WELCOME TO RESTEK

Restek, it is GC… and wht else !

Journée CECM - 18 novembre 2022

Laurent CERVEAU

Corporate History

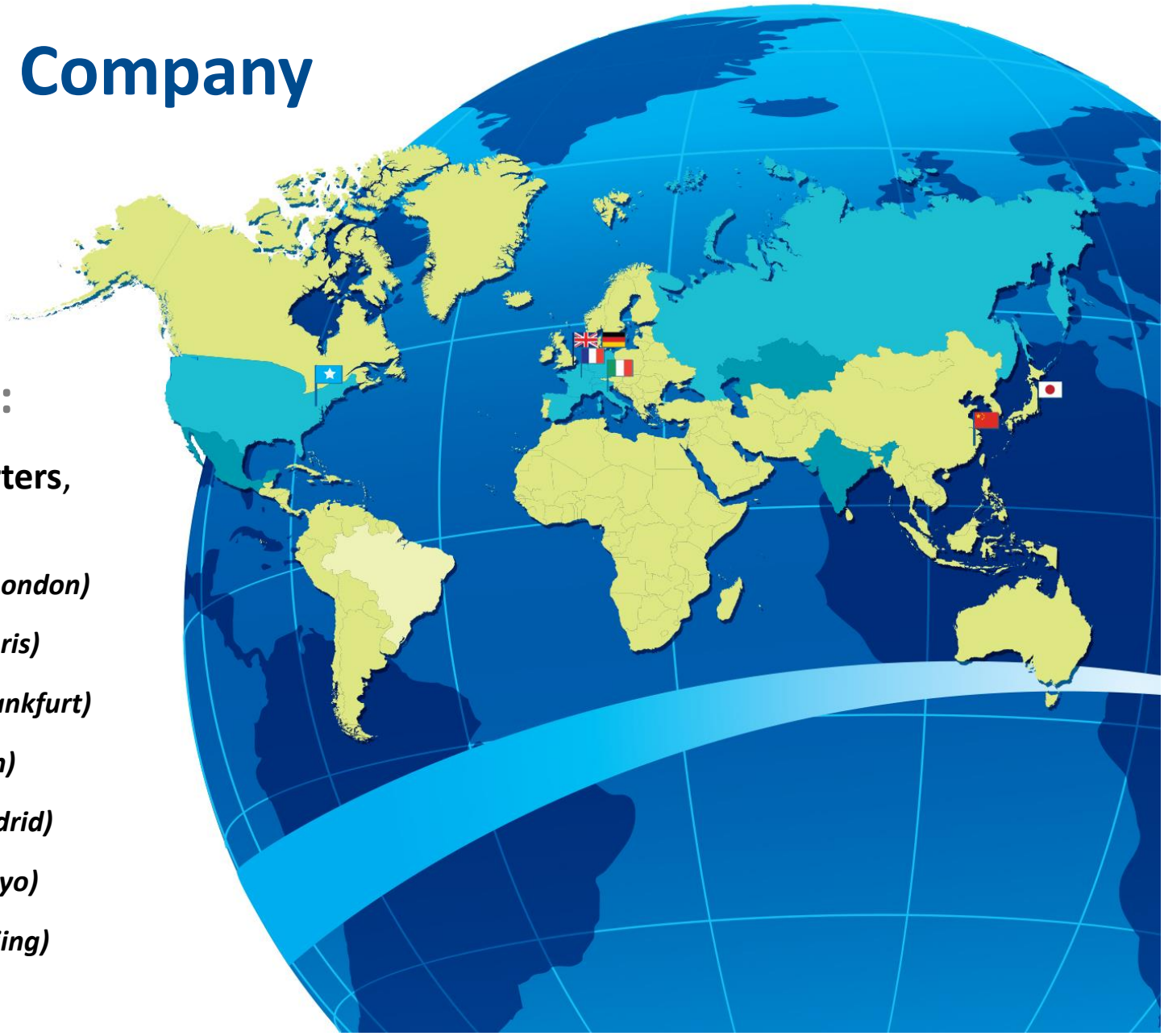
Humble beginnings in 1985, Restek starts out in a single room of an elementary school–turned business incubator making Fused Silica capillary columns

Founded in 1985

The Restek Campus today – 140,000 ft^2

Restek Corporate Headquarters
Bellefonte, PA U.S.

A Global Company



Sales Offices:

Global Headquarters, Bellefonte, PA

Restek Thames ***(London)***

Restek France ***(Paris)***

Restek GmbH ***(Frankfurt)***

Restek Italy ***(Milan)***

Restek Spain ***(Madrid)***

Restek Japan ***(Tokyo)***

Restek China ***(Beijing)***

Les fondements de la différence Restek

Attention portée aux **clients**

PIE
Plus 1 • Innovation • Execution

Attention portée aux **salariés**

Un environnement de travail sûr, sain et stimulant

100% ESOP en 2008

Restek appartient à ses employés. Ainsi, chacun d'entre eux a un sincère intérêt à tout mettre en œuvre pour garantir votre succès.

What Restek does

- Innovative Research
- Excellence in Manufacturing
- Expertise and Solution Creation
- Best-in-class Service

Nos fondamentaux : Application, Expertise & Support techniques

- Maintenir un appareillage à la pointe de la technologie (multi-marques)

- Expérience-client pour développer des solutions pratiques

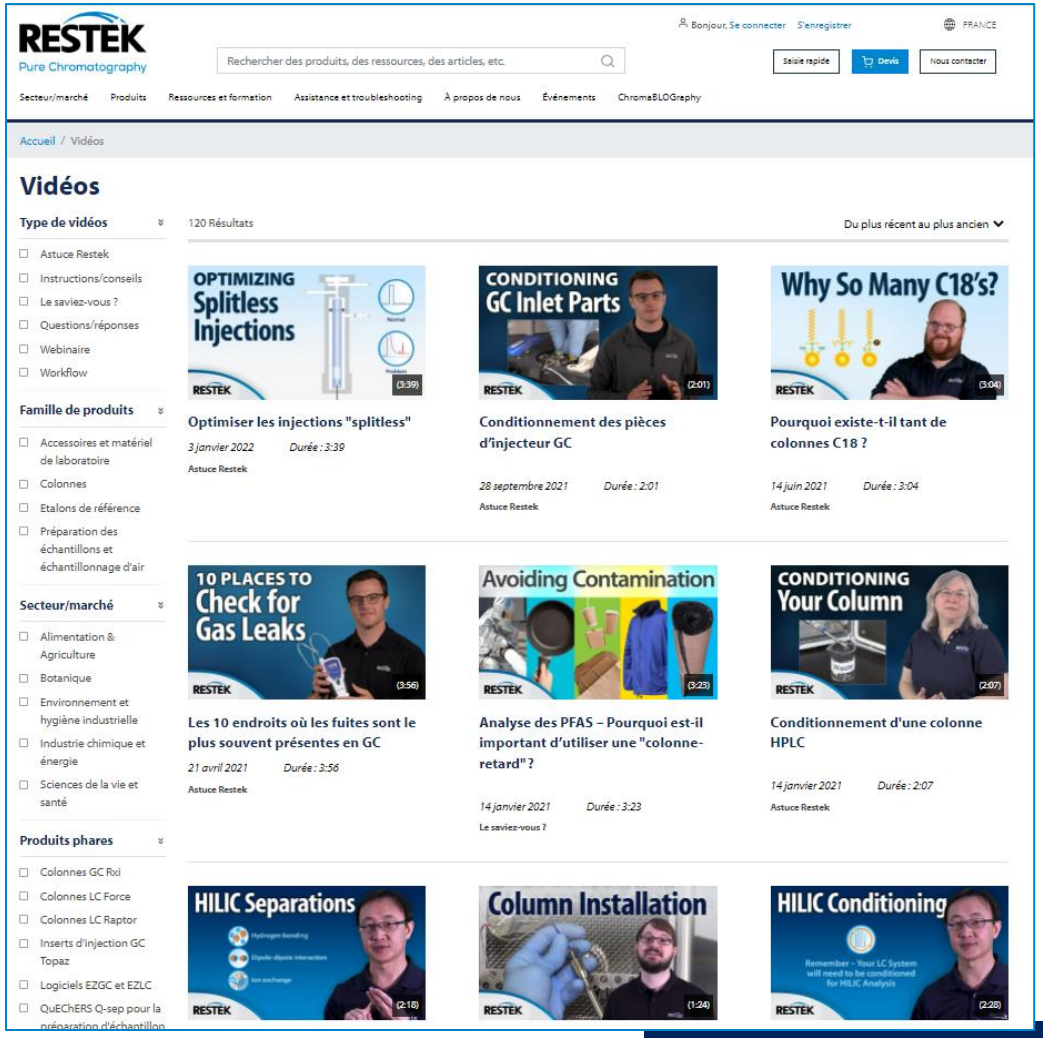
- Fournir une assistance technique la plus pointue possible à travers des conseils judicieux, rapides et gratuits, et ce concernant tout produit et toute marque d'appareil.

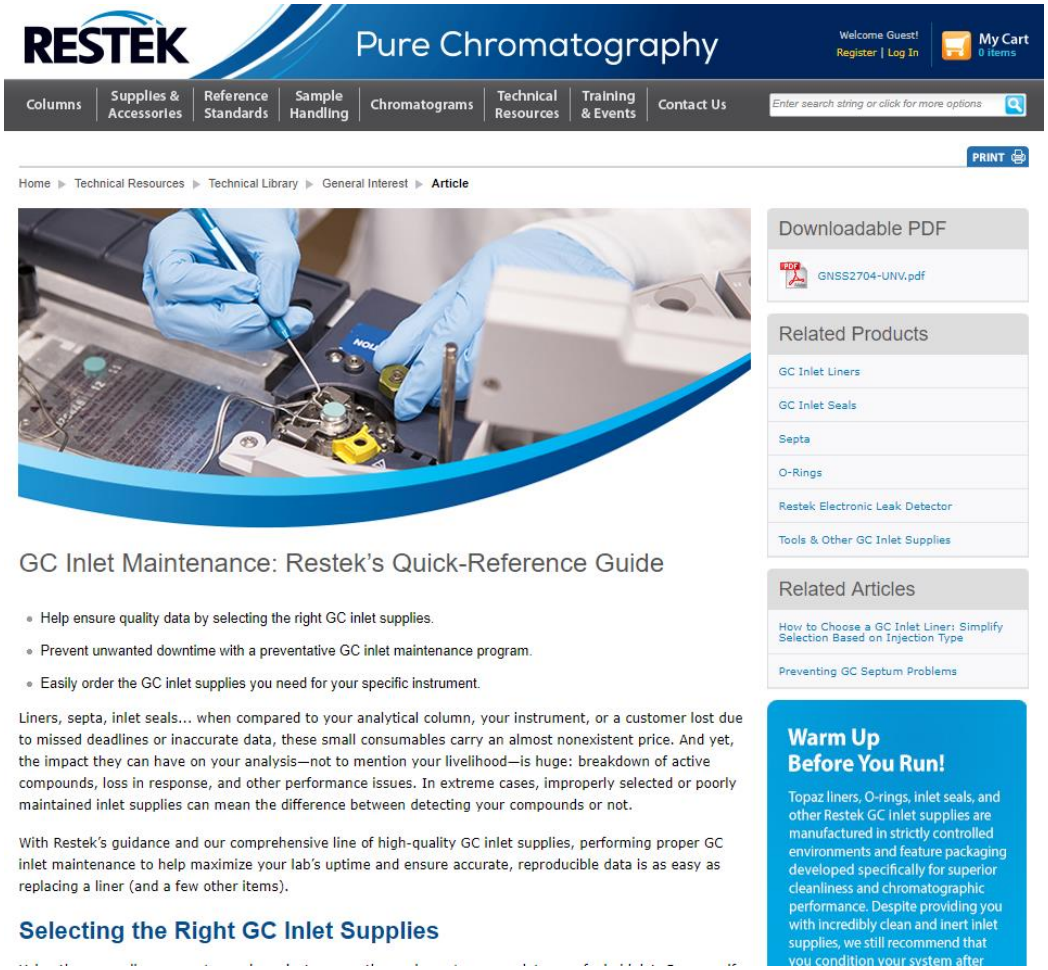
Vidéos à la demande

Tutoriels & conseils didactiques

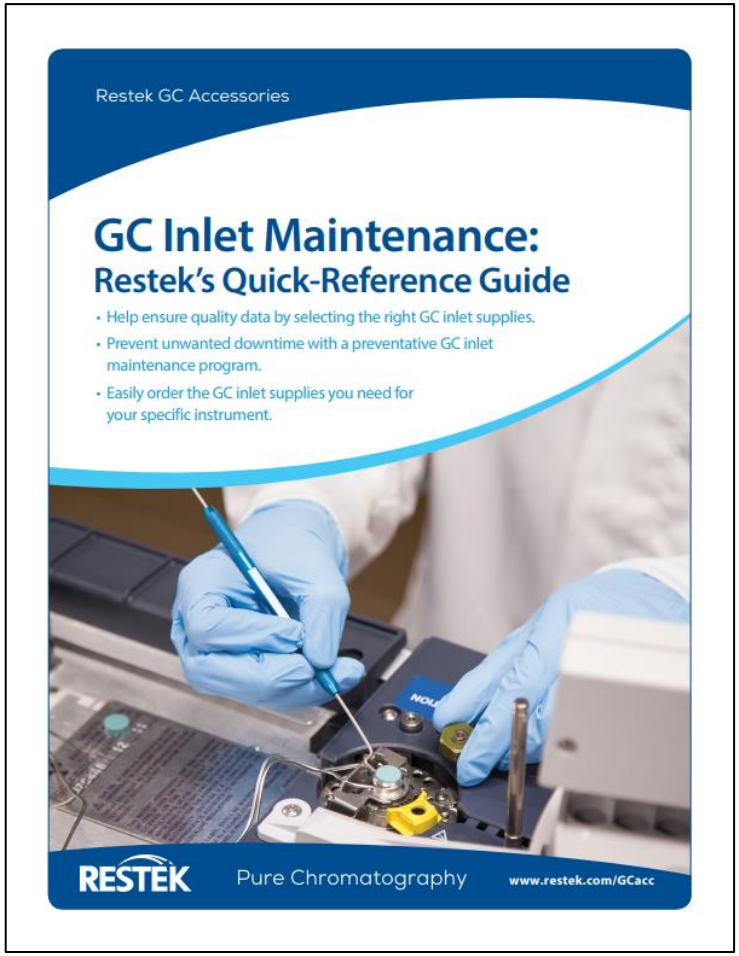
La vidéothèque Restek, alimentée régulièrement, contient plus une centaine de vidéos qui traitent des problématiques quotidiennes rencontrées par les chromatographistes.

www.restek.com/videos



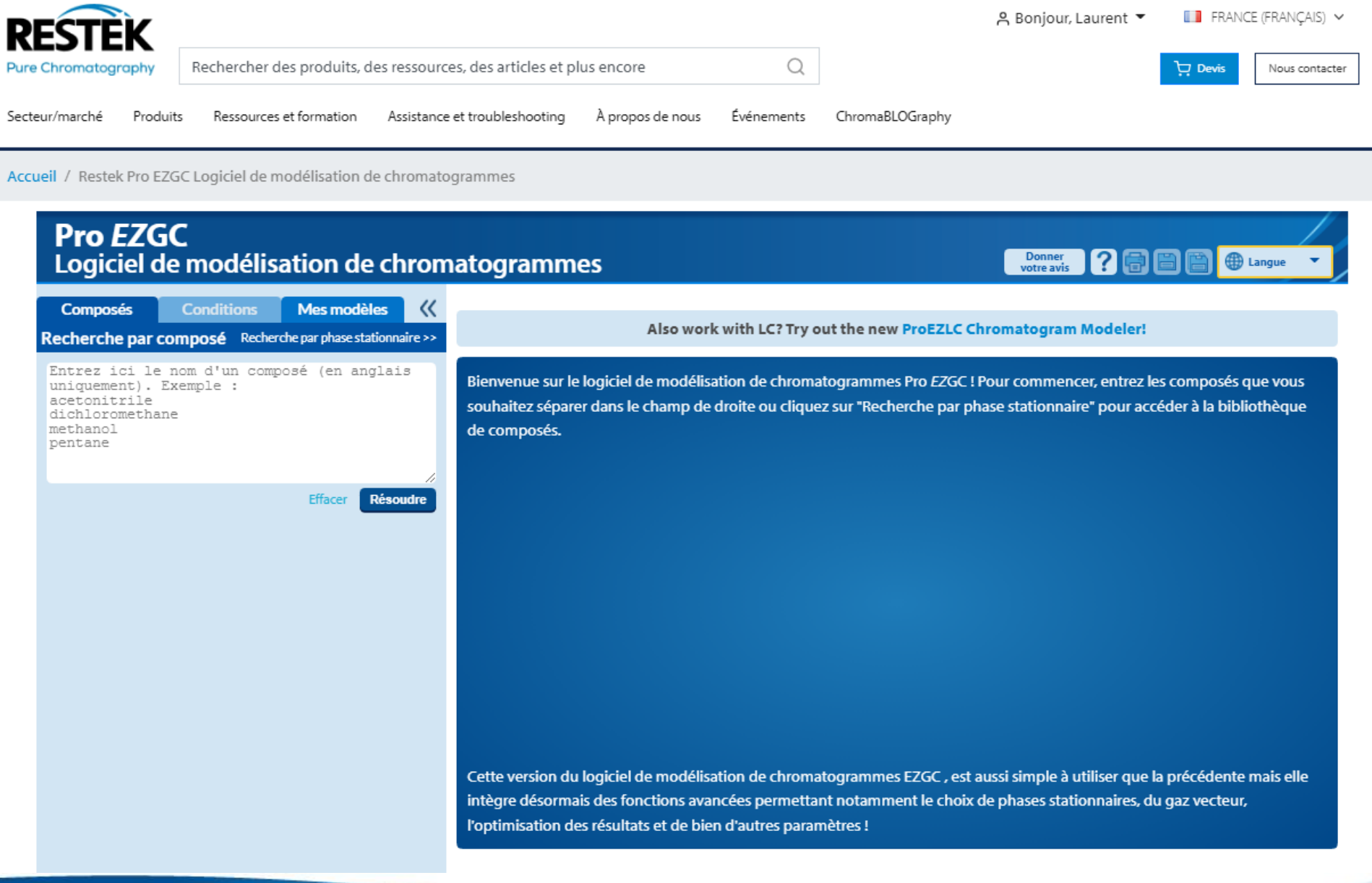


GC Inlet Maintenance Landing Page
http://www.restek.com/Technical-Resources/Technical-Library/General-Interest/general_GNSS2704-UNV

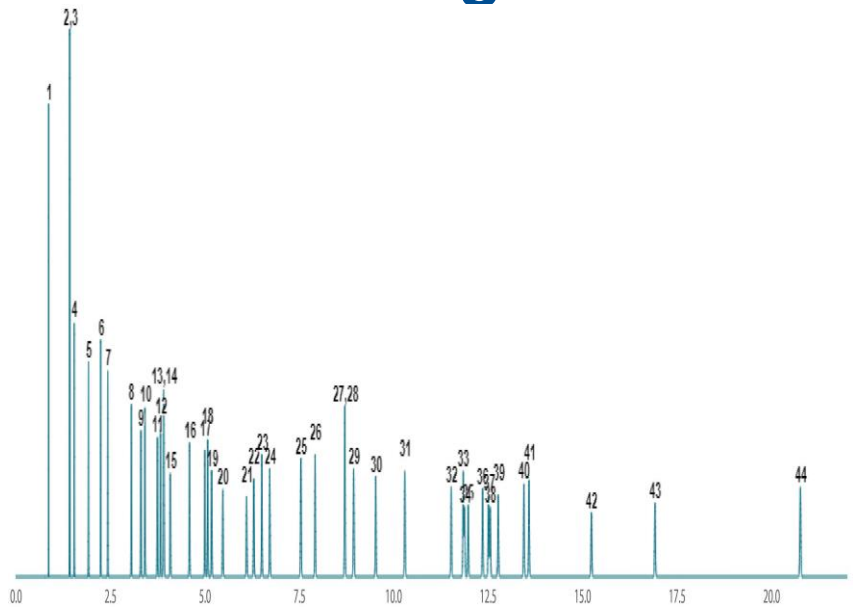


Inlet Maintenance Sales Sheet
GNSS2704-UNV

Logiciel EZ Pro GC on-line



EZGC Pro Logiciel de modélisation de chromatogrammes – Rxi-17Sil MS



Colonne: Rxi-17Sil MS, 20 m, 0.18 mm ID, 0.18 µm (réf. 14102)
Gaz vecteur: Hélium, Débit constant @ 1.44 mL/min
Vitesse moyenne: 48.99 cm/sec
Pression de sortie (abs): 14.70 psi
Temp. du four: 100 °C (Isotherme 1 min) à 250 °C @ 6 °C/min

Composés	t_R (min)	R_s	Largeur du pic (min)	T_{peak} (°C)
1. Ethyl butyrate	0.87	63	0.009	100.0
2. Limonene	1.43	0.3	0.015	102.6
3. D-Limonene	1.43	0.3	0.015	102.6
4. 1,8-Cineole	1.55	7.9	0.016	103.3
5. Linalool	1.93	16.4	0.019	105.6
6. Benzyl Alcohol	2.25	8.4	0.022	107.5
7. Phenylacetaldehyde	2.44	8.4	0.024	108.6
8. Camphor	3.06	8.8	0.029	112.4
9. Citronellol	3.31	3.6	0.030	113.9
10. Benzoic acid	3.42	3.6	0.030	114.5
11. Methyl chavicol	3.75	2.5	0.032	116.5
12. 1-Fluoronaphthalene	3.83	2.3	0.034	117.0
13. Methyl heptine carbonate	3.91	0.3	0.033	117.5
14. Citral isomer 1	3.92	0.3	0.033	117.5
15. Geraniol	4.09	5.1	0.034	118.5
16. Citral isomer 2	4.60	11.4	0.036	121.6
17. Hydroxycitronellal	5.01	1.9	0.037	124.0
18. Thymol	5.08	1.9	0.038	124.5
19. Methyl 2-nonynoate	5.18	2.7	0.038	125.1
20. Safrole	5.48	7.7	0.040	126.9
21. Cinnamic aldehyde	6.11	4.5	0.042	130.7
22. Anisic alcohol	6.30	4.5	0.042	131.8

Composés	t_R (min)	R_s	Largeur du pic (min)	T_{peak} (°C)
23. Cinnamic alcohol	6.51	4.8	0.043	133.1
24. Eugenol	6.72	4.8	0.043	134.3
25. iso-α-methyl ionone	7.54	8.3	0.045	139.3
26. Methyleugenol	7.92	8.3	0.044	141.5
27. Isoeugenol	8.71	--	0.048	146.2
28. Cinnamyl acetate	8.71	--	0.046	146.3
29. Vanillin	8.94	5	0.049	147.7
30. Lilial	9.53	12	0.048	151.2
31. Coumarin	10.30	16.1	0.052	155.8
32. Farnesol isomer 2	11.52	6.5	0.048	163.1
33. Amylcinnamaldehyde isomer 1	11.84	0.7	0.050	165.0
34. Farnesol isomer 1	11.87	0.7	0.050	165.3
35. Amylcinnamaldehyde isomer 2	11.97	1.9	0.049	165.8
36. Lyral isomer 2	12.35	3	0.051	168.1
37. Lyral isomer 1	12.51	0.8	0.051	169.0
38. Amyl cinnamic alcohol isomer 1	12.55	0.8	0.051	169.3
39. Amyl cinnamic alcohol isomer 2	12.76	4.1	0.051	170.6
40. Hexylcinnamaldehyde isomer 1	13.44	2.6	0.051	174.7
41. Hexylcinnamaldehyde isomer 2	13.58	2.6	0.052	175.5
42. Benzyl Benzoate	15.23	31.2	0.054	185.4
43. Benzyl salicylate	16.91	31.2	0.054	195.5
44. Benzyl cinnamate	20.76	71.2	0.057	218.6

Agroalimentaire

Applications

Industries agroalimentaires

Choisissez votre domaine d'analyses

Arômes et parfums

Qualité alimentaire

Sécurité alimentaire

Alimentation & Agriculture : les solutions

Produits (228) | Ressources (157) | Chromatogrammes (540)

Type de ressource

- Actu Restek
- Articles
- Autres
- Blogs
- Brochures et plaquettes commerciales
- FAQ
- Vidéos

Famille de produits

157 Résultats

Analyse du Paraquat et du Diquat par LC-MS/MS sans réactif d'appariement d'ions

L'analyse par LC-MS/MS du Paraquat et du Diquatest un outil important pour prévenir ou pour limiter l'exposition humaine et environnementale. Habituellement, des réactifs d'appariement d'ions sont utilisés pour analyser le Paraquat et le Diquat par LC-MS/MS, afin d'obtenir une réponse adéquate en matière de rétention, de résolution et de forme des pics. Cependant, les réactifs d'appariement d'ions concurrencent les analytes cibles pendant l'ionisation, ce qui réduit habituellement la sensibilité. Ces réactifs peuvent aussi contaminer le système LC-MS/MS, ce qui oblige à le démonter fréquemment pour un nettoyage complet. L'analyse LC-MS/MS présentée ici se révèle fiable pour les deux analytes cibles dans un gradient rapide de 7 minutes sans l'utilisation de réactifs d'appariement d'ions gênants.

Articles | Applications phares

https://www.restek.com/fr/secteur-marche/

Focus Markets

Market-based Solutions

Catalogue des produits

Des produits innovants conçus pour optimiser, accélérer et simplifier la chromatographie

How Sample Handling Fits

Sample Collection | Sample Preparation | Separation / Chromatography | Data Report

Sample Handling = sample collection to injection

Sample Collection Overview

Catalog Standards - Custom Standards...

Specializing in high quality multi-analyte catalog and custom CRMs.

Concentrations 0.001 ng/mL to 100,000 µg/mL

Flame-sealed glass ampules up to 20mL

Custom pricing is based on batch pricing.

More ampules, cost per ampule is reduced

Sample Prep Products

SPE
(Solid Phase Extraction)

QuEChERS

Filtration
(syringe filters, filter vials)

ASE
(Accelerated Solvent Extraction)

Solid Phase Micro Extraction (SPME) : manual & automatic with CTC PAL

Traditional SPME
Vol = 0,6 µl

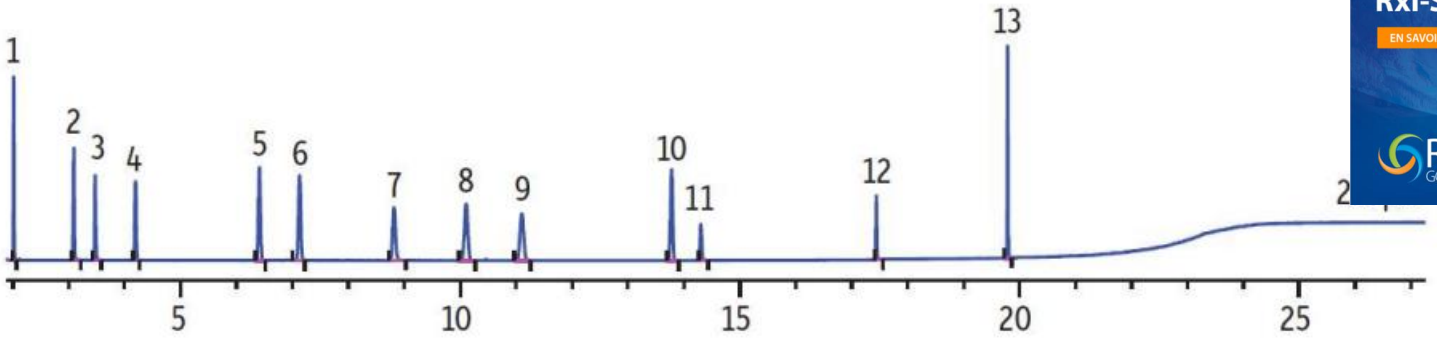
New SPME Arrow – Vol = 12µl

GC Accessories Overview – Fit by instrument

Accessories for virtually all GC instruments

La nouvelle colonne GC Restek : Rxi-SVOCms

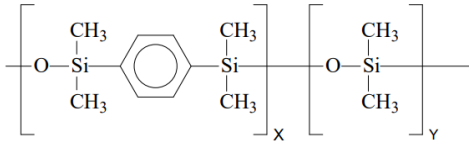
Chaque colonne est testée en sortie de fabrication individuellement avec un mélange de standard-étalon de semi-volatils (1ng injecté)



Oven
Oven Temp.: 125 °C (hold 12.5 min) to 340 °C at 20 °C/min (hold 4 min)

Nouvelle désactivation = très grande inertie

- ✓ SVOC = temperature d'ébullition > 100°C
- ✓ Excellent pour l'analyse de traces : reproductible
- ✓ Aucun décalage des tr même à faible concentration)
- ✓ Réduction du phénomène de "tailing"



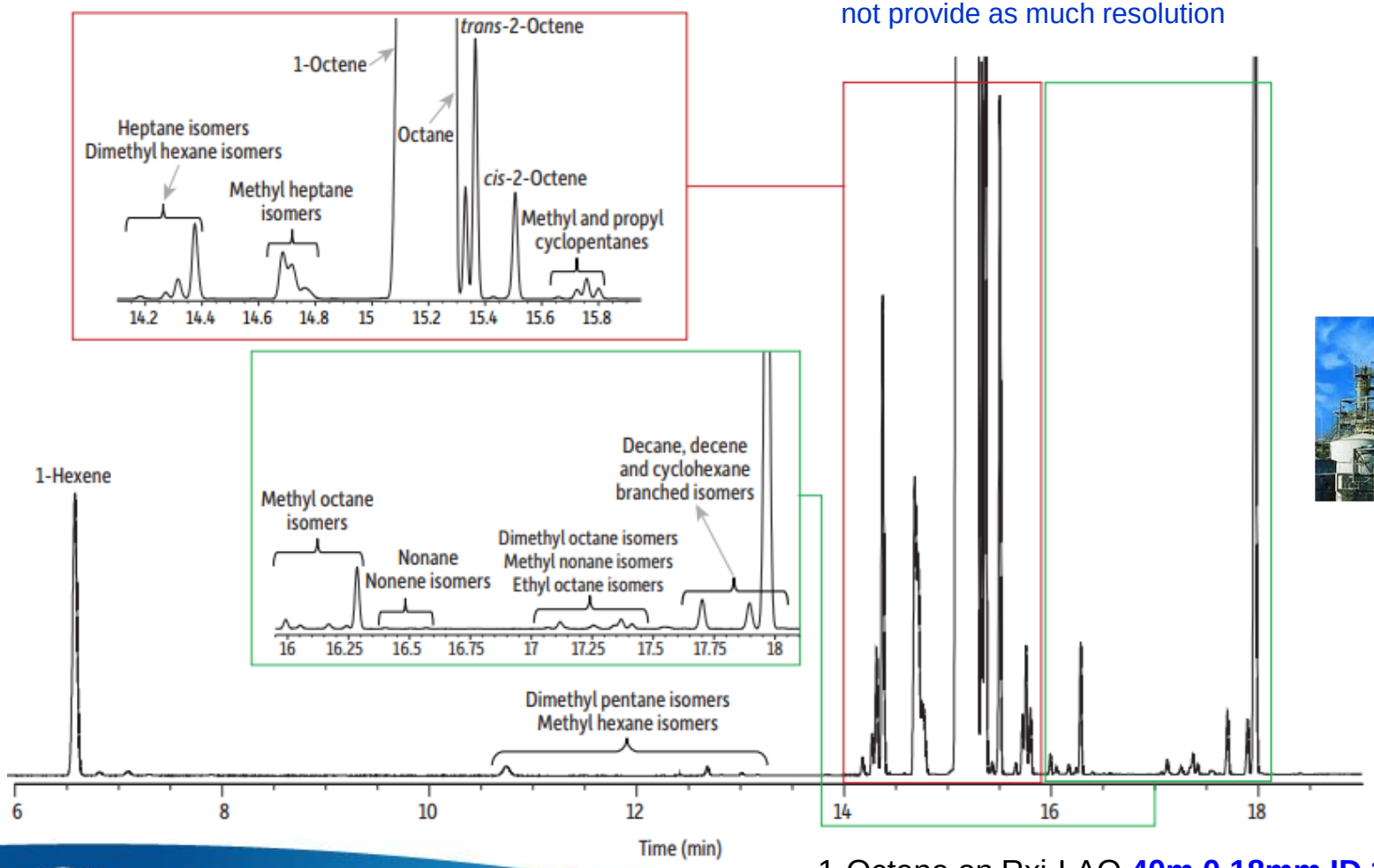
Hydrocarbons	Amines
Aldehydes	Amides
Ethers	Nitroaromatics
Esters	PCBs
Phenols	PAHs
Organic acids	Phthalate
Ketones	Esters,
Haloethers	Nitrosamines
Trihalomethanes	

1. 4-Picoline
2. 2-Ethylhexanoic acid
3. 1,6-Hexanediol
4. 4-Chlorophenol
5. *n*-Tridecane
6. 1-Methylnaphthalene
7. 1-Undecanol
8. *n*-Tetradecane
9. Dicyclohexylamine
10. Acenaphthene-d10
11. 2,4-Dinitrophenol
12. Pentachlorophenol
13. Benzidine

Linear Alpha Olefin : Application Performance: 1-Octene

As the demand for polyethylene increases, so does the need for a simplified, fast, and accurate analysis for measuring impurities in LAOs.

- Run time = 18 mins
- Faster analysis than the 60m column but does not provide as much resolution



1-Octene on Rxi-LAO **40m 0.18mm ID 1.0 µm**

Packed Columns

Methanizer

Converts CO and CO_2 to CH_4

Can use more sensitive FID for detection

Sensitivity down to the low ppm and ppb level

TCD limit around 100 ppm

New modern user friendly design

Simple operation

Easy maintenance

Focus on Routine Maintenance for Shimadzu Systems

Keep Your Lab Flowing

With RM on Your **Shimadzu** LC System

Routine maintenance (RM) reduces downtime and protects your valuable analytical data. Use this guide to keep your Shimadzu LC operating at its best: replace these crucial components at the recommended intervals and keep extras on hand.

Keep in mind that analytical conditions, mobile phases and additives, sample matrices, etc. affect maintenance frequency. For example, buffers are tough on pump seals.

RESTEK
Pure Chromatography

www.restek.com

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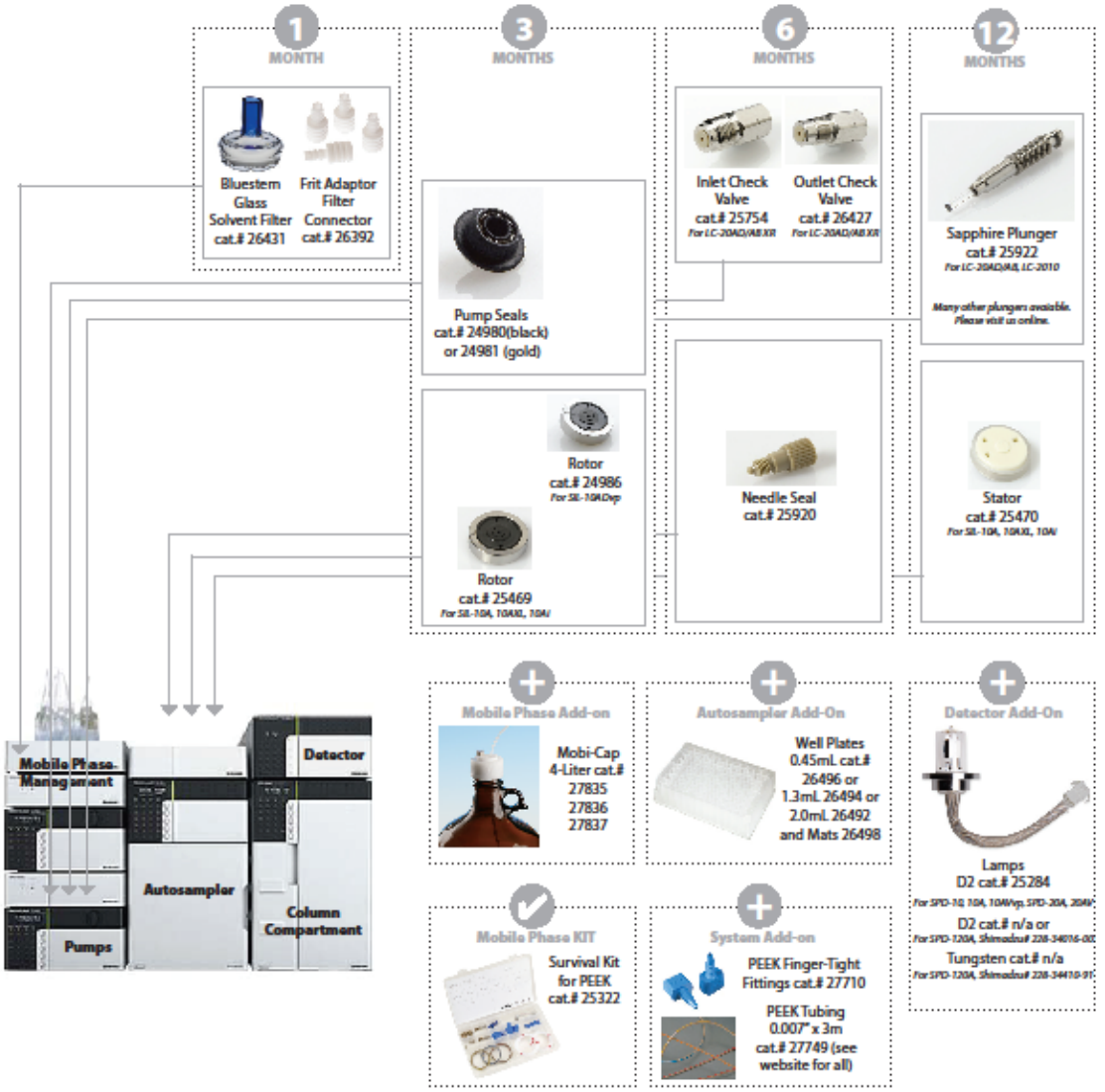


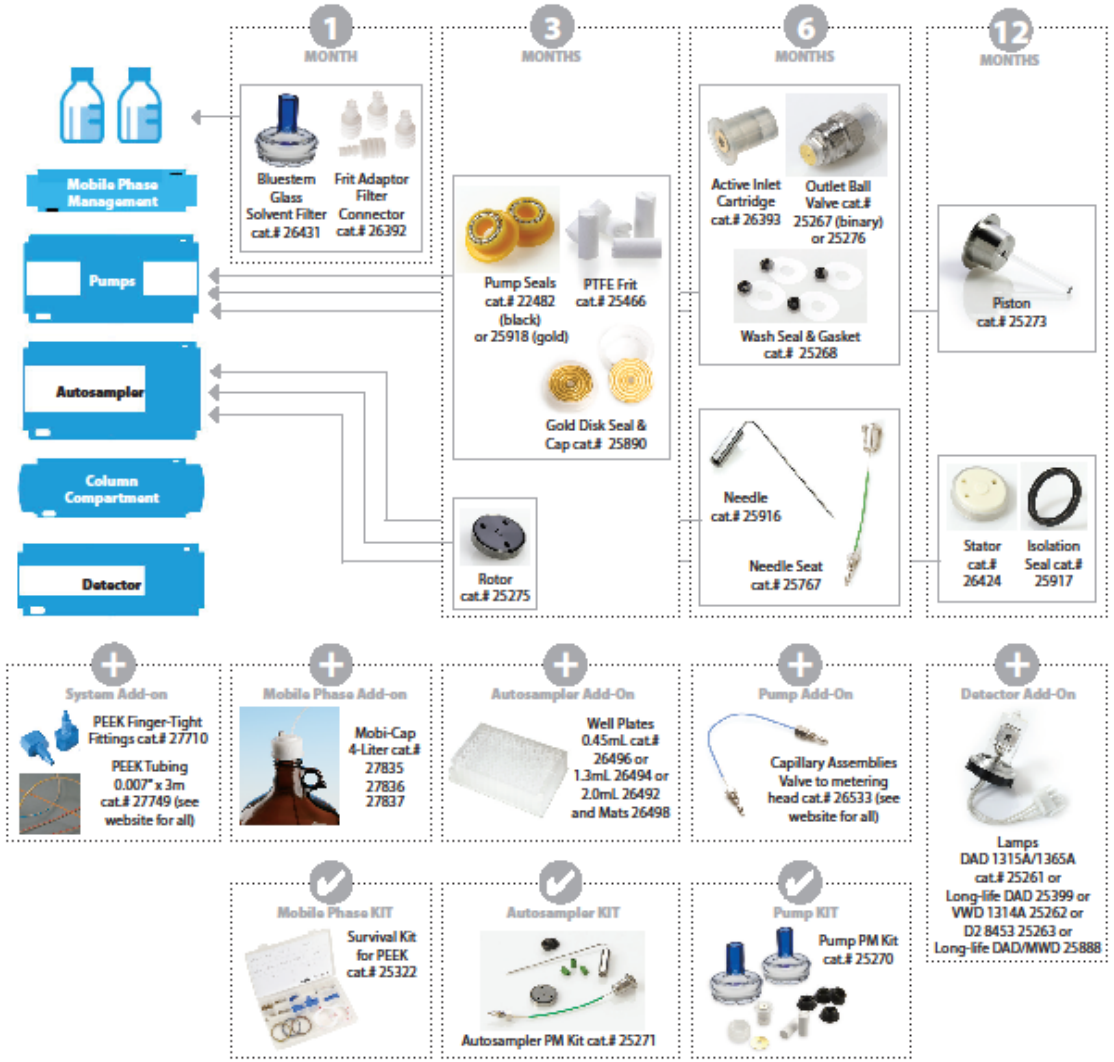
Focus on Routine Maintenance for Agilent Systems

Keep Your Lab Flowing

With RM on Your **Agilent 1100 & 1200** LC System

Routine maintenance (RM) reduces downtime and protects your valuable analytical data. Use this guide to keep your Agilent 1100 operating at its best: replace these crucial components at the recommended intervals and keep extras on hand.

Keep in mind that analytical conditions, mobile phases and additives, sample matrices, etc. affect maintenance frequency. For example, buffers are tough on pump seals.



RESTEK
Pure Chromatography

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Focus on Routine Maintenance for Waters Acquity Systems

Keep Your Lab Flowing

With RM on Your **Waters ACQUITY** LC System

Routine maintenance (RM) reduces downtime and protects your valuable analytical data. Use this guide to keep your Waters ACQUITY operating at its best: replace these crucial components at the recommended intervals and keep extras on hand.

Keep in mind that analytical conditions, mobile phases and additives, sample matrices, etc. affect maintenance frequency. For example, buffers are tough on pump seals.

RESTEK
Pure Chromatography

www.restek.com

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1 MONTH

Solvent Filter
cat.# 25954

Safety-Coated Bottle
cat.# 25304

3 MONTHS

Head Plunger Seals
cat.# 26428

6 MONTHS

BSM Pump PM Kit
cat.# 25797

H-Class QSM Pump PM Kit
cat.# 25799

Primary Check Valve
cat.# 25955

Accumulator Check Valve
cat.# 25956

12 MONTHS

Plungers
cat.# 25958

Pump O-ring
cat.# 25951

Needle Assembly (sample needle, 30µL)
cat.# 25942

Needle Kit w/Guide and Seat (piercing needle, 15µL)
cat.# 25942

Detector Add-On

Lamp, Long-life, for PDA/TUV 2489/2998
cat.# 25775

Tubing KIT

Survival Kit for PEEK
cat.# 25322

Mobile Phase Add-on

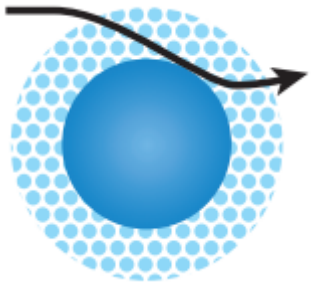
Hub-Cap 4-Liter cat.# 26541 or GL45 26551

Autosampler Add-On

Well Plates 0.45mL cat.# 26496 or 1.3mL 26494 or 2.0mL 26492 and Mats 26498

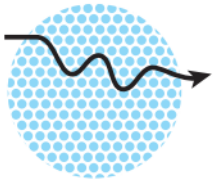
Fit By Instrument

Raptor™ LC Columns

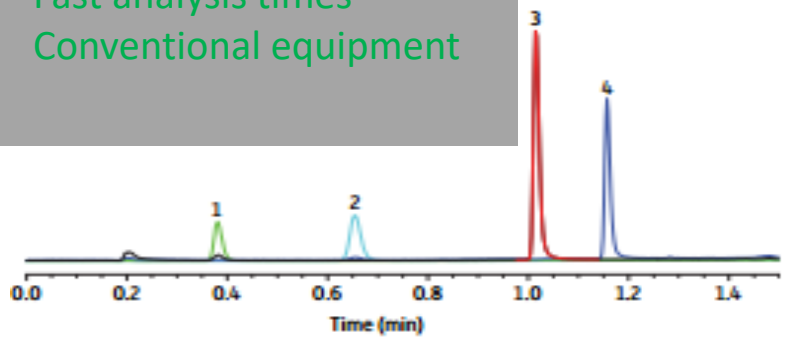


Two Choices
for
High Performance
LC-MS/MS

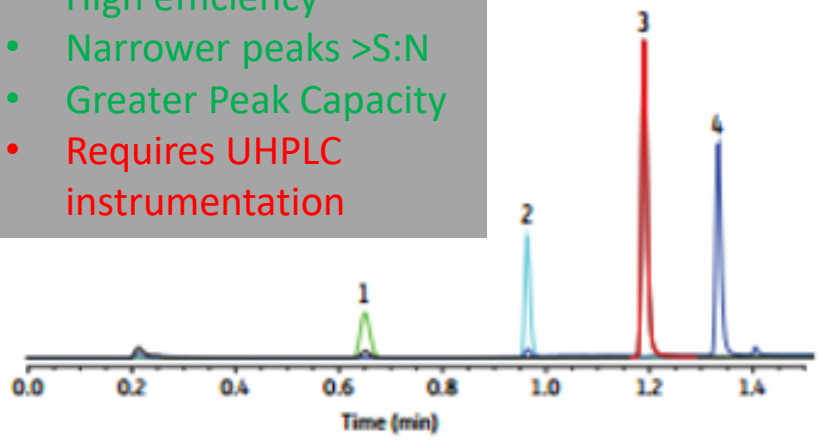
FORCE PERFORMANCE LC COLUMNS



- High efficiency
- Low backpressure
- Fast analysis times
- Conventional equipment

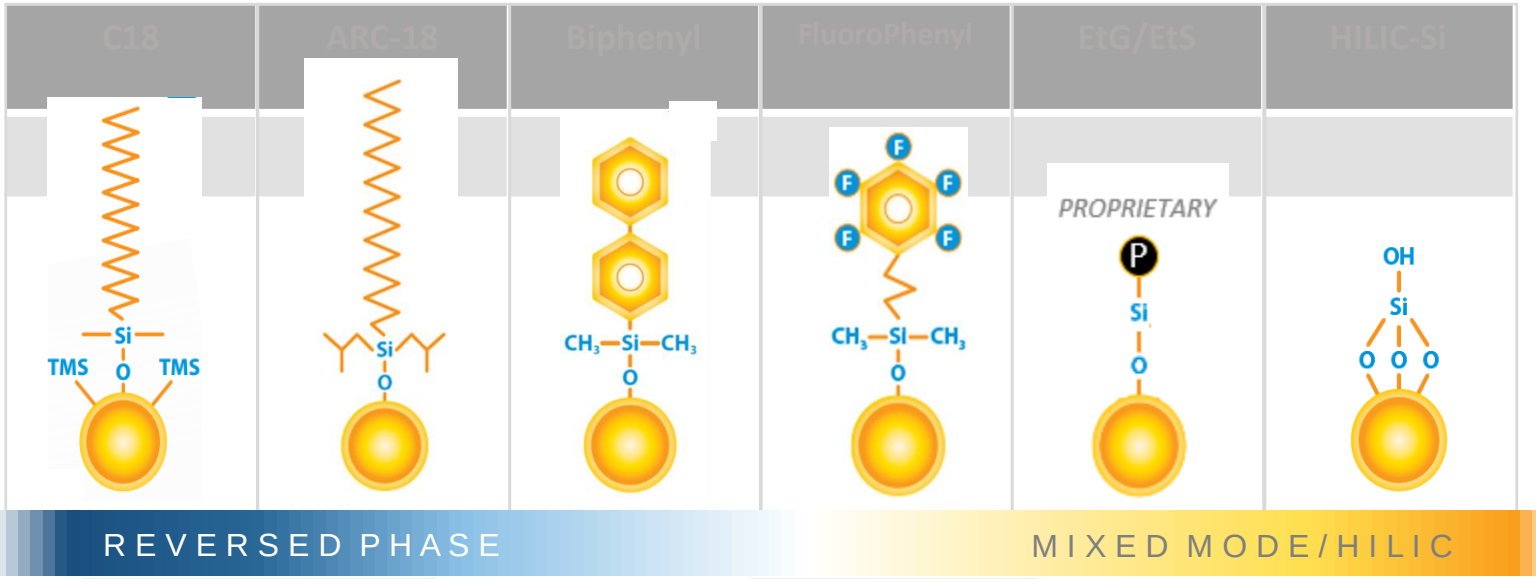


- High efficiency
- Narrower peaks >S:N
- Greater Peak Capacity
- Requires UHPLC instrumentation

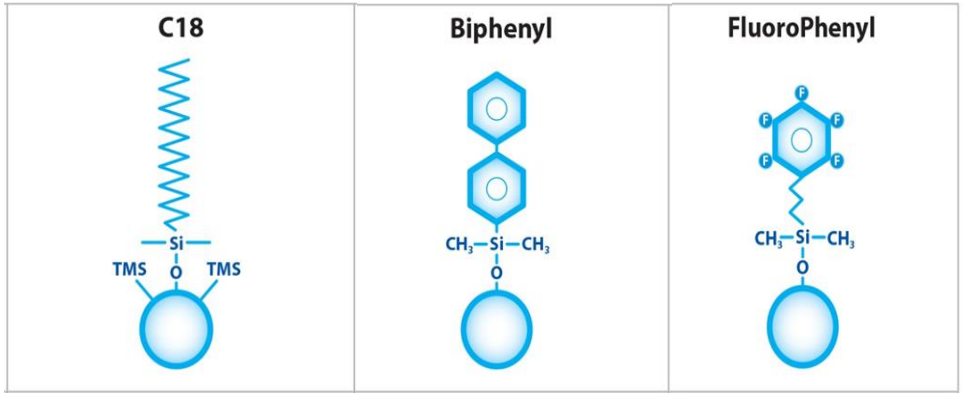


Restek Family of Premium LC Phases

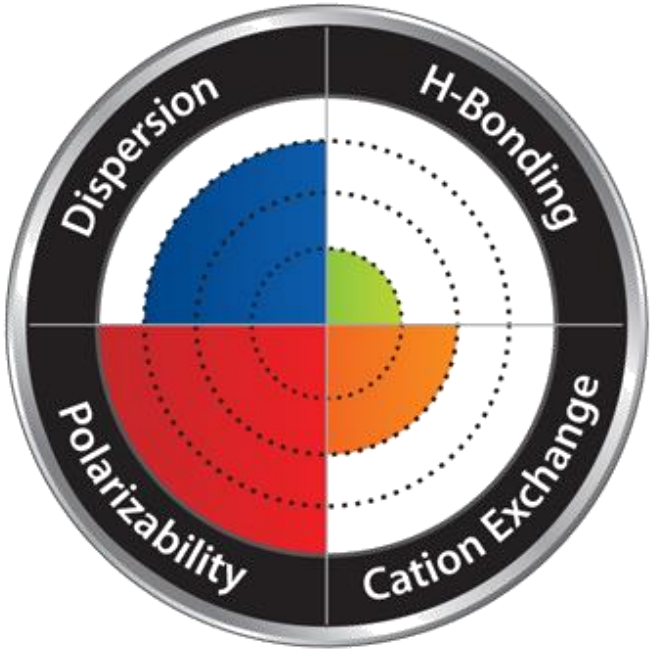
Raptor LC Columns



FORCE PERFORMANCE LC COLUMNS



Greffon Biphenyl

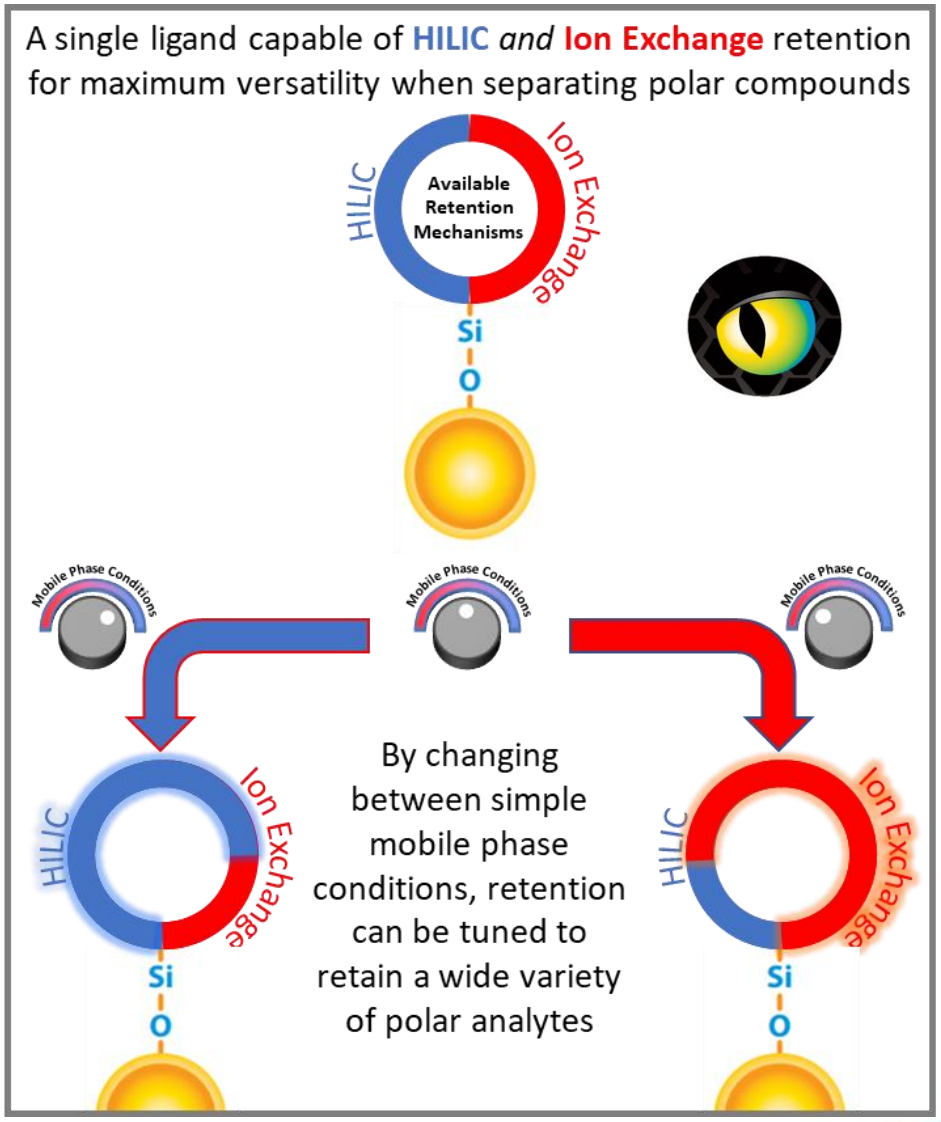


Double sélectivité sur une seule et même colonne LC

→ Raptor™ LC Columns **Biphenyl**

Colonne Raptor Polar X

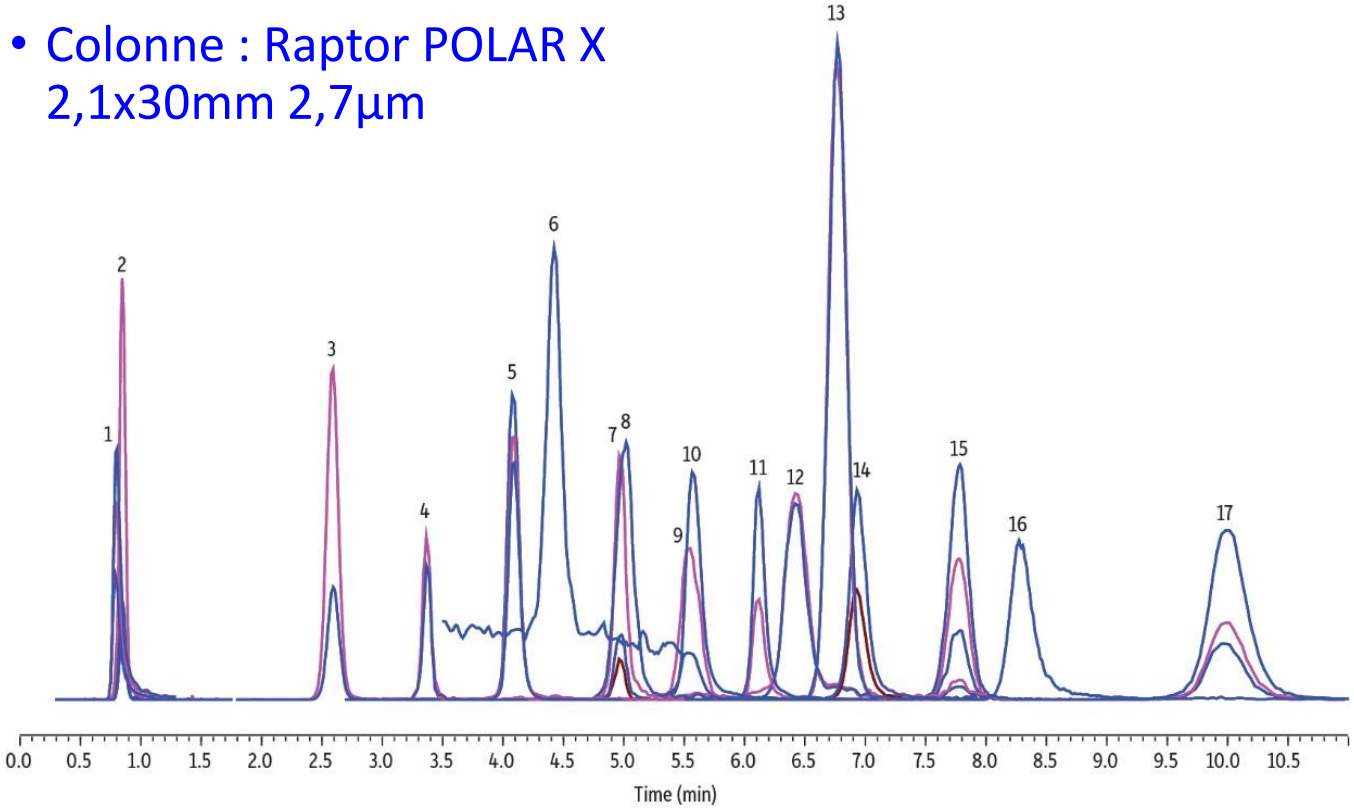
- « Double » mécanisme de rétention HILIC et IEX offrant une sélectivité et versatilité uniques pour la rétention et la séparation des composés polaires habituellement difficiles à retenir ou séparer en phase inverse « classique », paire d'ions, CI ou HILIC.
- Travaille sur la polarité "native" des composés ou leur charge pour obtenir la rétention et la séparation sans avoir recours à des réactifs de paire d'ions, des pH extrêmes ou des conditions chromatographiques "exotiques"



Exemple d'application

QuPPe

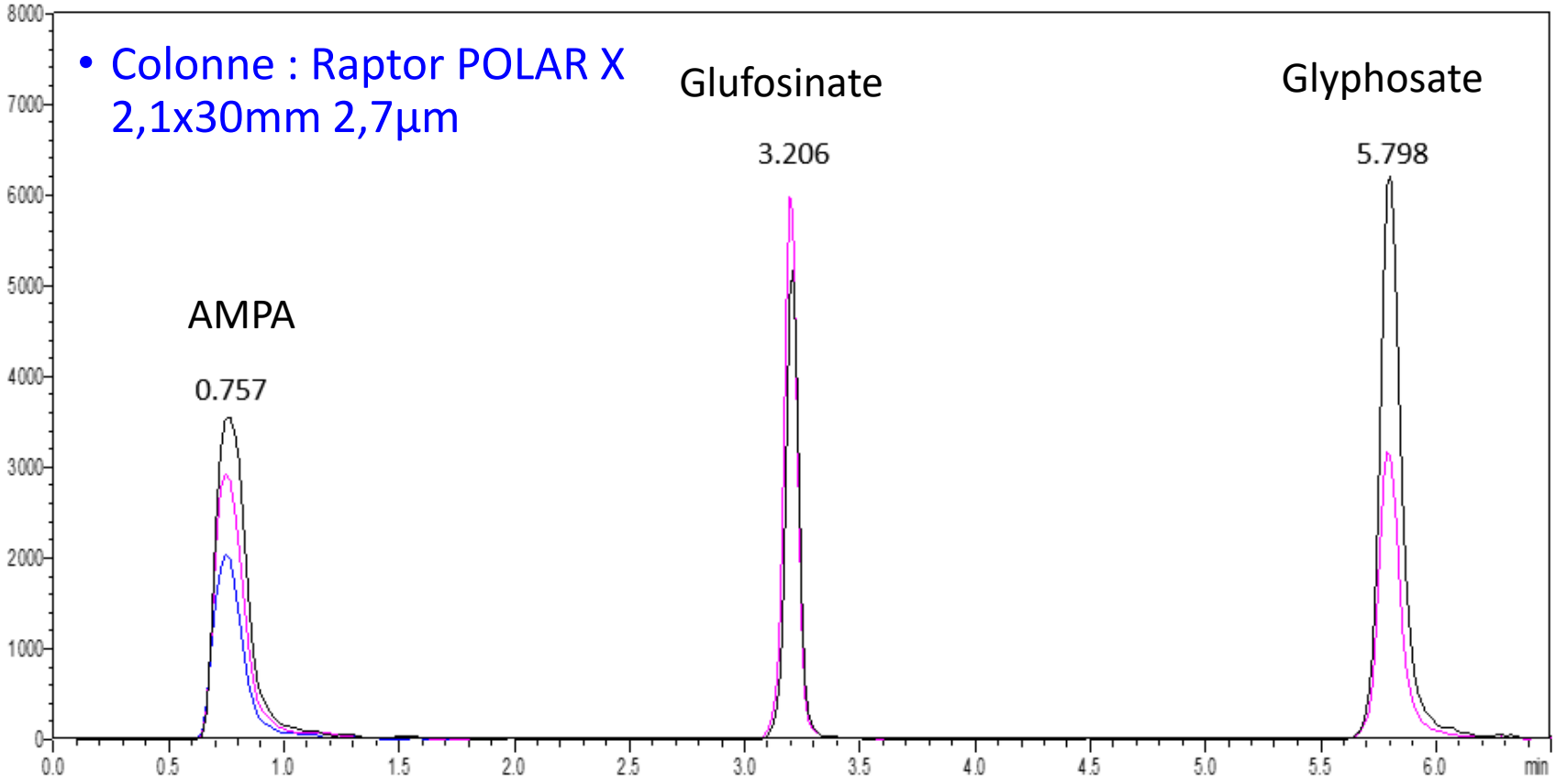
- Colonne : Raptor POLAR X 2,1x30mm 2,7µm



1. AMPA
2. Bialophos
3. Perchlorate
4. Glufosinate
5. MPPA
6. TFA
7. HEPA
8. Difluoroacetic acid
9. Chlorate
10. Ethephon
11. Glyphosate
12. Bromide
13. Bromate
14. N-acetyl AMPA
15. Fosetyl Aluminum
16. Phosphonic Acid
17. N-acetyl glufosinate

Exemple d'application

Glyphosate & Co en injection directe (sans dérivation)

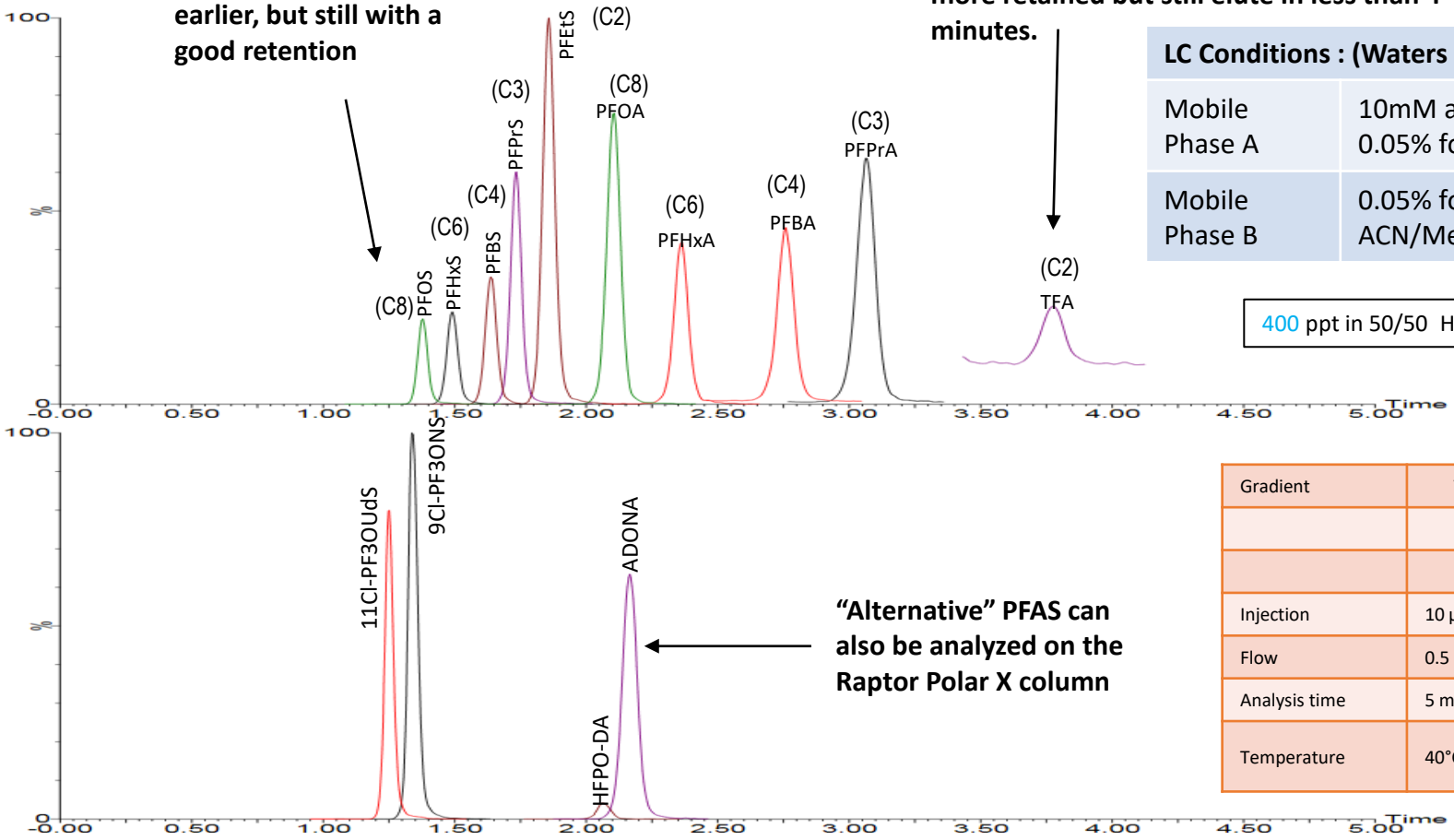


Raptor Polar X LC Column

Applications : PFAS

Long chains PFAS elute earlier, but still with a good retention

Short chains and ultra-short chains PFAS are more retained but still elute in less than 4 minutes.



"Alternative" PFAS can also be analyzed on the Raptor Polar X column

LC Conditions : (Waters Acquity UPLC)	
Mobile Phase A	10mM ammonium formate, 0.05% formic acid in H2O
Mobile Phase B	0.05% formic acid in 60/40 ACN/MeOH

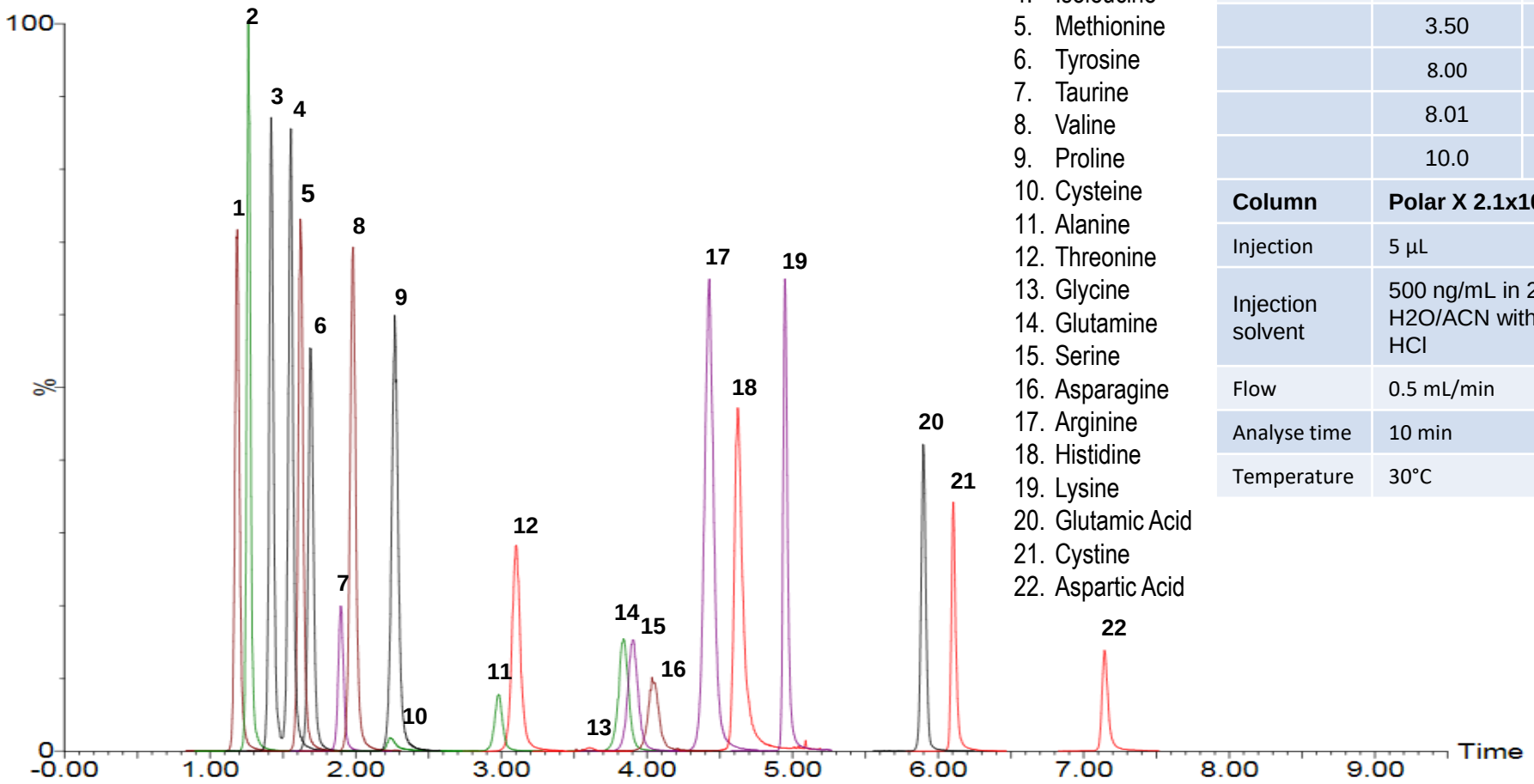
400 ppt in 50/50 H2O/MeOH

Gradient	Time (min)	%B
	0.00	85
	5.00	85
Injection	10 µL	
Flow	0.5 mL/min	
Analysis time	5 min	
Temperature	40°C	

Raptor Polar X LC Column

Applications : Underivatized Amino Acids

- Mechanism(s) : IEX + HILIC



1. Tryptophan
2. Phenylalanine
3. Leucine
4. Isoleucine
5. Methionine
6. Tyrosine
7. Taurine
8. Valine
9. Proline
10. Cysteine
11. Alanine
12. Threonine
13. Glycine
14. Glutamine
15. Serine
16. Asparagine
17. Arginine
18. Histidine
19. Lysine
20. Glutamic Acid
21. Cystine
22. Aspartic Acid

Gradient	Time (min)	%B
	0.00	88
	3.50	88
	8.00	30
	8.01	88
	10.0	88
Column	**Polar X 2.1x100 mm**	
Injection	5 µL	
Injection solvent	500 ng/mL in 20/80 H2O/ACN with 0.01 N HCl	
Flow	0.5 mL/min	
Analyse time	10 min	
Temperature	30°C	

Restek LC Solutions

Life & Health Sciences

Applications for Clinical Diagnostics, Therapeutic Drug Monitoring (TDM), Drug Screening, Toxicology and Pharma (categorized by compound group)

Alcohol Markers

- CFAR3061 Successful Strategies for the Analysis of **EtG and EtS in Urine** - Rugged Sample Preparation and Analysis Conditions for High-Throughput Labs (Raptor EtG/EtS, LC-MS/MS)
- LC_CF0725 **Ethyl Glucuronide (EtG)** and **Ethyl Sulfate (EtS) in Oral Fluid** on Raptor EtG/EtS (LC-MS/MS)
- LC_CF0773 Simultaneous Analysis of **Alcohol Metabolites and Barbiturates in Urine** by LC-MS/MS (Raptor EtG/EtS)
- CFAN3009 Method Evaluation: Analysis of **Phosphatidylethanol (Peth) in Human Whole Blood** by LC-MS/MS (Raptor FluoroPhenyl)
  - simple protein precipitation sample preparation, sensitive determination of PEth-16:0/18:1, fast 3.5 minutes gradient

Amino Acids

- CFAN3216 Improved Screening Method for **Acylcarnitines and Amino Acids in Dried Blood Spots** by LC-MS/MS (Raptor HILIC-Si)
- CFAN3539 13-Minute, Comprehensive, Direct LC-MS/MS Analysis of **Amino Acids in Plasma** (Raptor Polar X)
  - 45 amino acids, no derivatization, critical isobars separation, common LC mobile phases

Cannabinoids & Synthetic Cannabinoids

- FFAN2614 Analysis of **Synthetic Cannabinoids and Metabolites**: Adding New Compounds to an Existing LC-MS/MS Method (Raptor Biphenyl)
- LC_CF0612 **Synthetic Cannabinoids in Urine** on Raptor Biphenyl by LC-MS/MS
- LC_CF0585 **Synthetic Cannabinoid Metabolites in Urine** on Raptor Biphenyl by LC-MS/MS
- LC_CF0584 **Synthetic Cannabinoids in Urine** on Raptor Biphenyl by LC-MS/MS
- CustomerApp Isomer separation of **Synthetic Cathinones in Serum** on Raptor Biphenyl by LC-MS/MS
- LC_CF0583 **THC + Metabolites in Urine** on Raptor Biphenyl by LC-MS/MS
- BLOG **THC-COOH** Detected! **Δ-8 or Δ-9**? (Determining Delta 8 and Delta 9 THC in Urine on Raptor FluoroPhenyl by LC-MS/MS)
  - critical isobar separation, fast 3.5 minutes cycle time
- FFFA3123 Fast, Low-Solvent Analysis of **Cannabinoids** Increases Lab Productivity and Decreases Solvent Costs (Raptor ARC-18, LC-UV)
- LC_GN0579 **16 Cannabinoids** on Raptor ARC-18 1.8µm by LC-UV
- FFSS2851 High-Throughput Analysis of **Cannabinoids** by LC-UV (Raptor ARC-18)
- FFSS2946 High-Throughput Analysis of **Mycotoxins in Cannabis CBD Oil** Pairs Simplified Cleanup with LC-MS/MS Sensitivity (Raptor Biphenyl)
- LC_GN0585 **Mycotoxins** (STD 1 - 2 ng/g) **in MCT Oil** on Raptor Biphenyl by LC-MS/MS
- LC_GN0581 **Potency Analysis** of a Commercially Available **CBD Product** on Raptor ARC-18 2.7µm by LC-UV

To learn more about these solutions, simply click the linked reference number above.

You can also enter any literature or chromatogram number—or any other key term—in the search bar on Restek.com For all other inquires or assistance, or to request a try-before-you-buy column, simply contact us (LC-EMEA@restek.com) We are always here to help.

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