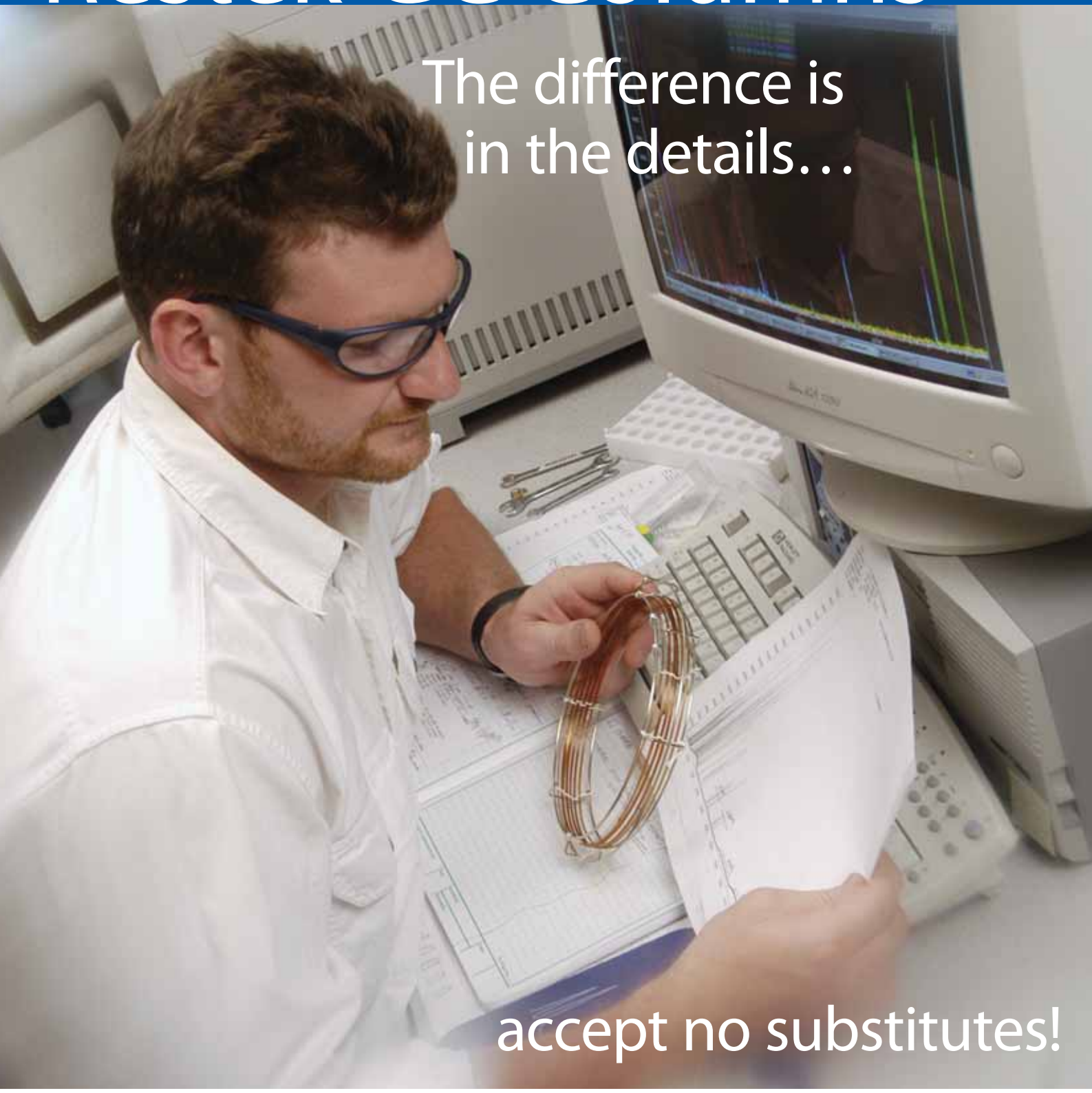
Restek GC Columns



RESTEK

www.restek.com

Restek GC Columns—
Accept no substitutes!

Accept No Substitutes

Insist on capillary GC columns from Restek. Choose from more than 40 general-purpose and special-purpose phases, in fused silica or equally inert Silcosteel®-treated stainless steel. We develop and synthesize our own polymers, and rigorously prepare and test our columns, to assure the efficiency, inertness, and low bleed you expect.

The Products

Make sure the column tag says **Restek**! There is a **DIFFERENCE!**

Highest Quality Components

- Strong, Inert Tubing
- Low Bleed Polymers
- Unique, Protective Cage

Thorough Testing

Environmentally Friendly Packaging

Free Technical Support

Applications Experts

Extensive Applications Library

Sales and Service

Knowledgeable Sales Representatives and Distributors

Friendly, Courteous Customer Service Personnel

Hear from others who have experienced the **DIFFERENCE...**

"I'm using Restek GC columns now for years because of their high quality and reliability. Very interesting for me are also the newly developed - partly in an ingenious way - GC supplies from Restek. Especially the Siltek deactivated liners have helped to solve several big problems with some of our GC/MS methods. Restek training seminars have a high level of presentation and information and I can warmly recommend them."

Wolfgang Koslowski, AAI Applied Analytical Industries (Germany)

"Any time I have any type of chromatography question, I know that I can call Restek Technical Service for assistance. Every time I have spoken to them, they have been extremely helpful, and friendly!"

Carisa A. Kelley, Exygen Research

RESTEK

The Restek DIFFERENCE is in the details!

High Quality Fused Silica Tubing
A column's quality is only as good as the materials from which it is manufactured. We use only high-strength, highly inert fused silica tubing for our Rtx® capillary columns. Our tubing suppliers say, "If our tubing is strong enough for Restek, it's strong enough for anyone."

Consistent Polymers
All of the polymers that go into Restek's columns are synthesized to exact standards in our own laboratory. Residual catalysts and low molecular weight fragments are removed to provide a tight mono-modal distribution and reduce column bleed. Every polymer is fully characterized to ensure that the column you buy today will meet the same specifications as the column you bought last week, or last year.

Innovative Cage Design
The column is suspended in our specially-designed stainless steel cage using high-temperature string that acts as a shock absorber. At no point does the fused silica tubing come into contact with the metal cage. We also offer cage designs for smaller GC ovens.

Thorough Testing of Every Column
The final quality assurance test on every Restek capillary column confirms that each column has the necessary inertness and efficiency. Each column also is evaluated for bleed at its maximum operating temperature, ensuring every column exhibits the lowest bleed possible.

Attractive, Environmentally-Safe Packaging
Our box is made from recyclable corrugated cardboard. Inside the cover you'll find a useful Column Service Record. This allows you to easily track column installation and GC maintenance for troubleshooting purposes. You can make quicker decisions and eliminate guesswork.

Restek Columns in Action
Interested in seeing real results from Restek columns? Visit **www.restek.com** for hundreds of application chromatograms covering an extensive range of samples. If you don't find what you're looking for there, please contact your local Restek representative.

Customer Support
Have a special request? Call us! At Restek, satisfying your needs is our #1 priority. It is our policy to do everything within our power to meet our customers' needs.

Our Applications Specialists
Restek has a unique team of application-specific experts well-versed with their industry's needs, their customers' questions, and their products' benefits. Whenever you need assistance, contact one of our experts.

Chris English came to Restek in 1997 and has been instrumental in designing new GC phases, developing applications, and helping customers solve their challenging analytical problems. He has a B.S. in Environmental Science from St. Michael's College in Colchester, Vermont.

In almost 17 years at Restek, Kristi Sellers has worn many hats, including QA chemist and manager, GC Column Manufacturing chemist and manager, and Innovations Team chemist. She has a B.S. in Chemistry from Lock Haven University, Lock Haven, Pennsylvania.

Barry Burger has 30 years GC experience with an emphasis on petrochemical applications. His strengths include excellent troubleshooting and process improvement skills.

Rtx®-1 & Rtx®-5 Columns

Rtx®-1 (Crossbond® 100% dimethyl polysiloxane)

ID	df (µm)	temp. limits	15-Meter	30-Meter	60-Meter	75-Meter	105-Meter
0.25mm	0.10	-60 to 330/350°C	10105	10108	10111		10114
	0.25	-60 to 330/350°C	10120	10123	10126		10129
	0.50	-60 to 330/350°C	10135	10138	10141		10144
	1.00	-60 to 320/340°C	10150	10153	10156		10159
0.32mm	0.10	-60 to 330/350°C	10106	10109	10112		10115
	0.25	-60 to 330/350°C	10121	10124	10127		10130
	0.50	-60 to 330/350°C	10136	10139	10142		10145
	1.00	-60 to 320/340°C	10151	10154	10157		10160
	1.50	-60 to 310/330°C	10166	10169	10172		10175
	3.00	-60 to 280/300°C	10181	10184	10187		10190
	4.00	-60 to 280/300°C		10198			
	5.00	-60 to 260/280°C	10176	10178	10180		
0.45mm	2.55	-60 to 270/290°C				10992	
0.53mm	0.10	-60 to 320/340°C	10107	10110	10113		
	0.25	-60 to 320/340°C	10122	10125	10128		
	0.50	-60 to 310/330°C	10137	10140	10143		
	1.00	-60 to 310/330°C	10152	10155	10158		
	1.50	-60 to 310/330°C	10167	10170	10173		
	3.00	-60 to 270/290°C	10182	10185	10188		10189
	5.00	-60 to 270/290°C	10177	10179	10183		10194
	7.00	-60 to 240/260°C	10191	10192	10193		
ID	**df (µm)**	**temp. limits**	**10-Meter**	**20-Meter**	**40-Meter**		
0.10mm	0.10	-60 to 330/350°C	41101	41102			
	0.40	-60 to 320/340°C	41103	41104			
0.18mm	0.20	-60 to 330/350°C	40101	40102	40103		
	0.40	-60 to 320/340°C	40110	40111	40112		

- Polarity similar to DB-1, SPB-1, HP-1, Ultra-1 phases; equivalent to USP G1, G2, G38 phases.

Rtx®-1 columns exhibit long lifetime and very low bleed at high operating temperatures. A proprietary synthesis process eliminates residual catalysts that could cause degradation and increase bleed.

Application Areas:
solvents, petroleum products, pharmaceuticals, waxes, fuel oils, flavor compounds

Please
note
Ultra low-bleed Rtx®-1MS and Rtx®-5MS columns are available. Please refer to our catalog.

Rtx®-5 (Crossbond® 5% diphenyl / 95% dimethyl polysiloxane)

ID	df (µm)	temp. limits*	15-Meter	30-Meter	60-Meter	105-Meter
0.25mm	0.10	-60 to 330/350°C	10205	10208	10211	10214
	0.25	-60 to 330/350°C	10220	10223	10226	10229
	0.50	-60 to 330/350°C	10235	10238	10241	10244
	1.00	-60 to 320/340°C	10250	10253	10256	10259
0.32mm	0.10	-60 to 330/350°C	10206	10209	10212	10215
	0.25	-60 to 330/350°C	10221	10224	10227	10230
	0.50	-60 to 330/350°C	10236	10239	10242	10245
	1.00	-60 to 330/350°C	10251	10254	10257	10260
	1.50	-60 to 310/330°C	10266	10269	10272	10275
	3.00	-60 to 280/300°C	10281	10284	10287	10290
0.53mm	0.10	-60 to 320/340°C	10207	10210	10213	
	0.25	-60 to 320/340°C	10222	10225	10228	
	0.50	-60 to 310/330°C	10237	10240	10243	
	1.00	-60 to 310/330°C	10252	10255	10258	
	1.50	-60 to 310/330°C	10267	10270	10273	
	3.00	-60 to 270/290°C	10282	10285	10288	
	5.00	-60 to 270/290°C	10277	10279	10283	
ID	**df (µm)**	**temp. limits**	**10-Meter**	**20-Meter**	**40-Meter**	
0.10mm	0.10	-60 to 330/350°C	41201	41202		
	0.40	-60 to 320/340°C	41203	41204		
0.18mm	0.20	-60 to 325/340°C	40201	40202	40203	
	0.40	-60 to 315/330°C	40210	40211	40212	

Maximum temperatures listed are for 15- and 30-meter lengths. Longer lengths may have a slightly reduced maximum temperature.

- Polarity similar to DB-5, SPB-5, HP-5, Ultra-2 phases; equivalent to USP G27, G36 phases.

Rtx®-5 columns are the highest quality 5% phenyl columns available. All residual catalysts and low molecular weight fragments are removed from the polymer, providing a tight mono-modal distribution and extremely low bleed.

Application Areas:
The 5% diphenyl/95% dimethyl polysiloxane stationary phase is the most popular stationary phase. The wide variety of applications includes pesticides, PCBs, aromatic hydrocarbons, other semivolatile environmental pollutants, essential oils, pharmaceuticals, flavors and fragrances.

Rtx®-Wax Columns

Rtx®-Wax (Crossbond® Carbowax® polyethylene glycol)

ID	df (μm)	temp. limits*	15-Meter	30-Meter	60-Meter
0.25mm	0.10	20 to 250°C	12405	12408	
	0.25	20 to 250°C	12420	12423	12426
	0.50	20 to 250°C	12435	12438	12441
0.32mm	0.10	20 to 250°C	12406	12409	
	0.25	20 to 250°C	12421	12424	12427
	0.50	20 to 250°C	12436	12439	12442
	1.00	20 to 240/250°C	12451	12454	12457
0.53mm	0.25	20 to 250°C	12422	12425	
	0.50	20 to 250°C	12437	12440	12443
	1.00	20 to 240/250°C	12452	12455	12458
ID	**df (μm)**	**temp. limits**	**10-Meter**	**20-Meter**	
0.10mm	0.10	20 to 250°C	41601	41602	
	0.20	20 to 240/250°C	41603	41604	

Maximum temperatures listed are for 15- and 30-meter lengths. Longer lengths may have a slightly reduced maximum temperature.

Custom lengths and film thicknesses available.

- Polarity similar to DB-WAX, HP-Wax phases; equivalent to USP G14, G15, G16, G20, G39 phases.
- 20°C minimum operating temperature.

A unique Crossbond® Carbowax® polyethylene glycol (PEG) stationary phase makes Rtx®-Wax columns the most inert and efficient PEG columns currently available. The extended operating temperature range allows analysis of compounds having a wide volatility range, and ensures low bleed at temperatures as high as 250°C. Selectivity is comparable to other Carbowax® columns, for compounds of intermediate to high polarity. Selectivity data available on request.

Application Areas:
essential oils, FAMEs, solvents (polar), isomeric separations, aldehydes, alcohols, BTEX, flavor compounds

Free
Literature

- Performance information about six polyethylene glycol (PEG) columns.
- Applications for each column.

Contact your local representative, to request your free copy!

lit. cat.# 59891

Many other phases available!

Innovative design and diligent implementation are hallmarks on every Restek capillary column. Choose from more than 40 general-purpose and special-purpose phases, in fused silica or equally inert Silcosteel®-treated stainless steel.

For information about our newest columns, and applications, subscribe to *The Restek Advantage*, or visit us at

www.restek.com

Hear from others
who have experienced the
DIFFERENCE...

"Restek is a first class company with excellent customer service. Courtesy is always extended to both my company and myself when communicating with Restek employees."

Rich Whitney,
Mass Spec Manager, ProChem Analytical

"We enjoy doing business with Restek. Their technical knowledge and willingness to back their products help us to maximize the performance of our chromatography instruments."

Jean-François Vergelin,
Département de Seine et Marne, Direction de l'Eau et de l'Environnement, Laboratoire Départemental d'Analyse des eaux (Melun, France)

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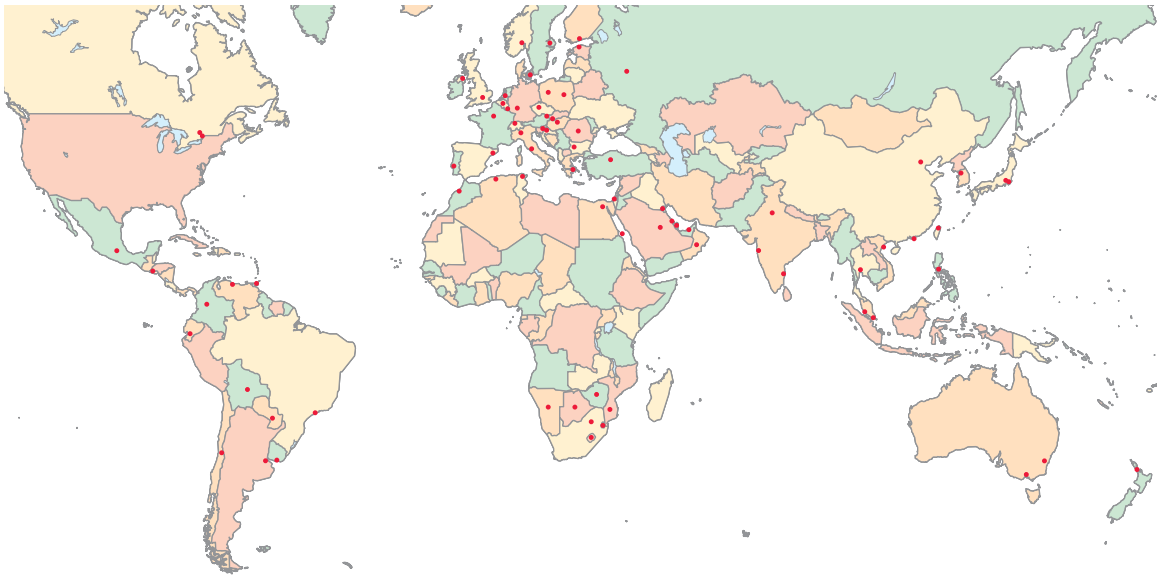

We are pleased to offer you more than 75 Restek representatives in over 65 countries and territories worldwide! To locate your local Restek distributor, please contact us or visit http://www.restekcorp.com/cis_distlist.asp

Hear from others
who have experienced the
DIFFERENCE...

"I have always found Restek to be extremely helpful. They provide both HPLC and GC columns which are extremely reliable. Their technical support and application development assistance has been first rate."

Andrew Burrows BSc (Hons.) Senior Analytical Chemist, Phoenix Chemicals

"Restek's technical support and preparation of our custom calibration standards, as well as their innovative column technology, has significantly increased the productivity of our GC/MS analyses."

Dan Wright, Laboratory Director, Shealy Environmental Services, Inc.

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