques to keep your syringes performing like new.

HAMILTON SYRINGES FOR MANUAL GC INJECTIONS



Chromatographic Specialties offers a complete, economical and durable line of syringes for manual injections into GCs.

700 Series Microliter™ Syringes ⇨ for liquid organic samples not prone to precipitation, crystallization or bonding with glass



1700 Series Gastight® Syringes ⇨ for aqueous and low volatile organic samples



Description	Each			Pkg. 6		
	Product Number	Equivalent to Agilent Number	Price	Product Number	Equivalent to Agilent Number	Price
700 Series Microliter™						
5µL, 75N, Pt2, 2", 26s gauge	H87900	5190-1479	\$51.60	—	—	—
5µL, 75RN, Pt2, 2", 26s gauge	H87930	5190-1481	77.30	—	—	—
10µL, 701N, Pt2, 2", 26s gauge	H80300	5190-1483	27.00	H80366	5190-1487	\$128.70
10µL, 701N, Pt5, 2", 26s gauge	H80339	—	56.50	—	—	—
10µL, 701RN, Pt2, 2", 26s gauge	H80330	—	48.20	H80336	—	252.10
1700 Series Gastight®						
10µL, 1701N, GT, Pt2, 2", 26s gauge	H80000	5190-1490	\$36.80			
10µL, 1701RN, GT, Pt2, 2", 26s gauge	H80030	5190-1542	65.30			
10µL, 1701ASN, GT, Pt AS, 1.71", 23s gauge	H80080	5181-8809	73.50			

N = cemented (fixed) needle; RN = removable needle; GT = Gastight® syringe

Many more manual syringes with different volumes, needle gauges, lengths and point styles in Microliter™ and Gastight® varieties are available.

We also carry syringes from Restek (SGE) and Valco (VICI)!

Our Technical Support Team will be happy to help you find the best syringe for your specific needs.

Free Literature



Hamilton Syringe and Needle Reference Guide
Please request Literature Code **H01**



Hamilton Syringe Selection Guide
Please request Literature Code **H07**

HAMILTON
THE MEASURE OF EXCELLENCE™

AUTOSAMPLER VIALS

CHROMSPEC™ ... The Name for Affordable Quality



CHROMSPEC™ vials offer the same high quality you expect from other manufacturers, but at a lower price.

- Compatible with robotic arm autosamplers
- Screw thread, crimp top and snap seal
- Clear and amber glass

We use low bleed (LB) septa with all our screw caps and snap caps. This new generation of LB septa features:

- High purity silicone: Allowing you to work with highly sensitive analyses where low background levels are a necessity
- Easier piercing: The silicone used is softer and reseals better; and the PTFE is thinner, helping your needle puncture the septa more easily
- Made in North America
- Ultra Low Bleed versions are available. Please inquire.



Volume Discounts

Contact us for a quote on your annual vial needs.

Discounts may be available for larger quantities.

TRY IT NOW!

FREE SAMPLES are available!

More Savings

CHROMSPEC™ 2mL Wide Opening Crimp Top Glass Vials

Description	Equivalent to	Pkg. 100	Pkg. 1000
Clear Vial	Agilent 5181-3375 Waters WAT094222	C223682CLM \$15.10	C223683MLM \$124.30
Clear Vial with White Marking Spot	Agilent 5182-0543	C7711800W \$16.40	C7711800WM \$149.70
Amber Vial	Waters WAT094223	C7711800A \$16.80	C7711800AM \$153.70
Amber Vial with White Graduated Marking Spot	Agilent 5181-3376	C7711800AW \$18.10	C7711800AWM \$163.80



CHROMSPEC™ 2mL 9-425 Wide Opening Screw Thread Vials

Clear Vial	Agilent 5182-0714 Waters 186000273	C779100 \$14.90	C779100M \$130.20
Clear Vial with White Graduated Marking Spot	Agilent 5182-0715	C779100W \$19.30	C779100WM \$164.40
Amber Vial	Agilent 5188-6535 Waters 186000848	C779100A \$16.70	C779100AM \$146.10
Amber Vial with White Graduated Marking Spot	Agilent 5182-0716	C779100AW \$18.70	C779100AWM \$178.40



CHROMSPEC™ 11mm Crimp Top Seal with Septa

Silver Aluminum Seal with PTFE/Orange Rubber Septum	Agilent 5183-4500	C221150C \$13.80	C221150 \$111.70
Silver Aluminum Seal with PTFE/Natural Red Rubber Septum	Agilent 5181-1217	C221145C \$13.20	C221145 \$93.20
Silver Aluminum Seal with PTFE/Synthetic Red Rubber Septum	Agilent 5183-4498	C221140C \$10.40	C221140* \$71.10



* Additional cost savings when purchasing quantities of 5+ = \$65/Pkg, 10+ = \$60/Pkg



1.5mL, 1.8mL and 2mL vials: Is there a difference?

No, unless the vial is described as "high recovery" or "micro-sampling". These vials are all made to industry standard dimensions (12mm OD, 32mm tall).

CHROMSPEC™ helps you put a cap on your lab costs.



CHROMSPEC™ Pre-assembled Caps and Septa for 2mL 9-425 Wide Opening Screw Thread Vials

Description	Equivalent to	Pkg. 100	Pkg. 1000
Screw Cap with Red PTFE/ White LB Silicone Septum	Agilent 5182-0717 Waters WAT094174	C779200B \$13.80	C779200BM \$122.00
Screw Cap with Bonded Red PTFE/ White LB Silicone Septum	Agilent 5185-5823 Waters 186000274	C779200BB \$16.60	C779200BBM \$145.70
Screw Cap with Pre-slit Red PTFE/ White LB Silicone Septum	Agilent 5183-2076	C779200XB \$16.90	C779200XBM \$148.20
Screw Cap, Green with Red PTFE/ White LB Silicone/Red PTFE Septum	Agilent 5182-0724 Waters 186002130	C779203G \$20.60	C779203GM \$156.50
Screw Cap, Blue with Pre-slit Bonded Red PTFE/White LB Silicone Septum	Agilent 5185-5824 Waters 186000305	C779200XBB \$19.80	C779200XBBM \$173.20



More colours available. LB = Low Bleed

CHROMSPEC™ 2mL Snap Seal Glass Vials

Clear Vial	Agilent 5182-0544 Waters WAT094219	C7711100 \$14.80	C7711100M \$131.00
Clear Vial with White Marking Spot	Agilent 5182-0546	C7711100W \$18.10	C7711100WM \$159.70
Amber Vial	Waters WAT094220	C7711100A \$16.60	C7711100AM \$146.80
Amber Vial with White Marking Spot	Agilent 5182-0545	C7711100AW \$20.60	C7711100AWM \$182.60



CHROMSPEC™ Pre-assembled Caps and Septa for 2mL Snap Seal Vials

Snap Cap, Blue with Red PTFE/ White LB Silicone Septum	Agilent 5182-0541 Waters 186000303	C7711200B \$14.90	C7711200BM \$130.70
Snap Cap, Blue with Pre-slit Red PTFE/ White LB Silicone Septum	Waters 186000304	C7711200XB \$19.00	C7711200XBM \$165.10



CHROMSPEC™ 2mL 8-425 Standard Opening Screw Thread Vials

Clear Vial	Agilent 5183-4428 Waters WAT063300	C223700C \$14.50	C223701M \$128.30
Amber Vial	Agilent 5183-4429	C221200A \$17.10	C221200AM \$150.40



Pre-assembled Caps and Septa for 2mL 8-425 Standard Opening Screw Thread Vials

Screw cap with PTFE/Silicone Septum	—	C223733CAS \$23.70	C223733MAS \$196.00
Screw cap with Red PTFE/White Silicone Septum	—	C22371250CAS \$19.80	C22371250MAS \$176.50



Why choose a 9-425 combo vial and cap over an 8-425?
The 40% larger opening of the 9-425 reduces autosampler needle damage.



Contact us for a quote on your annual vial needs. Discounts may be available for larger quantities.

AUTOSAMPLER VIALS



Microinserts for Wide Mouth 2mL Autosampler Vials

Description	Equivalent to	Pkg. 100	Pkg. 1000
Insert, 50 μ L, 4x25mm, Glass, with Plastic Spring	—	C734005BS425 \$65.50	—
Insert, 200 μ L, 6x29mm, Pull Point, 51 Glass, with Plastic Spring	Agilent 5181-1270 Waters WAT094170	C221094 \$75.00	C221094M \$677.00
Insert, 200 μ L, 6x29mm, Mandrel Precision Point, 33 Glass, with Plastic Spring	—	C221020 \$80.20	C221020M \$724.00
Insert, 250 μ L, 6x31mm, Conical, 51 Expansion Glass	Agilent 5183-2085 Waters WAT072704	C221016 \$38.80	C221016M \$350.00
Insert, 350 μ L, 6x31mm, Flat Bottom, 51 Glass	—	C221190CLM \$16.40	C221190LM \$125.50



How to protect your needle when using an insert:

Choose an insert with a spring!
It will absorb the shock which will prevent broken needles and vials.



Volume Discounts

Contact us for a quote on your annual vial needs.
Discounts may be available for larger quantities.

QSertVial™ Autosampler Vials

The QSertVial™ consists of a precision 300 μ L conical glass insert permanently fused into a 12x32mm autosampler vial.

- This integral unit saves time and reduces the risk of contamination that is associated with the manual assembly of vial and insert
- Enables consistent sample recovery from vial to vial because the insert is always at the same precise depth within the vial



12x32mm Limited Volume Glass QSertVial™ with Fused 300 μ L Insert

Product Number	Description	Equivalent to	Qty	Price
CQ2030	Clear QSertVial™, Crimp Top (vial only), Wide ID	Agilent 9301-1388	100	\$117.70
CQ2032	Amber QSertVial™, Crimp Top (vial only), Wide ID	Agilent 5188-6572	100	133.60
CQ2028	Clear QSertVial™, Snap Top (vial only), Wide ID	Agilent 5188-6593	100	118.60
CQ2024	Clear QSertVial™, Screw Top, with Cap and PTFE/Silicone Septa	Agilent 5188-6591 (vial only) Waters 186001126C	100	164.30
CQ2036	Amber QSertVial™, Screw Top, with Cap and PTFE/Silicone Septa	Agilent 5188-6592 (vial only) Waters 186001130C	100	175.10
CQ2042	Clear QSertVial™, Screw Top, with Cap and PTFE/Silicone Pre-slit Septa	Waters 186001128C	100	181.10
CQ2044	Amber QSertVial™, Screw Top, with Cap and PTFE/Silicone Pre-slit Septa	Waters 186001131C	100	189.90
CQ2026	Clear QSertVial™, Screw Top, with Cap and PTFE/Silicone/PTFE Septa	—	100	177.40
CQ2038	Amber QSertVial™, Screw Top, with Cap and PTFE/Silicone/PTFE Septa	—	100	189.90

Headspace Vials

- Crimp, screw and magnetic cap options
- Available with Ultra Low Bleed (ULB) Septa for premium quality and a low price
- Available in clear and amber glass



20mm Crimp Top Headspace Vials

Description	Equivalent to	Pkg. 100	Pkg. 1000
10mL, 23x46mm, Flat Bottom, Bevelled Top, Clear Glass	Agilent 5182-0838	C733100202346 \$36.90	C733100202346M \$343.30
10mL, 23x46mm, Round Bottom, Bevelled Top, Clear Glass	Agilent 5183-4475	—	C73310020A2346M \$440.00
20mL, 23x75mm, Flat Bottom, Bevelled Top, Clear Glass	Agilent 5182-0837	C733200202375 \$36.90	C733200202375M \$332.80
20mL, 23x75mm, Round Bottom, Bevelled Top, Clear Glass	Agilent 5183-4474	C73320020A2375 \$44.50	C73320020A2375M \$413.00

Contact us for a quote on your annual vial needs. Discounts may be available for larger quantities.



Pre-assembled 20mm Metal Seals and Septa for Headspace Vials

Open Top Seal, Aluminum with 0.125" White PTFE/White ULB Silicone Septum	Agilent 5183-4477	C2221223CAS \$37.80	C2221223MAS \$331.50
Magnetic Crimp Cap, Silver with 0.125" Tan PTFE/White ULB Silicone Septum	—	C6620206 \$41.90	C6620206M \$357.00



18mm Screw Thread Headspace Vials

20mL, Tapered, Round Bottom, Clear Glass	Agilent 5188-2753	C771820RB \$43.80	C771820RBM \$427.00
20mL, Tapered, Round Bottom, Amber Glass	Agilent 5188-6537	C771820RBA \$48.00	—



18mm Screw Thread Caps for Headspace Vials

Magnetic Screw Cap, Silver with 2mm Red PTFE/White ULB Silicone Septum	Agilent 5188-2759	C6618201 \$72.90	C6618201M \$536.00
--	-------------------	---------------------	-----------------------

Visit www.chromspec.com/as-vials for more information on our Autosampler Vials.

18mm PolyMag[®] Magnetic Screw Caps

⇒ For magnetic sample transport systems

- Easy-to-use polypropylene screw thread format
- No crimping required – smooth thread fit compared to metal caps
- Secure grip to autosampler magnet
- Septa manufactured from low extractable silicone
- Not designed for oven temperatures exceeding 130°C



Description	Product Number	Price per Pkg. 100	
		1-9	10+
White Silicone / Blue PTFE Microcenter SPME Septum	C221831C	\$62.60	\$53.30
0.125" White Silicone / Natural PTFE Septum	C221832C	77.20	65.70
0.125" Red Butyl / Natural PTFE Septum	C221833C	103.80	88.30
0.070" Trans Blue Silicone / White PTFE Septum	C221834C	68.90	58.60
0.060" White Silicone / Blue PTFE Septum	C221835C	64.00	54.40
0.075" White Silicone / Red PTFE Septum	C221836C	63.70	54.20

CHROMSPEC™ GAS SAMPLING BAGS

CHROMSPEC™ gas sampling bags offer a convenient, reliable, economical way of collecting airborne samples.

- Chemically inert
- Leak tested
- Mechanically strong
- Reusable
- Non-contaminating



Tedlar®

- Most popular material – offering the best combination of inertness, low gas permeation levels, high tensile strength, puncture resistance and cost
- Perfect for sampling of carbon monoxide, sulfur dioxide, hydrogen sulfide, radon and mercaptans
- Temperature range for sampling is -98 to 225°F

Aluminized

- Multi-layer foil barrier bags protect light-sensitive compounds
- Perfect for low molecular weight compounds such as hydrogen and inert gas
- Provide sample stability of up to 5 days with minimal adsorption for most compounds



Aluminized multi-layer foil is the only bag material that is adequate for collecting and storing Hydrogen Sulfides (H₂S) for long periods (>5 days)

FEP

- High chemical inertness with extreme temperature stability, resistant to most severe corrosives
- Works well in temperatures ranging from -400 to 400°F; making it the ideal material for stack sampling and other extreme conditions

ALTEF

- Extremely low VOC and sulfur background levels
- Provide up to 2 days stability on VOCs and up to 24 hours on many sulfur compounds

*Available with a variety of valve and fitting options.
Optional metal eyelets allow for easy manipulation and storage.*



Product Number	Size (inches)	Capacity (Litres)	Material	Fittings	Qty	Price
TDP0606S10	6x6	0.6	Tedlar	Screw Cap Combo Valve with Septum	10	\$125.70
TDP0707S10	7x7	1.0	Tedlar	Screw Cap Combo Valve with Septum	10	126.50
TDPA0707S10	7x7	1.0	Aluminized	Screw Cap Combo Valve with Septum	10	111.60
TDPF0707S10	7x7	1.0	FEP	Screw Cap Combo Valve with Septum	10	214.50
TDPAL0707S10	7x7	1.0	ALTEF	Screw Cap Combo Valve with Septum	10	167.70
TDP1212S10	12x12	5.0	Tedlar	Screw Cap Combo Valve with Septum	10	214.30
TDP1818S10	18x18	16.0	Tedlar	Screw Cap Combo Valve with Septum	10	380.10
TDP3036S10	30x36	100	Tedlar	Screw Cap Combo Valve with Septum	10	862.00

Many more sizes and configurations are available. Please contact our Technical Support Team for assistance in selecting the right material and the best valve and fitting for your application.

Amphomag® Universal Spill Neutralizer with Built-in pH Indicator



Use a single product for ALL spills.



Efficiently handle your spill control needs

When applied to a spill, the colour of Amphomag® turns to red for acids and blue for bases. As Amphomag® neutralizes the spill, the colour gradually changes to yellow/green. Free liquids in the released materials can easily be contained and the neutralized material can be disposed of according to local laws.

Common uses

- All acids including Sulfuric, Hydrochloric, Nitric, etc.
- All bases including Sodium Hydroxide, etc.
- Hydrocarbons
- Dangerous inorganic materials
- Air and water reactive chemicals
- Anti-freeze/engine coolant and other automotive fluids
- Oxidizers and reducing agents
- Organic compounds
- Solvents
- CFCs, CHCs
- Gasoline and other fuels

Quickly and safely neutralize chemical spills

This single product can be applied in an emergency situation to safely and easily control hazardous releases. **The spilled material doesn't require identification before Amphomag® is applied.** It is used to neutralize acids, neutralize bases, adsorb liquids, control odours, and neutralize gases.



- Cost effective
- Fast clean-up
- Safe to handle
- Non-toxic
- Environmentally safe



Product Number	Description	Price
C7AMPH03S	3 lb shaker bottle	\$135.60
C7AMPH50T	50 lb tote	407.00



White Bottle © Can Stock Photo/LuckyDesigner

ANALYTICAL REFERENCE MATERIALS



One purchase order, one shipment, one invoice — saves you time, money and hassles!

Chromatographic Specialties Inc. is your one-stop shop for standards. We have multiple suppliers of analytical reference materials, so we can supply you with the standards you need.

- Buy both your 1st and 2nd source standards at the same time
 - In many instances we are able to offer second source options. Choose between the same standard from a different lot from the same supplier, or the same standard from a different supplier.



We offer a wide range of standards with ISO 9001, ISO Guide 34 and ISO/IEC 17025 certifications.

Compound Classes of Standards Offered — The following chart gives a broad overview of the types of reference materials we have available. Contact us if you don't see what you're looking for; there's a good chance we can source it for you.

Category	Compound	Accustandard	Restek	Others
Persistent Organic Pollutants	PCBs	✓	✓	
	PDBEs	✓		
	Biocides	✓		
	Pesticides	✓	✓	
	Flame Retardants	✓		
	PAHs	✓	✓	
Volatiles (VOCs)		✓	✓	
Petrochemicals	Petrochemicals	✓	✓	
	ASTM	✓	✓	
	PIANO	✓	✓	
	LUFT/LUST (UST)	✓	✓	
	Biodiesel	✓	✓	
EPA	500 Series Drinking Water	✓	✓	
	600 Series Waste Water	✓	✓	
	TCLP	✓	✓	
	1600 Series Waste Discharge	✓	✓	
	8000 Series Solid Waste	✓	✓	
	Environmental Reference Materials	✓	✓	
Specific Applications	Explosives	✓	✓	
	Refrigerants	✓	✓	
	Plastic Additives	✓		
Food and Flavours	FAME	✓	✓	
	Fragrances/Allergens	✓	✓	
	Food Safety	✓	✓	
	Phthalates	✓	✓	
Inorganics	Single Element	✓		✓
	Mixed Element	✓		✓
	Instrument Calibration	✓		✓
	pH Buffer Standards	✓		✓
	Environmental Reference Materials	✓		✓
Pharmaceuticals / Clinical / Forensics	Drugs of Abuse	✓	✓	
	Medical Marijuana		✓	
	Pharmaceutical		✓	

Proficiency Testing Standards

Get your PT standards on the same PO as your other standards. Absolute PT standards are ISO 9001, ISO Guide 34, ISO/IEC 17025 and ISO 17043. Large range of PT standards are available for:

- WP Water pollution - CWA
- Soil - RCRA
- WS Water supply - SDWA
- DMR - QA



More cost saving ideas...



AccuStandard's Recertification Program

Do you have unopened ampoules of expired AccuStandard reference material? AccuStandard will test their retained material and if possible extend the expiration date. You will receive a new Certificate of Analysis and labels if applicable.

Custom Formulations

Custom standard formulations can be costly and difficult to manufacture; but there are ways to save money or maximize return when considering non-stocked formulations.

- Minimize custom needs through combining stock standards or combine stock with less complex custom standards to eliminate costly mega-mixes.
- Purchase larger volumes of custom standards – often, more than your required amount of material is made during the manufacturing process; the cost of subsequent ampoules of material taken from that same lot are often attractively priced.

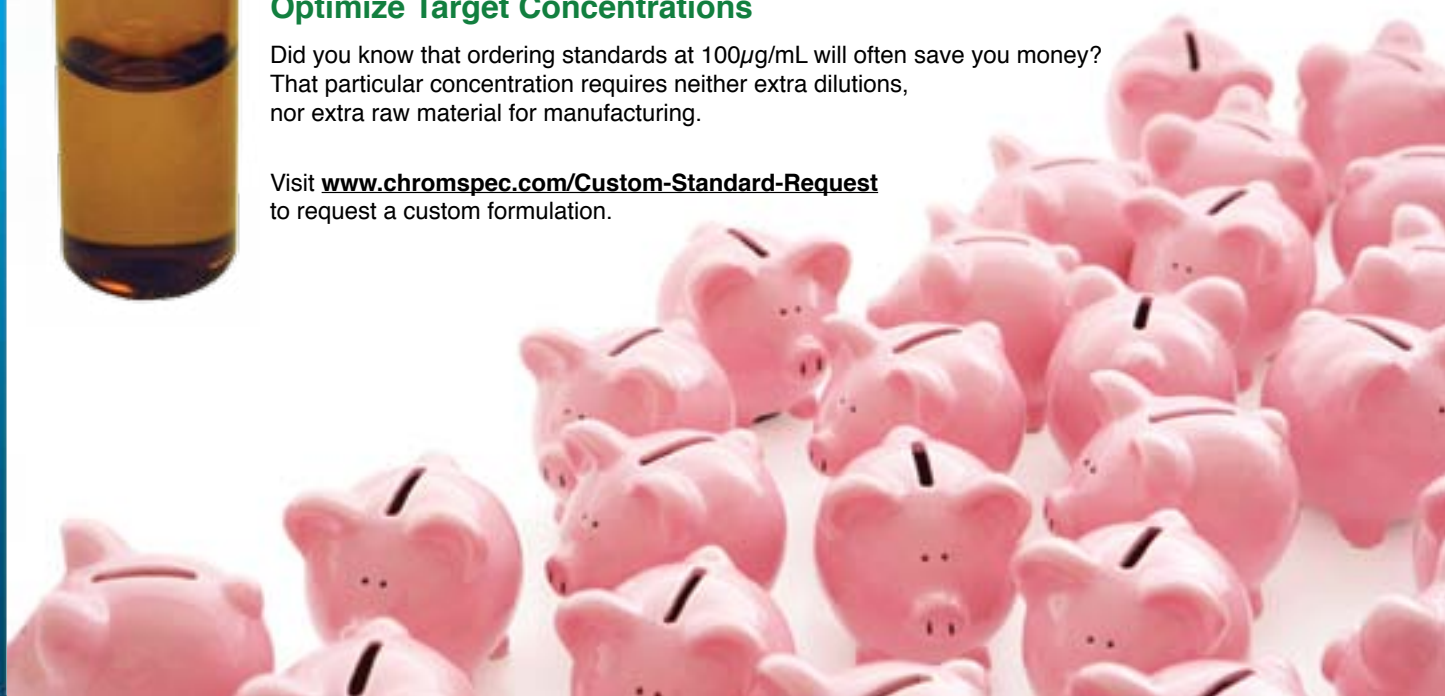
Let our Technical Team Save You Time and Effort

Reviewing lists of standards to try to find one that closely matches your needs can be a daunting and frustrating task; let our Technical Support Team be your guide. We'll interface between you and our suppliers to find the closest, cost effective solutions for you.

Optimize Target Concentrations

Did you know that ordering standards at 100µg/mL will often save you money? That particular concentration requires neither extra dilutions, nor extra raw material for manufacturing.

Visit www.chromspec.com/Custom-Standard-Request to request a custom formulation.





Competitively priced products with exceptional quality from a supplier you know and trust.

Instruments

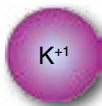
- Autosamplers for Spectroscopy Applications – see page 33
- Sample Digestion Systems – see page 39



Supplies for ICP-OES, ICP-MS, and AAS

Our products perform as well or better than those offered by instrument manufacturers. We offer many options that cost less, last longer and / or save you time and money because they are easier to use or more robust.

- Nebulizers
- Torches
- Bonnets
- Cones
- Peristaltic Pump Tubing
- Autosampler Probes
- Graphite Furnace Tubes



Reference Standards

- Full range of ICP / AA / IC and HPLC inorganic standards
- Manufactured under ISO / IEC 17025 and ISO Guide 34 quality systems
- One-stop shop: purchase your 1st and 2nd source standards at the same time



Syringe Filters

- **CHROMSPEC™ UV PES Syringe Filters** - Quality Syringe Filters at Lower Prices!
 - Naturally hydrophilic, Ideal for aqueous inorganic samples
- **Whatman – GD/XP™ Syringe Filters**
 - Incorporates a two-layer polypropylene pre-filter stack rather than a multi-layer glass fiber stack to minimize levels of ion extractables
 - Extremely low protein binding filter
 - High loading volume for filtration of challenging samples



Solid Phase Extraction (SPE)

- Sample pre-treatment and clean-up for ICP-OES, ICP-MS and AAS
- Eliminate matrix interferences and achieve high concentrations of ions



Visit www.chromspec.com/inorganics for more information.



Our Technical and Instrumentation Teams will be happy to work with you to get the most value from your budget. They will be able to guide you towards the products that will give you the best results, at the best price.

Chromatographic Specialties offers a complete product line:

- GC Columns, Accessories and Replacement Parts
- HPLC Columns, Accessories and Replacement Parts
- Analytical Instrumentation • Chemical Reference Standards
 - Solid Phase Extraction and Filtration Products
 - Glassware and Sample Handling Solutions
 - Valves and Fittings

We source these products from trusted chromatography market leaders, including:

AccuStandard[®]
Chemical Reference Standards

CDS Analytical, Inc.

CHROMSPEC[™]

HAMILTON
THE MEASURE OF EXCELLENCE[™]

Horizon technology

hta

KNAUER

MN
MACHEREY-NAGEL

optimize technologies
ANALYTICAL, HPLC, GC, & LIMS PRODUCTS

Parker BALSTON

PICKERING
LABORATORIES

REGIS[®]
TECHNOLOGIES, INC.

RESTEK[®]
Pure Chromatography

Thermo
SCIENTIFIC

UCT
PARTNER

VICI[®]
Valco Instruments Co. Inc.

YMC
AMERICA, INC.

And Many More...

We offer you the best available solutions from a wide range of world renowned manufacturers. We can easily source alternative products for better pricing, availability, and quality based on your specific needs.



CHROMATOGRAPHIC SPECIALTIES INC.

300 Laurier Blvd., Brockville, ON K6V 5W1

Toll Free: 800-267-8103

Fax: 613-342-1144

sales@chromspec.com

www.chromspec.com