

Vydac® 201TP and 202TP C18

Specialty Reversed Phases for PAH and Vitamins

- 201TP: The standard for PAH analysis in all types of environmental samples. Vydac® 201TP columns separate the EPA 16 priority pollutants in less than 20 minutes.
- 202TP3405: Rapid analysis to separate the 16 priority pollutant PAHs in under 10 minutes
- 202TP54 and 202TP5415: For the analysis of derivatized PAHs

VYDAC



Vydac® 201TP and 202TP columns were developed specifically for the separation and quantification of PAHs required by environmental regulations, current and future. Beyond the 16 EPA priority pollutant PAHs, Vydac® PAH columns are used to separate many other PAHs, such as methylated naphthalenes.

Vydac® 201TP and 202TP C18 Specifications

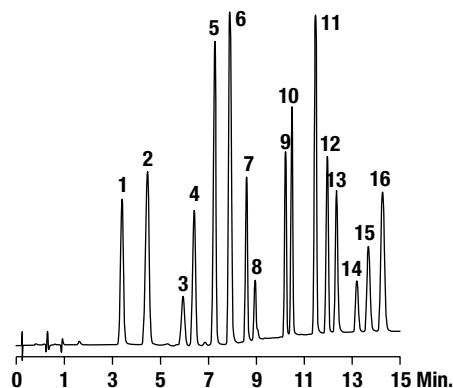
Phase	Base Material	Particle Shape	Particle Size	Pore Size	Surface Area	Carbon Load	Phase Type	Endcapped?	USP L-code
201TP C18	Silica	Spheroidal	5, 7, 10, 10–15, 15–20µm	300Å	70–90m ² /g	8%	Polymeric	No	L1
202TP C18	Silica	Spheroidal	3, 5, 10µm	300Å	60–90m ² /g	9%	Polymeric	No	L1

Vydac® 201TP

Vydac® 201TP HPLC columns have long been the standard for the analysis of PAHs in water, air, soil, automotive exhaust, and food. They were used to establish standard reference materials, measure air quality, measure PAHs in sediments, quantify PAHs in food, and study high molecular weight PAHs. They have also been used in the study of shape selectivity of reversed-phase materials.

Priority Pollutants PAHs In Accordance with EPA Methods 505, 550.1, 610, and 8310

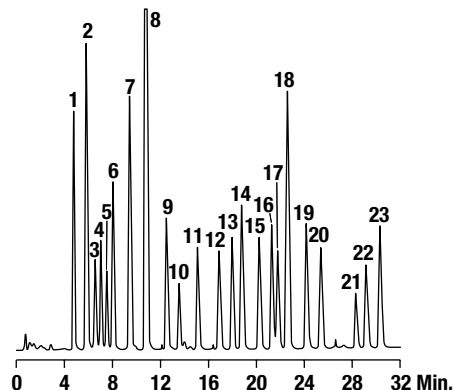
- | | |
|-------------------|----------------------------|
| 1. Naphthalene | 9. Benz[a]anthracene |
| 2. Acenaphthylene | 10. Chrysene |
| 3. Acenaphthene | 11. Benzo[b]fluoranthene |
| 4. Fluorene | 12. Benzo[k]fluoranthene |
| 5. Phenanthrene | 13. Benzo[a]pyrene |
| 6. Anthracene | 14. Dibenzo[ah]anthracene |
| 7. Fluoranthene | 15. Benzo[ghi]perylene |
| 8. Pyrene | 16. Indeno[1,2,3-cd]pyrene |



Column: Vydac® C18, 5µm, 4.6 x 150mm (Part No. 201TP5415)
Flow Rate: 1.5mL/min
Mobile Phase: A: Water B: ACN
Gradient: Hold 50% B for 3min, then 50 to 100% B in 7min
Detector: UV at 254nm

PAHs Beyond the EPA Priority Pollutants

- | | |
|--------------------------|------------------------------------|
| 1. Naphthalene | 13. Benz[a]anthracene |
| 2. Acenaphthylene | 14. Chrysene |
| 3. 1-Methylnaphthalene | 15. Benzo[b]naphtho[2,1-d]thiopen |
| 4. 2-Methylnaphthalene | 16. 7,12-Dimethylbenz[a]anthracene |
| 5. Acenaphthene | 17. Benzo[e]pyrene |
| 6. Fluorene | 18. Benzo[b]fluoranthene |
| 7. Phenanthrene | 19. Benzo[k]fluoranthene |
| 8. Anthracene | 20. Benzo[a]pyrene |
| 9. Fluoranthene | 21. Dibenzo[ah]anthracene |
| 10. Pyrene | 22. Benzo[ghi]perylene |
| 11. Benzo[c]phenanthrene | 23. Indeno[1,2,3-cd]pyrene |
| 12. Cyclopenta[cd]pyrene | |



Column: Vydac® C18, 5µm, 4.6 x 150mm (Part No. 201TP5415)
Flow Rate: 1.0mL/min
Mobile Phase: A: Water B: ACN
Gradient: 50 to 100% B over 30min
Column Temp: 30°C
Detector: UV at 254nm

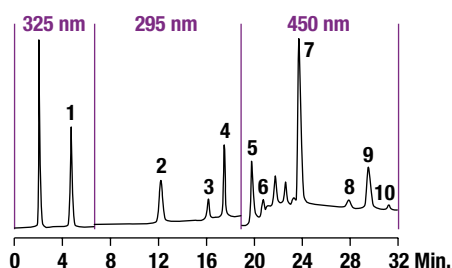
Vydac® 201TP (continued)

Vitamins

Vydac® 201TP columns also have application in the analysis of carotenoids, retinoids, and vitamins.

Retinol, α -Tocopherol, and β -Carotene in Serum

1. All-trans-retinol (vitamin A)
2. Tocol
3. γ -Tocopherol
4. α -Tocopherol (vitamin E)
5. Lutein
6. Zeaxanthin
7. Cryptoxanthin
8. α -Carotene
9. All-trans- β -carotene
10. Cis- β -carotene



Column: Vydac® 201TP C18, 5 μ m, 4.6 x 250mm (Part No. 201TP54)
Flow Rate: 1.5mL/min
Mobile Phase: A: 15:75:10 Buffer/Methanol/n-Butanol
 B: 2:88:10 Buffer/Methanol/n-Butanol
 Buffer = Aqueous 0.02 M NH₄OAc, pH 3.5
Gradient: 100% A for 3min, then 0 to 100% B over 15min, then hold 100% B
Detector: UV, programmed wavelengths

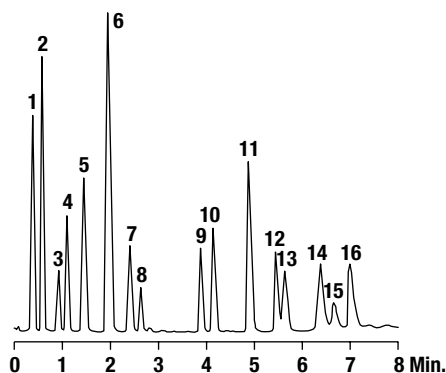
Chromatogram reproduced with author's permission. From W.A. MacCrehan and E. Schonberger, *Clin. Chem.*, 33(9), 1585-1592 (1987).

Vydac® 202TP

Built on top of the success of 201TP, 202TP columns are ideal for derivatized PAH samples or high throughput PAH analyses.

Rapid Analysis of Polyaromatic Hydrocarbons

1. Naphthalene
2. Acenaphthylene
3. Acenaphthene
4. Fluorene
5. Phenanthrene
6. Anthracene
7. Fluoranthene
8. Pyrene
9. Benz[a]anthracene
10. Chrysene
11. Benzo[b]fluoranthene
12. Benzo[k]fluoranthene
13. Benzo[a]pyrene
14. Benzo[ghi]perylene
15. Dibenzo[ah]anthracene
16. Indeno[1,2,3-cd]pyrene



Column: Vydac® 202TP C18, 5 μ m, 4.6 x 50mm (Part No. 202TP3405)
Flow Rate: 3.0mL/min
Mobile Phase: A: Water B: ACN
Gradient: 40 to 95% B in 8min
Column Temp: 30°C
Detector: UV at 254nm

201TP C18 Analytical Columns

Particle Size	Columns				Recommended Guards		
	i.d.	50mm	100mm	150mm	250mm	Guard Kit ¹	Guard Cartridge ²
5 μ m	1.0mm	201TP5105	—	201TP5115	201TP51	201GK51T	201GD51T
	2.1mm	201TP5205	201TP5210	201TP5215	201TP52	201GK52T	201GD52T
	3.2mm	—	—	201TP5315	201TP53	201GK54T	201GD54T
	4.6mm	201TP5405	201TP5410	201TP5415	201TP54	201GK54T	201GD54T
10 μ m	4.6mm	—	—	201TP10415	201TP104	201GK104T	201GD104T

¹A guard kit includes a holder and one guard cartridge. ²Guard cartridge units include two guard cartridges.

202TP High-Carbon-Load C18 Analytical Columns

Particle Size	Columns				Recommended Guards		
	i.d.	50mm	100mm	150mm	250mm	Guard Kit ¹	Guard Cartridge ²
3 μ m	3.2mm	—	—	202TP3315	—	—	—
	4.6mm	202TP3405	202TP3410	—	—	—	—
5 μ m	4.6mm	—	—	202TP5415	202TP54	202GK54T	202GD54T
10 μ m	4.6mm	202TP10405	—	—	—	202GK104T	202GD104T

¹A guard kit includes a holder and one guard cartridge. ²Guard cartridge units include two guard cartridges.