

# 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<sup>2</sup>



Restek Corporate Headquarters  
Bellefonte, PA U.S.

# A Global Company

## Sales Offices:

**Global Headquarters,**  
Bellefonte, PA

**Restek Thames** (*London*)

**Restek France** (*Paris*)

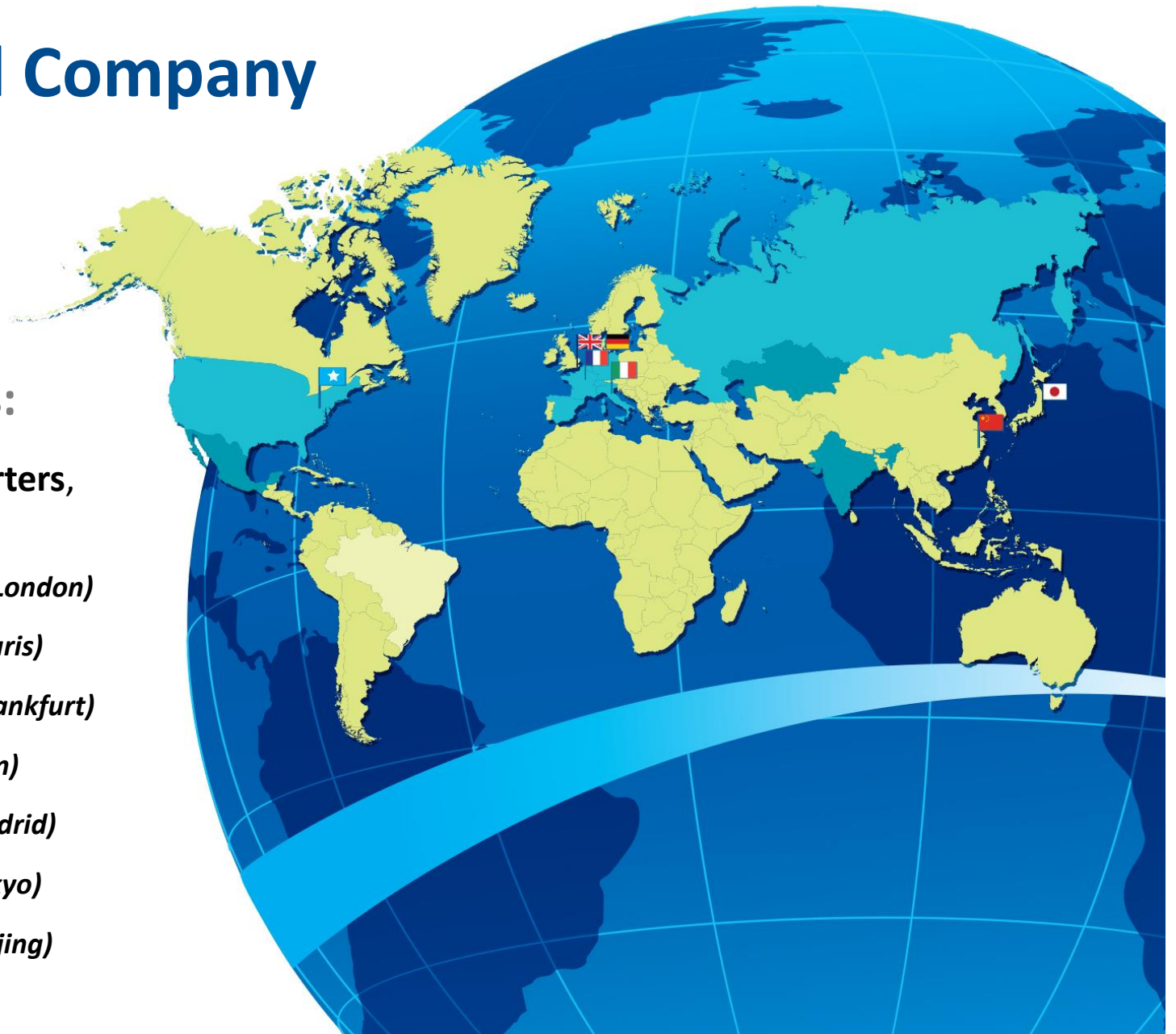
**Restek GmbH** (*Frankfurt*)

**Restek Italy** (*Milan*)

**Restek Spain** (*Madrid*)

**Restek Japan** (*Tokyo*)

**Restek China** (*Beijing*)



# Les fondements de la différence Restek

Attention portée aux **clients**



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](http://www.restek.com/videos)

**RESTEK**  
Pure Chromatography

Rechercher des produits, des ressources, des articles, etc.

Sélecteur rapide | Devis | Nous contacter

Bonjour, Se connecter | S'enregistrer | FRANCE

Secteur/marché | Produits | Ressources et formation | Assistance et troubleshooting | À propos de nous | Événements | ChromaBLOGraphy

Accueil / Vidéos

### Vidéos

Type de vidéos ▼ 120 Résultats Du plus récent au plus ancien ▼

- Astuce Restek
- Instructions/conseils
- Le saviez-vous ?
- Questions/réponses
- Webinaire
- Workflow

Famille de produits ▼

- Accessoires et matériel de laboratoire
- Colonnes
- Etalons de référence
- Préparation des échantillons et échantillonnage d'air

Secteur/marché ▼

- Alimentation & Agriculture
- Botanique
- Environnement et hygiène industrielle
- Industrie chimique et énergie
- Sciences de la vie et santé

Produits phares ▼

- Colonnes GC Fvd
- Colonnes LC Force
- Colonnes LC Raptor
- Inserts d'injection GC Topaz
- Logiciels EZGC et EZLC
- QeCHERS Q-sep pour la préparation d'échantillon

**Optimiser les injections "splitless"**  
3 janvier 2022 Durée : 3:39  
Astuce Restek

**Conditionnement des pièces d'injecteur GC**  
28 septembre 2021 Durée : 2:01  
Astuce Restek

**Pourquoi existe-t-il tant de colonnes C18 ?**  
14 juin 2021 Durée : 3:04  
Astuce Restek

**Les 10 endroits où les fuites sont le plus souvent présentes en GC**  
21 avril 2021 Durée : 3:56  
Astuce Restek

**Analyse des PFAS – Pourquoi est-il important d'utiliser une "colonne-retard" ?**  
14 janvier 2021 Durée : 3:23  
Le saviez-vous ?

**Conditionnement d'une colonne HPLC**  
14 janvier 2021 Durée : 2:07  
Astuce Restek

**HILIC Separations**  
Hydrogen Bonding  
Dipole-dipole interaction  
Ion exchange  
2:18

**Column Installation**  
1:24

**HILIC Conditioning**  
Remember - Your LC System will need to be conditioned for HILIC Analysis  
2:28



Downloadable PDF

[GNSS2704-UNV.pdf](#)

Related Products

[GC Inlet Liners](#)

[GC Inlet Seals](#)

[Septa](#)

[O-Rings](#)

[Restek Electronic Leak Detector](#)

[Tools & Other GC Inlet Supplies](#)

Related Articles

[How to Choose a GC Inlet Liner: Simplify Selection Based on Injection Type](#)

[Preventing GC Septum Problems](#)

## GC Inlet Maintenance: Restek's Quick-Reference Guide

- Help ensure quality data by selecting the right GC inlet supplies.
- Prevent unwanted downtime with a preventative GC inlet maintenance program.
- Easily order the GC inlet supplies you need for your specific instrument.

Liners, septa, inlet seals... when compared to your analytical column, your instrument, or a customer lost due to missed deadlines or inaccurate data, these small consumables carry an almost nonexistent price. And yet, the impact they can have on your analysis—not to mention your livelihood—is huge: breakdown of active compounds, loss in response, and other performance issues. In extreme cases, improperly selected or poorly maintained inlet supplies can mean the difference between detecting your compounds or not.

With Restek's guidance and our comprehensive line of high-quality GC inlet supplies, performing proper GC inlet maintenance to help maximize your lab's uptime and ensure accurate, reproducible data is as easy as replacing a liner (and a few other items).

### Selecting the Right GC Inlet Supplies

#### Warm Up Before You Run!

Topaz liners, O-rings, inlet seals, and other Restek GC inlet supplies are manufactured in strictly controlled environments and feature packaging developed specifically for superior cleanliness and chromatographic performance. Despite providing you with incredibly clean and inert inlet supplies, we still recommend that you condition your system after

Restek GC Accessories

## GC Inlet Maintenance: Restek's Quick-Reference Guide

- Help ensure quality data by selecting the right GC inlet supplies.
- Prevent unwanted downtime with a preventative GC inlet maintenance program.
- Easily order the GC inlet supplies you need for your specific instrument.



## GC Inlet Maintenance Landing Page

[http://www.restek.com/Technical-Resources/Technical-Library/General-Interest/general\\_GNSS2704-UNV](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



## Pro EZGC Logiciel de modélisation de chromatogrammes

Donner  
votre avis



Langue ▾

Composés

Conditions

Mes modèles



Recherche par composé

Recherche par phase stationnaire >>

Entrez ici le nom d'un composé (en anglais uniquement). Exemple :  
acetonitrile  
dichloromethane  
methanol  
pentane

Effacer

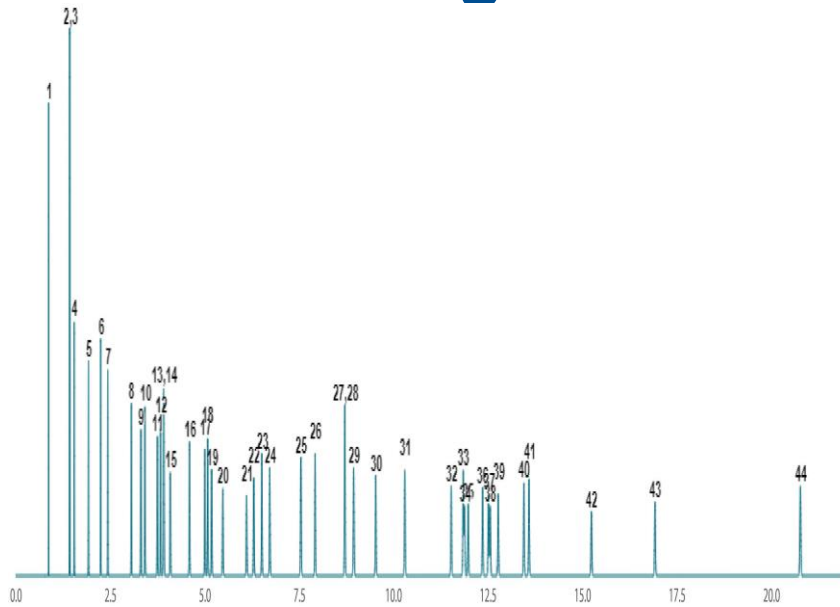
Résoudre

Also work with LC? Try out the new [ProEZLC Chromatogram Modeler!](#)

Bienvenue sur le logiciel de modélisation de chromatogrammes Pro EZGC ! Pour commencer, entrez les composés que vous souhaitez séparer dans le champ de droite ou cliquez sur "Recherche par phase stationnaire" pour accéder à la bibliothèque de composés.

Cette version du logiciel de modélisation de chromatogrammes EZGC, est aussi simple à utiliser que la précédente mais elle intègre désormais des fonctions avancées permettant notamment le choix de phases stationnaires, du gaz vecteur, l'optimisation des résultats et de bien d'autres paramètres !

# 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 <sub>r</sub> (min)	R <sub>s</sub>	Largeur du pic (min)	T <sub>max</sub> (°C)	Composés	t <sub>r</sub> (min)	R <sub>s</sub>	Largeur du pic (min)	T <sub>max</sub> (°C)
1. Ethyl butyrate	0.87	63	0.009	100.0	23. Cinnamic alcohol	6.51	4.8	0.043	133.1
2. Limonene	1.43	0.3	0.015	102.6	24. Eugenol	6.72	4.8	0.043	134.3
3. D-Limonene	1.43	0.3	0.015	102.6	25. iso-α-methyl ionone	7.54	8.3	0.045	139.3
4. 1,8-Cineole	1.55	7.9	0.016	103.3	26. Methyleugenol	7.92	8.3	0.044	141.5
5. Linalool	1.93	16.4	0.019	105.6	27. Isoeugenol	8.71	--	0.048	146.2
6. Benzyl Alcohol	2.25	8.4	0.022	107.5	28. Cinnamyl acetate	8.71	--	0.046	146.3
7. Phenylacetaldehyde	2.44	8.4	0.024	108.6	29. Vanillin	8.94	5	0.049	147.7
8. Camphor	3.06	8.8	0.029	112.4	30. Linalil	9.53	12	0.048	151.2
9. Citronellol	3.31	3.6	0.030	113.9	31. Coumarin	10.30	16.1	0.052	155.8
10. Benzoic acid	3.42	3.6	0.030	114.5	32. Farnesol isomer 2	11.52	6.5	0.048	163.1
11. Methyl chavicol	3.75	2.5	0.032	116.5	33. Amylcinnamaldehyde isomer 1	11.84	0.7	0.050	165.0
12. 1-Fluoronaphthalene	3.83	2.3	0.034	117.0	34. Farnesol isomer 1	11.87	0.7	0.050	165.3
13. Methyl heptene carbonate	3.91	0.3	0.033	117.5	35. Amylcinnamaldehyde isomer 2	11.97	1.9	0.049	165.8
14. Citral isomer 1	3.92	0.3	0.033	117.5	36. Lyril isomer 2	12.35	3	0.051	168.1
15. Geraniol	4.09	5.1	0.034	118.5	37. Lyril isomer 1	12.51	0.8	0.051	169.0
16. Citral isomer 2	4.60	11.4	0.036	121.6	38. Amyl cinnamic alcohol isomer 1	12.55	0.8	0.051	169.3
17. Hydroxycitronellal	5.01	1.9	0.037	124.0	39. Amyl cinnamic alcohol isomer 2	12.76	4.1	0.051	170.6
18. Thymol	5.08	1.9	0.038	124.5	40. Hexylcinnamaldehyde isomer 1	13.44	2.6	0.051	174.7
19. Methyl 2-nonynoate	5.18	2.7	0.038	125.1	41. Hexylcinnamaldehyde isomer 2	13.58	2.6	0.052	175.5
20. Safrole	5.48	7.7	0.040	126.9	42. Benzyl Benzoate	15.23	31.2	0.054	185.4
21. Cinnamic aldehyde	6.11	4.5	0.042	130.7	43. Benzyl salicylate	16.91	31.2	0.054	195.5
22. Anisic alcohol	6.30	4.5	0.042	131.8	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 ▾ 157 Résultats

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

Famille de produits ▾



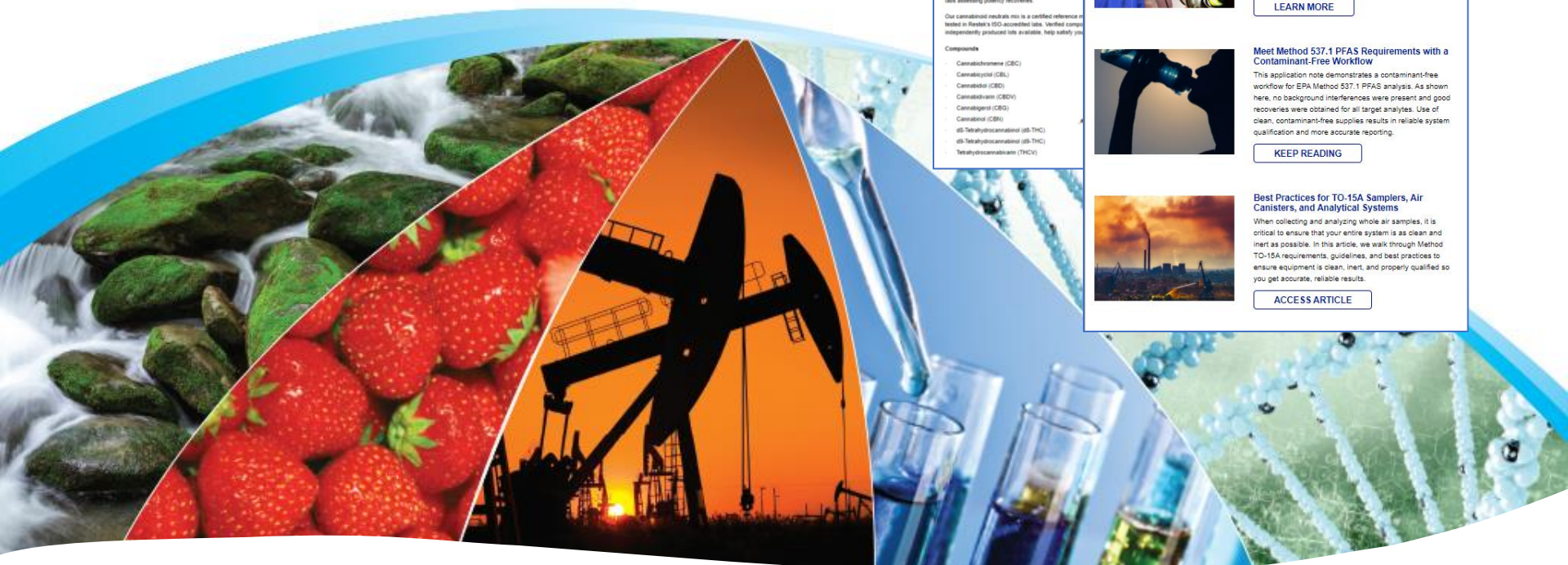
#### Analyse du Paraquat et du Diquat par LC-MS/MS sans réactif d'appariement d'ions

L'analyse par LC-MS/MS du Paraquat et du Diquat est 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

**RESTEK PREMIERE**

**Streamline Cannal Analyses with Our 9-Component Neu**

**ORDER TODAY**

Cannal  
Cannal  
Cannal  
Cannal  
Cannal  
Cannal  
Cannal  
Cannal  
Cannal

Our new nine component cannalol mix streamlines nine compounds into one ampul, calibration component, minimize errors, save time, and reduce cost. A high cost additional flexibility in constructing calibration curves at late assessing potency recoveries.

Our cannalolol results mix is a certified reference material tested in Restek's ISO-accredited lab. Verified component independently produced lots available, help safety, you

**Compounds**

- Cannalochromene (CBC)
- Cannalocylid (CBL)
- Cannalolol (CBL)
- Cannalobrom (CBL)
- Cannalobrom (CBL)
- Cannalobrom (CBL)
- Cannalobrom (CBL)
- Cannalobrom (CBL)
- 9β-Tetrahydrocannalolol (9β-THC)
- 10β-Tetrahydrocannalolol (10β-THC)
- Tetrahydrocannalolol (THCV)

**RESTEK ADVANTAGE**

**A Methods-Based Guide to Laboratory Supplies for PFAS Testing**

PFAS are ubiquitous in the environment and can even be found in laboratory equipment. Using high-quality lab supplies is essential for accurately monitoring these pervasive contaminants. This methods-based reference guide makes it easy to find the products you need for commonly used ASTM, DIN, EPA, and ISO methods.

[LEARN MORE](#)

**Meet Method 537.1 PFAS Requirements with a Contaminant-Free Workflow**

This application note demonstrates a contaminant-free workflow for EPA Method 537.1 PFAS analysis. As shown here, no background interferences were present and good recoveries were obtained for all target analytes. Use of clean, contaminant-free supplies results in reliable system qualification and more accurate reporting.

[KEEP READING](#)

**Best Practices for TO-15A Samplers, Air Canisters, and Analytical Systems**

When collecting and analyzing whole air samples, it is critical to ensure that your entire system is as clean and inert as possible. In this article, we walk through Method TO-15A requirements, guidelines, and best practices to ensure equipment is clean, inert, and properly qualified so you get accurate, reliable results.

[ACCESS ARTICLE](#)

# 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**

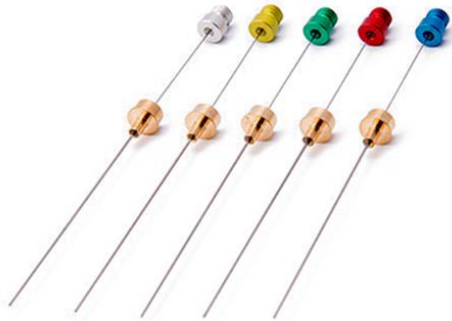


**Filtration**  
(syringe filters, filter vials)

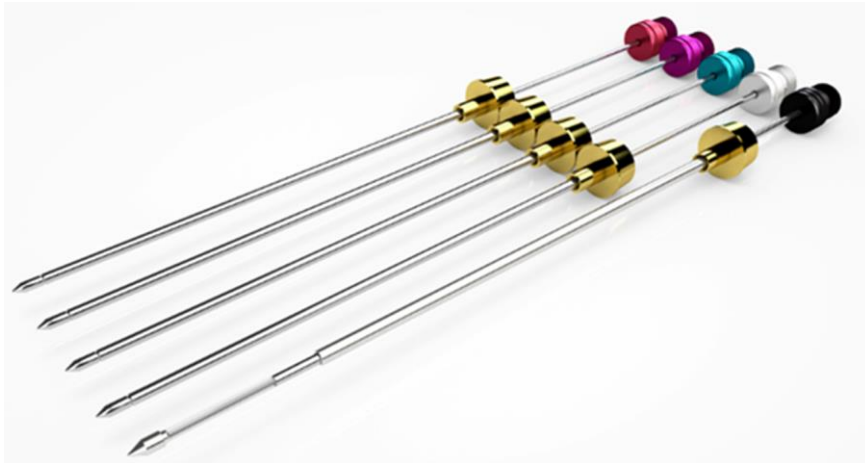


**ASE**  
(Accelerated Solvent  
Extraction)

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



Traditional SPME  
Vol = 0,6  $\mu$ l



**New SPME Arrow – Vol = 12 $\mu$ l**

# GC Accessories Overview – Fit by instrument

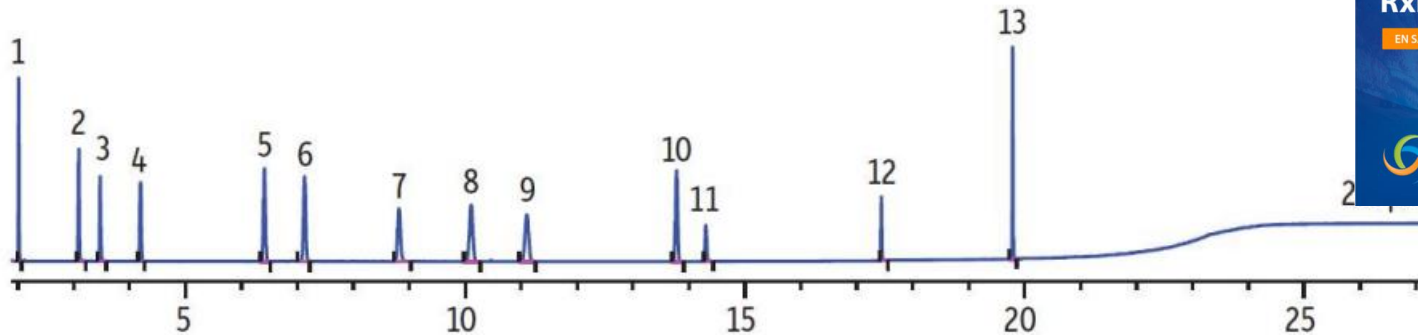


Accessories for virtually all GC instruments



# 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)

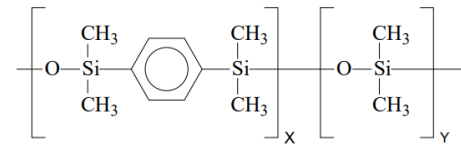


Oven  
Oven Temp.: 125 °C (hold 12.5 min) to 340 °C at 20 °C/min (hold 4 min)



## Nouvelle désactivation = très grande inertie

- ✓ SVOC = température 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  
Aldehydes  
Ethers  
Esters  
Phenols  
Organic acids  
Ketones  
Haloethers  
Trihalomethanes

Amines  
Amides  
Nitroaromatics  
PCBs  
PAHs  
Phthalate  
Esters,  
Nitrosamines

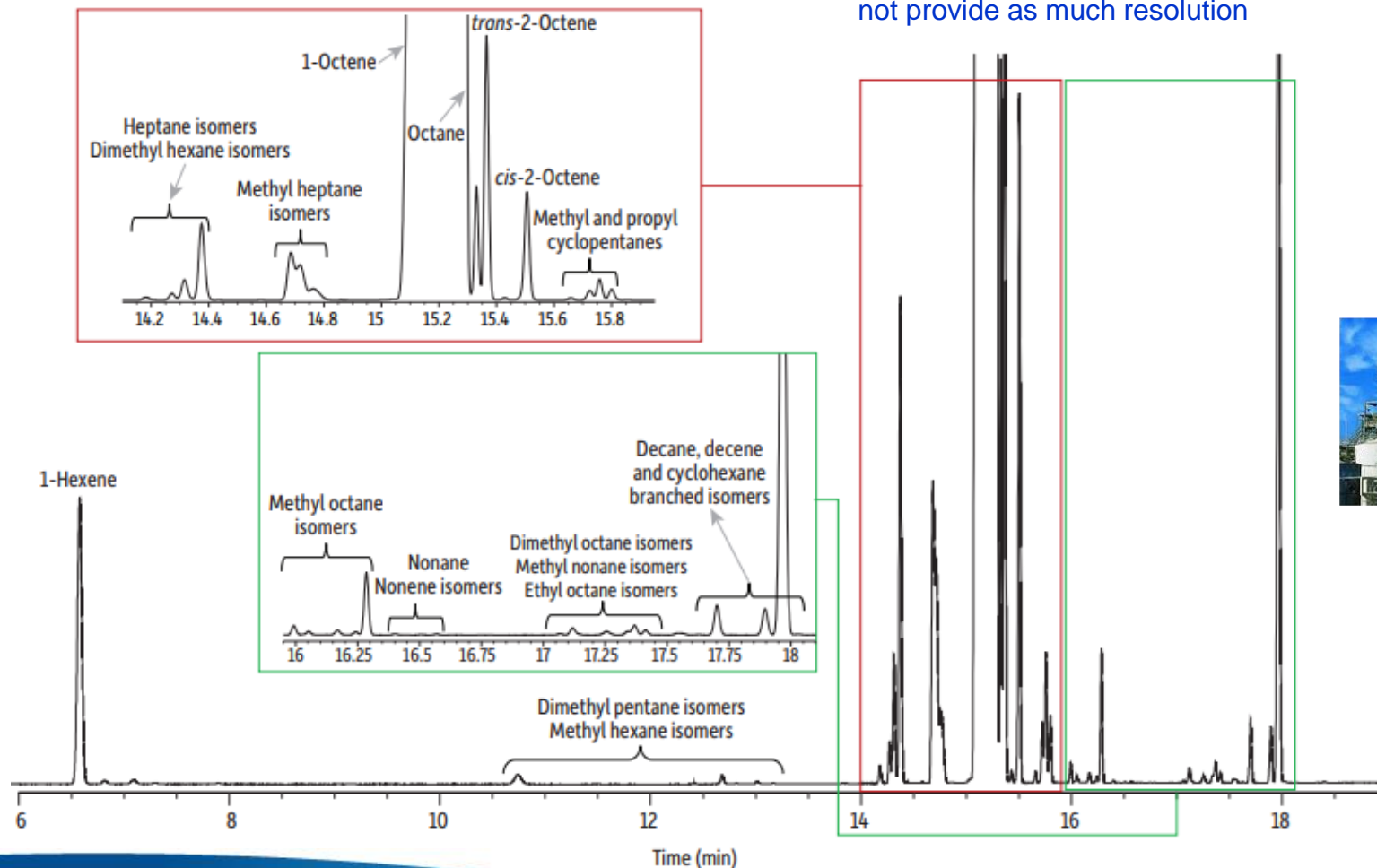
1. 4-Picoline
2. 2-Ethylhexanoic acid
3. 1,6-Hexanediol
4. 4-Chlorophenol
5. *n*-Tridecane
6. 1-Methylnaphthalene
7. 1-Undecanol
8. *n*-Tetradecane
9. Dicyclohexylamine
10. Acenaphthene-d10
11. 2,4-Dinitrophenol
12. Pentachlorophenol
13. Benzidine



# 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



# Packed Columns

**Who says packed columns are old technology? Not Restek!**

By combining flexible SilcoSmooth® tubing with low-bleed bonded phases, we have made the most significant improvements in packed column technology in more than 25 years!

Columns available in  
0.53, 0.75, 1, 2, 3.2, & 5.2mm ID.

Bonded phase packings  
decrease conditioning times  
and bleed, and increase  
column lifetime.

Columns can be configured  
for all GC models.

Silcosmooth® tubing has a Siltek®-treated  
surface, which is more inert than glass.

The most complete  
line of packing  
materials available.

# Methanizer

## Converts CO and CO<sub>2</sub> to CH<sub>4</sub>

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

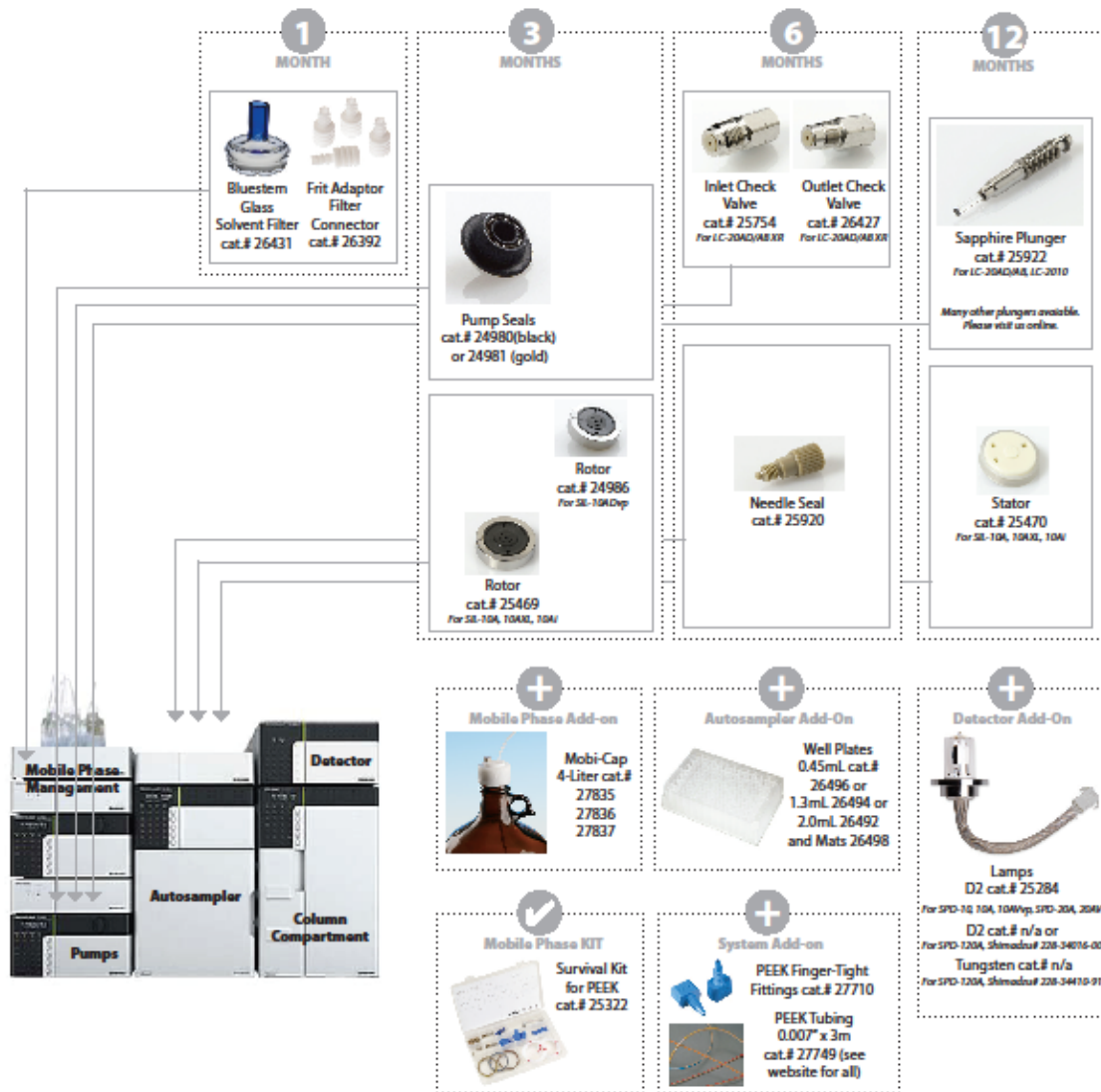
Routine maintenance (RM) reduces downtime and protects your valuable analytical data. Use this guide to keep your Shimadzu LC operating at its best: replace these crucial components at the recommended intervals and keep extras on hand.

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



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

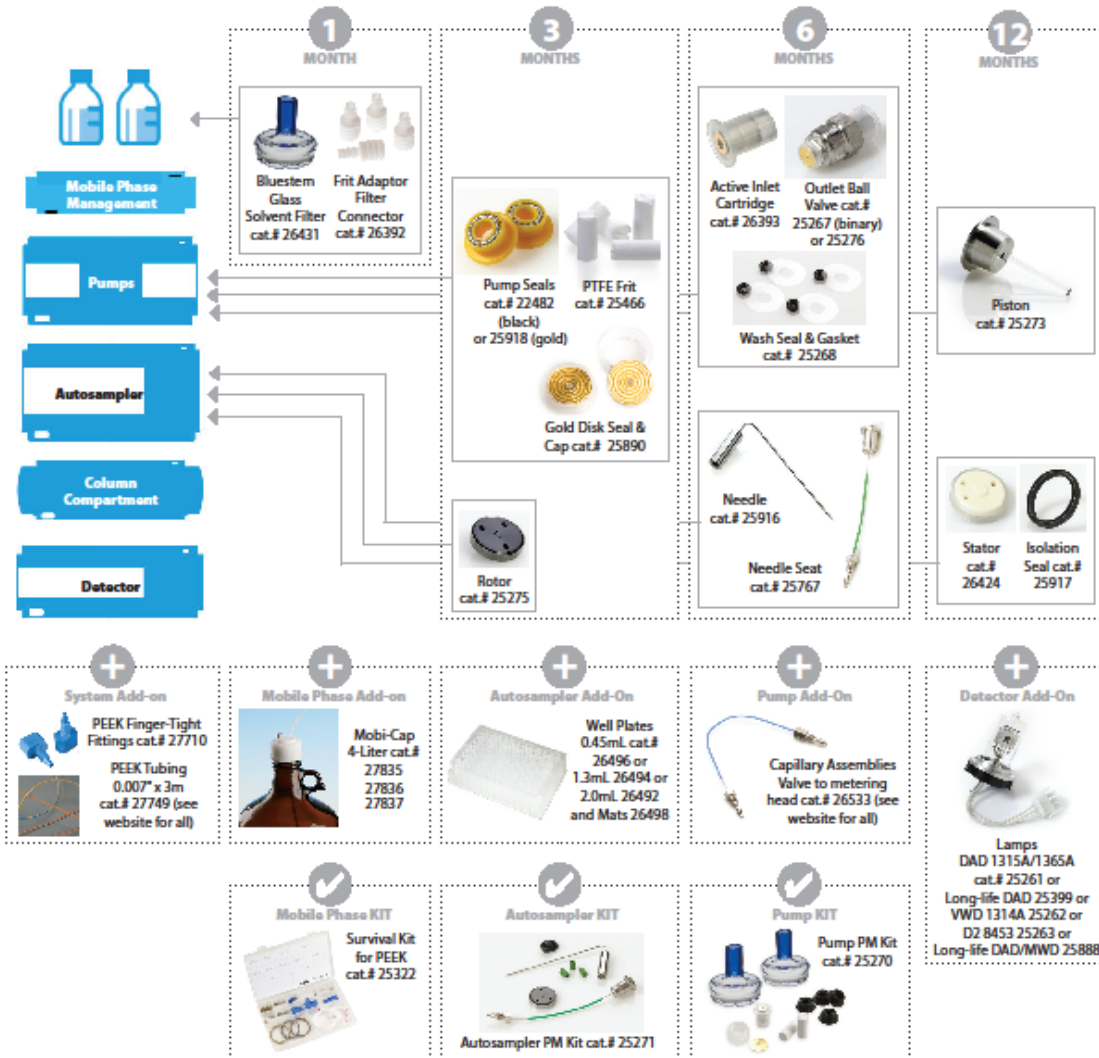
Routine maintenance (RM) reduces downtime and protects your valuable analytical data. Use this guide to keep your Agilent 1100 operating at its best: replace these crucial components at the recommended intervals and keep extras on hand.

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



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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](http://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

+

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



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



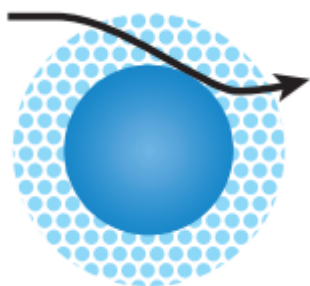
Needle Assembly  
(sample needle, 30µL)  
cat.# 25942



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

# Fit By Instrument

**Raptor**<sup>™</sup>  
LC Columns

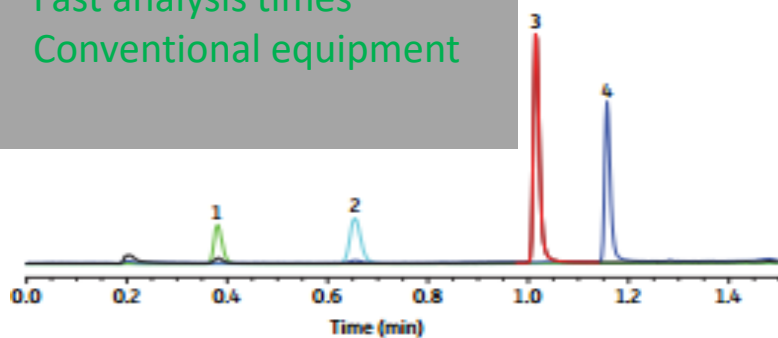


**FORCE**  
PERFORMANCE LC COLUMNS

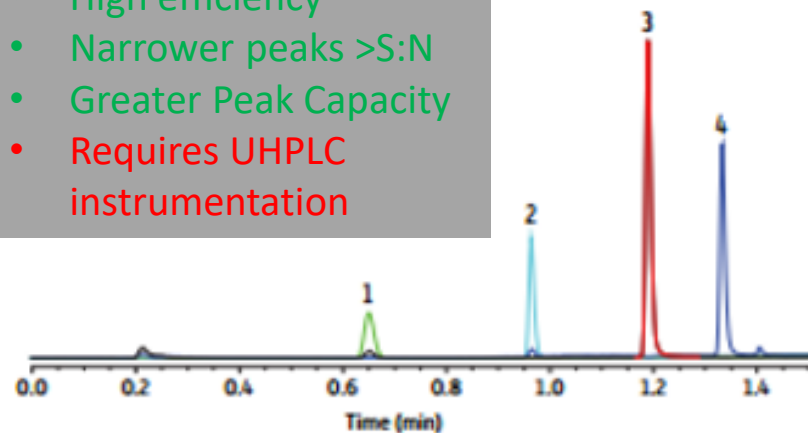


Two Choices  
for  
High Performance  
LC-MS/MS

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

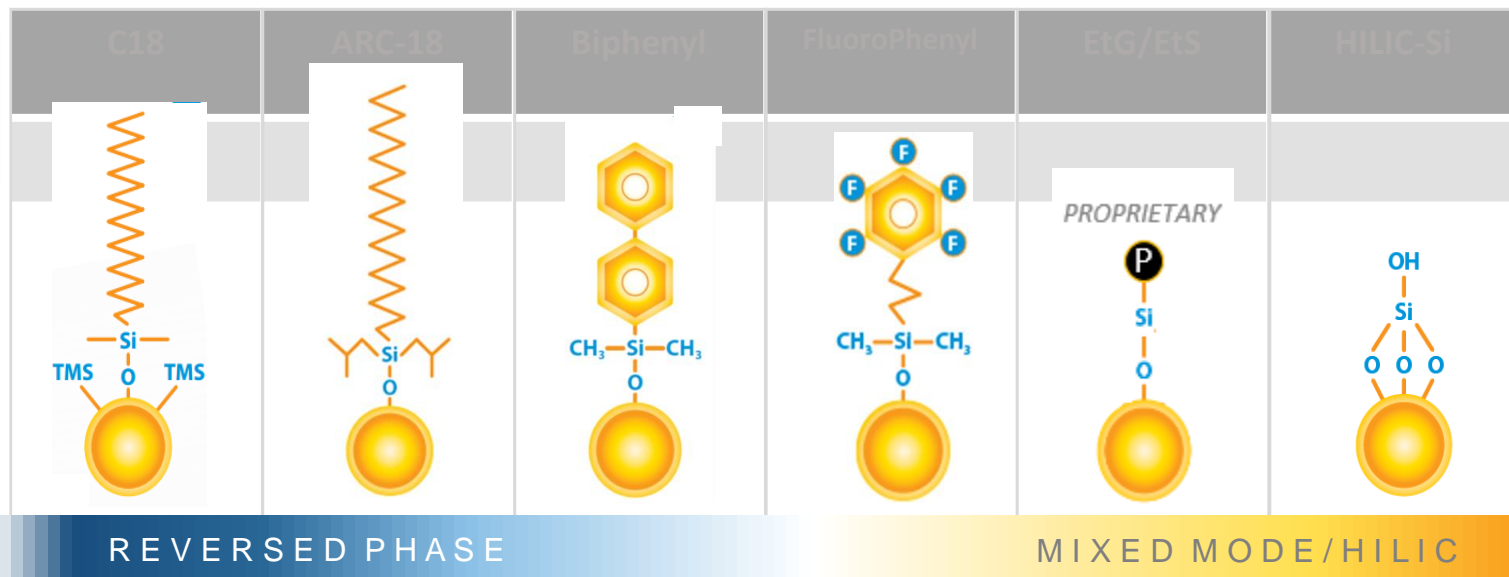


- High efficiency
- Narrower peaks >S:N
- Greater Peak Capacity
- Requires UHPLC instrumentation

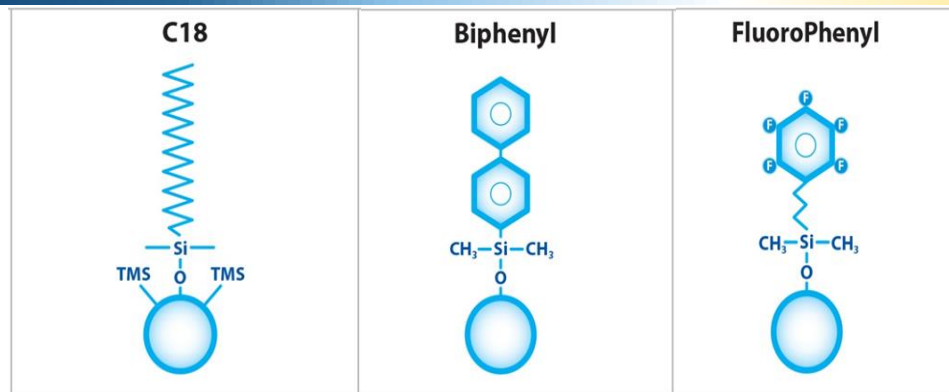


# Restek Family of Premium LC Phases

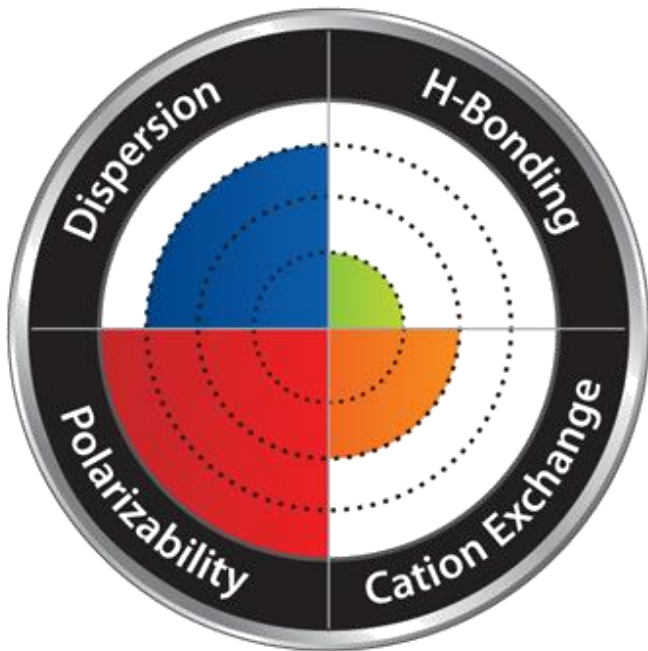
**Raptor**<sup>™</sup>  
LC Columns



**FORCE**  
PERFORMANCE LC COLUMNS



# Greffon Biphenyl



Double sélectivité sur une seule et même colonne LC

→ **Raptor**™ Biphenyl  
LC Columns

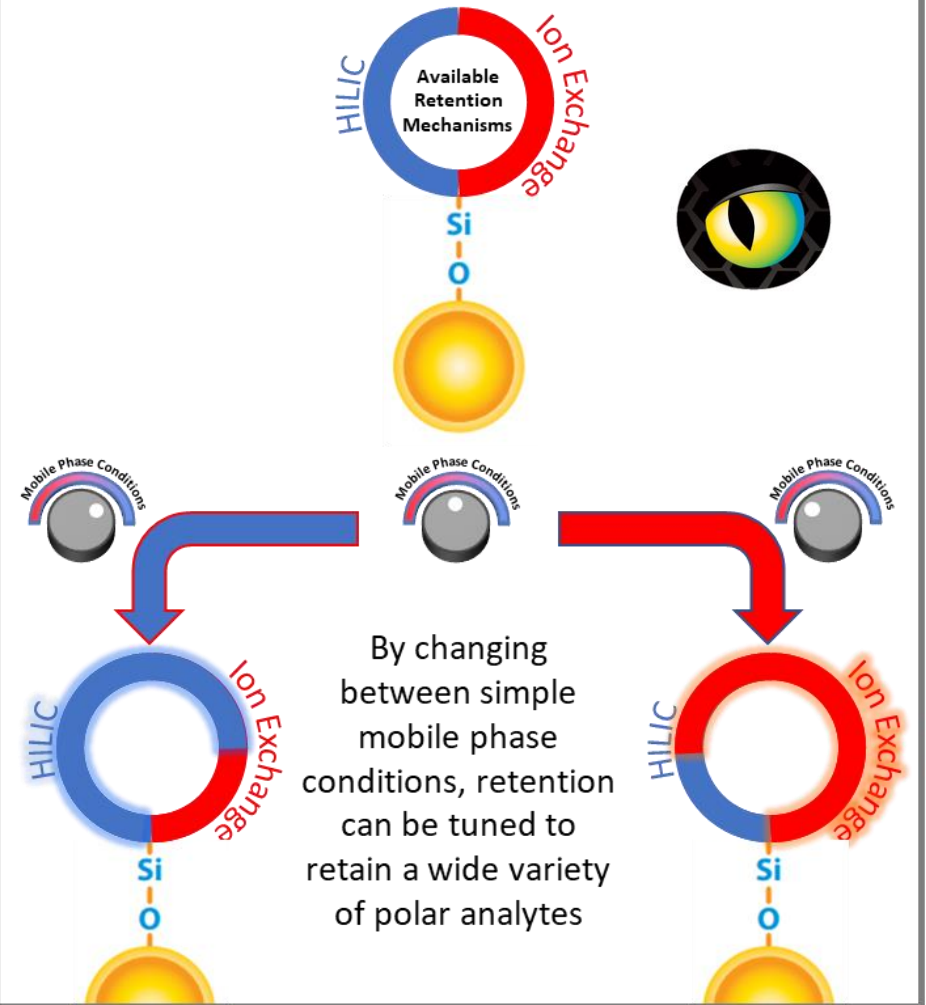


# Colonne Raptor Polar X

- « 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, Cl 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"



A single ligand capable of **HILIC** and **Ion Exchange** retention for maximum versatility when separating polar compounds

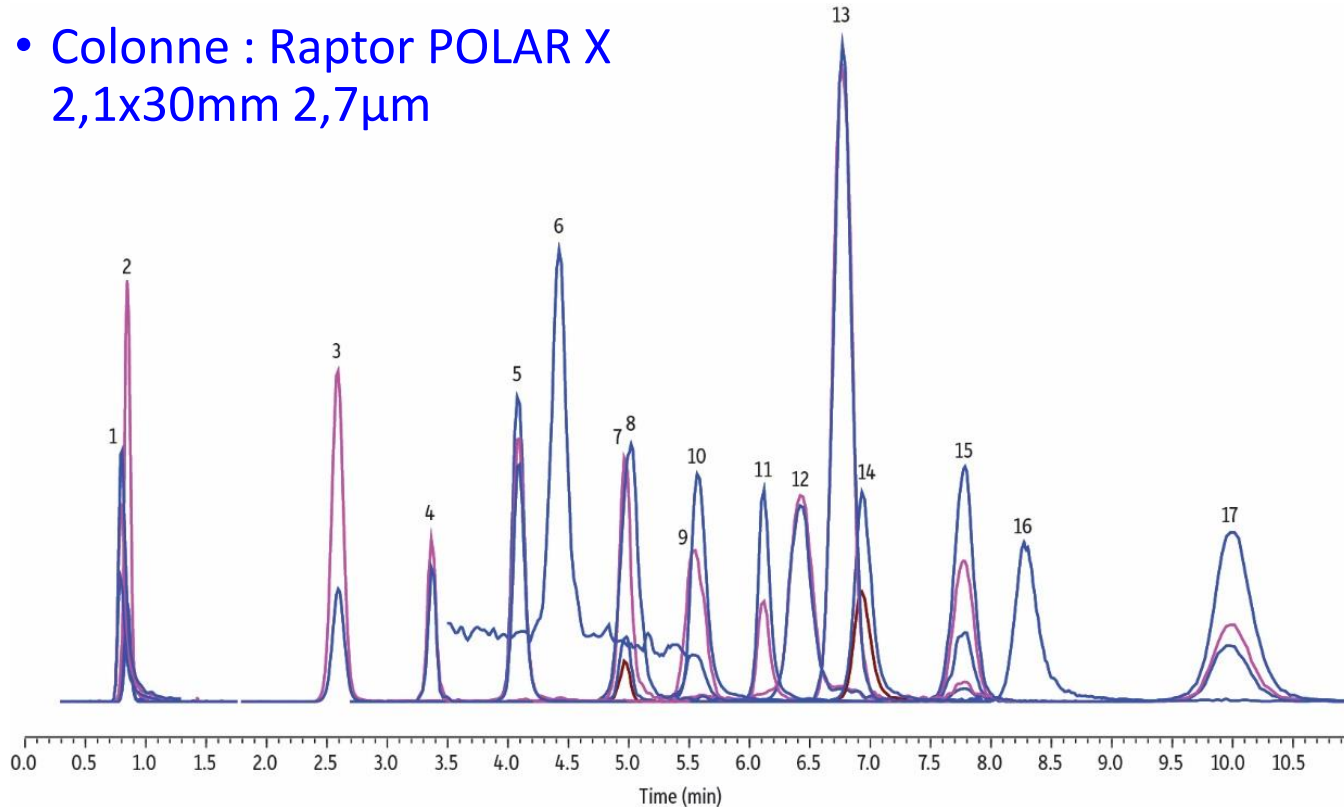


# Exemple d'application

## QuPPE



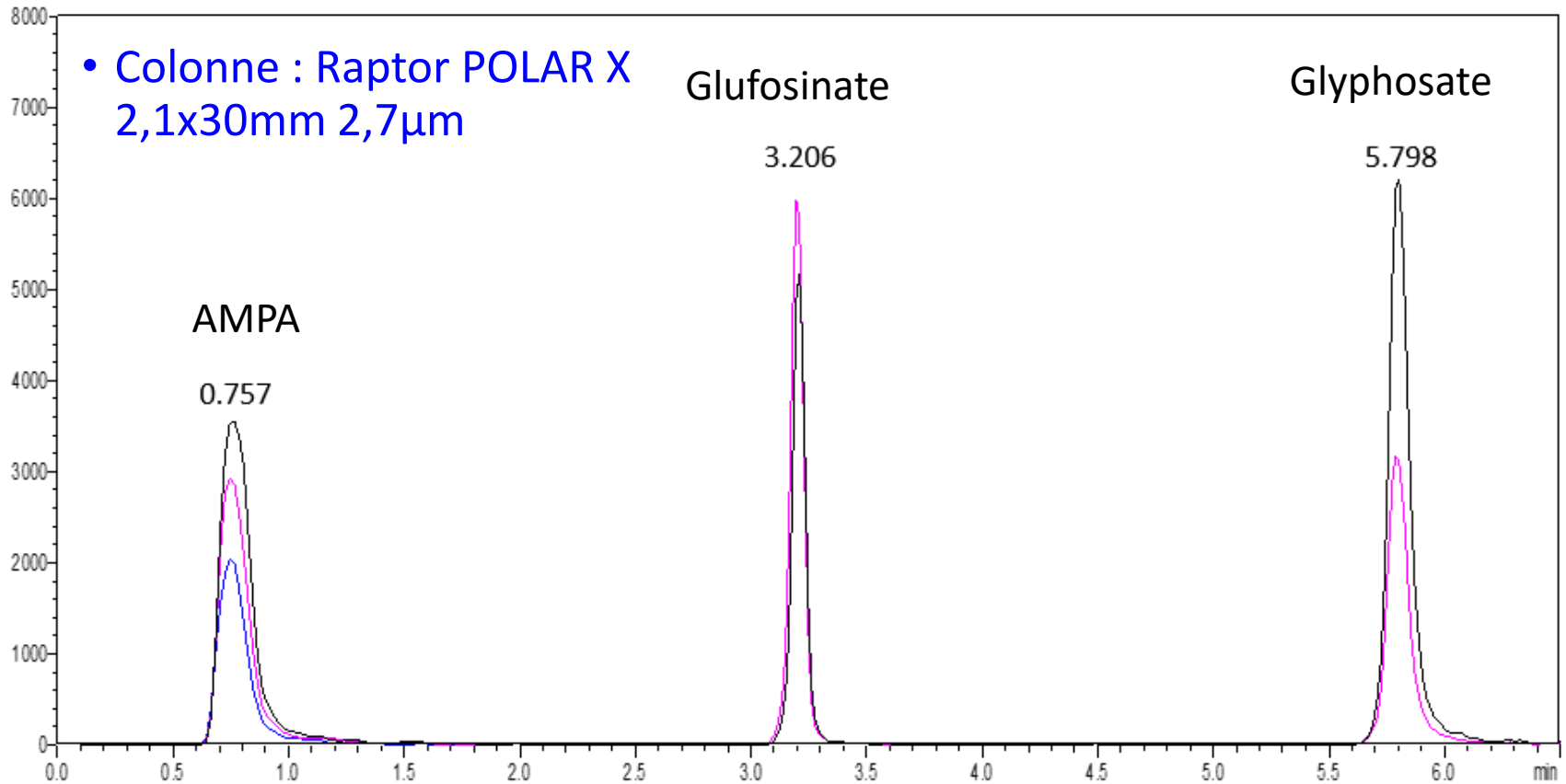
- Colonne : Raptor POLAR X  
2,1x30mm 2,7µm



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

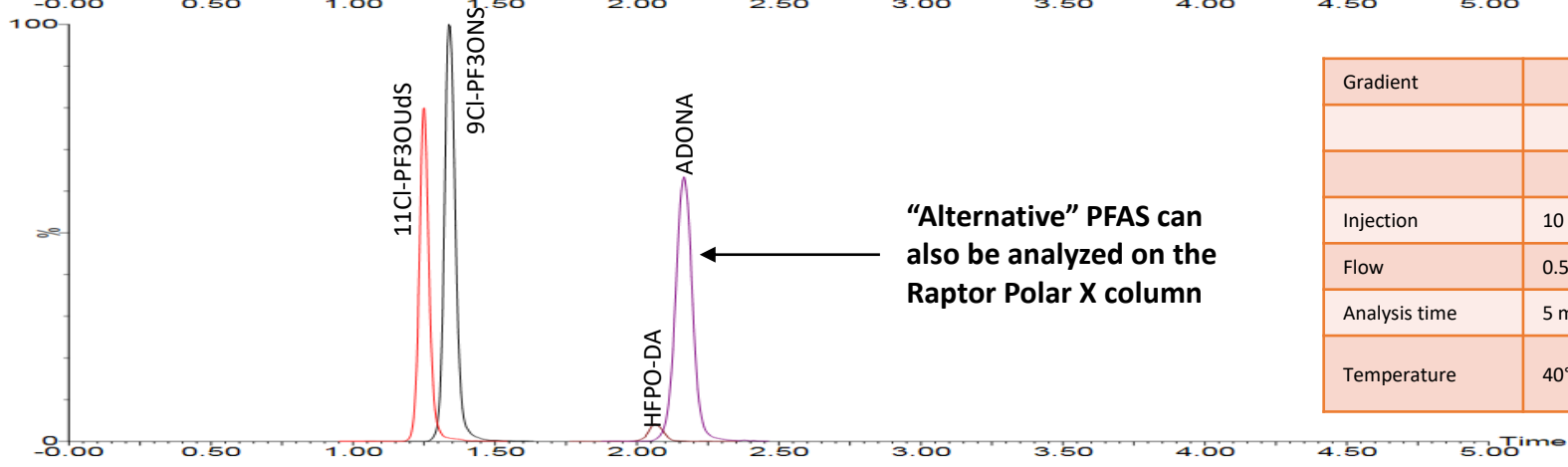
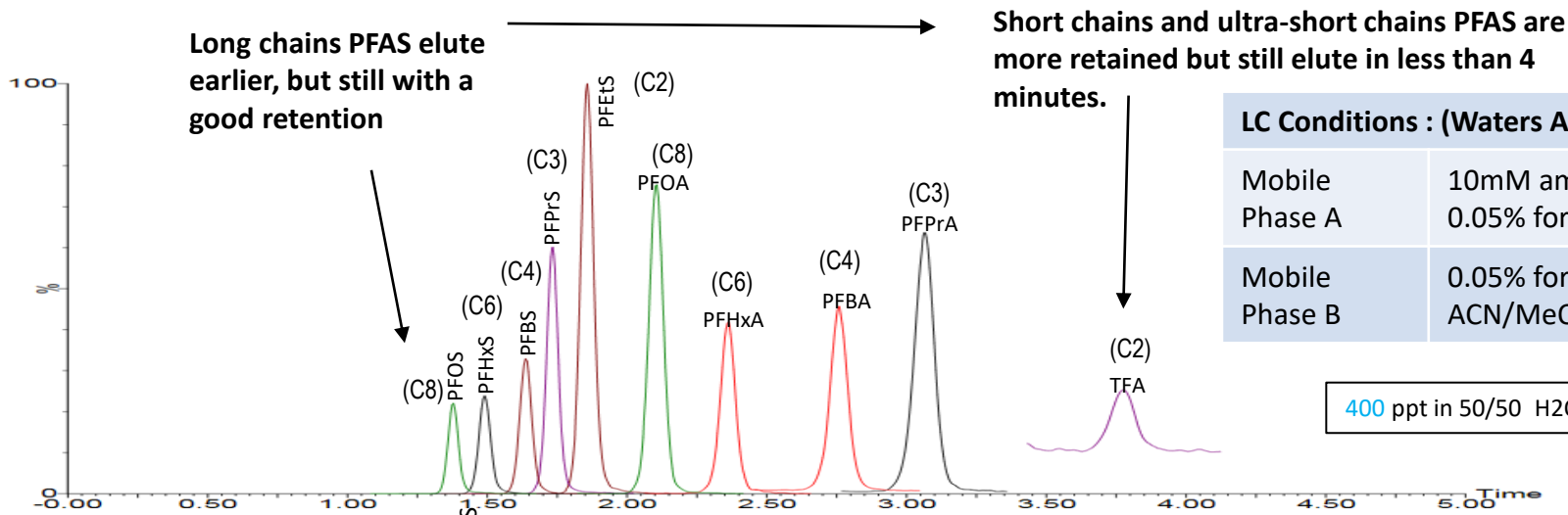
## Glyphosate & Co en injection directe (sans dérivation)





# Raptor Polar X LC Column

## Applications : PFAS

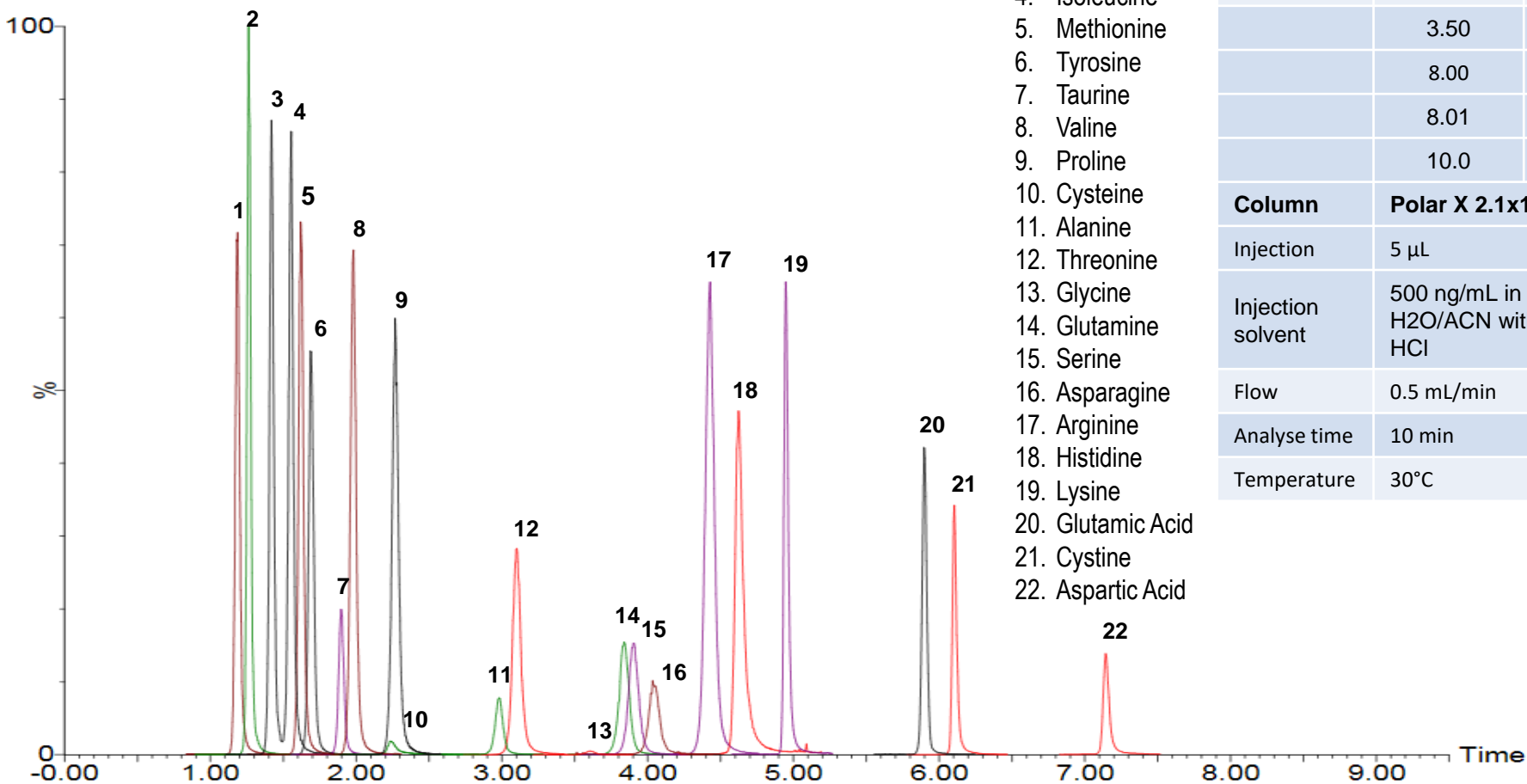


Gradient	Time (min)	%B
	0.00	85
	5.00	85
Injection	10 µL	
Flow	0.5 mL/min	
Analysis time	5 min	
Temperature	40°C	

# 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
<b>Column</b>	<b>Polar X 2.1x100 mm</b>	
Injection	5 $\mu$ L	
Injection solvent	500 ng/mL in 20/80 H <sub>2</sub> O/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 inquiries or assistance, or to request a try-before-you-buy column, simply contact us ([LC-EMEA@restek.com](mailto:LC-EMEA@restek.com)). We are always here to help.

# Thank you for your attention !



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Pure Chromatography

