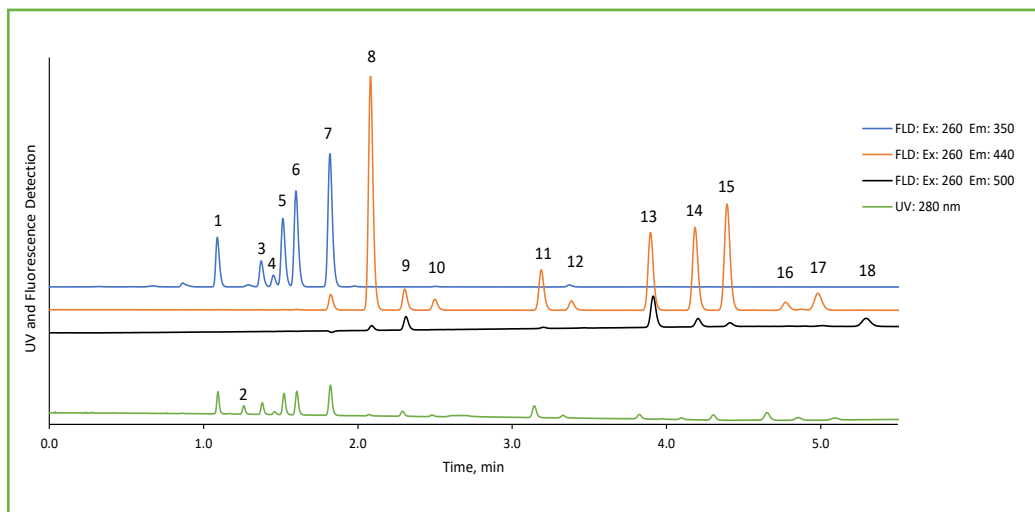




Separation of PAH Compounds using UV and Fluorescence Detection

233-P



PEAK IDENTITIES

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

TEST CONDITIONS:

Column: HALO 90 Å PAH, 2.7 μ m, 4.6 x 50 mm

Part Number: 92844-412

Mobile Phase A: Water

B: Acetonitrile

Gradient:	Time	%B
	0.0	50
	4.0	100
	5.0	100
	6.0	100

Flow Rate: 1.8 mL/min

Initial Back Pressure: 256 bar

Temperature: Ambient

Detection: FLD: Ex: 260/ Em: 350/440/500
UV: 280 nm

Injection Volume: 0.3 μ L

Sample Solvent: Methanol

LC System: Shimadzu Nexera X2

Polycyclic Aromatic Hydrocarbons (PAHs) are a group of more than 100 chemicals released from the combustion of coal, oil, gasoline, tobacco, and wood. They can also be found in cooked food. PAHs are persistent chemicals and must be closely regulated for early detection/monitoring to minimize hazardous exposure in the environment and/or use of contaminated raw materials in different industries. These compounds can be detected several ways including a UV and/or a fluorescence detector (FLD). A rapid separation of the 16 compounds specified in EPA 610 and an additional 2 PAH compounds that are regularly analyzed is demonstrated using a UV and fluorescence detector. The FLD gain in sensitivity compared to the UV is associated to the advantage of no background for FLD and the ability to select both an excitation and emission wavelength; which can be optimized further with systematically testing the S/N as a function of the detector's gain parameter. Slight retention time and peak width increases for the FLD response are due to the greater tubing volume of this detector.