



THE RIGHT CONSUMABLES FOR BETTER CHROMATOGRAPHY

INTERACTIVE PDF

[▶ CLICK HERE TO VIEW THE MAIN INDEX](#)

2017–2018 Chromatography Consumables and Supplies

GC | LC | Mass Spec | Sample Preparation


PerkinElmer
For the Better



BETTER GC FOR THE MOST CRITICAL APPLICATIONS – YOURS

Superior sensitivity, capacity, and throughput – with flexibility to handle more applications

Our new Clarus® 590 and 690 systems are making GC more productive, more consistent – and more flexible than ever. Productive, because our proprietary autosampler technology, superfast oven cool-down, and programmable temperature injectors make it much more efficient. Consistent, because it delivers precise, repeatable sample introduction and fewer reruns. And flexible, because we integrate best-in-class TurboMatrix® headspace, thermal desorption, and hands-free liquid or SPME sample prep. Highly capable Clarus systems are simply better for the most important applications of all – those most important to you.

Learn more at www.perkinelmer.com/gc


PerkinElmer[®]
For the Better

New Investments – Local Support – Proven Quality!

For over 80 years, PerkinElmer has helped our global laboratory partners meet their most demanding application measurement challenges. Our experience in Chromatography, Spectroscopy and Materials Characterization gives us a unique advantage in providing holistic and comprehensive solutions for laboratories in universities and key market segments like Environmental, Energy, and Food and Product Safety.

When you order our precision designed, genuine PerkinElmer consumables and accessories, you can enjoy the peace of mind, ease of ordering, and best in class service. You'll get the results you need – accurately and on time. PerkinElmer selects only the highest quality products for our consumables portfolio and invests heavily to test and validate the quality of our products.

EUROPE			
Country	Telephone	Facsimile	Email
ALBANIA	0800 111 933	0800 111 934	cc.export@perkinelmer.com
AUSTRIA	0800 111 933	0800 111 934	cc.austria@perkinelmer.com
BELARUS	+7 495 935 8888	+7 495 564 8787	info@scheltec.ru
BELGIUM	0800 40858	0800 40859	cc.benelux@perkinelmer.com
BOSNIA HERZEGOVINA	+385 1 2001 767	+385 1 2001 724	hebe@hebe.hr
BULGARIA	+359 2 952 0301	+359 2 952 3784	chroma@spnet.net
CROATIA	+385 1 2001 767	+385 1 2001 724	hebe@hebe.hr
CYPRUS	+357 22 33 82 34	+357 22 33 82 32	sales@kriticos.com.cy
CZECH REPUBLIC	+420 241 430 534	+420 241 430 535	info@pesystems.cz
DENMARK	8088 4236	8088 4237	cc.nordic@perkinelmer.com
ESTONIA	+372 7 383 330	+372 7 383 360	kent@lanlab.ee
FINLAND	0800 117 186	0800 117 185	cc.nordic@perkinelmer.com
FRANCE	0805 111 333	0805 111 334	cc.france@perkinelmer.com
GERMANY	0800 181 0032	0800 181 0031	cc.germany@perkinelmer.com
GREECE	+30 2310 322525	+30 2310 321912	antisel@antisel.gr
HUNGARY	+36 1 251 1116	+36 1 251 1461	perform@per-form.hu
ICELAND	+354 412 7000	+354 412 7099	medor@medor.is
IRELAND	1800 932 886	1800 932 884	cc.ie@perkinelmer.com
ISRAEL	1700 500 512	1700 555 915	cc.israel@perkinelmer.com
ITALY	+39 800 906 642	+39 02 3601 2508	cc.italy@perkinelmer.com
LATVIA	+371 6755 1894	+371 6755 1976	info@adrona.lv
LITHUANIA	+370 5 2638748	+370 5 2638749	info@linealibera.it
LUXEMBOURG	0800 26588	0800 26589	cc.benelux@perkinelmer.com
MACEDONIA	+381 11 22 22 244	+381 11 22 22 244	perkinelmer@superlab.rs
MALTA	+39 081 7013094	+39 081 7021977	info@areachem.it
MOLDAVIA	+40 21 316 2877	+40 21 316 2876	office@cromatec.ro
MONTENEGRO	+381 11 22 22 244	+381 11 22 22 244	perkinelmer@superlab.rs
NETHERLANDS	0800 0234490	0800 0234491	cc.benelux@perkinelmer.com

ORDERING INFORMATION

EUROPE			
Country	Telephone	Facsimile	Email
NORWAY	800 18 854	800 18 855	cc.nordic@perkinelmer.com
POLAND	0800 88 08 88	+48 22 310 88 01	cc.pl@perkinelmer.com
PORTUGAL	+351 21 782 60 30	+351 21 782 60 39	ilc@ilc.pt
ROMANIA	+40 21 316 2877	+40 21 316 2876	office@cromatec.ro
RUSSIAN FEDERATION	+7 495 935 8888	+7 495 564 8787	info@scheltec.ru
SERBIA	+381 11 22 22 244	+381 11 22 22 244	perkinelmer@superlab.rs
SLOVAKIA	+421 918 506782	+421 48 2301628	mLa@mediclabor.sk
SLOVENIA	+386 1 427 3213/3650	+386 1 427 3191	omega@omega.si
SPAIN	800 099 164	800 099 165	atencionalcliente@perkinelmer.com
SWEDEN	0200 887 520	0200 887 521	cc.nordic@perkinelmer.com
SWITZERLAND	0800 000 015	0800 000 016	cc.switzerland@perkinelmer.com
TURKEY	+90 212 312 1100	+90 212 312 1111	cc.turkey@perkinelmer.com
UKRAINE	+7 495 935 8888	+7 495 564 8787	info@scheltec.ru
UNITED KINGDOM	0800 89 60 46	0800 89 17 14	cc.uk@perkinelmer.com

AMERICAS			
Country	Telephone	Facsimile	Email
ARGENTINA	54 11 4554 4004	54 11 4554 2807	
BOLIVIA	(591 2) 241 5446	(591 2) 241 0639	beco@entelnet.bo
BRAZIL	55 11 3868 6200	55 11 3868 6210	consumiveis.vendas@perkinelmer.com
CANADA	800 561 4646	905 851 1814	Orders.LSCanada@perkinelmer.com
CHILE	56 2 784 7500	56 2 236 6821	
COLUMBIA	(574) 230 57 67	(574) 230 56 04	
COSTA RICA	(506) 2 272 4700	(506) 2 272 9700	
DOMINICAN REPUBLIC	(809) 508 6500	(809) 532 0741	
ECUADOR	(593) 222 63 537	(593) 224 56 556	
EL SALVADOR	(503)2535 0700	(503)2535 0777	
GUATEMALA	(502) 25 02 47 00	(502) 25 02 47 01	
HONDURAS	(504) 2262 6700	(504) 2262 4000	
MEXICO	52 55 5337 0700	52 55 559 36223	CC.Mexico@perkinelmer.com
NICARAGUA	(505) 2 278 0177	(505) 278 0279	
PANAMA	507 3941 695	52 55 559 36223	
PARAGUAY	(598) 291 69857	(598) 291 69857	info@aldenor.com.uy
PERU	(511) 201 5800	(511) 444 9937	
PUERTO RICO	787 783 3067	787 793 7198	

AMERICAS

Country	Telephone	Facsimile	Email
TRINIDAD	(868) 671 1525	(868) 665 3703	
UNITED STATES	800 762 4000	203 944 4904	CustomerCareUS@perkinelmer.com
URUGUAY	(598) 291 69857	(598) 291 69857	info@aldenor.com.uy
VENEZUELA	58 212 7614757	58 212 7623050	

ASIA

Country	Telephone	Facsimile	Email
AFGANISTAN	+92 21 5345581	+92 21 5345582	sales@amspvtltd.com
ARMENIA	+7 495 935 8888	+7 495 564 8787	info@scheltec.ru
AUSTRALIA	61 3 9212 8500 or 1 800 033 391	61 3 9212 8595	http://go.perkinelmer.com/Consumables
AZERBAIJAN	+90 212 212 5566	+90 212 212 2829	istanbul@tetratek.com.tr
CHINA	86 8008205046	86 2160645666	consumable.china@perkinelmer.com
GEORGIA	+7 495 935 8888	+7 495 564 8787	info@scheltec.ru
HONG KONG	852 2793 3218	852 2793 3225	info@aldenor.com.uy
INDIA	+91 22 33261700	+91 22 33261790	marketing.india@perkinelmer.com
INDONESIA	62 21 5694 5040 to 43	62 21 5694 5024	
JAPAN Kyushu	81 92 473 7001	81 92 473 8353	scalar@tstt.ent.tt
JAPAN Osaka	81 6 6386 6004	81 6 6386 7009	
JAPAN Tokyo	81 3 3866 2647	81 3 3866 2652	info@aldenor.com.uy
JAPAN Yokahama	81 45 339 5861	81 45 339 5871	
KAZAKHSTAN	+7 495 935 8888	+7 495 564 8787	info@scheltec.ru
KOREA	82 2 868 5376	82 2 868 4343	http://go.perkinelmer.com/Consumables
KYRGYZSTAN	+7 495 935 8888	+7 495 564 8787	info@scheltec.ru
MALAYSIA	603 7949 1118	603 7949 1119	http://go.perkinelmer.com/Consumables
MONGOLIA	+7 495 935 8888	+7 495 564 8787	info@scheltec.ru
NEW ZEALAND	64 21 215 1198 or 0800 724 663	64 3 384 1222	http://go.perkinelmer.com/Consumables
PAKISTAN	+92 21 5345581	+92 21 5345582	sales@amspvtltd.com
PHILIPPINES	632 822 0511 to 16	632 822 0517	http://go.perkinelmer.com/Consumables
RUSSIAN FEDERATION	+7 495 935 8888	+7 495 564 8787	info@scheltec.ru
SINGAPORE	65 6868 1650	65 6872 6595	http://go.perkinelmer.com/Consumables
TAIWAN Taipei	886 2 87912589	886 2 87919085	http://go.perkinelmer.com/Consumables
TAIWAN Kaohsiung	886 7 5521030	886 7 5543402	http://go.perkinelmer.com/Consumables
TAJIKISTAN	+7 495 935 8888	+7 495 564 8787	info@scheltec.ru
THAILAND	662 319 7901	662 319 7900	http://go.perkinelmer.com/Consumables
TURKEY	+90 212 312 1100	+90 212 312 1111	cc.turkey@perkinelmer.com

ORDERING INFORMATION

ASIA

Country	Telephone	Facsimile	Email
TURKMENISTAN	+7 495 935 8888	+7 495 564 8787	info@scheltec.ru
VIETNAM Hanoi	84 4 3747 2258	84 4 3747 2260	http://go.perkinelmer.com/Consumables
VIETNAM Ho Chi Minh City	84 8 5431 8877	84 8 5431 8570	http://go.perkinelmer.com/Consumables
UZBEKISTAN	+7 495 935 8888	+7 495 564 8787	info@scheltec.ru

MIDDLE EAST AND GULF

Country	Telephone	Facsimile	Email
BAHRAIN	+973 17276176	+973 17275819	info@ymh.com.bh
GAZA STRIP	+202 22905306	+202 22905307	info@htds.fr
IRAQ	+202 22905306	+202 22905307	info@htds.fr
ISRAEL	1700 500512	1700 555 915	cc.israel@perkinelmer.com
JORDAN	+962(0)6 534 6523	+962(0)6 534 6527	info@htds.fr
KUWAIT	+965 22419797	+965 22419798	las@emphor.biz
LEBANON	+202 22905306	+202 22905307	info@htds.fr
OMAN	+968 248 14752	+968 248 13924	big@bigllcoman.com
PALESTINIAN TERRITORIES	+202 22905306	+202 22905307	info@htds.fr
QATAR	+974 4654563	+974 4652256	las@emphor.biz
SAUDI ARABIA	+966 11477 7932	+966 11477 1314	info@aralgosaibico.com
UNITED ARAB EMIRATES	+971 4 883 0233	+971 4 883 0133	las@emphor.biz
WEST BANK	+202 22905306	+202 22905307	info@htds.fr
YEMEN	+967 234 5073	+967 234 0504	direct@alfalahye.net

AFRICA

Country	Telephone	Facsimile	Email
ALGERIA	+213 (0)21 91 63 73	+213 (0)21 91 63 82	info@htds.fr
ANGOLA	+27 11 564 2400	+27 11 564 2440	info.za@perkinelmer.com
BENIN	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
BOTSWANA	+27 11 564 2400	+27 11 564 2440	info.za@perkinelmer.com
BRITISH INDIAN OCEAN	+202 22905306	+202 22905307	info@htds.fr
BURKINA FASO	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
BURUNDI	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
CAMEROON	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
CAPE VERDE	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
CENTRAL AFRICA REP.	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
CHAD	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
COMOROS	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr

AFRICA			
Country	Telephone	Facsimile	Email
CONGO	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
DEMO. REP. CONGO	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
DSCHIBUTI REP.	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
EGYPT	+202 22905306	+202 22905307	info@htds.fr
EQUATORIAL GUINEA	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
ERITREA	+202 22905306	+202 22905307	info@htds.fr
ETHIOPIA	+202 22905306	+202 22905307	info@htds.fr
GABON	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
GAMBIA	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
GHANA	+202 22905306	+202 22905307	info@htds.fr
GUINEA	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
GUINEA – Bissau	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
IVORY COAST	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
KENYA	+202 22905306	+202 22905307	info@htds.fr
LESOTHO	+27 11 564 2400	+27 11 564 2440	info.za@perkinelmer.com
LIBERIA	+202 22905306	+202 22905307	info@htds.fr
LIBYA	+218/92 304 48 74	+218/21 713 21 12	info@htds.fr
MADAGASCAR	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
MALAWI	+27 11 564 2400	+27 11 564 2440	info.za@perkinelmer.com
MALI	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
MAURITANIA	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
MAURITIUS	+27 11 564 2400	+27 11 564 2440	info.za@perkinelmer.com
MOROCCO	+212/(0)522 27 49 59	+212/(0)522 20 83 74	info@htds.fr
MOZAMBIQUE	+27 11 564 2400	+27 11 564 2440	info.za@perkinelmer.com
NAMIBIA	+27 11 564 2400	+27 11 564 2440	info.za@perkinelmer.com
NIGER	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
NIGERIA	+202 22905306	+202 22905307	info@htds.fr
REUNION ISLANDS	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
RWANDA	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
SENEGAL	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
SEYCHELLES	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
SIERRA LEONE	+202 22905306	+202 22905307	info@htds.fr
SOMALIA	+202 22905306	+202 22905307	info@htds.fr
REPUBLIC OF SOUTH AFRICA	+27 564 2400	+27 564 2440	info.za@perkinelmer.com

ORDERING INFORMATION

AFRICA			
Country	Telephone	Facsimile	Email
SWAZILAND	+27 11 564 2400	+27 11 564 2440	info.za@perkinelmer.com
TANZANIA	+202 22905306	+202 22905307	info@htds.fr
TOGO	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
TUNISIA	+216 70 836 961	+216 70 836 561	info@htds.fr
UGANDA	+202 22905306	+202 22905307	info@htds.fr
WESTERN SAHARA	+33 1 64 86 28 28	+33 1 69 07 69 54	info@htds.fr
ZAMBIA	+27 11 564 2400	+27 11 564 2440	info.za@perkinelmer.com
ZIMBABWE	+27 11 564 2400	+27 11 564 2440	info.za@perkinelmer.com

Ordering Information

Place your order online at: www.perkinelmer.com/shop

Online ordering is currently available in Australia, Austria, Belgium, Canada, China, Denmark, Finland, France, Germany, Ireland, Italy, Luxemburg, the Netherlands, Norway, Puerto Rico, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the United States.

Please contact your local PerkinElmer Customer Care Representative. Or visit www.perkinelmer.com/lasoffices.

Visit us online at www.perkinelmer.com/lasoffices to obtain the correct address for mailing your company Purchase Order.

Return Goods Policy

Before returning any item to PerkinElmer, please obtain a Return Authorization Number from a customer service representative. Call your local PerkinElmer office and please have the following information ready:

- Our Order Number or your Purchase Order Number
- The PerkinElmer part numbers of the items that you wish to return
- Reason for return

Our customer service representative will provide you with a Return Authorization Number and the return address. We cannot accept any returns without a Return Authorization Number. Policy may vary. Please contact your local PerkinElmer representative for details.

Technical Support

For technical assistance, please contact your local PerkinElmer Customer Care Representative. See local office listings.

Check with your local PerkinElmer Customer Care center for current pricing.

PerkinElmer and the PerkinElmer logo are registered trademarks of PerkinElmer, Inc. All other product and company names mentioned herein may be the trademarks or registered trademarks of their respective owners.

PerkinElmer is not responsible for typographical or photographic errors that may appear in this catalog. We reserve the right to make adjustments or corrections due to changing market conditions, product discontinuations, or typographical or photographic errors in advertisements or product descriptions. Terms and conditions and item availability are subject to change without notice.

Terms and Conditions

For details on our terms and conditions, including warranties, please visit: www.perkinelmer.com/terms

Table of Contents

>	SPE	9 – 22
>	VIALS, CAPS AND SEPTA	23 – 37
>	LC COLUMNS	38 – 52
>	LC ACCESSORIES	53 – 70
>	GC COLUMNS	71 – 101
>	GC ACCESSORIES	102 – 133
>	ARNEL GC COLUMNS AND ACCESSORIES	134 – 143
>	TORION ACCESSORIES	144 – 149
>	LC/MS AND GC GAS MANAGEMENT	150 – 181
>	STANDARDS	182 – 185
>	PART NUMBER INDEX	186 – 199
>	ALPHABETICAL INDEX	200 – 205

SPE

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

Quick Reference Index Page

▶ Nylon Syringe Filters	10
▶ PTFE (hydrophobic) Syringe Filters	10
▶ PTFE (hydrophilic) Syringe Filters	10
▶ PVDF Syringe Filters	10
▶ Supra-Clean and Supra-Poly SPE Solutions	11
▶ Supra-Clean and Supra-Poly SPE Application Overview	12
▶ Supra-Clean Columns, Cartridges and 96 Well Plates	14
▶ Supra-Poly HLB Columns and 96 Well Plates	16
▶ Supra-Poly Columns and 96 Well Plates	17
▶ SPE Application and Separation Packs	18
▶ SPE Vacuum Pumps and Manifolds	19
▶ Supra-d QuEChERS Dispersive SPE	20
▶ Supra-d QuEChERS for Multiple Pesticide Residue Analysis	21
▶ Syringes	22

QuEChERS

We provide a complete range of products for QuEChERS methodologies, offering all three standard QuEChERS methods: Original QuEChERS method, American AOAC Standard (Official Method 2007.01) QuEChERS method and European Standard (EN 15662) QuEChERS method.



[▶ VIEW PAGE](#)

SPE Columns and Cartridges

Ideal for a broad array of analytes and matrices, our SPE solutions are available in a variety of formats including Large Reservoir Capacity (LRC) columns, Polypropylene (PP)

columns and cartridges, and also glass columns. Each technology is offered with a wide selection of polymer and silica sorbents, and large and small sample volumes (50 µL to 1 L) allow you to perform scalable analyses depending upon your required detection limits.



[▶ VIEW PAGE](#)

SPE Application Packs

Ideal for extraction of known entities from a variety of matrices, our packs are expertly tailored to meet your application needs and are designed to support major EPA methods and applications.

[▶ VIEW PAGE](#)

Nylon and PTFE Syringe Filters



Our Syringe Filters are lab tested and certified to bring you the highest quality syringe filters available. Our membrane materials are supplied per ISO9001:2008 certified manufacturing practices, in certified clean room conditions, using the latest manufacturing technology to ensure you receive a high quality, consistent product every time.

Select our superior premium 17 and 30 mm filters which are suitable for coarse/crude samples or higher detection limit applications (such as food, beverage, or environmental analysis) and our 4, 13 and 25 mm syringe filters are ideal for routine QA/QC analysis.

Nylon Syringe Filters

Ideal for aqueous (non-acidic) or organic sample preparation and HPLC, GC or dissolution sample analysis. With its excellent flow characteristics, very low extractable levels and mechanical stability, Nylon offers the best combination of physical parameters to meet the most stringent analytical needs.

Size (mm)	Pkg.	Color	0.22 µm Particle Part No.	0.45 µm Particle Part No.
4	200	Clear	02542900	02542901
13	100	Purple	02542902	02542903
17	100	Yellow	02542881	02542880
25	100	Purple	02542904	02542905
30	100	Yellow	02542883	02542882

PTFE (Hydrophobic) Syringe Filters

Versatile filters for use with aggressive organic solvent-based solutions and are particularly suited for HPLC sample preparation. Hydrophobic PTFE syringe filters have broad chemical compatibility and high pH resistance.

Size (mm)	Pkg.	Color	0.22 µm Particle Part No.	0.45 µm Particle Part No.
4	200	Clear	02542906	02542907
13	100	Red	02542908	02542909
17	100	Red	02542884	02542910
25	100	Red	02542911	02542912
30	100	Red	02542886	02542885

PVDF (Hydrophobic Polyvinylidene Fluoride) Syringe Filters

Compatible with a wide range of mild organic solutions. PVDF membranes are not recommended for use with acetone, DMF, DMSO, or bases >6N.

Size (mm)	Pkg.	Color	0.22 µm Particle Part No.	0.45 µm Particle Part No.
4	200	Clear	02542913	02542914
13	100	Yellow	02542915	02542783
17	100	Maroon	02542916	02542917
25	100	Yellow	02542918	02542919
30	100	Maroon	02542920	02542921

PTFE (Hydrophilic) Syringe Filters

Versatile filters for use with aqueous and aggressive organic solvent-based solutions and are suitable for HPLC sample preparation. They have broad chemical compatibility and high pH resistance.

Size (mm)	Pkg.	Color	0.22 µm Particle Part No.	0.45 µm Particle Part No.
4	200	Clear	02542922	02542923
13	100	Red	02542924	02542925
25	100	Red	02542926	02542927
30	100	Red	02542928	02542929

Supra-Clean and Supra-Poly SPE Solutions

Recovery, capacity, selectivity and reproducibility are the principal sample prep demands of today's analyst. We have developed an innovative SPE product range incorporating silica and polymer based technology. Supra-Clean® (silica) and Supra-Poly® (polymer) deliver the recovery, reproducibility, and reliability desired for consistently excellent results.

Both utilize Precise Bed Technology® (PBT) with our spherical media (figure 1) allowing columns to be evenly and consistently filled with particles sized for optimum distribution. This homogeneous filling yields a +/- 1% variation in bed volume precision, ensuring you experience repeatability and optimized recovery reproducibility.

Spherical media and consistent particle distribution enable smaller elution volumes and better, more reproducible extraction, purification, concentration and recovery.



Figure 1: Comparison of Spherical and Irregular Media.

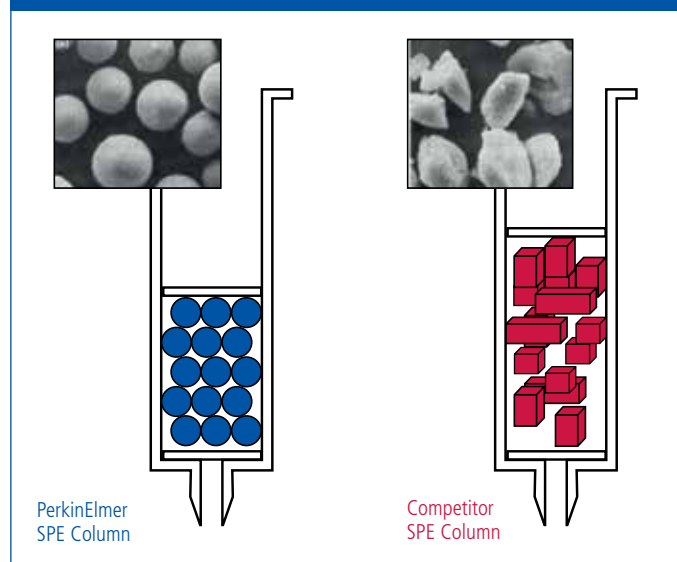
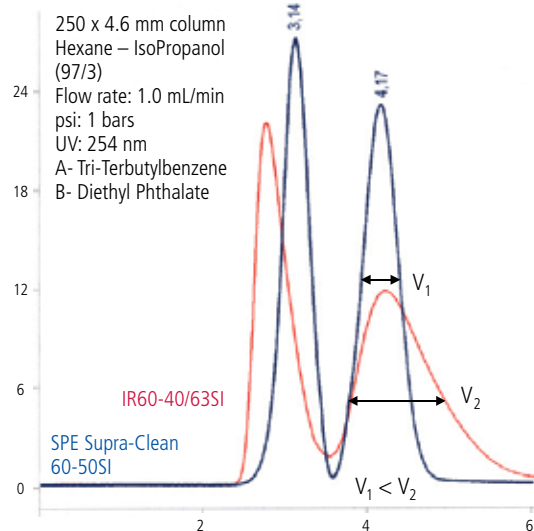


Figure 2: Performance Comparison of PerkinElmer Spherical SPE Media vs. Leading Irregular SPE Silica.



PerkinElmer's smaller, more homogeneous, spherical media deliver sharper, narrower peaks for faster, more accurate sample analysis, figure 2.

Ideal for a broad array of analytes and matrices, our SPE solutions are available in a variety of formats including Large Reservoir Capacity (LRC) columns, Polypropylene (PP) columns and cartridges, and also glass columns. Each technology is offered with a wide selection of polymer and silica sorbents, and large and small sample volumes (50 μ L to 1 L) allow you to perform scalable analyses depending upon your required detection limits.

Each finished product is delivered with an individual quality certificate.

Supra-Clean and Supra-Poly Application Overview

Supra-Clean Spherical Silica				
Phase	Mechanism	Interaction Mode	Compounds	Matrix
C18-S	Hydrophobic	Reversed Phase	Polar to Non-Polar compounds	Biological fluids, aqueous samples
High Recovery REC18	Hydrophobic	Reversed Phase	Non-polar and mid-polar compounds including 100% water solvents	Biological fluids, aqueous samples toxins in food
Phenyl (PH-S)	Hydrophobic	Reversed Phase	Non-polar to mid-polar aromatic compounds	Biological fluids
Silica (SI-S)	Hydrophilic	Normal Phase	Polar compounds	Non-polar organics, oils, lipids
Amino (NH ₂ -S)	Hydrophilic	Normal Phase	Polar to Mid-Polar aromatic compounds	Biological fluids, aqueous samples, buffered organics
Strong Cation Exchange (SCX)	Ion Exchange	Ion Exchange	Basic compounds	Biological fluids, aqueous samples, buffered organics
Weak cation Exchange (WCX)	Ion Exchange	Ion Exchange	Strong basic compounds	Biological fluids, aqueous samples
Strong Anion Exchange (SAX)	Ion Exchange	Ion Exchange	Acidic compounds	Biological fluids, aqueous samples
Cyano (CN-S)	Hydrophilic	Normal Phase	Polar to Mid-Polar compounds	Non-polar organics, oils, lipids
Florisil (FL-S)	Hydrophilic	Normal Phase	Polar compounds	Ideal for polar compounds in non-polar matrix
Florisil Pesticide (FL-S)	Hydrophilic	Normal Phase	Polar compounds	Ideal for polar compounds in non-polar matrix
Polyamine (P6)	Hydrophilic	Reversed Phase	Carboxylic acids, phenolics and nitroaromatics	Aqueous and mid-polar matrices
300 A (C4)	Hydrophobic	Reversed Phase	Non-polar to mid-polar compounds	Biological Samples
LCC	Hydrophobic	Reversed Phase	Non-polar to mid-polar compounds	Biological fluids, aqueous samples
Mixed mode (MM1)	Ion Exchange/ Hydrophobic	Reversed Phase/SCX	Basic compounds	Biological samples
Mixed mode (MM2)	Ion Exchange/ Hydrophobic	Reversed Phase/WCX	Very basic compounds	Biological samples
Mixed mode (MM3)	Ion Exchange/ Hydrophobic	Reversed Phase/SAX	Acidic compounds	Biological samples
Supra-Poly Spherical Polymer				
Phase	Mechanism	Interaction Mode	Compounds	Matrix
Extreme Capacity (XC)	Hydrophobic	Reversed Phase	Polar and non-polar	Aqueous or organic
Extreme Capacity Wide Pore (XWP)	Hydrophobic	Reversed Phase	Polar and non-polar	Biological and viscous samples
Hydrophilic (ATH)	Hydrophilic	Reversed Phase	Mid to non-polar compounds	Aqueous or organic
Lipophilic (ATL)	Lipophilic	Reversed Phase	Mid to non-polar compounds	Crude samples
Environmental (AEV)	Hydrophilic/ Hydrophobic	Reversed Phase	Mid to non-polar compounds	Aqueous or Organic
HLB	Hydrophilic/lipophilic balanced	Reversed Phase	Mid to non-polar compounds	Aqueous or organic

Typical Applications	pH Range	End-Capping	Pore Size (Å)	Surface Area (m ² /g)	Particle Size (µm)	Comments
Drugs and drug metabolites in biological matrices, trace organic material in water, toxins in food	2 – 8	Yes	60	500	50	18% Carbon Load (CL)
Drugs and drug metabolites in biological matrices, trace organic material in water	2 – 8	Yes	–	–	50	High capacity and better recovery especially for high aqueous conditions. 15% CL
Benzodiazepines in biological matrices, extraction of aromatic compounds	2 – 8	No	60	500	50	9% CL
Aldehydes, amines, pesticides, herbicides, carotenoids, fat soluble vitamins, aflatoxins, fatty acids, and phospholipids	2 – 8	No	60	500	50	Bare Silica
Basic compounds, polar amine compounds, carbohydrates	2 – 8	No	60	500	50	5% CL
Cations, antibiotics, drugs, amino acids, catecholamines, herbicides, nucleic acid bases, nucleosides, and surfactants	2 – 8	No	60	450	60	Strong Acid – Sulfonic acid; Exchange capacity 0.70 meq/g
Cations, amines, antibiotics, drugs, amino acids, catecholamines, nucleic acid bases, nucleosides, and surfactants	2 – 8	No	60	450	60	Weak Acid – Carboxylic acid; Exchange capacity 0.22 meq/g
Acidic food pigments, organic acids, phenol compounds, nucleic acids, nucleotides, surfactants	2 – 8	No	60	450	60	Strong Base – quaternary amine; Exchange capacity 0.30 meq/g
Polar compounds in hexane and oil	2 – 8	Yes	60	500	50	8% CL; Mid-range polarity between silica and C18
Pesticides, Polychlorinated Biphenyls (PCB)	2 – 8	No	–	–	200	Standard grade. Alternative to silica for viscous matrices due to large particle size
Pesticides	2 – 8	No	–	–	200	High purity pesticide grade. Alternative to silica for viscous matrices
Aromatic and natural products; Flavones, Chalkones, Anthraquinones	2 – 8	No	–	–	100	Nylon 6
Hydrophobic peptides and polypeptides	2 – 8	No	300	–	–	Large pore size for isolation of large biomolecules
Non-polar compounds in aqueous solution	2 – 8	Yes	60	500	50	10% CL; Lower carbon load than C18-S and REC18
Drugs and drug metabolites	2 – 8	No	60	450	60	Exchange capacity 0.09 meq/g
Drugs and drug metabolites	2 – 8	No	60	450	60	Exchange capacity 0.10 meq/g
Drugs and drug metabolites	2 – 8	No	60	450	60	Exchange capacity 0.14 meq/g

Typical Applications	pH Range	End-Capping	Pore Size (Å)	Surface Area (m ² /g)	Particle Size (µm)	Comments
Drugs and drug metabolites biological fluids	0 – 14	No	–	1500	70	High capacity polystyrene-divinylbenzene (PSDVB)
Drugs and drug metabolites biological fluids	0 – 14	No	Wide Pore	1200	90	High capacity PSDVB for large biomolecules and viscous matrices
Mid-polar and non-polar compounds in aqueous and organic solvents	1 – 13	No	70	800	75	Mixed hydrophilic/hydrophobic interactions
Lipids	0 – 14	No	70	800	100	PSDVB; Alternative to high flow silica for mid-polar to non-polar compounds (<3000D) in crude samples
Aqueous environmental compounds that are not retained on C18	1 – 12	No	70	800	75	Advanced environmental; Polystyrene-co-2-hydroxyethyl methacrylate (PSHEMA)
Mid-polar and non-polar compounds in aqueous and organic solvents	0 – 14	No	80	850	30 and 60	Hydrophilic-lipophilic-balanced reversed-phase sorbent for acids, bases and neutrals

Supra-Clean Columns, Cartridges and 96 Well Plates

Supra-Clean SPE products are available in a range of media weights, volumes and formats, including easy to order selection kits and application packs.

- Pure spherical silica
- Pore size 60 – 120 Å
- 17 chemistries with pH range 2 – 8

Columns

Media Weight	Volume	Qty.	Part No.
Supra-Clean C18			
50 mg	1 mL	50	N9306476
100 mg	1 mL	100	N9306478
100 mg	3 mL	50	N9306523
200 mg	3 mL	50	N9306462
500 mg	3 mL	50	N9306438
500 mg	3 mL*	50	N9306642
200 mg	6 mL	30	N9306634
500 mg	6 mL	30	N9306448
500 mg	6 mL*	30	N9306640
1 g	6 mL	30	N9306422
2 g	6 mL	30	N9306430
2 g	15 mL	20	N9306479
2 g	25 mL	20	N9306475
Supra-Clean REC18			
50 mg	1 mL	50	N9306519
100 mg	1 mL	100	N9306520
100 mg	3 mL	50	N9306455
200 mg	3 mL	50	N9306521
500 mg	3 mL	50	N9306522
200 mg	6 mL	30	N9306633
500 mg	6 mL	30	N9306457
1 g	6 mL	30	N9306491
Supra-Clean Strong Anion Exchange (SAX)			
50 mg	1 mL	50	N9306553
100 mg	1 mL	100	N9306471
100 mg	3 mL	50	N9306554
200 mg	3 mL	50	N9306482
500 mg	3 mL	50	N9306555
500 mg	6 mL	30	N9306556
Supra-Clean Strong Cation Exchange (SCX)			
50 mg	1 mL	50	N9306536
100 mg	1 mL	100	N9306432
100 mg	3 mL	50	N9306537
200 mg	3 mL	50	N9306538
500 mg	3 mL	50	N9306539
500 mg	6 mL	30	N9306540

Columns *continued*

Media Weight	Volume	Qty.	Part No.
Supra-Clean Weak Cation Exchange (WCX)			
50 mg	1 mL	50	N9306544
100 mg	1 mL	100	N9306545
100 mg	3 mL	50	N9306546
200 mg	3 mL	50	N9306547
500 mg	3 mL	50	N9306420
500 mg	6 mL	30	N9306407
Supra-Clean 300Å C4			
50 mg	1 mL	50	N9306590
100 mg	1 mL	100	N9306591
100 mg	3 mL	50	N9306592
200 mg	3 mL	50	N9306593
Supra-Clean Mixed-Mode (MM1)			
50 mg	1 mL	50	N9306541
100 mg	1 mL	100	N9306542
100 mg	3 mL	50	N9306419
200 mg	3 mL	50	N9306543
500 mg	3 mL	50	N9306481
500 mg	6 mL	30	N9306416
200 mg	15 mL	50	N9306713
Supra-Clean Mixed-Mode (MM2)			
50 mg	1 mL	50	N9306548
100 mg	1 mL	100	N9306549
100 mg	3 mL	50	N9306550
200 mg	3 mL	50	N9306551
500 mg	3 mL	50	N9306411
500 mg	6 mL	30	N9306552
Supra-Clean Mixed-Mode (MM3)			
500 mg	6 mL	30	N9306649
Supra-Clean Florisil (FL-S)			
200 mg	3 mL	50	N9306511
500 mg	3 mL	50	N9306512
500 mg	6 mL	30	N9306494
1 g	6 mL	30	N9306413
2 g	6 mL	20	N9306513
2 g	15 mL	20	N9306514
2 g	25 mL	20	N9306515

* Not end-capped

Columns *continued*

Media Weight	Volume	Qty.	Part No.
Supra-Clean Florisil (FL-S) Pesticide Grade			
200 mg	3 mL	50	N9306516
500 mg	3 mL	50	N9306400
500 mg	6 mL	30	N9306517
1 g	6 mL	30	N9306436
2 g	6 mL	30	N9306470
2 g	15 mL	20	N9306443
2 g	25 mL	20	N9306447
Supra-Clean Silica (SI-S)			
100 mg	3 mL	50	N9306532
200 mg	3 mL	50	N9306444
500 mg	3 mL	50	N9306402
500 mg	6 mL	30	N9306466
1 g	6 mL	30	N9306404
2 g	6 mL	20	N9306533
2 g	15 mL	20	N9306534
2 g	25 mL	20	N9306535
Supra-Clean Cyano (CN-S)			
500 mg	3 mL	50	N9306645
500 mg	6 mL	30	N9306644
Supra-Clean Amino (NH₂-S)			
50 mg	1 mL	50	N9306528
100 mg	1 mL	100	N9306410
100 mg	3 mL	50	N9306529
500 mg	3 mL	50	N9306414
200 mg	6 mL	50	N9306530
500 mg	6 mL	30	N9306531
Supra-Clean Polyamine (P6)			
500 mg	3 mL	50	N9306518
500 mg	6 mL	30	N9306434
Supra-Clean Phenyl (PH-S)			
50 mg	1 mL	50	N9306401
100 mg	1 mL	100	N9306524
100 mg	3 mL	50	N9306525
200 mg	3 mL	50	N9306490
500 mg	3 mL	50	N9306421
500 mg	6 mL	30	N9306526
1 g	6 mL	30	N9306527
Supra-Clean LCC			
500 mg	3 mL	50	N9306643
500 mg	6 mL	30	N9306641

96 Well Plates

Media Weight	Volume	Qty.	Part No.
Supra-Clean C18			
25 mg	2 mL	1	N9306566
50 mg	2 mL	1	N9306567
100 mg	2 mL	1	N9306568
Supra-Clean REC18			
25 mg	2 mL	1	N9306563
50 mg	2 mL	1	N9306564
100 mg	2 mL	1	N9306565
Supra-Clean Strong Anion Exchange (SAX)			
25 mg	2 mL	1	N9306581
50 mg	2 mL	1	N9306582
100 mg	2 mL	1	N9306583
Supra-Clean Strong Cation Exchange (SCX)			
25 mg	2 mL	1	N9306575
50 mg	2 mL	1	N9306576
100 mg	2 mL	1	N9306577
Supra-Clean Mixed-Mode (MM1)			
25 mg	2 mL	1	N9306578
50 mg	2 mL	1	N9306579
100 mg	2 mL	1	N9306580
Supra-Clean Amino (NH₂-S)			
25 mg	2 mL	1	N9306572
50 mg	2 mL	1	N9306573
100 mg	2 mL	1	N9306574
Supra-Clean Phenyl (PH-S)			
25 mg	2 mL	1	N9306569
50 mg	2 mL	1	N9306570
100 mg	2 mL	1	N9306571

Cartridges

Media Weight	Qty.	Part No.
Supra-Clean C18		
390 mg	50	N9306587
910 mg	50	N9306588
1690 mg	50	N9306589
Supra-Clean Silica (SI-S)		
300 mg	50	N9306584
700 mg	50	N9306585
1300 mg	50	N9306586

Supra-Poly HLB Columns and 96 Well Plates

Supra-Poly SPE products are available in a range of media weights, volumes and formats, including glass and Large Reservoir Capacity (LRC) columns.

- Contains macro-porous polymers with ultra-pure, pharmaceutical grade spherical particles
- Shorter analysis times, greater load capacity and reduced solvent usage
- Ideal for high throughput assays

Supra-Poly HLB

Media Weight	Volume	Qty.	Part No.
30 µm Columns			
30 mg	1 mL	50	N9306650
50 mg	1 mL	50	N9306655
60 mg	1 mL	50	N9306656
100 mg	1 mL	50	N9306657
30 mg	3 mL	50	N9306651
60 mg	3 mL	50	N9306658
100 mg	3 mL	50	N9306659
200 mg	3 mL	50	N9306660
500 mg	3 mL	30	N9306661
100 mg	6 mL*	30	N9306672
150 mg	6 mL	30	N9306662
200 mg	6 mL	30	N9306663
200 mg	6 mL*	30	N9306673
500 mg	6 mL*	30	N9306674
500 mg	6 mL	30	N9306664
500 mg	15 mL	20	N9306665
1 g	15 mL	20	N9306666
30 mg	15 mL**	50	N9306668
60 mg	15 mL**	50	N9306669
100 mg	15 mL**	50	N9306670
200 mg	15 mL**	50	N9306671
1 g	25 mL	20	N9306667
30 µm 96 Well Plates			
30 mg	2 mL	1	N9306698
50 mg	2 mL	1	N9306699
60 mg	2 mL	1	N9306700

Media Weight	Volume	Qty.	Part No.
60 µm Columns			
30 mg	1 mL	50	N9306652
50 mg	1 mL	50	N9306675
60 mg	1 mL	50	N9306676
100 mg	1 mL	50	N9306677
30 mg	3 mL	50	N9306653
60 mg	3 mL	50	N9306678
100 mg	3 mL	50	N9306679
200 mg	3 mL	50	N9306680
500 mg	3 mL	30	N9306681
100 mg	6 mL*	30	N9306692
150 mg	6 mL	30	N9306682
200 mg	6 mL	30	N9306683
200 mg	6 mL*	30	N9306693
500 mg	6 mL	30	N9306684
500 mg	15 mL	20	N9306685
500 mg	6 mL*	30	N9306694
1 g	15 mL	20	N9306686
30 mg	15 mL**	50	N9306688
60 mg	15 mL**	50	N9306689
100 mg	15 mL**	50	N9306690
200 mg	15 mL**	50	N9306691
1 g	25 mL	20	N9306687
60 µm 96 Well Plates			
30 mg	2 mL	1	N9306695
50 mg	2 mL	1	N9306696
60 mg	2 mL	1	N9306697

* Glass columns
** LRC columns

Supra-Poly Columns and 96 Well Plates

SPE products are available in a range of media weights, volumes and formats, including easy to order selection kits and application packs.

- Contains macro-porous polymers with ultra-pure, pharmaceutical grade spherical particles
- Shorter analysis times, greater load capacity and reduced solvent usage
- Ideal for high throughput assays

Supra-Poly Extreme Capacity 1500 m²/g (XC)

Media Weight	Volume	Qty.	Part No.
Columns			
30 mg	1 mL	50	N9306441
50 mg	1 mL	50	N9306500
60 mg	1 mL	50	N9306501
100 mg	1 mL	50	N9306403
60 mg	3 mL	50	N9306502
100 mg	3 mL	50	N9306440
200 mg	3 mL	50	N9306428
200 mg	6 mL	30	N9306635
500 mg	6 mL	30	N9306405
1 g	15 mL	20	N9306503
96 Well Plates			
30 mg	2 mL	1	N9306557
50 mg	2 mL	1	N9306558
60 mg	2 mL	1	N9306559

Supra-Poly Extra Wide Particle 1200 m²/g (XWP)

Media Weight	Volume	Qty.	Part No.
Columns			
30 mg	1 mL	50	N9306504
50 mg	1 mL	50	N9306427
60 mg	1 mL	50	N9306505
100 mg	1 mL	50	N9306506
60 mg	3 mL	50	N9306507
100 mg	3 mL	50	N9306508
200 mg	3 mL	50	N9306509
500 mg	6 mL	30	N9306418
1 g	15 mL	20	N9306510
96 Well Plates			
30 mg	2 mL	1	N9306560
50 mg	2 mL	1	N9306561
60 mg	2 mL	1	N9306562

Supra-Poly Environmental (AEV)

Media Weight	Volume	Qty.	Part No.
Columns			
100 mg	3 mL	50	N9306648

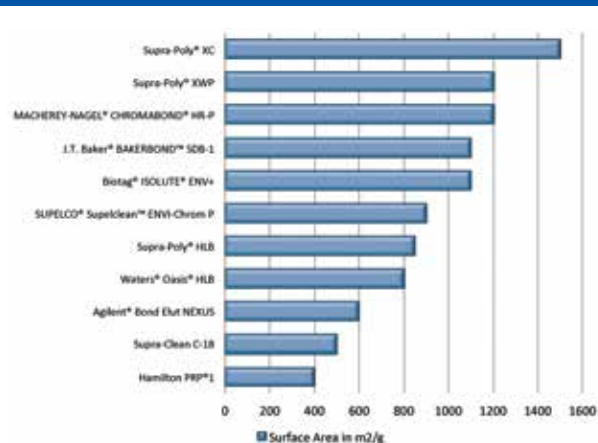
Supra-Poly Hydrophilic (ATH)

Media Weight	Volume	Qty.	Part No.
Columns			
100 mg	3 mL	50	N9306646
200 mg	3 mL	50	N9306638
200 mg	6 mL	30	N9306636

Supra-Poly Lipophilic (ATL)

Media Weight	Volume	Qty.	Part No.
Columns			
100 mg	3 mL	50	N9306647
200 mg	3 mL	50	N9306639
200 mg	6 mL	30	N9306637

Compared to other industry-leading SPE materials, our Extreme Capacity (XC) and Extra Wide Particles (XWP) lead market in surface area. This allows for higher capacities at lower bed weights.



SPE Application and Selection Packs

SPE Application Packs

Ideal for extraction of known entities from a variety of matrices, our packs are expertly tailored to meet your application needs and are designed to support major EPA methods and applications.

Description	Media Weight	Volume	Qty.	Part No.
Extraction of Basic Drugs from Biological Fluids	200 mg	3 mL	50	N9306605
Extraction of Bisphenol A from Aqueous Matrix	1 g	6 mL	30	N9306613
Extraction of Oil and Grease from Aqueous Matrix-EPA 1664	500 mg	3 mL	50	N9306612
	1 g	6 mL	30	N9306611
Extraction of PAH from Soil and Oil	1.5 g	6 mL	30	N9306609
Extraction of PAH from Soil and Oil (Glass Straight Column)	1.5 g	6 mL	30	N9306610
Extraction of PAH from Water Containing Humic Acids	1.5 g	6 mL	30	N9306608
Extraction of PAH from Water or Soil	4 g	6 mL	30	N9306606
Extraction of PAH from Water or Soil (Glass Straight Column)	4 g	6 mL	30	N9306607
Extraction of PCB from Oil	1 g	6 mL	30	N9306617
	1 g	3 mL	50	N9306616
Extraction of Pesticides and Herbicides from Aqueous Matrix	500 mg	3 mL	50	N9306614
Extraction of Steroids from Biological Fluids	500 mg	6 mL	30	N9306615
Extraction of SVOC from Water-EPA 525	1 g	6 mL	30	N9306618

SPE Selection Packs

Enables quick column selection for development of reproducible and repeatable SPE methods.

Description	Media Weight	Volume	Qty.	Part No.
Pre-Concentration of Hydrophobic Compounds from Aqueous Matrix	200 mg	6 mL	50	N9306594
	200 mg	3 mL	50	N9306595
Extraction of Hydrophobic Compounds from Aqueous Matrix	500 mg	6 mL	50	N9306596
	500 mg	3 mL	50	N9306597
Pre-Concentration of Hydrophilic Compounds	500 mg	6 mL	30	N9306598
	500 mg	3 mL	30	N9306599
Removal of Polar Compounds from Aqueous and Organic Matrix	500 mg	6 mL	30	N9306600
	500 mg	3 mL	30	N9306601
Extraction of Acidic Basic and Neutral Compounds from Aqueous or Organic Matrix	100 mg	3 mL	50	N9306602
Extraction of Carboxylic Acids and Strong Bases from Aqueous Matrix	500 mg	6 mL	40	N9306603
Extraction of Weak Bases from Aqueous Matrix	500 mg	6 mL	30	N9306604

SPE Vacuum PUMPS, Manifolds and Accessories

SPE Vacuum Manifolds accommodate either 12 or 24 cartridges; 1, 3, 6, 15, and 25 mL columns can be used. Manifolds are equipped with a vacuum port to connect a standard laboratory vacuum pump. Vacuum pulls the sample through the stationary phase, metered by the stopcocks, to control the speed of the extraction process and the sample flow. Waste and wash solvents are discarded and analytes are collected in sample tubes below the manifold completing the extraction. For your convenience, manifold kits are supplied in either 12 position or 24 position configurations.



Kit Contents

Description	Qty.	12 Position Part No.	Qty.	24 Position Part No.
Vacuum Manifold Kit	1	N9306619	1	N9306626
Replacement Chamber (Glass)	1	N9306620	1	N9306627
Cover Gasket – 12 Position	1	N9306621	1	N9306628
Stopcocks – 12 Position	12	N9306624	24	N9306631
Needles – Polypropylene	12	N9306622	24	N9306629
Needles – Stainless Steel	12	N9306623	24	N9306630
Drying Attachment	1	N9306625	1	N9306632

Description	Qty.	20 L/min 115 V	60 L/min 115 V	17 L/min 230 V	58 L/min 230 V
Vacuum Pumps	1	N9308035	N9308063	N9308331	N9308332

Supra-d QuEChERS Dispersive SPE

For more than 30 years, pesticide extraction methods have evolved to ensure rugged and safe liquid chromatography (LC) or gas chromatography (GC) analysis. Initial techniques of liquid to liquid extraction and Dispersive SPE (dSPE) have been optimized to combat emulsions, loss of analytes and excessive solvent consumption.

PerkinElmer's Supra-d QuEChERS dispersive SPE turns sample preparation into an easy two-step process by using the QuEChERS method. QuEChERS (Quick, Easy, Cheap, Effective, Rugged, Safe) dispersive SPE, is the number one used sample preparation approach in pesticide residue analysis. It eliminates complex liquid extraction methods and extends the range of recovered pesticides. The QuEChERS procedure is fast and easy, improving lab productivity and resulting in fewer errors.



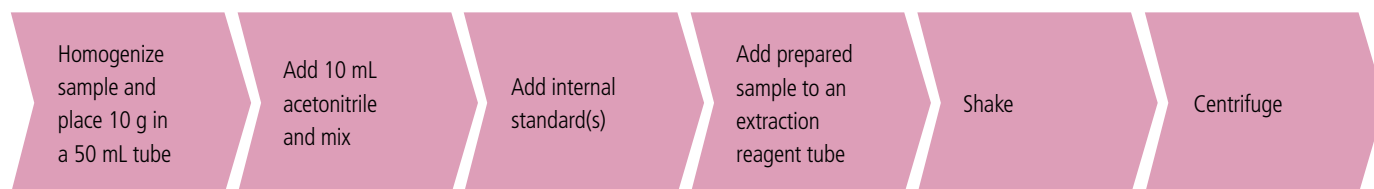
Our SPE extraction and clean-up kits have been customized for your specific sample preparation needs. They are designed for both steps of the QuEChERS method and each kit includes pre-prepared products for simplicity and error-free extractions. A certificate of quality is included in each kit, ensuring you have the best for your application. With our extensive line of dispersive SPE kits you'll be sure to find what you're looking for.

Features and Benefits:

- High recoveries are achieved for more accurate analyses
- Up to 4 times faster than traditional methods
- Low solvent usage and waste for maximum cost savings

QuEChERS simple two-step procedure:

Step 1: Extraction



Step 2: Clean-Up



Supra-d QuEChERS For Multiple Pesticide Residue Analysis

PerkinElmer provides a complete range of products for QuEChERS methodologies, offering all three standard QuEChERS methods: Original QuEChERS method, American AOAC Standard (Official Method 2007.01) QuEChERS method and European Standard (EN 15662) QuEChERS method.



Method	Vol.	Qty.	MgSO ₄	Na Acetate	Na Citrate	Na Citrate Sesquihydrate	NaCl	Part No.	Empty Tube Part No.	Powder Pack (pkg. 50) Part No.	Powder Pack (pkg. 500) Part No.
Extraction Kits											
AOAC 2007.01	50 mL	50	6 g	1.5 g				N9306900	N9306935	N9306936	N9306939
EN 15662	50 mL	50	4 g		1 g	0.5 g	1 g	N9306901	N9306935	N9306937	N9306940
Original	50 mL	50	4 g				1 g	N9306902	N9306935	N9306938	N9306941
Description	Vol.	Qty.	MgSO ₄ *	PSA**	C18***	PGC****	Part No.				
AOAC 2007.01 Clean-Up Kits											
Fruit and Vegetables	2 mL	100	150 mg	50 mg			N9306908				
Fruit and Vegetables	15 mL	50	1200 mg	400 mg			N9306909				
Fruit and Vegetables with Fats and Waxes	2 mL	100	150 mg	50 mg	50 mg		N9306910				
Waxed Fruit and Vegetables	15 mL	50	1200 mg	400 mg	400 mg		N9306911				
Pigmented Fruit and Vegetables	15 mL	50	1200 mg	400 mg		400 mg	N9306912				
Fruit and Vegetables with Pigments and Fats	2 mL	100	150 mg	50 mg	50 mg	50 mg	N9306913				
Fruit and Vegetables with Pigments and Fats	15 mL	50	1200 mg	400 mg	400 mg	400 mg	N9306914				
EN 15662 Clean-Up Kits											
Fruit and Vegetables	2 mL	100	150 mg	25 mg			N9306920				
Fruit and Vegetables	15 mL	50	900 mg	150 mg			N9306921				
Fruit and Vegetables with Fats and Waxes	2 mL	100	150 mg	25 mg	25 mg		N9306922				
Waxed Fruit and Vegetables	15 mL	50	900 mg	150 mg	150 mg		N9306923				
Pigmented Fruit and Vegetables	15 mL	50	900 mg	150 mg		15 mg	N9306924				
Pigmented Fruit and Vegetables	2 mL	100	150 mg	25 mg		2.5 mg	N9306925				
High Pigmented Fruit and Vegetables	2 mL	100	150 mg	25 mg		7.5 mg	N9306926				
High Pigmented Fruit and Vegetables	15 mL	50	900 mg	150 mg		45 mg	N9306927				
Description	Method	Vol.	Qty.	MgSO ₄ *	PSA**	C18***	PGC****	Part No.			
Clean-up Kit											
Clean-up Kit	Original	15 mL	50	900 mg	300 mg		150 mg	N9306933			

* MgSO₄ removes excess water

** PSA removes sugars, fatty acids, organic acids, and anthocyanine pigments

*** C18 removes nonpolar interferences

**** PGC (carbon) removes pigments, sterols, and nonpolar interferences

Syringes

Disposable Syringes

Designed for use with syringe filters, these disposable, sterile, polypropylene syringes are for general-purpose applications. Packaged in easy-to-open sealed package and they can be autoclaved out of the package.



Description	Pkg.	Part No.
Luer-Lock Tips, 1 mL	100	02542890
Luer-Lock Tips, 3 mL	200	02542891
Luer-Lock Tips, 5 mL	100	02542892
Luer-Lock Tips, 10 mL	100	02542893

Ultramicro Volume Syringes

Recommended for liquid sample injections of less than 5 µL for gas chromatography. Syringes come standard with needle length of 7 cm – optimum for PerkinElmer injectors.

Syringe Capacity	Gauge	OD	ID	Tip Description	Pkg.	Part No.
0.5 µL	26	0.47	0.1	Bevel	1	N9302231
1.0 µL	23	0.63	0.15	Cone	1	00230177
1.0 µL	26 ¹	0.47	0.15	Cone	1	00230111
2.0 µL	23	0.63	0.12	Bevel	1	N9302235
5.0 µL	23	0.63	0.37	Cone	1	00230178

¹ Recommended for PerkinElmer wide-bore capillary adapter

For a full listing of GC autosampler and manual syringes please refer to page 116.

Vials, Caps and Septa

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

Quick Reference Index Page

➤ Autosampler Caps and Septa	29
➤ Autosampler Vial, Cap and Septa Convenience Kits	30
➤ Autosampler Vials	26
➤ Autosampler Vial Inserts	28
➤ Autosampler Vials with Fused Inserts	27
➤ Crimpers: Electronic, Handheld and Benchtop	37
➤ CTC Headspace Vials	33
➤ Headspace Caps and Septa	34
➤ Headspace Crimp Top Vials	32
➤ Headspace Screw Top vials	33
➤ Headspace Starter Kits	36
➤ Headspace Vial, Cap and Septa Convenience Kits	36
➤ High Recovery Vials	27
➤ Polypropylene Vials	28
➤ Quality Matters; Vials, Caps and Septa	24
➤ Ultra-Low Bleed Septa	31
➤ Waste and Wash Vials, Caps and Septa	28

NEW High Recovery Vials

Manufactured from the same high quality glass as our standard 2 mL vials, these high recovery vials provide efficient handling of a range sample volumes from 30 µL to 1.5 mL, with the convenience of a single vial format.



➤ [VIEW PAGE](#)

Vial, Cap and Septa Kits

Buying a kit offers you a guaranteed proper fit between the cap and vial. Available with either glass or polypropylene vials, and a range of cap choices these autosampler vial, cap and septa kits make it surprising simple to re-stock your laboratory.



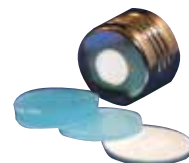
NEW PACK SIZE

For your added convenience, the most popular kits are now available in 1000 pack size.

➤ [VIEW PAGE](#)

NEW Ultra-Low Bleed Septa

Our ultra-low bleed septa is the benchmark for high purity septa, eliminating any possibility of contamination. Available in caps for 2 mL vials, headspace and SPME applications.



➤ [VIEW PAGE](#)

NEW High Powered Crimpers and Decappers

The high powered crimper and decapper is an essential laboratory accessory for any high through put environment. Realise the benefits of not only fast and accurate crimping or decapping, but also the ultimate tool in flexibility with interchangeable jaw sets.



➤ [VIEW PAGE](#)

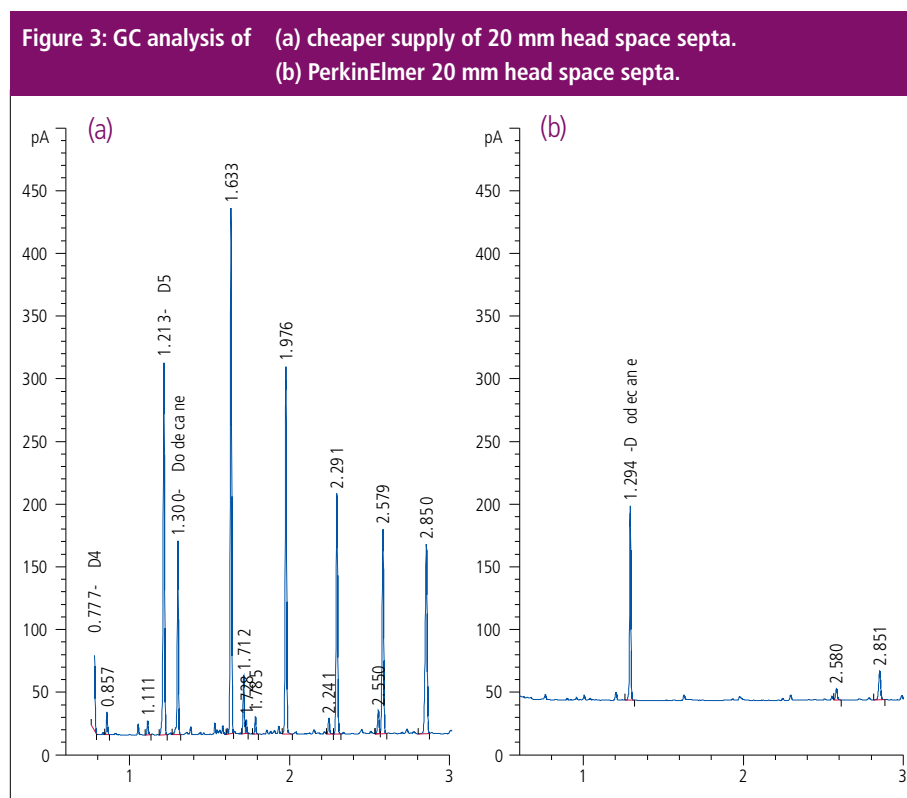
➤ [BACK TO MAIN INDEX](#)

➤ [ORDER ONLINE](#)

➤ [CLICK THE ARROWS TO VIEW EACH PAGE](#)

Quality Matters; Vials, Caps and Septa

Vials and closures are a critical part of your workflow; just as important as the instrument or column used. It is easy to think of a vial or cap as an inexpensive commodity that won't impact your results, but the reality is different. It's not only the physical attributes that can affect overall analytical performance, but also the quality of the glass and septa used. Contamination from sub-standard glass or poor quality septa (figure 3) can lead to interferences, inaccuracies and failures which ultimately effects lab productivity.



Features and Benefits:

- Vials are made from Type I Borosilicate Glass; which meets all USP, JP and EP requirements. This glass is very hard and has a low expansion coefficient even at high temperature
- Vials are stringently tested using camera gauging technology to ensure final product meets all dimensional specifications
- All our vials, caps and septa are fit to perform on PerkinElmer and non-PerkinElmer instruments
- We stock a wide variety of sizes, colors and materials of vials, caps and septa
- All vials are packed in a clean room and those labelled with 'LC Clean' include an additional certificate of analysis
- Option for ultra low bleed septa for the ultimate in inertness. Batch certification is also available

A sample of the septa was taken and placed into an extraction solution, heated, and the resulting supernatant analyzed by GC. There is a marked difference between the two sources of septa. The poor quality (often cheaper) septa clearly shows the presence of some impurities, siloxanes. These impurities are absent from the PerkinElmer septa sample.

Taking purity and inertness of septa to the next level are PerkinElmer's range of ultra low bleed septa. Offering unsurpassed quality, no bleed is detected ensuring maximum sensitivity for applications; particularly MS, headspace and SPME. See page 31 for a full product listing.

You can rely on PerkinElmer to consistently supply only the highest quality vials, caps and septa to ensure that your analytical instruments continue to operate smoothly. All are tested to our stringent requirements and are compatible with both PerkinElmer instruments and other vendor systems. Choose from a range of glass or polypropylene vials and select your particular closure from a variety of options. Separate vials and caps can readily be purchased or select one of our kits for added convenience.

How to Choose a Vial:

1. Choose a size.

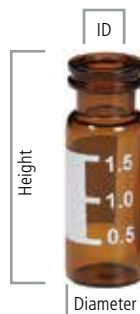
- a. Volume (i.e. 2 mL, high recovery or micro volume)
- b. Diameter and height (i.e. 12 mm x 32 mm)
- c. ID of the neck (i.e. 9 mm or 11 mm)
- d. Finish (i.e. snap, crimp or screw top)

2. Choose a color.

If your sample is sensitive to light you may want to consider an amber vial.

3. Choose a material.

Vials are available in both glass and polypropylene. For biological applications polypropylene vials are recommended.



How to Choose a Seal:

1. Choose a septa material.

Required temperature of operation, resistance to coring, storage shelf time are a few of the variables that should be taken into consideration when choosing your septa material.

Refer to the table below for an overview of compatibility.



2. Decide between a pre-slit or non-slit septa.

Due to the technique and type of needle they use, pre-slit septa are ideal for LC systems, while non-slit septa are ideal for GC and GC/MS systems.

3. Match the size of the cap/septa with the size of your vial.

Cap and Septa Compatibility

	Aluminum/Silicone	PTFE/Silicone	PTFE/Red Rubber	PTFE/Butyl (Red or Gray)	Red or Gray Butyl
Temperature Range	Up to 220 °C	Up to 210 °C	Up to 160 °C	Up to 130 °C	Up to 130 °C
Use for multiple injections?	No	Yes	Yes	No	No
Price per 1000	Most Expensive	Expensive	Economical	Economical	Very Economical
Resistance to coring	Good	Excellent	Good	Low	Low
Recommended for storage	Yes	Yes	Yes	No	No
Solvent Compatibility					
Acids	Excellent	Excellent	Good	Fair	Fair
Alcohols	Good	Good	Fair	Good	Good
Chloroform	Good	Good	Poor	Fair	Fair
Ethyl acetate	Excellent	Excellent	Good	Fair	Fair
Hexane	Good	Good	Poor	Poor	Poor
Methanol	Excellent	Excellent	Good	Good	Good

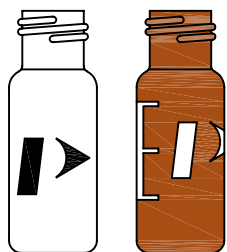
Do You Need Anything Else?

We have a wide variety of crimpers, decappers, and vial trays to also make your analysis easier.

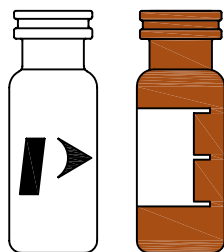
Autosampler Vials

Our vials are manufactured from Type I Borosilicate Glass, which meets all USP, JP, and EP Pharmacopeia requirements. The glass performs excellently at high temperatures and is chemical resistant to acidic, neutral and alkali solutions. All our vials are packed in a clean environment to ensure you receive contaminant free product every time.

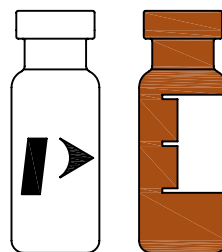
2 mL Autosampler Glass Vials (12 x 32 mm)



Screw Top



Snap Top



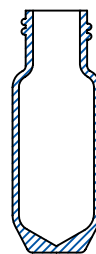
Crimp Top

Neck ID Size (mm)	Vial Top Type	Vial Description	Pkg.	Part No.
8	Screw	Clear glass	200	N9301069
8	Screw	Clear glass	100	N9302945
9	Screw	Clear glass	100	N9306201
9	Screw	Clear glass with write on patch and fill lines	100	N9307801
9	Screw	Clear glass with write on patch (deactivated)	100	N9304139
9	Screw	Amber glass	100	N9306220
9	Screw	Amber glass with write on patch and fill lines	100	N9307802
9	Screw	Amber glass with write on patch and fill lines (deactivated)	100	N9304140
10	Screw	Clear glass with write on patch and fill lines	100	N9306053
10	Screw	Amber glass with write on patch and fill lines	100	N9306057
11	Crimp	Clear glass	100	N9301385
11	Crimp	Clear glass with write on patch and fill lines	100	N9306223
11	Crimp	Clear glass with write on patch and fill lines (deactivated)	100	N9304135
11	Crimp	Amber glass	100	N9302680
11	Crimp	Amber glass with write on patch and fill lines	100	N9302679
11	Crimp	Amber glass with write on patch and fill lines (deactivated)	100	N9304136
11	Snap	Clear glass	100	N9303418
11	Snap	Clear glass with write on patch and fill lines	100	N9306207
11	Snap	Clear glass with write on patch and fill lines (deactivated)	100	N9304137
11	Snap	Amber glass with write on patch and fill lines	100	N9306208
11	Snap	Amber glass with write on patch and fill lines (deactivated)	100	N9304138

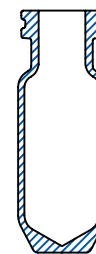
NEW

1.5 mL Autosampler High Recovery Vials

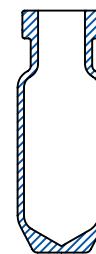
Manufactured from the same high quality Type 1 Class A borosilicate glass as our standard 2 mL vials, these high recovery vials provide efficient handling of a range sample volumes from 30 µL to 1.5 mL, with the convenience of a single vial format.



Screw Top



Snap Top

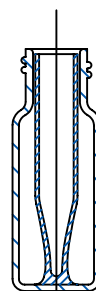


Crimp Top

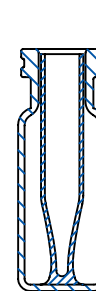
Neck ID Size (mm)	Vial Top Type	Vial Description	Pkg.	Part No.
9	Screw	Clear glass	100	N2926202
11	Snap	Clear glass	100	N2926201
11	Crimp	Clear glass	100	N2926200

Autosampler Vials with Fused Inserts

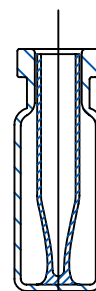
For easy sampling, try our glass vials with fused sample inserts; a variety of volumes are available in either clear or amber glass. They are ideal when handling micro volume samples. For polypropylene standard 2 mL vials and small volume vials, please refer to the table on page 28.



Screw Top



Snap Top



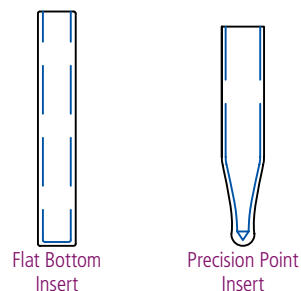
Crimp Top

Neck ID size (mm)	Capacity	Vial Top Type	Vial Description	Pkg.	Part No.
8	100 µL	Screw	Clear glass	100	N9300713
8	100 µL	Screw	Amber glass	100	N9300714
8	200 µL	Crimp	Clear glass	500	N9302136*
9	300 µL	Screw	Clear glass	100	N9300715
9	300 µL	Screw	Amber glass	100	N9300716
10	300 µL	Screw	Clear glass	100	N9300717
10	300 µL	Screw	Amber glass	100	N9300718
11	300 µL	Crimp	Clear glass	100	N9300709
11	300 µL	Snap	Clear glass	100	N9300711
11	300 µL	Crimp	Amber glass	100	N9300710
11	300 µL	Snap	Amber glass	100	N9300712

*N9302136 should be used with glass vial support sleeve N9307027

Autosampler Vial Inserts

Our vial inserts are made from the same Type 1 borosilicate glass as our vials and can be used for maximum sample extraction when handling micro volumes. Extend the usability of your standard 2 mL vials with the addition of a micro volume insert. Simply select the vial insert that matches with the neck ID of your vial.



Insert Capacity	Insert Dimension (mm)	Fits Vial Neck ID (mm)	Qty.	Part No.
150 µL	5 x 29 spring bottom	8	100	N9300705
200 µL	5 x 31 flat bottom	8	100	N9300706
250 µL	6 x 29 spring bottom	9, 10 or 11	100	N9300703
400 µL	6 x 31 flat bottom	9, 10 or 11	100	N9300704

Polypropylene Vials

Polypropylene vials offer an alternative to glass vials and provide an ultra-inert sample environment, which is ideal for biological samples. They are also an excellent choice for applications involving high metal ion content, such as ion chromatography, AA, ICP or ICPMS.

Volume	Neck ID Size (mm)	Vial Top Type	Vial Description	Pkg.	Part No.
300 µL	9	Screw	Clear polypropylene	100	N9301732
2 mL	9	Screw	Clear polypropylene	100	N9301733
2 mL	9	Screw	Amber polypropylene	100	N9301734
600 µL	9	Screw	Clear polypropylene	500	N9302130

Waste and Wash Vials, Caps and Septa for GC

ID Size (mm)	Product Description	Screw	Screw	Screw
		Part No. Pkg. 1	Part No. Pkg. 100	Part No. Pkg. 1000
13	Clear Glass Vial – 4 mL (15 x 45 mm)	09923031	N9306247	
	200 µL Vial Insert			N9302681
	Support for Vial Insert			N9302682*
13	Black Cap with PTFE/Silicone (Ultra Low Bleed) Septa		N9304141	N9304142
13	Black Phenolic Cap (no septa)	09923032		
13	Silicone Septa (no cap)		N9302780	
	Vial Diffuser	N6101276		

*N9302682 is pkg. 500

Autosampler Caps and Septa

PerkinElmer offers a variety of caps and septa to fulfil your application needs. Our screw thread vial caps use the revolutionary Inter-Seal®. Using a process that bonds silicone/PTFE and other elastomeric compounds directly into thermoplastic closures eliminates liner fallout, while still providing the excellent re-sealability and multiple injection capability. No adhesives are used in this process, bonding the cap and septa at the molecular level of plastic and rubber. These septa have a very broad chemical resistance and can be used in many markets including: environmental, diagnostic packaging, pharmaceutical packaging, cosmetic and food packaging.



Pre-Assembled Cap and Septa

For your convenience, a wide range of pre-assembled caps and septa are available, in differing pack sizes.

Neck ID Size (mm)	Septa Type	Cap Type	Closure Type	Pkg.	Part No.
8	PTFE	Aluminium	Crimp	1000	N9302140
8	PTFE/red rubber	Aluminium	Crimp	1000	03300806
8	PTFE/silicone	Black flanged cap	Screw	100	N9303449
8	PTFE/silicone (pre-slit)	Polyethylene	Snap	1000	N9302141
9	PTFE/red rubber	Blue (polypropylene)	Screw	100	N9306200
9	PTFE/silicone	Blue (polypropylene)	Screw	100	N9306360
9	PTFE/silicone	Blue (polypropylene)	Screw	1000	N9306361
9	PTFE/silicone (ultra-low bleed)	Blue (polypropylene)	Screw	100	N9306362
9	PTFE/silicone (ultra-low bleed)	Blue (polypropylene)	Screw	1000	N9306363
9	PTFE/silicone (ultra-low bleed and pre-slit)	Blue (polypropylene)	Screw	100	N9306364
9	PTFE/silicone (ultra-low bleed and pre-slit)	Blue (polypropylene)	Screw	1000	N9306365
9	PTFE/silicone (pre-slit)	Blue (polypropylene)	Screw	100	N9306203
9	PTFE/silicone	Blue (polypropylene)	Screw	1000	N9306202
10	PTFE/red rubber	Black (polypropylene)	Screw	100	N9306206
10	PTFE/silicone	Black (polypropylene)	Screw	100	N9306205
10	PTFE/silicone (pre-slit)	Black (polypropylene)	Screw	100	N9306052
11	PTFE/red rubber	Aluminium (silver)	Crimp	100	N9306015*
11	PTFE/red rubber	Aluminium (green)	Crimp	100	N9302684
11	PTFE/red rubber	Aluminium (red)	Crimp	100	N9302685
11	PTFE/red rubber	Aluminium (blue)	Crimp	100	N9302686
11	PTFE/silicone (red/white)	Aluminium (silver)	Crimp	100	N9307823
11	PTFE/silicone (red/white)	Aluminium (silver)	Crimp	100	N9306228
11	NEW PTFE/Silicone (red/white) Ultra low bleed	Aluminium (silver)	Crimp	100	N9304148
11	NEW PTFE/Silicone (red/white) Ultra low bleed	Clear (polypropylene)	Snap	100	N9304149
11	NEW PTFE/Silicone (red/white) Ultra low bleed	Clear (polypropylene)	Snap	1000	N9304185
11	PTFE/silicone (red/white)	Clear plastic (polyethylene)	Snap	100	N9303419
11	PTFE/silicone (red/white) pre-slit	Clear plastic (polyethylene)	Snap	100	N9303416
11	PTFE/silicone/PTFE	Aluminium (silver)	Crimp	100	N9306229
11	PTFE/silicone/PTFE	Gold magnetic	Crimp	100	N6356473
11	PTFE/silicone/PTFE	Clear plastic	Snap	100	N9303417
11	Aluminium/PTFE	Aluminium (silver)	Crimp	500	N9302139
11	Black viton	Aluminium (silver)	Crimp	1000	N9302784

*Same Part No. as N9306230

Un-Assembled Cap and Septa

Neck ID Size (mm)	Description	Material	Closure Type	Pkg.	Part No.
8	Septa	PTFE/red rubber	–	100	N9303442
8	Cap	Phenolic cap	Screw	100	N9303441
11	Septa	PTFE/silicone	–	12	00091357
11	Septa	PTFE/silicone (pre-split)	–	500	N9307021
11	Cap	Clear plastic cap with slit	Snap	500	N9307023

Autosampler Vial, Cap and Septa Convenience Kits

Available with either glass or polypropylene vials and a range of cap choices, these autosampler vial, cap and septa kits make it surprising simple to re-stock your laboratory. For your added convenience, the most popular kits are also available in 1000 pack size.



NEW
1000/Pack

ID Size (mm)	Septa Type	Cap Type	Vial Type	Screw Top	Screw Top	Screw Top
				Part No. Pkg. 100	Part No. Pkg. 500	Part No. Pkg. 1000
8	PTFE/Silicone	Black Cap	Clear Glass	N9301945		
9	PTFE/Red Rubber	Blue Cap	Clear Glass	N9300699		N9300910
9 (certified)	PTFE/Silicone	Blue Cap	Amber Glass	N9300719		N9300911
9	PTFE/Silicone	Blue Cap	Clear Glass	N9300700		N9300912
9 (certified)	PTFE/Silicone	Blue Cap	Clear Glass	N9300707		
9	PTFE/Silicone (Pre-Slit)	Blue Cap	Amber Polypropylene	N9301735		
9 (certified)	PTFE/Silicone (Pre-Slit)	Gray Cap	Amber Glass	N9300720		
9	PTFE/Silicone (Pre-Slit)	Blue Cap	Clear Polypropylene	N9301736		
9	PTFE/Silicone (Pre-Slit)	Blue Cap	Clear Polypropylene (300 µL capacity)		N9306080	
9 (certified)	PTFE/Silicone (Pre-Slit)	Gray Cap	Clear Glass	N9300708		
9	PTFE/Silicone (Pre-Slit)	Blue Cap	Clear Glass	N9300701		
10	PTFE/Silicone (Pre-Slit)	Black Cap	Clear Glass	N9300695	N9300650	N9300913
10	PTFE/Silicone (Pre-Slit)	Black Cap	Amber Glass	N9300696		N9300914

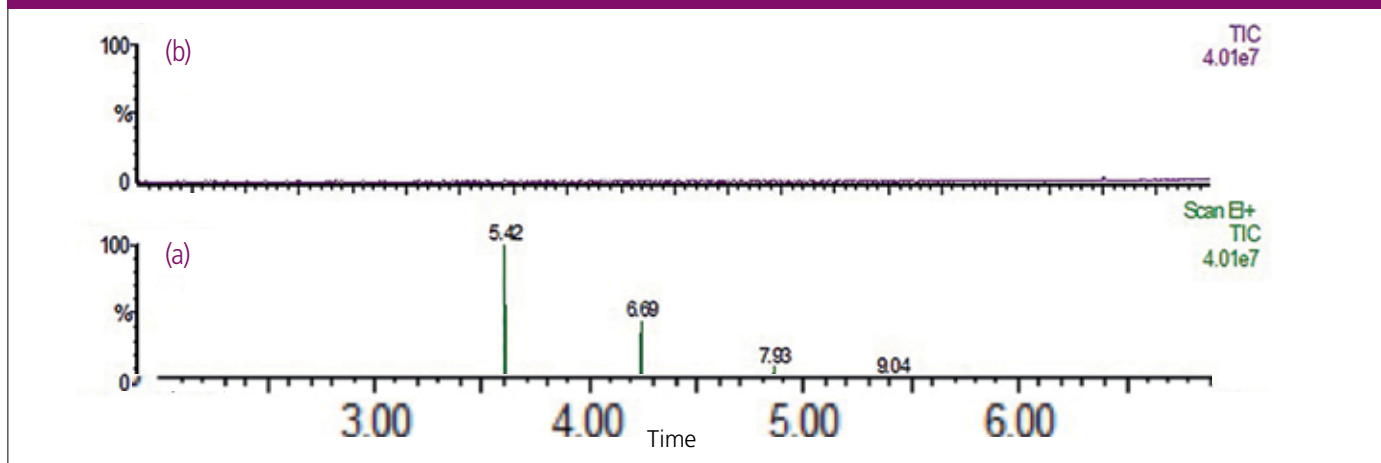
ID Size (mm)	Septa Type	Cap Type	Vial Type	Crimp Top	Crimp Top	Snap Top
				Part No. Pkg. 100	Part No. Pkg. 500	Part No. Pkg. 100
11	PTFE/Red Rubber	Aluminum Cap	Clear Glass	N9300502	N9300503	
11	PTFE/Silicone	Aluminum Cap	Clear Glass	N9300500		
11	PTFE/Silicone	Clear Plastic Cap	Clear Glass			N9300702
11	PTFE/Silicone (Pre-Slit)	Clear Plastic Cap	Clear Glass			N9300697
11	PTFE/Silicone/PTFE	Aluminum Cap	Clear Glass	N9300501		
11	PTFE/Silicone/PTFE	Clear Plastic Cap	Clear Glass			N9300698

NEW

Ultra Low Bleed Septa

Septa quality, as well as vial quality, is important to ensure rugged and reproducible analytical results, day in day out. PerkinElmer's range of ultra-low bleed septa offers the ultimate in purity and inertness, (figure 4). Eliminate potential contamination from septa which can lead to interferences, inaccuracies and failures which ultimately effects lab productivity. A range of septa combinations area available for standard analytical and headspace applications. The 1.3 mm thick septa are recommended for SPME applications.

Figure 4: Comparison of Headspace Septa by GC (a) PerkinElmer Standard HS Septa. (b) PerkinElmer Ultra Low Bleed Septa.



2 mL Caps with Ultra Low Bleed Septa

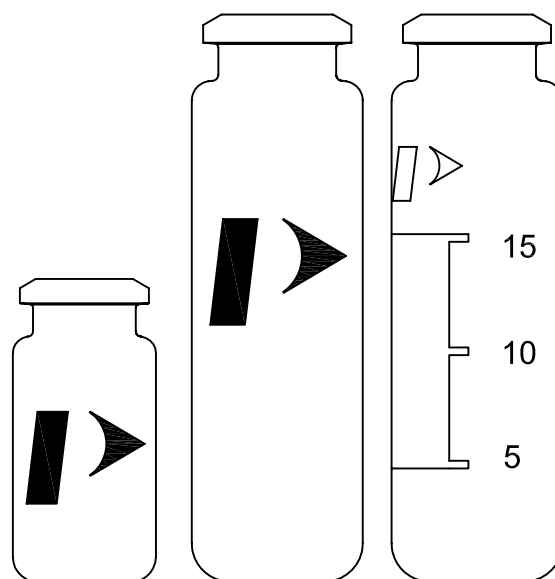
Neck ID Size (mm)	Description	Material	Closure Type	Pkg.	Part No.
9	PTFE/silicone	Blue polypropylene	Screw	100	N9306362
9	PTFE/silicone	Blue polypropylene	Screw	1000	N9306363
9	PTFE/silicone – pre split	Blue polypropylene	Screw	100	N9306364
9	PTFE/silicone – pre split	Blue polypropylene	Screw	1000	N9306365
11	PTFE/Silicone (red/white)	Aluminium (silver)	Crimp	100	N9304148
11	PTFE/Silicone (red/white)	Clear (polypropylene)	Snap	100	N9304149
11	PTFE/Silicone (red/white)	Clear (polypropylene)	Snap	1000	N9304185

Headspace Caps with Ultra Low Bleed Septa

Septa Type	Cap Type	Closure Type	Pkg.	Part No
PTFE/Silicone (blue/white) 1.5 mm thick	Bi-Metal Cap	Crimp	100	N9304181
PTFE/Silicone (blue/white) 1.5 mm thick	Bi-Metal Cap	Crimp	1000	N9304182
PTFE/Silicone (blue/white) 1.5 mm thick	Gold Aluminium Cap	Crimp	100	N9304183
PTFE/Silicone (blue/white) 1.5 mm thick	Gold Aluminium Cap	Crimp	1000	N9304184
PTFE/Silicone (blue/white) 1.5 mm thick	Aluminium Magnetic Cap	Screw	100	N9304175
PTFE/Silicone (blue/white) 1.5 mm thick	Aluminium Magnetic Cap	Screw	1000	N9304176
PTFE/Silicone (red/white) 1.3 mm thick	Aluminium Magnetic Cap	Screw	100	N9304177
PTFE/Silicone (red/white) 1.3 mm thick	Aluminium Magnetic Cap	Screw	1000	N9304178
PTFE/Silicone (white/blue) 1.3 mm thick	Aluminium Magnetic Cap	Screw	100	N9304179
PTFE/Silicone (white/blue) 1.3 mm thick	Aluminium Magnetic Cap	Screw	1000	N9304180

Headspace Vials

PerkinElmer offers a variety of GC headspace vials, caps and septa to fulfil your application needs. Our patented vial and cap design incorporates pressure-relief features which guarantee safe operation with the high pressure typically developed during thermostating. Ordinary vials and caps without these safety features may burst. All of our headspace vials have a greater wall thickness and round base which enables them to withstand pressure up to 60 psig. Low-volume sampling can be achieved by using a 6 mL vial and vial adapter. All PerkinElmer headspace vials are manufactured to specific tolerances that are guaranteed for fit and performance.



Headspace Crimp Top Vials

Round bottomed vials designed for use with PerkinElmer headspace instruments.

Vial Volume	Dimensions (OD x Height) (mm)	Description	Pkg.	Part No.
6 mL	21.75 x 38	Clear glass vial (requires Part No. N6120110 for use)*	125	N9302134
6 mL	–	Low volume adaptor for 6 mL vial (Part No. N9302134)*	10	N6120110
10 mL	21.75 x 46	Clear glass vial (requires Part No. N6120111 for use)	100	N6356478
10 mL	–	Low volume adaptor for 10 mL vial (Part No. N6356478)	10	N6120111
20 mL	23 x 75.5	Clear glass vial (no logo)	1000	N9306216
20 mL	23 x 75.5	Clear glass vial with 'P' logo	100	N9306079
20 mL	23 x 75.5	Clear glass vial with write on patch and fill lines	100	N9303349
20 mL	23 x 75.5	Clear glass vial with write on patch and fill lines	1000	N9303348
22 mL	23 x 75.5	Clear glass vial, with 'P' logo	1000	B0104236

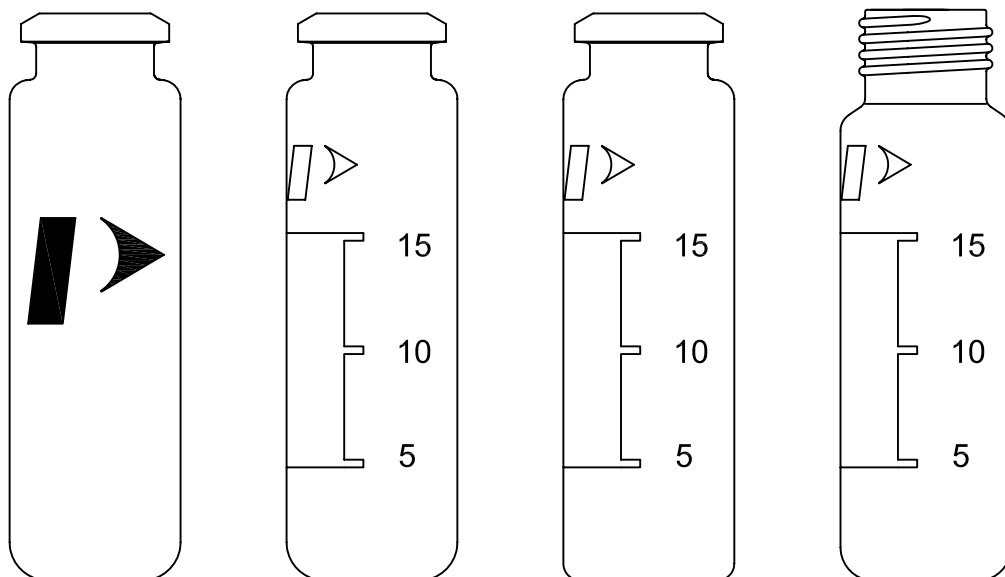
*Not compatible with TurboMatrix HS 110 headspace sampler



Headspace Screw Top Vials

Round bottomed vials designed for use with PerkinElmer headspace instruments.

Vial Volume	Dimensions (OD x Height) (mm)	Description	Pkg.	Part No.
10 mL	23 x 46	Clear glass vial, no adaptor	100	N6356479
20 mL	23 x 75.5	Clear glass vial with 'P' logo	100	N9306075
20 mL	23 x 75.5	Clear glass vial with 'P' logo	1000	N9306078
20 mL	23 x 75.5	Clear glass vial with write on patch and fill lines	100	N9306240
20 mL	23 x 75.5	Clear glass vial with write on patch and fill lines	1000	N9306241



CTC Headspace Vials

Vial Volume	Vial Closure Type	Dimensions (OD x Height) (mm)	Description	Pkg.	Part No.
20 mL	Crimp	22.6 x 75.5	Clear glass vial with 'P' logo (radius bottom)	100	N6356471
20 mL	Crimp	22.6 x 75.5	Clear glass vial with write on patch and fill lines (radius bottom)	100	N6356472
20 mL	Crimp	22.6 x 75.5	Clear glass vial with write on patch and fill lines (radius bottom)	1000	N9303351*
20 mL	Crimp	22.6 x 75.5	Clear glass vial with write on patch and fill lines (flat bottom)	1000	N9303352**
20 mL	Screw	22.6 x 75.5	Clear glass vial with write on patch and fill lines (radius bottom)	1000	N9306242

*Also suitable for Shimadzu, Tekmar and Varian
 ** Also suitable for Agilent

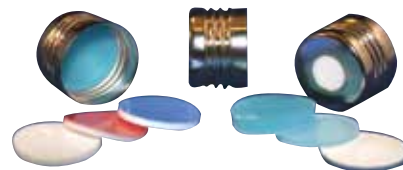
Headspace Caps and Septa

Choose the right septa for your analysis. Although a wide variety of septa is available, chemical compatibility and temperature are the most critical to the analysis. Temperature applies not only to the vial, but also to the temperature of the instrument's needle used for pressurization and sample transfer, which is heated to prevent condensation. A needle temperature higher than the vial temperature setting can decompose the septum material. PTFE coated silicone and aluminum-coated silicone offer the highest temperature operating limits. (See Septa Recommended Chart for more details.)



Pre-Assembled Aluminum Crimp Caps and Septa

Septa Type	Aluminum Caps (Pre-Assembled)	Crimp Top Part No. Pkg. 100	Crimp Top Part No. Pkg. 1000
Butyl (red)	Aluminum Cap, Star Spring and Septa	N9304143	N1010070
Butyl (gray)	Aluminum Cap, Star Spring and Septa	N9306269	N9306268
PTFE/Butyl (red)	Aluminum Cap, Star Spring and Septa	N9304144	B4000025
PTFE/Butyl (gray)	Aluminum Cap, Star Spring and Septa	N9306265	N9306264
PTFE/Butyl (gray)	Aluminum Cap		N9302981
PTFE/Butyl (Pharma Fix Septa)	Aluminum Cap	N9306224	
PTFE/Red Rubber (red)	Aluminum Cap, Star Spring and Septa	N9304147	N9302978
PTFE/Silicone (white)	Aluminum Cap, Star Spring and Septa	N9304146	B4000022
PTFE/Silicone (white) Low Bleed	Aluminum, Skived Pressure Relief		N9302975
PTFE/Silicone (white) Low Bleed	Aluminum, Skived (non-Pressure Relief)		N9302977
PTFE/Silicone (natural) Low Bleed	Aluminum, Skived (non-Pressure Relief)		N9302976
Aluminum/Silicone	Aluminum Cap, Star Spring and Septa	N9304145	B4000028
NEW Ultra Low Bleed PTFE/Silicone (blue/white) 1.5 mm thick	Gold Aluminium Cap	N9304183	N9304184



Pre-Assembled Magnetic Crimp and Screw Caps and Septa

Septa Type	Closure	Magnetic Caps (Pre-Assembled)	Part No. Pkg. 100	Part No. Pkg. 1000
Butyl (gray)	Crimp	Steel Magnetic Cap	N6356561	
PTFE/Butyl (red), 3.0 mm thick	Screw	Steel Magnetic Cap	N9306076	
PTFE/Butyl (red), 1.5 mm thick	Crimp	Steel Magnetic Cap	N6356560	
PTFE/Butyl (red), 1.5 mm thick	Screw	Steel Magnetic Cap	N6356477	
PTFE/Butyl (blue)	Crimp	Bi-Metal Magnetic Cap	N6356565	
PTFE/Butyl (Pharma Fix Septa)	Crimp	Steel Magnetic Cap	N6356562	
PTFE/Silicone (red)	Screw	Steel Magnetic Cap	N6356474	
PTFE/Silicone (blue/white) 0.060 in. thick	Screw	Steel Magnetic Cap	N6356476	
PTFE/Silicone (white)	Screw	Steel Magnetic Cap	N9306077	
PTFE/Silicone (natural)	Crimp	Steel Magnetic Cap	N6356558	
PTFE/Silicone (blue)	Crimp	Steel Magnetic Cap	N6356559	
PTFE/Silicone (blue)	Screw	Steel Magnetic Cap	N6356475	
PTFE/Silicone (blue)	Crimp	SPME Liner Steel Magnetic Cap	N6356564	
PTFE/Silicone (blue)	Crimp	Bi-Metal Magnetic Cap	N6356566	
Aluminum/Silicone	Crimp	Steel Magnetic Cap	N6356563	
NEW Ultra Low Bleed PTFE/Silicone (blue/white) 1.5 mm thick	Crimp	Bi-Metal Cap	N9304181	N9304182
NEW Ultra Low Bleed PTFE/Silicone (blue/white) 1.5 mm thick	Screw	Aluminium Magnetic Cap	N9304175	N9304176
NEW Ultra Low Bleed PTFE/Silicone (red/white) 1.3 mm thick	Screw	Aluminium Magnetic Cap	N9304177	N9304178
NEW Ultra Low Bleed PTFE/Silicone (white/blue) 1.3 mm thick	Screw	Aluminium Magnetic Cap	N9304179	N9304180

Un-Assembled Aluminum Crimp Caps and Septa

Septa Type	Aluminum Caps (Un-Assembled)	Crimp Top	Crimp Top
		Part No. Pkg. 100	Part No. Pkg. 1000
Butyl (red)	Aluminum Cap, Star Spring and Septa	B0159356	B0159357
Butyl (gray)	Aluminum Cap, Star Spring and Septa	N9306270	N9306271
Butyl (gray) Stopper	Aluminum Cap (Ridged)		N9303350
Butyl (gray) Stopper	Aluminum Cap		B0110728
PTFE/Butyl (red)	Aluminum Cap, Star Spring and Septa	B0104239	B0104240
PTFE/Butyl (gray)	Aluminum Cap, Star Spring and Septa	N9306266	N9306267
PTFE/Red Rubber (red)	Aluminum Cap, Star Spring and Septa	N9302979	N9302980
PTFE/Silicone (white)	Aluminum Cap, Star Spring and Septa	B0104241	B0104242
Aluminum/Silicone	Aluminum Cap, Star Spring and Septa	B0104243	B0104244
	Aluminum Cap	B0099814	N9302969

Headspace Vial, Cap and Septa Convenience Kits



PerkinElmer understands your challenges and offers a variety of kits so that you can easily order and restock your laboratory supplies.

Crimp Top

Septa Type	Cap Type	Vial Type	Part No. Pkg. 100	Part No. Pkg. 500
Butyl (red)	Aluminum Cap, Star Spring and Septa	20 mL Crimp Top Clear Glass with Write on Patch and Fill Lines	N9303990	
Butyl (gray)	Aluminum Cap, Star Spring and Septa	20 mL Crimp Top Clear Glass with Write on Patch and Fill Lines	N9306269	
PTFE/Butyl (red)	Aluminum Cap, Star Spring and Septa	20 mL Crimp Top Clear Glass with Write on Patch and Fill Lines	N9303991	
PTFE/Butyl (gray)	Aluminum Cap, Star Spring and Septa	20 mL Crimp Top Clear Glass with Write on Patch and Fill Lines	N9306265	
PTFE/Silicone (natural)	Aluminum, Skived Pressure Relief (extreme bleed)	20 mL Crimp Top Clear Glass with Write-on Patch and Fill Lines (Flat Bottom)		N9300901
PTFE/Silicone (white)	Aluminum, Skived Pressure Relief (ultra bleed)	20 mL Crimp Top Clear Glass with Write-on Patch and Fill Lines (Flat Bottom)		N9300902
PTFE/Silicone (white)	Aluminum, Skived (ultra bleed)	20 mL Clear Glass with Write-on Patch and Fill Lines (Flat Bottom)		N9300903
PTFE/Silicone (white)	Aluminum Cap, Star Spring and Septa	20 mL Crimp Top Clear Glass with Write on Patch and Fill Lines	N9303992	
Aluminum/Silicone	Aluminum Cap, Star Spring and Septa	20 mL Crimp Top Clear Glass with Write on Patch and Fill Lines	N9303993	

Screw Top

Septa Type	Cap Type	Vial Type	Part No. Pkg. 100
PTFE/Silicone	Open Top Gray Polypropylene Screw Cap	40 mL Screw Top Clear Glass (24 mm x 98 mm)	N6352030
PTFE/Silicone	Open Top Gray Polypropylene Screw Cap	40 mL Screw Top Amber Glass (24 mm x 98 mm)	N6352031
PTFE/Silicone	–	–	N6352032*
–	Open Top Gray Polypropylene Screw Cap	–	N6352033*

* N6352032 and N6352033 are only available in pkg. 72. N6352032 is septa only. N6352033 is cap only.

Headspace Starter Kits

We offer a variety of headspace consumables so you can evaluate different types of septa and vials for your sampling requirements.

Kits Include:	Part No.	Headspace Starter Kit 500	Headspace Starter Kit 100	Headspace Mini Starter Kit	Headspace Mini Starter Kit 1000
		Part No. B0505601	Part No. N6710195	Part No. N6710197	Part No. N6710198
20 mm Hand Crimper	N9302785	1	1	1	1*
20 mL Clear Glass Crimp Top Vials	N9306079	500	500	100	1000
PTFE/Butyl (red) Septa with Pre-Assembled Aluminum Crimp Caps	B0104239	100	100	100	
PTFE/Silicone (white) Septa with Pre-Assembled Aluminum Crimp Caps	B0104241	100	100	100	1000
Aluminum/Silicone Septa with Pre-Assembled Aluminum Crimp Caps	B0104243	100	100	100	
20 mL Clear Glass Screw Top Vials	N9306075	500	100	100	
PTFE/Butyl (red) Septa with Steel Magnetic Screw Caps	N9306076	100	100	100	
PTFE/Silicone (white) Septa with Steel Magnetic Screw Caps	N9306077	100	100	100	
Needle Seal Assemblies	B0500833	2	2	2	
O-Rings	B0198110	10	10	10	
Pressure Gauge with Needle for Vials	B0501377	1	1	1	
'Static Headspace GC Theory and Practice' book by B. Kolb and L.S. Ettre	N1011210	1	1		

* This kit includes an Ergonomic Hand Crimper

Crimpers: Electronic, Handheld and Benchtop

Crimping Tools and Vial Accessories

Whatever your need may be, PerkinElmer offers a wide range of crimping tools for your convenience. Our universal voltage, precision control, power crimpers with adjustable settings are designed to deliver hundreds of crimps on a single battery charge. The tools are ergonomically designed to reduce strain associated with the repetitive actions of using a blocky metal manual crimping tool.



Autosampler Crimper and Decapper Tools

Description	Qty.	Part No.
Benchtop Crimper	1	N6621006
Benchtop Crimper Jaws – 11 mm	1	N6621008
Electronic Hand Crimper – 11 mm	1	N9304500
Electronic Hand Decapper – 11 mm	1	N9304502
Manual Hand Crimper – 8 mm	1	N9306127
Manual Hand Crimper – 11 mm	1	00090699
Manual Hand Crimper (Ergonomic) – 11 mm	1	N6621035
Manual Hand Decapper – 11 mm	1	N9301390
Manual Hand Decapper (Ergonomic) – 11 mm	1	N6621036

Headspace Crimper and Decapper Tools

Description	Qty.	Part No.
Benchtop Crimper	1	N6621006
Benchtop Crimper Jaws – 20 mm	1	N6621009
Electronic Hand Crimper – 20 mm	1	N9304501
Electronic Hand Decapper – 20 mm	1	N9304503
Manual Hand Crimper – 20 mm	1	N9302785
Manual Hand Crimper (Ergonomic) – 20 mm	1	N6621037
Manual Hand Decapper – 20 mm	1	N9301270
Manual Hand Decapper (Ergonomic) – 20 mm	1	N6621038



Vial Racks

Description	Qty.	Part No.
11 mm Vial Rack – 50 Vial Capacity	1	N9301303
20 mm Vial Rack – 36 Vial Capacity	1	N9301304

High Powered Crimpers and Decappers

NEW The high powered crimper and decapper is an essential laboratory accessory for any high through put environment. Realise the benefits of not only fast and accurate crimping or decapping, but also the ultimate tool in flexibility with interchangeable jaw sets. Now in a single unit you can crimp and decap standard analytical vials and headspace vials. Changing the jaws, either size or function, takes a matter of just seconds.



High Powered Crimper with Jaw Set

Description	Qty.	Part No.
High powered crimping tool	1	N9304510
20 mm crimper jaw set	1	N9304511
20 mm decapper jaw set	1	N9304512
11 mm crimper jaw set	1	N9304513
11 mm decapper jaw set	1	N9304514
Base and mounting kit	1	N9304515

LC Columns

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

Quick Reference Index Page

▶ Brownlee Analytical	41
▶ Brownlee Analytical DB	42
▶ Brownlee Aquapore	44
▶ Brownlee Guard Column Holders and Pre-Filters	52
▶ Brownlee Pecosphere Cartridge Columns	47
▶ Brownlee Polypore Cartridge Columns	48
▶ Brownlee Aquapore Prep-10 Cartridge Columns	44
▶ Brownlee Spheri-5 and Spheri-10 Columns	46
▶ Brownlee SPP HPLC and UHPLC Column Solutions	50
▶ Brownlee Validated	45
▶ HPLC Column Selection Overview	40
▶ NewGuard Cartridges	49
▶ Selecting The Right Column	39

Brownlee SPP HPLC and UHPLC Columns

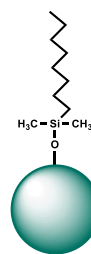
Brownlee SPP columns produce sharper peaks and faster separation results; made possible by their breakthrough particle design and size. Brownlee SPP columns use 2.7 μm particles comprised of a thin outer shell of high-quality porous silica fused to a solid inner core.



[▶ VIEW PAGE](#)

Brownlee Spheri Columns

The Brownlee Spheri line of columns is based on a small-pore (80 Å) silica-based sorbent for optimized for separating small molecules. The Spheri-5 reverse phase C18 type sorbents are available in a monofunctional comb-type (RP-18) and a polyfunctional loop-type (ODS) which provide slight differences in selectivity.



[▶ VIEW PAGE](#)

Brownlee Aquapore Columns

Essential items to keep your pumps running at maximum efficiency; seals, pistons and check valves.



[▶ VIEW PAGE](#)

Selecting The Right Column

Having the right stationary phase for your separation is the first step in selecting the appropriate column. This should be based on sample solubility and on chemical differences among the sample compounds.

The majority of HPLC analyses are performed in reversed-phase mode, due to the fact that the analytes of interest can be dissolved in water, or mixtures of water and a polar organic solvent such as methanol or acetonitrile.

In normal phase separations, the mobile phase is less polar than the stationary phase. Cyano phases are commonly used in either reversed-phase or normal-phase mode. A stationary phase incorporating both polar and nonpolar functionality can be used in either reversed-phase or normal-phase mode.

Modes of Separation

Reversed-Phase Chromatography (RPC) is the most popular HPLC mode and is used in 60% – 80% of all applications. In RPC, hydrophobic groups (C18, C8, or C4) bonded to a silica support are used together with a mobile phase of water and organic solvent (e.g. methanol, acetonitrile).

Polar Phase (Normal Phase) Chromatography (NPC) uses a polar stationary phase (unbonded silica, bonded amino or cyano group) together with a non-polar mobile phase (e.g., hexane). NPC is useful for functional group analysis, isomeric separations, purification of organics, and sample cleanup.

Ion-Exchange Chromatography (IEC) utilizes bonded ionic groups to separate ionic analytes. Retention is based on the affinity of various analyte ions for the stationary phase and various mobile phase parameters (e.g., pH, ionic strength).

Column Hardware

The Brownlee columns provide numerous options for HPLC analysis, spanning a wide range of column dimensions. Two main formats are used: conventional columns and cartridge columns.

The conventional columns, employing standard compression end fittings, are compatible with all HPLC instrumentation. The cartridge column format requires an MPLC holder in addition to the cartridge column. There is an option to directly connect the NewGuard cartridges to cartridge column, reducing the overall dead volume. NewGuard cartridges can still be employed with conventional hardware by using a stand-alone holder.

Conventional columns do not require MPLC holders



Brownlee MPLC cartridges and holders



NewGuard cartridge coupled directly to 220 mm cartridge column



NewGuard cartridge connected externally to a conventional column



Column hardware formats

Features and Benefits

- End fittings compatible with HPLC systems from any vendor
- Use with NewGuard system for even longer column life
- Each column is individually tested
- ISO-9001 certified process ensures the highest quality

PerkinElmer LC Column Selection Overview

Brand	Phase	Particle size (µm)	Pore size (Å)	Carbon %	End Cap	Application	USP Code
Analytical	C18	3, 5	110	13	Yes	All-purpose reverse phase HPLC column, similar to Hypersil ODS	L1
Analytical	Phenyl	5	110	6	Yes	All-purpose reverse phase HPLC column, similar to Hypersil phenyl	L11
Analytical	Silica	5	110	–	–	Normal phase separations of polar compounds similar to Hypersil silica	L3
Analytical DB	C18	1.9, 3, 5	140	11	Yes	General purpose phase for acidic to slightly basic compounds	L1
Analytical DB	Aq C18	1.9, 3, 5	140	6	Yes	A more well balanced retention profile for polar and non polar compounds	L1
Analytical DB	PAH	1.9	140	–	Yes	Specifically designed for poly aromatic hydrocarbons (PAHs)	–
Aquapore	AX-300 (anion exchange)	7	300	–	–	Silica based support for larger anionic compounds	L14
Aquapore	RP-300 (C8)	7	300	5	Yes	Suitable for the separation of large biomolecules such as peptides and proteins	L7
Aquapore	BU-300 (C4)	7	300	3	Yes	Suitable for the separation of large biomolecules such as peptides and proteins	L26
Aquapore	Octyl (C8)	7, 20	300	5	Yes	Suitable for the separation of large biomolecules such as peptides and proteins	L7
Aquapore	ODS (C18)	7, 20	300	10	Yes	Suitable for the separation of large biomolecules such as peptides and proteins	L1
Spheri-5	ODS	5	80	14	Yes	Polyfunctional phase which provides slight differences in selectivity	L1
Spheri-5, -10	RP-18	5, 10	80	11	Yes	Monofunctional bonded phase for general purpose RP small molecule applications	L1
Spheri-5, -10	RP-8	5, 10	80	6	Yes	Monofunctional bonded phase RP for more basic small molecule applications	L7
Spheri-5	Cyano	5	80	4	No	Offering alternative selectivity in RP to alkyl phases	L10
SPP	C18	2.7	90	8	Yes	High purity general Purpose C18 phase for RP separations	L1
SPP	C8	2.7	90	–	Yes	Less retentive high purity C8 phase for RP separations	L7
SPP	HILIC	2.7	90	–	No	High purity silica column for NP and HILIC applications	L3
SPP	Peptide ES C18	2.7	160	–	No	Sterically protected ligand provides greater stability at low pH where most peptide separations are performed	L1
SPP	PhenylHexyl 2.7	2.7	90	–	Yes	Alternative selectivity to alkyl bonded phases, recommended for aromatic groups. Compatible with highly aqueous eluents	
SPP	RP-Amide	2.7	90		Yes	Shows significant increased retention and selectivity for acids. Excellent peak shape for bases, zwitterions and other polar compounds	
Pecosphere	C18	3,5	80	11	Yes	RP column for fast separation of small compounds	L1
Pecosphere	RA C18	3,5	80	12	Yes	RP sorbent geared towards the fast separation of basic compounds/pharmaceuticals	L1
Pecosphere	RA C8	3,5	80	5	Yes	RP sorbent geared towards the fast separation for increasingly basic compounds	L7
Pecosphere	C18 scavenger	10	80	11	Yes		L1
Polypore	CA	10	microporous	–	–	For the analysis of sugars and organic acids	L19
Polypore	H	10	microporous	–	–	For the analysis of sugars and organic acids	L17
Validated	C18	3,5	100	20	Yes	General purpose phase with moderate to high retention for hydrophobic compounds	L1
Validated	Aqueous C18	3,5	100	15	Yes	Compatible and reproducible with a variety of mobile phases, including 100% aqueous. Ideal for LCMS screening	L1
Validated	C8	5	100	20	Yes	General purpose phase for slightly acidic to slightly basic compounds	L7
Validated	Phenyl	5	100	15	Yes	Offers alternate selectivity to straight chain hydrocarbon phases	L11

* Maximum pressure 9,000 psi for all columns. All particle sizes are 2.7 µm **Not end-capped. All others end-capped

Brownlee Analytical Columns

Brownlee Analytical columns are built on 110 Å pore size Type A silica in 3 µm and 5 µm particle sizes that is equivalent to the classic Hypersil® silica. These columns provide excellent peak shape for acidic and neutral analytes but are generally not recommended for basic analytes. They are available in column lengths from 5 – 250 mm in 2.1 and 4.6 mm ID.

Features and Benefits

- Type A, 110 Å pore size silica equivalent to classic Hypersil® silica
- Good choice when analyzing neutral and acidic analytes

Material Characteristics

Phase*	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	pH Stability	Temp. Limit (°C)	USP Code
Analytical C18	3.0, 5.0	110	13%	Yes	2.5 – 7.5	80	L1
Analytical Phenyl	5	110	6%	Yes	2.5 – 7.5	80	L11
Analytical Silica	5	110	–	No	2.5 – 7.5	80	L3

* Proprietary

Brownlee Analytical C18

Excellent choice for a general purpose C18 column with intermediate carbon loading and surface area. These columns provide reliable performance and excellent peak symmetry for a broad range of acidic and neutral hydrophobic compounds.

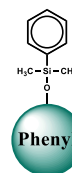
Particle Size (µm)	Length (mm)	ID (mm)	Part No.
3.0	50	4.6	N9303510
3.0	100	4.6	N9303507
3.0	150	4.6	N9303508
5.0	100	4.0	N9303511
5.0	100	4.6	N9303512
5.0	150	4.6	N9303513
5.0	250	4.6	N9303514



Brownlee Analytical Phenyl

The Analytical Phenyl offer alternative selectivity to the traditional straight alkyl chain phases, especially for aromatic compounds due to *pi-pi* interactions with the phenyl phase.

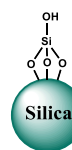
Particle Size (µm)	Length (mm)	ID (mm)	Part No.
5.0	150	4.6	N9303524



Brownlee Analytical Silica

Analytical silica columns are simply bare silica particles for use in normal phase separations recommended for analysis of highly polar compounds.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
5.0	150	4.6	N9303525
5.0	200	4.6	N9303526



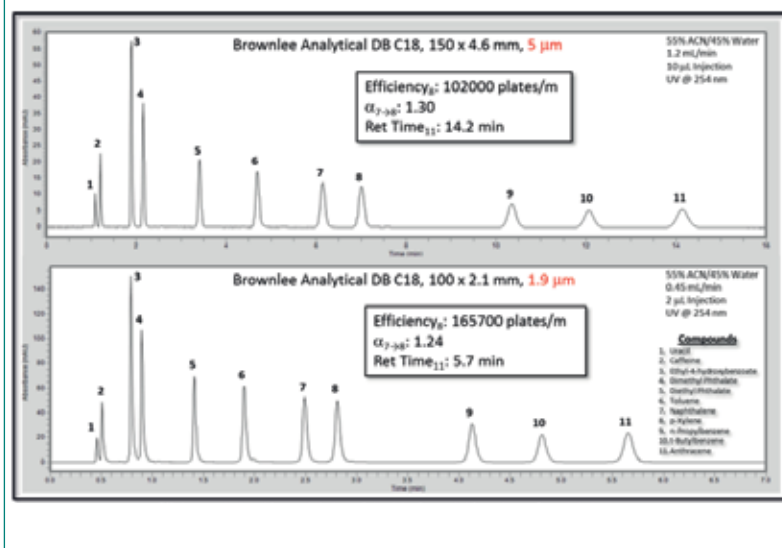
Brownlee Analytical DB Columns for HPLC and UHPLC

Brownlee Analytical DB columns are moderately retentive HPLC and sub-2 μm UHPLC columns built on a foundation of high purity, base-deactivated silica that is optimized for UHPLC performance. These columns are available in 3 and 5 μm HPLC particle sizes, as well as a 1.9 μm UHPLC particle size. The silica manufacturing and phase bonding processes are identical for all particle sizes in this series resulting in method scalability from HPLC (3 and 5 μm) to UHPLC (1.9 μm), or vice versa. In addition the larger 140 \AA pore size allows analysis of a range of compounds from small molecules to short peptides while the base deactivation makes these columns appropriate for the analysis of acidic, neutral and basic compounds.

Features and Benefits

- Conventional and sub-2 μm particles sizes for HPLC and UHPLC
- All silica prepared by the same process for true HPLC to UHPLC scalability

Increase efficiency and shorten run times while maintaining selectivity with 1.9 μm Brownlee Analytical DB UHPLC columns.



Material Characteristics

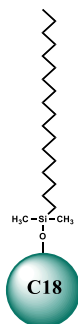
Phase*	Particle Sizes (μm)	Pore Size (\AA)	Carbon Load	End Capping	pH Stability	Temp. Limit ($^{\circ}\text{C}$)	USP Code
Analytical DB C18	1.9, 3.0, 5.0	140	11%	Yes	2.5 – 8.0	80	L1
Analytical DB Aq C18	1.9, 3.0, 5.0	140	6%	*	2.5 – 8.0	80	L1
Analytical DB PAH	1.9	140	*	Yes	2.5 – 8.0	80	

* Proprietary

Brownlee Analytical DB C18

C18 is a good general purpose phase for the analysis of compounds ranging from acid to slightly basic.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
1.9	50	2.1	N9303853
1.9	100	2.1	N9303854
3.0	50	4.6	N9303862
3.0	100	4.6	N9303863
5.0	150	4.6	N9303865
5.0	250	4.6	N9303866

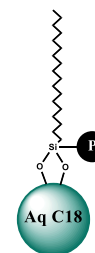


Brownlee Analytical DB Aqueous C18

The Aqueous C18 contains a proprietary polar side chain functionally bonded C18 that provides a more well balanced retention profile for both polar and non-polar compounds than a traditional C18.

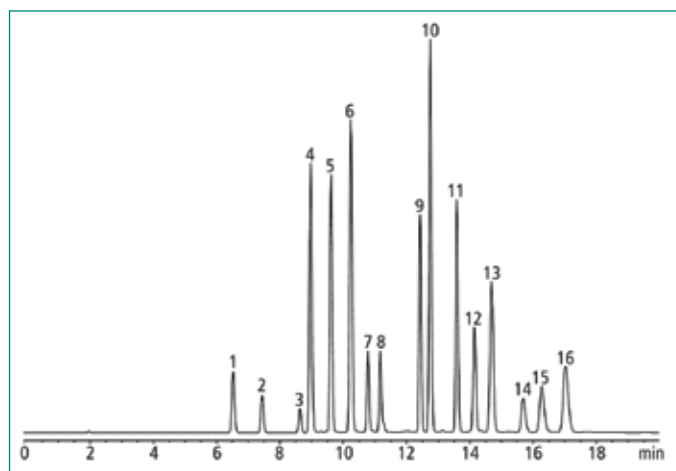
It provides both high reproducibility and compatibility with a wide variety of mobile phases including 100% aqueous mobile phases.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
1.9	50	2.1	N9303918
1.9	100	2.1	N9303919
3.0	50	4.6	N9303904
3.0	100	4.6	N9303905
5.0	150	4.6	N9303907
5.0	250	4.6	N9303908



Brownlee Analytical DB PAH

The Analytical HRes PAH column was specifically developed for fast analysis of polycyclic aromatic hydrocarbons. The PAH stationary phase incorporates a proprietary specially bonded C18 that is shape selective that results in baseline resolution of all 16 priority PAHs in US EPA Method 610. The Analytical HRes PAH is capable of separating all 16 PAHs in under 18 minutes with a simple acetonitrile/water gradient.



Peak List	Concentration (µg/mL)		
1. naphthalene	100	9. benzo (a) anthracene	50
2. acenaphthylene	100	10. chrysene	50
3. acenaphthene	100	11. benzo (b) fluoranthene	50
4. fluorene	100	12. benzo (k) fluoranthene	50
5. phenanthrene	50	13. benzo (a) pyrene	50
6. anthracene	100	14. dibenzo (a,h) anthracene	50
7. fluoranthene	50	15. benzo (ghi) perylene	50
8. pyrene	50	16. indeno (1,2,3-cd) pyrene	50

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
1.9	50	2.1	N9303995
1.9	100	2.1	N9303996

Brownlee Aquapore Columns

Brownlee Aquapore columns are built on large pore (300 Å) silica for the analysis of large biomolecules such as peptides and proteins. Large pore stationary phases are required for the analysis of large molecules because the analytes need to penetrate the pores to improve retention and resolution. The RP-300 is a reverse-phase C8; AX-300 is a weak anion exchanger that is composed of a crosslinked polyethyleneimine phase bonded on the silica surface. The reverse-phase columns are also available in microbore (1.0 mm ID) for increased sensitivity and better compatibility with LC/MS interfaces.

Features and Benefits

- Rugged, spherical silica particles with 300 Å pore size
- Excellent choice for separation of peptides, proteins and other large molecules

Material Characteristics

Phase*	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	pH Stability	Temp. Limit (°C)	USP Code
AP RP-300 (C8)	7	300	5%	Yes	2.5 – 8.0	60	L7
AP AX-300†	7	300	–	–	2.0 – 8.0	60	L14

* AP = Aquapore; † AX = Weak Anion Exchange

ID (mm)	Length (mm)	RP-300 (C8) Part No.	AX-300 Part No.
1.0	250	07120097	
2.1	30	07110056	07110074
2.1	100	07110058	07110076
2.1	220	07110060	
4.6	30	07110055	07110073
4.6	100	07110057	07110075
4.6	220	07110059	07110077
4.6	250	07120033	07120040

Brownlee Aquapore Prep-10 Cartridge Columns

The Brownlee Prep-10 columns are 10 mm ID cartridges packed with 20 µm particle size, 300 Å pore size Aquapore® sorbents. These unique 250 mm cartridges incorporate a moveable inlet plug and filter which compensates for changes in bed volume with continued use. The typical capacity of the 250 mm cartridge is 50 mg to 1 g depending on the resolution and purity required. A separate column holder needs to be purchased in addition to the cartridge column.

Material Characteristics

Phase	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	Surface Area (m ² /g)	pH Stability	Temp. Limit (°C)	USP Code
Aquapore ODS (C18)	20	300	10%	Yes	100	2.5 – 8.0	60	L1

Phase	Length (mm)	Particle Size (µm)	Qty.	4.6 mm ID Part No.	Column Holder
Aquapore Octyl (C8)	250	20	Each	07110166	07150006
Aquapore ODS (C18)	250	20	Each	07110163	07150006

Brownlee Validated Columns

Brownlee Validated HPLC columns are built on high purity, Type B silica with inherently low silanol activity and very consistent performance from lot-to-lot. This series of columns represent the most choices of stationary phases of any of the column lines offered by PerkinElmer. These columns exhibit excellent peak shapes for a wide range of compounds and are the best choice for pharmaceutical applications that deal with many basic and multi-functional compounds.

Features and Benefits

- Built on high purity, Type B silica for excellent peak shape for a wide range of compounds
- Recommended for pharmaceutical applications with basic and multi-functional compounds

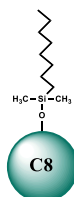
Material Characteristics

Phase	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	pH Stability	Temp. Limit (°C)	USP Code
Validated C8	5.0	100	12%	Yes	2.5 – 8.0	80	L7
Validated C18	3.0, 5.0	100	20%	Yes	2.5 – 8.0	80	L1
Validated Aq C18	3.0, 5.0	100	15%	No	2.5 – 8.0	80	L1
Validated Phenyl	3.0, 5.0	100	10%	Yes	2.5 – 8.0	80	L11

Brownlee Validated C8

The Validated C8 is a reverse-phase alkyl that provide less hydrophobic retention but better peak shape for basic compounds than a traditional C18. Like C18, C8 is a good general purpose reverse phase that is suitable for a wide range of compounds from acidic to slightly basic.

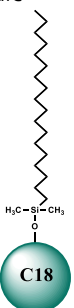
Particle Size (µm)	Length (mm)	ID (mm)	Part No.
5.0	100	4.6	N9303565
5.0	150	4.6	N9303567
5.0	250	4.6	N9303568



Brownlee Validated C18

The Validated C18 is a good general purpose reverse-phase column with moderate to high retention for hydrophobic compounds. The high purity, Type B silica has low silanol activity resulting in excellent peak shapes even for basic analytes. This phase is more retentive than C8 and recommended for a wide range of analytes from acidic to slightly basic.

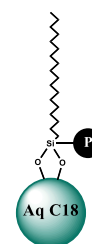
Particle Size (µm)	Length (mm)	2.1 mm ID Part No.	4.6 mm ID Part No.
3.0	100	N9303551	N9303552
5.0	100	N9303553	N9303554
5.0	150	N9303556	N9303558
5.0	200		N9303559
5.0	250	N9303560	N9303561



Brownlee Validated Aqueous C18

The Aqueous C18 contains a proprietary polar side chain functionally bonded C18 that provides a more well balanced retention profile for both polar and non-polar compounds than a traditional C18. This column can be used with a gradient to retain polar compounds that elute near the void time on a standard C18. The Aqueous C18 provides both high reproducibility and compatibility with a wide variety of mobile phases including 100% aqueous mobile phases. This is an excellent choice for the analysis of a wide variety of compounds by LC/MS screening.

Particle Size (µm)	Length (mm)	2.1 mm ID Part No.	4.6 mm ID Part No.
3.0	50	N9303541	N9303542
3.0	100	N9303537	N9303538
3.0	150	N9303539	
5.0	100		N9303544
5.0	150	N9303545	N9303546
5.0	250		N9303549



Brownlee Validated Phenyl

The Validated Phenyl is a high purity, highly retentive, base-deactivated phase with alternate selectivity to straight chain hydrocarbon phases, especially for aromatic compounds.

Particle Size (µm)	Length (mm)	4.6 mm ID Part No.
5.0	150	N9303606
5.0	250	N9303607



Brownlee Spheri-5 and Spheri-10 Columns

The Brownlee Spheri line of columns is based on a small-pore (80 Å) silica-based sorbent for optimized for separating small molecules. Spheri-5® columns are based on 5 µm particle size silica and Spheri-10® incorporates a 10 µm silica particle. The Spheri-5 reverse phase C18 type sorbents are available in a monofunctional comb-type (RP-18) and a polyfunctional loop-type (ODS) which provide slight differences in selectivity.

Features and Benefits

- Small pore size (80 Å) designed for separating small molecules
- Reverse phase sorbents in 5 µm and 10 µm particles sizes and normal phase 5 µm particles

Material Characteristics

Phase*	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	pH Stability	Temp. Limit (°C)	USP Code
Spheri-5, -10 RP-8	5.0, 10.0	80	6%	Yes	2.5 – 8.0	60	L7
Spheri-5, -10 RP-18	5.0, 10.0	80	11%	Yes	2.5 – 8.0	60	L1
Spheri-5 ODS	5	80	14%	Yes	2.5 – 8.0	60	L1
Spheri-5 Cyano	5	80	4%	No	2.5 – 8.0	60	L10

Columns with Cartridge Column Hardware

Phase*	Length (mm)	Particle Size (µm)	Qty.	2.1 mm ID Part No.	4.6 mm ID Part No.	Column Holder Code* w/o Guard	Column Holder Code* w/ Guard
Spheri-5 RP-8	100	5	Each	07110004	07110003	07150014	07150016
	220	5	Each	07110006	07110005	07150015	07150017
Spheri-5 RP-18	100	5	Each	07110016	07110015	07150014	07150016
	220	5	Each	07110018	07110017	07150015	07150017
Spheri-5 ODS	100	5	Each	07110022	07110021	07150014	07150016
	220	5	Each	07110024	07110023	07150015	07150017
Spheri-5 Cyano	100	5	Each	07110046	07110045	07150014	07150016
	220	5	Each	–	07110047	07150015	07150017

Columns with Conventional Column Hardware

All columns are 250 x 4.6 mm

Phase	Particle Sizes (µm)	Carbon Load	End Capping	USP Code	Part No.
Spheri-5 RP-8	5	6%	Yes	L7	07120012
Spheri-5 RP-18 (monofunctional)	5	11%	Yes	L1	07120016
Spheri-10 RP-18	10	11%	Yes	L1	07120001
Spheri-5 C18 ODS (Polyfunctional)	5	14%	Yes	L1	07120019
Spheri-5 Silica	5	–	–	L3	07120023

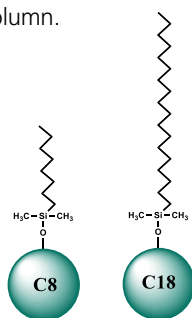
Brownlee Pecosphere Cartridge Columns

PerkinElmer pioneered the development of Fast HPLC and introduced the popular 3 µm particle size '3 x 3' Columns (33 mm x 4.6 mm) in the 1980s. The '3 x 3' columns are capable of very rapid analysis and still they are still very popular because of the economical price and reliable performance. The Pecosphere cartridges are also available 83 mm and 150 mm lengths for the separation of more complex mixtures.

They are packed with rugged, high purity silica in 3 µm and 5 µm, 80 Å pore size particles; with standard end-capping for the analysis of acidic and neutral analytes. A special end-capped Reduced Activity (RA) version that is especially suited for the analysis basic analytes. In addition the 10 µm particles size C18 Scavenger cartridge designed to remove contaminants from the mobile phase when installed prior to the HPLC injector. These columns use cartridge style hardware – thus the associated column holder needs to be ordered with the column.

Features and Benefits

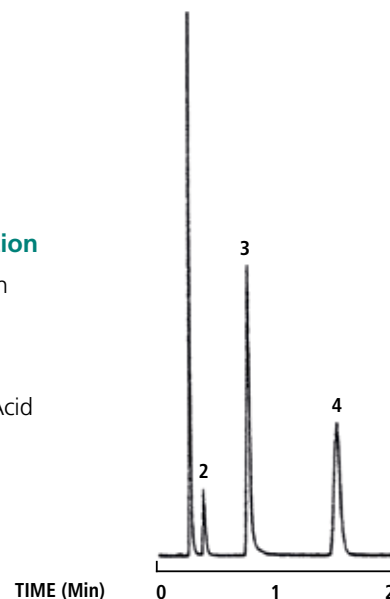
- The Pecosphere '3 x 3' column is the world's first fast HPLC column
- Reduced Activity C18 and C8 with low silanol activity for the analysis of basic compounds



Analysis of an Analgesic Tablet Using Fast LC

Peak Identification

1. Acetaminophen
2. Caffeine
3. Salicylamide
4. Acetylsalicylic Acid



Chromatographic Conditions

Column	Detection	Mobile Phase	Flow Rate	Sample	Part No.
Pecosphere 3 x 3 C18 (33 x 4.6 mm) CH ₃ CN in H ₂ O	UV at 240 nm	0 – 15%	2.0 mL/min	1 µL of the tablet extract	02580164

Material Characteristics

Phase*	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	Surface Area (M ² /g)	End Capping	pH Stability	USP Code
C18	3.0, 5.0	80	11%	170	Yes	2.0 – 8.0	L1
RA C8	3.0, 5.0	80	5%	200	Yes	2.0 – 8.0	L7
RA C18	3.0, 5.0	80	12%	200	Yes	2.0 – 8.0	L1
C18 Scavenger	10	80	11%	170	Yes	2.0 – 8.0	L1

Cartridge Columns and Hardware

Phase	Length (mm)	Particle Size	Qty.	4.6 mm ID Part No.	Column Holder Part No.
Aquapore Octyl (C18)	33	3 µm	5	02580164	07150028
	83	3 µm	1	02580166	07150029
	150	5 µm	1	02580169	07150030
RA C18	33	3 µm	5	02580195	07150028
	83	3 µm	1	02580194	07150029
RA C8	33	3 µm	5	02580191	07150028
	83	3 µm	1	02580192	07150029
C18 Scavenger	33	10 µm	5	02580202	07150028
C18 Scavenger Kit*	33	10 µm	1	02580204	–

* Scavenger kit includes C18 cartridge (**02580202**) and holder (**07150028**)

Brownlee Polypore Cartridge Columns

Brownlee Polypore® columns are 10 mm, microporous polymer based columns especially suited for the analysis of sugars and organic acids.

Features and Benefits

- Available in calcium (CA) and hydrogen (H) counter ion forms
- For analysis of sugars and organic acids

Material Characteristics

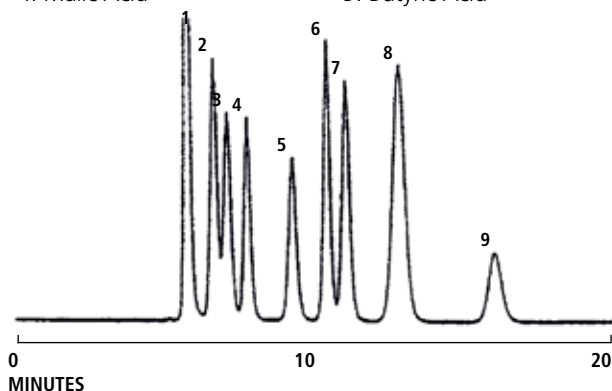
Phase	Particle Sizes (µm)	Pore Size	pH Stability	Temp. Limit (°C)	USP Code
Polypore® CA	10	Microporous	1 – 14	90	L19
Polypore® H	10	Microporous	1 – 14	90	L17

Phase	Length (mm)	Particle Size (µm)	Qty.	4.6 mm ID Part No.	Column Holder*
Polypore® H	30	10	2	07110085	07150013
	100	10	1	07110087	07150014
	220	10	1	07110089	07150015
Polypore® CA	30	10	2	07110091	07150013
	100	10	1	07110093	07150014
	220	10	1	07110095	07150015

Organic Acids

Peak Identification

- | | |
|-----------------------|------------------|
| 1. Oxalic Acid | 5. Succinic Acid |
| 2. Citric Acid | 6. Formic Acid |
| 3. α-Ketogutaric Acid | 7. Acetic Acid |
| 4. Malic Acid | 8. Fumaric Acid |
| | 9. Butyric Acid |



Chromatographic Conditions

Column	Detection	Mobile Phase	Flow Rate	Sample	Part No.
Polypore H (220 x 4.6 mm ID)	210 nm	0.01 N H ₂ SO ₄	0.15 mL/min	25 °C	07110089

NewGuard Cartridges

NewGuard cartridges are small guard cartridges (15 mm x 3.2 mm ID) packed with 5 or 7 μm sorbents. They help to prolong column life by eliminating particulates, contaminants, and strongly bound sample components; acting as replaceable disposable heads of your analytical column. There is negligible loss of efficiency and little effect on retention or resolution. NewGuards are available in a convenient 3-pack and can be coupled directly to any MPLC cartridge with a union (**07150018**), or any LC column using the stand alone holder (**07150001**).

Features and Benefits

- Prolong column life by 2 to 5 times
- Protect your column from particulates and strongly bound sample components
- Optimized dimensions to prevent loss of resolution
- Easy coupling to MPLC cartridges or conventional columns
- Finger-tight seal to 7,000 psi using NewGuard holders
- Can be used for sample preconcentration (connected to sample injection loop)

















Description	Size (μm)	Shape	Part No.
Amino, Aquapore Amino	7	Spherical	07110098
Anion, Aquapore Anion	7	Spherical	07110102
RP-8, Aquapore Octyl	7	Spherical	07110090
RP-18, Aquapore ODS	7	Spherical	07110092
Validated C18	5	Spherical	00402237

* Requires holder (**07150001**). Note: Actual bed length of NewGuard is about 13 mm



Figure 5 a) NewGuard cartridges directly coupled to a 220 mm MPLC cartridge (with union **07150018**) b) connected externally to a 250 mm conventional column with a stand alone holder (**07150001**)

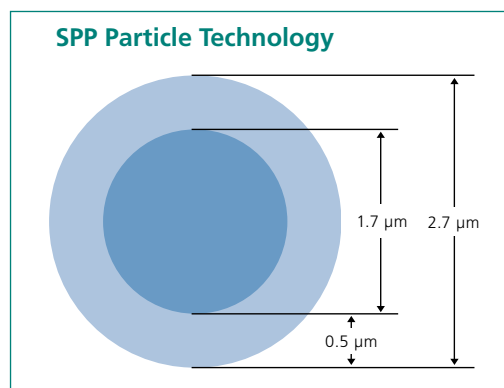
Cartridge Holders

Description	Part No.
 Single 30 mm holder for MPLC cartridges	07150013
 Single 100 mm holder for MPLC cartridges	07150014
 MPLC holder for directly coupling a NewGuard and a 100 mm cartridge	07150016
 Holder for directly coupling a 30 mm and 100 mm MPLC cartridge	07150032
 Single 220 mm holder for MPLC cartridges	07150015
 MPLC holder for directly coupling a NewGuard and a 220 mm cartridge	07150017
 Holder for a single, stand-alone NewGuard cartridge	07150001
 For direct coupling of two cartridge holders or a NewGuard to any cartridge holder. (NewGuard end assembly required)	07150018
 Used with union to couple a NewGuard to any cartridge holder	07150002
 End assembly for any MPLC holder body	07150019
 Holder body for 100 mm MPLC cartridge	07150021
 Holder body for 220 mm MPLC cartridge	07150022
 Includes 100 mm and 220 mm holder bodies, 2 end assemblies, 1 union and 1 NewGuard end assembly	07150025
 Holder for a single 250 mm Prep-10 MPLC cartridge	07150006
 Holder for a 33 mm fast LC Pecosphere cartridge. (Not for use with MPLC cartridges)	07150028
 Holder for a 83 mm fast LC Pecosphere cartridge. (Not for use with MPLC cartridges)	07150029

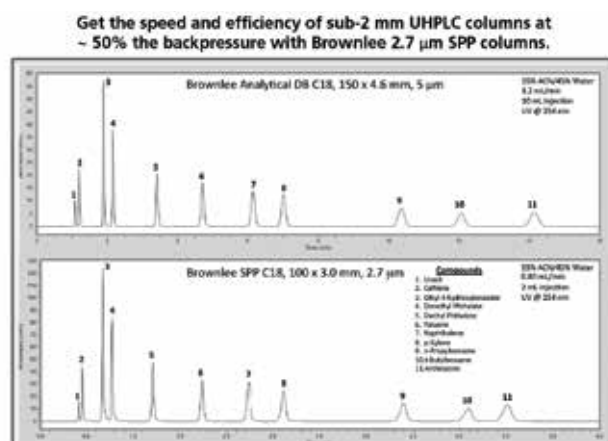
Brownlee SPP HPLC and UHPLC Column Solutions

Say goodbye to the limitations of traditional columns and experience greater speed, lasting durability and better results from your liquid chromatography instrument.

Brownlee Superficially Porous Particle (SPP) columns produce sharper peaks and faster separation results. These results are possible due to their breakthrough particle design and size. Brownlee SPP columns use 2.7 μm particles comprised of a thin outer shell of high-quality porous silica fused to a solid inner core. This advanced design allows for a shorter diffusion path, reducing the time solute molecules spend inside the particles while passing through the stationary phase.



Smaller in size and innovative in design, superficially porous particles are made by fusing a porous silica layer to a solid inner core.

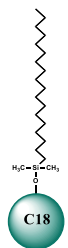


Brownlee SPP Phases and Applications

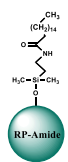
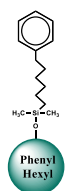
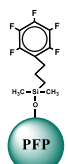
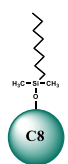
UHPLC Phases*	Pore Size (Å)	Coverage ($\mu\text{mol}/\text{m}^2$)	pH Range	Temp Limit (°C)	Applications	Chromatographic Properties
C18	90	3.5	2–9	60	General purpose Octadecyl phase for reversed phase separations	A high purity column that exhibits excellent peak shape for a wide range of compounds
C8	90	3.7	2–9	60	General purpose Octyl phase for reversed phase separations when less retention than a C18 is desired	High purity reversed phase packing that exhibits excellent peak shape for a wide range of compounds
HILIC**	90	–	2–8	60	General purpose bare silica column for normal phase and HILIC applications	High purity silica substrate
Peptide ES-C18**	160	2.0	1–8	90	Sterically protected ligand (isobutyl – side chains), results in an extra stable bonded phase at low pH where most peptide separations are performed	The 160 Å pore size was specially chosen for the molecular weight range of peptides. The ligand was chosen due to its sterically protected bonding technology that inhibits acid hydrolysis of the siloxane bonds, even under extremes of high temperature and low pH
PFP (pentafluoro-phenyl-propyl)	90	3.6	2–8	60	Highly retentive and selective for protonated basic analytes and molecules containing aromatic moieties	End-capped pentafluorophenyl with a propyl spacer
PhenylHexyl	90	3.0	2–9	60	Alternative selectivity to alkyl bonded phases, recommended for aromatic groups. Compatible with highly aqueous mobile phases to facilitate the retention and separation of polar compounds	Base-deactivated for good peak shapes when separating basic compounds. Hexyl spacer provides optimal flexibility for phenyl ring to facilitate π - π interactions with solutes
RP-Amide	90	3.0	2–9	60	Excellent phase for significantly increasing the retention and selectivity of acids, for symmetrical peak shapes of bases, zwitterions and other polar compounds	Base-deactivated phase with a polar group within the alkyl bonded phase. Provides unique selectivity and a high level of base deactivation while reducing or eliminating the need for mobile phase additives.

* Maximum pressure 9,000 psi for all columns. All particle sizes are 2.7 μm
 **Not end-capped. All others end-capped

Brownlee SPP Columns



Phase	Length (mm)	2.1 mm ID Part No.	3.0 mm ID Part No.	4.6 mm ID Part No.
C18	30	N9308401	N9308407	N9308413
	50	N9308402	N9308408	N9308414
	75	N9308403	N9308409	N9308415
	100	N9308404	N9308410	N9308416
	150	N9308405	N9308411	N9308417
Peptide ES-C18	50	N9308451	N9308456	N9308461
	75	N9308452	N9308457	N9308462
	100	N9308453	N9308458	N9308463
	150	N9308454	N9308459	N9308464
C8	30	N9308419	N9308424	N9308430
	50	N9308420	N9308425	N9308431
	75	N9308421	N9308426	N9308432
	100	N9308422	N9308427	N9308433
	150	N9308423	N9308428	N9308434
PFP	50	N9308467	N9308472	N9308477
	75	N9308468	N9308473	N9308478
	100	N9308469	N9308474	N9308479
	150	N9308470	N9308475	N9308480
Phenyl Hexyl	50	N9308483	N9308488	N9308493
	75	N9308484	N9308489	N9308494
	100	N9308485	N9308490	N9308495
	150	N9308486	N9308491	N9308496
RP-Amide	50	N9308499	N9308504	N9308509
	75	N9308500	N9308505	N9308510
	100	N9308501	N9308506	N9308511
	150	N9308502	N9308507	N9308512
HILIC	50	N9308420	N9308425	N9308446
	75	N9308421	N9308426	N9308447
	100	N9308422	N9308427	N9308448
	150	N9308423	N9308428	N9308449



SPP Guard Columns (Pkg. 3)*

Phase	Length (mm)	2.1 mm ID Part No.	3.0 mm ID Part No.	4.6 mm ID Part No.
C18	5	N9308513	N9308514	N9308515
Peptide ES-C18	5	N9308528	N9308529	N9308530
C8	5	N9308522	N9308523	N9308524
PFP	5	N9308531	N9308532	N9308533
Phenyl Hexyl	5	N9308519	N9308520	N9308521
RP-Amide	5	N9308516	N9308517	N9308518
HILIC	5	N9308525	N9308526	N9308527
SPP Guard Column Holder		N9308534	N9308534	N9308534

* Maximum pressure 9,000 psi for all columns. All particle sizes are 2.7 μm



Brownlee Guard Column Holders and Pre-Filters

The Brownlee conventional column pre-filter and guard column holder systems allow you to select from three different levels of column protection that couple directly to the head of your column. The high pressure filter (**N9303711**) simply contains a filter frit selectable in two different diameters (2.0 mm or 4.0 mm) and two different frit porosities (2.0 µm or 0.5 µm) for basic protection against particulates in the sample or mobile phase. The 10 mm guard cartridge holder without a pre-filter (**N9303713**) provides protection against compounds that irreversibly absorb onto the stationary phase. The 10 mm guard cartridge holder with a pre-filter (**N9303712**) provides the ultimate in column protection with a selectable filter frit for elimination of particulates along with a guard cartridge packed with a selectable stationary phase to protection against compounds that irreversibly absorb onto the stationary phase.

Guard Column Holders and Pre-Filters

Description	Part No.
10 mm guard cartridge holder with filter	N9303713
10 mm guard cartridge holder without filter	N9303712
High pressure filter	N9303711
Peek tip standard fittings	N9303714
Replacement cap frits 2.0 mm, 2.0 µm	N9303717
Replacement cap frits 4.0 mm, 0.5 µm	N9303716
Replacement cap frits 4.0 mm, 2.0 µm	N9303715



Brownlee Analytical Guard Cartridges*

Length: 10 mm Particle Size: 5 µm Quantity: Pkg. 3

Phase	2.1 mm ID Part No.	4.0 mm ID Part No.
Analytical C18	N9303676	N9303677
Analytical Phenyl	N9303684	N9303685
Analytical Silica	N9303686	N9303687

* Guard cartridge holder required, to be ordered separately

Brownlee Analytical DB Guard Cartridges*

Length: 10 mm or 20 mm Particle Size: 5 µm Quantity: Pkg. 3

Phase	Length 10 mm 4.0 mm ID Part No. Analytical DB	Length 20 mm 4.0 mm ID Part No.
Analytical DB C18	N9303867	N9303868
Analytical DB Aq C18	N9303909	N9303910

* Guard cartridge holder required, to be ordered separately

Brownlee Validated Guard Cartridges*

Length: 10 mm or 20 mm Particle Size: 5 µm Quantity: Pkg. 3

ID (mm)	Length 10 mm 2.1 mm ID Part No.	Length 10 mm 4.0 mm ID Part No.	Length 20 mm 4.0 mm ID Part No.
Validated Aq C18	N9303690	N9303691	N9303910
Validated C8	N9303695	N9303696	
Validated C18	N9303693	N9303694**	N9303868

* Guard cartridge holder required, to be ordered separately

This guard cartridge is also available in 10 µm under Part No. **N9303692

LC Accessories

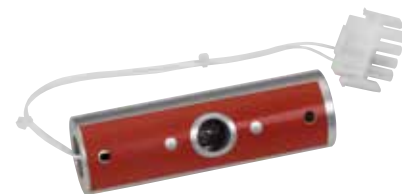
Quick Reference Index Page

➤ Autosampler Syringes	68
➤ Fittings, Nuts and Ferrules	61
➤ Flexar Autosamplers	64
➤ Flexar FX-15 and FX-20 Pump Head	57
➤ Flexar UV/Vis, Series 200/785A UV/Vis, Flexar PDA and Series 200 EP	54
➤ Flexar/Series 200 Pump Solvent Upgrade Kits	59
➤ Flow Cells and Pump Accessory Kits	54
➤ High-Performance Fingertight Fittings	61
➤ High Pressure Analytical Static Mixers	65
➤ HPLC and UHPLC Detector Lamps	55
➤ Injector Valve Rotor Seals	63
➤ Internal Loop for 7725/9725 Valves	63
➤ Maintenance Kits and Tools	58
➤ Microsyringes for Manual Injection	65
➤ PEEK Sample Loops and Tubing	60
➤ PEEK Sample Loops for Rheodyne Valves	63
➤ Peltier Tray Accessories	67
➤ Pulse Compensators	59
➤ QSight LC/MS/MS Consumables and Spares	70
➤ Rheodyne Valves and Spare Parts	62
➤ Sample Trays	67
➤ Seals, Pistons and Check Valves	56
➤ Series 200 Autosampler Microtiter Trays and Plates	67
➤ Solvent Sparger and Solvent Filters	59
➤ Starter Kits	68
➤ Stainless Steel Sample Loops and Tubing	60
➤ Stainless Steel Sample Loops for Model 7725	63
➤ Syringes and Kits	65
➤ Vacuum Degassing Kits	69

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

HPLC and UHPLC Detector Lamps

Choosing a PerkinElmer deuterium, tungsten or xenon source provides outstanding ultraviolet and true visible performance. With exceptional performance anywhere in the detector's 190-700 nm wavelength range. Lamp changes are quick and easy due to a unique self-aligning lamp mount.



➤ [VIEW PAGE](#)

Rheodyne Valves and Spare Parts

A range of valves with associated spares for LC/MS (low dispersion), biological applications (PEEK valves) and high precision, high accuracy standard LC applications are available.



➤ [VIEW PAGE](#)

Pump Spare Parts

Essential items to keep your pumps running at maximum efficiency; seals, pistons and check valves.



➤ [VIEW PAGE](#)

Flow Cells and Pump Accessory Kits

Pump Seal Kits

Description	Part No.
Series 200 Standard Pressure Piston Seal Replacement Kit Includes: Seals (4), Backup Rings and O-Rings	N2910383
Micro pump Piston Seal Replacement Kit Includes: Seals and O-Rings	N2910384
Flexar Standard LC Pump Maintenance Kit Includes: Fuses, Seals, O-Rings and Seal Tools	N2910345



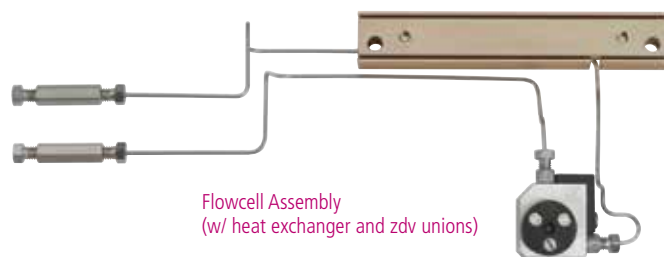
Detector Backpressure Regulator

The detector backpressure regulator is a device that is attached to the outlet of the detector to prevent outgassing in the flowcell, eliminating variations to the detector baseline.

Description	Material	Part No.
40 psi in-line backpressure regulator		N2925090
2 – 5K psi variable backpressure regulator		N2925091
Backpressure Regulator Adjustable from 15 – 59 psi	Stainless Steel	09907126

Flexar UV/Vis, Series 200/785A UV/Vis, Flexar PDA and Series 200 EP

These flowcells provide the highest detection limits possible for your sample. The 6 mm pathlength flowcell has been optimized for lower-dispersion LC analysis and is the perfect choice when using narrowbore, 2.1 mm or microbore, 1 mm columns (see Figure 1). The 3 mm pathlength is the choice for semiprep LC to avoid detector saturation at high-solute concentrations.



Flowcell Assembly
(w/ heat exchanger and zdv unions)

UV/Vis and PDA Flowcells and Assemblies

Description	Size	Part No.
Flowcells for Flexar FX-UV/Vis UHPLC Detectors		
Flowcell	6 mm x 2.4 μ L	N2920127
Flowcell Kit (includes flowcell and detector head plate w/ gasket)	6 mm x 2.4 μ L	N2920070
Flowcell Kit (includes flowcell w/ heat exchanger and zdv unions)	10 mm x 15 μ L	N2920125
Flowcell	10 mm x 15 μ L	N2920124
Flowcell Assembly	6 mm x 2.4 μ L	N2920128
Prep Flowcell Assembly (w/ zdv unions)	3 mm x 1.7 μ L	29000545
Flowcells for 785A and Series 200 UV/Vis Detectors		
Flowcell	8 mm x 12 μ L	29000542
Flowcells for Flexar FX-PDA UHPLC and Series 275 PDA Detectors		
Flowcell Assembly (dual-lensed)	6 mm x 2.4 μ L	N2920166
Flowcells for Flexar and Series 200EP PDA Detectors		
Flowcell	10 mm x 15 μ L	N2920126
Flowcell Assembly	10 mm x 15 μ L	N2920160
Flowcells for Series 200 PDA Detectors		
Flowcell	10 mm x 12 μ L	N2922107
Flexar PDA Plus		
Flowcell	10 mm x 1 μ L	N2950450
Flowcell	50 mm x 5 μ L	N2950455
Flowcell	Dry Cell	N2950429

HPLC and UHPLC Detector Lamps



UV/VIS Deuterium
Detector Lamp



Series 200/200 EP
Photo Diode Array Detector Lamp

Our extensive quality control and inspection process demands the very best quality sources. Choosing a PerkinElmer deuterium, tungsten or xenon source provides outstanding ultraviolet and true visible performance.

- Exceptional performance anywhere in the detector's 190 – 700 nm wavelength range
- Lamp changes are quick and easy due to a unique self-aligning lamp mount

UV/VIS Detector Lamps

Description	Part No.
Flexar, Series 200/200a, 785A UV/VIS Detector Lamps	
Deuterium Lamp	N2920149
Tungsten Lamp	N2920146
LC-295 UV/VIS Detector Lamps	
Deuterium Lamp	02712266

Refractive Index Detector Lamps

The Flexar Series 200/200a Refractive Index lamps, with its deflection-type design, allows sensitive detection of these compounds with low noise and drift characteristics.

Description	Part No.
Series 200/200a	
Refraction Index (RI) Lamp	02712273
Flexar	
Refraction Index (RI) Lamp	02712303

Photo Diode Array Detector Lamps

The Flexar Series 200/200a EP Photo Diode Array Detector provides true UV/VIS detection and high resolution spectral data. The excellent signal-to-noise characteristics make it ideally suited for low-volume or low concentration samples.

Components	Part No.
Flexar/Series 200/200a EP	
Deuterium Lamp (PDA)	N2925030
Deuterium Lamp (PDA Plus)	09290900
Tungsten Lamp	N2922011
Series 200/200a	
Deuterium Lamp	N2922046
Tungsten Lamp	N2922011
LC-135C/235	
Detector Lamp	N2351285

Fluorescence Detector Lamps

The major benefit afforded by fluorescence detection is the inherent high sensitivity of the technique coupled with outstanding specificity. The Series 200a Fluorescence Detector provides signal to noise ratio of >700:1 from trace analysis using a 150 W xenon source.

Components	Part No.
Flexar/Series 200/200a	
Xenon Lamp	N2922082
Festoon Lamp	04969486

Seals, Pistons and Check Valves

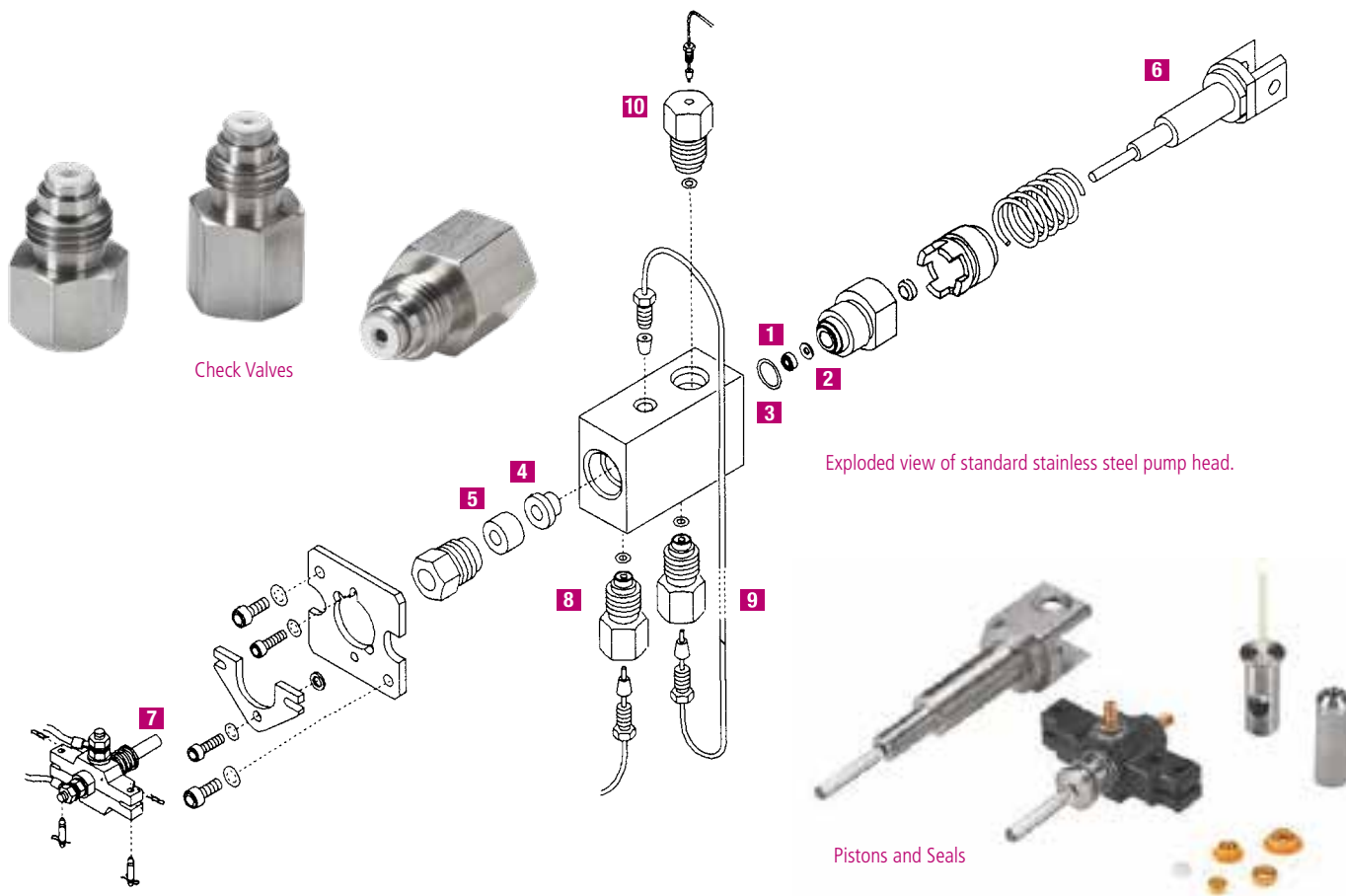
Check valves, which include a sealing washer, are easy to install using the optional Torque Wrench kit. For all PerkinElmer pumps an intermediate check valve is required. The input check valve, which is identical, should be ordered.

Description	Flexar LC or Series 200 (6000 psi)			FX-10
	Standard Stainless Steel Part No.	Micropump Stainless Steel Part No.	Biocompatible Titanium Part No.	Micropump Stainless Steel Part No.
1 Standard High Pressure Piston Seal	09907324	09923367†	09907338	09923367†
1 High Pressure Piston Seal – chemically resistant	09907345			
2 High Pressure Piston with Seal Backup Ring	02542076	†	02540276	†
3 High Pressure Piston Seal PTFE O-Ring	09902128	09902128	09902018	09902128
4 Low Pressure Piston Seal	09907330	09923366	09907339	09923366
5 Low Pressure Piston Seal Backup Guide Bushing	02542313	N2915006	N2061174	N2915006
6 High Pressure Piston	N2600124	N2910511	N2600124	N2910511
7 Low Pressure Piston	N2600117**	N2910512	N2600104	N2910512
8 Inlet Check Valve	02540177	02540177	N2600226	02540177
9 Intermediate Check Valve	02540177	02540177	N2600226	N2916052
10 Outlet check Valve	02540197	02540197	N2600192	02540154

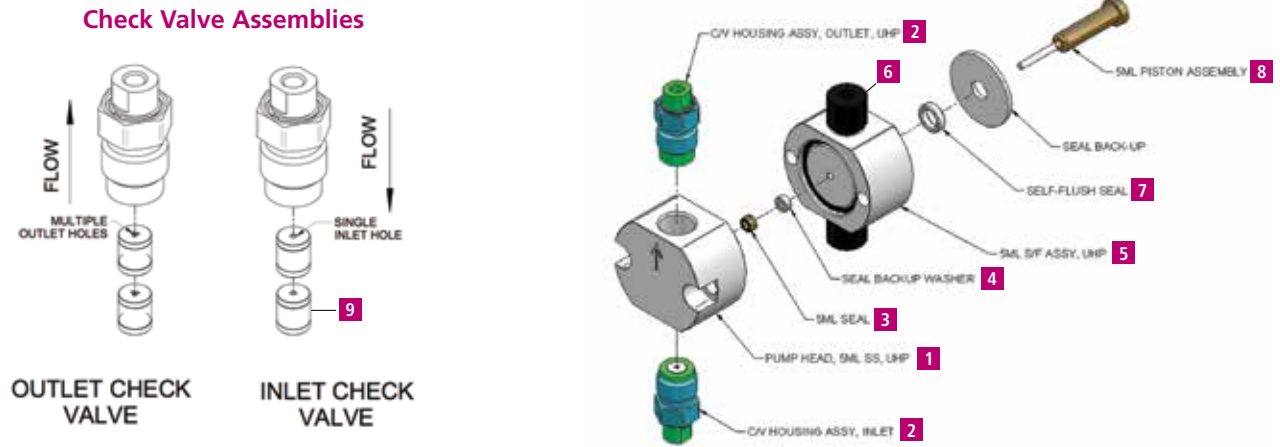
* Refer to Users Manual for complete illustrated parts list

** Part No. N2600117 is for Flexar. For Series 200 Part No. is N2600104

† High Pressure Piston Seal Backup ring (2) is included with the Standard High Pressure Piston Seal (1)



Flexar FX-15 and FX-20 Pump Head



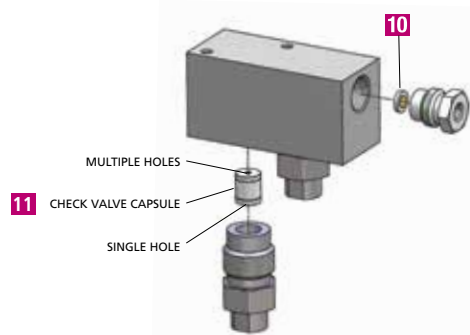
Description	FX-15	FX-20	
	Stainless Steel Part No.	Standard Stainless Steel Part No.	Biocompatible Titanium Part No.
1 Pump Head (Stainless Steel – pkg. 2, Titanium – each)	†	N2911251	N2911244
2 Inlet/Outlet Check Valve Kit (1 inlet and 1 outlet)	N2911220	N2911220	–
3 High Pressure Piston Seal	*	*	*
4 High Pressure Piston Seal Backup Washer	*	*	*
5 Self Flush Assembly w/ Seals	N2911235	N2911235	N2911245
6 Self-Flush Check Valve Kit (1 inlet and 1 outlet)	N2911236	N2911236	N2911236
7 Self-Flush Seal	*	*	*
8 Piston	N9308535	N9308535	N9308535
9 Check Valve Capsule (Stainless Steel – Each, Titanium – pkg. 4)	N2911239	N2911239	N2911240
10 0.5 mm Tee Assembly Frit	N2911224	N2911224	N2911241
11 Check Valve Capsule	N2911239	N2911239	N2911240

* Seals sold in Kits only. See Preventive Maintenance and Seal Kits
 † Replacement with FX-20 pump heads (N2911251) is recommended

Preventive Maintenance (PM) and Seal Kits

Description	Part No.
FX-15 PM Kit Complete (4 Heads)	N2911249
FX-15 Single Head Seal Kit (1 Head)	N2911221
FX-15 Heavy Duty HP Seals (1 Head)	N9308536
FX-20 PM Seal Kit (4 Heads)	N2911250

Tee Valve Assembly



FX-15, FX-20 UHPLC Pump Accessories

Description	Part No.
Replacement 0.5 µm Filter Frits for FX-15 (pkg. 4)	N2911224
High Pressure FX-15 Piston Seal Kit (Need 4 per FX-15)	N2911221
Piston Wash Bottle Kit	N2601616
2,500 µL Sample Syringe Starting Kit	N2930313

FX-10, FX-15 and FX-20 UHPLC System Accessories

Description	Color	Size (cm)	Part No.
ID PEEK Tubing			
0.004 in.	Black	50	N2916200
0.005 in.	Red	50	N2916056
0.004 in.	Black	76	N2916260
0.005 in.	Red	66	N2916262
Connector Tubing, Stainless Steel			
Flexar ISO/Binary/Quaternary Pump to Autosampler			N2916210
Dual Mixer Connection (≤ 250 µL)			N2916216
Dual Mixer Connection (≤ 350 µL)			N2916217
FX-10 Pump A (Upper) to T-mixer			N2916213
FX-10 Pump B (Lower) to T-mixer			N2916214
FX-10 Purge Valve to Filter/Scavenger			N2916212
FX-10 Injector to Column			N2916215
FX-10 Pump A (Upper) to Dual Mixers			N2916218
FX-10 Pump B (Lower) to Dual Mixers			N2916219
FX-15 Pump to In-line Mixer			N2916222
FX-15 Pump to Dual Mixers			N2916224
FX-15 Injector to Column, Standard			N2916223
FX-15 Injector to Column, 33 cm			N2916201
3 cm Scavenger Cartridge Holder			02580178
Spheri5 Scavenger Columns (pkg. 5)			02580202
30 mL Priming Syringe			09904849
FX-15 C18 Scavenger Column Kit			N2910765
FX-15 C18 Scavenger Columns (pkg. 2)			02580223

Maintenance Kits and Tools

Description	Part No.
Biocompatible Piston Seal Replacement Kit Includes: four seals, backup rings, and O-Rings	N2910385
Piston Seal Replacement Kit Includes: four seals, backup rings, and O-Rings	N2910383
Pulse Compensator Repair Kit Includes: diaphragm, elastomer plug, and seal	N2600313
Series 200 Bio LC Pump Maintenance Kit Includes: fuses, seals, O-Rings, and seal tools	N2910346
Series 200 Pump Maintenance Kit Includes: fuses, seals, O-Rings, and seal tools	N2910345
Micropump Piston Seal Replacement Kit	N2910384
Check Valve Torque Wrench	02540871
Seal Removal Tool	N2601295
Insertion Tool	N2601503

Manuals and Accessories

Description	Part No.
Backpressure Regulator (to generate backpressure for applications less than 250 psi)	02540272
Pump Priming Syringe (30 mL, plastic)	09904849
Series 200 Operator's Manual	09938910
Series 200 Pump Injector Bracket	N2910349

Solvent Sparger and Solvent Filters

Solvent filters remove unwanted particulate matter from the LC instrument. Spargers connect directly to the solvent delivery line and are easily removed for cleaning. The scavenger column is ideal for eliminating particulate material from solvents.



Solvent Filters

Solvent Spargers, Filters and Scavengers

Description	Size	Part No.
Solvent Reservoir Sparger		
Stainless Steel	10 µm	09903610
Titanium	10 µm	N2600070
Stainless Steel	40 µm	09903615
Titanium	40 µm	N2600089
Solvent Filters/Scavengers		
In-Line Solvent Filter System		09903606
In-Line Solvent Filter Replacement Kit		02540311
In-Line Solvent Filter System, Titanium		N2600259
Replacement 2 µm Titanium Filter Element		N2601477
Replacement Seal for In-Line Solvent Filter		N2601262
3 cm Scavenger Cartridge Holder		02580178
Spheri-5 C18 10 µm Scavenger Column (pkg. 5)		02580202
LC System Accessories		
Solvent waste cup		N2916019
Drain Cup		N2916085
90° Elbow Adapter, 1/4 in. ID HDPP		09220102
Tubing Clip (U-shaped, Polypropylene)		NX598006
Polypro Elbow Barbs		09220102
Large ID (11 mm) Silicone Tubing (5 ft)		N2916016
Manual Injector Bracket (Magnetic Clip-on)		N2931275

Pulse Compensators

The pulse compensator combines high-efficiency pulse smoothing with a low void volume. A Teflon diaphragm separates a reservoir filled by an RTV elastomer plug. Normal use will necessitate the eventual replacement of the diaphragm.

Description	Part No.
Diaphragm for Pulse Compensator	N2601316
Pulse Compensator Repair Kit Includes: diaphragm, elastomer plug, and seal	N2601313

Flexar/Series 200 Pump Solvent Upgrade Kits

The unique design of the PerkinElmer Flexar/Series 200 Pump allows it to easily be upgraded for additional solvent capability right in your laboratory as your needs change. Installation of the kit by a PerkinElmer Service and Support is recommended, but not included. Contact your local PerkinElmer representative for more information.

Description	Part No.
Binary to Quaternary Upgrade Kit	N2910344
Isocratic to Binary Upgrade Kit	N2910342
Isocratic to Quaternary Upgrade Kit	N2910343

Stainless Steel Sample Loops



For Flexar FX UHPLC Autosampler (up to 18,000 psi operation)

Stainless Steel loops required for use with FX-10 or FX-20/FX-15 systems operating above 6,200 psi.

Description	Size	Part No.
Sample Loop, Stainless Steel	2 µL	N2936071
Sample Loop, Stainless Steel	5 µL	N2936056
Sample Loop, Stainless Steel	10 µL	N2936057
Sample Loop, Stainless Steel	20 µL	N2936058
Sample Loop, Stainless Steel	50 µL	N2936059
Sample Loop, Stainless Steel	100 µL	N2936060
Sample Loop, Stainless Steel	200 µL	N2936061
Sample Loop, Stainless Steel	500 µL	N2936062
Sample Loop, Stainless Steel	1 mL	N2936063
Sample Loop, Stainless Steel	2 mL	N2936064
Sample Loop, Stainless Steel	5 mL	N2936065

PEEK Sample Loops

For Series 200/225 and Flexar LC Autosamplers (up to 6,200 psi operation)

These loops are compatible with all standard Flexar autosamplers as well as Series 225 autosamplers. PEEK loops cannot be used above 6,200 psi operation therefore are NOT compatible with standard Flexar autosamplers. Stainless steel loops required for use with FX-10 or FX-20/ FX-15 UHPLC systems operating above 6,200 psi.

Description	Size	Part No.
PEEK Sample Loop	2 µL	N2936072
PEEK Sample Loop	5 µL	N2936073
PEEK Sample Loop	10 µL	N2936074
PEEK Sample Loop	20 µL	N2936075
PEEK Sample Loop	50 µL	N2936076
PEEK Sample Loop	100 µL	N2936077
PEEK Sample Loop	250 µL	N2936078
PEEK Sample Loop	500 µL	N2936079
PEEK Sample Loop	1 mL	N2936080
PEEK Sample Loop	2 mL	N2936081
PEEK Sample Loop	5 mL	N2936082

Tubing Accessories

Clean-Cut™ tubing tool is designed to cut PTFE, Tefzel® and polymers in general but, in particular, PEEK tubing. A unique safety locking mechanism secures the blade when not in use.



Description	Part No.
Clean-Cut Tubing Cutter	ED020015
Clean-Cut Tubing Replacement Blade	ED020016
Cable/Tubing clip (U-Shaped)	NX598006
Stick-on Tubing Organizer (Gray Plastic)	NX598006

PEEK Tubing

PEEK tubing has the strength required to withstand continuous use at HPLC pressure without swelling or bursting. Use PEEK with virtually any organic or inorganic liquid. PEEK tubing is not affected by halide salts, high-strength buffers or other aggressive mobile phases that degrade stainless steel.

Description	Size	Part No.
1/16 in. OD x 0.007 in. ID	5 ft	N9302678
1/16 in. OD x 0.010 in. ID	5 ft	N9302650
1/16 in. OD x 0.004 in. ID (Black)	50 cm	N2916200
1/16 in. OD x 0.005 in. ID (Red)	50 cm	N2916059
Connector Tubing, Flexar/FX Mixer to Injector, Stainless Steel		N2916211
Connector Tubing, Flexar ISO/Binary/Quaternary Pump to Autosampler, Stainless Steel		N2916210

Stainless Steel Tubing

Tubing is pre-cut and mirror-polished in 316 stainless steel.

SS-316 Tubing

Description	Size	Part No.
1/16 in. OD x 0.043 in. ID	6 ft	00873035
1/16 in. OD x 0.015 in. ID	6 ft	00873036
1/16 in. OD x 0.007 in. ID	3 ft	02540838
1/16 in. OD x 0.007 in. ID	20 cm	02711441
1/16 in. OD x 0.007 in. ID	50 cm	00891480

Tefzel Tubing

Description	Size	Part No.
1/16 in. OD x 0.030 in. ID	10 ft	N9301029

High-Performance Fingertight Fittings

This PEEK Fingertight® fitting is the toughest with regard to chemical resistance and pressure. This high-performance Fingertight® fitting is recommended for the most demanding applications and will resist pressures up to 6,000 psi (400 bar). Made from a single piece of PEEK, the size permits tightening without tools.



Description	Part No.
PEEK One-Piece Fingertight® Fitting	ED020005

Fittings, Nuts and Ferrules

Stainless steel nuts are available in both Parker-Hannifin and Rheodyne™ formats. The nuts are used to connect 1/16 in. OD stainless steel tubing and feature a 10 – 32 thread size. PerkinElmer also offers select SSI fittings for 1/16 in. OD tubing in 1/4 – 28 thread size.



Stainless Steel Fittings

Description	Part No.
Kel-F Reverse Ferrule, 1/8 in.*	09903771
Kel-F Ferrule, 1/16 in.*	09920382
Tefzel Nut, 1/16 in.*	09920381
Parker-Hannifin Ferrule, 1/16 in.	00873032
Parker-Hannifin Nut, 1/16 in.	09903980
Parker-Hannifin Nut and Ferrule Kit, 1/16 in. Includes: 6 nuts and 6 ferrules	00890945
Parker-Hannifin Zero-Dead-Volume Union with nuts and ferrules	09903289
Parker-Hannifin Medium-Stem Stainless Steel Nut	N2916202
Rheodyne™ Ferrule, 1/16 in.	09904947
Rheodyne™ Nut, 1/16 in. long body	09904974
Rheodyne™ Nut, 1/16 in. short body	09904956
Rheodyne™ Nut and Ferrule Kit, 1/16 in. Includes: 6 ferrules, 3 short nuts and 3 long nuts	02540274
Tefzel Nut (for Reverse Ferrule), 1/8 in.*	N2601189
Tefzel Nut, 1/16 in.*	09920381
Valco Ferrule	09903891
OptiTech Reusable Nut/Ferrule for UHPLC (fingertight to 15K psi)	N9306301
OptiTech Ferrule replacements for UHPLC (pkg. 10)	N9306300
UHPLC 1/16 in. Reusable Fitting	N9307800

* The Tefzel and Kel-F fittings above are only for low pressure use (under 400 psi)

Fittings Kits

Recommended for users of a PerkinElmer Biocompatible LC system. Contains nuts, ferrules and unions.

Description	Part No.
Biocompatible Column Fittings for LC	N9301001

Fittings Kit for LC

The kit contains Rheodyne™ and SSI nuts and ferrules as well as Fingertight® II nuts and ferrules for tool-less installation. Zero-dead-volume unions are also included. In addition, you receive varying lengths of stainless steel tubing in 0.007 and 0.010 in. ID, as well as 0.30 in. ID Tefzel® tubing.

Description	Part No.
All-in-one Fittings Kit	N9301002

Operation Kit

Recommended for purchasers of their first LC. Includes tubing, union, fittings, syringe, basic LC book and test mix.

Description	Part No.
Operation Kit	00890873

Rheodyne Valves

Bio Injection Valve

Model 9725 is inert and well-suited to the chromatography of biological molecules, including applications with aggressive mobile phases. This valve is useful in all applications in which metal contact with the mobile phase and or sample should be avoided. This valve uses PEEK vent lines and a PTFE rotor seal and can be operated in a pH range from 0 – 14.

Description	Part No.
9725 Injection Valve for Series 200 Autosampler	N9306020

Rheodyne™ 8125 Low-Dispersion Stainless Steel Injection Valve

Ideal for use in an LC/MS system, the model 8125 is designed for 1 and 2 mm microbore columns and can also be used with conventional analytical (3 to 5 mm) columns. Small flow passages produce low dispersion, maintaining the high mass sensitivity inherent in micro columns.

Description	Part No.
8125 Low-Dispersion Stainless Steel Injection Valve	N9306021

Rheodyne™ 7725 Analytical Injection Valve

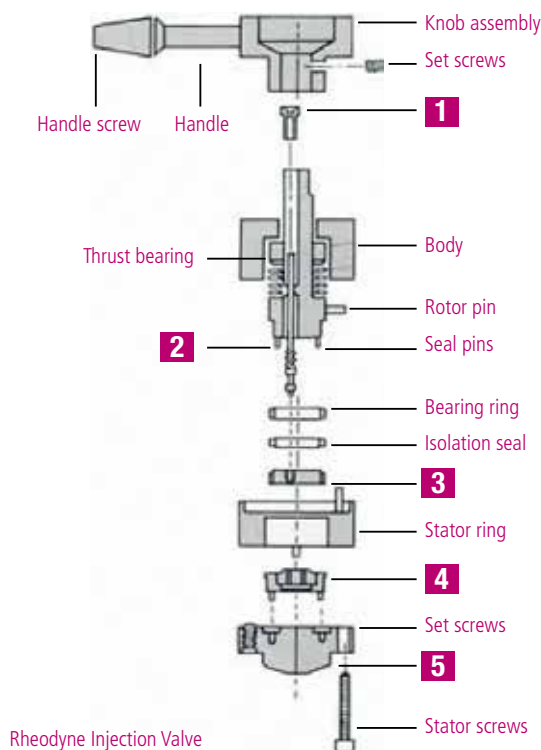
Inject from 1 µL to 5 mL with high accuracy and precision, with the Rheodyne™ 7725 and 7725i valves.

Rheodyne™ 7725 and 7725i valves are versatile injectors and can use both partial-filling and complete-filling methods for loading the sample loop. Wide port angles of the 7725/7725i valve provide improved access to fittings. Sample loop with a 2 µL internal capacity is also available. In a clean system, the 7725/7725i typically can make more than 30,000 injections before requiring replacement of the rotor seal.

Description	Part No.
7725 Injection Valve for Series 200 Autosampler	N9306019
7725i Injection Valve with Internal Switch	N9306017

Rheodyne Valves Spare Parts

Description	Model 9725 Part No.	Model 7725 Part No.
1 Needle Guide S200 Autosampler Manual Valve ISS-100	N2931054 09904800	N2931054 09904800
2 Needle Port Tube	09904805	09904805
3 Rotor Seal Vespel Tefzel PEEK	09904802 N9302677 N9306044	09904802 N9302677 N9306044
4 Stator Face Assembly PEEK and Ceramic	N9306047	N9306047
5 Stator PEEK Stainless Steel Titanium	N9306046	N9306045



PEEK Sample Loops for Rheodyne Valves

PEEK Sample Loops avoid many of the problems associated with stainless steel sample loops. Metal loops will often absorb sample components resulting in inaccurate quantitative results. In addition, metal loops may be corroded by high-salt buffers and chloride salts. Sample Loops are made from PEEK tubing and fittings. PEEK (Poly-Ether-Ether-Ketone) is a mechanically strong, chemically inert polymer ideal for HPLC applications where metal surfaces may interact with mobile phase or sample components. Each Sample Loop is supplied with two PEEK hex-head nuts and ferrules. These fittings grip the tubing in two locations for a more reliable connection.

Description	Model 9725 Part No.
5 µL PEEK Sample Loop	N9306033
10 µL PEEK Sample Loop	N9306034
20 µL PEEK Sample Loop	N9306035
50 µL PEEK Sample Loop	N9306036
100 µL PEEK Sample Loop	N9306037
200 µL PEEK Sample Loop	N9306038
500 µL PEEK Sample Loop	N9306039
1 mL PEEK Sample Loop	N9306040
2 mL PEEK Sample Loop	N9306041
5 mL PEEK Sample Loop	N9306042



Injector Valve Rotor Seals for both Series 200 Autosampler and Manual Injectors

For both the Rheodyne and Flom valves, rotor seals should be periodically replaced every 6 months to a year and are available in PEEK. For the Rheodyne valve, they are also available in Vespel. PEEK is more inert towards amines and other basic biomolecules/ pharmaceuticals, exhibiting less sample carryover. However, Vespel is somewhat more resilient than PEEK, providing somewhat better wear life.

Description	Part No.
Flom Rotor Seal PEEK N9306068	00890873
Rheodyne 7725 Vespel Rotor Seal	09904802
Rheodyne 8125 Vespel Rotor Seal	10070900
Rheodyne 7725/9725 PEEK Rotor Seal	N9306044

Stainless Steel Sample Loops for 7725 Valve

Description	Model 7725 Part No.
5 µL Stainless Steel Sample Loop	N9306023
10 µL Stainless Steel Sample Loop	N9306024
20 µL Stainless Steel Sample Loop	N9306025
50 µL Stainless Steel Sample Loop	N9306026
100 µL Stainless Steel Sample Loop	N9306027
200 µL Stainless Steel Sample Loop	N9306028
500 µL Stainless Steel Sample Loop	N9306029
1 mL Stainless Steel Sample Loop	N9306030
2 mL Stainless Steel Sample Loop	N9306031
5 mL Stainless Steel Sample Loop	N9306032

Note: Loops are compatible with both manual valves and Series 200 Autosampler valves

Internal Loop for 7725/9725 Valves

Description	Part No.
2 µL (PEEK and Ceramic)	N9306022

Flexar Autosamplers

Features and Benefits

- Injects sample volumes as little as 1 µL at pressures up to 18,000 psi with the FX UHPLC Autosampler
- Loads sample in only 8 seconds (in partial fill mode)
- Three injection modes: full loop, partial fill and µL-pickup with no sample waste and excellent reproducibility
- Peltier cooling/heating mode option for operation at 4 °C to 40 °C. Will reach 4 °C ± 2 °C, achievable even at ambient temperatures up to 25 °C



All Flexar autosamplers can be upgraded in the field for Peltier cooling and heating and they all include:

- 100-sample tray
- 100 2 mL vials
- 100 2 mL screw top cap with cross slit vial septum
- Tubing to connect to waste reservoir
- I/O cable (Pump Start/Ready-In)
- Service Manager SW CD
- User's Manual
- Nuts and ferrules
- All fuses for 120–240 V
- All cables required for connection to a TotalChrom or Chromera Operating Environment

Flexar Autosamplers and Upgrade Kits

Description	Part No.
Flexar LC Autosampler	
High throughput autosampler with exceptionally low carryover. Operates up to 6,100 psi (420 bar). Provides flexible injection modes: full-loop, partial-fill and µL-Pickup (no sample waste). Peltier cooling and heating options available as field upgrades. Comes standard with 100 µL loop and 250 µL sample flush syringe	N2930660
Flexar Peltier LC Autosampler	
High throughput autosampler with exceptionally low carryover. Operates up to 6,100 psi (420 bar). Provides flexible injection modes: full-loop, partial-fill and µL-Pickup (no sample waste). Built-in Peltier cooling comes standard. Peltier heating option available as field upgrade. Comes standard with 100 µL loop and 250 µL sample flush syringe	N2930661
Flexar FX UHPLC Autosampler	
High throughput UHPLC autosampler with exceptionally low carryover. Operates up to 18,000 psi (1,241 bar). Provides flexible injection modes: full-loop, partial-fill and µL-Pickup (no sample waste). Built-in Peltier cooling comes standard. Peltier heating option available as field upgrade. Comes standard with 10 µL loop and 250 µL sample flush syringe	N2930664
Field Upgrade Peltier Kits	
Flexar and Series 225 Upgrade Kit (from standard to Peltier Cooling option)	N2930672
Flexar and Series 225 Upgrade Kit (from standard to Peltier Cooling and Heating option)	N2930673
Flexar and Series 225 Upgrade Kit (from Peltier Cooling to Peltier Cooling and Heating option)	N2930669

Flexar or Series 225/275 Autosampler Trays and Accessories

Description	Part No.
25-Position 6 mL Vial Sample Tray	N2936045
80-Position 2 mL Vial plus (5) 6 mL Vial Tray (for derivatization)	N2936046
80-Position 2 mL Vial Tray with Dilution Tray	N2930676
96-Well Microtiter Adapter	N9302562
96-Well 'Deep-well' Microtiter Adapter	N9302560
96-Well 7 mm Pre-slit Silicone Plate Mat/Seal	N9302555
96-Well 'Deep' Microtiter Plate Adaptor (Supports Dual Microtiter Plates)	N2936048
96-Well 'Shallow' Microtiter Plate Adaptor (Supports Dual Microtiter Plates)	N2936049
384-Well Microtiter Adapter	N2936050
100-Position 2 mL Vial Sample Tray	N2936042
(200) 0.2 mL Microvial plus (5) 2 mL Vial Tray	N2936043
250 µL Syringe Tip Replacements (pkg. 10)	N2936003
Flexar/225 Biocompatible Upgrade Kit (w/ valve)	N2930675
1/16 in. OD x 0.038 in. ID PTFE Tubing (AS Transfer Line)	02506495

Flexar Autosampler Valve Maintenance Parts

Description	Flexar LC (6000 psi) Part No.	Flexar UHPLC (18000 psi) Part No.
Rotor Seal	N2936021	N2932001
Stator	N2936022	N2932002

Description	Part No.
Flexar UHPLC (18000 psi) Autosampler Valve Upgrade Kit	N2936023
Flexar Analytical LC (6000 psi) Autosampler Valve	N2936020

High Pressure Analytical Static Mixers

Static Mixers are important in facilitating complete mobile phase blending, resulting in improved retention performance. These mixers should be used as part of FX10, or FX15 LC systems, where high pressure blending is required. Mixers incorporate a highly efficient cross-flow shearing mechanism which produces vortex shear mixing over a wide range of volumes. They are now offered in 18,000 psi pressure max flavor.

A good first choice selection is a volume of about half the flow rate volume. For example, when pumping at a 0.5 mL/min flow rate, a 350 µL mixer provides good mixing with very good baseline stability.

Description	Part No.
50 µL In-Line High Pressure Mixer Assembly, Stainless Steel	N2911200
150 µL In-Line High Pressure Mixer Assembly, Stainless Steel	N2911201
250 µL In-Line High Pressure Mixer Assembly, Stainless Steel	N2911202
350 µL In-Line High Pressure Mixer Assembly, Stainless Steel	N2911205
500 µL In-Line High Pressure Mixer Assembly, Stainless Steel	N2911203
150 µL High Pressure Binary High Pressure Mixing-T, Stainless Steel	N2911206
10 µL Binary Mixing-T, Stainless Steel	N2911170
Binary High Pressure T-Mixer, Stainless Steel, 50 µL	N2911212
Binary High Pressure T-Mixer, Stainless Steel, 350 µL	N2911210
Binary High Pressure T-Mixer, Stainless Steel, 500 µL	N2911211
T-connector, Stainless Steel	N2911127

Syringes and Kits

PerkinElmer syringe kits for high pressure applications are manufactured for precise liquid delivery. All of these glass syringes come with precision stainless steel plungers. They are used for sampling and flushing and are available in a large variety of sizes.

Syringes

Description	Part No.
Sample Needle w/ Fittings	N2936009
Air Guide Needle (62 mm)	N2936000
Bio Compatible Sample Needle w/ Tubing Connector	N2936010
Needle (80 mm)	N2936342
Blunt Tip/Low Volume Needle	N2931199

Syringe Kits

Dimension	Buffer Tubing	Part No.
100 µL	200 µL	N2936051
250 µL	500 µL	N2936052
500 µL	1,000 µL	N2936053
1,000 µL	2,000 µL	N2936054
2,500 µL	2,000 µL	N2936055

Microsyringes (For Manual Injection)

Syringes are used for accurate and precise liquid delivery. Each syringe is hand-fitted to assure maximum accuracy. Our syringes are composed of glass barrels and precision stainless steel needles. The needle features a blunt tip, required for use with a Rheodyne injector.

Description	Part No.
10 µL Syringe	09904937
25 µL Syringe	09904823
50 µL Syringe	09904941
100 µL Syringe	09904822
Rheodyne 22-gauge Blunt Needle with Luer Hub	09904943



WHOSE TRIPLE QUAD
CAN GIVE YOU
15% MORE TIME?



SIMPLE: PERKINELMER.

Whether you're performing environmental, food, or industrial testing, your lab needs to analyze more and increasingly complex samples under tighter regulatory standards. Because our new QSight™ triple-quad LC/MS/MS needs no routine cleaning and maintenance, you get up to 15% more uptime (that's up to 35 more days per year) to take on your increased testing workload. Plus, our patented technology delivers exceptional sensitivity and reliability along with all that productivity.

QSight: A triple quad that simply knows the value of time.

Learn more at www.perkinelmer.com/QSight


PerkinElmer
For the Better

Peltier Tray Accessories

100-Position Peltier Temperature-Controlled Tray Accessory

100 standard 2 mL vials. Temperature controlled from 4 – 60 °C within ± 1 °C directly from Autosampler keypad – or from TotalChrom Workstation – Client/Server.

Description	Part No.
100-Position Peltier Temperature-Controlled Tray Accessory	N2930035

Double Microtiter Peltier Temperature-Controlled Tray Accessory



Two shallow or medium depth microtiter plates. Temperature controlled from 4 – 60 °C within ± 1 °C directly from Autosampler keypad – or from TotalChrom Workstation – Client/Server. (Also requires **N2930036**).

Description	Part No.
Double Microtiter Peltier Temperature-Controlled Tray Accessory	N2930037

Peltier Temperature Controller



Controller Unit required for operation of either 100-position or Double Microtiter Peltier trays.

Description	Part No.
Peltier Temperature Controller	N2930036
100-Position Peltier Temperature-Controlled Tray Accessory	N2930035

Sample Trays

PerkinElmer has researched, engineered, and developed the Series 200 Autosampler to ensure precision, flexibility, reliability, and ease-of-use.

Our unique XYZ design allows you to take advantage of the built-in 'extra' capabilities including dilution, derivatization, and standard addition – all without additional hardware or cost.

Description	Part No.
25-Position Sample Tray	N2930040
80-Position Sample Tray, Dilution (with tank)	N2930314
Includes: 80-Position Tray Only	N2930044
Glass Diluent Tank Only	B0505677
85-Position Sample Tray, Derivatization	N2930041
100-Position Sample Tray	N2931097
205-Position Sample Tray, Microvials/10 standard vials	N2930042
225-Position Sample Tray, Microvials/high throughput	N2930043

Series 200 Autosampler Microtiter Trays and Plates

If you need high throughput and high speed, the Series 200 is designed for injecting up to 225 samples at rates as fast as two to three injections per minute from any sample position – ideal for LC/MS work. The Series 200 even supports direct injections from microtiter plates – shallow or deepwell format.

Tray Description	Part No.
Double Deep Microtiter Tray (Holds two 96-Well Plates)	N2930147
Double Microtiter Peltier Tray Requires Peltier Controller (N2930036) (Holds two 96-Well Plates)	N2930037
Double Shallow Microtiter Plate Tray (Holds two 96-Well Plates)	N2930146
Peltier Tray for 384-Well Microtiter Plates Requires Peltier Controller (N2930036) and Series 200 Autosampler Firmware 1.08 or higher	N2930038
Microtiter Plates Description	Part No.
96-Well Deep (1 mL)	N9302560
96-Well Plate Cover/Mat	N9302563
96-Well Shallow (200 μ L)	N9302562
96-Well Mid (500 μ L)	N9302561
384-Well Plate (100 μ L)	N9302564
384-Well Plate Cover/Mat	N9302565

Starter Kits

UHPLC – General Starter Kit

Description	Part No.
UHPLC – General Starter Kit	N2930801

Contents	Qty./Pkg.	Part No.
Open-End Wrench	2	09907233
Adjustable Wrench	1	N9301326
Reversible Screw Driver	1	N9301480
Parker-Hannifin ZDV Stainless Steel Union	1	09903289
Parker-Hannifin Medium-Stem Stainless Steel Nuts	10	09903980
1/16 in. Parker-Hannifin Stainless Steel Ferrules	10	00873032
1/16 in. Valco Stainless Steel Ferrules	6	09903891
Finger-Tight Fittings, PEEK, 5.5K psi Max (pkg. 5)	1	N9307822
Optimize Technologies EZP (Hand-Tight Fitting to 13K psi, Wrench-tight to 20K psi)	1	N9306301
1/16 in. Tefzel Nuts	2	09920381
1/16 in. Tefzel Reverse Ferrules	2	09920382
1/8 in. Tefzel Nuts	4	N2601189
1/8 in. Tefzel Reverse Ferrules	4	09903771
PEEK Tubing Cutter (Includes 5 Extra Blades)	1	N9307820
50 cm x 0.005 in. ID 1/16 in. Stainless Steel Tubing	3	02507060
5 ft. x 0.004 in. ID 1/16 in. PEEK Tubing, Black	1	N2916261
5 ft. x 0.005 in. ID 1/16 in. PEEK Tubing, Red	1	N2916262
30 mL Priming Syringe	1	09904849
2 mL Clear Write-On Vials w/ 10 mm Pre-Slit PTFE/Silicone Caps (pkg. 100)	1	N9300695
Cable/Tubing Organizer Clip	3	NX598006

HPLC – General Starter Kit

Description	Part No.
HPLC – General Starter Kit	N2930802

Contents	Qty./Pkg.	Part No.
Open-End Wrench	2	09907233
Adjustable Wrench	1	N9301326
Reversible Screw Driver	1	N9301480
Parker-Hannifin ZDV Stainless Steel Union	1	09903289
Parker-Hannifin Medium-Stem Stainless Steel Nut	10	09903980
1/16 in. Parker-Hannifin Stainless Steel Ferrule	10	00873032
1/16 in. Valco Stainless Steel Ferrules	6	09903891
Rheodyne Stainless Steel Nut, Short Stem	2	09904956
Rheodyne Stainless Steel Nut, Long Stem	2	09904974
1/16 in. Rheodyne Stainless Steel Ferrule	4	09904947
1/16 in. Tefzel Nuts	2	09920381
1/16 in. Tefzel Reverse Ferrules	2	09920382
1/8 in. Tefzel Nuts	4	N2601189
1/8 in. Tefzel Reverse Ferrules	4	09903771
Finger-Tight Fittings, PEEK, 4K psi Max	6	09920513
PEEK Tubing Cutter (Includes 5 Extra Blades)	1	N9307820
50 cm x 0.005 in. ID 1/16 in. Stainless Steel Tubing	1	02507060
50 cm x 0.007 in. ID 1/16 in. Stainless Steel Tubing	2	00891480
5 ft. x 0.007 in. ID 1/16 in. PEEK Tubing, Yellowish-Tan	1	N9302650
5 ft. x 0.005 in. ID 1/16 in. PEEK Tubing, Red	1	N2916262
30 mL Priming Syringe	1	09904849
2 mL clear write-on vials w/ 10 mm Pre-Slit PTFE/Silicone Caps (pkg. 100)	1	N9300695
Cable/Tubing Organizer Clip	3	NX598006

Autosampler Syringes

Contents	Size	Part No.
Sampling Syringe	50 µL	09923304
Sampling Syringe	100 µL	09923305
Sampling Syringe	250 µL	09923270
Sampling Syringe	500 µL	09923306
Sampling Syringe	1000 µL	09923307
Sampling Syringe	2500 µL	09923219*
Sampling Syringe Kit 2500 µL (includes 2500 µL syringe, union and tubing kit)	2500 µL	N2930313
Flush Syringe	2500 µL	09923219

*Requires one-time purchase of **N2930313**

Vacuum Degassing Kits

Using a solvent degassing system will extend the performance of your pump. PerkinElmer offers both vacuum degassing systems that can handle all your degassing requirements.

On-Line Vacuum Degasser Kit

This is a low-volume, high efficiency on-line module for the removal of dissolved gasses from HPLC solvents. The vacuum degasser is available in 3 and 5 channel models to support isocratic, binary and quaternary pumps as well as degassing of autosampler flush solvent.



Description	Part No.
3-channel Vacuum Degassing Package. Includes: a Vacuum Degasser, one 1 L Bottle with Cap, one 2 L Bottle with Cap, one Organizer Tray and Accessory	N2600571
5-channel Vacuum Degassing Package. Includes: a Vacuum Degasser, two 1 L Bottle with Caps, two 2 L Bottles with Caps, Solvent Tray and Organizer	N2600570
Binary Bottle Cap Kit. Includes: two Caps, Tubing, Fittings and Labels required for two Solvent Bottles	N2600522
Quaternary Bottle Cap Kit. Includes: four Caps, Tubing, Fittings and Labels required for four Solvent Bottles	N2600523

Liquid Chromatography Laboratory Bottle Kits

Description	Part No.
1 x 5 Liter Bottle with Cap and PTFE Insert, 2 Meters PTFE 1/8 in. Tubing and 1x10 µm Stainless Steel Solvent Frit	N2601610
1 x 2 Liter Bottle with Cap and PTFE Insert 1 Meter PTFE 1/8 in. Tubing and 1 x 10 µm Stainless Steel Solvent Frit	N2601611
1 x 1 Liter Bottle with Cap and PTFE Insert 1 Meter PTFE 1/8 in. Tubing and 1 x 10 µm Stainless Steel Solvent Frit	N2601612
1 x 0.5 Liter Bottle with Cap and PTFE Insert 1 Meter PTFE 1/16 in. Tubing and 1 x 40 µm Stainless Steel Solvent Frit	N2601613
1 Cap with PTFE Insert 1 Meter PTFE 1/8 in. Tubing and 1 x 10 µm Stainless Steel Solvent Frit	N2601614
1 Cap with PTFE Insert 1 Meter PTFE 1/16 in. Tubing and 1 x 40 µm Stainless Steel Solvent Frit	N2601615
1 x 0.5 Liter Bottle with Cap and Dual PTFE Insert 2 pcs of 2 Meter PTFE 1/8 in. Tubing (Piston Wash Function)	N2601616
1 Cap with Dual PTFE Insert 2 pcs of 2 Meter PTFE 1/8 in. Tubing and 1 x 10 µm Stainless Steel Solvent Frit (Piston Wash Function)	N2601617

Replacement Vacuum Degasser Bottles

Description	Part No.
1 L Glass Bottle	N2600497
2 L Glass Bottle	N2600498

QSight LC/MS/MS Consumables and Spares

PerkinElmer's QSight™ LC/MS/MS provides a high sensitivity triple quadrupole solution that enables high levels of efficiency and productivity to meet both standard and regulatory requirements.

Features and Benefits

- Self-cleaning StayClean™ technology
- Dual-source ion probes for flexible method development
- Easy-to-use and learn Simplicity software to streamline workflow

Ion Source Accessories

Description	Part No.
Additional ESI probe	BC001283F
Additional APCI probe	BC002312F
ESI source needle	BC004866F
APCI source needle	BC004868F

Tuning Solutions

Description	Part No.
100-200 series tuning solution	BC004850
LC infusion kit	BC002931

Uninterruptable Power Supply Systems

With the Security Plus Series, you get much more protection and a higher comfort level than you get with most other UPS systems. The Security Plus Series also provides complete power conditioning and, because the Security Plus Series features on-line inverter design, added peace of mind. And regardless of input fluctuations, the Security Plus Series ensures that the output remains continuous and regulated.

Description	Part No.
QSight UPS System	N9306749

Noise Enclosure and Reduction Cover

Laboratories can be loud and noise in labs is distracting, stressful and potentially harmful to your hearing. While noise in labs may not be frequently talked about, it is something you should be concerned with.

Noise enclosure for SC40 and reduces perceived operator noise level by approximately 4 to 5 dB (A) Fits on **MZ321147**.



Nitrogen Generators

PerkinElmer offers customers a new line of nitrogen generators to meet the growing need for cost effective and pure nitrogen. Membrane Nitrogen Generators are designed to supply single or multiple LC/MS instruments with dry nitrogen at purities of 98% to 99.5%. The generator can also be used for solvent evaporation as well as supplying dry nitrogen to analytical instruments.

Description	Part No.
Nitroflow TG2NA Multi-Gas Generator for US For Single/Dual Source, 208-230 V/60 Hz	BC004852
Nitroflow TG2WD Multi-Gas Generator for World For Single/Dual Source, 230 VAC/50 Hz	BC004874
Nitroflow TG2JA200 Multi-Gas Generator for Japan	BC004875



Description	Part No.	Depth (ins/cm)	Width (ins/cm)	Height (ins/cm)	Height with Oil Tray (ins/cm)	Enclosure Weight (lbs/kg)	Oil Tray Weight (lbs/kg)
Noise Enclosure including dolly	MZ321146	29.15/74	16.75/42.5	23.25/59	26.97/68.5	30.8/14	16.75/8

GC Columns

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

Quick Reference Index Page

▶ Application Highlights	73
▶ Cross Reference Charts	78
▶ Custom Packed Columns	101
▶ GC Capillary Column Cutter	72
▶ GC Columns for GC/MS	90 – 93
▶ Elite-1ms, Elite-5ms	90
▶ Elite-5ms II, Elite-17ms	91
▶ Elite-17ms+, Elite-35ms	92
▶ Elite-624ms	93
▶ GC Columns with Integrated Guard Columns	80
▶ General Purpose Columns	81 – 89
▶ Elite-1	81
▶ Elite-5	82
▶ Elite-17, Elite-35	83
▶ Elite-200, Elite-225	84, 85
▶ Elite-624, Elite-1301	86
▶ Elite-1701	87
▶ Elite-WAX, Elite-ETR WAX	88, 89
▶ High Temperature GC Columns	94
Elite-1ht, Elite-5ht, Elite-17ht, Elite-SimDist ht	
▶ Speciality Columns	95 – 101
▶ BAC Advantage	95
▶ Elite-VMS, Elite-XLB	96
▶ Elite-Volatiles, Elite-CLPesticides	97
▶ Elite-502.2, Elite-RX, Elite-Betacyclodextrin, Elite-SimDist, Elite-608	98
▶ Elite-TPH, Elite-PONA, Elite-FFAP, Elite-23, Elite-5 Amine, Elite-MTBE, Elite-2560	99
▶ PLOT Columns	100
▶ Elite-Carbon	101



NEW Elite-Carbon Columns

Elite-Carbon columns offer rapid separation of permanent gas/light hydrocarbon mixtures; including carbon monoxide and carbon dioxide without cryogenic cooling. They are preconditioned and thus take less than 30 minutes to stabilize.



NEW GC Column Cutter

PerkinElmer's capillary column cutting tool ensures you make a perfect cut of your GC column, first time, every time. The rotating diamond blade with a built in magnifier to verify a square cut, affords a precise clean cut of fused silica columns.



GC Columns with Integrated Guard Column

These innovative columns incorporate both guard column and analytical column in a continuous length of tubing, eliminating the connection and all connection-associated problems! The guard



column section is marked separately from the analytical column, using high-temperature string.



Finest Quality High-Strength Fused Silica

Why Choose Fused Silica?

Many factors influence the quality of a column. Fused silica is considered to be the purest form of glass, with fewer metal oxides (Lewis acid sites) and hydrogen bonding (surface silanol) groups. The stationary phase is cross linked (polymerized) and also bonded to the surface of the column to provide a high degree of stability, resulting in lower bleeding of the stationary phase at elevated temperatures. The superior inertness of the column means that acidic and basic compounds can be analyzed on the same column.



Selecting the Right Stationary Phase

The inherent efficiency (large number of theoretical plates) of capillary columns allows you to choose from relatively few types of phases, compared to the many varieties of packed columns previously required. Perhaps more importantly, because capillary columns are more efficient, you will see superior resolution resulting in narrower, taller peaks that allow easier integration from your data system. Identification of small peaks are facilitated by a reduced baseline bleed and lower baseline noise. Non-polar Elite-1 columns from PerkinElmer will preferentially retain non-polar compounds, whereas the PerkinElmer Elite-200 column phase provides high selectivity for analytes containing lone pair electrons, such as nitro and carbonyl groups. Elite-WAX polyethylene glycol columns are highly selective toward polar compounds such as alcohols.

What Length Do I Need?

Typically capillary columns are available in lengths from 15 to 105 meters. The longer the column the more resolving power, but this also increases the analysis time. Doubling a column length only increases resolution by approximately 40%. Under isothermal conditions, the analysis time will double if using temperature programmed analysis retention times are more dependent on the temperature than on the column length. PerkinElmer provides columns in the most popular lengths of 5, 10, 12, 15, 25, 30, 50, 60, 75, 100 and 105 meters depending upon the column ID.

GC Capillary Column Cutter

Use PerkinElmer's capillary column cutting tool to ensure a perfect cut of your GC column, first time, every time. The rotating diamond blade with a built in magnifier to verify a square cut, affords a precise clean cut of fused silica columns. Suitable for use with 0.25 mm ID to 0.53 mm ID tubing, (0.78 mm OD maximum).

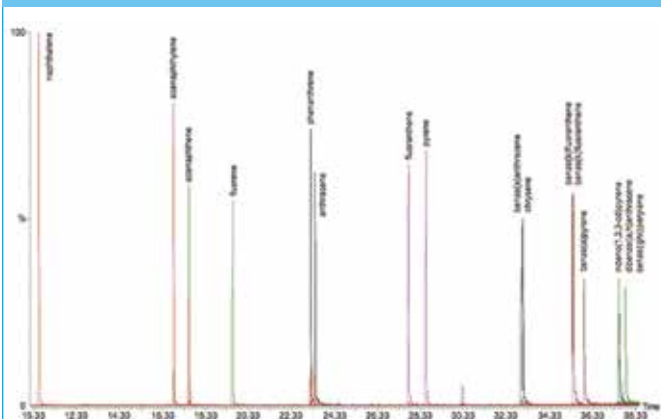
Description	Part No.
GC capillary cutting tool	N6107245
Maintenance kit Contains replacement cutting wheel, O-Rings and tool to open the cutter	N6107246



Application Highlights

Environmental

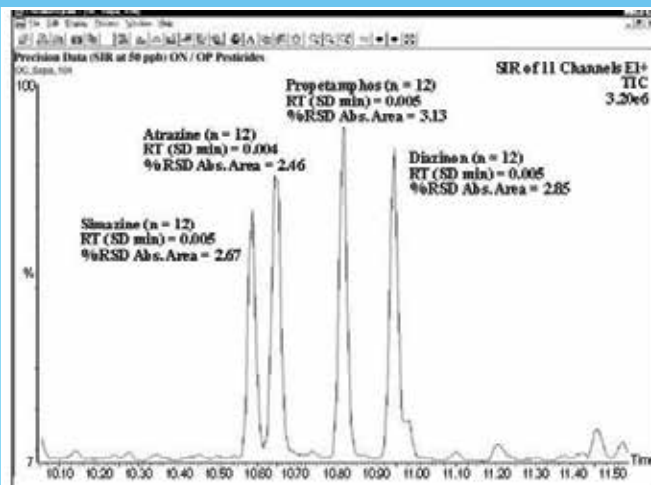
Thermal Desorption-GC/MS Analysis of Polycyclic Aromatic Hydrocarbons on Fine Particulates in Air.



Recommended Column: Elite-5ms, 30 m x 0.25 mm x 0.25 μ m, Part No. **N9316282**

Environmental

Analysis of Organophosphorus and Organonitrogen Herbicides in Water using GC/MS with Selected Ion Recording.

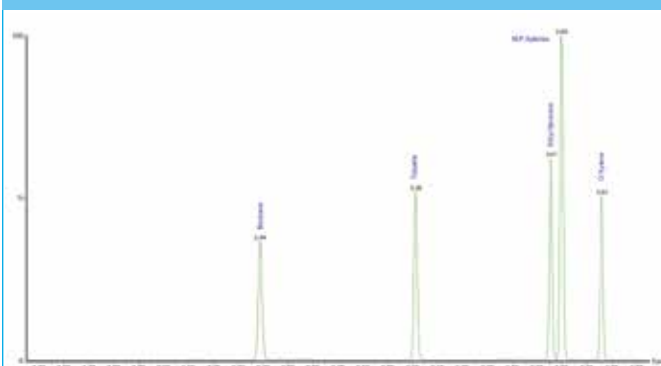


Recommended Column: Elite-5ms, 30 m x 0.25 mm x 0.25 μ m, Part No. **N9316282**

Liner: a quartz injector liner packed with quartz or silanized glass wool.

Environmental

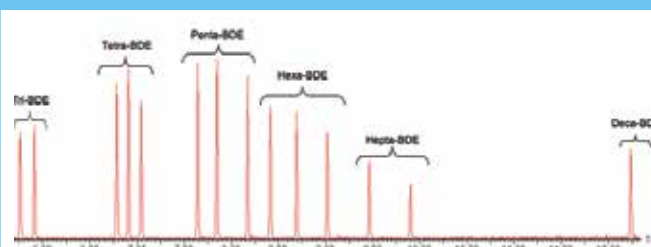
An example mass at 4.0 ppb acquiring in full scan.



Recommended Column: Elite-624, 20 m x 0.18 mm x 1.0 μ m, Part No. **N9316200**

Environmental

Analysis of Polybrominated Diphenyl Ether Flame Retardants by Gas Chromatography/Mass Spectrometry.

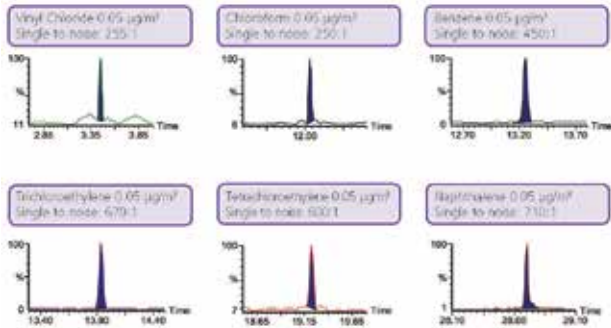


Recommended Column: Elite-1, 15 m x 0.25 mm x 0.1 μ m, Part No. **N9316006**

Liner: deactivated glass liner with wool, Part No. **N6502001**

Environmental

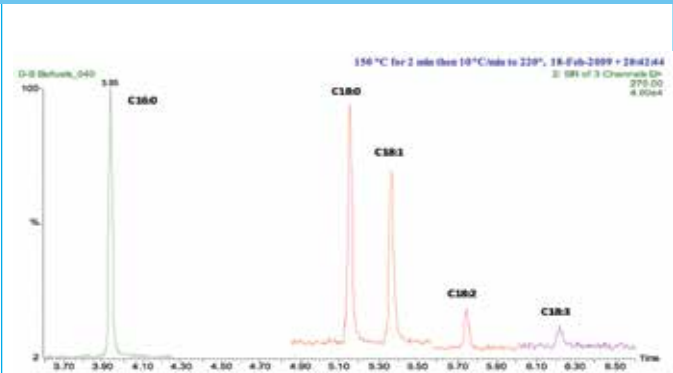
Analysis of Volatile Organic Compounds (VOCs) in Air Using US EPA Method TO-17.



Recommended Column: Elite-624, 60 m x 0.25 mm x 1.4 µm, Part No. **N9316006**

Industrial

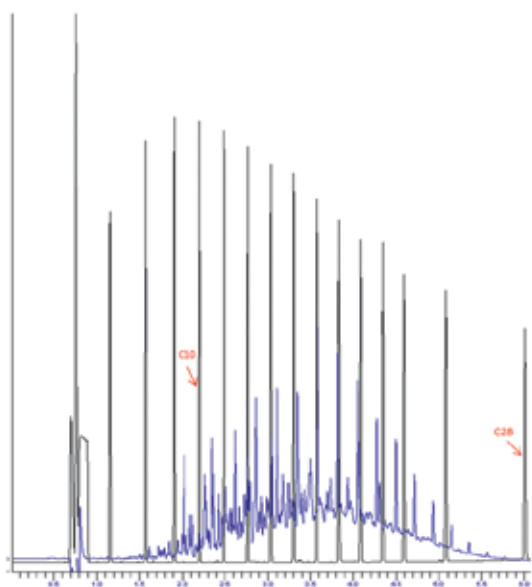
Fatty Acid Methyl Ester Contamination of Aviation Fuel by GC/MS.



Recommended Column: Elite-23, 50 m x 0.25 mm x 0.25 µm, Part No. **N9316506**

Industrial

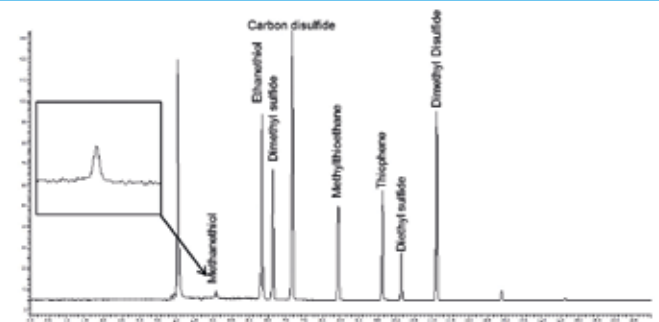
EPA Method 8015C for Diesel Range Organics.



Recommended Column: Elite-1, 15 m x 0.25 mm x 1.0 µm, Part No. **N9316006**

Industrial

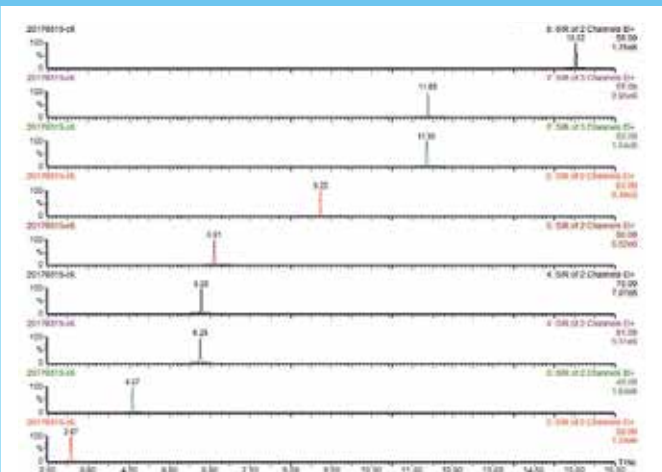
Determination of sulfur compounds in air by online TD-GC/FPD.



Recommended Column: Elite-5, 60 m x 0.32 mm x 0.25 mm, Part No. **N9316090**

Industrial

Determination of nine carbonates in lithium ion battery electrolyte by GC/MS.

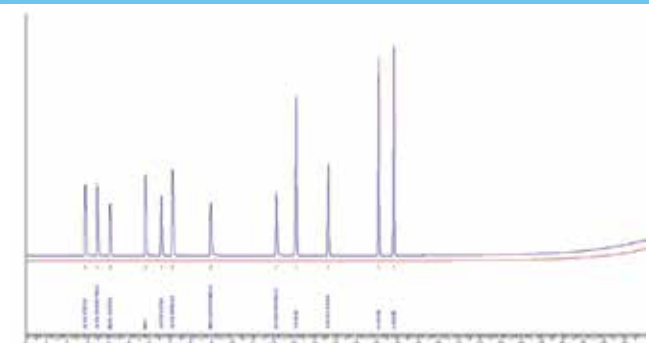


Recommended Column: Elite-35ms, 30 m x 0.25 mm x 0.25 μ m (Part No. **N9316438**)

Liner: Capillary splitless deactivated glass liners with deactivated wool (**N9306235**)

Food and Flavor

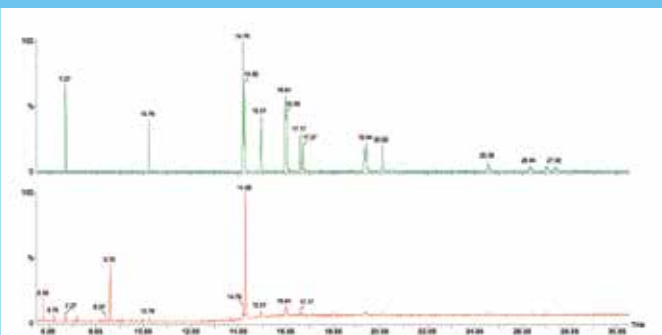
Determination of Residual Solvents in Flexible Packaging According to EN 13628-2:2004.



Recommended Column: Elite-1, 30 m, 0.32 mm, 3.0 μ m, Part No. **N9316025**

Food

The Preparation and Analysis of Polycyclic Aromatic Hydrocarbons in Meat by GC/MS.

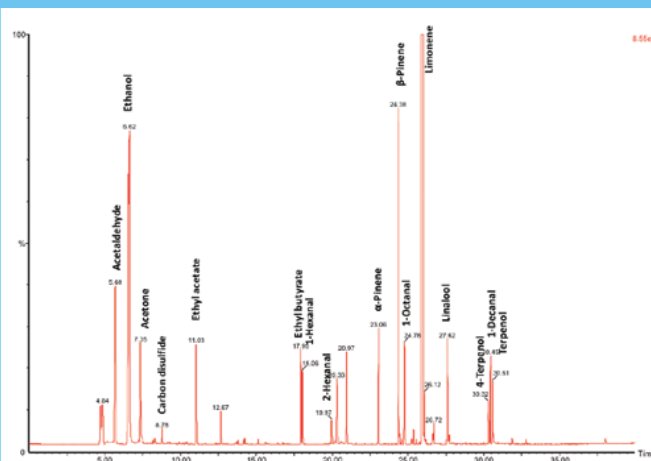


Column: Elite-5ms column, 30 m x 0.25 mm x 0.25 μ m, Part No. **N9316282**

Liner Deactivated Liner, Part No. **N6502002**

Food and Flavor

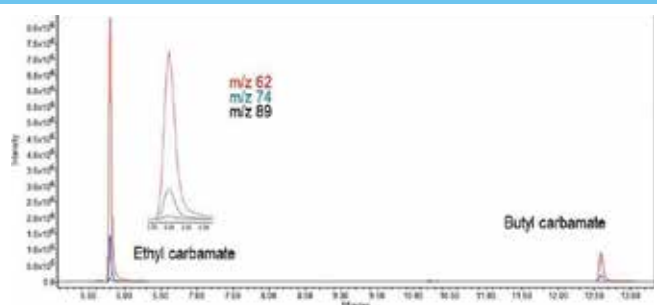
The Qualitative Characterization of Fruit Juice Flavor using a TurboMatrix Hs Trap and a Clarus SQ 8 GC/MS.



Recommended Column: Elite-5ms, 60 m x 0.25 mm x 1.0 μ m, Part No. **N9316287**

Food and Flavor

Analysis of Ethyl Carbamate Using GC/MS

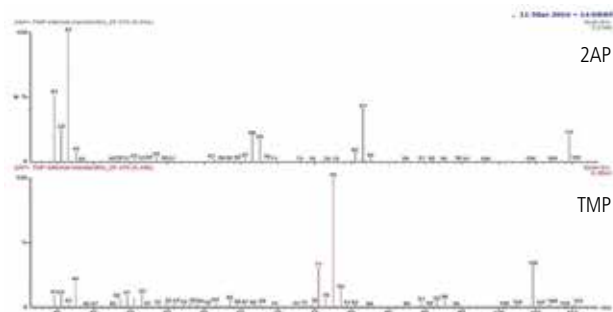


Recommended Column: Elite-35, 30 m x 0.25 mm x 0.25 μ m
(Part No. **N9316145**)

Liner: 2 mm ID glass (no glass wool)

Food and Flavor

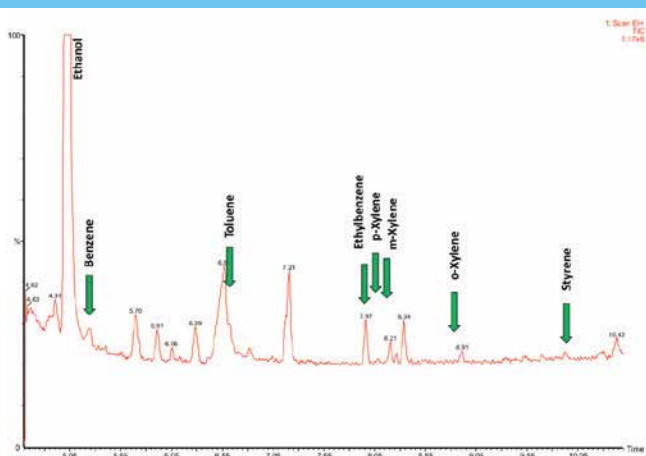
Quantification of Rice Aroma, 2-Acetyl-1-Pyrroline (2-AP), Using TurboMatrix Headspace Trap Coupled with GC/NPD and GC/MS



Recommended Column: Elite-5ms, 30 m x 0.32 mm x 0.25 μ m
(Part No. **N9316293**)

Food and Flavor

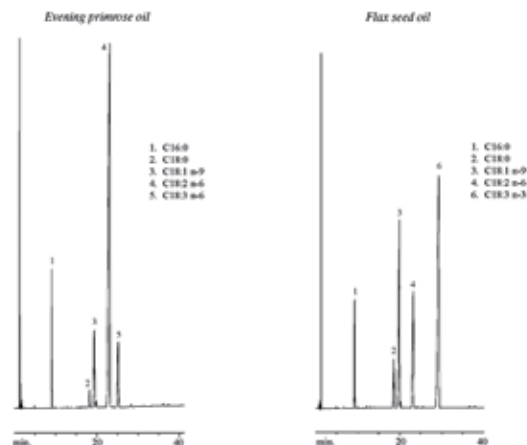
The Determination of Low Levels of Benzene, Toluene, Ethylbenzene, Xylenes and Styrene in Olive Oil Using a Turbomatrix HS and a Clarus SQ 8 GC/MS



Recommended Column: Elite-WAX, 30 m x 0.25 mm x 1.0 μ m
(Part No. **N9316485**)

Food and Flavor

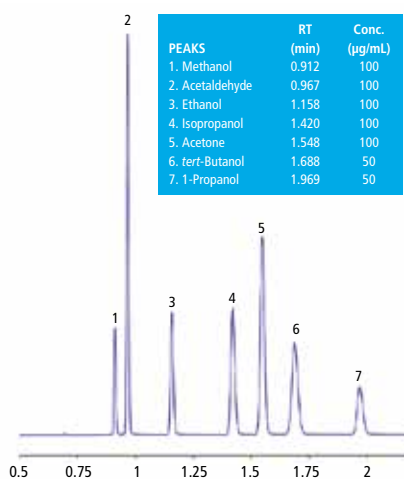
Determination of Omega-3 (n-3) and Omega-6 (n-6) Fatty Acid Composition in Evening Primrose Oil and Flax Seed Oil



Recommended Column: Elite-WAX, 30 m x 0.25 mm x 0.25 μ m
(Part No. **N9316403**)

Clinical

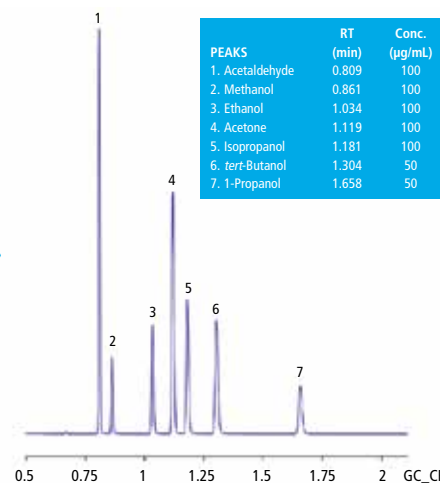
Blood Alcohol Analysis.

Elite-BAC 1 Advantage, 10 m x 0.18 mm x 1.0 µm, Part No. **N9315075**

- Baseline resolution
- Symmetrical peaks
- Run time under 2 min

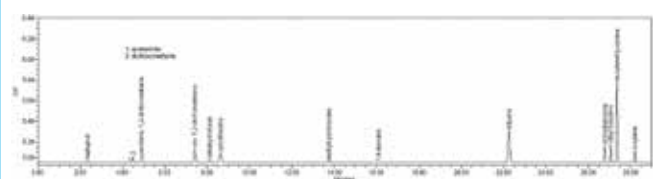
Clinical

Blood Alcohol Analysis.

Elite-BAC 2 Advantage, 10 m x 0.18 mm x 1.0 µm, Part No. **N9315076**

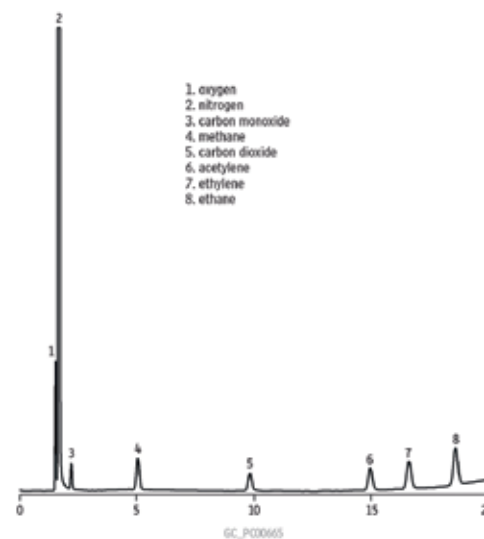
Pharma

Residual solvents in pharmaceuticals by USP 467.

Elite-624, 30 m x 0.32 mm x 1.8 µm, Part No. **N9316203**

Petrochemical

Analysis of Permanent Gases and C1+C2 Hydrocarbons with the Elite-Carbon Column.

Column: Elite-Carbon, 2 m x 1.0 mm, 100/120 mesh, Part No: **N9303926**

Column requires an installation kit: for valve applications, Part No: **N9303450**;
for direct injections Part No: **N9303451**

Cross Reference Chart by Phase

PerkinElmer	Phase Composition	USP	Agilent®	Alltech®
Elite-1, Elite-ms	Dimethyl polysiloxane	G1, G2, G38	HP-1, DB-1, CP-Sil 5 CB	007-1AT-1, EC-1
Elite-1ht	Dimethyl polysiloxane	G1, G2, G38	DB-1ht	AT-1ht
Elite-1ms	Dimethyl polysiloxane (low bleed)	G1, G2, G38	HP-1, HP-1ms, HP-1msUI, DB-1, DB-1MS, DB-1msUI, Ultra-1, VF-1ms, CP-Sil 5 CB	AT-1ms
Elite-5	Diphenyl dimethyl polysiloxane	G27, G36	HP-5, DB-5, CP-Sil 8 CB	EC-5, AT-5
Elite-5ht	Diphenyl dimethyl polysiloxane	G27, G36	DB-5ht, VF-5ht	
Elite-5ms	1,4-bis(dimethylsiloxy)phenylene dimethyl polysiloxane	G27, G36	DB-5ms, DB-5msUI, VF-5ms, CP Sil 8 CB MS	
Elite-5ms II	Diphenyl dimethyl polysiloxane	G27, G36	HP-5, HP-5ms, DB-5, Ultra-2	
Elite-17	Phenyl methyl polysiloxane	G3	DB-17, CP Sil 24 CB	AT-50
Elite-17ht	Phenyl methyl polysiloxane	G3	DB-17ht	
Elite-17ms	Phenyl methyl polysiloxane	G3	HP-50+, DB-17, DB-17ht, DB-608, CP Sil 24 CB	
Elite-17ms+	Diphenyl dimethyl polysiloxane	G3	DB-17ms, VF-17ms, CP-Sil 24 CB	
Elite-35	Unique Phase	G42	HP-35, DB-35, VF-35	AT-35, AT-35ms
Elite-35ms	Diphenyl dimethyl polysiloxane	G42	DB-35ms, DB35msUI	
Elite-200	Unique Phase	G6	DB-210, DB-200, VF-200ms	AT-210
Elite-225	Trifluoropropylmethyl polysiloxane	G7, G19	DB-225ms, CP Sil 43 CB	AT-225
Elite-624	Cyanopropylmethyl phenylmethyl polysiloxane	G43	DB-1301, DB-624, VF-624ms, CP-1301	AT-624, AT-1301
Elite-624ms	Cyanopropylphenyl dimethyl polysiloxane	G43	DB-624, VF-624ms, CP-Select 624 CB	
Elite-1301	Unique phase	G43	DB-1301, DB-624, VF-1301ms, VF-624ms, CP-1301	AT-624, AT-1301
Elite-1701	Cyanopropylphenyl dimethyl polysiloxane	G46	DB-1701R, DB-1701, CP Sil 19 CB, VF-1701ms, VF-1701 Pesticides	AT-1701
Elite-WAX	Cyanopropylphenyl dimethyl polysiloxane	G14, G15, G16, G20, G39	DB-Wax, CP Wax 52 CB, VF WAX	AT-WAXms, EC-WAX
Elite-WAX ETR	Polyethylene glycol	G14, G15, G16, G20, G39	HP-INNOWax, CP Wax 52 CB, VF-WAX MS	AT-WAX

Cross Reference Chart by Application

PerkinElmer	Applications	Agilent®	Alltech®	Machery-Nagel®
Elite-23	cis/trans FAMES and Dioxins	VF-23ms	AT-Silar90	
Elite-502	Volatile analytes by EPA Method 502.2	DB-502.2		
Elite-608	Semivolatile pesticides by EPA Method 608	DB-608, HP-608		
Elite-2560	cis/transFAMES	HP-88, CP Sil 88		
Elite-Alumina PLOT	Light hydrocarbons	Alumina PLOT		
Elite-BAC 1 Advantage	Blood alcohol testing	DB-ALC1		
Elite-BAC 2 Advantage	Blood alcohol testing	DB-ALC2		
Elite-CLPesticides	Organochlorine pesticides by EPA Methods 504, 608, 8081, 8082, and CLP	DB-CLP1		
Elite-CLPesticides2	Organochlorine pesticides by EPA Methods 504, 608, 8081, 8082, and CLP	DB-CLP2		
Elite-Cyclosil B	Chiral separations			
Elite-FFAP	Free fatty acids	HP-FFAP, DB-FFAP, CP WAX58 CB, CP-FFAP CB	AT-AquaWax DA, AT-1000	PERMABOND FFAP, OPTIMA FFAP, OPTIMA FFAP Plus
Elite-Molesieve PLOT	Permanent gases			
Elite-PONA	Detailed analysis of petroleum naphtha	HP-PONA, DB-Petro, CP Sil PONA CB		
Elite-Carbon	Permanent gases and light hydrocarbons			
Elite-SimDist	Simulated Distillation and Hydrocarbons – ASTM 2887	DB-2887, CP SimDist	AT-2887	
Elite-THP	Total petroleum hydrocarbons			
Elite-VMS	Volatiles Organic Pollutants by GC-MS for EPA Methods 8260,624,524	Unique Phase		
Elite-VRX	Volatile analytes by EPA Methods 502.2, 601, 602, 8010, 8020	DB-VRX		
Elite-XLB	Polychlorinated biphenyl analytes by EPA Methods 8082, 6008, PCB congeners	DB-XLB, VF-XMS		

Machery-Nagel®	Ohio Valley®	Phenomenex®	Quadrex®	Restek®	SGE®	Supelco®
OPTIMA 1	OV-1	ZB-1	007-1	Rtx-1, Mtx-1	BP1	SPB-1
		ZB-1HTInferno		Rxi-1HT		
OPTIMA 1 MS, OPTIMA 1 MS Accent		ZB-1, ZB-1ms	007-1	Rxi-1ms	BP-1	SPB-1, Equity-1
OPTIMA 5	OV-5	ZB-5	007-5	Rtx-5	BP5	SPB-5
OPTIMA 5HT		ZB-5HTInferno		Rxi-5HT	HT5	
OPTIMA 5 MS Accent	OV-5MS	ZB-5msi	007-5MS	Rxi-5Sil MS	BPX5	SLB-5ms
OPTIMA 5, OPTIMA 5 MS		ZB-5, ZB-5ms		Rxi-5ms	BP5ms	
	OV-17		007-17	Rtx-50		SPB-50
OPTIMA 17		ZB-50		Rxi-17		SPB-17
OPTIMA 17 MS		ZB-50		Rxi-17Sil MS	BPX50	
	OV-35	ZB-35	007-35	Rtx-35	BPX35, BPX608	SPB-35, SPB-608
OPTIMA 35 MS		MR2		Rxi-35Sil MS	BPX35	
OPTIMA 210				Rtx-200		
OPTIMA 225	OV-225		007-225	Rtx-225	BP225	SPB-225
OPTIMA 1301, OPTIMA 624	OV-624	ZB-624	007-1301, 007-624	Rtx-624	BP624	SPB-624
OPTIMA 624 LB		ZB-624		Rxi-624Sil MS	BP624	
OPTIMA 1301, OPTIMA 624	OV-1301	ZB-624	007-1301, 007-624	Rtx-624	BP624	SPB-624
OPTIMA 1701	OV-1701	ZB-1701, ZB-1701P	007-1701	Rtx-1701	BP10	Equity-1701
OPTIMA WAX	Carbowax 20M	ZB-Wax	007-CW	Rtx-Wax	BP20	
OPTIMA WAX plus		ZB-WaxPLUS		Stabilwax		Supelcowax-10

Ohio Valley®	Phenomenex®	Quadrex®	Restek®	SGE®	Supelco®
		007-23		BPX70	SP-2330, SP-2331, SP-2380
			Rtx-502.2		VOCOL
		007-608			SPB-608
			Rt-2560		SPB-2560
	ZB-BAC1		Rtx-BAC Plus 1		
	ZB-BAC2		Rtx-BAC Plus 2		
			Rtx-CLPesticides		
			Rtx-CLPesticides 2	Rtx-200	
OV-351	ZB-FFAP		Stabilwax-DA	BP-21	Nukol
			Rtx-DHA	BP1PONA	Petrocol DH
			Rtx-2887		Petrocol 2887, Petrocol EX2887
	MR1, ZB-XLB		Rxi-XLB		

GC Columns with Integrated Guard Columns

Integrated Guard columns: guard columns WITHOUT connections – protecting your analytical GC column has never been this easy!

For analysts who find it inconvenient to make a leak-free connection between the guard column and the analytical column, we offer Integrated Guard columns. These innovative columns incorporate both guard column and analytical column in a continuous length of tubing, eliminating the connection and all connection-associated problems! The guard column section is marked separately from the analytical column, using high-temperature string. A GC column with an integrated Guard column is so economical that we challenge you to compare our price against that of a GC column and guard with a conventional connection, even if you assemble it yourself.

Features and Benefits

- No leaks for a more robust method
- No column connections for easier, faster maintenance
- No peak distortions due to connector dead volume and thermal capacity

Elite-1

ID (mm)	df (µm)	Temp Limits (°C)	Integra-Guard	30 m Part No.
0.25	0.25	-60 to 330/350	5 m	N9305600
0.53	1.00	-60 to 330/350	5 m	N9305601
	5.00	-60 to 340/360	5 m	N9305602

Elite-5

ID (mm)	df (µm)	Temp Limits (°C)	Integra-Guard	30 m Part No.	60 m Part No.
0.25	0.25	-60 to 330/350	5 m	N9305603	
	0.25	-60 to 330/350	10 m	N9305604	
	1.00	-60 to 330/350	5 m	N9305605	
0.32	0.25	-60 to 330/350	5 m	N9305606	N9305607
	1.00	-60 to 330/350	5 m	N9305608	
0.53	5.00	-60 to 340/360	5 m	N9305609	

Elite-5ms II

ID (mm)	df (µm)	Temp Limits (°C)	Integra-Guard	15 m Part No.	30 m Part No.
0.25	0.10	-60 to 330/350	5 m		N9305610
	0.25	-60 to 330/350	5 m	N9305611	N9305612
	0.25	-60 to 330/350	10 m		N9305613
	0.50	-60 to 330/350	5 m		N9305614
	0.50	-60 to 330/350	10 m	N9305615	N9305616
0.32	0.25	-60 to 330/350	5 m		N9305617
	1.00	-60 to 330/350	5 m		N9305618

Elite-5ms

ID (mm)	df (µm)	Temp Limits (°C)	Integra-Guard	30 m Part No.	60 m Part No.
0.25	0.10	-60 to 330/350	5 m		
	0.25	-60 to 330/350	5 m		N9305619
	0.25	-60 to 330/350	10 m	N9305620	N9305621
	0.50	-60 to 330/350	5 m	N9305622	N9305623
	0.50	-60 to 330/350	10 m		N9305624
0.32	0.50	-60 to 330/350	5 m		N9305625
	1.00	-60 to 330/350	5 m		N9305626

Elite-624

ID (mm)	df (µm)	Temp Limits (°C)	Integra-Guard	30 m Part No.
0.25	1.40	-60 to 330/350	5 m	N9305627
0.32	1.80	-60 to 330/350	5 m	N9305628
0.53	3.00	-60 to 340/360	5 m	N9305629

Elite-1301

ID (mm)	df (µm)	Temp Limits (°C)	Integra-Guard	30 m Part No.
0.53	3.00	-60 to 330/350	5 m	N9305630

Elite-1701

ID (mm)	df (µm)	Temp Limits (°C)	Integra-Guard	30 m Part No.
0.25	0.25	-60 to 330/350	5 m	N9305631

Elite-WAX ETR

ID (mm)	df (µm)	Temp Limits (°C)	Integra-Guard	30 m Part No.
0.25	0.25	-60 to 330/350	5 m	N9305632
0.32	1.00	-60 to 330/350	5 m	N9305633
0.53	1.00	-60 to 340/360	5 m	N9305634

Elite-1

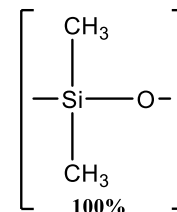
The Elite-1 100% dimethyl polysiloxane columns is a highly versatile, non-polar, cross-linked general purpose phase that is rugged, exhibiting long column lifetime, low bleed, and high maximum operating temperatures. The Elite-1ht (high-temperature) is designed for reduced bleed when operating at higher temperature (up to 400 °C).

Primary Applications: Elite-1 columns are ideal for the analysis of non-polar petrochemical samples, such as detailed hydrocarbon analysis, hydrocarbon gases, petroleum oxygenates, petroleum aromatics, fuels, waxes, oils, sulfur compounds, mercaptans, and carbon disulfide. It also is an excellent phase for solvents, chemicals, flavors, fragrances, essential oils, air toxins, chlorofluorocarbons, arson analysis, pesticides, hydrocarbons and high-temperature applications.

Features and Benefits

- Temperature Range: -60 °C to 350 °C
- Equivalent to USP G1, G2, and G38 phases

Elite-1 Structure



ID (mm)	df (µm)	Temp Limits (°C)	5 m Part No.	15 m Part No.	30 m Part No.	60 m Part No.	105 m Part No.
0.25	0.10	-60 to 330/350		N9316006	N9316009	N9316012	
	0.25	-60 to 330/350		N9316007	N9316010	N9316013	
	0.50	-60 to 330/350		N9316686	N9316685		
	1.00	-60 to 320/340		N9316008	N9316011	N9316014	
0.32	0.10	-60 to 330/350		N9316016	N9316022	N9316027	
	0.25	-60 to 330/350	N9316596	N9316017	N9316023	N9316028	
	0.50	-60 to 330/350			N9316021¹	N9316691	
	1.00	-60 to 320/340		N9316018	N9316024	N9316029	
	1.50	-60 to 310/330			N9316050	N9316580	
	3.00	-60 to 280/300		N9316019	N9316025	N9316030	
	5.00	-60 to 260/280		N9316020	N9316026	N9316031	
0.45	0.13	-60 to 330/350		N9316032			
	0.42	-60 to 310/330		N9316037	N9316041		
	1.27	-60 to 310/330		N9316034	N9316038	N9316042	
	2.55	-60 to 270/290		N9316035	N9316039		N9316043
	4.25	-60 to 260/280	N9316032	N9316036	N9316040		
0.53	0.15	-60 to 320/340		N9316045			
	0.50	-60 to 310/330		N9316049	N9316053		
	1.50	-60 to 310/330		N9316046	N9316050	N9316054	
	3.00	-60 to 270/290		N9316047	N9316051	N9315499	N9316692
	5.00	-60 to 270/290	N9316044	N9316048	N9316052		

ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.	12 m Part No.	20 m Part No.	25 m Part No.	50 m Part No.
0.05	0.05	-60 to 330/350	N9316056				
	0.20	-60 to 330/350	N9316057				
0.10	0.10	-60 to 330/350	N9316058				
	0.40	-60 to 320/340			N9316061		
0.18	0.18	-60 to 330/350	N9316001		N9316003		
	0.40	-60 to 320/340	N9316002		N9316004		N9316005²
0.20	0.33	-60 to 330/350		N9316062		N9316063	N9316064

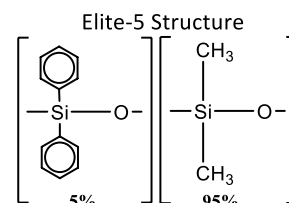
¹ N9316021: Elite-1, 25M x 0.32 mm x 0.52 µm ² The length of N9316005 is 40 m

Elite-5

A 5% diphenyl/95% dimethyl polysiloxane stationary phase is a general purpose, low polarity phase that is the most popular GC stationary phase used for a wide variety of applications. These columns are commonly used for analysis of drugs, pesticides, hydrocarbons, PCBs, essential oils, semivolatiles and solvent impurities. The Elite-5 is a crosslinked phase in which all residual catalysts and low molecular weight fragments have been removed providing a tight mono-modal distribution and extremely low bleed.

Features and Benefits

- Temperature Range: -60 °C to 350 °C
- Equivalent to USP G27 and G36 phases



ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	40 m Part No.	60 m Part No.
0.05	0.05	-60 to 325/350	N9316104					
	0.20	-60 to 325/350	N9316105					
0.10	0.10	-60 to 330/350			N9316108			
	0.40	-60 to 320/340			N9316109			
0.18	0.18	-60 to 330/350	N9316066		N9316068			
	0.4	-60 to 320/340	N9316067		N9316069		N9316071	
0.20	0.33	-60 to 330/350	N9316110¹		N9316111¹		N9316112¹	
0.25	0.10	-60 to 330/350		N9316072		N9316075		N9316078
	0.25	-60 to 330/350		N9316073		N9316076		N9316079
	1.00	-60 to 320/340		N9316074		N9316077		N9316080
0.32	0.10	-60 to 330/350		N9316081		N9316085		N9316089
	0.25	-60 to 330/350		N9316082		N9316086		N9316090
	1.00	-60 to 320/340		N9316083		N9316087		N9316091
0.45	0.13	-60 to 340/350						N9316097
	0.42	-60 to 310/330		N9316093		N9316096		
	1.27	-60 to 310/330		N9316092		N9316094		
	4.25	-60 to 260/280				N9316095		
0.53	0.50	-60 to 310/330		N9316099		N9316102		
	1.50	-60 to 310/330		N9316098		N9316100		N9316103
	5.00	-60 to 270/290				N9316101		

¹ The lengths of **N9316110**, **N9316111** and **N9316112** are 12 m, 25 m and 50 m, respectively

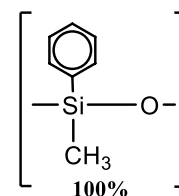
Elite-17

The Elite-17 columns are general purpose, mid-polarity, (50%-phenyl)-methylpolysiloxane phases for the analysis of pesticides, herbicides, phthalate esters, sterols, and rosin acids. All Elite-17 phases incorporate a crosslinking technology for very low bleed and long column lifetimes.

Features and Benefits

- Temperature Range: 40 °C to 330 °C
- Equivalent to USP G3 phase

Elite-17 Structure



ID (mm)	df (µm)	Temp Limits (°C)	5 m Part No.	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	60 m Part No.
0.05	0.05	40 to 280/300		N9316138				
	0.10	40 to 280/300		N9316139				
0.10	0.02	40 to 280/300		N9316141				
	0.10	40 to 280/300		N9316140		N9316142		
	0.20	40 to 280/300				N9316143		
0.18	0.18	40 to 310/330		N9316113			N9316115	
	0.3	40 to 300/320		N9316114			N9316116	
0.25	0.15	40 to 300/320			N9316117		N9316120	
	0.25	40 to 300/320			N9316118		N9316121	N9316123
	0.50	40 to 290/310			N9316119		N9316122	
0.32	0.15	40 to 300/320			N9316124		N9316127	
	0.25	40 to 300/320			N9316125		N9316128	
	0.50	40 to 290/310			N9316126		N9316129	
0.45	0.85	40 to 270/290			N9316131		N9316132	N9316133
0.53	1.00	40 to 260/280			N9316135		N9316136	N9316137
	2.00	40 to 250/270	N9316134					

Elite-35

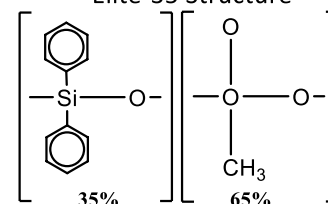
The Elite-35 columns are general purpose, mid-polarity columns that are coated with a crosslinked, (35%-diphenyl)-dimethylpolysiloxane commonly used for organochlorine pesticides, PDB congeners (e.g. Alaclor mixes), herbicides, pharmaceuticals, sterols, phthalate esters and rosin acids. The Elite-35 column is a popular confirmation column for pesticides and herbicides, in conjunction with an Elite-5 or Elite-1701. The higher phenyl content results in useful elution order and retention time changes.

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.15	40 to 300/320		N9316144
	0.25	40 to 300/320		N9316145
0.32	0.25	40 to 300/320		N9316146
	0.50	40 to 290/310		N9316147
0.45	0.42	40 to 290/310		N9316150
	0.85	40 to 280/300	N9316148	N9316149
0.53	0.50	40 to 260/280		N9316153
	1.00	40 to 260/280	N9316151	N9316152

Features and Benefits

- Temperature Range: 40 °C to 300/320 °C
- Equivalent to USP G42 phase

Elite-35 Structure



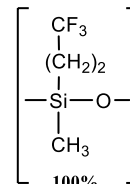
Elite-200

Elite-200 columns are comprised of a (trifluoropropyl)-methylpolysiloxane stationary phase that has a unique selectivity which changes elution orders and resolves compounds that phenyl, cyano, or Carbowax® phases cannot. These columns have accomplished many difficult separations not possible on any other bonded stationary phase. Many analysts consider these the best, most inert mid-polarity columns available. The Elite-200 column offers exceptional thermal stability, low bleed, and superior inertness – even for active compounds such as phenols, and with sensitive detectors such as ECDs, NPDs, and MSDs. It is a good general purpose column for solvents, Freon® fluorocarbons, alcohols, ketones, silanes, glycols, and drugs of abuse. An excellent column for confirmation of phenols, nitrosamines, organochlorine pesticides, chlorinated hydrocarbons, and chlorophenoxy herbicides when paired with an Elite-5 column.

Features and Benefits

- Temperature Range: 40 °C to 320/340 °C
- Equivalent to USP G6 phase

Elite-200 Structure



ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.25	0.10	-20 to 320/340	N9316616	N9316617	
	0.25	-20 to 320/340	N9316618	N9316619	
	0.50	-20 to 310/330	N9316620	N9316621	
	1.00	-20 to 290/310	N9316622	N9316623	N9316624
0.32	0.25	-20 to 320/340	N9316625	N9316626	
	0.50	-20 to 310/330	N9316627	N9316628	
	1.00	-20 to 290/310	N9316629	N9316630	N9316631
	1.50	-20 to 280/300	N9316632	N9316633	N9316634
0.53	0.25	-20 to 310/330	N9316635	N9316636	N9316637
	0.50	-20 to 300/320	N9316638	N9316639	N9316640
	1.00	-20 to 290/310	N9316641	N9316642	N9316643
	1.50	-20 to 280/300	N9316644	N9316645	N9316646
	3.00	-20 to 260/280	N9316647	N9316648	N9316649

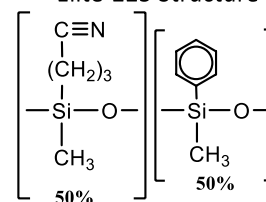
Elite-225

The Elite-225 is a general purpose column for the analysis of FAMES, carbohydrates, sterols and flavor compounds. The cyanopropyl-containing Elite-225 phase is slightly less polar than bonded polyethylene glycol (PEG) phases, but it can be used for many of the same applications. Improvements to the Elite-225 polymer have increased thermal stability, reduced bleed, and improved inertness. The Elite-225 column provides a 20 °C thermal stability advantage over other '225' columns because of our unique polymer synthesis technology and proprietary siloxane deactivation. In most similar columns, the Carbowax® deactivation layer is not fully compatible with the cyanopropyl siloxane polymer, which can cause adsorption, tailing of active compounds, and lower efficiency.

Features and Benefits

- Temperature Range: 40 °C to 220/240 °C
- Equivalent to USP G7, G19 phases

Elite-225 Structure



ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	60 m Part No.
0.05	0.05	45 to 220/240	N9316186				
0.10	0.10	45 to 220/240			N9316187		
0.18	0.2	45 to 220/240	N9316172		N9316173		
0.25	0.15	45 to 220/240		N9316174		N9316176	N9305631
	0.25	45 to 220/240		N9316175		N9316177	
0.32	0.15	45 to 220/240		N9316178		N9316180	
	0.25	45 to 220/240		N9316179		N9316181	
0.45	0.85	40 to 200/220		N9316182		N9316183	
0.53	1.00	40 to 200/220		N9316184		N9316185	

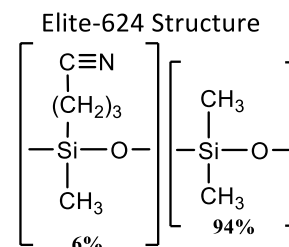
Elite-624

The Elite-624 column is a specially engineered, low to mid-polarity (6%-cyanopropylphenyl)-dimethylpolysiloxane phase. The unique polarity of the Elite-624 column makes it ideal for analyzing volatile organic pollutants and it is recommended in U.S. EPA methods. Although the Elite-502.2 column is recommended in many methods, the Elite-624 column offers better resolution of early eluting compounds.

The Elite-624 phase produces greater than 90% resolution of the first six gases in EPA Methods 8260 and 524.2. This stationary phase is especially well-suited for EPA Method 524.2 since it resolves 2-nitropropane from 1,1-dichloropropanone, which share quantification ion m/z 43 and must be separated chromatographically.

Features and Benefits

- Temperature Range: -20 °C to 240 °C
- Equivalent to USP G43 phase
- Well suited for EPA methods 524.2 and 8260



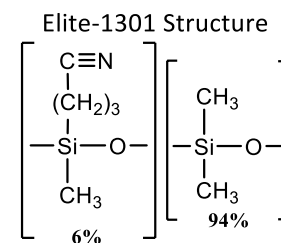
ID (mm)	df (μm)	Temp Limits (°C)	20 m Part No.	25 m Part No.	30 m Part No.	60 m Part No.	75 m Part No.
0.18	1.00	-20 to 240	N9316200				
0.20	1.12	-20 to 240		N9316209			
0.25	1.40	-20 to 240			N9316201	N9316202	
0.32	1.80	-20 to 240			N9316203	N9316204	
0.45	2.55	-20 to 240			N9316205		N9316206
0.53	3.00	-20 to 240			N9316207		N9316208

Elite-1301

The Elite-1301 column is a general purpose low to mid-polarity phase commonly used for the analysis of residual solvents, alcohols, oxygenates and volatile organic compounds. The stationary phase is (6%-cyanopropylphenyl)-methylpolysiloxane. Many analysts feel the Elite-1301 column is the best cyanosiloxane bonded stationary phase available, with no other column supplier providing lower bleed, longer lifetime, or better inertness. Our polymer is fully characterized to ensure long-term reproducibility, column-to-column consistency, and low bleed – even with sensitive detectors such as ECD and MS.

Features and Benefits

- Temperature Range: -20 °C to 280 °C
- Equivalent to USP G43 phase



ID (mm)	df (μm)	Temp Limits (°C)	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	60 m Part No.
0.18	0.40	-20 to 280	N9316210		N9316211		
0.25	0.25	-20 to 280		N9316212		N9316214	N9316216
	1.00	-20 to 260/280				N9316215	N9316217
0.32	0.25	-20 to 280		N9316218		N9316220	N9316222
	1.00	-20 to 260/280		N9316219		N9316221	N9316223
0.45	0.85	-20 to 260/280		N9316224		N9316225	
0.53	1.00	-20 to 260/280		N9316226		N9316227	

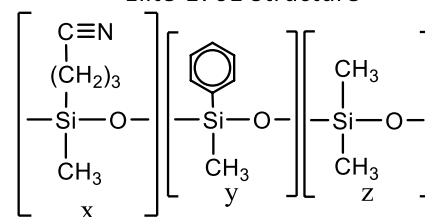
Elite-1701

The Elite-1701 is a good mid-polarity general purpose column for the analysis of alcohols, oxygenates, PCB congeners (e.g. Aroclor mixes), and pesticides. With a stationary phase of (14%-cyanopropylphenyl)-methylpolysiloxane it is one of the more popular stationary phases used in capillary GC. The mix of cyano and phenyl functional groups increases the polarity and offers a different elution order relative to less polar Elite-1 or Elite-5 columns. An Elite-1701 column is ideal for confirmation analysis in combination with an Elite-35 or Elite-5 column. The polymer is fully characterized to ensure long-term reproducibility, column-to-column consistency, and low bleed – even with sensitive detectors such as ECD and MS.

Features and Benefits

- Temperature Range: -20 °C to 280 °C
- Equivalent to USP G46 phase

Elite-1701 Structure



ID (mm)	df (μm)	Temp Limits (°C)	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	50 m Part No.	60 m Part No.
0.05	0.05	-20 to 280	N9316257					
	0.20	-20 to 280	N9316258					
0.10	0.10	-20 to 280				N9316259		
0.18	0.4	-20 to 270/280	N9316228		N9316229			
0.25	0.15	-20 to 280		N9316230				N9316236
	0.25	-20 to 280		N9316231		N9316234		N9316237
	1.00	-20 to 260/280		N9316232		N9316235		N9316238
0.32	0.15	-20 to 280		N9316239		N9316242		N9316246
	0.25	-20 to 280		N9316240		N9316243		N9316247
	1.00	-20 to 260/280		N9326141		N9316244	N9316245	N9316248
0.45	0.42	-20 to 260/270		N9316250		N9316252		
	0.85	-20 to 250/270		N9316249		N9316251		
0.53	0.50	-20 to 260/270		N9316254		N9316256		
	1.00	-20 to 250/270		N9316253		N9316255		

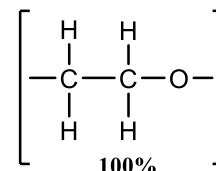
Elite-WAX

The Elite-WAX column, a Polar Polyethylene glycol (PEG) stationary phase column, is a general purpose polar PEG phase commonly used for the analysis of polar compounds like alkenols, glycols and aldehydes. The extended operating temperature range up to 250 °C allowing analysis of compounds that have a wide volatility range. Selectivity of the Elite-WAX is comparable to other Carbowax® columns for compounds of intermediate to high polarity.

Features and Benefits

- Temperature Range: 20 °C to 250 °C
- Equivalent to USP G14, G15, G16, G20 and G39 phases

Elite-WAX Structure



ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.25	0.15	20 to 250	N9316399	N9316402	N9316405
	0.25	20 to 250	N9316400	N9316403	N9316406
	0.50	20 to 250	N9316401	N9316404	N9316407
0.32	0.15	20 to 250	N9316408	N9316411	
	0.25	20 to 250	N9316409	N9316412	N9316416
	0.50	20 to 250	N9316410	N9316413	N9316417
0.45	0.42	20 to 250	N9316420	N9316422	
	0.85	20 to 240/250	N9316419	N9316421	N9316423
	1.70	50 to 230	N9316418		
0.53	0.50	20 to 250	N9316426	N9316428	
	1.00	20 to 240/250	N9316425	N9316427	N9316429

Elite-MWAX: Metal Column

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.
0.53	1.00	20 to 240/250	N9316478

Elite-WAX ETR

The Elite-WAX ETR (Extended Temperature Range) columns are manufactured with a special bonding process that binds the Carbowax® polymer to the polar deactivated silica. This results in a low bleed WAX column that exhibits extended lifetimes even when repeatedly heated to 260 °C. The bonding mechanism of this column produces very stable polar retention that does not shift as often as observed with other WAX-type columns. Additionally, the bonding mechanism makes this column rugged enough to stand up to repeated water injections and allows solvent washing to rejuvenate the column. The Elite-WAX ETR can be used for a wide range of compounds and matrices such as: FAMES, flavor compounds, essential oils, solvents, aromatics, acrolein/acrylonitrile (EPA 603), oxygenated compounds, impurities in water matrices and alcoholic beverages.

Features and Benefits

- Temperature Range: 40 °C to 260 °C
- Equivalent to USP G14, G15, G16, G20 and G39 phases
- Suitable for EPA method 603

ID (mm)	df (µm)	Temp Limits (°C)	5 m Part No.	15 m Part No.	30 m Part No.	50 m Part No.	60 m Part No.
0.25	0.25	40 to 250		N9316547	N9316549		N9316551
	0.50	40 to 250		N9316548	N9316550		
0.32	0.25	40 to 250		N9316552	N9316555		N9316559
	0.50	40 to 250		N9316553	N9316556		N9316560
	1.00	40 to 240/250		N9316554	N9316557	N9316558	N9316561
0.45	0.85	40 to 240		N9316563	N9316564		N9316565
	1.70	40 to 230/250	N9316562				
0.53	1.00	40 to 240/250		N9316567	N9316569		N9316571
	2.00	40 to 220/230	N9316566	N9316568	N9316570		

GC Columns for GC/MS

The Elite range of MS columns are engineered for extremely low bleed for MS detectors. Covering a range of polarities and applications.

Elite-1ms

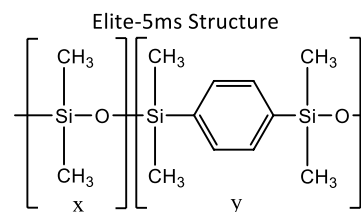
ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	20 m Part No.	30 m Part No.	60 m Part No.
0.18	0.18	-60 to 330/350		N9305635		
	2.00	-60 to 330/350		N9305636		
0.25	0.25	-60 to 330/350	N9305637		N9305638	N9305639
	0.50	-60 to 330/350	N9305640		N9305641	N9305642
	1.00	-60 to 330/350	N9305643		N9305644	N9305645
0.32	0.25	-60 to 330/350	N9305646		N9305647	N9305648
	0.50	-60 to 330/350	N9305649		N9305650	N9305651
	1.00	-60 to 330/350			N9305652	N9305653
	4.00	-60 to 330/350			N9305654	

Elite-5ms

The Elite-5ms phase incorporates a phenyl group in the polymer backbone to improve thermal stability, reduce bleed and make the phase less prone to oxidation. This results in a phase that is inert to active compounds with extremely low bleed to meet the requirements of sensitive MS detectors. It is a general purpose column ideal for GC/MS analysis of semivolatiles, PAHs, chlorinated hydrocarbons, phthalates, phenols, amines, organochlorine and organophosphorus pesticides, drugs and solvent impurities.

Features and Benefits

- Temperature Range: -60 °C to 350 °C
- Similar to USP G27 and G36 phases



ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.18	0.18	-60 to 325/340		N9316276 ¹	N9316277 ¹
0.20	0.33	-60 to 330/350	N9316301 ²	N9316302 ²	N9316303 ²
0.25	0.25	-60 to 330/350	N9316279	N9316282	N9316286
	0.50	-60 to 330/350		N9316284	
	1.00	-60 to 325/350	N9316280	N9316283	N9316287
0.32	0.25	-60 to 330/350	N9316289	N9316293	N9316297
	0.50	-60 to 330/350		N9316295	
	0.52	-60 to 330/350		N9316291 ³	
	1.00	-60 to 325/350	N9316290	N9316294	N9316298
0.53	1.50	-60 to 310/330	N9316299	N9316300	

¹ The lengths of **N9316276** and **N9316277** are 20 m and 40 m, respectively

² The lengths of **N9316301**, **N9316302** and **N9316303** are 12 m, 25 m and 50 m, respectively

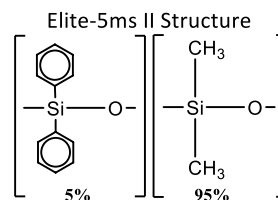
³ The length of **N9316291** is 25 m

Elite-5ms II

The Elite-5ms II columns incorporate the same phase as the Elite-5 columns but are specifically tested for low bleed performance.

Features and Benefits

- Temperature Range: -60 °C to 350 °C
- Equivalent to USP G27 and G36 phases



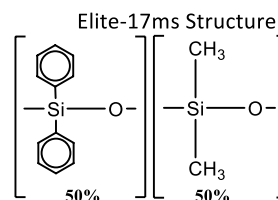
ID (mm)	df (μm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.25	0.10	-60 to 330/350	N9305655	N9305656	N9305657
	0.25	-60 to 330/350	N9305658	N9305659	N9305660
	0.50	-60 to 330/350	N9305661	N9305662	N9305663
	1.00	-60 to 325/350	N9305664	N9305665	
0.32	0.10	-60 to 330/350	N9305666	N9305667	N9305668
	0.25	-60 to 330/350	N9305669	N9305670	N9305671
	0.50	-60 to 330/350	N9305672	N9305672	N9305673
	1.00	-60 to 325/350	N9305674	N9305675	N9305698

Elite-17ms

The Elite-17ms columns are general purpose, mid-polarity columns that are coated with a crosslinked, (50%-diphenyl)-dimethylpolysiloxane engineered for very low bleed to meet the requirements of sensitive MS detectors.

Features and Benefits

- Temperature Range: 40 °C to 320/340 °C
- Equivalent to USP G3 phase



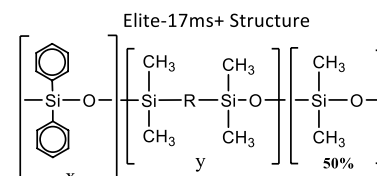
ID (mm)	df (μm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.18	1.411	40 to 300/340	N9316534		
0.25	0.15	40 to 300/320	N9316535	N9316537	
	0.25	40 to 300/320	N9316536	N9316538	N9316539
0.32	0.15	40 to 300/320	N9316540	N9316542	
	0.25	40 to 300/320	N9316541		

Elite-17ms+

The Elite-17ms+ columns are general purpose, mid-polarity columns offering extremely low bleed at higher temperatures. They are coated with a unique blend of linked dimethyl polysiloxanes and diphenyl polysiloxanes that is inert and selective for active environmental compounds, such as PAHs, while maintaining a similar selectivity and polarity as traditional Elite-17 phases. This phase has been engineered for extremely low bleed as required by MS detectors at higher temperature (up to 360 °C) as required for sensitive MS detectors.

Features and Benefits

- Temperature Range: 40 °C to 360 °C
- Equivalent to USP G3 phase



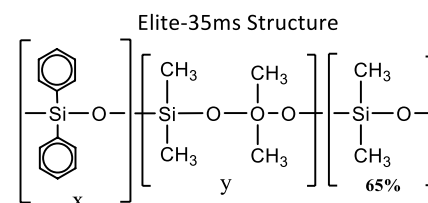
ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	60 m Part No.
0.15	0.15	40 to 340/360	N9305677		N9305678		
0.18	0.18	40 to 340/360			N9305679		
	0.36	40 to 340/360			N9305680		
0.25	0.25	40 to 340/360		N9305681		N9305682	N9305685
0.32	0.25	40 to 340/360		N9305683		N9305684	

Elite-35ms

The Elite-35ms columns are general purpose, mid-polarity columns offering extremely low bleed at higher temperatures. They are coated with a unique blend of linked dimethyl polysiloxanes and diphenyl polysiloxanes that are inert and selective for substituted polar compounds, such as drugs, pesticides, herbicides, PCBs and phenyls, while maintaining a similar selectivity and polarity as traditional Elite-35 phases. This phase has been engineered for extremely low bleed as required by MS detectors at higher temperature (up to 360 °C) as required for sensitive MS detectors.

Features and Benefits

- Temperature Range: 50 °C to 340/ 360 °C
- Equivalent to USP G42 phase



ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.25	50 to 340/360	N9305686	N9305687
	0.50	50 to 340/360	N9305688	N9305689
	1.00	50 to 320/340	N9305690	N9305691
0.32	0.25	40 to 340/360	N9305692	N9305693
	0.50	40 to 340/360	N9305694	N9305695
	1.00	40 to 320/340	N9305696	N9305697

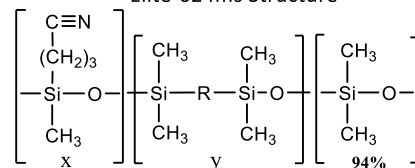
Elite-624ms

The Elite-624ms incorporates a unique proprietary blend of cyanopropyl and methyl siloxanes that results in a very inert, extremely low bleed and high thermal stability column. This column provides excellent peak shape for a wide range of compounds and is highly selective for residual solvents making it a great choice for USP<467>. These columns are manufactured for column-to-column reproducibility, so they are well suited for validated methods.

Features and Benefits

- Temperature Range: -20 °C to 240 °C
- Similar to USP G43 phase
- Ideal choice for USP method 467

Elite-624ms Structure



ID (mm)	df (μm)	Temp Limits (°C)	20 m Part No.	30 m Part No.	60 m Part No.
0.18	1.00	-20 to 240	N9315067		
0.25	1.40	-20 to 240		N9315068	NEW N9315066
0.32	1.80	-20 to 240		N9315069	N9315070

High Temperature Columns

Available in a range of phases with varying polarity, the high temperature (ht) columns are specifically designed for reduced bleed when operating at higher temperatures, up to 400 °C.

Elite-1ht

ID (mm)	df (μm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.10	-60 to 380/400	N9316268	N9316269
0.32	0.10	-60 to 380/400	N9316270	N9316271

Elite-5ht

ID (mm)	df (μm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.10	-60 to 400	N9316272	N9316273
0.32	0.10	-60 to 400	N9316274	N9316275

Elite-17ht

ID (mm)	df (μm)	Temp Limits (°C)	30 m Part No.
0.25	0.15	40 to 300/320	N9316264
0.32	0.15	40 to 300/320	N9316266

Elite-SimDist ht

Application: High-temperature simulated distillation

Phase: Metal Column, 100% dimethylpolysiloxane, non-polar

ID (mm)	df (μm)	Length (m)	Temp Limits (°C)	6 m Part No.
0.53	0.15	6	-60 to 400	N9316572
0.53	1.0	10	-60 to 400	N9316581

Elite-BAC Advantage: Blood Alcohol Content

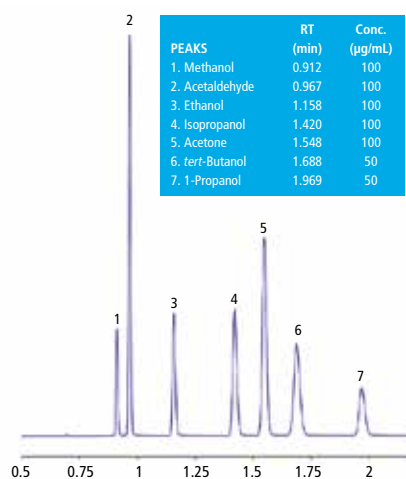
The Elite-BAC Advantage columns are optimized for selectivities guaranteed to resolve ethanol, internal standards, and frequently encountered interferences. These application-specific columns for blood alcohol analysis baseline separate all critical compounds, including ethanol, methanol, acetone, tert-butanol, acetaldehyde, isopropanol, and n-propanol, in less than 2 minutes. Every Elite-BAC 1 Advantage and Elite-BAC 2 Advantage column is qualified with a test mix containing these important BAC target compounds to ensure reproducibility. These columns, baseline separate all blood alcohol compounds in blood, breath, or urine, in less than 2 minutes, under isothermal conditions. Isothermal analysis increases productivity by eliminating the need for oven cycling. Confirmation is easily achieved with this tandem set because there are two elution order changes between the columns.

Features and Benefits

- Robust and reproducible
- Baseline separation of all components in less than 2 minutes
- Stable to 260 °C

Clinical

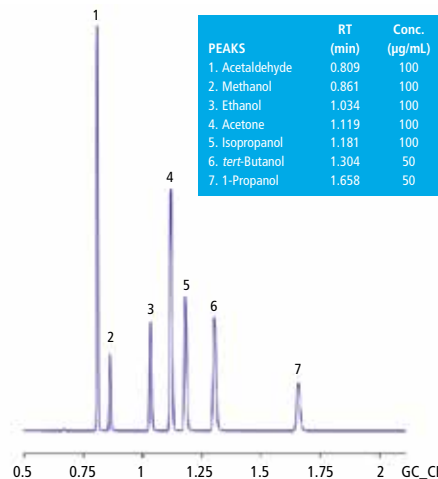
Elite-BAC 1 Advantage



- Baseline resolution
- Symmetrical peaks
- Run time under 2 min

Clinical

Elite-BAC 2 Advantage



Column Type	ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.	30 m Part No.
Elite-BAC 1 Advantage	0.18	1.00	-20 to 240/260	N9315075	
	0.32	1.80	-20 to 240/260		N9315071
	0.53	3.00	-20 to 240/260		N9315072
Elite-BAC 2 Advantage	0.18	0.34	-20 to 240/260	N9315076	
	0.32	0.60	-20 to 240/260		N9315073
	0.53	1.00	-20 to 240/260		N9315074
Elite-BAC 3 Advantage	0.18	0.30	20 to 250	N9316575	

Elite-VMS

Elite-VMS columns offer lower bleed, better selectivity, and overall faster analysis for separating volatile organic compounds. These columns are capable of separating the compounds listed in U.S. EPA Method 8260B in under 10 minutes. The Elite-VMS stationary phase is a highly stable polymer that provides outstanding analysis of volatile compounds on MS detectors. The 0.18 and 0.25 mm ID columns allow sample splitting at the injection port, eliminating the added expense and maintenance of a jet separator. A 0.45 mm or 0.53 mm ID column can be directly connected to the purge-and-trap transfer line in a system equipped with a jet separator.

ID (mm)	df (μm)	Temp Limits (°C)	30 m Part No.	60 m Part No.
0.18	1.00	-40 to 240/260	N9316650¹	N9316651¹
0.25	1.40	-40 to 240/260	N9316652	N9316653
0.32	1.80	-40 to 240/260	N9316654	N9316655
0.45	2.55	-40 to 240/260	N9316656	N9316657
0.53	3.00	-40 to 240/260	N9316658	N9316659

¹ The lengths of N9316650 and N9316651 are 20 m and 40 m, respectively

Features and Benefits

- Temperature Range: -40 °C to 240/260 °C
- No known equivalent phases
- Ideal for analysis of volatile organic pollutants by GC/MS
- Suitable for EPA method 8260B

Elite-XLB

The Elite-XLB phase is a proprietary low-polarity, very inert and exceptionally low bleed column for GC/MS analysis of pesticides, PCB congeners (e.g., Aroclor mixes) and PAHs. Improvements in polymer synthesis and tubing deactivation enable us to make inert, stable Elite-XLB columns especially well-suited for analyzing active, high molecular weight compounds with sensitive GC-MS systems, including ion trap detectors. Excellent efficiency, coupled with inertness, low bleed, and high thermal stability, make Elite-XLB columns ideal for analyzing semivolatiles in drinking water (e.g., US EPA Method 525).

Features and Benefits

- Temperature Range: 30 °C to 340/360 °C
- No known equivalent phases
- Exceptionally low bleed for GC/MS

ID (mm)	df (μm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.18	0.18	40 to 340/360		N9316480¹	
0.20	0.33	40 to 340/360	N9316496²	N9316497²	
0.25	0.10	40 to 340/360		N9316483	
	0.25	40 to 340/360	N9316481	N9316484	N9316487
	1.00	40 to 340/360	N9318482	N9316485	
0.32	0.10	40 to 340/360		N9316489	
	0.25	40 to 340/360	N9316488	N9316490	N9316493
	0.50	40 to 340/360		N9316492	
	1.00	40 to 340/360		N9316491	
0.53	1.50	40 to 320/340	N9316494	N9316495	

¹ The length of N9316480 is 20 m

² The lengths of N9316496 and N9316497 are 12 m and 25 m, respectively

Elite-Volatiles

The Elite-Volatiles stationary phase and optimized column dimensions provide low bleed, excellent resolution, and fast analysis times for volatile organic pollutants. These columns are excellent for U.S. EPA method 8021 compounds.

Features and Benefits

- Temperature Range: -20 °C to 240 °C
- Proprietary phase
- Ideal for EPA Method 8021

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.	60 m Part No.	75 m Part No.
0.25	1.40	-20 to 240	N9316388	N9316389	
0.32	1.80	-20 to 240	N9316390	N9316391	
0.45	2.55	-20 to 240	N9316392		N9316393

Elite-CLPesticides: Chlorinated Pesticides

Elite-CLPesticides is specially designed to overcome the coelutions and analyte breakdown typically encountered in chlorinated pesticide analyses for U.S. EPA methods 8081, 608, and CLP. Column bleed measured by ECD is extremely low at temperatures greater than 300 °C, which is critical for baking out the column to remove high-boiling compounds commonly found in pesticide/PCB extracts.

Primary Applications: Chlorinated Pesticides and Herbicides. U.S. EPA Methods 504, 608, 619, 8081, 8151, and CLP.

Features and Benefits

- Thermally stable to 340 °C
- Low column bleed – ideal for ECD or GC/MS analysis
- Exceeds performance criteria for U.S. EPA Methods 8081, 608 and CLP
- Baseline separation in less than 15 minutes

Column Type	ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
Elite-CLPesticides	0.25	0.25	-60 to 320/340	N9316661	N9316662
	0.32	0.50	-60 to 320/340	N9316663	N9316664
	0.53	0.50	-60 to 300/320	N9316665	N9316666
Elite-CLPesticides 2	0.25	0.20	-20 to 240/260	N9316667	N9316668
	0.32	0.25	-20 to 240/260	N9316669	N9316670
	0.53	0.42	-20 to 240/260	N9316671	N9316672

Elite-502.2: U.S. EPA Method 502.2

Application: Analysis of volatiles by U.S. EPA method 502.2

Phase: Proprietary Dimethyl-diphenyl polysiloxane, low-polarity

ID (mm)	df (μm)	Temp Limits (°C)	60 m Part No.	75 m Part No.	105 m Part No.
0.25	1.40	0 to 250/270	N9316498		
0.45	2.55	0 to 250/270		N9316188	N9316189
0.53	3.00	0 to 250/270			N9316190

Elite-RX: Drugs of Abuse

Application: Analysis of drugs of abuse

Phase	ID (mm)	df (μm)	Temp Limits (°C)	12 m Part No.	25 m Part No.
Elite-1 RX	0.20	0.33	-60 to 330/350	N9316345	N9316346
Elite-5ms RX	0.20	0.33	-60 to 330/350	N9316349	N9316350
Elite-17 RX	0.20	0.33	40 to 300/320	N9316347	N9316348

Elite-Betecyclodextrin: Chiral Separations

Description: General-purpose chiral, Chiral compounds in essential oils

Column Type	ID (mm)	df (μm)	Temp Limits (°C)	30 m Part No.
Elite-Betacydex	0.25	0.25	40 to 230	N9316319
Elite-Cyclosil B	0.25	0.25	40 to 230	N9316545

Elite-SimDist

Application: Simulated distillation

Phase: Specially processed dimethylpolysiloxane, non-polar

ID (mm)	df (μm)	Temp Limits (°C)	10 m Part No.
0.45	2.55	-60 to 360	N9316261
0.53	3.00	-60 to 360	N9316262

Elite-608

Application: Analysis of semivolatile pesticides by U.S. EPA method 608

Phase: Phenyl methyl polysiloxane, mid-polarity

ID (mm)	df (μm)	Temp Limits (°C)	15 m Part No.	60 m Part No.
0.32	0.50	40 to 290/310		N9316191
0.45	0.42	40 to 270/290	N9316194	N9316195
	0.70	40 to 260/280	N9316192	N9316193
0.53	0.50	40 to 270/290	N9316198	N9316199
	0.83	40 to 260/280	N9316196	N9316197

Elite-TPH

Application: Analysis of total petroleum hydrocarbons

Phase: (5%-diphenyl)-dimethylpolysiloxane, low polarity

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.
0.32	0.25	-10 to 320	N9316386
0.45	1.00	-10 to 290	N9316387

Elite-PONA

Application: Detailed analysis of petroleum naphtha

Phase: Specially processed dimethylpolysiloxane, non-polar

ID (mm)	df (µm)	Temp Limits (°C)	50 m Part No.	100 m Part No.
0.20	0.50	-60 to 300/320	N9316065	
0.25	0.50	-60 to 300/320		N9316015

Elite-FFAP

Application: Free fatty acids

Phase: Nitroterephthalic acid modified PEG (bonded), polar

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.25	40 to 250	N9316351	N9316352
0.32	0.25	40 to 250	N9316353	N9316354
0.45	0.85	40 to 240/250	N9316355	N9316356
0.53	1.00	40 to 240/250	N9316357	N9316358

Elite-5 Amine

Elite-5 Amine is an application-specific column for amines and other basic compounds, including alkylamines and di/triamines

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.50	-60 to 300/315	N9316684	N9316673
	1.00	-60 to 300/315	N9316674	N9316675
0.32	1.00	-60 to 300/315	N9316676	N9316677
	1.50	-60 to 290/305	N9316678	N9316679
0.53	1.00	-60 to 290/305		N9316680
	3.00	-60 to 280/295	N9316681	N9316682

Elite-23

Application: Analysis of cis/trans isomers in FAMES and dioxins.

Equivalent to USP G5

Phase: (50%-cyanopropyl)-methylpolysiloxane

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.	60 m Part No.
0.25	0.15	0 to 275		N9316507
	0.25	0 to 275	N9316506	N9316508

Elite-MTBE

Application: Analysis of methyl t-butylether and other oxogenates

Phase: Proprietary low polarity phase

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.
0.45	2.55	10 to 250	N9316520
0.53	3.00	10 to 250	N9316521

Elite-2560

Application: Application-specific column for cis/trans FAMES

Phase: Biscyanopropylpolysiloxane, highly polar

ID (mm)	df (µm)	Temp Limits (°C)	100 m Part No.
0.25	0.20	20 to 250	N9311570

Elite-Alumina/KCl* PLOT

ID (mm)	Length (mm)	Film Thickness (µm)	Temp Limits (°C)	Part No.
0.53	50	10	up to 200	N9316544

* Lower Polarity than Elite-Alumina

Elite-Alumina PLOT Phase for Analysis of Light Hydrocarbons

ID (mm)	Length (mm)	Film Thickness (µm)	Temp Limits (°C)	Part No.
0.53	30	6	-60 to 200	N9316304
0.53	50	10	-60 to 200	N9316305

Note: -60 °C is the lowest temperature used on this phase in our lab. Lower temperatures may be used depending on the sample

Elite-Cyclosil B PLOT for Chiral Separations

ID (mm)	Length (mm)	Film Thickness (µm)	Temp Limits (°C)	Part No.
0.25	30	0.25	35 to 230	N9316545
0.32	30	0.25	35 to 230	N9316546

Elite-Molesieve PLOT Phase for Analysis of Permanent Gases

ID (mm)	Length (mm)	Film Thickness (µm)	Temp Limits (°C)	Part No.
0.53	30	–	-60 to 300	N9316361

Note: -60 °C is the lowest temperature used on this phase in our lab. Lower temperatures may be used depending on the sample

Elite-Q PLOT Phase for Analysis of Light Gases and Hydrocarbons

ID (mm)	Length (mm)	Film Thickness (µm)	Temp Limits (°C)	Part No.
0.32	30	10	-60 to 250	N9316359
0.53	30	20	-60 to 250	N9316360

Note: -60 °C is the lowest temperature used on this phase in our lab. Lower temperatures may be used depending on the sample

Elite-Carbon Columns for Volatiles in Hydrocarbon Streams

NEW

The Elite-Carbon columns offer rapid separation of permanent gas/light hydrocarbon mixtures; including carbon monoxide and carbon dioxide without cryogenic cooling. They are preconditioned and thus take less than 30 minutes to stabilize. They are used in conjunction with a molecular sieve column (Molecular sieve 5 Å, 50 m, 0.53 mm, 50 µm Part No. **NR201108**).

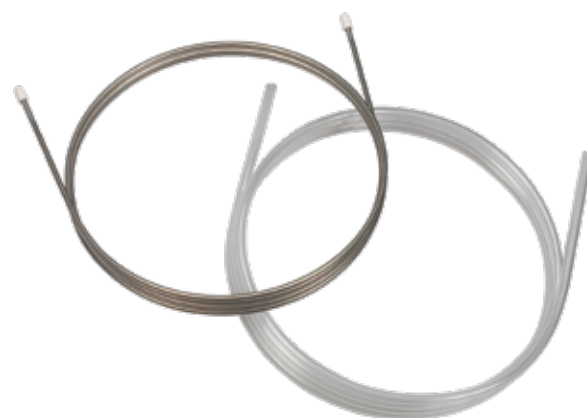
ID (mm)	Length (m)	Mesh Size	Temp Limits (°C)	Part No.
1.0	1	100/120	Up to 300	N9303927
1.0	2	100/120	Up to 300	N9303926

Fittings for the micropacked Elite-Carbon columns need to be ordered separately.

Description	Part No.
Installation kit for 1 mm ID columns; for valve applications	N9303450
Installation kit for 1 mm ID columns; for direct injections	N9303451

Custom Packed Capillary Columns

Can you find what you need? Do you need a different combination of column length, particle size and film thickness? We have many more options available. Simply contact your local representative with the details.



Custom Packed Columns

Design your own custom packed column in 3 easy steps:

- Choose your preferred column material (glass or metal)
- Select the length, diameter, phase, solid support, mesh and quantity
- Add your contact information and submit your quote request

It's that easy! We can supply any combination of support and liquid phase listed on our online ordering form. If your laboratory requires something that is not listed on our form, we will make every effort to find a solution to meet your needs.

- Custom packed columns for PerkinElmer, Agilent®, Thermo Scientific®, and other GC instruments
- Over 300+ Stationery Phases
- Over 100+ Solid Supports

To get your custom quote today fill out our online form:

<http://www.perkinelmer.com/tools/custompackedcolumn.aspx>

GC Accessories

Quick Reference Index Page

▶ ATD Tubes	130
▶ Autosampler and Manual Syringes	116
▶ Capillary Injector Replacement Parts	107
▶ Catalytic Reactor Accessory	119
▶ Column Adapters	121
▶ Conditioned Thermal Desorber Tubes	131
▶ Convenient GC/MS Consumable Kits	110
▶ Detector Series Operation Kit	118
▶ ECD Add-On Kits, ECD Wipe Test Kits	121
▶ FID Add-On Kits	118
▶ Ferules and Connectors	105
▶ FPD Add-On Kits	120
▶ Glass Inlet Liners	114
▶ Injector Septa	117
▶ Marathon Filament	125
▶ Merlin MicroSeal Septum	117
▶ NPD Add-On Kits	122
▶ Packed Column Injector Add-On Kits	109
▶ Packed Traps for PerkinElmer Thermal Desorbers	128
▶ PID Add-On Kits	123
▶ Programmed-Temperature Split/Splitless Injector System and Parts	112
▶ Programmed-Temperature On-Column Injector System and Parts	111
▶ Split/Splitless Injector Add-On Kits	108
▶ SMARTsource	126
▶ Soil Vapor Intrusion (SVI™) Tubes	131
▶ Swafer	103
▶ Swagelok Fittings	106
▶ TCD Add-On Kits	124
▶ TCD/FID Series Operation Kit	124
▶ Thermal Desorber Kits	129
▶ TurboMatrix 40 Headspace Trap	132
▶ Unconditioned Thermal Desorber Tubes	130
▶ Wide-Bore Adapter Kit	110

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

Glass Inlet Liners

The injector and liner is an essential component of the GC and users have a broad choice of different injectors and liners which allow you to adjust several variables in order to optimize the injection.



▶ VIEW PAGE

Injector Septa

Our injection septum provide extremely low bleed over a wide range of inlet temperatures – 100 °C to 350 °C. Easier needle penetration and high puncture tolerance make this septum ideal for autosamplers.



▶ VIEW PAGE

Thermal Desorber Consumables

Our convenient starter kit includes all products you need to run the TurboMatrix Thermal Desorber. A wide range of conditioned and unconditioned tubes, other kits and accessories are also available.



▶ VIEW PAGE

Swafer Micro-Channel Wafer Technology

PerkinElmer's Swafer™ micro-channel wafer technology is an innovative and user-friendly approach for flowswitching and splitting applications. It delivers unparalleled hardware and application flexibility, expanding the capabilities of capillary gas chromatography (GC).

Features and Benefits

- Allows you to tackle difficult or otherwise impossible separations, delivering richer sample information which was previously unattainable
- User-friendly design and user-defined oven position allow easy setup and configuration changes, without requiring service intervention
- Complete independence of the column from injectors or detectors lets you combine injection techniques (headspace, thermal desorption, liquid, etc.), based on sample requirements
- 15 user-interchangeable configurations deliver over 18 possible modes of operation for unparalleled application flexibility
- Can be used on any Clarus 580/500 or 680/600 GC with programmable pneumatic control (PPC)
- Vent unwanted solvent or other large peak from chromatogram
- Tweak the column polarity with serial column for difficult separations



Swafer Kits for Clarus GC Systems

Description	Part No.
D-Swafer Complete Kit – for Clarus GC units only (for Clarus 680/580 GCs with PPC) Includes all required installation hardware user guides, and the D-Swafer	N6520273
S-Swafer Complete Kit – for Clarus GC units only (for Clarus 680/580 GCs with PPC) Includes all required installation hardware, user guides, and the S-Swafer	N6520272

Swafer Kits and Accessories for Existing Clarus GC Systems

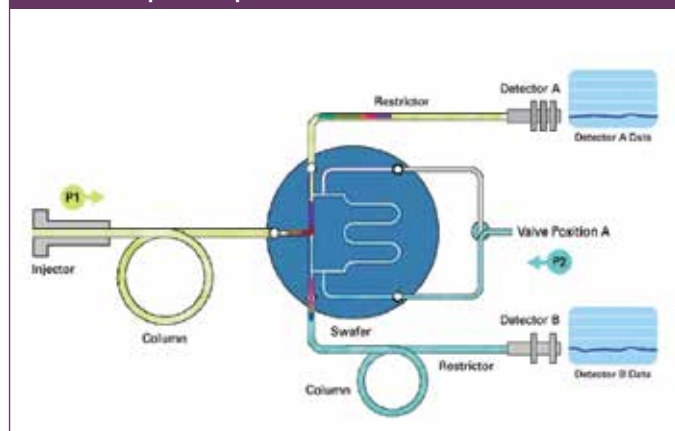
Description	Part No.
Micro-Channel Kit for Existing Clarus 680/600/580/500 GC with PPC. Includes all hardware required to install a Swafer. The Swafer and installation are not included and must be purchased separately	N6520270
Micro-Channel Kit for Existing Clarus 680/600/580/500 GCs with PreVent currently installed. If PreVent is already included in the GC configuration, this hardware kit provides the additional parts required to install a Swafer. The Swafer and installation are not included and must be purchased separately	N6520271
D-Swafer Dean's Switch (Swafer only)	N9306251
S-Swafer Splitter (Swafer only)	N9306262

How Can the Swafer Help You?

Enhanced Sample Information		
Solvent venting	Vent unwanted solvent or other large peak from chromatogram	D-Swafer S-Swafer
Detector switching	Switch between your detectors of choice anytime during the run or between injections	D-Swafer
Column switching	Make your GC more flexible by choosing which column should be used to chromatograph the injected sample	D-Swafer
Heartcutting	Cut your chromatogram and analyze the cut on a different column for a better separation	D-Swafer
Polarity tuning	Tweak the column polarity with serial column for difficult separations	D-Swafer S-Swafer
Column selection	Better utilize large and expensive detectors by choosing which of the two columns to monitor	D-Swafer
Carrier-gas swapping	Use a different carrier gas in the injector or sampling system from that used for the chromatography	D-Swafer
Peak attenuation	Analyze a wide dynamic range by diluting portions of your chromatography	D-Swafer
Splitting	Split your chromatography between up to four channels (detectors, sniffer ports, etc.)	S-Swafer

Throughput and Maintenance		
Column backflushing	Remove unwanted compounds from the column after the analytes have eluted	D-Swafer S-Swafer
MS isolation	Perform your MS, column and inlet maintenance without venting for less downtime	D-Swafer S-Swafer
Retention-gap purging	Remove large amounts of solvent with cold on-column injection	D-Swafer
Inlet selection	Automate your inlet choices (headspace, thermal desorption, liquid autosampler, etc.) between injections	D-Swafer
Injector maintenance or enhanced large volume injection	Enable injector septa or liner exchange while the system is still active Prevent solvent vapor from entering column and detector during injector purging	D-Swafer S-Swafer

Heartcutting (D-Swafer) allows separation of selected peaks within a complex sample matrix.



Swafer can be installed in any Clarus 580/500 or 680/600 GC with programmable pneumatic control (PPC).



Ferules and Connectors

SilTite Metal Ferrules

Provide a continuous leak-free connection and are perfect for connecting your column to a GC/MS.

The SilTite™ metal ferrule and nut are manufactured from the same material and therefore expand and contract at the same rate, eliminating the need to retighten – even after temperature cycling. The base of the SilTite ferrule forms a perfect seal with the MS interface, ensuring a leak-free connection. SilTite metal ferrules have a temperature limit well above the temperature capacity of the injector, MS interface or GC oven.



Description	Hole Size (mm)	Part No.
SilTite Ferrules Starter Kit*	0.4	N9306090
SilTite Ferrules Starter Kit*	0.5	N9306091
SilTite Ferrules Starter Kit*	0.8	N9306092
SilTite Ferrules (pkg. 10)	0.4	N9306093
SilTite Ferrules (pkg. 10)	0.5	N9306094
SilTite Ferrules (pkg. 10)	0.8	N9306095
SilTite Nuts (pkg. 5)		N9306096

* Kits include 2 nuts and 10 ferrules

Capillary Column Ferrules*

Graphite

Ferrule of choice for high-temperature applications up to 450 °C. Graphite seals easily and does not stick to glass columns.

Graphite/Vespel®

15% graphite/85% polyimide ferrule recommended for use with GC/MS systems. Temperature limit is 350 °C.

Vespel®

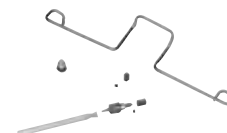
Not reusable. Not recommended for fused silica capillary columns. Use these ferrules on 1/16 in. metal tubing and glass-lined receivers. Temperature limit is 350 °C.

Size	Column ID/Ferrule ID (mm)	Graphite Part No.	Graphite/Vespel Part No.
1/16 in.	0.18 – 0.25/0.4		09920104
1/16 in.	0.18 – 0.32/0.5	09903700	09920105
1/16 in.	0.18 – 0.32/0.5**	N9306001	N9306000
1/16 in.	0.18 – 0.53/0.8	09920141	09920107
1/8 in.	0.18 – 0.53/1.0	09903394	
1/8 in.	0.18 – 0.32/0.5**	09903395	

* Not suitable for Clarus 590/690 capillary injector ** 2-hole

Wide-Bore Adapter Kit

Contains all the parts necessary to adapt to packed column injectors quickly and easily for use with wide-bore capillary columns. Includes 0–20 mL/min flow controller element, wide-bore adapter with 1/16 in. fitting, wide-bore glass liner and column support hanger.



Description	Part No.
Wide-Bore Adapter Kit	N6120001



Universal Connectors

Description	Part No.
Universal Connector (pkg. 5)	N9302149
Metal Universal Connectors: 0.25 mm ID (pkg. 10)	N9301167
Universal Y Splitter (pkg. 1)	N9303448
Polyimide Sealing Resin (5 g)	N9301343
Undeactivated Presstight Column Connectors (pkg. 5)	N9303962



Wafer Scribes

The PerkinElmer ceramic wafer scribe is inexpensive and ideal for cutting polyimide fused silica capillary columns and guard columns. The scribe is easy to hold and simple to use. All four sides can be used as a cutting tool.

Description	Part No.
Wafer Scribes (pkg. 10)	N9301376







Swagelok Fittings

The patented advanced-geometry back ferrule design provides a leak-tight tube connection on all Swagelok™ stainless steel tube fittings, in sizes 1/4 to 1/2 in., and 6 to 12 mm. Leak-tight seals that will withstand high-pressure, vibration, vacuum and temperature changes depend upon close tolerances and consistent, exacting quality control in conjunction with good design principles. Swagelok fittings from PerkinElmer are available in brass and stainless steel.

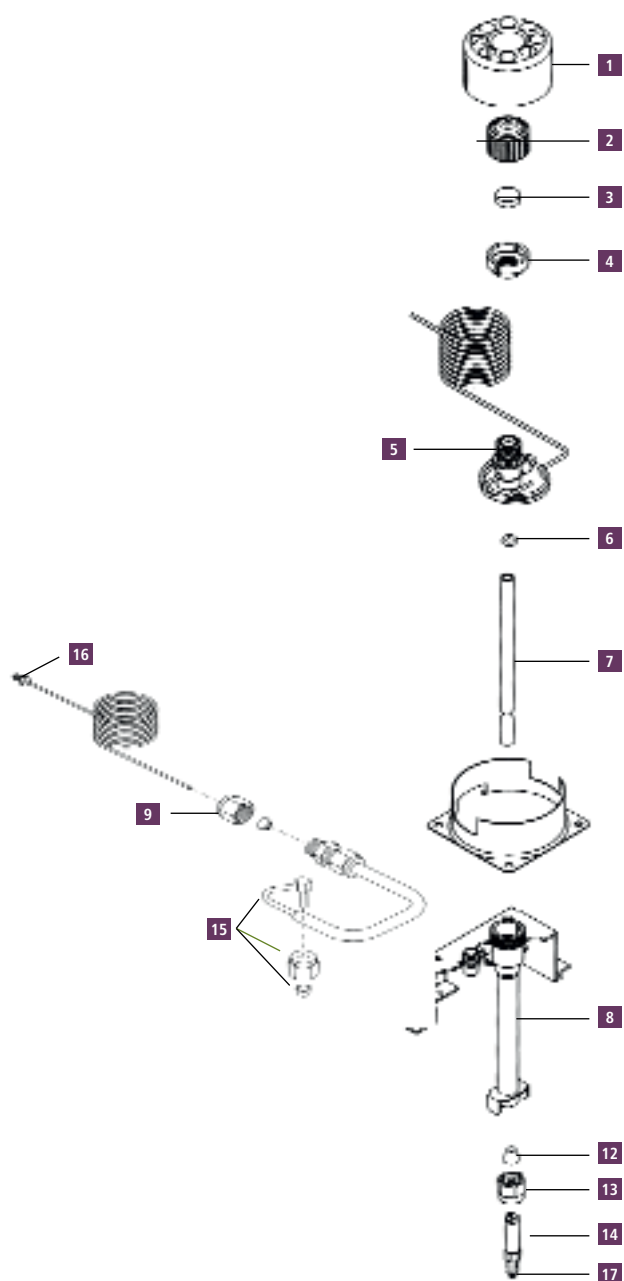
Features and Benefits

- Ease of installation
- Back ferrule axially advances the front ferrule
- Vibration fatigue resistance
- Wide variety of configurations

Swagelok™ Fittings

Product		Qty.	Size	Brass Part No.	Stainless Steel Part No.
Bulkhead Adapter		pkg. 1	1/4 in. to 1/4 in. tube		N9301267
Back Ferrule		pkg. 5	1/16 in.	N9300040	N9300042
			1/8 in.	N9300036	N9300038
			1/4 in.	N9300030	N9300032
Cross Union		pkg. 1	1/8 in.	N9301259	
Front Ferrule		pkg. 5	1/16 in.	N9300041	N9300043
			1/8 in.	N9300037	N9300039
			1/4 in.	N9300031	N9300033
Male Adapter Tube to Pipe		pkg. 1	1/4 in. tube to 1/8 in. NPT	N9301266	
Male Connector		pkg. 1	1/8 in. to 1/8 in. NPT	N9301253	
			1/8 in. to 1/4 in. NPT	N9301254	
			1/4 in. to 1/8 in. NPT	N9301255	
			1/4 in. to 1/4 in. NPT	N9301269	
Nut		pkg. 5	1/16 in.	N9300058	N9300059
			1/8 in.	N9300056	N9300057
			1/4 in.	N9300054	N9300055
Plug		pkg. 1	1/16 in.		N9300053
			1/8 in.	N9300060	N9300061
			1/4 in.	N9301268	N9301233
Union		pkg. 2	1/16 in.	N9300048	N9300049
			1/8 in.	N9300046	N9300047
			1/4 in.	N9300044	
Union Tee		pkg. 1	1/16 in.	N9301221	
			1/8 in.	N9301222	
			1/4 in.	N9301223	
Reducing Union		pkg. 1	1/8 in. to 1/16 in.	N9300051	N9301225
			1/4 in. to 1/8 in.	N9300050	N9301226
			1/4 in. to 1/16 in.	N9301227	

Capillary Injector Replacement Parts*



Description	Part No.
1 Injector Cover	N6101482
2 Septum Cap	N6100153
3 PerkinElmer Green Injection Septum (pkg. 50)	N6621028
4 Injector Top Nut	N6101358
5 Injector Head	N6100158
O-Ring, Silicone for Glass Liner (pkg. 10) Maximum injector temperature 250 °C	N6101374
O-Ring, Graphite for Glass Liner (pkg. 5) Maximum injector temperature 450 °C	N6101378
6 O-Ring, KALREZ® for Glass Liner (pkg. 1) Maximum injector temperature 450 °C	N9302782
O-Ring, Viton® for Glass liner (pkg. 1) Maximum injector temperature 250 °C, recommended for use with Mass Spec. ships with instrument	N9302783
Quartz Liner (2 mm) for Splitless Operation	N6121002
Quartz Liner (4 mm) for Split Operation or Large Volume Splitless Injection	N6121001
Glass Liner (2 mm) for Splitless Operation	N6101372
Glass Liner (4 mm) for Split Operation	N6101052
7 Deactivated Liner for Splitless Operation 2 mm, packed with wool. (pkg. 5)	N6121021
Deactivated Liner for Split Operation 4 mm, packed with wool. (pkg. 5)	N6121020
Deactivated Uniliner 4 mm, packed with wool. (pkg. 5)	N6121022
8 Injector Body	N6100047
9 1/8 in. Swagelok™ Nut Brass (pkg. 5)	N9300056
10 Restrictor**	N6101034
11 1/8 in. Graphite/Vespel Ferrule (pkg. 10)*	09920301
12 1/4 in. Graphite Ferrule (pkg. 10)	09920140
13 1/4 in. Swagelok Nut, Stainless Steel (pkg. 5)	N9300055
14 Injector Adapter	N6100157
15 Charcoal Trap	N6100275
Charcoal Trap for PPC Version*	N6100331
16 Split Vent Tube	N6100159
17 Column Nut 1/16 in. Long length for reversed ferrule (pkg. 5)	09903392

* Not suitable for Clarus 590 and 690 models.** Not shown

Miscellaneous Injector Accessories

Description	Part No.
2 oz. Replacement Charcoal (30/60 mesh)	03300904
Column Ferrule Graphite/Vespel	09920105
Liner Removal Tool	N6100102
Merlin Microseal Adapter Kit Includes: 2 Merlin Microseal septa, 1 nut and 1 injection port adapter	N9303344
Merlin Microseal Septa	N9303345
Zero Dilution Liner (Inner)	N1011446
Zero Dilution Liner (Outer)	N1011445

Split/Splitless Injector Add-On Kits

Capillary Injector with PPC

Kit includes split/splitless injector with programmable pneumatic control for carrier gas, split vent, heater, sensor, and heater block. The AutoSystem XL must be PPC™ ready. If not, a PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included. Not compatible with Clarus 590 and 690 models.

Voltage	Part No.
120 V	N6120138
240 V	N6120139

Complete Capillary Injector Add-On Kits

Kit includes split/splitless injector in module with heater and sensor, 0 – 60 psi pressure regulator, and transducer for pressure readout. For manual gas control. Not compatible with Clarus 590 and 690 models.

Voltage	Part No.
120 V AutoSystem	N6120009
240 V AutoSystem	N6120022
120 V Clarus	N6520012
230 V Clarus	N6520013

Dual Capillary Column Adapter Kit

Kit includes all necessary hardware to install two capillary columns to a capillary injector. Note: kit does not include appropriate 1/8 in. 2-hole ferrule. (See page 200) For manual gas control. Not compatible with Clarus 590/690 capillary injector.

Voltage	Part No.
120 V	N6120050

Split/Splitless Injector Starter Kit

Includes: 2 mm ID quartz liner, 4 mm ID quartz liner, silicone O-Rings (10), green septa (50), 0.5 mm graphite ferrules (10), 0.8 mm graphite ferrules (10), 1/16 in. stainless steel nuts (5), untreated quartz wool, packing rod, and wafer scribes (10). Not compatible with Clarus 590 and 690 models.

Description	Part No.
Split/Splitless Injector Starter Kit for Manual Gas Control	N6120101

Packed Column Injector Add-On Kits

Packed Column Injector Kit with Manual Pneumatics

Includes: complete injector assembly with heater and sensor, 0 – 100 mL flow controller, and column head pressure gauge for installation into the AutoSystem.

Voltage	Part No.
120 V*	N6120007
240 V*	N6120023

Packed Column Injector Kit with PPC

The kit includes complete injector assembly with programmable pneumatic control, heater, sensor, and heater block. The GC must be PPC™ ready. If not, a PPC upgrade kit (N6120146) is required.

Voltage	Part No.
120 V*	N6120136
240 V*	N6120137

Packed Column Injector Kit with Screen Readout and Manual Pneumatics

Includes: complete injector assembly with heater and sensor, 0 – 100 mL flow controller and column head pressure gauge, and transducer for screen readout of column carrier flow.

Voltage	Part No.
120 V* AutoSystem	N6120008
240 V* AutoSystem	N6120025
120 V* Clarus	N6520010
230 V* Clarus	N6520011

Packed Column Injector Kit AutoSystem XL and Clarus

The kit includes complete injector, heater, sensor, and heater block. (Does not include pneumatics.)

Voltage	Part No.
120 V*	N6120071
240 V*	N6120072

Packed Column Injector Starter Kit

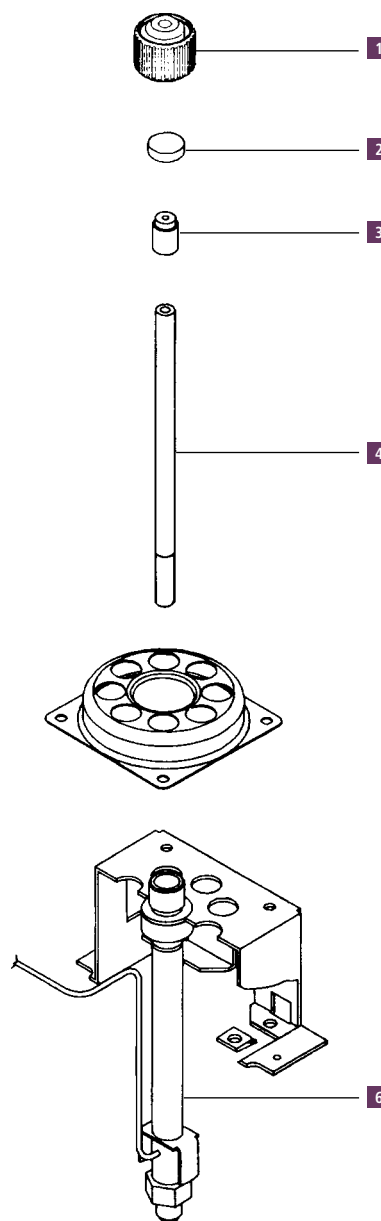
Includes glass liner, needle guide, green septa (50), untreated quartz wool, and packing rod.

Description	Part No.
Packed Column Injector Starter Kit	N6120100

*Service installation suggested

Packed Injector Replacement Parts

Description	Part No.
1 Septum Cap	N6100153
2 PerkinElmer Green Injection Septum (pkg. 50)	N6621028
3 Needle Guide	N6101050
4 Glass Liner	N6101048
Quartz Liner	N6121000
5 Packed Injector Assembly	N6100048



Miscellaneous Accessories

Injector/Detector Adapter 1/4 in.

Adapter fits on injector and detector outlet (inside oven) for use with 1/4 in. columns.

Description	Part No.
Injector/Detector Adapter 1/4 in.	00080100

Liner Removal Tool

Allows easy removal of glass liners from injector port.

Description	Part No.
Liner Removal Tool	N6100102

Silanized Glass Wool

Packing for wide-bore glass liners.



Description	Part No.
Silanized Glass Wool (2 oz.)	03300905

Wide-Bore Adapter Kit

0.53 Capillary Column Adapter Kit

The AutoSystem Wide-Bore Adapter Kit allows conversion of the packed inlet for 0.53 mm capillary column operation. The kit includes 0 – 20 mL flow control element, wide-bore adapter with 1/16 in. fitting, wide-bore glass liner, and column support hanger. Can be used in both on-column and off-column modes of operation.

Description	Part No.
0.53 Capillary Column Adapter Kit	N6120001

Convenient GC/MS Consumable Kits*

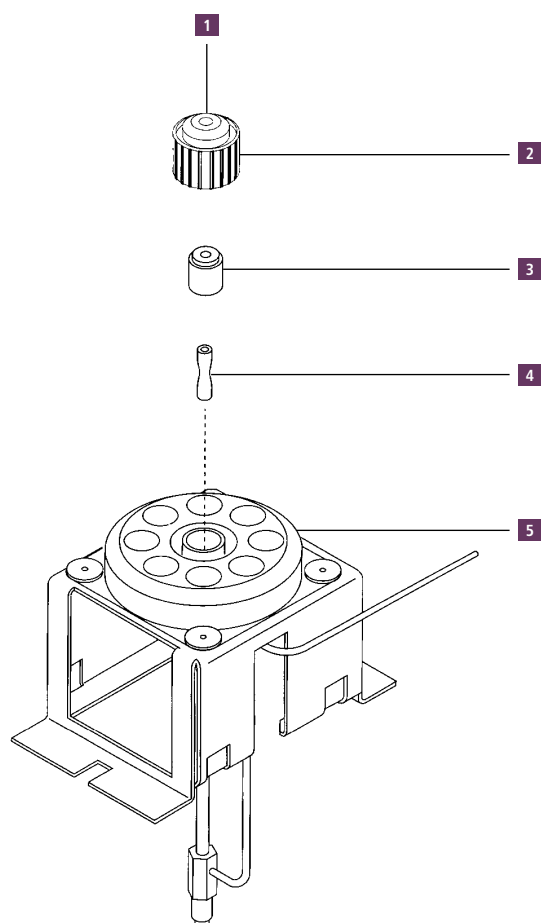
Description			Part No.
GC/MS PSS Injector Starter Kit			N6100447
Contents	Pkg.	Qty.	Part No.
5.0 µL Autosampler Syringe		1	N6101390
Vial Locator (dongle)		2	N6101182
PSS Injector Viton O-Rings (250 °C)	10	1	N6101747
PSS Injector Kelrez O-Rings (350 °C)	1	1	09921004
PSS Split/Splitless Injector, 2 mm, No Wool		1	N6121004
Graphite/Vespel Ferrules, for 0.25 mm Columns	10	2	09920104
PerkinElmer Green Speta (50 pieces)		1	N6621028
Marathon Filament		1	N6470012
Aluminum Oxide Powder (3 oz.)		1	04190197

Description			Part No.
GC/MS CAP Injector Starter Kit for Clarus 680, 580, 480			N6100448*
Contents	Pkg.	Qty.	Part No.
5.0 µL Autosampler Syringe		1	N6101390
Vial Locator (Dongle)		2	N6101182
CAP Injector Viton O-Rings (250 °C)		10	N9302783
CAP Injector Kelrez O-Rings (350 °C)		10	N9302782
CAP Split/Splitless Injector, 4 mm, No Wool		2	N6121002
Graphite/Vespel Ferrules, for 0.25 mm Columns	10	2	09920104
PerkinElmer Green Speta (50 pieces)		1	N6621028
Marathon Filament		1	N6470012
Aluminum Oxide Powder (3 oz.)		1	04190197

* **N6100448** Not compatible with Clarus 590 and 690 models
Refer to the Clarus 590/690 consumable reference guide for more details

POC Replacement Parts

Description	Part No.
1 Septum Cap	N6100153
2 PerkinElmer Green Injection Septum (pkg. 50)	N6621028
3 Needle Guide	N6101702
4 Liner/Hour Glass Body Assembly	N6101703 N6100256
5 Packed Injector Assembly	N6100048



Programmed-Temperature On-Column Injector System

Programmed-Temperature On-Column (POC) Inlet is designed to be used with fused-silica capillary columns. The sample is injected onto the column while the inlet is cool. After the injection, the inlet begins to heat. This delay in heating avoids the flash vaporization associated with a normal injection. This explosive vaporization can cause thermal breakdown and/or discrimination of certain analytes, which can be avoided by using the POC.

The POC Injector is best used to achieve recovery of compounds of greater than C₆₀ (e.g., polywaxes). The POC utilizes flow control, producing the best recovery out to C₁₀₀ or greater.

POC Injector with Manual Flow Controller and Head Pressure Gauge

Kit includes all necessary hardware to install injector into AutoSystem Series or Clarus Series.

Voltage	Part No.
120 V*	N6120076
240 V*	N6120077

POC Injector with Manual Flow Controller and Head Pressure Gauge with Flow Readout on Screen

Kit includes all necessary hardware to install injector into AutoSystem Series or Clarus Series.

Voltage	Part No.
120 V*	N6120082
240 V*	N6120083

POC Injector with PPC Add-On Kit

Kit includes injector with programmable pneumatic control, heater, sensor, and heater block. The AutoSystem XL or Clarus GC must be PPC™ ready. If not, a PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V*	N6120142
240 V*	N6120143

POC Injector Starter Kit

Includes: needle guides (5), universal connectors (5), 0.53 mm ID deactivated fused silica (5 m), 1/16 in. stainless steel nuts (5), 0.8 mm graphite ferrules (10), green septa (50), and wafer scribes (10).

Voltage	Part No.
POC Injector Starter Kit	N6120098

* Service installation suggested

Programmed-Temperature Split/Splitless Injector System

PSS Injector Add-On Kits with Manual Pneumatics

The programmed-temperature split/splitless (PSS) inlet allows accurate sample delivery to a capillary column. The PSS allows the analysis of thermally labile compounds, while eliminating the discrimination of high-boiling compounds. One of the major advantages of the PSS is that any nonvolatile material will remain in the inlet liner and not on the front of the column.

PSS with pneumatics and pressure readout on screen. Kit includes all necessary hardware to install injector into GC.

Voltage	Part No.
120 V* AutoSystem	N6120074
240 V* AutoSystem	N6120075
120 V* Clarus	N6520014
230 V* Clarus	N6520015

PSS Injector with PPC

Kit includes injector with programmable pneumatic control, heater, sensor, and heater block. The GC must be PPC™ ready. If not, a PPC upgrade kit (**N6120146**) is required.

Voltage	Part No.
120 V*	N6120140
240 V*	N6120141

PSS Injector Starter Kit

Includes: universal connectors (5), 0.53 mm ID deactivated fused-silica (5 m), 2 mm ID quartz liner, 1 mm ID quartz liner, glass hourglass liner, 1/16 in. stainless steel nuts (5), 0.5 mm ID graphite ferrules (10), 0.8 mm ID graphite ferrules (10), Viton® O-Rings (6), graphite O-Rings (5), untreated quartz wool, wafer scribes (10), and green septa (50).

Voltage	Part No.
PSS Injector Starter Kit	N6120102

Zero Dilution Liners

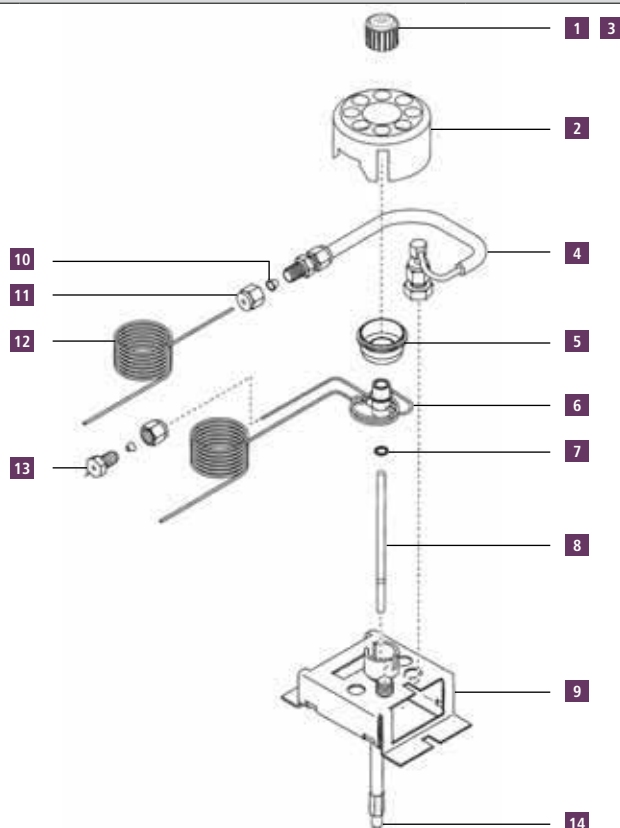
Used together as set.

Voltage	Part No.
Inner Liner	N1011446
Outer Liner	N1011447

* Service installation suggested

PSS Replacement Parts

Description	Part No.
1 Septum Cap	N6100153
2 Injector Cover	N6101482
3 PerkinElmer Green Injection Septum (pkg. 50)	N6621028
4 Trap, Charcoal – non PPC version PPC version (not shown)	N6100275
5 Nut	N6101705
6 Septum Purge	N6100260
7 O-Ring Viton (pkg. 10) max temp 250 °C, recommended for use with mass spec. Shipped with instrument O-Ring KALREZ® (pkg. 1) max temp. 450 °C O-Ring Graphite (pkg. 5) max temp. 450 °C	N6101747 09921004 N6101751
8 Quartz Liner, 2 mm Split Mode Shipped with instrument. Quartz Liner, 1 mm Splitless Mode On-column liner	N6121004 N6121006 N6101539
9 Body Assembly	N6100261
10 Ferrule 1/8 in. x 1/16 in. (pkg. 10)	09920301
11 Nut 1/8 in.	09903128
12 Split Vent Line	N6100159
13 Purge Restrictor	N6101034
14 Nut	09903392





BETTER GC FOR THE MOST CRITICAL APPLICATIONS – YOURS

Superior sensitivity, capacity, and throughput – with flexibility to handle more applications

Our new Clarus® 590 and 690 systems are making GC more productive, more consistent – and more flexible than ever. Productive, because our proprietary autosampler technology, superfast oven cool-down, and programmable temperature injectors make it much more efficient. Consistent, because it delivers precise, repeatable sample introduction and fewer reruns. And flexible, because we integrate best-in-class TurboMatrix® headspace, thermal desorption, and hands-free liquid or SPME sample prep. Highly capable Clarus systems are simply better for the most important applications of all – those most important to you.

Learn more at www.perkinelmer.com/gc


PerkinElmer
For the Better

Glass Inlet Liners

Inlet liners for split injection have mixing chambers with tortuous flow paths to allow full vaporization of the sample. Deactivating the surface of these liners prevents active compounds from degrading. Packing the liner with wool will trap non-volatile residue and prevent column contamination when analyzing dirty samples.

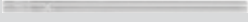

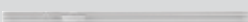





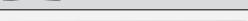


Inlet liners for splitless injection are generally designed as straight tubes, although new designs such as the gooseneck will help contain the sample in the injector. Packing these liners with wool will also help trap non-volatile residue and prevent column contamination.

Capillary Split/Splitless Injector Liners*



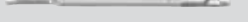
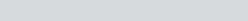
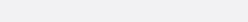
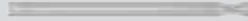


Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	Split Glass Liner Siltek Deactivated Surface Liner (with wool) – Universal liner for general purpose analyses. Surface provides inertness over a wide sample pH range. Wool can be adsorptive if fibers are broken	4	6.2	92.1	5	N6121020
	Split Glass Liner (with wool) – Universal liner for general purpose analyses	4	6.2	92.1	5	N6502009
	Split Siltek Deactivated Glass Liner (with wool) – Universal liner for general purpose analyses. Deactivated surface provides minimal bleed and inertness over a wide sample pH range	4	6.2	92.1	5	N6502010
	Clarus Cup Split Glass Liner – Good for both high and low molecular weight compounds. Sample vaporization is aided by tortuous flow path and minimizes molecular weight discrimination. Difficult to clean	4	6.2	92.1	5	N6502011
	Clarus Cycloplitter Glass Liner – Patented cylindrical design for dirty samples, easy to clean and allows many injections before cleaning is required. Not recommended for large volume injections	4	6.2	92.1	5	N6502012
	Uniliner Deactivated Glass Liner (with wool) – Universal liner for general purpose analyses	4	6.2	92.1	5	N6121022
	Clarus Splitless Glass Liner – Low volume sample analyses, beneficial with headspace and purge/trap	1	6.2	92.1	5	N6502006
	Quartz Liner for Splitless Operation (ships with instrument) – Standard injector liner	2	6.2	92.1	1	N6121002
	Glass Liner for Splitless Operation – Universal liner for general purpose analyses	2	6.2	92.1	1	N6101372
	Deactivated Glass Liner for Splitless Operation (with wool) – Good for analyses of trace samples	2	6.2	92.1	5	N6121021
	Siltek Deactivated Liner (with wool) for Splitless Operation – Optimum sample dispersion for active samples. Surface provides inertness over a wide sample pH range. Wool can be adsorptive if fibers are broken	2	6.2	92.1	5	N6502004
	Quartz Liner for Split Operation – Good for large volume injection samples	4	6.2	92.1	1	N6121001
	Glass Liner for Split Operation – Universal liner for general purpose analyses	4	6.2	92.1	1	N6101052
	Siltek Deactivated Double Gooseneck Glass Liner (with wool) – Optimum sample dispersion for active samples. Decreases breakdown of active compounds such as endrin and DDT. Chamber contains sample vaporization cloud. Not suitable for PPC systems	4	6.2	92.1	5	N6502003
	Cyclo Double Gooseneck Liner for Split Operation – Cylindrical design for large volume and trace dirty samples. Decreases injection port discrimination. Cannot be packed with wool and more difficult to clean	4	6.2	92.1	5	N6502005
	Zero Dilution Glass Outer Liner – Ideal for trace HS work. Use in conjunction with N1011446	2	6.3	90	1	N1011445
	Zero Dilution Glass Inner Liner – Ideal for trace HS work. Use in conjunction with N1011446		2	73	1	N1011446

* Not compatible with Clarus 590/690 capillary injector. Refer to the Clarus 590/690 consumable reference guide for more details

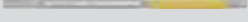
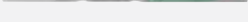
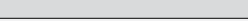

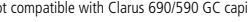
Programmed Temperature Split/Splitless (PSS) Injector Liners

Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	Quartz Liner for Splitless operation (ships with instrument) – Excellent liner for low volume analyses	1	4	86.2	1	N6121006
	Siltek Deactivated Glass PSS Liner – Used for low volume trace sample analyses	1	4	86.2	5	N6502000
	Quartz Liner for Split operation (ships with instrument) – Approved PerkinElmer standard injector liner	2	4	86.2	1	N6121004
	Siltek Deactivated Glass Liner for Split operation (with wool) – Maximum inertness and packed with wool gives optimum sample dispersion. Surface provides inertness over wide sample pH range. Wool can be adsorptive if fibers are broken	2	4	86.2	5	N6502001
	Siltek Deactivated Glass Liner for Split operation – Max inertness gives optimum sample dispersion. Deactivated surface provides minimal bleed and inertness over a wide sample pH range	2	4	86.2	5	N6502002
	Zero Dilution Outer Liner – Use in conjunction with N1011446	2.8	4	83	1	N1011447
	Zero Dilution Inner Liner – Use in conjunction with N1011447		2	73	1	N1011446
	On-column Glass Liner	2.4	4	86.2	1	N6101539
	Liner/Hour Glass for POC Injector	2.4	4	19.05	1	N6101703
	Quartz Split Liner with Silanized Glass Wool	2	4	86.2	1	N6121008
	Quartz Split Liner with Silanized Glass Wool	2	4	86.2	5	N6121009

Packed Column Injector Liners

Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	Drilled Uniliner (hole on top) – Excellent liner for high sample recovery and linearity, recommended for aqueous injections. Good for PPC equipped GCs	4	6.2	92.1	5	N6121022
	Drilled Uniliner (hole on bottom) – Recommended for analysis in which compounds of interest could be affected by a tailing solvent peak. Good for PPC equipped GCs	4	6.2	92.1	5	N6502013
	Gooseneck Drilled Uniliner (hole on top) – Use for trace, active samples, high recovery and linearity	4	6.2	92.1	5	N6502014
	Gooseneck Drilled Uniliner (hole on bottom) – Use for trace, active samples, high recovery and linearity	4	6.2	92.1	5	N6502015
	Open Top Uniliner (with wool) – Packed with fused silica wool, highly recommended for high molecular weight active samples. The fused silica wool traps dirt and sample residue	4	6.2	92.1	5	N6502016
	Cyclo Uniliner – Cylindrical design for high molecular weight samples provides an excellent vaporization surface. Spiral traps dirt reducing further residue sample interaction	4	6.2	92.1	5	N6502017
	Wide-Bore Column Glass Liner	6	4	92.1	1	N6101375
	Wide-Bore Column On/Off Quartz Liner	6	4	92.1	1	N6121003

Colored Injector Liners

Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	PSS deactivated glass liners with deactivated wool. Narrow bore and quartz wool increase volatilization and reproducibility	2	4	86.2	5	N9306232
	Capillary split/splitless deactivated glass liners with deactivated wool*	4	6.2	92.1	5	N9306233
	Capillary split/splitless deactivated glass liners with deactivated wool and tapered end*	4	6.2	92.1	5	N9306235
	Capillary split/splitless deactivated glass liners with deactivated wool. Quartz wool is used to fully vaporize the sample*	4	6.2	92.1	5	N9306236
	PSS Splitless deactivated glass liners	1.25	4	86.2	5	N9306237

*Not compatible with Clarus 690/590 GC capillary injector. Refer to the Clarus 590/690 consumable reference guide for more details

Autosampler and Manual Syringes



New Blue Barrel color design for enhanced sample volume verification (packs of 5 and 10 syringes)

Autosampler Syringes

Syringes from PerkinElmer are individually inspected for accuracy and performance.

Recommended autosampler syringes are available in 0.5, 5 and 50 μL capacities. For routine analyses, the metal plunger in barrel with PTFE-tipped seal is the standard syringe as shipped with each Clarus[®] GC instrument. Alternative syringes to use are the metal plunger in barrel or the 0.53 mm on-column injection.

Description	Part No.
50 μL Syringe, Metal Plunger 0.63 mm OD Needle	N6101760
5 μL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm OD Needle	N6101390
5 μL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm OD Needle BLUE Barrel (pkg. 5 syringes)	N6103240
5 μL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm OD Needle BLUE Barrel (pkg. 10 syringes)	N6103241
5 μL Syringe, Metal Plunger 0.63 mm OD Needle	N6101251
5 μL On-column Syringe Metal Plunger 0.47 mm OD Needle	N6101380
0.5 μL Low Injection Volume Syringe, Metal Plunger 0.63 mm OD Needle	N6101252
0.5 μL Low Injection Volume Syringe Metal Plunger 0.63 mm OD Needle BLUE Barrel (pkg. 5 syringes)	N6103242
0.5 μL Low Injection Volume Syringe Metal Plunger 0.63 mm OD Needle BLUE Barrel (pkg. 10 syringes)	N6103243
0.5 μL Low Injection Volume Syringe, Metal Plunger 0.47 mm OD Needle	N6101253
0.5 μL Low Injection Volume Syringe, Metal Plunger 0.63 mm OD Needle	N6101252
0.5 μL Low Injection Volume Syringe Metal Plunger 0.63 mm OD Needle BLUE Barrel (pkg. 5 syringes)	N6103242
0.5 μL Low Injection Volume Syringe Metal Plunger 0.63 mm OD Needle BLUE Barrel (pkg. 10 syringes)	N6103243
0.5 μL Low Injection Volume Syringe, Metal Plunger 0.47 mm OD Needle	N6101253

Needles and Syringe Kits

Needle has a 90° bevel. Point style is recommended when the syringe is used for accurate pipetting of liquids. Excellent for mixing standards of very small volume.

Needles

Description	Part No.
Sample Needle w/ Fittings	N2936009
Air Guide Needle (62 mm)	N2936000
Bio Compatible Sample Needle w/ Tubing Connector	N2936010
Needle (80 mm)	N2936342
Low volume needles	N2931199

Syringe Kits

Description	Hole Size	Part No.
100 μL	200 μL	N2936051
250 μL	500 μL	N2936052
500 μL	1,000 μL	N2936053
1,000 μL	2,000 μL	N2936054
2,500 μL	2,000 μL	N2936055

Point Style 2

This is a general purpose point style designed for septum penetration in all chromatographic techniques. The needle has a 22° bevel to minimize coring and needle plugging.



Point Style 3

Needle has a 90° bevel. Point style is recommended when the syringe is used for accurate pipetting of liquids. Excellent for mixing standards of very small volume.



GC Injector Syringes

Features and Benefits

- All PerkinElmer injectors have been tested and optimized for use with a 7 cm needle
- A 7 cm needle is critical to be sure your sample is deposited in the optimal zone

Syringe Capacity	Gauge	Length	Pkg.	Point Style	Part No.
Removable Needle Syringes (RN)					
10 µL			1	#2	N9302210
25 µL			1	#2	N9302211
50 µL			1	#2	N9302212
100 µL			1	#2	N9302213
Replacement Needles for RN Syringes					
10 µL			1	#2	N9302222
25/50/100 µL	22S	2 in.	3	#2	N9302224
250 µL	22S	2 in.	3	#2	N9302226
Fixed Needle Syringes					
10 µL ³			1	#2	00230523
10 µL ²			6	#2	N9302230
25 µL			1	#2	N9302202
25 µL			1	#3	09904823
50 µL			1	#2	N9302203
50 µL			1	#3	09904941

² Savings based on one-piece price. Savings of 20% reflected in price shown
³ Standard fitted with 7 cm needle

Merlin MicroSeal Septum

The Merlin MicroSeal™ septa is a unique replacement septa employing a two-step sealing system and an advanced elastomer material.

Because the syringe needle does not pierce the septa, there is no debris and ghost peaks are greatly reduced. The MicroSeal septa also reduces the incidence of bent syringe needles and liner contamination.

Usable in either manual or autosampler applications, this septa can improve your productivity and run reliability. Designed to be used with 23 gauge straight needle syringes. Pressure ranges from 4 to 100 psi and injection port temperatures up to 325 °C. This is not compatible with Clarus 690/590 GCs.



Description	Part No.
Merlin MicroSeal Septum Kit Includes: Injector Port Adapter, 2 Septa and 1 Nut	N9303344
Merlin MicroSeal Septum	N9303345

Injector Septa



Features and Benefits

- PerkinElmer Green Injection septum, extremely low bleed over a wide range of inlet temperatures – 100 °C to 350 °C. Easier needle penetration and high puncture tolerance make this septum ideal for autosamplers. This septum is already conditioned and ready to use
- BTO™ (Bleed Temperature Optimized) injector septa, 11 mm diameter. Maximum recommended operating temperature 300 °C
- PTFE/Silicone injector septa, 11 mm diameter

Description	Pkg.	Part No.
PerkinElmer Green Injection Septum	50	N6621028
Low Bleed Injector Septa	25	N9303343
PTFE/Silicone Injector Septa	50	00090652
Green Injection Port Septa	10	N9306218
Green Injection Port Septa	50	N9306219
Orange Injection Port Septa	50	N9302972

Green

Septa rated to 400 °C. The advanced green septum was created to combine significantly longer injection life, low bleed and low injection port adhesion. The result is a general use green septum made of uniquely formulated silicone rubber you can use for all your daily analyses. Packaged in a pre-cleaned glass screw top jar for high purity.

Orange

Septa rated to 400 °C. Uniquely formulated silicone rubber septa BTO® is bleed and temperature optimized for today's most demanding GC and GC/MS applications. Septa BTO is formulated to extend low-bleed and outstanding mechanical properties of premium GC septa. It retains remarkable softness at high temperatures and has been optimized to reduce injection port adhesion. Packaged in a pre-cleaned glass screw top jar for high purity.

FID Add-On Kits

Auto-Ignite FID with PPC Add-On Kit*

Kit includes: detector assembly with heater and sensor, heater block, igniter, programmable pneumatics, and controls for detector combustion gases. Requires, but does not include, amplifier (N6120162) and AutoSystem XL firmware revision 3.3 or higher. The AutoSystem XL must be PPC ready. If not, a PPC upgrade kit (N6120146) is required.

Voltage	Part No.
120 V*	N6120167
240 V*	N6120168

*Not compatible with the FID detector on the Clarus 690 and 590 GCs
Refer to the Clarus 590/690 consumables reference guide for more details

Auto-Ignite FID Add-On Kit (Manual Pneumatics)

Kit includes: detector assembly with heater and sensor, heater block, igniter, hydrogen pressure regulator, and needle valve. Requires, but does not include, amplifier (N6120162). Requires AutoSystem XL to have firmware revision 3.3 or higher.

Voltage	Part No.
120 V AutoSystem	N6120165
240 V AutoSystem	N6120166
120 V Clarus*	N6520018
230 V Clarus*	N6520019

*Not compatible with the FID detector on the Clarus 690 and 590 GCs
Refer to the Clarus 590/690 consumables reference guide for more details

FID Amplifier

Required for use with FID Detector Add-On Kit*.

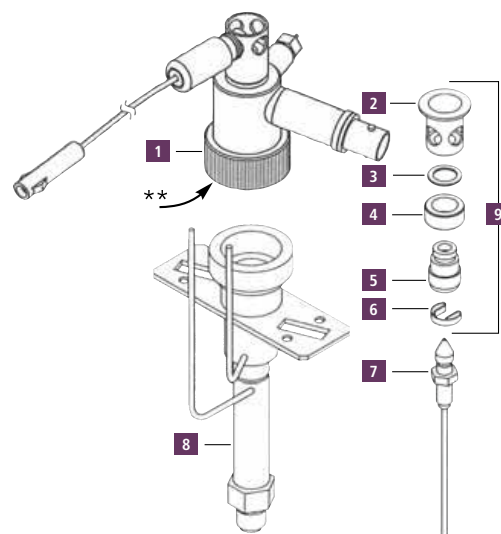
Description	Part No.
FID Amplifier	N6120162

* This is not required for the Clarus 590/690 FID add-on kits

Auto-Ignite FID Replacement Parts*

Description	Part No.
1 Collector Head Assembly Silicone Rubber O-Ring* (not shown)	N6100357 09902143
2 Polarizer Nozzle	N6103167
3 Nozzle Insulator	09907827
4 Nozzle Collector	N6101085
5 Body Assembly	N6103175
6 FID Jet Contact/Spring	N6001204
7 Jet Assembly*	N6100361
8 FID Body	N6100364
9 Nozzle Assembly	N6100430

*Not compatible with the FID detector on the Clarus 690 and 590 GCs
Refer to the Clarus 590/690 consumables reference guide for more details



Detector Series Operation Kit

TCD/FID Series Operation Kit

Used to direct sample effluent from the TCD to the FID.

Description	Part No.
TCD/FID Series Operation Kit	N6120006

PID/FID Series Operation Kit

Used to direct sample effluent from the PID to the FID.

Description	Part No.
PID/FID Series Operation Kit	N6120059

FID Miscellaneous Accessories*

Description	Part No.
Auto-Ignite Nozzle Replacement Tool for removing nozzle from auto-ignite FID body	N6103188
Auto-Ignite FID Catalytic Reactor Accessory*	N6120161
Capillary Column Adapter for capillary column use with the FID 1/8 to 1/16 in. detector adapter	N6120020
Ceramic Column Cutter	N9301376
Cotton Applicators	N9301272
Detector Cover (Brown Color)	N6103225
Detector Cover (White Color)	N6103151
Eraser Brush-Pencil	09923078
Jet Assembly*	N6100194
Jet Replacement Tool 1/4 in. nut driver for removing jet from auto-ignite FID body	N6101297
Quartz Wool	N6102354
Replacement Stainless Steel Glow Plug for Auto-ignite FID	N6103089
Septa, low bleed (pkg. 50)	N9302972
1/4 in. Packed Column Adapter for use with 1/4 in. packed columns. 1/8 to 1/4 in. adapter fits both injector and detector ends	00080100

*Not compatible with the FID detector on the Clarus 690 and 590 GCs. Refer to the Clarus 590/690 consumables reference guide for more details

Catalytic Reactor Accessory

Auto-Ignite FID with PPC Add-On Kit

The catalytic reactor converts CO and CO₂ to methane conveniently and efficiently. The lower detection limit is extended to well below 0.1 ppm.

The catalytic reactor consists of a special catalytic reactor base which replaces the FID base. The reactor body contains a quantity of catalyst held in place by a quartz wool plug.

Kits include base assembly, reactor tube, and instructions.

External Igniter FID Catalytic Reactor Accessory

Description	Part No.
External Igniter FID Catalytic Reactor Accessory*	N6120070

Auto-Ignite FID Catalytic Reactor Accessory

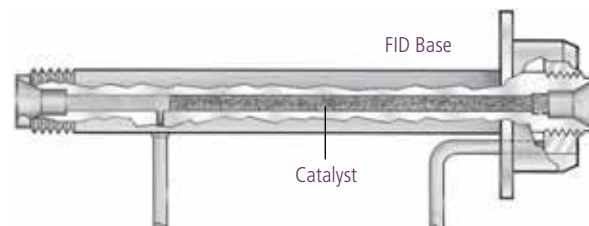
Description	Part No.
Auto-Ignite FID Catalytic Reactor Accessory*	N6120161

*Not compatible with the FID detector on the Clarus 690 and 590 GCs. Refer to the Clarus 590/690 consumables reference guide for more details

Catalytic Reactor Replacement Parts

Description	Part No.
Catalyst	N9302698
Jet Assembly	N6100194
Quartz Wool*	N6102354

* Product available in the USA only



Miscellaneous Accessories

External Ignite Nozzle Replacement Tool

For removing nozzle from External Ignite FID body.

Description	Part No.
External Ignite Nozzle Replacement Tool	N6103188

Hydrogen Regulator Replacement Kit

Description	Part No.
Hydrogen Regulator Replacement Kit	N6100289

Hydrogen/Air Replacement Needle Valve

Description	Part No.
Hydrogen/Air Replacement Needle Valve	N6101412

Igniter Assembly

Complete replacement igniter assembly with glow plug.

Description	Part No.
Igniter Assembly	N6100016

Replacement Glow Plug for External Ignite FID

Description	Part No.
Replacement Glow Plug for External Ignite FID	00091279

FID Flow Measurement Adapter

Description	Part No.
FID Flow Measurement Adapter	N6101345

FPD Add-On Kits

The FPD is a highly sensitive and selective detector for both sulfur and phosphorus compounds. It is especially suitable for environmental monitoring of H₂S and sulfur gases in general and for organophosphorus compounds present at trace levels in pesticide analysis. Alkyl tin compounds can also be analyzed by changing the filter assembly. The sulfur filter is shipped standard.

The FPD mounts in either the front or rear detector position. This allows many detector combinations, such as FPD/FPD, FPD/TCD, and FPD/ELCD.

The AutoSystem also includes a linearizer function for the sulfur mode and convenient control of the photomultiplier tube from the keyboard.

The FPD is capillary-column compatible. The detector will accept columns of 0.530 mm ID or less. The standard jet shipped with the FPD does not have a glass-lined tail pipe. If an all-glass system is required and glass packed columns will be used, then a glass-lined tail pipe should be ordered (**N6100264**). As a reminder, use of packed 1/4 in. columns requires a 1/8 to 1/4 in. adapter.

Filters

Description	Part No.
Phosphorus Lens (Yellow)	N6000981
Sulfur Lens* (Blue)	N6000637
Tin Lens (Orange)	L4135472

* Shipped standard

FPD Add-On Kit (Manual Pneumatics)

Kit includes detector, heater, sensor, heater block, hydrogen needle valve, air pressure regulator, and sulfur photomultiplier filter. Requires but does not include FPD amplifier (**N6120095**). Firmware revision 1.6 or greater required. Firmware must be PerkinElmer Service installed. AutoSystem operator's manual (**09938559**) revision E or higher required.

Voltage	Part No.
120 V AutoSystem	N6120088
240 V AutoSystem	N6120089
120 V Clarus	N6520028
230 V Clarus	N6520029

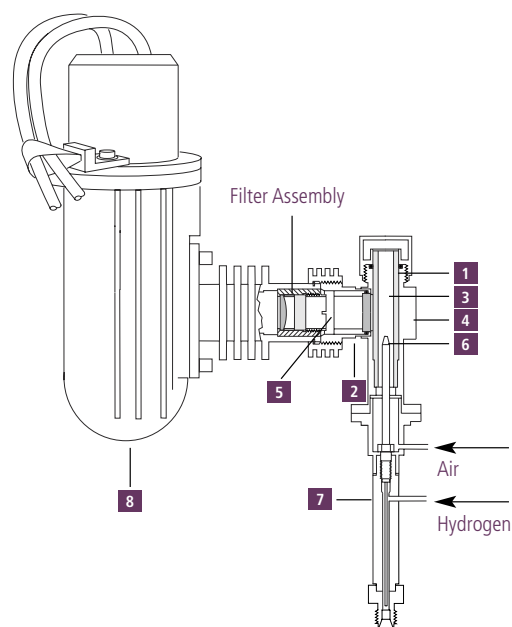
FPD Amplifier

Firmware revision 1.6 or greater required. Firmware must be PerkinElmer Service installed. AutoSystem operator's manual (**09938559**) revision E or higher required.

Description	Part No.
FPD Amplifier	N6120095

FPD Replacement Parts for AutoSystem Series GCs

Description	Part No.
1 O-Ring	09902247
2 Seal Assembly and Window (heat shield)	N9300096
3 Liner (window)	N6003057
4 FPD Body (upper)	N6100243
5 Window Holder	N6003066
6 FPD Jet	N6100245
Glass-lined Jet Tailpipe (for all-glass system)	N6100264
7 FPD Body (lower)	N6100244
8 Photomultiplier Tube	09972321



FPD with PPC Add-On Kit

Kit includes: detector, heater, sensor, heater block, programmable pneumatic control for detector combustion gases, and sulfur photomultiplier filter. Requires, but does not include, FPD amplifier (**N6120095**). AutoSystem XL GC must be PPC ready. If not, a PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V	N6120128
230 V	N6120129

Packed Column Adapter

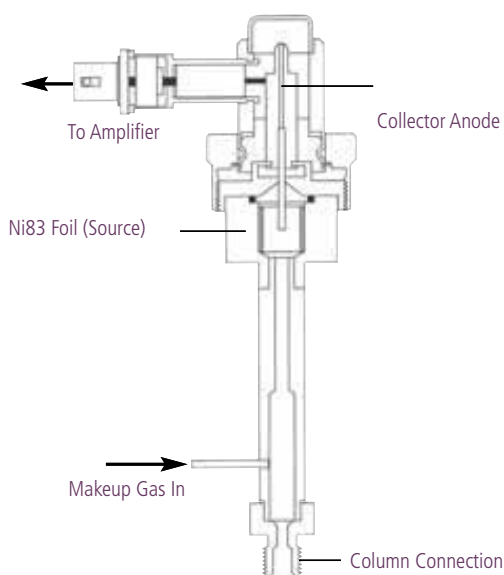
1/8 to 1/4 in. adapter for use with 1/4 in. packed columns.

Description	Part No.
Adapter (set of 2)	00080100

ECD Add-On Kits

The ECD is a versatile, nondestructive detector which responds strongly to halogen-containing compounds as well as to certain other electron-capturing substances. The ECD's high sensitivity and selectivity make it an ideal choice for pesticide-residue analysis and for detection of halogen-derivatized compounds.

The ECD has an independent temperature range of 100 – 450 °C. The detector contains thermal protection that prevents heating the Ni63 source to temperatures beyond safe operating limits. Two ECDs can be installed and operated simultaneously on the AutoSystem Series and Clarus GCs. Nitrogen or argon/methane is the required detector operating gas. The base of the detector terminates in a 1/8 in. fitting.



ECD Add-On Kit (Manual Pneumatics)

Kit includes all parts necessary to install an ECD on the AutoSystem Series or Clarus GCs. Includes: detector, heater, sensor, heater block, 1/16 in. makeup gas line, makeup gas needle valve, and vent tube assembly. Requires, but does not include, ECD amplifier (**N6120014**). Installation by PerkinElmer Service is recommended.

Voltage	Part No.
120 V AutoSystem	N6120011
240 V AutoSystem	N6120026
120 V Clarus	N6520020
230 V Clarus	N6520021

ECD Amplifier

Required for use with ECD detector with add-on kit.

Description	Part No.
ECD Amplifier	N6120014

ECD Add-On Kit (PPC Pneumatics)

Kit includes: detector, heater, sensor, heater block, and programmable pneumatic control for makeup gas. Requires, but does not include, ECD amplifier (**N6120014**). The AutoSystem XL or Clarus GCs must be PPC ready. If not, a PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V	N6120122
230 V	N6120123

Vent Tube Assembly

Flexible tube to safely vent toxic sample effluent.

Description	Part No.
Vent Tube Assembly	N6100161

Column Adapters

Column Adapter/Receiver

Adapter converts 1/8 in. fitting to 1/16 in. for use with capillary columns. **Note:** Glass-lined tubing reduces background from polyimide coating in high-temperature applications.

Description	Part No.
Capillary Column Adapter/Receiver	N6000968

PID/ECD Series Operation Kit

Kit for directing effluent from PID to ECD.

Description	Part No.
PID/ECD Series Operation Kit	N6120059

1/4 in. Packed Column Adapter

For use with 1/4 in. packed columns. 1/8 to 1/4 in. adapters fit both injector and detector ends. (Pkg. 2).

Description	Part No.
1/4 in. Packed Column Adapter	00080100

ECD Wipe Test Kit

U.S. Federal law requires that all ECDs be wipe-tested periodically as described in the instrument operator's manual. In the U.S., possession and use of ECD is regulated by N.R.C. and/or state regulatory agencies. Licensing by regulatory agencies is required. Outside of the U.S., check with governing bodies for licensing and regulations covering possession and use. This kit contains everything necessary to do a complete wipe test. For use on any model GC ECD.

Description	Part No.
ECD Wipe Test Kit	00091667

NPD Add-On Kits

NPD Add-On Kit (Manual Pneumatics)

The NPD can be used for the analysis of organic compounds containing nitrogen or phosphorus down to the picogram level. The NPD has become the detector of choice for low-level drug and pesticide applications because of its sensitivity and selectivity.

Kit includes: detector, heater, sensor, heater block, air needle valve, and hydrogen pressure regulator with snubber and two beads. Requires, but does not include, amplifier. For AutoSystem GC Firmware revision 1.4 or greater is required. Firmware must be PerkinElmer Service installed.

Voltage	Part No.
120 V AutoSystem	N6120090
240 V AutoSystem	N6120091
120 V Clarus	N6520024
230 V Clarus	N6520025

NPD Amplifier

Required for use with NPD Add-On Kit.

Description	Part No.
NPD Amplifier	N6120094

NPD with PPC Add-On Kit

Kit includes: detector, heater, sensor, heater block, and programmable pneumatic control for detector combustion gases and two beads. Requires, but does not include, amplifier (**N6120094**). The AutoSystem XL or Clarus GC must be PPC ready. If not, the PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V	N6120126
240 V	N6120127

Column Adapter

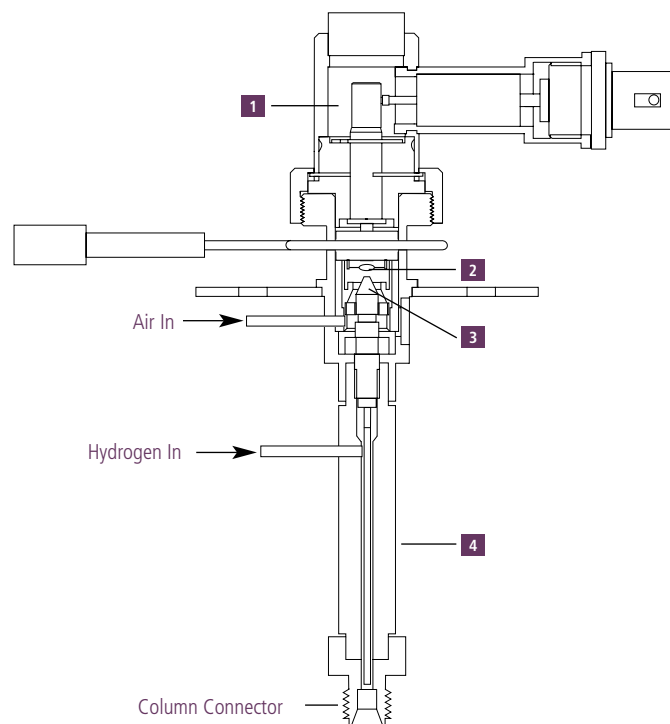
1/4 in. Packed Column Adapter

1/8 to 1/4 in. detector receiver adapter for use with 1/4 in. packed columns. Two included (injector/detector).

Description	Part No.
1/4 in. Packed Column Adapter	00080100

NPD Replacement Parts

Description	Part No.
1 Collector Head	N6100253
2 Bead Assembly (pkg. 5)	N6120093
Single pkg.	N6120092
3 Jet Assembly	N6100038
4 NPD Body	N6100228



PID Add-On Kits

PID Add-On Kit (Manual Pneumatics)

The PID utilizes a high-intensity ultraviolet light source to ionize the sample components eluting from the column in order to generate the chromatographic signal. The PID has a maximum recommended operating temperature of 250 °C. The lamp can be replaced with a blanking disk to allow bake-out operation (up to 350 °C). Kit includes: detector, heater, sensor, makeup gas needle valve, and all necessary mounting hardware for installation on an AutoSystem GC. Requires, but does not include, amplifier (**N6120061**) and lamp power supply (**N6120062**). Firmware revision 1.2 or greater is required. Firmware must be PerkinElmer Service installed. AutoSystem operator's manual (**09908559**) is required if not revision F or higher.

Voltage	Part No.
120 V AutoSystem	N6120047
240 V AutoSystem	N6120057
120 V Clarus	N6520026
230 V Clarus	N6520027

PID Amplifier

Required for use with PID Add-On Kit.

Description	Part No.
PID Amplifier	N6120061

PID Lamp Power Supply

Required for use with PID Add-On Kit.

Description	Part No.
PID Lamp Power Supply	N6120062

PID with PPC Add-On Kit

Kit includes: detector, heater, sensor, heater block, and programmable pneumatic control for makeup gas. Requires, but does not include, amplifier (**N6120061**) and power supply (**N6120062**). The GC must be PPC ready. If not, a PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V	N6120130
230 V	N6120131

Detector Series Operation Kits

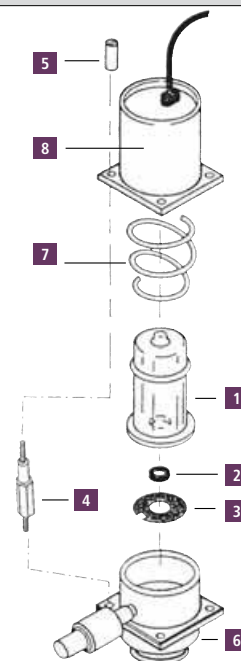
Description	Part No.
PID/FID, PID/ECD Series kit for directing effluent from a PID to an FID or an ECD	N6120059

Miscellaneous Accessories

Description	Part No.
Bakeout Disk	03302989
Lamp Cleaning Compound	03302775
1/4 in. Detector Receiver	03300866
1/8 in. Detector Receiver	03300865

PID Replacement Parts

Description	Part No.
PID Lamp (10.2eV), For most applications including aromatics, alkenes, and aliphatics higher than C4. Shipped standard with PID	03303599
1 PID Lamp (9.5eV), Improved selectivity for multiple ring aromatic, sulfur compounds	03303598
2 PID Lamp Window Seal	03302778
3 PID Lower Lamp Seal	03302777
4 Shoulder Pin	03302976
5 Cap Nut	03303773
6 Base Assembly	03302979
7 Spring	03302973
8 Cap with Harness	N6101696



TCD Add-On Kits

Features and Benefits

- Lower Internal Volume and Smaller Overall Size
- No Makeup Gas Required with 0.53 mm and 0.32 mm ID Capillary Columns
- Series Connection Option
- Excellent Sensitivity Over a Wide Dynamic Range

TCD Add-On Kit (Manual Pneumatics)

Kit includes all necessary items to install the TCD into the instrument: detector, heater, sensor, heater block, 1/16 in. gas line, and flow controller pneumatics. Requires, but does not include, amplifier (**N6120015**). The TCD can only be installed in the rear detector position.

Voltage	Part No.
120 V AutoSystem	N6120012
240 V AutoSystem	N6120027
120 V Clarus	N6520022
230 V Clarus	N6520023

TCD Amplifier

Description	Part No.
TCD Amplifier	N6120015

TCD with PPC Add-On Kit

Kit includes: detector, heater, sensor, heater block, and programmable pneumatic control for reference gas. Requires, but does not include, amplifier (**N6120015**). The TCD can only be installed in the rear detector position. The GC must be PPC ready. If not, a PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V	N6120124
240 V	N6120125

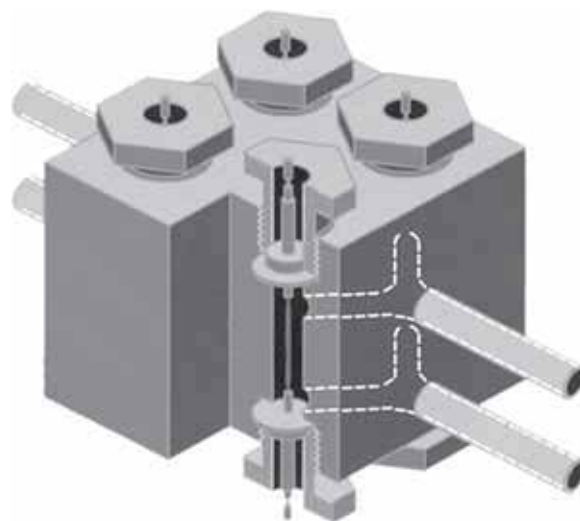
TCD with PPC Makeup Gas Kit

Includes parts required to add PPC controlled makeup gas to an existing TCD. Includes tubing, tee-piece, PPC pneumatics module, and PPC frit #4 (**N6120155**). Requires PPC capability in the GC.

Description	Part No.
TCD with PPC Makeup Gas Kit	N6120150

Column Adapter

Description	Part No.
1/8 to 1/4 in. Column adapter for use with 1/4 in. packed columns	00080100
1/8 to 1/16 in. Column adapter for use with capillary columns	N6120020



Thermal Conductivity Detector

TCD/FID Series Operation Kit

TCD and FID series operation kit for directing effluent from a TCD to an FID.

Description	Part No.
TCD/FID Series Operation Kit	N6120006

TCD Detector Makeup Gas Kit (Manual Pneumatics)

For use with TCD (at low flow rates). Required when using 0.25 mm ID and recommended when using 0.32 mm ID capillary columns. Kit includes 1 m of 1/16 in. tubing to connect to gas supply, graphite/vespel ferrules, manual pneumatics, and installation instructions.

Description	Part No.
TCD Detector Makeup Gas Kit (Manual Pneumatics)	N6120080

Marathon Filament



The Marathon™ Filament is a revolutionary, patent-pending technology developed exclusively by PerkinElmer, delivering long life even under the most difficult chromatography conditions.

After lengthy performance testing and filament research, the new Marathon Filament has been engineered to provide exceptional long life and withstand difficult chromatography conditions.

It has high resistance to demanding injections such as Headspace or purge and trap and has stood up to challenging applications such as flame-retardant analysis.

The Marathon Filament is a direct replacement of the previous rhenium filament – no system changes required.

At PerkinElmer, we understand your challenges and are committed to providing the best solutions to make your life easier. The new Marathon Filament is part of our ongoing efforts to deliver the latest technology for our PerkinElmer GC/MS platform.

Features and Benefits

- Long life even under the most difficult chromatography conditions
- Unique white surface engineered for maximum durability and optimum performance
- Now included with all new Clarus® GC/MS systems (580 and SQ8 series)
- Backward compatible with all units using rhenium filaments
- Works with both electron and chemical ionization sources

Description	Part No.
Marathon Filament for PerkinElmer GC/MS Systems	N6470012

To view the webcast and to order your replacement filament, visit:
<https://perkinelmer.com/marathonfilament>

SMARTsource with Marathon Filament for Clarus SQ 8 GC/MS Systems

Capable of both EI and CI ionization, the SMARTsource™ (Simplified Maintenance And Removal Technology) on the Clarus® SQ 8 GC/MS has been designed for ultimate simplicity, flexibility and productivity. Switching sources can be done in a matter of seconds by simply twisting and pulling – no tools required, no wires to disconnect. Cleaning the source is equally as easy and can be performed by the user. So even if you're running tough matrices, you won't be slowed down by time-consuming expensive source cleanings and replacements.

Fewer Parts, Greater Ease

With very few parts, the SMARTsource is exceptionally robust and easy to maintain. Each component is clearly marked for simple reassembly, and reconfiguring between EI and CI can even be performed in less than 3 minutes with a quick-conversion kit. Since the source is removed from the front of the Clarus SQ 8, the analyzing quadrupole is never exposed, minimizing the risk of contamination to ensure more reliable data.



Take the guesswork out of setting your column depth. Our Handle Assembly allows for precise alignment of the column within the SMARTsource every time.



Features and Benefits

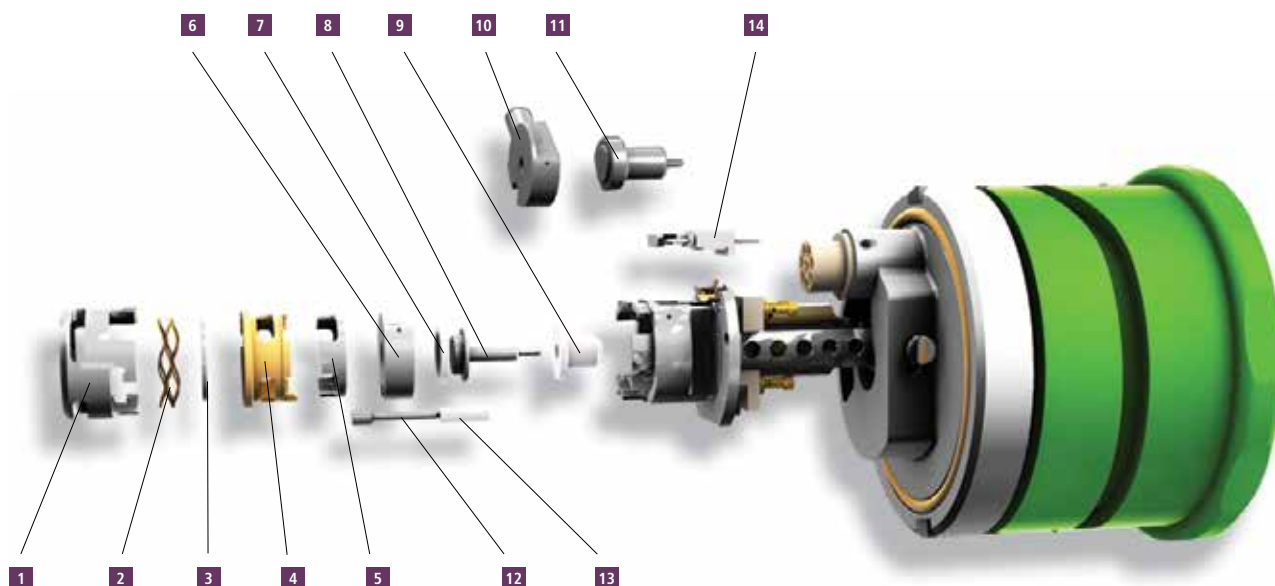
- 12 parts make up EI source
- SMARTsource rebuilt in minutes
- Remove SMARTsource with the twist of a wrist
- Marathon filament has a long life even under the most difficult chromatography conditions and is engineered for maximum durability and optimum performance

Handle Assembly (Source Blank and Sight)

Description	Part No.
Handle Assembly (Source Blank and Sight)	N6480380
Replacement Protective Cover	N6482024

SMARTsource Maintenance Kits

Description	Part No.
SQ8 Maintenance Kit Tool kit needed to maintain source	N6480360
SQ8 Deluxe Polishing Kit (120 Volt) Kit for polishing cleanable source parts	N6480361
SQ8 Deluxe Polishing Kit (240 Volt)	N6480362



SMARTsource Replacement Parts

Description	Part No.
1 Source Lens #3	N6480149
2 Source Spring	N6480151
3 Source Lens #2	N6480148
4 Lens Insulator	N6480153
5 Source Lens #1	N6480147
6 El Ion Volume	N6480144
7 Insulator (Ion Volume)	N6480145
8 Repeller	N6480140
9 Insulator (Repeller)	N6480141
10 CI Ion Volume	N6480146
11 CI Ion Volume Disc	N6480154
12 Trap	N6480142
13 Insulator (Trap)	N6480143
14 Marathon Filament	N6470012

SMARTsource Kits

Description	Part No.
Complete CI Source Consists of a fully assembled CI Source, ready to install	N6480130
Complete EI Source Consists of a fully assembled EI Source, ready to install	N6480132
Insulator Replacement Kit (Numbers 2, 4, 7, 9, 13)	N6480080
EI Optics Replacement Kit (Numbers 1, 3, 5, 6, 8, 12)	N6480081
CI Optics Replacement Kit (Numbers 1, 3, 5, 8, 10, 12)	N6480082

Packed Traps for PerkinElmer Thermal Desorbers

Air Monitoring Trap

Low flow trap packed with carbonaceous sorbents suitable for ozone precursor and air toxin monitoring.



Low Flow Cold Trap

TurboMatrix Thermal Desorption Cold Trap Supplies

Trap supplies from PerkinElmer, the market leader in thermal desorption, will provide exceptional analytical performance. Used for U.S. EPA Method TO17, the PerkinElmer standard trap, packed with Tenax™, on the TurboMatrix™ Thermal Desorber, will improve productivity and trapping capacity. The TurboMatrix air monitoring trap is packed with carbonaceous sorbents suitable for ozone precursor and air toxics monitoring.

Description	Qty.	Part No.
Cold Traps for TurboMatrix		
Air Monitoring Trap	1	M0413628
Empty Trap	1	M0413627
Tenax™ TA 60/80 Packed Trap	1	M0413535
Carbopack® C Packed Trap	1	N6200150
Cold Traps for ATD 400		
Air Monitoring Trap	1	L4275108
Trap Nuts (2 required)	1	L4275009
Trap Tube Low Flow, Empty (Narrow-bore at one end. Allows minimum gas flow during trap desorption)	1	L4275107
Tenax™ TA 60/80 Packed Trap	1	L4275089
Empty Trap	1	L4271106



Cold Traps Fittings and Accessories

Description	Qty.	Part No.
Graphite Ferrule	2	L4271187
SilTite™ Ferrule (GC/MS) 0.4 mm	10	N9306093
SilTite™ Ferrule (GC/MS) 0.5 mm	10	N9306094
SilTite™ Ferrule (GC/MS) 0.8 mm	10	N9306095
SilTite™ Nuts	5	N9306096
PTFE Ferrule	10	L4275110
Graphite/Vespel® Ferrule for ATD 400	5	L1003027
Valco® Graphite/Vespel® Ferrule for ATD 400	5	L1003028
Trap Filter Disk		L1003030
Trap Packing Disk	20	L4271290
Trap Packing Retaining Spring	5	N6301054
Quartz Wool (Untreated) 5 g		N6102354
Cold Trap Packing Tool		L4271203
Cold Trap Removal Tool		L4271205
Regulator 0–60 psig		N6101474
Backflush Nozzle for ATD 400		L4275072
Internal Standard Injection Accessory for ATD 400		L4270010
Liquid Nitrogen Accessory for ATD 400		L4270009
Gauze Loading Rig		L4070023
Replacement Plastic Plunger for Gauze Loading Rig		L4071151



Thermal Desorber Starter Kit

PerkinElmer's convenient starter kit includes all products you need to run the TurboMatrix Thermal Desorber.

Features and Benefits

- All items available under one part number in a convenient kit
- Guaranteed PerkinElmer parts
- Improved chromatography with exceptional analytical performance using PerkinElmer parts

Description			Part No.
Thermal Desorber Starter Kit			N6100448
Contents	Pkg.	Qty.	Part No.
Glass Fiber Separator Disks	20	1	L4271290
Glass Sample Tubes	10	1	M0413598
Glass Wool	1	1	54120790
Graphite Ferrules	2	1	L4271187
O-Ring	5	1	L1003006
O-Ring, Viton	1	1	L1003008
Packing Gauze	100	1	L4071034
PTFE Filter Discs	10	1	L1003030
PTFE Filter Discs – Large	10	1	L1003029
Retaining Spring	50	1	L4071123
Sample Tube – 5 mL	1	1	04970673
Stainless Steel Retaining Spring	2	1	N6301054
Stainless Steel Sample Tubes – Capped	10	1	M0413595
Tenax TA 60/80, Mesh – 15 g	1	1	04978064
Trap Tube Nuts	2	1	L4275009
Trap Tubes	2	1	M0410094

Thermal Desorber Industrial Hygiene Application Kit

All your consumable needs in one convenient kit, designed specifically for Industrial Hygiene using Thermal Desorption*.

Description			Part No.
Workplace Air Monitoring Industrial Hygiene Application Kit**			N6100448
Contents	Pkg.	Qty.	Part No.
Cold Trap O-Ring, 0.145 ID/0.070 w.d.	1	1	09200091
Cold Trap Tube (Tenax TA)	1	1	L4275089
Empty Glass Sample Tubes – No Caps	10	1	L4071594
Graphite Ferrule	2	1	L4271187
Pen Clips for Stainless Steel Sample Tubes	10	1	L4071029
PTFE Ferrule	10	1	L4275110
PTFE Filter Disk – Either Side of the Cold Trap	10	1	L1003030
Tenax TA Stainless Steel Sample Tubes	10	1	N9307005

* For full downloadable pdf format application notes, please visit: <http://las.perkinelmer.com/applications>
 ** Applicable to TurboMatrix 100/150/300/350 and 650 only

Thermal Desorber Caps and Accessories

Description	Pkg.	Part No.
Brass Long-Term Storage Caps Recommended for long-term storage, two required per tube. Also requires PTFE Ferrule (L1003015)	1	09908851
Combined PTFE Ferrule For use with ¼ in. Brass Long-Term Storage Caps (09908851), two required per tube	5	L1003015
Diffusion Caps – Standard For passive air sampling, to ensure correct diffusion path length	10	L4070207
Diffusion Caps with Membrane As above, with silicone membrane inserted	10	L4070208
Pen Clips For Stainless Steel Thermal Desorber Tubes	10	L4071029
PFA PTFE Ferrules For TurboMatrix Storage End Caps	20	M0413625
TurboMatrix Analytical Caps PTFE Caps with O-Ring, Required for Use on the TurboMatrix Instrument During Analysis	20	N6200119

ATD Tubes

PerkinElmer's New ATD tube conditioning oven now conditions tubes faster and easier than ever before. ATD tubes must be re-conditioned after analysis to remove contaminants before they are used for sampling. You can do this one of two ways. You can condition each tube individually on your thermal desorption instrument. This takes time – especially if you have several tubes to condition – and also ties up your instrument which could be used for more important analysis. Or, a better more efficient alternative is to condition your tubes in a separate oven.



Features and Benefits

- Condition any number or combination of stainless steel and glass tubes simultaneously without wasting gas
- Hood interlock protects anyone in the lab from opening the oven until it's cool
- Dual automatic fan design cools the oven in minutes
- Oven vent through the top hood ensuring a contaminant free oven

Description	Part No.
TurboMatrix TC 220 (120 V)	N9309160
TurboMatrix TC 220 (230 V)	N9309161

Specifications	
Capacity	Holds up to 20 tubes
Temperature Range	Ambient – 400 °C
Programming	4 Ramps + 4 Soaks
Flow Rate	25 – 150 mL/min

Unconditioned Thermal Desorber Tubes

For your convenience, new low-cost thermal desorber tubes are offered in both stainless steel and glass. Each tube maintains its unique serial number which is etched for easy identification. Tubes are offered with a variety of sorbent packing materials for many GC applications including indoor and outdoor air monitoring, analysis of flavors and fragrances and the analysis of outgassing from packaging, polymers, pharmaceuticals and semiconductor material. These tubes are unconditioned and ship with plastic end caps for short-term storage.



Unconditioned Thermal Desorber Tubes

Packed Unconditioned Sample Tubes, Plastic End Caps (pkg. 10)

Description	Stainless Steel Part No.	Glass Part No.
Air Toxic	N9307050	N9307058
Carbopack™ B60/80	N9307051	N9307059
Carbosieve™ SIII 60/80	N9307052	N9307060
Tenax™ GR 60/80	N9307053	N9307061
Tenax™ TA 60/80	N9307054	N9307062
Chromasorb™ 60/80	N9307055	N9307063
Carbopack™ B 60/80	N9307056	N9307064
Carbopack™ C 60/80		
Carbosieve™ SIII 60/80		
Carbotrap™ C/B		N9307065
NIOSH	N9307057	N9307066

Empty Sample Tubes without Caps

Description	Pkg.	Part No.
Stainless Steel	10	L4270128
Glass	10	L4071594
Stainless Steel	100	L4270129

Empty Sample Tubes with Plastic End Caps

Description	Pkg.	Part No.
Stainless Steel	10	M0413595
Glass Lined Stainless Steel	10	M0413597
Glass	10	M0413598

Soil Vapor Intrusion (SVI™) Tubes

Soil vapor intrusion occurs when toxic compounds that are present in the air space in soil of a contaminated location have ways of entering a



building, potentially creating a health risk. Our new multi-bed construction extends the hydrocarbon range past naphthalene while retaining the lighter components, enabling larger sample volumes, hence, enhancing detection limits. Has a unique design that meets the challenges and criteria of the EPA regulations for air monitoring.

Features and Benefits

- From chloromethane through diesel range hydrocarbons
- After the analysis, tubes are clean and ready for re-sampling reducing costs

Description	Part No.
Stainless Steel TD Tubes Conditioned	N9306277
Stainless Steel TD Tubes Un-Conditioned	N9306278

Conditioned Thermal Desorber Tubes

Stainless steel and glass sample tubes are available with a wide variety of packing materials from single to multi-bed. PerkinElmer Thermal Desorber tubes are printed with the packing material and an arrow, which points to the end of the tube where sample is drawn from, and also indicates the end that desorb vapors will exit.



Fully conditioned Thermal Desorber tubes

Each tube is etched with a unique serial number for ease of traceability and adsorbent identification. Stainless steel tubes may also be fitted with clips that accept adhesive labels for identification. Packed tubes are shipped with long-term brass storage caps and all tubes are thermally conditioned and tested for background and backpressure.

Packed Conditioned Sample Tubes, Brass Long-Term Storage End Caps (pkg. 10)

'NOT for Analytical test applications', use **N6200119** PTFE caps and O-Rings. (pkg. 20).

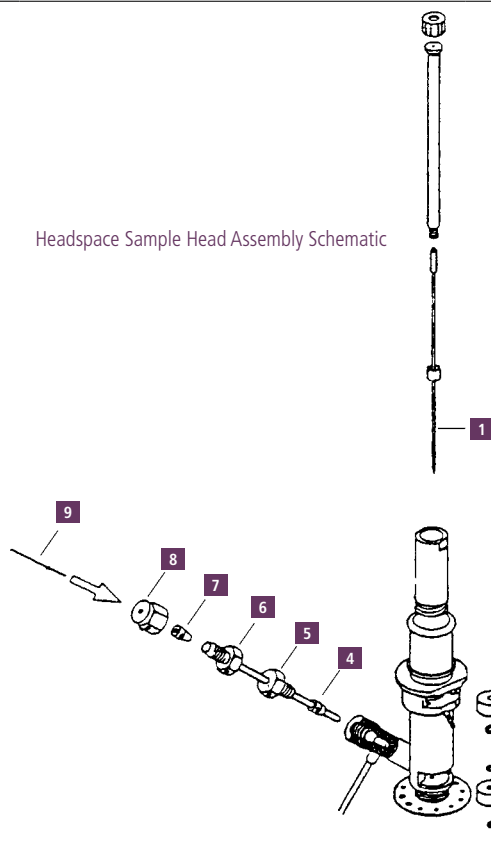
Description	Stainless Steel Part No.	Glass Part No.
Air Toxics	N9307001	N9307008
Carbopack™ B60/80	N9307002	N9307009
Carbosieve™ SIII 60/80	N9307003	N9307010
Tenax™ GR 60/80	N9307004	N9307011
NEW PKI Tenax™ TA 60/80	N9309130	
Tenax™ TA 60/80	N9307005	N9307012
Chromasorb™ 60/80	N9307006	N9307013
Carbopack™ B 60/80	N9307000	N9307007
Carbopack™ C 60/80		
Carbosieve™ SIII 60/80		
Carbotrap™ C/B	N9307026	
NIOSH 2549	N9307038	N9307037

TurboMatrix 40 Headspace Trap

Sample Head Assembly Replacement Parts

Description	Part No.
Platinum/Iridium Needle, Wide-bore	B0144169
Platinum/Iridium Needle, Small-bore	B0500959
Platinum/Iridium Needle, Jet	B0510364
1 Silcosteel Needle, for Headspace Trap Only	N6700130
Stainless Steel Needle, Wide-bore	B0131385
Stainless Steel Needle, Small-bore	B0500987
Stainless Steel Needle, Jet (Ships with Instrument)	B4000011
2 Needle Seal Assembly (Without O-Rings)	B0500833
3 O-Ring for Needle Seal Assembly (pkg. 10)	B0198110
4 Vespel Ferrule 1/16 in. (pkg. 10)	09920127
5 Male Nut 1/16 in.	N9302832
6 GLT Adapter Tube	B0503956
GLT Adapter Tube, Silcosteel	N6700113
7 Graphite/Vespel Ferrule 1/16 in. x 0.4 mm For use with 0.25 mm ID Transfer Line (pkg. 10)	09920104
Graphite/Vespel Ferrule 1/16 in. x 0.5 mm For use with 0.32 mm ID Transfer Line (pkg. 10)	09920105
8 Nut 1/16 in. Swagelok	N9300059
9 Fused-Silica Capillary Transfer Line: 0.25 mm ID x 5 m Length	N9301356
0.32 mm ID x 5 m Length	N9301357

Headspace Sample Head Assembly Schematic



Solid Glass Blocking Trap

Description	Part No.
Block for Use in Standard Headspace Mode	N6701170

Sample Trays

For use on the Mid-Range or High-Capacity headspace sampler.

Description	Part No.
TurboMatrix 40 Mid-Range Sample Tray	M0413592
TurboMatrix 110 High-Capacity Sample Tray	M0413593

Transfer Lines

Description	Tubing ID (mm)	Length	Part No.
Siltek Deactivated Fused Silica	0.25	5 m	N9316607
Siltek Deactivated Fused Silica	0.32	5 m	N9316608

Miscellaneous Accessories

Description	Part No.
Gas Chromatography – Theory and Practice, Static Headspace Book by L. Ettre and B. Kolb	N1011210

Cold Trap Options

Headspace Trap instruments only.

Description	Part No.
TurboMatrix HS Trap Cold Trap Tube (Carbopack C)	N6200150
TurboMatrix HS Trap Air Monitoring Trap*	M0413628



WHO HAS A PORTABLE GC/MS THAT
**GETS RESULTS
70 TIMES FASTER?**

SIMPLE: PERKINELMER.

For anyone charged with protecting the public from VOCs in the air, water, and soil, time is of the essence. So the big question becomes: How do I get accurate – and *actionable* – results even faster than before? With the Torion® T-9 portable GC/MS, you do your testing where the hazardous event occurs, and get your results there, too. No sample transportation or degradation. No processing, packaging, and prep time. You simply respond, collect, analyze, and identify, right there on the ground. So who gets you from response to remedial action 70 times faster than conventional lab analysis? The answer is perfectly clear.

Learn more at www.perkinelmer.com/torion


PerkinElmer[®]
For the Better

Arnel Analyzer Consumables

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

Quick Reference Index Page

➤ Arnel Analyzers	135
➤ Arnel Analyzers Applications Highlights	142
➤ Arnel Sample Loops	139
➤ Replacement Column Sets for Standard Arnel Refinery Gas Analyzers	136
➤ Replacement Column Sets for Standard Arnel Natural Gas Analyzers	136
➤ Replacement Column Sets for Other Standard Arnel Analyzers	136 – 137
➤ Calibration Material	139
➤ Capillary Columns for Arnel Engineered Analyzers	135
➤ Fused Silica Adaptors	141
➤ Liquid Sample Valves and Accessories	138
➤ Permeation Tubes	140
➤ Sample Loops	139
➤ Sampling and Installation Parts	140
➤ SCD Maintenance	140
➤ Standoffs	139
➤ Methanizers	141
➤ Nuts and Ferrules	140
➤ PID Maintenance	141
➤ Union and Tees	141
➤ Valves	138

➤ CLICK THE ARROWS TO VIEW EACH PAGE

Valves

A majority of the Arnel configurations utilize two different types of valves. Most can be categorized as external volume injectors while the other type is an internal sample injector.



➤ VIEW PAGE

Sample Loops

A range of stainless steel sample loops are available for varying applications; with injection volumes from 100 µL to 5 mL and options for 6, 8 or 10 port valves. The Arnel sample loops are set apart from standard stainless steel loops due to the materials that are used in their manufacture.



➤ VIEW PAGE

Capillary Columns for Arnel Engineered Analyzers

PerkinElmer capillary column replacement sets are available for a wide range of applications. From refinery and natural gas to specific and also including many standard methods, ASTM and trace gases for example.

➤ VIEW PAGE

Calibration Materials

Our calibration gas blends were formulated to be used exclusively in our Refinery and Natural Gas Analyzers. These are the same test gases that are used in the verification and validation processes that take place at our factory.



➤ VIEW PAGE

➤ BACK TO MAIN INDEX

➤ ORDER ONLINE

Arnel Analyzers

The measurement of semivolatile and volatile compounds in petrochemical feeds, processes and products can be easily accomplished with turnkey analyzers and systems designed to meet accepted standard methods. PerkinElmer's Arnel™ analyzers offer a market leading customized chromatography solution. We provide, install, and support a full range of guaranteed analyzers, systems and accessories.

Arnel

We have an APP for that!

The Arnel Group within PerkinElmer Gas Chromatography is responsible for providing complete engineered solutions for a wide array of often encountered analytical problems. Do you have the need for a custom solution to perform ASTM or other regulated methods in your lab? Some of the types of analyzers Arnel has supplied are found in the list of categories shown here:

Natural Gas/NGL

Condensates

LPG

Refinery/Light Hydrocarbon Gas

Olefins

Aromatics

Oxygenates

Industrial Solvents

Naphthas

Gasoline

Distillates

Lube Oils/Waxes

Crude Oils

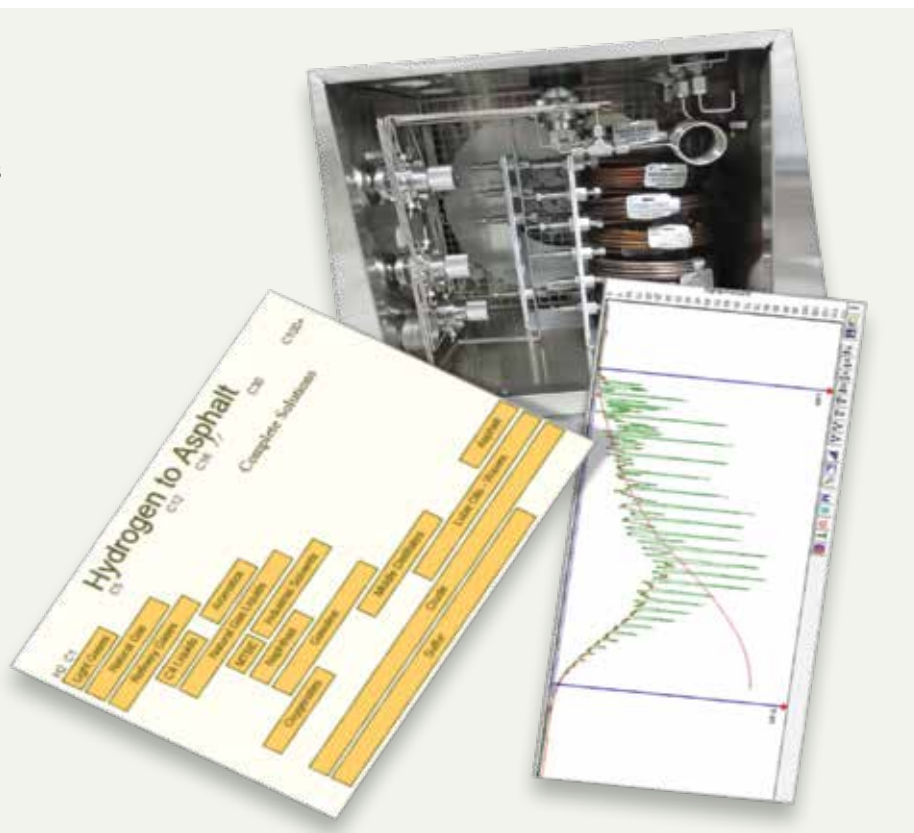
Asphalt

Bulk Gases

Trace Gases

TOGA

SCD



Capillary Columns for Arnel Engineered Analyzers

Why would you compromise your gas chromatography by accepting cheap substitutes when replacing the columns in your Arnel Analyzer? Use only genuine PerkinElmer column sets as replacements to meet your specific chromatographic needs.

Don't see what you need?

Please contact your local PerkinElmer sales representative for replacement column sets for Custom Engineered Arnel Analyzers or for more information about our Arnel Engineered Solutions Analyzers.

ARNEL ANALYZER CONSUMABLES

Replacement Column Sets for Standard Arnel Refinery Gas Analyzers

Model	Description	Part No.
1015	Replacement column set for the RGA Model 1015 – Two channel RGA; Hydrocarbons (FID) and Light Gases (TCD)	N6107032
1115	Replacement column set for the Arnel RGA – Three channel RGA; Hydrocarbons (FID), Light Gases (TCD) and He/H ₂ channel (TCD)	N6107033
1116	Replacement column set for the RGA Model 1116 – Three channel RGA; Hydrocarbons (TCD) and Light Gases (TCD) + He/H ₂ channel (TCD)	N6107033
1157	Replacement column set for the RGA Model 1157 – Three channel RGA; Hydrocarbons (FID), Light Gases (TCD) and He/H ₂ channel (TCD)	N6107033
1215	Replacement column set for the RGA Model 1215 – Two channel RGA; Hydrocarbons (FID) and Light Gases (TCD) + LSV	N6107032
1315	Replacement column set for the RGA Model 1315 – Three channel RGA; Hydrocarbons (FID) and Light Gases (TCD) and He/H ₂ channel (TCD) + LSV	N6107033
1317	Replacement column set for the RGA Model 1317 – Three channel RGA; Hydrocarbons (FID) and Light Gases (TCD) and He/H ₂ channel (TCD) + LSV	N6107033
1515	Replacement column set for the RGA Model 1515 – Three channel RGA; Hydrocarbons (FID) and Light Gases (TCD) and He/H ₂ channel (TCD) + LSV	N6107033
Other		
Hydrocarbon channel	Replacement column set for the hydrocarbon channel in any RGA model	NR00HC15

Replacement Column Sets for Standard Arnel Natural Gas Analyzers

Model	Description	Part No.
2000	Replacement column set for the NGA Model 2000 – Detection of hydrocarbons	N6107040
2001	Replacement column set for the NGA Model 2001 – Detection of hydrocarbons, CO ₂ , air and H ₂ S	N6107040
2002	Replacement column set for the NGA Model 2002 – Separation of air and methane	N6107048
2003	Replacement column set for the NGA Model 2003 – Separation of O ₂ and N ₂	N6107052
2006	Replacement column set for the NGA Model 2006 – Detection of hydrocarbons, CO ₂ , air and H ₂ S	N6107056
2008	Replacement column set for the NGA Model 2008 – Separation of O ₂ and N ₂ (with capillary channel)	N6107060
2101	Replacement column set for the NGA Model 2101 – Detection of hydrocarbons, CO ₂ , air, H ₂ S and He/H ₂	N6107041
2103	Replacement column set for the NGA Model 2103 – Separation of O ₂ and N ₂ + He/H ₂ channel	N6107053
2106	Replacement column set for the NGA Model 2106 – Detection of hydrocarbons, CO ₂ , air, H ₂ S and He/H ₂	N6107057
2108	Replacement column set for the NGA Model 2108 – Separation of O ₂ , N ₂ and He/H ₂ (with capillary channel)	N6107061
2201	Replacement column set for the NGA Model 2201 – Detection of hydrocarbons, CO ₂ , air and H ₂ S + LSV	N6107040
2203	Replacement column set for the NGA Model 2203 – Separation of O ₂ and N ₂ + LSV	N6107052
2206	Replacement column set for the NGA Model 2206 – Detection of hydrocarbons, CO ₂ , air, and H ₂ S + LSV	N6107056
2208	Replacement column set for the NGA Model 2208 – Separation of O ₂ and N ₂ (with capillary channel) + LSV	N6107060
2301	Replacement column set for the NGA Model 2301 – Detection of hydrocarbons, CO ₂ , air, H ₂ S and He/H ₂ + LSV	N6107041
2303	Replacement column set for the NGA Model 2303 – Separation of O ₂ and N ₂ + He/H ₂ channel + LSV	N6107053
2306	Replacement column set for the NGA Model 2306 – Detection of hydrocarbons, CO ₂ , air, H ₂ S and He/H ₂ + LSV	N6107057
2406	Replacement column set for the NGA Model 2406 – Detection of hydrocarbons, CO ₂ , air, and H ₂ S + LSV	N6107056
2501	Replacement column set for the NGA Model 2501 – Detection of hydrocarbons with sulfur channel	NR002500
2503	Replacement column set for the NGA Model 2503 – Detection of hydrocarbons with sulfur channel	NR002503

Replacement Column Sets for Other Standard Arnel Analyzers

Model	Description	Part No.
3023	Sim Dis Capillary Column, COL C 10 x 0.53 x 2.65 MXT-2887	NR213000
3023	Sim Dis Capillary Column, COL C 5 x 0.53 x 0.10 MXT-1 HT	NR213314
4001	Replacement column set for the Models 4001 and 4002 – ASTM 4815	N6107070
4002	Replacement column set for the Models 4001 and 4002 – ASTM 4815	N6107070
4003	Replacement column set for the Model 4003 – TOGA	N6107072
4004	Replacement column set for the Model 4004 – ASTM 4815 and ASTM 5580	N6107073

Note: Column sets are sold only as spares with an order, or as replacements to installed analyzers

Model	Description	Part No.
4005	Replacement column set for the Model 4005 – ASTM 5580	N6107073
4012	Replacement column set for Models 4012 – ASTM 3606 + ASTM 4815	N6107216
4013	Replacement column set for the Models 4013 and 4014 – ASTM 3606	N6107218
4014	Replacement column set for the Models 4013 and 4014 – ASTM 3606	N6107218
4015	Replacement column set for the Model 4015 – ASTM 3606, 5580 + 4815	N6107216
4016	Replacement column set for the Model 4016 – Light and combustion gas	N6107221
4017	Replacement column set for the Model 4017 – Light and combustion gas	N6107222
4019	Replacement column set for the Model 4019 – Light and combustion gas	N6107224
4020	Replacement column set for the Model 4020 – Impurities in chlorine	N6107075
4021	Replacement column set for the Model 4021 – Trace CO, CH ₄ and CO ₂	N6107225
4022	Replacement column set for the Model 4022 – CO, CO ₂ in propylene	N6107076
4024	Replacement column set for the Model 4024 – UOP 603	N6107226
4025	Replacement column set for the Model 4025 – Trace sulfur in gases by GSV	N6107208
4027	Replacement column set for the Model 4027 – Trace sulfur in gases by syringe	N6107208
4028	Replacement column set for the Model 4028 – Trace sulfur in gases by GSV and LSV	N6107241
4029	Replacement column set for the Model 4029 – Trace sulfur in gases by GSV and syringe	N6107241
4030	Replacement column set for the Model 4030 – Trace sulfur in gases by GSV + PID	NR004030
4031	Replacement column set for the Model 4031 – Trace sulfur in gases by GSV + FID	NR004031
4032	Replacement column set for the Model 4032 – Full range H ₂	N6107227
4033	Replacement column set for the Model 4033 – Full range O ₂ and N ₂	N6107228
4034	Replacement column set for the Model 4034 – Full range H ₂ , O ₂ and N ₂	N6107229
4035	Replacement column set for the Model 4035 – Light hydrocarbons by GSV	N6107230
4036	Replacement column set for the Model 4036 – Light hydrocarbons by LSV	N6107230
4037-1	Replacement column set for the Model 4037 – LPG light hydrocarbons by GSV and LSV with one column	N6107230
4037-2	Replacement column set for the Model 4037 – LPG light hydrocarbons by GSV and LSV with two columns	N6107232
4038	Replacement column set for the Model 4038 – Trace sulfur in gases by GSV + PID and FID	NR004038
4040	Replacement column set for the Model 4040 – Trace light gases by DID	NR004040
4041	Replacement column set for the Model 4041 – Trace light gases by PID	NR004041
4043	Replacement column set for the Model 4043 – Trace gases by PID and DID	NR004043
4044	Replacement column set for the Model 4044 – Trace gases by DID and FID	NR004044
4045	Replacement column set for the Model 4045 – Trace gases by FID and PID	NR004045
4046	Replacement column set for the Model 4046 – Trace gases by DID, FID and PID	NR004046
4050	Replacement column set for the Model 4050 – Detailed Hydrocarbon Analyzer	N6107220
4080	Replacement column set for the Model 4080 – Oxygenates and Aromatics in Gasoline	N6107233
4083	Replacement column set for the Model 4083 – ASTM 2504	NR004083
4086	Replacement column set for the Model 4086 – Analysis of Trace Methanol and MTBE in Light Hydrocarbon Gases	NR004086
4087	Replacement column set for the Model 4087 – Transformer Oil Gases using ASTM 3612 Headspace Method C	NR004087
4227	Replacement column set for the Model 4227 – Trace sulfur in gases by syringe + LSV	N6107241
4425	Replacement column set for the Model 4425 – Trace sulfur in gases by GSV with permeation chamber	N6107208
4428	Replacement column set for the Model 4428 – Trace sulfur in gases by GSV + LSV with permeation chamber	N6107241
4429	Replacement column set for the Model 4429 – Trace sulfur in gases by GSV and syringe with permeation chamber	N6107241
4430	Replacement column set for the Model 4430 – Trace sulfur in gases by GSV + PID with permeation chamber	NR004030
4431	Replacement column set for the Model 4431 – Trace sulfur in gases by GSV + FID with permeation chamber	NR004031
4438	Replacement column set for the Model 4438 – Trace sulfur in gases by GSV + PID and FID with permeation chamber	NR004038
4629	Replacement column set for the Model 4629 – Trace sulfur in gases by GSV and syringe + LSV with permeation chamber	N6107241
51XX	Replacement column set for the 51XX PET Bottle Analyzer	NR005100
52XX	Replacement column set for the 52XX Workspace Air Monitoring System	NR005200

Note: Column sets are sold only as spares with an order, or as replacements to installed analyzers

Valves

A majority of the Arnel configurations utilize two different types of valves. Most can be categorized as external volume injectors while the other type is an internal sample injector. The injection volume of an internal sample injector valve is determined by the size of etching on the rotor of the valve. External volume sample size is determined by a sample loop outside the valve. External valves are used primarily for sample injection and/or switching applications. A valve used for just switching requires another valve for sample injection. Valves include nuts and ferrules, but not loops.



Ports	Part No.	Max Temperature (C°)	Rotation	Max Pressure (psi)	Fitting (in.)	Material	Rotor Type	Replacement Rotor Part No.
3 Port	N9302885	330	90°	300	1/16	Stainless Steel	T	
4 Port	N9302809	175	90°	400	1/16	Stainless Steel	P	
	N9302813	350	90°	300	1/16	Stainless Steel	T	
	N9302817	330	90°	300	1/8	Stainless Steel	T	
6 Port	N9302810	175	60	400	1/16	Stainless Steel	P	N9302897
	N9302814	350	60	300	1/16	Stainless Steel	T	N9302901
	N9302818	330	60	300	1/8	Stainless Steel	T	N9302905
8 Port	N9302811	175	45	400	1/16	Stainless Steel	P	
	N9302815	350	45	300	1/16	Stainless Steel	T	
	N9302819	330	45	300	1/8	Stainless Steel	T	
10 Port	N9302812	175	36	400	1/16	Stainless Steel	P	N9302899
	N9302816	350	36	300	1/16	Stainless Steel	T	N9302903
	N9302820*	330	36	300	1/8	Stainless Steel	T	

*(P) PTFE-Carbon Composite(T) Polyimide-PTFE-Carbon Composite

Liquid Sample Valves

Arnel liquid sample valves come with a complete valve, close-mount kit, actuator and valve mounting bracket.





Ports	Part No.	Volume (µL)	Rotation	Max Pressure (psi)	Fitting (in.)	Material	Rotor Type	Replacement Rotor Part No.
4	NR810070	0.2 and 0.5	90	1000	1/16	Stainless Steel	75 °C	NR510291

Liquid Sample Valve Accessories

Description	Part No.
2 Micron In-line Filter – 1/8 in. Stainless Steel – Used on 'Sample In' line	N6107085
Check Valve (10 psi) – Brass – Used on 'Sample Out' Line	N6107086

Standoffs

A standoff supports both the actuator and the valve. The standoff places the valve at the specific distance from the actuator. A 4 1/8 in. standoff is recommended for mounting valves in PerkinElmer GC ovens. Standoff and actuator sold separately.

Length	Part No.
2 in. 	N9302909
3 1/4 in. 	N9302910
4 1/8 in. 	N9302911
6 in. 	N9302912
Description	Part No.
Close mount hardware kit	N9302908

Sample Loops



Volume	Size (in.)	6 Port Part No.	8 Port Part No.	10 Port Part No.
100 µL	1/16	N9302851	N9302854	N9302857
100 µL	1/8	N9302860		N9302866
250 µL	1/16	N9302852	N9302855	N9302858
250 µL	1/8			N9302867
500 µL	1/16	N9302853		N9302859
500 µL	1/8	N9302862		N9302868
1 mL	1/16	N9302950	N9302953	N9302956
1 mL	1/8		N9302962	N9302965
2 mL	1/16	N9302951	N9302954	N9302957
2 mL	1/8	N9302960		N9302966
5 mL	1/16	N9302952		N9302958
5 mL	1/8	N9302961		N9302967

1/8 in. fitting loop for valves with 0.030 in. standard port diameter
1/16 in. fitting loop for valves with 0.016 in. standard port diameter

Arnel Sample Loops

The Arnel sample loops are set apart from standard stainless steel loops due to the materials that are used in their manufacture. Arnel offers loops made of nickel and Sulfinert treated stainless steel tubing.

Description	Part No.
0.1 cc Nickel	NR950001
0.125 cc Nickel	NR950007
0.2 cc Nickel	NR950002
0.25 cc Nickel	NR950003
0.5 cc Nickel	NR950004
1.0 cc Nickel	NR950005
2.0 cc Nickel	NR950006
0.07 cc Sulfinert Treated	NRSLSF0.07
0.1 cc Sulfinert Treated	NR950008
0.125 cc Sulfinert Treated	NR950014
0.2 cc Sulfinert Treated	NR950009
0.25 cc Sulfinert Treated	NR950010
0.5 cc Sulfinert Treated	NR950011
1.0 cc Sulfinert Treated	NR950012
2.0 cc Sulfinert Treated	NR950013
3.0 cc Sulfinert Treated	NR950015

Calibration Material

Our calibration gas blends were formulated to be used exclusively in our Refinery and Natural Gas Analyzers. These are the same test gases that are used in the verification and validation processes that take place at our factory. Please contact your local PerkinElmer sales representative for more information about the composition of the gas blends.



Description	Part No.
RGA Calibration Blend With Syringe Adapter	N6107198
RGA Calibration Blend Without Adapter	N6107199
NGA Calibration Blend With Syringe Adapter	N6107200
NGA Calibration Blend Without Adapter	N6107201
Sampling Kit – Arnel GSV; Connects to 1/16 in. sample inlet line for easy gas sample introduction – Content of kit: 3 – BD 30 mL Luer Lock Syringes, 1 six-pack of needles, 1 port adapter, 10 septa	N6100724

Permeation Tubes



Full NIST traceability using established EPA and ASTM protocols by using the appropriate combination of permeation devices. The permeation tubes are certified to be permeating at a certain weigh and threshold (~+/- 2%). Uncertified tubes have an estimated rate and a very large threshold, up to +/- 25%.

Description	Part No.
Dimethylsulfide permeation tube (certified)	N6107361
Ethanol permeation tube (certified)	N6107362
Benzene permeation tube (certified)	N6107363

SCD Maintenance

The SCD parts listed are to support the Agilent 355 Dual Plasma Sulfur Chemiluminescence Detector (SCD).

Description	Part No.
12 Month Maintenance Kit for Dual Plasma SCD	N6107237
Ceramic Tube Package for the Dual Plasma SCD Burner	NR310502
12 Month Maintenance Kit for Single Plasma SCD	N6107209
Ceramic Tube Package for the Single Plasma SCD Burner	N6107313

These kits support the PAC SeNse® NCD and SCD detectors.

Description	Part No.
SeNse Consumable Sulfur Kit	NR333003
SeNse Spare Kit for the Consumable Kit	NR333004

Sampling and Installation Parts

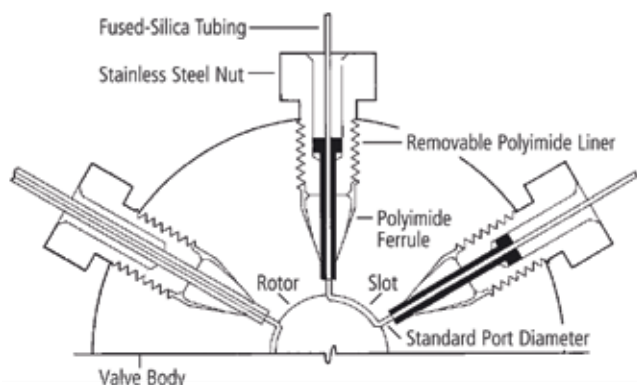
Description	Part No.
Sampling Accessories	
Sampling Kit – Arnel GSV; Connects to 1/16 in. sample inlet line for easy gas sample introduction – Content of kit: 3 – BD 30 mL Luer Lock Syringes, 1 6-pack of needles, 1 port adapter, 10 septa	N6100724
Installation Hardware	
Tee 1/8 in. brass	09903170
Cross 1/8 in. brass	N9301259
Pre-cleaned copper tubing. 1/8 in. OD x 50 ft.	N9300077
VCR Gasket (PDID Channel)	
Nickel Face Seal VCR Gasket – For use with PDID channel 'Sample In' line connections	NR410252N

Nuts and Ferrules

Description	Part No.
Nuts	
Nut 1/16 Stainless Steel – For use with Valco valves and fittings	09903980
Nut for 1/8 in. Tube Fitting – Stainless Steel – Used to make connections at FID, TCD, FPD, PID	09903453
Nut 1/16 in. Stainless Steel – Used to make connections at CAP, PSS and POC injectors	09903392
Nut 1/8 in. – Stainless Steel – For use with Valco Valves and Fittings	N9302833
Ferrules	
FRL 1/16 in. 0.8 mm ID (pkg. 10) – For use with capillary columns 0.18 – 0.53 mm ID and nut 09903392	09920141
FRL 1/16 in. 0.5 mm ID (pkg. 10) – For use with capillary columns 0.18 – 0.32 mm ID and nut 09903392	09903700
FRL 1/32 in. 0.8 mm ID Polyamide – For use with 1/32 in. unions and fittings	NR410229
FRL 1/32 in. 0.8 mm ID Polyamide – For use with 1/32 in. unions and fittings (pkg. 5)	NR410229-5
FRL 1/8 in. Graphite 0.5 mm ID – For use with capillary columns 0.18 – 0.32 mm ID and nut 09903453	NR510002
Ferrule Set 1/16 in. Stainless Steel (pkg. 10) (1 front ferrule/1 back ferrule)	NR410049-10
Ferrule Set 1/8 in. Stainless Steel (pkg. 10) (1 front ferrule/1 back ferrule)	NR410068-10
FRL 1/16 in. Stainless Steel – For use with Valco Valves and Fittings	09903891
Ferrule 1/8 in. Graphite/Vespel – For use with packed columns union NR410110	09920133
Ferrule Reducing 1/8 in. – 1/16 in ID Graphite/Vespel	09920301
FRL 1/32 in. 0.5 mm ID Polyamide – For use with 1/32 in. unions and fittings	NR510486
FRL 1/32 in. 0.5 mm ID Polyamide – For use with 1/32 in. unions and fittings (pkg. 5)	NR510486-5

Fused Silica Adaptors

These adaptors allow connection of fused silica to unions, valves and ports.



Description	Part No.
Fused Silica Adapter 1/16 in. for 0.2 to 0.4 mm ID tube	NR510233
Fused Silica Adapter 1/16 in. for 0.4 to 0.5 mm ID tube	N9302846
Fused Silica Adapter 1/16 in. for 0.5 to 0.8 mm ID tube	NR510030

Methanizers

Description	Part No.
Methanizers	
Replacement Methanizer Assembly for Models containing Arnel Methanizers. For 115 V operation	N6107080
Replacement Methanizer Assembly for Models containing Arnel Methanizers. For 230 V operation	N6107081

PID Maintenance

Details of the replacement lamp for Arnel instruments equipped with a PID detector.

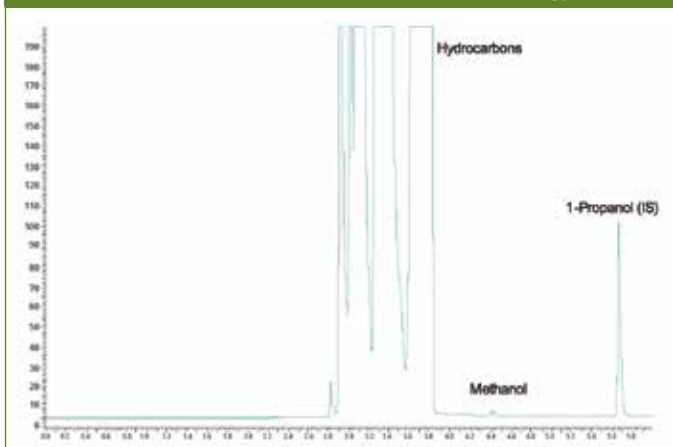
Description	Part No.
10.0/10.6 eV PID Lamp	NR510522

Union and Tees

Description	Part No.
Union 1/16 x 0.75 mm ID bore – Stainless Steel	N9302839
Union 1/16 x 0.75 mm ID bore – Stainless Steel Silco treated	NR410175
Reducing union 1/16 in. to 1/32 in. Stainless Steel – For use with 1/16 in. Valco valves and fittings	09920163
Tee – 1/16 in. x 0.75 mm Bore – Stainless Steel	NR410245
Tee – 1/32 in. Low dead volume connector for capillary tubing/columns	NR410262
Bulkhead Reducing union 1/8 in. to 1/16 in. Stainless Steel. For use with packed columns in rack	NR410110

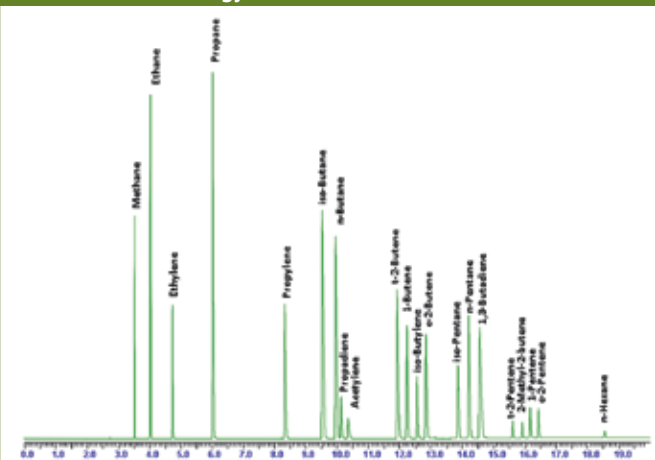
Arnel Analyzer Application Highlights

Methanol in Crude Oils According to ASTM D7059-04 Using a Clarus GC with S-Swafer Micro-Channel Flow Technology.



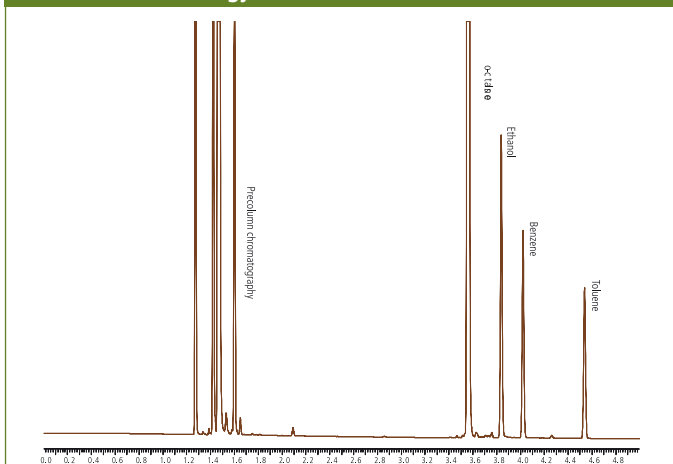
Column: Elite-1 30 m x 0.53 mm x 5.0 μm Part No. **N9316052**
S-Swafer Part No. **N6520272**

The Determination of C2 to C5 Hydrocarbons in Finished Gasolines using the PerkinElmer Clarus 680 GC with Swafer Technology.



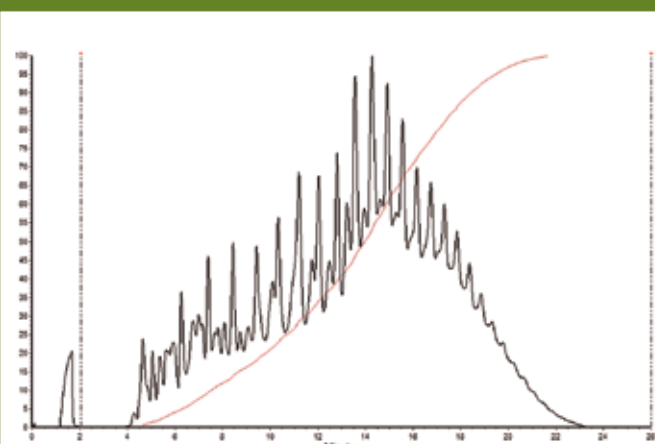
Column: Elite-WAX, 30 m x 0.25 mm x 0.5 μm Part No. **N9316404**
and Al_2O_3 PLOT/ Na_2SO_4 50 m x 0.32 mm Part No. **N6107777**
S-Swafer Part No. **N6520272**

The Determination of Benzene and Toluene in Finished Gasolines Containing Ethanol Using the PerkinElmer Clarus GC with Swafer Technology.



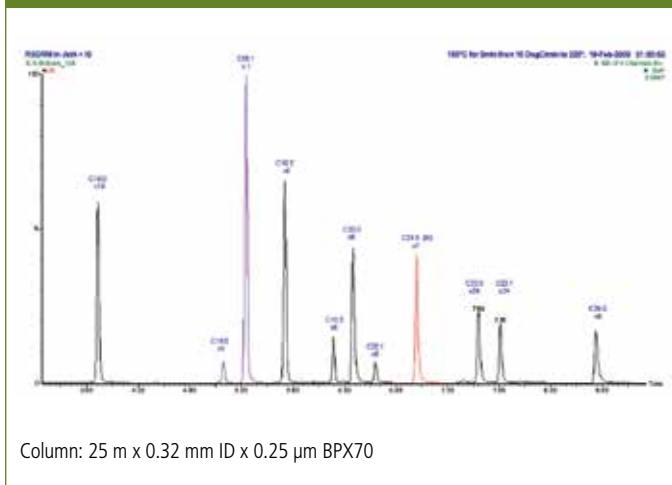
Column: Elite-1, 30 m x 0.25 mm x 0.25 μm Part No. **N9316010**
and COL-Elite-TCEP 60 m 0.25 mm 0.40 μm Part No. **N6107760**
S-Swafer Part No. **N6520272**

Fast Simulated Distillation Analysis by Modified ASTM[®] D2887, D6352 and D7169.

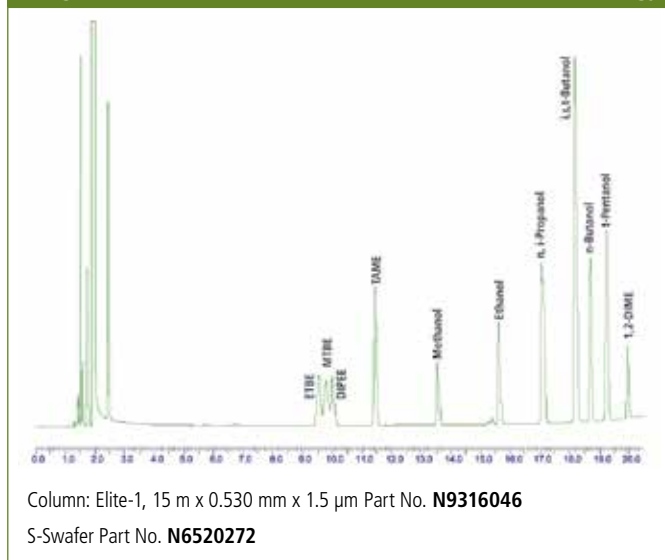


Column: 10 m x 0.53 mm x 2.65 μm MXT-2887 Part No. **NR213000**

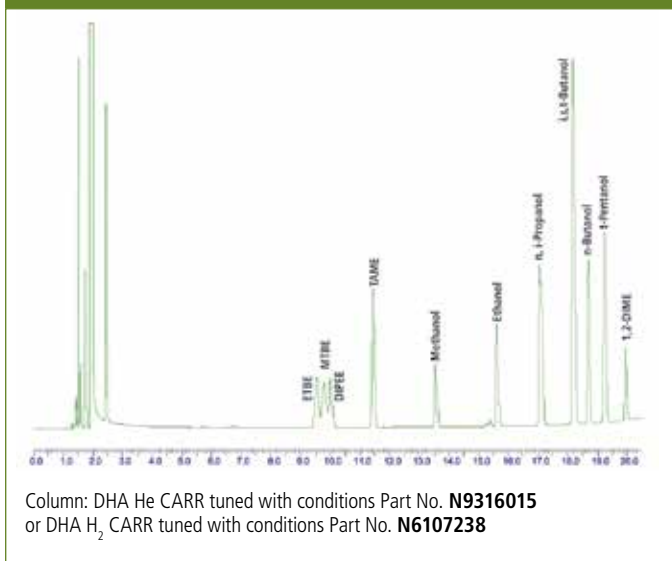
Fatty Acid Methyl Ester Contamination of Aviation Fuel by GC/MS.



Determination of Low-Level Oxygenated Compounds in Gasoline Using the Clarus GC with S-Swafer Micro-Channel Flow Technology.



Fast Detailed Hydrocarbon Analysis by Modified ASTM Method D6730.



Torion

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

Quick Reference Index Page

▶ Accessory Kits	148
▶ Battery Options	149
▶ Calion Chemical Standards	149
▶ Carrier Gas Consumables	148
▶ Conventional Trap Sample Collection Tubes	147
▶ Custodion Needle Trap Samplers	147
▶ Custodion SPME Samplers	147
▶ Liners, Seals and Filaments	149
▶ Needle Trap Kits	148
▶ Sample Prep Station (SPS-3)	146
▶ Sampling Accessories	147
▶ SPS-3 Accessories	146
▶ SPS-3 Consumables	146
▶ Spare Parts	149
▶ Starter Kits	147

Custodion SPME Syringes

The Custodion® SPME (Solid Phase Microextraction) syringes useful for sampling and identification of a wide range of volatiles and semi-volatile compounds while in the field; used conjunction with the Torion T-9 portable system.



▶ [VIEW PAGE](#)

Custodion Needle Trap – Basic Kit

Our Custodion needle trap kits enable users to collect air samples in the field, adsorbing analytes directly onto our novel Custodion needle trap devices.



▶ [VIEW PAGE](#)

Calion Chemical Standards

Calion standards are premixed and adsorbed into a solid phase. These standards are ideal for in-field use because they contain no liquids.



▶ [VIEW PAGE](#)

Merlin Seal

The Merlin Microseal is an alternative to the conventional silicone rubber septa. Its unique design is ideal to use with the Custodion SPME and Needle Trap.



▶ [VIEW PAGE](#)

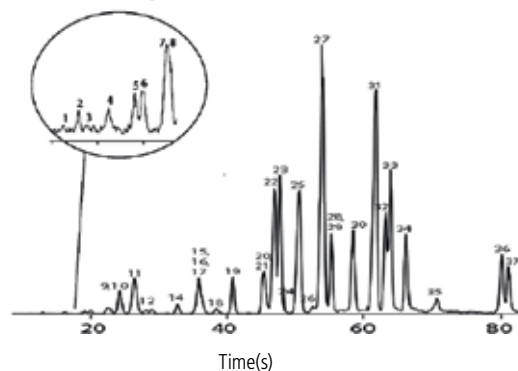
Torion T-9 portable GC/MS

PerkinElmer's Torion® T-9 is a portable GC/MS integrating a high speed Low Thermal Mass (LTM) capillary GC with a miniaturized toroidal ion trap mass spectrometer (TMS). It is designed to be carried in the field and is ideal for rapid screening of chemicals such as environmental volatiles and semi-volatiles (VOCs/SVOCs), explosives, chemical threats, and hazardous substances. The Torion T-9 family includes accessories for sampling air, water and soil.



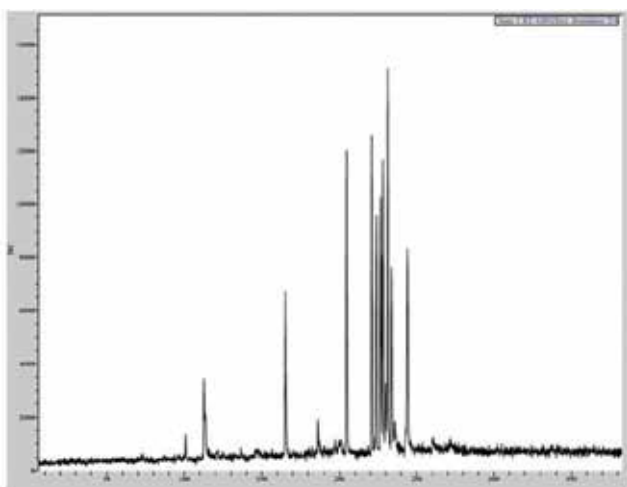
Volatile Organic Compound Screening in Soil Using SPME-GC/MS.

- | | |
|--------------------------------|---------------------------------|
| 1. Trichlorofluoromethane | 20. Chlorobenzene |
| 2. 1,1-Dichloroethylene | 21. 1,1,1,2-Tetrachloroethane |
| 3. Dichloromethane | 22. Ethylbenzene |
| 4. MTBE | 23. Xylene |
| 5. 1,2-Dichloroethylene (Z) | 24. Bromoform |
| 6. Chloroform | 25. Styrene |
| 7. 1,1-Trichloroethane | 26. 1,1,2,2-Tetrachloroethane |
| 8. 1,2-Dichloroethane | 27. Isopropylbenzene |
| 9. Carbon Tetrachloride | 28. Bromobenzene |
| 10. Benzene | 29. 1,2,3-Trichloropropane |
| 11. 2-Butanone | 30. 1,3,5-Trimethylbenzene |
| 12. Trichloroethylene | 31. 1,2,4-Trimethylbenzene |
| 13. Bromodichloromethane | 32. 1,3-Dichlorobenzene |
| 14. 1,3-Dichloro-1-propene (Z) | 33. 1,4-Dichlorobenzene |
| 15. 1,3-Dichloro-1-propene (E) | 34. 1,2-Dichlorobenzene |
| 16. Toluene | 35. 1,2-Dibromo-3-chloropropane |
| 17. 1,1,2-Trichloroethane | 36. 1,2,4-Trichlorobenzene |
| 18. 4-Methyl-2-pentanone | 37. Naphthalene |
| 19. Tetrachloroethylene | |



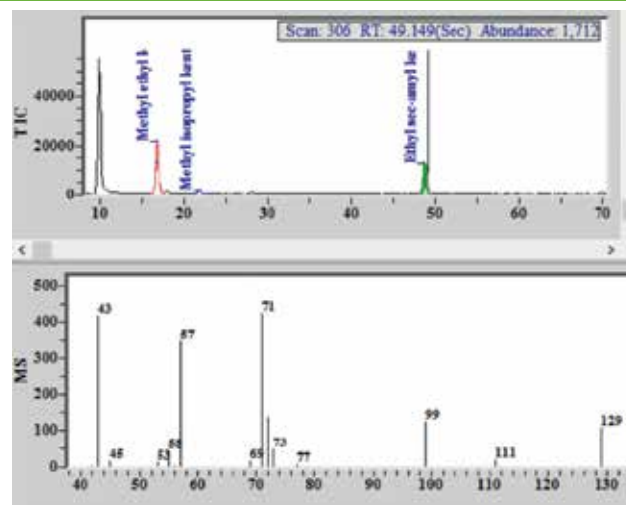
SPME Phase: Divinylbenzene/Polydimethylsiloxane (DVB/PDMS, 65 µm)

Rapid Identification of Illicit Drug Substances Using Thermal Desorption Coupled with a Portable Toroidal Trap GC/MS System.



SPME Phase: Polydimethylsiloxane/divinylbenzene/carboxen (PDMS/DVB/CAR)

Method Development for Identification of Adulterated Spirits using Field Portable GC/MS.



SPME Phase: Divinylbenzene/Polydimethylsiloxane (DVB/PDMS, 65 µm)

Sample Prep Station (SPS-3) for Rapid Field Sampling

The SPS-3 expands sampling capabilities of the Torion T-9 GC/MS. The SPS-3 has a single sample desorption module (DM) and an internal standard module.

The Internal Standard (IS) module adds the capability for semi-quantitative and quantitative analysis through addition of a fixed amount of 2 internal standard reference compounds onto a Custodion Needle Trap (NT). The addition of the desorption module extends the limits of detection of the T-9 by allowing samples to be collected using full size conventional thermal desorption tubes prior to analysis.

SPS-3 Sample Prep Station Single DM with Internal Standard (IS)

Description	Qty.	Part No.
SPS-3 Sample Prep Station with single sample desorption module and internal standard module		NTSSPS30001
SPS-3 with Single DM and IS Modules	1	
CT Handle Assembly	1	
CT Holder Assembly	1	
Helium Quick Disconnect with 1/16 in.	1	
Power Cord	1	
Power Supply	1	
Ethernet LAN Cable	1	
SPS-3 User Manual	1	
SPS-3 Transport Case with Foam	1	

SPS-3 Consumables

Replacement Seal Kits

Replacement Seal and O-Ring kits for SPS-3 and Accessories.



Description	Part No.
Internal Standard Module Seal kit	NTSSPS30013
CT Holder Seal Kit	NTSSPS30011
CT Handle Seal Kit	NTSSPS30014



SPS-3 Sample Prep Station Dual DM with Internal Standard (IS)

Description	Qty.	Part No.
SPS-3 Sample Prep Station with dual sample desorption modules and internal standard module		NTSSPS30002
SPS-3 with Dual DM and single IS Modules	1	
CT Handle Assembly	1	
CT Holder Assembly	1	
Helium Quick Disconnect with 1/16 in.	1	
Power Cord	1	
Power Supply	1	
Ethernet LAN Cable	1	
SPS-3 User Manual	1	
SPS-3 Transport Case with Foam	1	

SPS-3 Accessories

CT Handle

Replacement CT Handle unit.

Acts as interface between Needle Trap and Conventional Trap during SPS-3 desorption cycle.



Description	Part No.
Conventional Trap Handle	NTSS0060015

CT Holder

Replacement CT Holder unit.

Holds Conventional Trap during SPS-3 desorption cycle.



Description	Part No.
Conventional Trap Holder	NTSS0060016

SPS-3 Tool Kit

Contains tools for operation and maintenance of the SPS-3.

Description	Part No.
SPS-3 Tool kit	NTSSPS30020

Starter Kits

Two different starter kits are available to provide everything you need to get up and running with ease.

Description	Qty.	Part No.
Torion T-9 Basic Package		
BB-2590 Charger	1	09280440
Transcend 32 GB Class 10 SDHC/SDXC UHS-I	1	09400003
Merlin Seal 19 GA for SPME NT Injector	6	NTS25700012
SRN SPME 19G BT W/DVB/PDMS 3 Rep Fibers	1	NTSC19SN3B171
Filament Assembly for T-9	1	NTSS0070034
GC Injector Liner Deactivated Gasket	1	NTSS20000021CG
Spare Cable Kit for ION Trap	1	NTSST090012
ION Spare O-Ring Kit Trap	1	NTSST090045
Spare Screws and Washer Kit	1	NTSST090047

Description	Qty.	Part No.
Torion T-9 Advanced Kit		
BB-2590 Charger	1	09280440
Transcend 32 GB Class 10 SDHC/SDXC UHS-I	1	09400003
Merlin Seal 19 GA for SPME NT Injector	12	NTS25700012
SRN SPME 19G BT W/DVB/PDMS 3 Rep Fibers	2	NTSC19SN3B171
Filament Assembly for T-9	1	NTSS0070034
GC Injector Liner Deactivated Gasket	1	NTSS20000021CG
Spare Cable Kit for ION Trap	2	NTSST090012
ION Spare O-Ring Kit Trap	2	NTSST090045
Spare Screws and Washer Kit	2	NTSST090047

Sampling Accessories

Custodion Needle Trap Samplers

The Custodion Needle Trap (NT) is a miniature thermal desorption tube used for extracting and concentrating volatile compounds from air samples used with the Clairion pump. The Custodion-NT should be used with a flow rate range of 5 – 15 mL/min. The Custodion-NT is small enough to desorb samples directly into the Torion T-9 portable GC/MS. The NT is packed with 3 different adsorption beds to give it a broad range of chemical compatibility.

Custodion SPME Samplers

The Custodion SPME (Solid Phase Microextraction) is ideal for quick screening and identification of volatile and semi-volatile compounds. The active phase on the fiber is 65 µm film of DVB/PDMS (Divinylbenzene/ Polydimethylsiloxane) is a general purpose material useful for a wide range of volatilities and chemistries.

Available as a single Custodion syringe handle and fiber, or as a kit with 3 replacement fibers (4 fibers total). Replacement fibers are available as singles.



Needle Trap

Description	Qty.	Part No.
Custodion SPME Syringe, 19 gauge blunt needle, with DVB/PDMS fiber	1	NTSC19SNB171
Custodion SPME Syringe, 19 gauge blunt needle, with DVB/PDMS fiber and three replacement fibers	1	NTSC19SN3B171
Custodion SPME 19 gauge DVB/PDMS Replacement fiber	1	NTS25710033



With needle trap (NT)



With conventional trap (CT)

Conventional Trap

Description	Qty.	Part No.
Custodion Needle Trap (NT) Syringe, 19 gauge blunt needle	1	NTSC19NTB200
Custodion Needle Trap (NT) Syringe, 19 gauge blunt needle	3	NTSC19NTB203
Custodion Needle Trap (NT) Syringe, 19 gauge blunt needle	5	NTSC19NTB205
Custodion Needle Trap (NT) Syringe, 19 gauge blunt needle	10	NTSC19NTB210

Conventional Trap Sample Collection Tubes

Conventional Trap (CT) sample tubes allow for faster sampling of larger air volumes compared to direct sampling with the Needle Trap. The Custodion-CT accommodates a flow rate range of 5 – 100 mL/min. The Custodion-CT is used in conjunction with the Clairion pump for sample collection. Sample analysis requires the SPS-3 to transfer the sample onto a Needle Trap for analysis on the T-9.



Description	Part No.
Air Toxics Pre-conditioned Sample Tube (pkg. 10)	N9307001
Carbopack B 60/80 Pre-conditioned Sample Tubes (pkg. 10)	N9307002
Carbotrap 349 Pre-conditioned Sample Tubes (pkg. 10)	N9307038
Carbopack B/C/S-III Pre-Conditioned Sample Tubes (pkg. 10)	N9307000

Visit www.PerkinElmer.com for additional sample collection tubes

Needle Trap Kits

Our Custodion Needle Trap Kits enable users to collect air samples in the field, adsorbing analytes directly onto our novel Custodion Needle Trap devices. The Needle Trap then directly inject samples into our portable GC/MS, the Torion T-9, allowing users to collect, inject and analyze air samples right at the sample's source.

The Clairion pump can operate for up to 27 hours at 1 L/min on a single charge.



Description	Part No.
Clairion Needle Trap Basic Kit (No Pump)	NTSSCL60705NP
Custodion Needle Trap Syringe, 19 gauge blunt needle Clairion NT-Pump Interface, basic O-Ring/Seal Replacement Kit Seal Removal Tool	
Clairion Needle Trap Basic Kit, 110 V	NTSSCL60705
Clairion Basic Pump, 110 V Clairion Transport Case with Foam Insert Clairion NT-Pump Interface, Basic Custodion Needle Trap O-Ring/Seal Replacement Kit Seal Removal Tool USB Drive with Pump User Manual	
Clairion Needle Trap Basic Kit, 220 V	NTSSCL60705I
Clairion Basic Pump, 220 V Clairion Transport Case with Foam Insert Clairion NT-Pump Interface, Basic Custodion Needle Trap O-Ring/Seal Replacement Kit Seal Removal Tool USB Drive with Pump User Manual	
Clairion Conventional Trap Basic Kit, 110 V	NTSSCL60706
Clairion Basic Pump, 110 V Clairion Transport Case with Foam Insert Clairion CT to Pump Interface CT to Pump Interface O-Ring Kit USB Drive with Pump User Manual	
Clairion Conventional Trap Basic Kit, 220 V	NTSSCL60706I
Clairion Basic Pump, 220 V Clairion Transport Case with Foam Insert Clairion CT-Pump Interface, Basic Whatever O-Ring Kit is necessary USB Drive with Pump User Manual	

Accessory Kits

Description	Qty.	Part No.
T-9 Basic Consumable Kit Supplies for six (6) months		NTSN090100
Custodion SPME Syringe, PDMS/DVB Fiber, 19 gauge with pkg. 3 Replacement	1	
Merlin seal, 19 gauge SPME and Needle Trap Injector	6	
Single Bay Battery Charger	1	
32 GB Industrial SD Card, Formatted	1	
GC Injector Liner, Deactivated, Removable, for SPME and Needle Trap	1	
Cable Kit, T-9 Ion Trap	1	
O-Rings Kit, T-9 Ion Trap	1	
Screws and Washers Kit, T-9 Ion Trap	1	
Advanced Consumable Kit Supplies for twelve (12) months		NTSN090101
Custodion SPME Syringe, PDMS/DVB Fiber, 19 gauge with pkg. 3 Replacement	2	
Merlin seal, 19 gauge SPME and Needle Trap Injector	12	
Single Bay Battery Charger	1	
32 GB Industrial SD Card, Formatted	2	
GC Injector Liner, Deactivated, Removable, for SPME and Needle Trap	1	
Cable Kit, T-9 Ion Trap	2	
O-Rings Kit, T-9 Ion Trap	2	
Screws and Washers Kit, T-9 Ion Trap	2	
Filament Assembly	1	

Carrier Gas Consumables

Disposable helium gas cylinder is a 98 mL stainless steel cylinder at ~2500 psi. Helium cylinders are used for both the T-9 GC/MS and SPS-3 during portable operation.

Description	Qty.	Purity %	Part No.
Ultra-high purity 98 mL disposable helium gas cylinder	1	99.95%	NTSST090034
Ultra-high purity 98 mL disposable helium gas cylinder	2	99.95%	NTSST090035
Ultra-high purity 98 mL disposable helium gas cylinder	6	99.95%	NTSST090036
Ultra-high purity 98 mL disposable helium gas cylinder	12	99.95%	NTSST090037
High purity 98 mL disposable helium gas cylinder	1	99.50%	NTSSG070034
High purity 98 mL disposable helium gas cylinder	2	99.50%	NTSSG070035
High purity 98 mL disposable helium gas cylinder	6	99.50%	NTSSG070036
High purity 98 mL disposable helium gas cylinder	12	99.50%	NTSSG070037

Calion Chemical Standards

Calion standards are premixed and adsorbed into a solid phase. These standards are ideal for in-field use because they contain no liquids. Calion® PV Mixes are used for Torion T-9 calibration, including both mass and GC retention time calibrations. The combination of Custodion SPME sampling with Calion standards provides robust and rapid capability for in-field calibration because they contain no liquids. Calion® PV Mixes are used for Torion T-9 calibration, including both mass and GC retention time calibrations. The combination of Custodion SPME sampling with Calion standards provides robust and rapid capability for in-field calibration.



Mininert Vials used with Custodion SPME Syringe and T-9 Instrument

Description	Qty.	Part No.
Standard Calion PV Mix (pkg. 1)	1	NTSSMIX011019
Standard Calion PV Mix (pkg. 3)	3	NTSSMIX031019

Calion IS internal standard mix is to be used with the SPS-3 and Needle Traps for semi-quantitative and quantitative analysis.



Internal Standard Ampule used with the SPS-3

Description	Qty.	Part No.
Calion IS	1	NTSSMIX0160

Liners, Seals and Filaments



Description	Part No.
GC Deactivated Injector Liner, removable 0.048 in. ID, for needle trap and SPME	NTSS2000021CG
Replacement Merlin seal, 19 gauge for SPME and needle trap injector	NTS25700012
Replacement Filament Assembly for the T-9 Ion Source	NTSS0070034

Battery Options

Description	Part No.
Spare Li-Ion Rechargeable Battery for the T-9	NTS02750005
T-9 Single Bay Batter Charger	NTS02890001

Spare Parts

Description	Part No.
SPS Conventional Trap Assembly Mounts a Conventional Trap in a holder for use in the SPS-3 (NTSSPS30001 and NTSSPS30002)	NTSS0060016
Handle Assembly for SPS Conventional Trap/Needle Trap adapter	NTSS0060015
Conventional Trap to Pump Interface for SPS-3	NTSS0060095
Needle Trap to Pump Interface for SPS-3	NTSS00600071
Clairion™ Seal Replacement Kit for the Pump to Needle Trap interface	NTSSCL60711
Seal Removal Tool	NTSM0060124
Clairion CT to Pump INTFC O-Ring Kit for the conventional Trap to Pump interface	NTSSCL60708
Conventional Holder Seal and O-Rings for SPS-3 for the conventional Trap holder	NTSSPS30011
IS Gasket Seal O-Ring Kit for SPS-3	NTSSPS30013
Conventional Handle Seal with O-Ring Kit for SPS-3	NTSSPS30014
Clairion Seal Replacement Kit for the NT-to-Pump interface	NTSSCL60713
SPS-3 Tool Kit	NTSSPS30020
T-9 Basic Tool Kit	NTSTG080022
Quick Disconnect External Gas Assembly. Quick connection adapter for use with regular gas cylinders. Not for use with the disposable He cartridges	NTSSG080017
Clairion Basic Air Pump, 110 V	NTSS00600041
Clairion Basic Air Pump, 220 V	NTSS00600043
External Battery Cable, 'Pig Tail'	NTSCBL80020

Gas Management

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

Quick Reference Index Page

➤ Advanced Filter System for GC	160
➤ Basic Tool Kit	181
➤ Click-On Inline Super Clean™ Purifiers	166
➤ Compressors	175
➤ Delux Tool Kit	181
➤ Digital Bubble Flow Meter	180
➤ EVO Nitrogen Generators	151
➤ FID Gas Station	172
➤ FlowMark Electronic Flowmeter	180
➤ Flowmeter Plus	181
➤ GC Startup Kits	177
➤ High Purity Hydrogen Generators	170
➤ Membrane Nitrogen Generators	153
➤ MiniTemp MT4 Non-Contact Temp Measurement	179
➤ N ₂ Mini Whisper and Whisper Generators	152
➤ Portable Gas Leak Detector	179
➤ PG-H ₂ Plus, NM-H ₂ Plus Hydrogen Generators	168
➤ Regulators	178
➤ Ultra Clean Gas Filters for GC, GC/MS	161
➤ Ultra Clean Gas Filters for LC/MS	156
➤ Ultra High Purity Hydrogen Generators	171
➤ Zero and Ultra Air Generators	173

NEW FID Gas Station

The FID gas station is a novel system that combines the reliability of the high purity PG or ultrahigh purity NM hydrogen generators with the superior performance of the zero air generators into a single compact instrument.



[VIEW PAGE](#)

NEW Ultra Quiet Analytical Compressor

The Ultra Quiet Analytical compressor is the most dependable, trouble-free and quietest compressor for use with PerkinElmer instruments. This oil-free system incorporates features to provide years of reliability.



[VIEW PAGE](#)

NEW Flowmeter Plus

The Flowmeter Plus is a valuable tool for troubleshooting detector problems, without needing to select gas type. Highly accurate in identifying leaks it offers a minimum detection limit of 0.0005 mL/min hydrogen and helium.



[VIEW PAGE](#)

Ultra Clean Gas Filters

Gas purifiers remove contaminants from gas sources, thereby improving system performance. Cartridge systems make changing gas filters quick and easy. A base plate allows cartridges to be exchanged without introducing ambient air.



[VIEW PAGE](#)

Gas Generators – Simply a Smarter Choice

Analytical gas generators can remove the requirement for high-pressure cylinder gases and are typically placed next to the instrument they are servicing. This removes any need for extended gas lines and negates any associated problems impacting on purity, cost and convenience.

The latest gas generators from PerkinElmer utilise new technologies in adsorbents, catalysts, and specialist micro dryers to produce a continual supply of ultra-high purity gases to your instrumentation. This all but eliminates the introduction of impurities, which can be reduced further by the installation of in-line gas purifiers.

Nitrogen Generators

EVO Nitrogen Generators

The EVO N₂ nitrogen generators are designed as a full 'plug and play' solution with integral oil free, low noise compressors. The EVO Nitrogen hybrid gas model was specifically designed to meet the flow, purity and pressure requirements of the LC/MS /MS applications of AB SCIEX with appropriate pressures and flows of nitrogen. The simple and proven pressure swing adsorption (PSA) technology is employed to remove nitrogen from compressed air. Carbon molecular sieves (CMS) adsorb remaining oxygen and traces of humidity. These generators require minimal maintenance and operator attention. They are CE CSA certified.



Technical Specifications for all Nitrogen Generators

Description	Specification
Purity	> 99.5% (less 2% O ₂)
Outlet Pressure	8 bar/120 psi
Height	64.1 cm (25.2 in.)
Width	48.2 cm (19 in.)
Depth	83.5 cm (32.9 in.)
Weight	121 kg (266 lbs)
Operating Temperature	+10 °C to +40 °C (+50 °F to +104 °F)
Operating Relative Humidity	0 – 80 % rF, no condense/0 – 99% rF with condense drain
Power Consumption	1300 Watt
Circuit Breaker	10 A for 230 V ; 15 A for 110 V
Heat Dissipation Approx	2700 Btu/h

Nitrogen Model	Flow Rate	Voltage (V)	Part No.
EVO N ₂	25 L/min	115	N9308587
	25 L/min	220	N9308573
	35 L/min	115	N9308588
	35 L/min	220	N9308574
EVO N ₂ Hybrid	Up to 10 L/min +/- 1.5 L/min (at atmospheric pressure) 35 L/min of AIR@116 psi	115	N9308590
	Up to 10 L/min +/- 1.5 L/min (at atmospheric pressure) 35 L/min of AIR@116 psi	220	N9308576

N₂ Whisper Generators

The Whisper nitrogen generator has been developed to meet specific requirements in terms of flow, purity and pressure in LC/MS applications. It can also be used for the evaporation of solvents in samples being analyzed. The simple high efficiency membrane technology allows nitrogen separation from other components present within the supplied compressed air.

Better results: The constant purity of nitrogen improves system stability and ensures reproducible results.

Saving you money: Initial investment is typically paid back in less than a year. No plumbing is required to transfer gas from the storeroom to the lab.

Better lab efficiency: Constant supply of high quality nitrogen in line with your application demands. Gas cylinders are often insufficient to ensure the large nitrogen volumes needed in LC/MS techniques.

Improved safety: Nitrogen is produced at low pressure and room temperature eliminating the risks related to high pressure gas bottle use and the hazards associated with liquid nitrogen.

Simple installation: A plug and play approach. The wall-mounted installation saves precious bench space!

N₂ Mini Whisper Generators

Based upon the Whisper generator, the Mini Whisper Nitrogen generator provides the same high purity nitrogen, but at a lower flow rate. It is ideally suited to ELSD applications as well as LC/MS analysis.

The simple yet high efficiency membrane technology allows the separation of nitrogen from the other components of the compressed air inlet.

The low pressure drop allows the unit to be connected to an existing dry and oil-free compressed air source in the lab.



N₂ Mini Whisper Generator



N₂ Whisper Generator

Technical Specifications

Description	Whisper	Mini Whisper
Purity (based on outlet flow)	> 98 – 99.5%	> 98 – 99.5%
Outlet Pressure	7 bar	7 bar
Height	115 cm (45.3 in.)	73.5 cm (28.9 in.)
Width	48 cm (19 in.)	34.8 cm (13.7 in.)
Depth	26 cm (10.2 in.)	35 cm (13.8 in.)
Weight	15 kg (33 lbs) ; 18 kg (39 lbs); 21 kg (46 lbs)	8 kg (18 lbs)
Operating Temperature	+10 °C to +35 °C (+50 °F to +95 °F)	+10 °C to +35 °C (+50 °F to +95 °F)
Air Compressor Supplied	NO	NO
Electrical Requirements	None	None
Background Noise	None	None
Connections	1/4 G	1/4 G

Description	Flow Rate	Part No.
Whisper	40 L/min	N9306285
	80 L/min	N9306286
	120 L/min	N9306287
Mini Whisper	12 L/min	N9306288

Membrane Nitrogen Generators

PerkinElmer offers customers a new line of nitrogen generators to meet the growing need for cost effective and pure nitrogen. Membrane Nitrogen Generators are designed to supply single or multiple LC/MS instruments with dry nitrogen at purities of 98% to 99.5%. The generator can also be used for solvent evaporation as well as supplying dry nitrogen to analytical instruments.

Nitrogen is produced by utilizing a combination of filtration and membrane separation technologies. A high efficiency pre-filtration system pre-treats the compressed air to remove all contaminants down to 0.01 micron. Hollow fiber membranes subsequently separate the clean air into a concentrated nitrogen output stream and an oxygen enriched permeate stream, which is vented from the system. The combination of these technologies produces a continuous on demand supply of pure nitrogen.

LC/MS Nitrogen Generators with Integrated Compressors

Description	Specification
Purity	>98%
Min/Max Operating Pressure	101.5 psi/g
Height	70.1 cm (27.8 in.)
Width	51.1 cm (20.1 in.)
Depth	58.2 cm (22.9 in.)
Weight	135.2 kg (298 lbs)
Operating Temperature	+5 °C to +40 °C (+41 °F to +104 °F)
Port Connection Outlet	1/4 in. Compression Fitting
Electrical Requirements	120 V/60 Hz or 230 V/50 – 60 Hz ± 10%
Air Compressor	Yes
Flow Rates	30 L/min
Part No.	N9303223 (120 V) ; N9303224 (230 V)



Technical Specifications

Description	Low Flow NitroFlow Lab with built in compressor	N ₂ -22 Mid Flow	N ₂ -35 Mid Flow	N ₂ -45 High Flow
Purity	94.0 – 99.5%	95.0 – 99.5%	95.0 – 99.5%	95.0 – 99.5%
Min/Max Operating Pressure	8 bar (116 bar)	60/145 psig (4.0/10 barg)	60/145 psig (4.0/10 barg)	60/145 psig (4.0/10 barg)
Height	70 cm (27.6 in.)	13 cm (5.1 in.)	13 cm (5.1 in.)	140 cm (55.1 in.)
Width	31 cm (12.2 in.)	45 cm (17.8 in.)	45 cm (17.8 in.)	61 cm (24.0 in.)
Depth	90 cm (35.4 in.)	41 cm (16.1 in.)	41 cm (16.1 in.)	50 cm (20.0 in.)
Weight	127.4 kg (280 lbs)	36 kg (80 lbs)	41 kg (90 lbs)	114 kg (250 lbs)
Operating Temperature	+10 °C to +35 °C (+50 °F to +95 °F)	+15 °C to +35 °C (+60 °F to +95 °F)	+15 °C to +35 °C (+60 °F to +95 °F)	+15 °C to +35 °C (+60 °F to +95 °F)
Electrical Requirements	120 V/60 Hz, 20 Amp Nema 5	None	None	None
Air Compressor	Yes	No	No	No
Flow Rates	32 L/min	100 psi inlet – 20 L/min output – 99.0% purity	100 psi inlet – 30 L/min output – 99.0% purity	100 psi inlet – 53 L/min output – 99.0% purity
Part No.	N9306213 (120 V) N9306214 (230 V)	N9306210	N9306211	N9306212

NitroFlowLab; Integrated N₂ Generator and Compressor

Features and Benefits

- Complete 'Plug and Play' system
- Phthalate-free, no organic vapors
- 8,000 hours compressor warranty or two years
- Special design ensures quiet operation
- Dual oil-less air compressors

Ambient Temperature Range	50 °F – 95 °F (10 °C – 35 °C)
Ambient Pressure Range	103 mbar
Electrical Requirements	Standard with 115 V/60 Hz: 20 A/125 VAC; NEMA 5 – 20 straight blade. 230 V/50 Hz can be mounted locally as to local requirements
Power Conditioner	1400 Watts
Port Connections: Outlet Port	1/4 in. NPT



Model	Part No.	Flow Rate L/min	Purity %	Hydrocarbon Content (excluding methane) ppm	Delivery Pressure psig	Height (H) ins/cm	Width (W) ins/cm	Depth (D) ins/cm	Weight lbs/kg
NitroFlowLab 120 V/60 Hz	N9306213	10 – 30	94.0 – 99.5	<2	116	27.6/70	12.2/90	35.4/31	205/92.5
NitroFlowLab 230 V/50 Hz	N9306214	10 – 30	94.0 – 99.5	<2	116	27.6/70	12.2/90	35.4/31	205/92.5

N₂-45 High Flow

Features and Benefits

- Eliminates the need for costly, dangerous, inconvenient nitrogen cylinders in the laboratory
- Requires no electricity
- Compact design frees up valuable laboratory floor space
- Phthalate-free, no organic vapors

Ambient Temperature Range	72 °F (22 °C)
Max Recommended Inlet Air Temperature	110 °F (43 °C)
Inlet Air Temperature Range	60 °F – 95 °F (15 °C – 35 °C)
Electrical Requirements	None
Port Connections:	
Outlet Port	1/4 in. NPT
Inlet Port	1/4 in. NPT



Model	Part No.	Flow Rate L/min	Purity %	Min/Max Operating Pressure	Atmospheric Dewpoint	Height (H) ins/cm	Width (W) ins/cm	Depth (D) ins/cm	Weight (Empty) lbs/kg
N ₂ -45	N9306212	33 – 106	95.0 – 99.5	60 – 145	-58/-50	67/140	24/61	20/50	250/114

N₂-22 Mid Flow

Features and Benefits

- Eliminates the need for costly, dangerous, inconvenient nitrogen cylinders in the laboratory
- Requires no electricity
- Compact design frees up valuable laboratory floor space
- Phthalate-free, no organic vapors

Ambient Temperature Range	60 °F – 95 °F (15 °C – 35 °C)
Max Recommended Inlet Air Temperature	110 °F (43 °C)
Inlet Air Temperature Range	60 °F – 95 °F (15 °C – 35 °C)
Electrical Requirements	None
Port Connections:	
Outlet Port	1/4 in. NPT
Inlet Port	1/4 in. NPT



Model	Part No.	Flow Rate L/min	Purity %	Min/Max Operating Pressure psig	Atmospheric Dewpoint °F/°C	Height (H) ins/cm	Width (W) ins/cm	Depth (D) ins/cm	Weight (Empty) lbs/kg
N ₂ -22	N9306210	13 – 38	95.0 – 99.5	60 – 145	-58/-50	51.5/130	18 / 45	16.2/41	80/36

N₂-35 Mid Flow

Features and Benefits

- Eliminates the need for costly, dangerous, inconvenient nitrogen cylinders in the laboratory
- Requires no electricity
- Compact design frees up valuable laboratory floor space
- Phthalate-free, no organic vapors

Ambient Temperature Range	60 °F – 95 °F (15 °C – 35 °C)
Max Recommended Inlet Air Temperature	110 °F (43 °C)
Inlet Air Temperature Range	60 °F – 95 °F (15 °C – 35 °C)
Electrical Requirements	None
Port Connections:	
Outlet Port	1/4 in. NPT
Inlet Port	1/4 in. NPT



Model	Part No.	Flow Rate L/min	Purity %	Min/Max Operating Pressure	Atmospheric Dewpoint °F/°C	Height (H) ins/cm	Width (W) ins/cm	Depth (D) ins/cm	Weight (Empty) lbs/kg
N ₂ -35	N9306211	20 – 44	95.0 – 99.5	60 – 145	-58/-50	51.5/130	18/45	16.2/41	80/36

Ultra Clean Gas Filters for LC/MS

Wrenches to change filters is a thing of the past. There is no longer a need for loosening and tightening fittings every time a trap is changed, which may contaminate your system during the process. Cartridge systems make changing gas filters quick and easy. A base plate allows cartridges to be exchanged without introducing ambient air. Spring-loaded check valves seal when a filter is removed and open only when a new filter has been locked in place.

Carrier Gas Purity

Carrier gas should contain less than 1 ppm of oxygen, moisture, or other trace contaminants to prevent column degradation, increase column lifetime, and decrease stationary phase bleed. The expense of using high purity gases in combination with carrier gas line purifiers will be offset by longer column lifetime and less GC maintenance.

Contaminants cause ghost peaks to appear during temperature programming and degrade the validity of analytical data. Make-up gas also should be contaminant-free, or baseline fluctuations and excessive detector noise can occur. Detector gases should be free of water and hydrocarbons, or excessive baseline noise can result. Gas purifiers remove these contaminants from gas sources, thereby improving system performance.

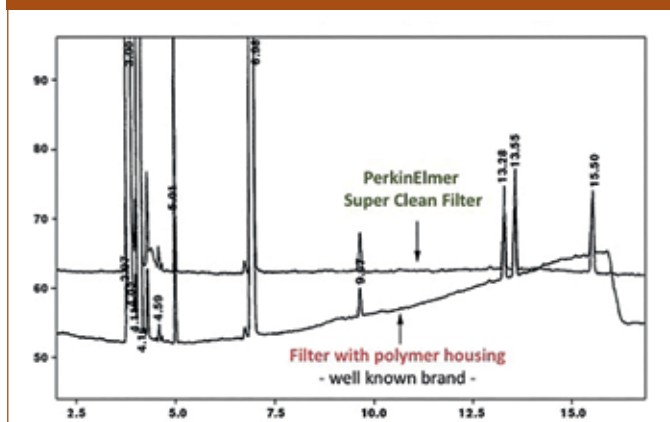
When the easy to read indicators change color it is a signal on a major gas carrier problem; a major leak upstream or downstream, a high concentration of contaminants or to late replacement or filter replacement is overdue. This is the time to swap a filter. To prevent contamination or saturation issues, the filter should be swapped every 12 months, as a minimum, regardless the indicator has changed color or not. Some high throughput applications may need the filter changing every 6 months.



Features and Benefits

- High purity output insures 99.9999% pure gas
- No tool replacement of filter cartridges, no need to shut gas flow off with quick disconnect base plate
- Easy to read indicators to determine replacement interval
- Helium and Hydrogen specific cartridges available: operational with 15 minute purge after installation
- Safety shielding of glass filter with plastic cover
- Serial numbered for ease of tracking

Figure 6: Comparing baseline performance with PerkinElmer SuperClean filters vs. a competitive polymer housed filter.



Ultra Clean Gas Filters and Kits for LC/MS

To meet the high flow needs of the LC/MS system, the hydrocarbon or moisture filled cartridges are positioned and placed in parallel. The incoming gas stream is split equally between the cartridges and the two streams are re-joined after purification but before the gas exits the base plate. Get up and running with speed and benefit from increased sensitivity by removing unwanted moisture and hydrocarbons.

Ultra-High Capacity Hydrocarbon Filter Bundle

Up to 20 L/min of hydrocarbon-free nitrogen per minute.

Capacity	
HC	24 g (as <i>n</i> -butane)
Description	Specification
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	20 L/min
Usable For	Nitrogen
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Estimated Lifetime	3 to 6 months
Part No.	N9306823



Ultra-High Capacity Moisture Filter Bundle

High Flow moisture filters are ideal for central purifying solutions. Moisture in carrier gas lines will prematurely degrade oxygen and hydrocarbon traps and increase detector noise. As a precaution, we highly recommend installing a moisture trap before the hydrocarbon and oxygen traps on all carrier gas lines.

Capacity	
H ₂ O	14.4 g
Description	Specification
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	20 L/min
Usable For	Inert carrier gas, He, H ₂ , N ₂ , Ar, Air
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Estimated Lifetime	3 to 6 months
Part No.	N9306824



Ultra Clean Filter Kits for LC/MS

Description	Qty.	Part No.
Ultra Clean 2 High Flow Hydrocarbon Filter Kit – 1/4 in. Brass: Includes (1) 2 position high flow base plate with 1/4 in. Brass inlet/outlet fittings, (2) High Flow Hydrocarbon Traps, and a 1/4 in. Brass Particle Filter	Kit	N9306840
Ultra Clean 2 High Flow Hydrocarbon Filter Kit – 1/4 in. Stainless Steel: Includes (1) 2 position high flow base plate with 1/4 in. Stainless Steel inlet/outlet fittings, (2) High Flow Hydrocarbon Traps, and a 1/4 in. Brass Particle Filter	Kit	N9306841



Ultra Clean Filter Base Plates for GC/MS

Description	Qty.	Part No.
Ultra Clean Base plate 1 Position – 1/4 in. Brass	1	N9306800
Ultra Clean Base plate 1 Position – 1/8 in. Brass	1	N9306801
Ultra Clean Base plate 1 Position – 1/4 in. Stainless Steel	1	N9306802
Ultra Clean Base plate 1 Position – 1/8 in. Stainless Steel	1	N9306803
Ultra Clean Base plate 2 Position – 1/4 in. Brass	1	N9306804
Ultra Clean Base plate 2 Position – 1/8 in. Brass	1	N9306805
Ultra Clean Base plate 2 Position – 1/4 in. Stainless Steel	1	N9306806
Ultra Clean Base plate 2 Position – 1/8 in. Stainless Steel	1	N9306807
Ultra Clean Base plate 3 Position – 1/4 in. Brass	1	N9306810
Ultra Clean Base plate 3 Position – 1/8 in. Brass	1	N9306811
Ultra Clean Base plate 3 Position – 1/4 in. Stainless Steel	1	N9306812
Ultra Clean Base plate 3 Position – 1/8 in. Stainless Steel	1	N9306813



Replacement Filter Bundles for LC/MS

Description	Qty.	Part No.
Ultra Clean High Flow Hydrocarbon Filter Bundle: Includes (2) High Flow Hydrocarbon Filters	1 bundle of 2 cartridges	N9306823
Ultra Clean High Flow Moisture Filter Bundle: Includes (2) High Flow Moisture Filters	1 bundle of 2 cartridges	N9306824



Ultra Clean Replacement Individual Cartridge Filters for GC and GC/MS

Description	Qty.	Part No.
Ultra Clean Moisture Filter	1	N9306814
Ultra Clean Oxygen Filter	1	N9306815
Ultra Clean Hydrocarbon Filter	1	N9306816
Ultra Clean Combi (Hydrocarbon/Moisture) Filter	1	N9306818
Ultra Clean Triple (Oxygen/Moisture/Hydrocarbon) Filter	1	N9306819
Ultra Clean Triple (Oxygen/Moisture/Hydrocarbon) Helium-specific Filter	1	N9306820
Ultra Clean Triple (Oxygen/Moisture/Hydrocarbon) Hydrogen-specific Filter	1	N9306822



Base Plates

Ultra Clean High Flow Base Plates for LC/MS

Description	Qty.	Part No.
Ultra Clean High Flow base plate 2 position – 1/4 in. Brass: Includes 1/4 in. Stainless Steel particle filter	1	N9306808
Ultra Clean High Flow base plate 2 position – 1/4 in. Brass: Includes 1/4 in. Stainless Steel particle filter	1	N9306809



Accessories

Particle Filter for LC/MS

Description	Qty.	Part No.
Ultra Clean 0.5 Micron Particle Filter – 1/4 in. Brass	1	N9306856
Ultra Clean 0.5 Micron Particle Filter Cup Replacement Pack	12	N9306857



Ultra Clean Base Plate Fittings for LC/MS

Description	Qty.	Part No.
Ultra Clean High Flow Connector Set – 1/4 in. Brass	6	N9306850
Ultra Clean High Flow Connector Set – 1/4 in. Stainless steel	6	N9306851



Ultra Clean Base Plate Flush Cap Replacement Set for LC/MS

Description	Qty.	Part No.
Ultra Clean High Flow Flush Cap Replacement Set	2	N9306853



Wall Mounting Bracket for All Cartridge Base Plates

Description	Qty.	Part No.
Ultra Clean Wall-mounting Bracket Set	1	N9306855



Replacement O-Rings for All Cartridge Base Plates

Description	Qty.	Part No.
Ultra Clean Base plate O-Ring Replacement Set	20	N9306854



Advanced Filter System

The Advanced Filter System has high-capacity and efficiency levels for oxygen, water and hydrocarbons. The recommended maximum flow rate is 2 L/min with 200 psi maximum operating pressure.

A polycarbonate shield surrounding the glass indicator section of the filter is sealed, unlike other gas filters, the gas flow is secure even if the glass should break. This redundant sealing system and robust construction provides a new level of security in gas filtration.



Features and Benefits

- Two indicators – for oxygen and moisture
- High capacity and efficiency in a single, easy to replace, cartridge
- Double-seal construction for safety
- Check valves protect gas lines during replacement
- Includes mounting hardware for bench or wall

Description	Part No.
Advanced Filter System	N9303963
Replacement Cartridge for Oxygen, Water and Hydrocarbons	N9303964
Manifold and Mounting Hardware	N9303139

Description	Capacity	Efficiency
Oxygen	850 cc	<5 ppb
Water	12 g	<20 ppb
Hydrocarbons	8 g	<5 ppb

Features and Benefits

- High purity output insures 99.9999% pure gas
- No tool replacement of filter cartridges, no need to shut gas flow off with quick disconnect base plate
- Easy to read indicators to determine replacement interval
- Helium and Hydrogen specific cartridges available: operational with 15 minute purge after installation
- Safety shielding of glass filter with plastic cover
- Serial numbered for ease of tracking

Carrier Gas Purity

Carrier gas should contain less than 1 ppm of oxygen, moisture, or other trace contaminants to prevent column degradation, increase column lifetime, and decrease stationary phase bleed. The expense of using high purity gases in combination with carrier gas line purifiers will be offset by longer column lifetime and less GC maintenance.

Contaminants cause ghost peaks to appear during temperature programming and degrade the validity of analytical data. Make-up gas also should be contaminant-free, or baseline fluctuations and excessive detector noise can occur. Detector gases should be free of water and hydrocarbons, or excessive baseline noise can result. Gas purifiers remove these contaminants from gas sources, thereby improving system performance.

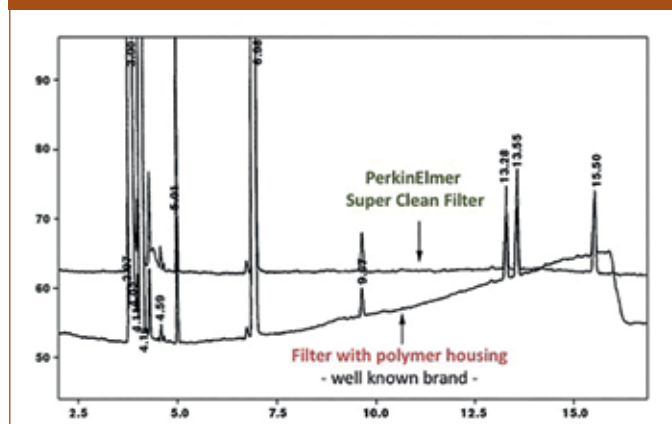
When the easy to read indicators change color it is a signal on a major gas carrier problem; a major leak upstream or downstream, a high concentration of contaminants or to late replacement or filter replacement is overdue. This is the time to swap a filter. To prevent contamination or saturation issues, the filter should be swapped every 12 months, as a minimum, regardless the indicator has changed color or not. Some high throughput applications may need the filter changing every 6 months.

Ultra Clean Gas Filters

Wrenches to change filters is a thing of the past. There is no longer a need for loosening and tightening fittings every time a trap is changed, which may contaminate your system during the process. Cartridge systems make changing gas filters quick and easy. A base plate allows cartridges to be exchanged without introducing ambient air. Spring-loaded check valves seal when a filter is removed and open only when a new filter has been locked in place.



Figure 5: Comparing baseline performance with PerkinElmer SuperClean filters vs. a competitive polymer housed filter.



Ultra Clean Gas Filter Kits for GC and GC/MS

Available with different sized fittings, (1/8 in. or 1/4 in.) in brass or stainless steel, these complete filter kits contain everything you need to quickly and easily install into your analytical system; instantly assuring you of a continual high purity gas supply. A full listing of individual replacement cartridges is listed from page 162.

Triple Filter Kit for MS/ECD/NPD

The triple combination filter kit is ideal for purifying GC/MS carrier gases. It contains oxygen, moisture and hydrocarbon scrubbers in one easy to change economical cartridge. There is a range of brass and stainless steel base plate fittings and options for hydrocarbon trap to be helium or hydrogen specific, in addition to the general carrier gas.

Description	Qty.	Part No.
PerkinElmer Triple (Oxygen/Moisture/Hydrocarbon) Filter Kit – 1/4 in. Brass Kit: Includes (1) 1 position base plate with 1/4 in. Brass inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap	Kit	N9306828
PerkinElmer Triple (Oxygen/Moisture/Hydrocarbon) Filter Kit – 1/8 in. Brass kit: Includes (1) 1 position base plate with 1/8 in. Brass inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap	Kit	N9306829
PerkinElmer Triple (Oxygen/Moisture/Hydrocarbon) Filter Kit – 1/4 in. Stainless Steel kit: Includes (1) 1 position base plate with 1/4 in. Stainless Steel inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap	Kit	N9306830
PerkinElmer Triple (Oxygen/Moisture/Hydrocarbon) Filter Kit – 1/8 in. Stainless Steel kit: Includes (1) 1 position base plate with 1/8 in. Stainless Steel inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap	Kit	N9306831
PerkinElmer Triple filter (Oxygen/Moisture/Hydrocarbon)	1	N9306819
PerkinElmer Triple filter (Oxygen/Moisture/Hydrocarbon): Helium specific filter	1	N9306820
PerkinElmer Triple filter (Oxygen/Moisture/Hydrocarbon): Hydrogen specific filter	1	N9306822



Configuration	Benefit
GC/MS	Higher data accuracy and less maintenance
GC/ECD	Greater sensitivity
GC/TCD	Greater sensitivity and less maintenance

Complete Triple Filter Bundle Kit for FID

This complete filter kit is the perfect all-in-one solution for purifying Flame Ionization Detector (FID) fuel gases together with the carrier gas. The triple filter simultaneously hydrocarbons, moisture and oxygen are removed from the carrier gas and combi filter removes both moisture and hydrocarbons from the hydrogen and air fuel gases. The kit consists of one triple filter and two combi filters (hydrogen and air) together with one three position base plate. There are a range of base plate fittings options available.

Description	Qty.	Part No.
PerkinElmer 3 Filters Kit – 1/4 in. Brass: Includes (1) 3 position base plate with 1/4 in. Brass inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap and (2) Hydrocarbon/Moisture Traps	Kit	N9306842
PerkinElmer 3 Filters Kit – 1/8 in. Brass: Includes (1) 3 position base plate with 1/8 in. Brass inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap and (2) Hydrocarbon/Moisture Traps	Kit	N9306843
PerkinElmer 3 Filters Kit – 1/4 in. stainless steel: Includes (1) 3 position base plate with 1/4 in. stainless steel inlet/outlet fittings and (1) Oxygen/ Moisture/ Hydrocarbon Trap and (2) Hydrocarbon/Moisture Traps	Kit	N9306844
PerkinElmer 3 Filters Kit – 1/8 in. stainless steel: Includes (1) 3 position base plate with 1/8 in. stainless steel inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap and (2) Hydrocarbon/Moisture Traps	Kit	N9306845
PerkinElmer triple filter – (Oxygen/Moisture/Hydrocarbon)	1	N9306819
PerkinElmer Combi (Hydrocarbon/Moisture) Filter	1	N9306818
PerkinElmer Filter Bundles: Includes (1) Oxygen/Moisture/Hydrocarbon Trap and (2) Hydrocarbon/Moisture Traps	3	N9306826



Configuration	Benefit
GC/FID	Improved reproducibility and sensitivity

Ultra Clean Gas Filters for GC and GC/MS

The easy to use leak-tight cartridge system enables rapid change of exhausted cartridges without interrupting supply or system operation. A wide range of individual cartridges or combination cartridges are available to suit a variety of applications.

Ultra-High Capacity Moisture Filter

Moisture in carrier gas lines will prematurely degrade oxygen and hydrocarbon traps and increase detector noise. As a precaution, we highly recommend installing a moisture trap before the hydrocarbon and oxygen traps on all carrier gas lines.

Capacity	
H ₂ O	7.2 g
Description	Specification
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	Inert carrier gas, He, H ₂ , N ₂ , Ar, Air
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Part No.	N9306814



Ultra-High Capacity Oxygen Filter

Oxygen is a column killer – it is present even in UHP gases. Because oxygen can enter a gas line at any fitting or during gas bottle exchange, the oxygen trap should be the last connection before the gas line enters the chromatograph.

Capacity	
O ₂	150 mL
Description	Specification
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	Inert carrier gas, He, H ₂ , N ₂ , Ar
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Part No.	N9306815



Ultra-High Capacity Hydrocarbon Filter

Use a hydrocarbon trap if your gas has a potential source of hydrocarbon contaminants or if you suspect you are observing carrier gas ghost peaks. Install the hydrocarbon trap after the moisture trap, to prevent moisture from degrading the hydrocarbon-trapping ability of the activated carbon in the hydrocarbon trap.

Capacity	
HC	12 g (as <i>n</i> -butane)
Description	Specification
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	Inert carrier gas, He, H ₂ , N ₂ , Ar, Air
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Part No.	N9306816



High Capacity Combi Filter

This filter is perfect for purifying Flame Ionization Detector (FID) fuel gases, removing both moisture and hydrocarbons. Using this filter for FID hydrogen and air will produce a stable baseline, improving overall reproducibility and sensitivity. Ideal for use in combination with a zero air generator.

Capacity	
H ₂ O	3.5 g
HC	6 g (as <i>n</i> -butane)
Description	Specification
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	Inert carrier gas, He, H ₂ , N ₂ , Ar, Air
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Part No.	N9306818



High Capacity Triple Filter

The triple trap is ideal for purifying carrier gas. It contains oxygen, moisture and hydrocarbon scrubbers in one easy to change economical cartridge.

Capacity	
H ₂ O	1.8 g
O ₂	75 mL
HC	4 g (as <i>n</i> -butane)
Description	Specification
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	Inert carrier gas, He, H ₂ , N ₂ , Ar
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Part No.	N9306819



High Capacity Triple Filter Helium Specific

The helium-specific triple trap is ideal for purifying helium in GC/MS systems. This trap is packed and purged under helium and contains oxygen, moisture and hydrocarbon scrubbers in one cartridge.

Capacity	
H ₂ O	1.8 g
O ₂	75 mL
HC	4 g (as <i>n</i> -butane)
Description	Specification
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	He
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Part No.	N9306820



High Capacity Triple Filter Hydrogen Specific

The hydrogen-specific triple trap is ideal for purifying hydrogen in GC/MS systems. This trap is packed and purged under hydrogen and contains oxygen, moisture and hydrocarbon scrubbers in one cartridge.

Capacity	
H ₂ O	1.8 g
O ₂	75 mL
HC	4 g (as <i>n</i> -butane)
Description	Specification
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	H ₂
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Part No.	N9306822



Ultra Clean Replacement Individual Cartridge Filters for GC and GC/MS

Description	Qty.	Part No.
Ultra Clean Moisture Filter	1	N9306814
Ultra Clean Oxygen Filter	1	N9306815
Ultra Clean Hydrocarbon Filter	1	N9306816
Ultra Clean Combi (Hydrocarbon/Moisture) Filter	1	N9306818
Ultra Clean Triple (Oxygen/Moisture/Hydrocarbon) Filter	1	N9306819
Ultra Clean Triple (Oxygen/Moisture/Hydrocarbon) Helium-Specific Filter	1	N9306820
Ultra Clean Triple (Oxygen/Moisture/Hydrocarbon) Hydrogen-Specific Filter	1	N9306822



Accessories

Ultra Clean Base Plate Flush Cap Replacement Set for GC/MS

Description	Qty.	Part No.
Ultra Clean Flush Cap Replacement Set	2	N9306852



Wall Mounting Bracket for All Cartridge Base Plates

Description	Qty.	Part No.
Ultra Clean Wall-Mounting Bracket Set	1	N9306855



Replacement O-Rings for All Cartridge Base Plates

Description	Qty.	Part No.
Ultra Clean Base Plate O-Ring Replacement Set	20	N9306854



Ultra Clean Base Plate Fittings for LC/MS

Description	Qty.	Part No.
Ultra Clean Connector Set – 1/4 in. Brass	6	N9306846
Ultra Clean Connector Set – 1/8 in. Brass	6	N9306847
Ultra Clean Connector Set – 1/4 in. Stainless Steel	6	N9306848
Ultra Clean Connector Set – 1/8 in. Stainless Steel	6	N9306849



Click-On Inline Super Clean Purifiers

Using the Click-On Connectors lets you change the trap without introducing contaminants into your system. Click-On connectors can replace a trap, without introducing impurities into the system. This in turn eliminates the need to flush the system.

The ability to add a Click-On Inline Super Clean™ Indicator after the stainless steel trap gives the user a clear visual indication of when to change the filter. This indicator may also be used as a standalone trap.

Features and Benefits

- Reduce system downtime with Click-On fast connectors
- No open gas line when changing the trap
- Helium Specific Glass Indicating Triple Trap is ideal for GC/MS

Stainless Steel Trap Kits

Description	Connector (Qty.)	Part No.
Combination: Oxygen/Moisture Trap	1/8 in. Brass (2)	N9306108
Combination: Oxygen/Moisture Trap	1/8 in. Stainless Steel (2)	N9306109
Combination: Moisture/Hydrocarbons Trap	1/8 in. Brass (2)	N9306117
Combination: Moisture/Hydrocarbons Trap	1/8 in. Stainless Steel (2)	N9306118
Triple: Oxygen/Moisture/Hydrocarbons Trap	1/8 in. Brass (2)	N9306110
Triple: Oxygen/Moisture/Hydrocarbons Trap	1/8 in. Stainless Steel (2)	N9306111
Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	1/8 in. Brass (2)	N9306112
Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	1/8 in. Stainless Steel (2)	N9306113

Product Specifications

Purifier Type	Gas Quality*	Max Pressure	Max Flow	Use For	H ₂ O	Capacity O ₂	Hydrocarbons	Est. Lifetime
Moisture	100.00%	11 bar, 160 psi	25 L/min	Inert carrier gas He, Air, H ₂	21 g	–	–	> 3 years
Oxygen	100.00%	11 bar, 160 psi	25 L/min	Inert carrier gas	–	3,000 mL	–	> 3 years
Hydrocarbons	100.00%	11 bar, 160 psi	25 L/min	Inert carrier gas Air, H ₂	–	–	36 g (as <i>n</i> -butane)	> 3 years
Combination Moisture/ Hydrocarbons	100.00%	11 bar, 160 psi	25 L/min	Inert carrier gas He, Air, H ₂	10 g	–	18 g (as <i>n</i> -butane)	> 2 years
Indicating Triple Moisture/ Oxygen/Hydrocarbons	100.00%	11 bar, 160 psi	25 L/min	Inert carrier gas He	3 g	400 mL	5 g (as <i>n</i> -butane)	> 1 year
Triple Moisture/ Oxygen/ Hydrocarbons	100.00%	11 bar, 160 psi	25 L/min	Inert carrier gas	6 g	1,000 mL	12 g (as <i>n</i> -butane)	> 2 years

* Results @ 2 L/min



Stainless Steel Traps

Description	Part No.
Moisture Trap	N9306100
Oxygen Trap	N9306101
Hydrocarbons Trap	N9306102
Combination: Oxygen/Moisture Trap	N9306103
Combination: Moisture/Hydrocarbons Trap	N9306105
Triple: Oxygen/Moisture/Hydrocarbons Trap	N9306104
Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	N9306106

Helium Specific Glass Indicating Triple Trap for your PerkinElmer Clarus GC/MS

This trap contains oxygen, moisture and hydrocarbons adsorbents in one trap and is packed and purged under helium.

The glass indicating trap clearly shows when the filter needs to be replaced with the use of color changes. The packing material is a silica-based environmentally friendly substitute for cobalt dioxide (blue) in the moisture indicator.

Available as a kit with the necessary 1/8 in. brass connectors, and as a replacement trap. This system is easy to install.

Description	Connector (Qty.)	Part No.
Indicating Glass Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	Not Included	N9306107
Indicating Glass Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	1/8 in. Brass (2)	N9306114
Indicating Glass Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	1/8 in. Stainless Steel (2)	N9306116

Hydrocarbon Trap



Description	Part No.
Hydrocarbon Trap	N9301192

Use our activated charcoal in-line trap to remove gaseous hydrocarbons (C5 and heavier) from nitrogen, hydrogen and inert carrier gas supplies. Recommended for use with purge and trap apparatuses, high-sensitivity FID operations and with GC carrier gases for trace analyses. Frits in each end prevent particulates from entering the gas stream. Trap is shipped filled with helium. Maximum pressure is 1000 psi (69 bar). Dimensions are 5 x 37 cm including fittings. Weight is 1.0 kg.

High Capacity Hydrocarbon Trap



Description	Part No.
High Capacity Hydrocarbon Trap	N9301208

- Eliminates potential hydrocarbon background to insure best LC/MS results
- Contains 750 cc of preconditioned activated charcoal
- Stainless steel body. 1/4 in. brass compression fittings with ferrules for installation
- Maximum pressure 200 psi
- Recommended flow rate up to 2 Liters/minute
- Will remove hydrocarbon impurities (50 ppm or less) from inert gases, nitrogen and hydrogen at room temperature to low ppb range
- Capacity of 67 g. of hydrocarbons C5 and heavier
- 10 µm stainless steel porous frits protect gas stream from particulates
- Individually helium leak tested. Shipped filled with helium
- 2 in. OD x 20 in. L (including fittings)
- Weight 3.5 lb/1.6 kg

Indicating Oxygen Trap



Description	Part No.
Indicating Oxygen Trap	N9301191

This high-efficiency indicator trap reduces oxygen to less than 0.1 ppm. Changes color from bright green to gray when adsorption capacity is depleted. Oxygen capacity for this compact unit is 0.05 g at STP. The non-contaminating, heavy-wall inner glass tube of adsorbent is protected from breakage by the outer plastic tube. Maximum pressure is 100 psi (6.9 bar). Dimensions are 3.2 x 26 cm including fittings. Weight is 0.2 kg.

Oxygen Trap



Description	Part No.
Oxygen Trap	N9301179

This high-capacity, high-efficiency trap is used for long-term protection of capillary column stationary phases against oxidation at GC operating temperatures. Can remove 3.5 g of oxygen and has an output efficiency of less than 10 ppb oxygen concentration at the outlet. Effective at removing sulfur compounds, such as hydrogen sulfide and mercaptans. Intended for use with non-oxidizing gases such as He, Ar, N₂, H₂ or CH₄, containing less than 1% oxygen. The trap is filled with 500 cc of active oxygen adsorbent that binds covalently with oxygen; no gas is generated from this reaction. Maximum pressure is 1000 psi (69 bar). Dimensions are 5 x 37 cm including fittings, weight is 1.2 kg.

Safe Glass Moisture Trap



Description	Part No.
Safe Glass Moisture Trap	N9301193

Gas contacts only glass, metal and the adsorbents for purity. The Drierite® indicator and molecular sieve 5A are packed in glass protected by an outer plastic tube in the event that the glass breaks. Unique loading design allows operation in any orientation without channeling. Designed for GC detectors that require high purity gases and recommended for ELCD and ECD systems where moisture and contamination are a problem. Maximum pressure is 100 psi (6.9 bar). Dimensions are 3.2 x 26 cm including fittings. Weight is 0.3 kg.

Gas In-line Filter



Description	Part No.
Gas In-line Filter	N9301178

The Gas In-line Filter Trap removes moisture, oil and dust from nitrogen or inert supply gases. It has 400 cc total volume of molecular sieve 5A and an indicator in a clear acrylic tube. The indicating Drierite® changes color at low relative humidity indicating that the packing must be changed. Base-plate version is available for free-standing orientation. Maximum pressure is 100 psi (6.9 bar). Dimensions are 6 x 43 cm including fittings. Weight is 1.0 kg.

Gas Generators – Simply a Smarter Choice

Analytical gas generators can remove the requirement for high-pressure cylinder gases and are typically placed next to the instrument they are servicing. This removes any need for extended gas lines and negates any associated problems impacting on purity, cost and convenience.

The latest gas generators from PerkinElmer utilise new technologies in adsorbents, catalysts, and specialist micro dryers to produce a continual supply of ultra-high purity gases to your instrumentation. This all but eliminates the introduction of impurities, which can be reduced further by the installation of in-line gas purifiers.

Hydrogen Generators

PerkinElmer offer a range of hydrogen generators to cater for the varying configurations of gas supply required across different laboratories and applications.

Hydrogen Generator Options and Capabilities

Model	GC Detector Gas Applications	GC, GC/MS Carrier Gas Applications	Zero Air	Automatic Cascading Capability	Desiccant Cartridge to Replace
PG Plus	■			■	
NM Plus	■	■		■	
FID Gas station Plus	■	■	■		
High Purity	■				■
Ultra High Purity	■	■			

PG-H₂ Plus Hydrogen Generators

The PG (Pure Gas) hydrogen generators employ the newest membrane technology available for the safe production of pure hydrogen gas. This patented design is ideal for operation with gas analyzers, as fuel gas for flame tools, or as a source for pure hydrogen in plasma chambers and other isolated environments. Electrolytic membrane technology is preferred over alternative hydrogen generating techniques because it is clean, requires less maintenance and there is no need to store chemicals to maintain operation. The generators offer silent operation and require only deionized or distilled water with no caustic solutions which can affect the purity of the hydrogen.



A Safe Source of Hydrogen

The PG-H₂ generators have an auto shutoff procedure that places the units in standby in the event of an internal error and selectable alarms allow the user to be informed whenever operating conditions vary from the set point. They are CE CSA FCC certified.

Applications

This series of generators are ideal for use with GC detectors such as FID, NPD, TCD and FPD.

Technical Specifications for PG-H₂ Plus Models

Description	Specification
Purity	99.999%/hydrocarbon free < 0.1 ppm
Delivery Pressure	20 – 160 psig/1.4-11 barg
Height	43 cm (16.9 in.)
Width	23 cm (9.1 in.)
Depth	36 cm (14.2 in.)
Weight	20 kg (44 lbs)
Ambient Temperature Range	-20 °C to + 60 °C (-4 °F to + 140 °F)
Water Quality	Deionized or distilled <10 uS conductivity
Supply Voltage Range	230 V/50 – 60 Hz – 110 V/60 Hz – 100 V/60 Hz
Fitting	1/8 in. for the H ₂ outlet

PG-H₂ Plus Generator Models

Flow Rate	Part No.
100 mL/min	N9308577
160 mL/min	N9308578
250 mL/min	N9308579
500 mL/min	N9308580

PG-H₂ Plus Generator Replacement Parts

Description	Part No.
Deionizer Bag	N9307097

NM-H₂ Plus Hydrogen Generators

The NM (No Maintenance) series of hydrogen generators employ the newest membrane technology available for the safe production of pure hydrogen gas. This patented design is ideal for operation with gas analyzers, as fuel gas for flame tools, or as a source for pure hydrogen in plasma chambers and other isolated environments.

Electrolytic membrane technology is preferred over alternative hydrogen generating techniques. The generators offer silent operation and require only deionized or distilled water with no caustic solutions which can affect the purity of the hydrogen.

No Maintenance

The proprietary auto drying technology has facilitated a design that does not require a desiccant cartridge, yet produces a constant supply of dry, ultra-high purity hydrogen. As the PG-H₂ and the NM hydrogen generators have an auto shutoff procedure that places the units in standby in the event of an internal error and selectable alarms allow the user to be informed whenever operating conditions vary from the set point.

Applications

The NM-H₂ Hydrogen Pure Gas Generators enhances the high performance of the PG Plus series, with the addition of a unique no maintenance purification system. It provides a stream of ultra-high purity hydrogen for both carrier gas and detector gas applications, including MS.

Robust Supply – 100% Up Time

Multiple generators can be set up in parallel to spread the load of gas generation, known as cascading. Building in a level of spare capacity with a master/slave set up ensures that there is no interruption in supply.

The NM-H₂ generators are the only generators on the market that automatically cascade, no lab personal intervention is required ensuring the smooth running of your laboratory around the clock.



Technical Specifications for NM-H₂ Plus Models

Description	Specification
Purity	99.9999%/hydrocarbon free < 0.1 ppm
Delivery Pressure	20 – 160 psig/1.4 – 11 barg
Height	43 cm (16.9 in.)
Width	23 cm (9.1 in.)
Depth	36 cm (14.2 in.)
Weight	20 kg (44 lbs)
Ambient Temperature Range	-20 °C to + 60 °C (-4 °F to + 140 °F)
Water Quality	Deionized or distilled <10 uS conductivity
Supply Voltage Range	230 V/50 – 60 Hz – 110 V/60 Hz – 100 V/60 Hz
Fitting	1/8 in. for the H ₂ outlet

NM-H₂ Plus Generator Models

Flow Rate	Part No.
100 mL/min	N9308581
160 mL/min	N9308582
250 mL/min	N9308583
500 mL/min	N9308584
1000 mL/min	N9308585

PG-H₂ Plus NM-H₂ Plus Generator Accessories

Description	Part No.
I/O Board	N9307094
Cable for Cascading*	N9307093
Remote Control RS-232 (includes converter, cables and software)*	N9307095
Auto Refill *	N9307096

* Requires I/O Board

NM-H₂ Plus Generator Replacement Parts

Description	Part No.
Deionizer Bag	N9307097

High Purity Hydrogen Generators

Our high purity hydrogen gas generators offer the optimum combination of safe operation, reliability and performance. Utilizing field proven PEM cell technology, hydrogen is produced on demand from deionized water and electricity at low pressure and with minimal stored volume. Innovative control software allows unrivalled operational safety and reliability. These models ideally supply fuel gas to all known GC combustion detectors used in today's laboratory workflows.

Features and Benefits

- Ultra safe operation
- >99.999% purity
- High purity guaranteed, 24/7
- Class leading PEM cell featuring 2-year warranty as standard
- CE, UL and CSA approved
- Low life cycle cost, excellent return on investment
- Large capacity water tank with optional Auto Water Fill



Technical Specifications

Description	Specification
Purity	99.999%
Delivery Pressure	5 – 100 psi/g
Height	46 cm (17.9 in.)
Width	35 cm (13.5 in.)
Depth	44 cm (17.2 in.)
Weight	20 kg (44.1 lbs)
Ambient Temperature Range	+5 °C to +40 °C (+41 °F to +104 °F)
Water Quality	Deionized, ASTM® II, >1MΩ, <1 μS, filtered to <100 μm
Supply Voltage Range	Universal 120/230 V ± 10% (60/50 Hz)
Fitting	Hydrogen Outlet: 1/8 in. compression fitting Water Drain: quick release push in fitting

High Purity Generator Models

Flow Rate	Part No.
160 mL/min (20H Model)	N9303225
250 mL/min (40H Model)	N9303226
500 mL/min (60H Model)	N9303227
1000 mL/min	Not Available

Ultra High Purity Hydrogen Generators

Our ultra high purity hydrogen gas generators offer the optimum combination of safe operation, reliability and performance. Utilizing field proven PEM cell technology, hydrogen is produced on demand from deionized water and electricity at low pressure and with minimal stored volume. Innovative control software allows unrivalled operational safety and reliability. These models ideally supply fuel gas to all known GC combustion detectors used in today's laboratory workflows.

Features and Benefits

- Ultra safe operation
- >99.9999% purity
- High purity guaranteed, 24/7
- Class leading PEM cell featuring 2-year warranty as standard
- CE, UL and CSA approved
- Low life cycle cost, excellent return on investment
- Large capacity water tank with optional Auto Water Fill



Technical Specifications

Description	Specification
Purity	99.99995%
Delivery Pressure	10 – 100 psi/g
Height	46 cm (17.9 in.)
Width	35 cm (13.5 in.)
Depth	47 cm (18.5 in.)
Weight	21 kg (45.2 lbs)*
Ambient Temperature Range	+5 °C to +40 °C (+41 °F to +104 °F)
Water Quality	Deionized, ASTM® II, >1MΩ, <1 μS, filtered to <100 μm
Supply Voltage Range	Universal 120/230 V ± 10% (60/50 Hz)
Fitting	Hydrogen Outlet: 1/8 in. compression fitting Water Drain: quick release push in fitting

* 1100 mL/min model is 24 kg (51.8 lbs)

Ultra High Purity Generator Models

Flow Rate	Part No.
160 mL/min (20H-MD Model)	N9303201
250 mL/min (40H-MD Model)	N9303202
500 mL/min (60H-MD Model)	N9303203
1100 mL/min (110H-MD Model)	N9303204

FID Gas Station

The FID gas station is a novel system that combines the reliability of the high purity PG or ultrahigh purity NM hydrogen generators with the superior performance of the zero air generators into a single compact instrument. Designed with space saving in mind, it sits directly under the GC to conserve bench space. You can also apply the FID gas station to GCMS systems with the simple addition of a drawer tray for the MS to rest on. If you want to benefit from the space saving design, but only require a H₂ generator than that is also an option.

NEW



Features and Benefits

- H₂ flow rate from 100-1000 mL/min
- H₂ pressure up to 11 bar
- Zero air flow rates 5 L/min
- Zero air purity <0.1 ppm
- Minimal maintenance
- CE, CSA, FCC certified

Technical Specifications

Description	Capability	Flow Rate	Part No.
FID Station PG Plus	H ₂	150 mL/min	N9300023
FID Station PG Plus	H ₂	260 mL/min	N9300024
FID Station NM Plus	H ₂	150 mL/min	N9300020
FID Station NM Plus	H ₂	350 mL/min	N9300021
FID Station NM Plus	H ₂	650 mL/min	N9300022
FID Station PG Plus	H ₂ and Air	150 mL/min + Air 1500 mL/min	N9300018
FID Station PG Plus	H ₂ and Air	260 mL/min + Air 1500 mL/min	N9300019
FID Station NM Plus	H ₂ and Air	150 mL/min + Air 1500 mL/min	N9300015
FID Station NM Plus	H ₂ and Air	350 mL/min + Air 1500 mL/min	N9300016
FID Station NM Plus	H ₂ and Air	650 mL/min + Air 1500 mL/min	N9300017
FID station NM Plus extension drawer			N9308567

Zero and Ultra Air Generators

The Zero and Ultra Zero Air Generators produce laboratory grade purified air for FID (flame ionization detectors) and other detectors. Designed with safety and convenience in mind, this system will generate purified and hydrocarbon free air from an existing in-house oil-free compressed air supply, eliminating the need for inconvenient high-pressure gas cylinders. Eliminating gas cylinders reduces annual operating costs associated with materials, labor, and down-time.

The Zero/Ultra Zero Air Generator series removes hydrocarbon pollutants to less than 0.1 ppm, and all forms of particles. Operation of the generator requires low levels of electrical power consumption. This complete turnkey system is engineered with the highest quality components, is easy to install, and requires minimal annual maintenance. The Ultra Zero Air Generators will remove CO and hydrocarbon pollutants to less than 0.1 ppm, and NO_x contaminants to 1 ppm. Carbon dioxide is also removed to about 1 ppm levels. They are CE CSA FCC certified.

Specifications for Zero and Ultra Zero Air

Description	Specification
Outlet Hydrocarbon Concentration	< 0.1 ppm
Outlet Carbon Monoxide Concentration	< 0.1 ppm
Outlet Particles < 0.5 Microns Removed	99.99%
Outlet Air Temperature	Ambient +15 °C
Max Inlet Hydrocarbon Concentration	100 ppm
Maximum Outlet Pressure	6.5 bar
Max Inlet Carbon Monoxide Concentration	50 ppm
Max Inlet Temperature	40 °C
Inlet Pressure Range (regulated to 7 bar)	4.5 – 10 bar
Inlet Port	1/4 in. NPT
Outlet Port	1/8 in. NPT

Specifications for Zero Air

Outlet Zero Air	Maximum Continuous Output Flow Rate	Electrical Requirements	Temperature/ Pressure Control Board	Part No.
1.5 L/min	1.5 L/min	230/115 VAC 250 W max	Included	N9307075
3.0 L/min	3.0 L/min	230/115 VAC 250 W max	Included	N9307076
6.0 L/min	6.0 L/min	230/115 VAC 250 W max	Included	N9307077
15.0 L/min	15.0 L/min	230/115 VAC 480 W max	Included	N9307078
30.0 L/min	30.0 L/min	230/115 VAC 480 W max	Included	N9307079



Wall Mountable

Ultra Zero Air Generators

Features and Benefits

- Purity: < 0.1 ppm hydrocarbon; < 0.1 ppm CO; < 1 ppm NO_x; < 5 ppm CO₂
- Produce laboratory-grade purified air for the most accurate and convenient calibration of testing equipment
- Designed with safety and convenience in mind, this system will generate purified air from an existing in-house oil-free compressed air supply, eliminating the need for inconvenient high-pressure gas cylinders
- Eliminate gas cylinders reducing annual operating costs associated with materials, labor and downtime, and reduces risk of injury to workers
- Will remove CO and HC pollutants to less than 0.1 ppm and NO_x contaminants to 1 ppm. Carbon dioxide is also removed to about 1 ppm levels. Operation of the generator requires low levels of air consumption and electrical power
- Fully supported by PerkinElmer Service Organization
- All models come without a compressor. An oil free compressor is required
- CE, CSA certified

Specifications for Ultra Zero Air

Outlet Ultra Zero Air	Outlet Carbon Dioxide Concentration	Outlet Nitrogen Oxides Concentration	Outlet Dewpoint (°C)	Electrical Requirements	Part No.
1.5 L/min	< 5 ppm	< 0.1 ppm	< -70	230/115 VAC 270 W max	N9307081
3.0 L/min	< 10 ppm	< 1 ppm	< -50	230/115 VAC 270 W max	N9307082
6.0 L/min	< 10 ppm	< 1 ppm	< -50	230/115 VAC 270 W max	N9307083
15.0 L/min	< 10 ppm	< 1 ppm	< -50	230/115 VAC 500 W max	N9307080

Zero Air Generators

Our Zero Air Gas Generators produce zero grade air from compressed air through catalytic oxidation. This zero air is used as an oxidant supply to GC-FIDs and as a zero-grade gas supply/zero reference gas for process analytical instruments. These generators produce zero-grade air with less than 0.05 ppm hydrocarbon content, measured as methane, enabling a more stable baseline as compared to conventional sources of fuel air.

Features and Benefits

- High performance heated platinum catalyst
- High efficiency filtration
- Modular and stackable with all PerkinElmer hydrogen generators
- CE, UL and CSA approved
- Low life cycle cost, excellent return on investment
- Superior resolution and lower limits of detection
- Safe and sustainable



Technical Specifications

Description	Specification
Size	17.9 in. H x 13.4 in. W x 16.7 in. D
Weight	31.3 lbs.
Organic Purity (ppm)	<0.1
Delivery Pressure (psi/g)	58–145
Ambient Temperature Range	41–104 °F
Required Inlet Air Quality	Clean dry compressed air ISO8573-1:2001 Class 3.2.1
Supply Voltage Range	120 V/60 Hz or 230 V/50 – 60 Hz ±10%
Port Connections	
Outlet (N9303205 and N9303206)	1/8 in. Compression Fitting
Inlet (N9303205 and N9303206)	1/8 in. Compression Fitting
Outlet (N9303207 – N9303212)	1/4 in. Compression Fitting
Inlet (N9303207 – N9303212)	1/4 in. Compression Fitting

Model	Flow Rate (L/min)	Air Inlet @ 58–145 psig (L/m)	Voltage	Part No.
UHP-35ZA-S	3.5	4.2	120	N9303206
UHP-35ZA-S	3.5	4.2	230	N9303205
UHP-35ZA-S	5	6	120	N9303208
UHP-35ZA-S	5	6	230	N9303207
UHP-35ZA-S	15	18	120	N9303210
UHP-35ZA-S	15	18	230	N9303209
UHP-35ZA-S	30	35	120	N9303212
UHP-35ZA-S	30	35	230	N9303211

Ultra Quiet Analytical Compressor

NEW

Compressors are typically used in conjunction with a gas or zero air generator. A durable standalone compressor system provides on point supply of air of known quality, good quality. Be sure to eliminate any moisture or oil in the air to protect your analytical instrumentation and ensure results are not impacted.

We have expanded our product offering in order to provide our customers the most dependable, trouble-free and quietest system for use with our instruments. This oil-free compressor system is capable of continuous use and incorporates features to provide years of reliability required in laboratory applications.

Features and Benefits

- Market leading 2 year warranty with premium component construction and JUN-AIR quality
- Automatic drain system and pressure switch control for trouble free operation
- High pressure (8 bar/120 psi) for continuous operation regardless of variable voltage supply
- Electrostatically powder coated receiver and plated fittings for maximum corrosion resistance
- Dual air filtration for clean air every time
- Optimized compressor seal and bearing design capable of up to 10 times the life of comparable competitive compressor systems
- 2 year system warranty/5 year tank warranty
- 100% oil-free and 5 µm filter regulator ensure clean air



Technical Specifications

Description	Specification
Horse Power	0.50
Power Requirements	230/50 Hz 120/60 Hz
(VAC)	230/60 Hz
Output (CFM)	2.9 (50 Hz) 3.2 (60 Hz)
Output	82 L/min (50 Hz) 91 L/min (60 Hz)
Max Pressure	120 psi, 8 bar
Operating Pressure	87-116 psi
Operating Pressure	6-8 bar
Noise Level	55-63 dB(A)
Tank Size (Gallon)	6.6
Tank Size	25 L
Dimensions (L x W x H)	15 x 17 x 24 in.
Weight	59 lbs, (50 Hz) 70 lbs (60 Hz)
Packed Dimensions (L x W x H)	16 x 16 x 25 in.
Packed Weight	64 lbs (50 Hz) 75 lbs (60 Hz)

Flow Rate	Part No.
120 V/60 Hz – UL approved and US cord	N9306243
230 V/50 Hz – CE approved and EU cord	N9306244
230 V/60 Hz – UL approved and US cord	N9306245
Basic Service Kit Should be performed annually or 2000 hours, whichever comes first Includes filters, spacers, springs and O-Rings	N9306341
Comprehensive Service Kit Should be performed every two years or 8000 hours, whichever comes first Includes the same as basic plus cups, valves, cylinders and screws	N9306342
Replacement Drain Bottle Replace as needed, includes the bottle and mounting hardware	N9306343

Compressors

PerkinElmer's GC Quiet Oil Free Compressor

This industrial ultra quiet compact oil free 6 gallon compressor that can be utilized in the immediate laboratory area for the supply of clean air.



Technical Specifications

Description	Specification
Horse Power	0.6
Power Requirements	115 V/220 V/50 – 60 Hz
Output	2.5 CFM, 67 L/min
Max Pressure	120 psi, 8 bar
Operating Pressure psi	80 – 100
Operating Pressure Bar	6 – 8
Noise Level	62 db/A
Tank Size	24 L, 6.0 Gal.
Weight	54 lbs., 25 kg
Packed Weight	58 lbs., 26 kg
Packed Dimensions	19 x 18 x 23
Dimensions	16 x 16 x 20 in.

Features and Benefits

- Ultra quiet for use in the laboratory area
- Compact size and light weight
- Industrial grade, durable long life design
- 2 Year warranty on workmanship
- 5.0 micron pre-filter and regulator prevents moisture in the gas line
- Internally powder coated air tank to prevent rust
- Automatic condensate tank drain ensures continuous operation

Flow Rate	Part No.
115 V 60 Hz	N9306291
220 V 50 Hz – 60 Hz	N9306293

Ultra Quiet Compact Oil-free Compressor

PerkinElmer is expanding its product portfolio in response to customer requests for an industrial ultra quiet compact oil-free compressor that can be utilized in the immediate laboratory area for the supply of clean dry air. As with all PerkinElmer products, this 110 liter per minute air compressor has been rigorously tested to meet or exceed our industry leading standards.



Technical Specifications

Description	Specification
Horse Power	0.75
Power Requirements	115 V/220 V/50 – 60 Hz
Output	4.4 CFM, 110 L/min
Max Pressure	100 psi, 7 bar
Operating Pressure psi	80 – 100
Operating Pressure Bar	6 – 7
Noise Level	57 db/A
Tank Size	6 L, 1.57 Gal.
Weight	103 lbs., 46.7 kg
Packed Weight	125 lbs., 56.7 kg
Packed Dimensions	38 x 15 x 25
Dimensions	34.7 x 13.4 x 22.4 in.

Features and Benefits

- Features a built-in desiccant dryer providing clean, dry, and particle free air at -40° F dew point
- Excellent for Gas Chromatography instrument applications with air generators applications
- Ultra quiet for use in the laboratory area
- Ease-of-use with built-in rolling casters and convenient handle
- Commercial/Industrial Grade
- 1 year warranty on workmanship

Flow Rate	Part No.
115 V/60 Hz	N9306350
220 V/50 Hz	N9306351
220 V/60 Hz	N9306352

GC Startup Kits

Description	Part No.
GC Startup Kit 1/8 in. Tubing and Fitting for (3) Gases	N9306304

Description	Qty.
1/8 in. Tubing x 50 foot coil Copper Special Cleaning	1
1/8 in. Compression Brass Tee Two Piece Ferrule Brass	3
Tee 1/8 in. Com x 1/8 in. Comp x 1/4 in. fnpt Brass	3
Adjustable Safety Relief Valve Brass 50 – 150 psi	3
1/4 in. fnpt x 1/8 in. Comp Fitting Brass	3
1/8 in. Port Connector Brass	3
1/8 in. Ferrule Brass	3
1/8 in. Compression Brass Nut	3
1/8 in. Compression Brass Fitting Cap	3
Tubing Cutter 1/8 in. Tubing	1
PTFE Tape	1

Description	Part No.
GC Startup Kit 1/8 in. Tubing and Fitting with One Single Stage Regulator	N9306305

Description	Qty.
1/8 in. Tubing x 50 foot coil Copper Special Cleaning	1
1/8 in. Compression Brass Tee Two Piece Ferrule Brass	3
Tee 1/8 in. Com x 1/8 in. Comp x 1/4 in. fnpt Brass	3
Adjustable Safety Relief Valve Brass 50 – 150 psi	3
1/4 in. fnpt x 1/8 in. Comp Fitting Brass	3
1/8 in. Port Connector Brass	3
1/8 in. Ferrule Brass	3
1/8 in. Compression Brass Nut	3
1/8 in. Compression Brass Fitting Cap	3
Tubing Cutter 1/8 in. Tubing	1
PTFE Tape	1
Single Stage Analytical 0 – 100 psig delivery, CGA 350 (H ₂ , Carbon Monoxide, Ethylene)	1

Description	Part No.
GC Startup Kit 1/8 in. Tubing and Fitting With One Dual Stage Regulator	N9306306

Description	Qty.
1/8 in. Tubing x 50 foot coil Copper Special Cleaning	1
1/8 in. Compression Brass Tee Two Piece Ferrule Brass	3
Tee 1/8 in. Com x 1/8 in. Comp x 1/4 in. fnpt Brass	3
50 – 150 psi	3
1/4 in. fnpt x 1/8 in. Comp Fitting Brass	3
1/8 in. Port Connector Brass	3
1/8 in. Ferrule Brass	3
1/8 in. Compression Brass Nut	3
1/8 in. Compression Brass Fitting Cap	3
Tubing Cutter 1/8 in. Tubing	1
PTFE Tape	1
Dual Stage Analytical 0 – 100 psig delivery, CGA 580 (N ₂ , Argon, He)	1

Regulators

Pressure Regulators

Ideally suited for chromatographic carrier gas applications including FID, TCD, ECD, HID, and non-corrosive gas mixtures for analytical instrumentation.



Technical Specifications

Specifications	Single Stage – Stainless Steel (Thread-less Seat) Part No. N9306353	Single Stage – Brass Nickel-plated (Thread-less Seat) Part No. N9306354
Max Rated Inlet Pressure	1,250 psig	1,200 psig
Outlet Pressure Ranges	0– 30, 0– 60, 0– 100, 0– 250 psig	0– 25, 0– 50, 0– 100, 0– 250 psig
Flow capacity	Cv=0.066	Cv=0.15
Ambient Operating Temp	-40° F to +165° F	-40° F to +165° F
Designed Leak Rate	2 x10-8 ccs (helium)	Bubble-tight (helium)
Weight	2 lbs	2.4 lbs
Ports (4)	¼ in. FNPT	¼ in. FNPT
Fittings	1/8 in.	1/8 in.
Inlet	1/8 in. FNPT	1/8 in. FNPT
Outlet	1/8 in. FNPT	1/8 in. FNPT
Decay Inlet Characteristic	–	0.23/100 psi
Materials		
Body	316 Stainless Steel	Nickel-Plated Brass
Bonnet	Nickel Plated Brass	Nickel Plated Brass
Seat	PCTFE®	PTFE
Diaphragm	Hastelloy C-22	316 Stainless Steel
Diaphragm Hastelloy C-22 Gauge	2½ in. Stainless Steel	–
Filter	316 Stainless Steel	316 Stainless Steel
Trim	316 Stainless Steel	Nickel Plated Brass
Gauges	–	2½ in. Stainless Steel
Valve Stem	–	316 Stainless Steel
Valve Spring	–	316 Stainless Steel

High Purity Brass Regulators

PerkinElmer regulators are constructed of high purity brass barstock and have stainless steel diaphragms and metal-to-metal seals. They are suitable for use with high purity (>99.995% pure) non-corrosive gases. Regulators terminate in a 1/4 in. NPT Swagelock fitting.



Features and Benefits

- Barstock body construction
- Stainless steel diaphragms
- Metal-to-metal seals
- Use with high purity carrier gas

High Purity Brass Regulators (Dual Stage)

CGA Fitting	Delivery Pressure Use	Delivery Pressure Range (psig)	Cylinder Pressure Gauge (psig)	Gauge (psig)	Part No.
CGA-350	H ₂ and Ar/CH ₄	4 – 100	0 – 200	0 – 4,000	09907128
CGA-580	He, Ar, N ₂	4 – 100	0 – 200	0 – 3,000	09907127

High Purity Brass Regulators (Single Stage)

CGA Fitting	Delivery Pressure Use	Delivery Pressure Range (psig)	Cylinder Pressure Gauge (psig)	Gauge (psig)	Part No.
CGA-350	CO, H ₂ and Ar/CH ₄ Mixes	4 – 100	0 – 150	0 – 4,000	00230091
CGA-350	CO, H ₂	10 – 200	0 – 400	0 – 4,000	00230253
CGA-590*	Air	10 – 200	0 – 400	0 – 4,000	00230090

*Supplied with 590-580 Adapter

Portable Gas Leak Detector

The new PerkinElmer compact handheld electronic gas leak detector is the ideal solution for detecting gas leaks in your Gas Chromatography systems. Leaks in your system waste gas and can cause detector noise, baseline instability, and shorter column life. This portable unit detects minute leaks of any gas with thermal conductivity different from air. The reference gas inlet draws in ambient air for comparison to air drawn into the sample probe. A leak is detected by both LED bar graph display and audible alarm.



Detectable Gases

Gas Type	Minimum Detectable Leak Rate (atm cc/sec)	Indicating LED Light Color
Helium	1.0×10^{-5}	Red
Hydrogen*	1.0×10^{-5}	Red
Nitrogen	1.4×10^{-3}	Yellow
Argon	1.0×10^{-4}	Yellow
Carbon Dioxide	1.0×10^{-4}	Yellow

Description	Specification
Battery	Rechargeable Ni-MH internal battery pack (6 hours normal operation)
Universal Power Adapter Set	US, UK, European, Australian plugs included
Temperature Range	32 – 120 °F (0 – 48 °C)
Humidity Range	0 – 97%
Warranty	1 Year
Certifications	CE, Japan
Compliance	WEEE, ROHS

Features and Benefits

- Sleek ergonomic, hand-held design with rugged side grips
- Automatic shut-off capabilities
- Optimized sample flow path
- LED readout and audible alarm

Description	Part No.
Portable Electronic Leak Detector	N9306089
Soft Carrying Case	N9306142
Probe (Fine Tip)	N9306063

* Caution: The PerkinElmer leak detector is not designed for determining leaks in a combustible environment. This unit may be used for determining trace amounts of hydrogen in a GC environment only

MiniTemp MT4 Non-contact Temperature Measurement with Laser Sighting

Features and Benefits

- Displays thermal measurement readings in °C or °F
- Easy point and shot infrared technology in a pocket size configuration
- Great for instrument thermal test confirmation, including GC injector port and detector measurements, thermostatted LC vials, and enzymatic hydrolysis baths



MiniTemp MT4 Technical Specifications

Description	Specification
Temperature Range	-18 to 400 °C (0 to 750 °F)
Distance to Spot Size (D:S)	08:01
Response time	500 m/sec
Emissivity	Pre-set at 0.95
Accuracy	±2%, or ±2 °C (±3 °F) whichever is greater
Typical Distance to Target (Spot)	Up to 1.5 m (4 ft)
Laser Sighting	Yes

The popular MiniTemp MT4 also includes single dot laser sighting to assist with aiming. 9 volt battery included. Recalibration is not available.

Description	Part No.
MiniTemp MT4	N9306074

Digital Bubble Flow Meter

The PerkinElmer Model 520 is a volumetric flow meter. It can measure the flow rate of any gas or combination of gases, such as air, without adjustment. The flow meter has a digital display and a single push-button input. It is made of stainless steel and anodized aluminum. It comes with a certificate of calibration, and is accurate to $\pm 3\%$. The Model 520 can measure flow rates of 0.5 to 500 mL/min.



Features and Benefits

- 0.5 to 500 mL/min flow rate with digital display
- Volumetric flow measurement
- Accurate to $\pm 3\%$ of measured flow rate

Description	Part No.
Digital Bubble Flow Meter	N9302974
Replacement Glass for Digital Bubble Flow Meter	N9303429

Soap Bubble Flow Meters

The glass soap bubble flow meters are calibrated in 1 and 10 mL two-stage or 1, 10 and 100 mL three-stage for easy flow reading. Bubble meters come complete with liquid soap, rubber squeeze bulb, miscellaneous-sized plastic tube pieces to adapt to various fittings, and instructions.

Description	Part No.
Two-stage	00230522
Three-stage	N9300081

PerkinElmer FlowMark Electronic Flowmeter



PerkinElmer's FlowMark™ flowmeter is specifically designed for use with gas chromatography (GC) instruments. The probe is applied directly to the gas flow stream and the measured flow rate is presented on the LCD screen. Units of flow are measured in mL/min. This unit provides continuous real-time measurements of gas streams ranging from 0.50 mL/min to 500 mL/min. Because the technology uses volumetric flow measurement, the unit is compatible with all laboratory gases. The flowmeter is designed to measure clean, dry, non-corrosive gases.

Features and Benefits

- Measures volumetric flow for all gases across a range of 0.5–500 mL/min
- NIST traceable calibration
- Explosion-proof rating for flammable and explosive gas atmospheres
- Accuracy of $\pm 2\%$ of flow or ± 0.2 mL/min, whichever is greater
- Over range indicator
- Auto shut-off feature
- Ergonomic design and side grips for comfort
- Measures most gas types
- Convenient storage case included
- CE, Ex (Compliance: WEEE, RoHS) certified
- Uses 2-AA batteries
- Data output via USB port
- Re-calibration service available
- Designed to measure clean, dry, non-corrosive gases
- 1 year warranty

Description	Part No.
FlowMark Electronic Flowmeter	N9307086
Recalibration Service for FlowMark Flowmeter	N9307085
Soft Carrying Case	N9306142

PerkinElmer Flowmeter Plus

The PerkinElmer Flowmeter Plus is a valuable tool for troubleshooting detector problems. Measuring gas volumetrically eliminates there is no need to select gas type. Highly accurate, identifying leaks by differences in thermal conductivity, it offers a minimum detection limit of 0.0005 mL/min hydrogen and helium.

Hassle Free Recalibration

Offering a much simpler and more efficient work flow, the annual recalibration is simply replacing a NIST certified calibration cartridge. Each flowmeter cartridge is individually factory calibrated and can easily be replaced directly by customers. There is no need to return the flowmeter to us; saving you time and money.

The cartridge calibration is valid for a period of one year from its first use. A new, calibrated cartridge can be ordered in advance, and then installed when necessary.

Features and Benefits

- Simply replace a NIST certified cartridge for revalidation, no need to return the flowmeter
- Flow range 0.5 to 750 mL/min (auto-ranging)
- Operating temperature range 0 °C to 45°C
- Accurate to $\pm 2\%$ of reading or ± 0.2 mL/min, whichever is greater
- Compact size (201 mm x 88 mm x 48 mm)
- Portable operation, uses 3 AA batteries (or USB power)

Description	Part No.
Flowmeter Plus	N9307088
Replacement NIST certified calibration cartridge	N9307084

NEW



Basic Tool Kit

Kit Includes: Open-end Wrench Set (6 pc.), Screwdriver Set (6 pc.), Adjustable Wrench (6 in.), Chain Nose Pliers (narrow), Wire Cutters, and Wire Strippers.

Description	Part No.
Tools Come in a Tool Box for Easy Storage and Use	N9301327

Deluxe Tool Kit

Kit Includes: Open-end Wrench Set (6 pc.), Screwdriver Set (6 pc.), Adjustable Wrench (6 in.), Chain Nose Pliers (narrow), Wire Cutters, Wire Strippers, Slip-joint Pliers (6 in.), Long Nose No. 5 Stainless Steel Tweezers (4-3/8 inches), Needle File Set (6 pc.), Allen Key Set (11 pc. imperial sizes), and Allen Key Set (9 pc. metric sizes).

Description	Part No.
Shipped in a Plastic Tool Box for Convenient Storage	N9301328



BETTER GC FOR THE MOST CRITICAL APPLICATIONS – YOURS

Superior sensitivity, capacity, and throughput – with flexibility to handle more applications

Our new Clarus® 590 and 690 systems are making GC more productive, more consistent – and more flexible than ever. Productive, because our proprietary autosampler technology, superfast oven cool-down, and programmable temperature injectors make it much more efficient. Consistent, because it delivers precise, repeatable sample introduction and fewer reruns. And flexible, because we integrate best-in-class TurboMatrix® headspace, thermal desorption, and hands-free liquid or SPME sample prep. Highly capable Clarus systems are simply better for the most important applications of all – those most important to you.

Learn more at www.perkinelmer.com/gc


PerkinElmer[®]
For the Better

Standards

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

Quick Reference Index Page

➤ Ketones for Method 8260B	184
➤ Method 624 Standards Kit for Volatile Organic Compounds	185
➤ Method 625	185
➤ Method 8082 PCBs (polychlorinated biphenyls) Standards Kit	185
➤ Method 8100	185
➤ Method 8260B Standards	184
➤ Method 8270C Standards	185
➤ Method 8270C Surrogates	185
➤ Method 8270C Mixes	185
➤ Mix B Purgeable Gases for Methods 8260B/524.2	184
➤ Standards Solutions	184
➤ Volatile Organics Combination Blend	184

Method 8260B for Water and Solid Waste Matrices

Method 8260B is an analytical method that uses a GC/MS equipped with a capillary column to perform the separation of the volatile organic compounds found in water and a variety of solid waste matrices.

Method 524.2 is an analytical method that uses a purge and trap device for sample preparation and a GC/MS equipped with a capillary column to perform the separation of volatile organic compounds.



[➤ VIEW PAGE](#)

8000 Series Solid and Hazardous Waste Methods

Method 8080A contains detailed operating procedures to be followed by laboratories analyzing solid and liquid matrices. It is a method that uses a GC/ECD to perform the separation of the selected pesticides following concentration and clean-up of an extract for aqueous or solid samples. Method 8082 is used to determine the concentrations of PCBs, either as individual congeners or Aroclors by GC/ECD.

[➤ VIEW PAGE](#)



PerkinElmer offers a wide selection of GC and GC/MS standards. Each solution is supplied with a comprehensive Certificate of Analysis that documents quality and assurance to the highest level obtainable by a Calibration Standard.

Organic Certified Reference Materials from PerkinElmer are a new addition to an already extensive organic product line designed to enhance your one-stop shopping experience. Each new standard is provided in convenient 1.2 mL ampoules to minimize waste and comes with a pre-labeled amber glass storage vial with cap for easy use.

To ensure customer satisfaction, our Organic Mixes are prepared at concentration levels that take into consideration a number of factors including: vapor pressure, evaporation, breakdown rates and dilution schemes. PerkinElmer goes the extra step by analyzing each organic standard on the Clarus 600 GC and GC/MS state-of-the-art instrumentation to ensure that the standard conforms to the customer's exact needs.

For customer ease, all Organic Standards are prepared with a precision of $\pm 0.5\%$ and accompanied with a comprehensive Certificate of Analysis (lot specified by part number). Data packs are also available upon request. These include a chromatogram of the standard and quantitative report listing the values for each analyte.

Standards Solutions

Description	Part No.
Test Mix	
LC Gradient Test Mix	N9334010
Universal Test Mix for Reversed-phase (5 mL/pkg.)	00890893
Standards	
HPLC SV Calibration Mix No.5/610 PAH	00891542
HPLC 610 Calibration Mix A	00891543
HPLC 610 Calibration Mix B	00891544

Method 8260B for Water and Solid Waste Matrices

Method 8260B is an analytical method that uses a GC/MS equipped with a capillary column to perform the separation of the volatile organic compounds found in water and a variety of solid waste matrices.

Method 524.2 is an analytical method that uses a purge and trap device for sample preparation and a GC/MS equipped with a capillary column to perform the separation of volatile organic compounds.

Volatile Organics Combination Blend

Contains all analytes in Mixes A, C and D.

Method SW-846 is an analytical method which utilizes a Clarus 600 GC to perform the separation of the volatile organic components found in a variety of solid waste matrices. To detect the GC eluant a Clarus 600 GC/MS is used.

Description	Part No.
1.2 mL @ 2,000 $\mu\text{g/mL}$ in P and T Methanol	N9331047

Method 8260B Standards

Description	Part No.
Alternate Four-Component Surrogate Standard for Method 8260B 1.2 mL @ 2,000 $\mu\text{g/mL}$ in P and T Methanol	N9331042
Internal Standard for Method 8260B 1.2 mL @ 2,000 $\mu\text{g/mL}$ in P and T Methanol	N9331041

Ketones for Method 8260B

Description	Part No.
1.2 mL @ 2,000 $\mu\text{g/mL}$ in P and T Methanol	N9331043

Mix B Purgeable Gases for Methods 8260B/524.2

Description	Part No.
1.2 mL @ 2,000 $\mu\text{g/mL}$ in P and T Methanol	N9331048

8000 Series Solid and Hazardous Waste Methods

Resource Conservation and Recover Act (Rcra) Under Sw-846, 'Test Methods For Evaluating Solid Waste'

Features and Benefits

- Method 8080A contains detailed operating procedures to be followed by laboratories analyzing solid and liquid matrices. It is a method that uses a GC/ECD to perform the separation of the selected pesticides following concentration and clean up of an extract for aqueous or solid samples
- Method 8082 is used to determine the concentrations of PCBs, either as individual congeners or Aroclors by GC/ECD

Method 8082 PCBs (polychlorinated biphenyls) Standards Kit

Method 8082 is used to determine the concentration of PCBs either as individual congeners or Aroclors. A Clarus 600 GC with a capillary column is used to perform the separation. To detect the eluent, an ECD (electron capture detector) or ELCD (electrolytic conductivity detector) is used.

Description	Part No.
1.2 mL @ 1,000 µg/mL in Hexane	N9331028

Method 8270C Standards

Method 8270C is an analytical method which utilizes a Methylene Chloride extraction of aqueous sample or Methylene Chloride: Acetone extraction of solid sample and a Clarus 600 GC equipped with a capillary column to perform the separation of the compounds. To detect the GC eluant a Clarus 600 GC/MS is used.

Description	Part No.
Semi-Volatile Calibration Standard for Method 8270C 1.2 mL @ 1,000 µg/mL in Hexane	N9331030
Internal Standard for Method 8270C 1.2 mL @ 2,000 µg/mL in Methylene Chloride/Benzene	N9331036

Method 8270C Mixes

Description	Part No.
HICAL-Acids Mix for Method 8270C 1.2 mL @ 2,000 µg/mL in Methylene Chloride	N9331031
Analyte Mix for Method 8270C 1.2 mL @ 2,000 µg/mL in Methanol	N9331032
Balance Mix for Method 8270C 1.2 mL @ 2,000 µg/mL in Methylene Chloride	N9331033

Method 8270C Surrogates

Description	Part No.
Acid Surrogate for Method 8270C 1.2 mL @ 2,000 µg/mL in Methanol	N9331037
Base Neutral Surrogate for Method 8270C 1.2 mL @ 2,000 µg/mL in Methylene Chloride/Acetone	N9331038

600 Series Wastewater Methods Clean Water Act 'Wastewaters'

Method 624 Standards Kit for Volatile Organic Compounds

Contains: **N9331060, N9331061, N9331062, N9331063.**

The U.S. EPA Method 624 is an analytical method which utilizes a TurboMatrix Headspace Purge and Trap instrument for sample prep and a Clarus 600 GC equipped with a packed column to perform the separation of the volatile organic compounds found in a 5 mL sample of municipal or industrial wastewater. To detect the eluant a Clarus 60 GC/MS is used.

Description	Part No.
1.2 mL @ 2,000 µg/mL in P and T Methanol	N9331064
Mix A for Method 624 1.2 mL @ 2,000 µg/mL in P and T Methanol	N9331060
Purgeable Gases Mix B for Method 624 1.2 mL @ 2,000 µg/mL in P and T Methanol	N9331061
Mix C for Method 624 1.2 mL @ 2,000 µg/mL in P and T Methanol	N9331062
Mix D for Method 624 1.2 mL @ 2,000 µg/mL in P and T Methanol	N9331063

Method 8100

Method 8100 is a method for the analysis of polynuclear aromatic hydrocarbons. A Clarus 600 GC is used to perform the separation of compounds with an FID (flame ionization detector) to detect the eluent.

Method 625

Method 625 is an analytical method that uses a methylene chloride extraction of municipal or industrial wastewater, concentrated to 1 mL and a GC/MS equipped to perform the separation of acid and base neutral extractable fractions.

Description	Part No.
Polynuclear Aromatic Hydrocarbons for Method 8100/625 1.2 mL @ 2,000 µg/mL in Methylene Chloride/Benzene	N9331044
Polynuclear Aromatic Hydrocarbons Mix B for Method 8100 1.2 mL @ 1,000 µg/mL in Methylene Chloride/Benzene	N9331045
Surrogate Standard for Method 8100 1.2 mL @ 2,000 µg/mL in Methylene Chloride	N9331046

PART NUMBER INDEX

Part No.	Page	Part No.	Page	Part No.	Page
00080100.....	110, 119-122, 124	02542911.....	10	07110017.....	46
00090652.....	117	02542912.....	10	07110018.....	46
00090699.....	37	02542913.....	10	07110021.....	46
00091279.....	119	02542914.....	10	07110022.....	46
00091357.....	30	02542915.....	10	07110023.....	46
00091667.....	121	02542916.....	10	07110024.....	46
00230090.....	178	02542917.....	10	07110045.....	46
00230091.....	178	02542918.....	10	07110046.....	46
00230111.....	22	02542919.....	10	07110047.....	46
00230177.....	22	02542920.....	10	07110055.....	44
00230178.....	22	02542921.....	10	07110056.....	44
00230253.....	178	02542922.....	10	07110057.....	44
00230522.....	180	02542923.....	10	07110058.....	44
00230523.....	117	02542924.....	10	07110059.....	44
00402237.....	49	02542925.....	10	07110060.....	44
00873032.....	61, 68	02542926.....	10	07110073.....	44
00873035.....	60	02542927.....	10	07110074.....	44
00873036.....	60	02542928.....	10	07110075.....	44
00890873.....	61	02542929.....	10	07110076.....	44
00890873.....	63	02580164.....	47	07110077.....	44
00890893.....	184	02580166.....	47	07110085.....	48
00890945.....	61	02580169.....	47	07110087.....	48
00891480.....	60, 68	02580178.....	58, 59	07110089.....	48
00891542.....	184	02580191.....	47	07110089.....	48
00891543.....	184	02580192.....	47	07110090.....	49
00891544.....	184	02580194.....	47	07110091.....	48
02506495.....	64	02580195.....	47	07110092.....	49
02507060.....	68	02580202.....	47, 58-59	07110093.....	48
02540154.....	56	02580204.....	47	07110095.....	48
02540177.....	56	02580223.....	58	07110098.....	49
02540272.....	58	02711441.....	60	07110102.....	49
02540274.....	61	02712266.....	55	07110163.....	44
02540276.....	56	02712273.....	55	07110166.....	44
02540311.....	59	02712303.....	55	07120001.....	46
02540838.....	60	03300806.....	29	07120012.....	46
02540871.....	58	03300865.....	123	07120016.....	46
02542076.....	56	03300866.....	123	07120019.....	46
02542313.....	56	03300904.....	108	07120023.....	46
02542783.....	10	03300905.....	110	07120033.....	44
02542880.....	10	03302775.....	123	07120040.....	44
02542881.....	10	03302777.....	123	07120097.....	44
02542884.....	10	03302778.....	123	07150001.....	49
02542885.....	10	03302973.....	123	07150002.....	49
02542886.....	10	03302976.....	123	07150006.....	44, 49
02542890.....	22	03302979.....	123	07150013.....	48, 49
02542891.....	22	03302989.....	123	07150014.....	46, 48-49
02542892.....	22	03303598.....	123	07150015.....	46, 48-49
02542893.....	22	03303599.....	123	07150016.....	46, 49
02542900.....	10	03303773.....	123	07150017.....	46, 49
02542901.....	10	04190197.....	110	07150018.....	49
02542902.....	10	04969486.....	55	07150019.....	49
02542903.....	10	04970673.....	129	07150021.....	49
02542904.....	10	04978064.....	129	07150022.....	49
02542905.....	10	07110003.....	46	07150025.....	49
02542906.....	10	07110004.....	46	07150028.....	47, 49
02542907.....	10	07110005.....	46	07150029.....	47, 49
02542908.....	10	07110006.....	46	07150030.....	47
02542909.....	10	07110015.....	46	07150032.....	49
02542910.....	10	07110016.....	46	09200091.....	129

Part No.	Page	Part No.	Page	Part No.	Page
09220102.....	59	09923270.....	68	L4070208.....	129
09290900.....	55	09923304.....	68	L4071029.....	129
09902018.....	56	09923305.....	68	L4071034.....	129
09902128.....	56	09923306.....	68	L4071123.....	129
09902143.....	118	09923307.....	68	L4071151.....	128
09902247.....	120	09923366.....	56	L4071594.....	129, 130
09903128.....	112	09923367.....	56	L4135472.....	120
09903170.....	140	09938910.....	58	L4270009.....	128
09903289.....	61, 68	09972321.....	120	L4270010.....	128
09903392.....	107, 112, 140	10070900.....	63	L4270128.....	130
09903394.....	105	29000542.....	54	L4270129.....	130
09903395.....	105	29000545.....	54	L4271106.....	128
09903453.....	140	54120790.....	129	L4271187.....	128, 129
09903606.....	59	B0099814.....	35	L4271203.....	128
09903610.....	59	B0104236.....	32	L4271205.....	128
09903615.....	59	B0104239.....	35, 36	L4271290.....	128, 129
09903700.....	105, 140	B0104240.....	35	L4275009.....	128, 129
09903771.....	61, 68	B0104241.....	35, 36	L4275072.....	128
09903891.....	61, 68, 140	B0104242.....	35	L4275089.....	128
09903980.....	61, 68, 140	B0104243.....	35, 36	L4275089.....	129
09904800.....	62	B0104244.....	35	L4275107.....	128
09904802.....	62, 63	B0110728.....	35	L4275108.....	128
09904805.....	62	B0131385.....	132	L4275110.....	128, 129
09904822.....	65	B0144169.....	132	M0410094.....	129
09904823.....	65, 117	B0159356.....	35	M0413535.....	128
09904849.....	58, 68	B0159357.....	35	M0413592.....	132
09904937.....	65	B0198110.....	36, 132	M0413593.....	132
09904941.....	65, 117	B0500833.....	36, 132	M0413595.....	129, 130
09904943.....	65	B0500959.....	132	M0413597.....	130
09904947.....	61, 68	B0500987.....	132	M0413598.....	129, 130
09904956.....	61, 68	B0501377.....	36	M0413625.....	129
09904974.....	61, 68	B0503956.....	132	M0413627.....	128
09907126.....	54	B0505677.....	67	M0413628.....	128, 132
09907127.....	178	B0510364.....	132	MZ321146.....	70
09907128.....	178	B4000011.....	132	N1010070.....	34
09907233.....	68	B4000022.....	34	N1011210.....	36, 132
09907324.....	56	B4000025.....	34	N1011445.....	108, 114
09907330.....	56	B4000028.....	34	N1011446.....	108, 112, 114-115
09907338.....	56	BC001283F.....	70	N1011447.....	112, 115
09907339.....	56	BC002312F.....	70	N2061174.....	56
09907345.....	56	BC002931.....	70	N2351285.....	55
09907827.....	118	BC004850.....	70	N2600070.....	59
09908851.....	129	BC004852.....	70	N2600089.....	59
09920104.....	105, 110, 132	BC004866F.....	70	N2600104.....	56
09920105.....	105, 108, 132	BC004868F.....	70	N2600117.....	56
09920107.....	105	BC004874.....	70	N2600124.....	56
09920127.....	132	BC004875.....	70	N2600192.....	56
09920133.....	140	ED020005.....	61	N2600226.....	56
09920140.....	107	ED020015.....	60	N2600259.....	59
09920141.....	105, 140	ED020016.....	60	N2600313.....	58
09920163.....	141	L1003006.....	129	N2600497.....	69
09920301.....	107, 112, 140	L1003008.....	129	N2600498.....	69
09920381.....	61, 68	L1003015.....	129	N2600522.....	69
09920382.....	61, 68	L1003027.....	128	N2600523.....	69
09920513.....	68	L1003028.....	128	N2600570.....	69
09921004.....	110, 112	L1003029.....	129	N2600571.....	69
09923078.....	119	L1003030.....	128, 129	N2601189.....	61
09923219.....	68	L4070023.....	128	N2601189.....	68
09923219.....	68	L4070207.....	129	N2601189.....	68

PART NUMBER INDEX

Part No.	Page	Part No.	Page	Part No.	Page
N2601262	59	N2916201	58	N2930802	68
N2601295	58	N2916202	61	N2931054	62
N2601313	59	N2916210	58, 60	N2931097	67
N2601316	59	N2916211	60	N2931199	65, 116
N2601477	59	N2916212	58	N2931275	59
N2601503	58	N2916213	58	N2932001	64
N2601610	69	N2916214	58	N2932002	64
N2601611	69	N2916215	58	N2936000	65, 116
N2601612	69	N2916216	58	N2936003	64
N2601613	69	N2916217	58	N2936009	65, 116
N2601614	69	N2916218	58	N2936010	65, 116
N2601615	69	N2916219	58	N2936020	64
N2601616	58	N2916222	58	N2936021	64
N2601616	69	N2916223	58	N2936022	64
N2601617	69	N2916224	58	N2936023	64
N2910342	59	N2916260	58	N2936042	64
N2910343	59	N2916261	68	N2936043	64
N2910344	59	N2916262	58, 68	N2936045	64
N2910345	54, 58	N2920070	54	N2936046	64
N2910346	58	N2920124	54	N2936048	64
N2910349	58	N2920125	54	N2936049	64
N2910383	54, 58	N2920126	54	N2936050	64
N2910384	54, 58	N2920127	54	N2936051	65, 116
N2910385	58	N2920128	54	N2936052	65, 116
N2910511	56	N2920146	55	N2936053	65, 116
N2910512	56	N2920149	55	N2936054	65, 116
N2910765	58	N2920160	54	N2936055	65, 116
N2911127	65	N2920166	54	N2936056	60
N2911170	65	N2922011	55	N2936057	60
N2911200	65	N2922046	55	N2936058	60
N2911201	65	N2922082	55	N2936059	60
N2911202	65	N2922107	54	N2936060	60
N2911203	65	N2925030	55	N2936061	60
N2911205	65	N2925090	54	N2936062	60
N2911206	65	N2925091	54	N2936063	60
N2911210	65	N2926200	27	N2936064	60
N2911211	65	N2926201	27	N2936065	60
N2911212	65	N2926202	27	N2936071	60
N2911220	57	N2930035	67	N2936072	60
N2911221	57, 58	N2930036	67	N2936073	60
N2911224	57, 58	N2930037	67	N2936074	60
N2911235	57	N2930040	67	N2936075	60
N2911236	57	N2930041	67	N2936076	60
N2911239	57	N2930042	67	N2936077	60
N2911240	57	N2930043	67	N2936078	60
N2911241	57	N2930044	67	N2936079	60
N2911244	57	N2930146	67	N2936080	60
N2911245	57	N2930147	67	N2936081	60
N2911249	57	N2930313	58, 68	N2936082	60
N2911250	57	N2930314	67	N2936342	65
N2911251	57	N2930660	64	N2936342	116
N2915006	56	N2930661	64	N2950429	54
N2916016	59	N2930664	64	N2950450	54
N2916019	59	N2930669	64	N2950455	54
N2916052	56	N2930672	64	N6000637	120
N2916056	58	N2930673	64	N6000968	121
N2916059	60	N2930675	64	N6000981	120
N2916085	59	N2930676	64	N6001204	118
N2916200	58, 60	N2930801	68	N6003057	120

Part No.	Page	Part No.	Page	Part No.	Page
N6003066	120	N6101751	112	N6107363	140
N6100016	119	N6101760	116	N6120001	105, 110
N6100038	122	N6102354	119, 128	N6120006	118, 124
N6100047	107	N6103089	119	N6120007	109
N6100048	110-111	N6103151	119	N6120008	109
N6100102	108, 110	N6103167	118	N6120009	108
N6100153	107, 110-112	N6103175	118	N6120011	121
N6100157	107	N6103188	119	N6120012	124
N6100158	107	N6103225	119	N6120014	121
N6100159	107, 112	N6103240	116	N6120015	124
N6100161	121	N6103241	116	N6120020	119, 124
N6100194	119	N6103242	116	N6120022	108
N6100228	122	N6103243	116	N6120023	109
N6100243	120	N6107033	136	N6120025	109
N6100244	120	N6107040	136	N6120026	121
N6100245	120	N6107041	136	N6120027	124
N6100253	122	N6107048	136	N6120047	123
N6100256	111	N6107052	136	N6120050	109
N6100260	112	N6107053	136	N6120057	123
N6100261	112	N6107056	136	N6120059	118, 121, 123
N6100264	120	N6107057	136	N6120061	123
N6100275	107, 112	N6107060	136	N6120062	123
N6100289	119	N6107061	136	N6120070	119
N6100331	107	N6107070	136	N6120071	110
N6100357	118	N6107072	136	N6120072	110
N6100361	118	N6107073	136	N6120074	112
N6100364	118	N6107075	137	N6120075	112
N6100430	118	N6107076	137	N6120076	111
N6100447	110	N6107080	141	N6120077	111
N6100448	110, 129	N6107081	141	N6120080	124
N6100724	139-140	N6107085	138	N6120082	111
N6101034	107, 112	N6107086	138	N6120083	111
N6101048	110	N6107198	139	N6120088	120
N6101050	110	N6107199	139	N6120089	120
N6101052	107, 114	N6107200	139	N6120090	122
N6101085	118	N6107201	139	N6120091	122
N6101182	110	N6107208	137	N6120092	122
N6101251	116	N6107209	140	N6120093	122
N6101252	116	N6107216	137	N6120094	122
N6101253	116	N6107218	137	N6120095	120
N6101297	119	N6107220	137	N6120098	111
N6101345	119	N6107221	137	N6120100	110
N6101358	107	N6107222	137	N6120101	109
N6101372	107, 114	N6107224	137	N6120102	112
N6101374	107	N6107225	137	N6120110	32
N6101375	115	N6107226	137	N6120111	32
N6101378	107	N6107227	137	N6120122	121
N6101380	116	N6107228	137	N6120123	121
N6101390	110	N6107229	137	N6120124	124
N6101390	110, 116	N6107230	137	N6120125	124
N6101412	119	N6107232	137	N6120126	122
N6101474	128	N6107233	137	N6120127	122
N6101482	107, 112	N6107237	140	N6120128	120
N6101539	112, 115	N6107241	137	N6120129	120
N6101696	123	N6107245	72	N6120130	123
N6101702	111	N6107246	72	N6120131	123
N6101703	111, 115	N6107313	140	N6120136	109
N6101705	112	N6107361	140	N6120137	109
N6101747	110, 112	N6107362	140	N6120138	108

PART NUMBER INDEX

Part No.	Page	Part No.	Page	Part No.	Page
N6120139	108	N6480147	127	N6701170	132
N6120140	112	N6480148	127	N9300015	172
N6120141	112	N6480149	127	N9300016	172
N6120142	111	N6480151	127	N9300017	172
N6120143	111	N6480153	127	N9300018	172
N6120150	124	N6480154	127	N9300019	172
N6120161	119	N6480360	126	N9300020	172
N6120162	118	N6480361	126	N9300021	172
N6120166	118	N6480362	126	N9300022	172
N6120167	118	N6480380	126	N9300023	172
N6120168	118	N6482024	126	N9300024	172
N6121000	110	N6502000	115	N9300030	106
N6121001	107, 114	N6502001	115	N9300031	106
N6121002	107, 110, 114	N6502002	115	N9300032	106
N6121003	115	N6502003	114	N9300033	106
N6121004	110, 112, 115	N6502004	114	N9300036	106
N6121006	112, 115	N6502005	114	N9300037	106
N6121009	115	N6502006	114	N9300038	106
N6121020	107, 114	N6502009	114	N9300039	106
N6121021	107, 114	N6502010	114	N9300040	106
N6121022	107, 114-115	N6502011	114	N9300041	106
N6200119	129	N6502012	114	N9300042	106
N6200150	132	N6502013	115	N9300043	106
N6301054	128-129	N6502014	115	N9300044	106
N6352030	36	N6502015	115	N9300046	106
N6352031	36	N6502016	115	N9300047	106
N6352032	36	N6502017	115	N9300048	106
N6352033	36	N6520010	109	N9300049	106
N6356471	33	N6520011	109	N9300050	106
N6356472	33	N6520012	109	N9300051	106
N6356473	29	N6520013	109	N9300053	106
N6356474	35	N6520014	112	N9300054	106
N6356475	35	N6520015	112	N9300055	106-107
N6356476	35	N6520018	118	N9300056	106-107
N6356477	35	N6520019	118	N9300057	106
N6356478	32	N6520020	121	N9300058	106
N6356479	33	N6520021	121	N9300059	106, 132
N6356558	35	N6520022	124	N9300060	106
N6356559	35	N6520023	124	N9300061	106
N6356560	35	N6520024	122	N9300077	140
N6356561	35	N6520025	122	N9300081	180
N6356562	35	N6520026	123	N9300096	120
N6356563	35	N6520027	123	N9300500	30
N6356564	35	N6520028	120	N9300501	30
N6356565	35	N6520029	120	N9300502	30
N6356566	35	N6520270	103	N9300503	30
N6470012	110, 125, 127	N6520271	103	N9300650	30
N6480080	127	N6520272	103	N9300695	30, 68
N6480081	127	N6520273	103	N9300696	30
N6480082	127	N6621006	37	N9300697	30
N6480130	127	N6621008	37	N9300698	30
N6480132	127	N6621009	37	N9300699	30
N6480140	127	N6621028	107, 110-112, 117	N9300700	30
N6480141	127	N6621035	37	N9300701	30
N6480142	127	N6621036	37	N9300702	30
N6480143	127	N6621037	37	N9300703	28
N6480144	127	N6621038	37	N9300704	28
N6480145	127	N6700113	132	N9300705	28
N6480146	127	N6700130	132	N9300706	28

PART NUMBER INDEX

Part No.	Page	Part No.	Page	Part No.	Page
N9300707	30	N9301390	37	N9302820	138
N9300708	30	N9301480	68	N9302832	132
N9300709	27	N9301732	28	N9302833	140
N9300710	27	N9301733	28	N9302839	141
N9300711	27	N9301734	28	N9302846	141
N9300712	27	N9301735	30	N9302851	139
N9300713	27	N9301736	30	N9302852	139
N9300714	27	N9301945	30	N9302853	139
N9300715	27	N9302130	28	N9302854	139
N9300716	27	N9302134	32	N9302855	139
N9300717	27	N9302136	27	N9302857	139
N9300718	27	N9302139	29	N9302858	139
N9300719	30	N9302140	29	N9302859	139
N9300720	30	N9302141	29	N9302860	139
N9300901	36	N9302149	105	N9302862	139
N9300902	36	N9302202	117	N9302866	139
N9300903	36	N9302203	117	N9302867	139
N9300910	30	N9302210	117	N9302868	139
N9300911	30	N9302211	117	N9302885	138
N9300912	30	N9302212	117	N9302897	138
N9300913	30	N9302213	117	N9302899	138
N9300914	30	N9302222	117	N9302901	138
N9301001	61	N9302224	117	N9302903	138
N9301002	61	N9302230	117	N9302905	138
N9301029	60	N9302231	22	N9302908	139
N9301069	26	N9302235	22	N9302909	139
N9301167	105	N9302555	64	N9302910	139
N9301178	167	N9302560	64, 67	N9302911	139
N9301179	167	N9302561	67	N9302912	139
N9301191	167	N9302562	64, 67	N9302945	26
N9301192	167	N9302563	67	N9302950	139
N9301193	167	N9302564	67	N9302951	139
N9301208	167	N9302565	67	N9302952	139
N9301221	106	N9302650	60, 68	N9302953	139
N9301222	106	N9302677	62	N9302954	139
N9301223	106	N9302678	60	N9302956	139
N9301225	106	N9302679	26	N9302957	139
N9301226	106	N9302680	26	N9302958	139
N9301227	106	N9302681	28	N9302960	139
N9301233	106	N9302682	28	N9302961	139
N9301253	106	N9302684	29	N9302962	139
N9301254	106	N9302685	29	N9302965	139
N9301255	106	N9302686	29	N9302966	139
N9301259	106, 140	N9302698	119	N9302967	139
N9301266	106	N9302782	107, 110	N9302969	35
N9301268	106	N9302783	107, 110	N9302972	117, 119
N9301269	106	N9302784	29	N9302974	180
N9301270	37	N9302785	36-37	N9302975	34
N9301272	119	N9302809	138	N9302976	34
N9301303	37	N9302810	138	N9302977	34
N9301304	37	N9302811	138	N9302978	34
N9301326	68	N9302812	138	N9302979	35
N9301327	181	N9302813	138	N9302980	35
N9301328	181	N9302814	138	N9302981	34
N9301343	105	N9302815	138	N9303139	160
N9301356	132	N9302816	138	N9303201	171
N9301357	132	N9302817	138	N9303202	171
N9301376	105, 119	N9302818	138	N9303203	171
N9301385	26	N9302819	138	N9303204	171

PART NUMBER INDEX

Part No.	Page	Part No.	Page	Part No.	Page
N9303205	174	N9303561	45	N9304138	26
N9303206	174	N9303565	45	N9304139	26
N9303207	174	N9303567	45	N9304140	26
N9303208	174	N9303568	45	N9304142	28
N9303209	174	N9303606	45	N9304143	34
N9303210	174	N9303607	45	N9304144	34
N9303211	174	N9303676	52	N9304145	34
N9303212	174	N9303677	52	N9304146	34
N9303223	153	N9303684	52	N9304147	34
N9303224	153	N9303685	52	N9304148	29, 31
N9303225	170	N9303686	52	N9304149	29, 31
N9303226	170	N9303687	52	N9304175	31, 35
N9303227	170	N9303690	52	N9304176	31, 35
N9303343	117	N9303691	52	N9304177	31, 35
N9303344	108, 117	N9303693	52	N9304178	35
N9303345	108, 117	N9303694	52	N9304179	31, 35
N9303348	32	N9303695	52	N9304180	31, 35
N9303349	32	N9303696	52	N9304181	31, 35
N9303350	35	N9303705	52	N9304182	31, 35
N9303351	33	N9303706	52	N9304183	31, 34
N9303352	33	N9303711	52	N9304184	31, 34
N9303416	29	N9303712	52	N9304185	29, 31
N9303417	29	N9303713	52	N9304500	37
N9303418	26	N9303714	52	N9304501	37
N9303419	29	N9303715	52	N9304502	37
N9303429	180	N9303716	52	N9304503	37
N9303441	30	N9303717	52	N9304510	37
N9303442	30	N9303853	42	N9304511	37
N9303448	105	N9303854	42	N9304512	37
N9303449	29	N9303862	42	N9304513	37
N9303450	101	N9303863	42	N9304514	37
N9303451	101	N9303865	42	N9304515	37
N9303507	41	N9303866	42	N9305600	80
N9303508	41	N9303867	52	N9305601	80
N9303510	41	N9303868	52	N9305602	80
N9303511	41	N9303904	42	N9305603	80
N9303512	41	N9303905	42	N9305604	80
N9303513	41	N9303907	42	N9305605	80
N9303514	41	N9303908	42	N9305606	80
N9303524	41	N9303909	52	N9305607	80
N9303525	41	N9303909	52	N9305608	80
N9303526	41	N9303910	52	N9305609	80
N9303537	45	N9303918	42	N9305610	80
N9303538	45	N9303919	42	N9305611	80
N9303539	45	N9303926	101	N9305612	80
N9303541	45	N9303927	101	N9305613	80
N9303542	45	N9303962	105	N9305614	80
N9303544	45	N9303963	160	N9305615	80
N9303545	45	N9303964	160	N9305616	80
N9303546	45	N9303990	36	N9305617	80
N9303549	45	N9303991	36	N9305618	80
N9303551	45	N9303992	36	N9305619	80
N9303552	45	N9303993	36	N9305620	80
N9303553	45	N9303995	43	N9305621	80
N9303554	45	N9303996	43	N9305622	80
N9303556	45	N9304135	26	N9305623	80
N9303558	45	N9304136	26	N9305624	80
N9303559	45	N9304137	26	N9305625	80
N9303560	45			N9305626	80

PART NUMBER INDEX

Part No.	Page	Part No.	Page	Part No.	Page
N9305627	80	N9305689	92	N9306096	105, 128
N9305628	80	N9305690	92	N9306100	166
N9305629	80	N9305691	92	N9306101	166
N9305630	80	N9305692	92	N9306102	166
N9305631	80, 85	N9305693	92	N9306103	166
N9305632	80	N9305694	92	N9306104	166
N9305633	80	N9305695	92	N9306105	166
N9305634	80	N9305696	92	N9306106	166
N9305635	90	N9305697	92	N9306107	166
N9305636	90	N9305698	91	N9306108	166
N9305637	90	N9306000	105	N9306109	166
N9305638	90	N9306001	105	N9306110	166
N9305639	90	N9306017	62	N9306111	166
N9305640	90	N9306019	62	N9306112	166
N9305641	90	N9306020	62	N9306113	166
N9305642	90	N9306021	62	N9306114	166
N9305643	90	N9306022	63	N9306116	166
N9305644	90	N9306023	63	N9306117	166
N9305645	90	N9306024	63	N9306118	166
N9305646	90	N9306025	63	N9306127	37
N9305647	90	N9306026	63	N9306142	179-180
N9305648	90	N9306027	63	N9306200	29
N9305649	90	N9306028	63	N9306201	26
N9305650	90	N9306029	63	N9306202	29
N9305651	90	N9306030	63	N9306203	29
N9305652	90	N9306031	63	N9306205	29
N9305653	90	N9306032	63	N9306206	29
N9305654	90	N9306033	63	N9306208	26
N9305655	91	N9306034	63	N9306210	153, 155
N9305656	91	N9306035	63	N9306211	153, 155
N9305657	91	N9306036	63	N9306212	153, 154
N9305658	91	N9306037	63	N9306213	153, 154
N9305660	91	N9306038	63	N9306214	153, 154
N9305662	91	N9306039	63	N9306216	32
N9305663	91	N9306040	63	N9306218	117
N9305664	91	N9306041	63	N9306219	117
N9305665	91	N9306042	63	N9306220	26
N9305666	91	N9306044	62-63	N9306223	26
N9305667	91	N9306045	62	N9306224	34
N9305668	91	N9306046	62	N9306228	29
N9305669	91	N9306047	62	N9306229	29
N9305670	91	N9306052	29	N9306232	115
N9305671	91	N9306053	26	N9306233	115
N9305672	91	N9306057	26	N9306235	115
N9305673	91	N9306063	179	N9306236	115
N9305674	91	N9306074	179	N9306237	115
N9305675	91	N9306075	33, 36	N9306240	33
N9305677	92	N9306076	35-36	N9306241	33
N9305678	92	N9306077	35-36	N9306242	33
N9305679	92	N9306078	33	N9306243	175
N9305680	92	N9306079	32, 36	N9306244	175
N9305681	92	N9306080	30	N9306245	175
N9305682	92	N9306089	179	N9306251	103
N9305683	92	N9306090	105	N9306262	103
N9305684	92	N9306091	105	N9306264	34
N9305685	92	N9306092	105	N9306265	34, 36
N9305686	92	N9306093	105, 128	N9306266	35
N9305687	92	N9306094	105, 128	N9306267	35
N9305688	92	N9306095	105, 128	N9306268	34

PART NUMBER INDEX

Part No.	Page	Part No.	Page	Part No.	Page
N9306269	34, 36	N9306448	14	N9306543	14
N9306270	35	N9306455	14	N9306544	14
N9306271	35	N9306457	14	N9306545	14
N9306277	131	N9306462	14	N9306546	14
N9306278	131	N9306466	15	N9306547	14
N9306285	152	N9306470	15	N9306548	14
N9306286	152	N9306471	14	N9306549	14
N9306287	152	N9306475	14	N9306550	14
N9306288	152	N9306476	14	N9306551	14
N9306291	176	N9306478	14	N9306552	14
N9306293	176	N9306479	14	N9306553	14
N9306300	61	N9306481	14	N9306554	14
N9306301	61, 68	N9306482	14	N9306555	14
N9306304	177	N9306490	15	N9306556	14
N9306305	177	N9306491	14	N9306557	17
N9306306	177	N9306494	14	N9306558	17
N9306341	175	N9306500	17	N9306559	17
N9306342	175	N9306501	17	N9306560	17
N9306343	175	N9306502	17	N9306561	17
N9306350	176	N9306503	17	N9306562	17
N9306351	176	N9306504	17	N9306563	15
N9306352	176	N9306505	17	N9306564	15
N9306353	178	N9306506	17	N9306565	15
N9306354	178	N9306507	17	N9306566	15
N9306360	29	N9306508	17	N9306567	15
N9306361	29	N9306509	17	N9306568	15
N9306362	29, 31	N9306510	17	N9306569	15
N9306363	29, 31	N9306511	14	N9306570	15
N9306364	29, 31	N9306512	14	N9306571	15
N9306365	29, 31	N9306513	14	N9306572	15
N9306400	15	N9306514	14	N9306573	15
N9306401	15	N9306515	14	N9306574	15
N9306402	15	N9306516	15	N9306575	15
N9306403	17	N9306517	15	N9306576	15
N9306404	15	N9306518	15	N9306577	15
N9306405	17	N9306519	14	N9306578	15
N9306407	14	N9306520	14	N9306579	15
N9306410	15	N9306521	14	N9306580	15
N9306411	14	N9306522	14	N9306581	15
N9306413	14	N9306523	14	N9306582	15
N9306414	15	N9306524	15	N9306583	15
N9306416	14	N9306525	15	N9306584	15
N9306418	17	N9306526	15	N9306585	15
N9306419	14	N9306527	15	N9306586	15
N9306420	14	N9306528	15	N9306587	15
N9306421	15	N9306529	15	N9306588	15
N9306422	14	N9306530	15	N9306589	15
N9306427	17	N9306531	15	N9306590	14
N9306428	17	N9306532	15	N9306591	14
N9306430	14	N9306533	15	N9306592	14
N9306432	14	N9306534	15	N9306593	14
N9306434	15	N9306535	15	N9306594	18
N9306436	15	N9306536	14	N9306595	18
N9306438	14	N9306537	14	N9306596	18
N9306440	17	N9306538	14	N9306597	18
N9306441	17	N9306539	14	N9306598	18
N9306443	15	N9306540	14	N9306599	18
N9306444	15	N9306541	14	N9306600	18
N9306447	15	N9306542	14	N9306601	18

PART NUMBER INDEX

Part No.	Page	Part No.	Page	Part No.	Page
N9306602	18	N9306662	16	N9306819	158, 161, 163-164
N9306603	18	N9306663	16	N9306820	158, 161, 163-164
N9306604	18	N9306664	16	N9306821	158
N9306605	18	N9306665	16	N9306822	158, 161, 164
N9306606	18	N9306666	16	N9306823	157-158
N9306607	18	N9306667	16	N9306824	157-158
N9306608	18	N9306668	16	N9306826	161
N9306609	18	N9306669	16	N9306828	161
N9306610	18	N9306670	16	N9306829	161
N9306611	18	N9306671	16	N9306830	161
N9306612	18	N9306672	16	N9306831	161
N9306613	18	N9306673	16	N9306840	157
N9306614	18	N9306674	16	N9306841	157
N9306615	18	N9306675	16	N9306842	161
N9306616	18	N9306676	16	N9306843	161
N9306617	18	N9306677	16	N9306844	161
N9306618	18	N9306678	16	N9306845	161
N9306619	19	N9306679	16	N9306846	165
N9306620	19	N9306680	16	N9306847	165
N9306621	19	N9306681	16	N9306848	165
N9306622	19	N9306682	16	N9306849	165
N9306623	19	N9306683	16	N9306850	159
N9306624	19	N9306684	16	N9306851	159
N9306625	19	N9306685	16	N9306852	165
N9306626	19	N9306686	16	N9306853	159
N9306627	19	N9306687	16	N9306854	159, 165
N9306628	19	N9306688	16	N9306855	159, 165
N9306629	19	N9306689	16	N9306856	159
N9306630	19	N9306690	16	N9306857	159
N9306631	19	N9306691	16	N9307000	131
N9306632	19	N9306692	16	N9307001	131
N9306633	14	N9306693	16	N9307002	131
N9306634	14	N9306694	16	N9307003	131
N9306635	17	N9306695	16	N9307004	131
N9306636	17	N9306696	16	N9307005	129, 131
N9306637	17	N9306697	16	N9307006	131
N9306638	17	N9306698	16	N9307007	131
N9306639	17	N9306700	16	N9307008	131
N9306640	14	N9306713	14	N9307009	131
N9306641	15	N9306749	70	N9307010	131
N9306642	14	N9306800	158	N9307011	131
N9306643	15	N9306801	158	N9307012	131
N9306644	15	N9306802	158	N9307013	131
N9306645	15	N9306803	158	N9307021	30
N9306646	17	N9306804	158	N9307023	30
N9306647	17	N9306805	158	N9307026	131
N9306648	17	N9306806	158	N9307037	131
N9306649	14	N9306807	158	N9307038	131
N9306650	16	N9306808	158-159	N9307050	130
N9306651	16	N9306809	158-159	N9307051	130
N9306652	16	N9306810	158	N9307052	130
N9306653	16	N9306811	158	N9307053	130
N9306655	16	N9306812	158	N9307054	130
N9306656	16	N9306813	158	N9307055	130
N9306657	16	N9306814	158, 162, 164	N9307056	130
N9306658	16	N9306815	158, 162, 164	N9307057	130
N9306659	16	N9306816	158, 162, 164	N9307058	130
N9306660	16	N9306817	158	N9307059	130
N9306661	16	N9306818	158, 161, 163-164	N9307060	130

PART NUMBER INDEX

Part No.	Page	Part No.	Page	Part No.	Page
N9307061	130	N9308431	51	N9308516	51
N9307062	130	N9308432	51	N9308517	51
N9307063	130	N9308433	51	N9308518	51
N9307064	130	N9308434	51	N9308519	51
N9307065	130	N9308446	51	N9308520	51
N9307066	130	N9308447	51	N9308521	51
N9307075	173	N9308448	51	N9308522	51
N9307076	173	N9308449	51	N9308523	51
N9307077	173	N9308451	51	N9308524	51
N9307078	173	N9308452	51	N9308525	51
N9307079	173	N9308453	51	N9308526	51
N9307080	173	N9308454	51	N9308527	51
N9307081	173	N9308456	51	N9308528	51
N9307082	173	N9308457	51	N9308529	51
N9307083	173	N9308458	51	N9308530	51
N9307085	180	N9308459	51	N9308531	51
N9307086	180	N9308461	51	N9308532	51
N9307088	181	N9308462	51	N9308533	51
N9307093	169	N9308463	51	N9308534	51
N9307094	169	N9308464	51	N9308535	57
N9307095	169	N9308467	51	N9308536	57
N9307096	169	N9308468	51	N9308567	172
N9307097	168-169	N9308469	51	N9308573	151
N9307800	61	N9308470	51	N9308574	151
N9307801	26	N9308472	51	N9308576	151
N9307802	26	N9308473	51	N9308577	168
N9307820	68	N9308474	51	N9308578	168
N9307822	68	N9308475	51	N9308579	168
N9307823	29	N9308477	51	N9308580	168
N9308035	19	N9308478	51	N9308581	169
N9308063	19	N9308479	51	N9308582	169
N9308331	19	N9308480	51	N9308583	169
N9308332	19	N9308483	51	N9308584	169
N9308401	51	N9308484	51	N9308585	169
N9308402	51	N9308485	51	N9308587	151
N9308404	51	N9308486	51	N9308588	151
N9308405	51	N9308488	51	N9308590	151
N9308407	51	N9308489	51	N9309130	131
N9308408	51	N9308490	51	N9309160	130
N9308409	51	N9308491	51	N9309161	130
N9308410	51	N9308493	51	N9311570	99
N9308411	51	N9308494	51	N9315066	93
N9308413	51	N9308495	51	N9315067	93
N9308414	51	N9308496	51	N9315068	93
N9308415	51	N9308499	51	N9315069	93
N9308416	51	N9308500	51	N9315070	93
N9308417	51	N9308501	51	N9315071	95
N9308419	51	N9308502	51	N9315072	95
N9308420	51	N9308504	51	N9315073	95
N9308420	51	N9308505	51	N9315074	95
N9308421	51	N9308506	51	N9315075	95
N9308422	51	N9308507	51	N9315076	95
N9308423	51	N9308509	51	N9315499	81
N9308424	51	N9308510	51	N9316001	81
N9308425	51	N9308511	51	N9316002	81
N9308426	51	N9308512	51	N9316003	81
N9308427	51	N9308513	51	N9316004	81
N9308428	51	N9308514	51	N9316005	81
N9308430	51	N9308515	51	N9316006	81

Part No.	Page	Part No.	Page	Part No.	Page
N9316007	81	N9316071	82	N9316136	83
N9316008	81	N9316072	82	N9316137	83
N9316009	81	N9316073	82	N9316138	83
N9316010	81	N9316074	82	N9316139	83
N9316011	81	N9316075	82	N9316140	83
N9316012	81	N9316076	82	N9316141	83
N9316013	81	N9316077	82	N9316142	83
N9316014	81	N9316078	82	N9316143	83
N9316015	99	N9316079	82	N9316144	83
N9316016	81	N9316080	82	N9316145	83
N9316017	81	N9316081	82	N9316146	83
N9316018	81	N9316082	82	N9316147	83
N9316019	81	N9316083	82	N9316148	83
N9316020	81	N9316085	82	N9316149	83
N9316021	81	N9316086	82	N9316150	83
N9316022	81	N9316087	82	N9316151	83
N9316023	81	N9316089	82	N9316152	83
N9316024	81	N9316090	82	N9316153	83
N9316025	81	N9316091	82	N9316172	85
N9316026	81	N9316092	82	N9316173	85
N9316027	81	N9316093	82	N9316174	85
N9316028	81	N9316094	82	N9316175	85
N9316029	81	N9316095	82	N9316176	85
N9316030	81	N9316096	82	N9316177	85
N9316031	81	N9316097	82	N9316178	85
N9316032	81	N9316098	82	N9316179	85
N9316034	81	N9316099	82	N9316180	85
N9316035	81	N9316100	82	N9316181	85
N9316036	81	N9316101	82	N9316182	85
N9316037	81	N9316102	82	N9316183	85
N9316038	81	N9316103	82-83	N9316184	85
N9316039	81	N9316104	82	N9316185	85
N9316040	81	N9316105	82	N9316186	85
N9316041	81	N9316108	82	N9316187	85
N9316042	81	N9316109	82	N9316188	98
N9316043	81	N9316110	82	N9316189	98
N9316044	81	N9316111	82	N9316190	98
N9316045	81	N9316112	82	N9316191	98
N9316046	81	N9316113	83	N9316192	98
N9316047	81	N9316114	83	N9316193	98
N9316048	81	N9316115	83	N9316194	98
N9316049	81	N9316116	83	N9316195	98
N9316050	81	N9316117	83	N9316196	98
N9316051	81	N9316118	83	N9316197	98
N9316052	81	N9316119	83	N9316198	98
N9316053	81	N9316120	83	N9316199	98
N9316054	81	N9316121	83	N9316200	86
N9316056	81	N9316122	83	N9316201	86
N9316057	81	N9316123	83	N9316202	86
N9316058	81	N9316124	83	N9316203	86
N9316061	81	N9316125	83	N9316204	86
N9316062	81	N9316126	83	N9316205	86
N9316063	81	N9316127	83	N9316206	86
N9316064	81	N9316128	83	N9316207	86
N9316065	99	N9316129	83	N9316208	86
N9316066	82	N9316131	83	N9316209	86
N9316067	82	N9316132	83	N9316210	86
N9316068	82	N9316133	83	N9316211	86
N9316069	82	N9316135	83	N9316212	86

PART NUMBER INDEX

Part No.	Page	Part No.	Page	Part No.	Page
N9316214	86	N9316280	90	N9316412	88
N9316215	86	N9316282	90	N9316413	88
N9316216	86	N9316283	90	N9316416	88
N9316217	86	N9316284	90	N9316417	88
N9316218	86	N9316286	90	N9316418	88
N9316219	86	N9316287	90	N9316419	88
N9316220	86	N9316289	90	N9316420	88
N9316221	86	N9316290	90	N9316421	88
N9316222	86	N9316291	90	N9316422	88
N9316223	86	N9316293	90	N9316423	88
N9316224	86	N9316294	90	N9316425	88
N9316225	86	N9316295	90	N9316426	88
N9316226	86	N9316297	90	N9316427	88
N9316227	86	N9316298	90	N9316428	88
N9316228	87	N9316299	90	N9316429	88
N9316229	87	N9316300	90	N9316480	96
N9316230	87	N9316301	90	N9316481	96
N9316231	87	N9316302	90	N9316483	96
N9316232	87	N9316303	90	N9316484	96
N9316234	87	N9316304	100	N9316485	96
N9316235	87	N9316305	100	N9316487	96
N9316236	87	N9316319	98	N9316488	96
N9316237	87	N9316345	98	N9316489	96
N9316238	87	N9316346	98	N9316490	96
N9316239	87	N9316347	98	N9316491	96
N9316240	87	N9316348	98	N9316492	96
N9316242	87	N9316349	98	N9316493	96
N9316243	87	N9316350	98	N9316494	96
N9316244	87	N9316351	99	N9316495	96
N9316245	87	N9316352	99	N9316496	96
N9316246	87	N9316353	99	N9316497	96
N9316247	87	N9316354	99	N9316498	98
N9316248	87	N9316355	99	N9316506	99
N9316249	87	N9316356	99	N9316507	99
N9316250	87	N9316357	99	N9316508	99
N9316251	87	N9316358	99	N9316520	99
N9316252	87	N9316359	100	N9316521	99
N9316253	87	N9316360	101	N9316534	91
N9316254	87	N9316361	100	N9316535	91
N9316255	87	N9316386	99	N9316536	91
N9316256	87	N9316387	99	N9316537	91
N9316257	87	N9316388	97	N9316538	91
N9316258	87	N9316389	97	N9316539	91
N9316259	87	N9316390	97	N9316540	91
N9316261	98	N9316391	97	N9316541	91
N9316262	98	N9316392	97	N9316542	91
N9316264	94	N9316393	97	N9316544	100
N9316266	94	N9316399	88	N9316545	98, 100
N9316268	94	N9316400	88	N9316546	100
N9316269	94	N9316401	88	N9316547	89
N9316270	94	N9316402	88	N9316548	89
N9316271	94	N9316403	88	N9316549	89
N9316272	94	N9316404	88	N9316550	89
N9316273	94	N9316405	88	N9316551	89
N9316274	94	N9316406	88	N9316552	89
N9316275	94	N9316408	88	N9316553	89
N9316276	90	N9316409	88	N9316554	89
N9316277	90	N9316410	88	N9316555	89
N9316279	90	N9316411	88	N9316556	89

Part No.	Page	Part No.	Page	Part No.	Page
N9316557	89	N9316653	96	NR002503	136
N9316558	89	N9316654	96	NR004030	137
N9316559	89	N9316655	96	NR004030	137
N9316560	89	N9316656	96	NR004031	137
N9316561	89	N9316657	96	NR004038	137
N9316562	89	N9316658	96	NR004040	137
N9316563	89	N9316659	96	NR004041	137
N9316564	89	N9316661	97	NR004043	137
N9316565	89	N9316662	97	NR004044	137
N9316566	89	N9316663	97	NR004045	137
N9316567	89	N9316664	97	NR004046	137
N9316568	89	N9316665	97	NR004083	137
N9316569	89	N9316666	97	NR004086	137
N9316570	89	N9316667	97	NR004087	137
N9316571	89	N9316668	97	NR005100	137
N9316572	94, 98	N9316669	97	NR005200	137
N9316575	95	N9316670	97	NR00HC15	136
N9316580	81	N9316671	97	NR213000	136
N9316581	94	N9316672	97	NR213314	136
N9316596	81	N9316673	99	NR310502	140
N9316607	132	N9316674	99	NR410049-10	140
N9316608	132	N9316675	99	NR410068-10	140
N9316616	84	N9316676	99	NR410110	141
N9316617	84	N9316677	99	NR410175	141
N9316618	84	N9316678	99	NR410229	140
N9316619	84	N9316679	99	NR410229-5	140
N9316620	84	N9316680	99	NR410245	141
N9316621	84	N9316681	99	NR410252N	140
N9316622	84	N9316682	99	NR410262	141
N9316623	84	N9316684	99	NR510002	140
N9316624	84	N9316685	81	NR510030	141
N9316625	84	N9316686	81	NR510233	141
N9316626	84	N9316691	81	NR510291	138
N9316627	84	N9316692	81	NR510486	140
N9316628	84	N9318482	96	NR510486-5	140
N9316629	84	N9326141	87	NR510522	141
N9316630	84	N9331028	185	NR810070	138
N9316631	84	N9331030	185	NR950001	139
N9316632	84	N9331031	185	NR950002	139
N9316633	84	N9331032	185	NR950003	139
N9316634	84	N9331033	185	NR950004	139
N9316635	84	N9331036	185	NR950005	139
N9316636	84	N9331037	185	NR950006	139
N9316637	84	N9331038	185	NR950007	139
N9316638	84	N9331041	184	NR950008	139
N9316639	84	N9331042	184	NR950009	139
N9316640	84	N9331043	184	NR950010	139
N9316641	84	N9331044	185	NR950011	139
N9316642	84	N9331045	185	NR950012	139
N9316643	84	N9331046	185	NR950013	139
N9316644	84	N9331047	184	NR950014	139
N9316645	84	N9331048	184	NR950015	139
N9316646	84	N9331060	185	NRSLSF0.07	139
N9316647	84	N9331061	185	NX598006	59-60, 68
N9316648	84	N9331062	185		
N9316649	84	N9331063	185		
N9316650	96	N9331064	185		
N9316651	96	N9334010	184		
N9316652	96	NR002500	136		

ALPHABETICAL INDEX

(200) 0.2 mL Microvial plus (5) 2 mL Vial Tray	64	Biocompatible Piston Seal Replacement Kit	
0.53 Capillary Column Adapter Kit	110	Includes: four seals, backup rings, and O-Rings	58
1.5 mL Autosampler High Recovery Vials	27	Brownlee Analytical C18.....	41
1/4 in. Packed Column Adapter	121-122	Brownlee Analytical Columns	41
1/16 in OD x 0.038 in. ID PTFE Tubing (AS Transfer Line)	64	Brownlee Analytical DB Aqueous C18.....	42
100-Position 2 mL Vial Sample Tray	64	Brownlee Analytical DB C18	42
100-Position Peltier Temperature-Controlled	67	Brownlee Analytical DB Columns for HPLC and UHPLC ...	42
2 mL Caps with Ultra Low Bleed Septa	31	Brownlee Analytical DB Guard Cartridges	52
2,500 µL Sample Syringe Starting Kit.....	58	Brownlee Analytical DB PAH	43
25-Position 6 mL Vial Sample Tray	64	Brownlee Analytical Guard Cartridges.....	52
250 µL Syringe Tip Replacements (pkg.10).....	64	Brownlee Analytical Phenyl.....	41
2ml Autosampler Glass Vials (12 x 32 mm)	26	Brownlee Analytical Silica	41
3 cm Scavenger Cartridge Holder	58	Brownlee Aquapore Columns	44
30 mL Priming Syringe.....	58	Brownlee Aquapore Prep-10 Cartridge Columns.....	44
384-Well Microtiter Adapter.....	64	Brownlee Guard Column Holders and Pre-Filters	52
7725 Injection Valve for Series 200 Autosampler	62	Brownlee Pecosphere Cartridge Columns	47
7725i Injection Valve with Internal Switch.....	62	Brownlee Polypore Cartridge Columns.....	48
80-Position 2 mL Vial plus (5) 6 mL Vial Tray (for derivatization).....	64	Brownlee Spheri-5 and Spheri-10 Columns.....	46
80-Position 2 mL Vial Tray with Dilution Tray.....	64	Brownlee SPP Columns.....	51
8125 Low-Dispersion Stainless Steel Injection Valve	62	Brownlee SPP HPLC and UHPLC Column Solutions.....	50
96-Well 'Deep-well' Microtiter Adapter.....	64	Brownlee Validated Aqueous C18.....	45
96-Well 'Deep' Microtiter Plate Adaptor (Supports Dual Microtiter Plates)	64	Brownlee Validated C18	45
96-Well 'Shallow' Microtiter Plate Adaptor (Supports Dual Microtiter Plates)	64	Brownlee Validated C8	45
96-Well 7 mm Pre-slit Silicone Plate Mat/Seal.....	64	Brownlee Validated Columns	45
96-Well Microtiter Adapter.....	64	Brownlee Validated Guard Cartridges	52
9725 Injection Valve for Series 200 Autosampler	62	Brownlee Validated Phenyl.....	45
Advanced Filter System.....	160	Cable/Tubing clip (U-Shaped).....	60
Arnel Sample Loops.....	139	Calibration Material.....	139
ATD Tube Conditioning Oven.....	130	Capillary Column Ferrules.....	105
Auto-Ignite FID Add-On Kit (Manual Pneumatics).....	118	Capillary Injector Replacement Parts	107
Auto-Ignite FID Catalytic Reactor Accessory	119	Capillary Injector with PPC.....	108
Auto-Ignite FID Replacement Parts.....	118	Capillary Split/Splitless Injector Liners	114
Auto-Ignite FID with PPC Add-On Kit.....	118	Cartridge Column Hardware.....	46
Auto-Ignite FID with PPC Add-On Kit.....	119	Cartridge Holders	49
Autosampler Crimper and Decapper Tools	37	Catalytic Reactor Accessory	119
Autosampler Syringes.....	68	Catalytic Reactor Replacement Parts	119
Autosampler Syringes.....	116	Check Valve Torque Wrench	58
Autosampler Vial Inserts	28	Clean-Cut Tubing Cutter	60
Autosampler Vial, Cap and Septa Convenience Kits.....	30	Clean-Cut Tubing Replacement Blade	60
Autosampler Vials with Fused Inserts	27	Click-On Inline Super Clean™ Purifiers.....	166
Backpressure Regulator (to generate backpressure for applications less than 250 psi).....	58	Cold Trap Options	132
Base Plates	159	Cold Traps Fittings and Accessories.....	128
Basic Tool Kit	181	Colored Injector Liners.....	115
		Column Adapter.....	122, 124
		Column Adapter/Receiver	121
		Column Adapters	121
		Complete Capillary Injector Add-On Kits.....	108
		Complete Triple Filter Bundle Kit for FID.....	161

Compressors	176	Elite-608.....	98
Conditioned Thermal Desorber Tubes	131	Elite-624.....	80, 86
Convenient GC/MS Consumable Kits.....	110	Elite-624ms	93
Conventional Column Hardware.....	47	Elite-Alumina PLOT	100
Crimp Top	36	Elite-Alumina/KCI PLOT.....	100
CTC Headspace Vials.....	33	Elite-BAC 1 Advantage	95
Custom Packed Capillary Columns.....	101	Elite-BAC 2 Advantage	95
Custom Packed Columns.....	101	Elite-Betacyclodextrin	98
Deluxe Tool Kit	181	Elite-Carbon Columns.....	101
Detectable Gases.....	179	Elite-CL Pesticides.....	97
Detector Backpressure Regulator	54	Elite-Cyclosil B PLOT	100
Detector Series Operation Kit.....	118	Elite-FFAP	99
Detector Series Operation Kits	123	Elite-Molesieve PLOT.....	100
Digital Bubble Flow Meter	180	Elite-MTBE.....	99
Disposable Syringes	22	Elite-PONA	99
Double Microtiter Peltier		Elite-Q PLOT	100
Temperature-Controlled Tray Accessory	67	Elite-RX	98
Dual Capillary Column Adapter Kit	108	Elite-SimDist	98
Dual Mixer Connection ($\leq 250 \mu\text{L}$)	58	Elite-SimDist ht.....	94, 98
Dual Mixer Connection ($\leq 350 \mu\text{L}$)	58	Elite-TPH.....	99
ECD Add-On Kit (Manual Pneumatics)	121	Elite-VMS	96
ECD Add-On Kit (PPC Pneumatics).....	121	Elite-Volatiles	97
ECD Add-On Kits.....	121	Elite-WAX.....	88
ECD Amplifier.....	121	Elite-WAX ETR	80, 89
ECD Wipe Test Kit	121	Elite-XLB.....	96
Elite-5.....	82	Empty Sample Tubes with Plastic End Caps	130
Elite-5ms	90	Empty Sample Tubes without Caps	130
Elite-1.....	80, 81	External Ignite Nozzle Replacement Tool	119
Elite-1301.....	80, 86	External Igniter FID Catalytic Reactor Accessory.....	119
Elite-17.....	83	FID Add-On Kits.....	118
Elite-1701.....	80, 87	FID Amplifier	118
Elite-17ht	94	FID Flow Measurement Adapter.....	119
Elite-17ms	91	FID Gas Station.....	172
Elite-17ms+	92	FID Miscellaneous Accessories.....	119
Elite-1ht	94	Field Upgrade Peltier Kits	64
Elite-1ms	90	Filters	120
Elite-200.....	84	Fittings Kit for LC.....	61
Elite-225.....	85	Fittings Kits.....	61
Elite-23.....	99	Flexar Autosampler Valve Maintenance Parts	64
Elite-2560.....	99	Flexar FX UHPLC Autosampler	64
Elite-35.....	83	Flexar FX-15 Pump Head.....	57
Elite-35ms	92	Flexar FX-20 Pump Head.....	57
Elite-5.....	80	Flexar ISO/Binary/Quaternary Pump to Autosampler.....	58
Elite-5 Amine.....	99	Flexar LC Autosampler.....	64
Elite-502.2.....	98	Flexar Peltier LC Autosampler	64
Elite-5ht	94	Flexar/225 Biocompatible Upgrade Kit (w/valve).....	64
Elite-5ms	80	Flexar/Series 200 Pump Solvent Upgrade Kits.....	59
Elite-5ms II.....	80, 91	Flowcells for 785A and Series 200 UV/Vis Detectors.....	54

ALPHABETICAL INDEX

Flowcells for Flexar and Series 200EP PDA Detectors	54
Flowcells for Flexar FX-PDA UHPLC and Series 275 PDA Detectors	54
Flowcells for Flexar FX-UV/Vis UHPLC Detectors	54
Flowcells for Series 200 PDA Detectors	54
Fluorescence Detector Lamps	55
FPD Add-On Kit (Manual Pneumatics)	120
FPD Add-On Kits	120
FPD Amplifier	120
FPD Replacement Parts for AutoSystem Series GCs	120
FPD with PPC Add-On Kit	120
Fused Silica Adaptors	141
FX-10 Injector to Column	58
FX-10 Pump A (Upper) to Dual Mixers	58
FX-10 Pump A (Upper) to T-mixer	58
FX-10 Pump B (Lower) to Dual Mixers	58
FX-10 Pump B (Lower) to T-mixer	58
FX-10 Purge Valve to Filter/Scavenger	58
FX-10 UHPLC System ID PEEK Tubing	58
FX-15 C18 Scavenger Column Kit	58
FX-15 C18 Scavenger Columns (pkg. 2)	58
FX-15 Injector to Column, 33 cm	58
FX-15 Injector to Column, Standard	58
FX-15 Pump to Dual Mixers	58
FX-15 Pump to In-line Mixer	58
FX-15 UHPLC Pump Accessories	58
FX-15 UHPLC System ID PEEK Tubing	58
FX-20 UHPLC Pump Accessories	58
FX-20 UHPLC System Accessories	58
Gas In-line Filter	167
GC Cap Cutting Tool	72
GC Injector Syringes	117
GC Startup Kits	177
Glass Inlet Liners	114
Guard Column Holders and Pre-Filters	52
Handle Assembly (Source Blank and Sight)	126
Headspace Caps with Ultra Low Bleed Septa	31
Headspace Crimp Top Vials	32
Headspace Crimper and Decapper Tools	37
Headspace Screw Top vials	33
Headspace Starter Kits	36
Helium Specific Glass Indicating Triple Trap for your PerkinElmer Clarus GC/MS	166
High Capacity Combi Filter	163
High Capacity Hydrocarbon Trap	167
High Capacity Triple Filter	163
High Capacity Triple Filter Helium Specific	163
High Capacity Triple Filter Hydrogen Specific	164
High Powered Crimpers and Decappers	37
High Pressure Analytical Static Mixers	65
High Pressure FX-15 Piston Seal Kit (Need 4 per FX-15) ...	58
High Pressure Piston	56
High Pressure Piston Seal – Chemically Resistant	56
High Pressure Piston Seal PTFE O-Ring	56
High Pressure Piston with Seal Backup Ring	56
High Purity Generator Models	170
High Purity Hydrogen Generators	170
High Purity Brass Regulators	178
High Purity Brass Regulators (Dual Stage)	178
High Purity Brass Regulators (Single Stage)	178
HPLC – General Starter Kit	68
Hydrocarbon Trap	167
Hydrogen Regulator Replacement Kit	119
Hydrogen/Air Replacement Needle Valve	119
Igniter Assembly	119
Indicating Oxygen Trap	167
Injector Septa	117
Injector Valve Rotor Seals for both Series 200 Autosampler and Manual Injectors	63
Injector/Detector Adapter 1/4 in.	110
Inlet Check Valve	56
Insertion Tool	58
Intermediate Check Valve	56
Internal Loop for 7725/9725 Valves	63
Ion Source Accessories	70
Ketones for Method 8260B	184
LC System Accessories	59
LC/MS Nitrogen Generators with Integrated Compressors	153
Liquid Chromatography Laboratory Bottle Kits	69
Liquid Sample Valve Accessories	138
Liquid Sample Valves	138
Low Pressure Piston	56
Low Pressure Piston Seal	56
Low Pressure Piston Seal Backup Guide Bushing	56
Maintenance Kit	72
Manifold and Mounting Hardware	160
Marathon Filament	125
Membrane Nitrogen Generators	153
Merlin MicroSeal Septum	117
Methanizers	141
Method 624 Standards Kit for Volatile Organic Compounds	185
Method 625	185
Method 8082 PCBs (polychlorinated biphenyls)	185
Method 8100	185

Method 8260B Standards.....	184	Packed Conditioned Sample Tubes, Brass Long-Term Storage End Caps (pkg. 10).....	131
Method 8270C Mixes.....	185	Packed Injector Replacement Parts.....	109
Method 8270C Standards.....	185	Packed Traps.....	128
Method 8270C Surrogates.....	185	Packed Unconditioned Sample Tubes, Plastic End Caps (pkg. 10).....	130
Micropump Piston Seal Replacement Kit.....	58	Particle Filter for LC/MS.....	159
Microsyringes.....	65	PEEK One-Piece Fingertight® Fitting.....	61
MiniTemp MT4.....	179	PEEK Sample Loops for Rheodyne Valves.....	63
Miscellaneous Accessories.....	119	PEEK Sample Loops For Series 200/225 and Flexar LC Autosamplers.....	60
Miscellaneous Accessories.....	123	PEEK Tubing.....	60
Miscellaneous Accessories.....	132	Peltier Temperature Controller.....	67
Miscellaneous Injector Accessories.....	108	PerkinElmer FlowMark Electronic Flowmeter.....	180
Mix B Purgeable Gases for Methods 8260B/524.2.....	184	PerkinElmer Flowmeter Plus.....	181
N ₂ Mini Whisper Generators.....	152	PerkinElmer's GC Quiet Oil Free Compressor.....	176
N ₂ Whisper Generators.....	152	Permeation Tubes.....	140
N ₂ -22 Mid Flow.....	155	PG-H ₂ Plus Generator Models.....	168
N ₂ -35 Mid Flow.....	155	PG-H ₂ Plus Generator Replacement Parts.....	168
N ₂ -45 High Flow.....	154	PG-H ₂ Plus Hydrogen Generators.....	168
Needles.....	116	PG-H ₂ Plus NM-H ₂ Plus Generator Accessories.....	169
Needles and Syringe Kits.....	116	Photo Diode Array Detector Lamps.....	55
NewGuard Cartridges.....	49	PID Add-On Kit (Manual Pneumatics).....	123
NitroFlowLab; Integrated N ₂ Generator and Compressor.....	154	PID Add-On Kits.....	123
Nitrogen Generators.....	70, 151	PID Amplifier.....	123
NM-H ₂ Plus Generator Models.....	169	PID Lamp Power Supply.....	123
NM-H ₂ Plus Generator Replacement Parts.....	169	PID Maintenance.....	141
NM-H ₂ Plus Hydrogen Generators.....	169	PID Replacement Parts.....	123
Noise Enclosure including dolly.....	70	PID with PPC Add-On Kit.....	123
NPD Add-On Kit (Manual Pneumatics).....	122	PID/ECD Series Operation Kit.....	121
NPD Add-On Kits.....	122	PID/FID Series Operation Kit.....	118
NPD Amplifier.....	122	Piston Seal Replacement Kit Includes: four seals, backup rings, and O-Rings".....	58
NPD Replacement Parts.....	122	Piston Wash Bottle Kit.....	58
NPD with PPC Add-On Kit.....	122	POC Injector Starter Kit.....	111
Nuts and Ferrules.....	140	POC Injector with Manual Flow Controller and Head Pressure Gauge.....	111
Nylon Syringe Filters.....	10	POC Injector with Manual Flow Controller and Head Pressure Gauge with Flow Readout on Screen.....	111
On-Line Vacuum Degasser Kit.....	69	POC Injector with PPC Add-On Kit.....	111
Operation Kit.....	61	POC Replacement Parts.....	111
Outlet Check Valve.....	56	Point Style 2.....	116
Oxygen Trap.....	167	Point Style 3.....	116
Packed Column Adapter.....	120	Polypropylene Vials.....	28
Packed Column Injector Kit AutoSystem XL and Clarus.....	109	Portable Gas Leak Detector.....	179
Packed Column Injector Kit with Manual Pneumatics....	109	Pre-Assembled Aluminum Crimp Caps and Septa.....	34
Packed Column Injector Kit with PPC.....	109	Pre-Assembled cap and septa.....	29
Packed Column Injector Kit with Screen Readout and Manual Pneumatics.....	109		
Packed Column Injector Liners.....	115		
Packed Column Injector Starter Kit.....	109		

ALPHABETICAL INDEX

Pre-Assembled Magnetic Crimp and Screw Caps and Septa.....	35	Series 200 Pump Injector Bracket.....	58
Pressure Regulators	178	Series 200 Pump Maintenance Kit Includes: fuses, seals, O-Rings, and seal tools	58
Preventive Maintenance (PM) and Seal Kits	57	SilTite Metal Ferrules	105
Programmed Temperature Split/Splitless (PSS) Injector Liners.....	115	SMARTsource Kits.....	127
PSS Injector Add-On Kits with Manual Pneumatics.....	112	SMARTsource Maintenance Kits.....	126
PSS Injector Starter Kit.....	112	SMARTsource Replacement Parts	127
PSS Injector with PPC.....	112	SMARTsource with Marathon Filament for Clarus SQ 8 GC/MS Systems	126
PSS Replacement Parts.....	112	Soap Bubble Flow Meters	180
PTFE (Hydrophobic) Syringe Filters.....	10	Solid Glass Blocking Trap	132
PTFE (Hydrophilic) Syringe Filters	10	Solvent Filters/Scavengers	59
Pulse Compensator Repair Kit Includes: diaphragm, elastomer plug, and seal	58	Solvent Reservoir Sparger	59
Pulse Compensators	59	SPE Application Packs.....	18
Pump Priming Syringe (30 mL, plastic)	58	SPE Selection Packs.....	18
Pump Seal Kits.....	54	SPE Vacuum PUMPS, Manifolds and Accessories	19
PVDF (Hydrophobic Polyvinylidene Fluoride) Syringe Filters.....	10	Spheri5 Scavenger Columns (pkg. 5).....	58
QSight UPS System	70	Split/Splitless Injector Starter Kit.....	108
Refractive Index Detector Lamps	55	SPP Guard Columns (3 Packs)	51
Regulators.....	178	SS-316 Tubing	60
Replacement 0.5 µm Filter Frits for FX-15 (pkg. 4).....	58	Stainless Steel Fittings.....	61
Replacement Cartridge for Oxygen, Water and Hydrocarbons.....	160	Stainless Steel Sample Loops for 7725 Valve	63
Replacement Column Sets for Other Standard Arnel Analyzers	136-137	Stainless Steel Sample Loops for Flexar FX UHPLC Autosampler.....	60
Replacement Column Sets for Standard Arnel Natural Gas Analyzers	136	Stainless Steel Trap Kits.....	166
Replacement Column Sets for Standard Arnel Refinery Gas Analyzers.....	136	Stainless Steel Traps.....	166
Replacement Filter Bundles for LC/MS.....	158	Standard High Pressure Piston Seal	56
Replacement Glow Plug for External Ignite FID.....	119	Standards	184
Replacement O-Rings for All Cartridge Base Plates.....	159	Standards Kit.....	185
Replacement O-Rings for All Cartridge Base Plates.....	165	Standards Solutions	184
Replacement Vacuum Degasser Bottles.....	69	Standoffs.....	139
Rheodyne Valves Spare Parts.....	62	Starter Kit.....	129
Safe Glass Moisture Trap.....	167	Stick-on Tubing Organizer (Gray Plastic).....	60
Sample Loops	139	Supra-Clean 300Å C4.....	14
Sample Trays	67, 132	Supra-Clean Amino (NH ₂ -S)	15
Sampling and Installation Parts	140	Supra-Clean Amino (NH ₂ -S)	15
SCD Maintenance.....	140	Supra-Clean C18	14, 15
Screw Top.....	36	Supra-Clean Cyano (CN-S).....	15
Seal Removal Tool.....	58	Supra-Clean Florisil (FL-S).....	14
Series 200 Autosampler Microtiter Trays	67	Supra-Clean Florisil (FL-S) Pesticide Grade	15
Series 200 Autosampler Plates	67	Supra-Clean LCC	15
Series 200 Bio LC Pump Maintenance Kit Includes: fuses, seals, O-Rings, and seal tools	58	Supra-Clean Mixed-Mode (MM1)	14, 15
Series 200 Operator's Manual	58	Supra-Clean Mixed-Mode (MM2)	14
		Supra-Clean Mixed-Mode (MM3)	14
		Supra-Clean Phenyl (PH-S)	15
		Supra-Clean Polyamine (P6).....	15
		Supra-Clean REC18	14, 15
		Supra-Clean Silica (SI-S).....	15

Supra-Clean Spherical Silica	12	Ultra Clean Base Plate Flush Cap Replacement Set for GC/MS	165
Supra-Clean Strong Anion Exchange (SAX)	14, 15	Ultra Clean Base Plate Flush Cap Replacement Set for LC/MS	159
Supra-Clean Strong Cation Exchange (SCX)	14, 15	Ultra Clean Filter Base Plates for GC/MS	158
Supra-Clean Weak Cation Exchange (WCX)	14	Ultra Clean Filter Kits for LC/MS	157
Supra-Poly Environmental (AEV)	17	Ultra Clean Gas Filter Kits for GC and GC/MS	161
Supra-Poly Extra Wide Particle 1200 m ² /g (XWP) 96 Well Plates	17	Ultra Clean Gas Filters	160
Supra-Poly Extra Wide Particle 1200 m ² /g (XWP) Columns	17	Ultra Clean Gas Filters and Kits for LC/MS	157
Supra-Poly Extreme Capacity 1500 m ² /g (XC) 96 Well Plates	17	Ultra Clean Gas Filters for GC and GC/MS	162
Supra-Poly Extreme Capacity 1500 m ² /g (XC) Columns	17	Ultra Clean High Flow Base Plates for LC/MS	159
Supra-Poly HLB	16	Ultra Clean Replacement Individual Cartridge Filters for GC and GC/MS	158
Supra-Poly Hydrophilic (ATH)	17	Ultra Clean Replacement Individual Cartridge Filters for GC and GC/MS	164
Supra-Poly Lipophilic (ATL)	17	Ultra High Purity Generator Models	171
Supra-Poly Spherical Polymer	12	Ultra High Purity Hydrogen Generators	171
Soil Vapor Intrusion (SVI™) Tubes	131	Ultra Low Bleed Septa	31
Swafer Kits and Accessories for Existing Clarus GC Systems	103	Ultra Quiet Analytical Compressor	175
Swafer Kits for Clarus GC Systems	103	Ultra Quiet Compact Oil-free Compressor	176
Swagelok™ Fittings	106	Ultra Zero Air Generators	173
Syringe Kits	65, 116	Ultra-High Capacity Hydrocarbon Filter	162
Syringes	65	Ultra-High Capacity Hydrocarbon Filter Bundle	157
TCD Add-On Kit (Manual Pneumatics)	124	Ultra-High Capacity Moisture Filter	162
TCD Add-On Kits	124	Ultra-High Capacity Moisture Filter Bundle	157
TCD Amplifier	124	Ultra-High Capacity Oxygen Filter	162
TCD Detector Makeup Gas Kit (Manual Pneumatics)	124	Ultramicro Volume Syringes	22
TCD with PPC Add-On Kit	124	Un-Assembled Aluminum Crimp Caps and Septa	35
TCD with PPC Makeup Gas Kit	124	Un-Assembled Cap and Septa	30
TCD/FID Series Operation Kit	118, 124	Unconditioned Thermal Desorber Tubes	130
Technical Specifications for NM-H ₂ Plus Models	169	Union and Tees	141
Technical Specifications for PG-H ₂ Plus Models	168	Universal Connectors	105
Tefzel Tubing	60	UV/VIS Detector Lamps	55
Test Mix	184	Vacuum Manifold Kit	19
Thermal Desorber	129	Vacuum Pumps	19
Thermal Desorber Caps and Accessories	129	Valves	138
Thermal Desorber Industrial Hygiene Application Kit	129	Vent Tube Assembly	121
Transfer Lines	132	Vial Racks	37
Tray Accessory	67	Volatile Organics Combination Blend	184
Triple Filter Kit for MS/ECD/NPD	161	Wafer Scribes	105
Tuning Solutions	70	Wall Mounting Bracket for All Cartridge Base Plates	159, 165
TurboMatrix 40 Headspace Trap	132	Waste and Wash Vials, Caps and Septa for GC	28
TurboMatrix Thermal Desorption Cold Trap Supplies	128	Wide-Bore Adapter Kit	105, 110
Ultra Clean Gas Filters for LC/MS	156	Zero Air Generators	174
UHPLC – General Starter Kit	68	Zero and Ultra Air Generators	173
Ultra Clean Base Plate Fittings for LC/MS	159, 165	Zero Dilution Liners	112



WHOSE TRIPLE QUAD
CAN GIVE YOU
15% MORE TIME?



SIMPLE: PERKINELMER.

Whether you're performing environmental, food, or industrial testing, your lab needs to analyze more and increasingly complex samples under tighter regulatory standards. Because our new QSight™ triple-quad LC/MS/MS needs no routine cleaning and maintenance, you get up to 15% more uptime (that's up to *35 more days per year*) to take on your increased testing workload. Plus, our patented technology delivers exceptional sensitivity and reliability along with all that productivity.

QSight: A triple quad that simply knows the value of time.

Learn more at www.perkinelmer.com/QSight


PerkinElmer
For the Better

PerkinElmer, Inc.
940 Winter Street
Waltham, MA 02451 USA
P: (800) 762-4000 or
(+1) 203-925-4602
www.perkinelmer.com



For a complete listing of our global offices, visit www.perkinelmer.com/ContactUs

Copyright ©2017, PerkinElmer, Inc. All rights reserved. PerkinElmer is a trademark of PerkinElmer, Inc. All other trademarks are the property of their respective owners.

013651A_03