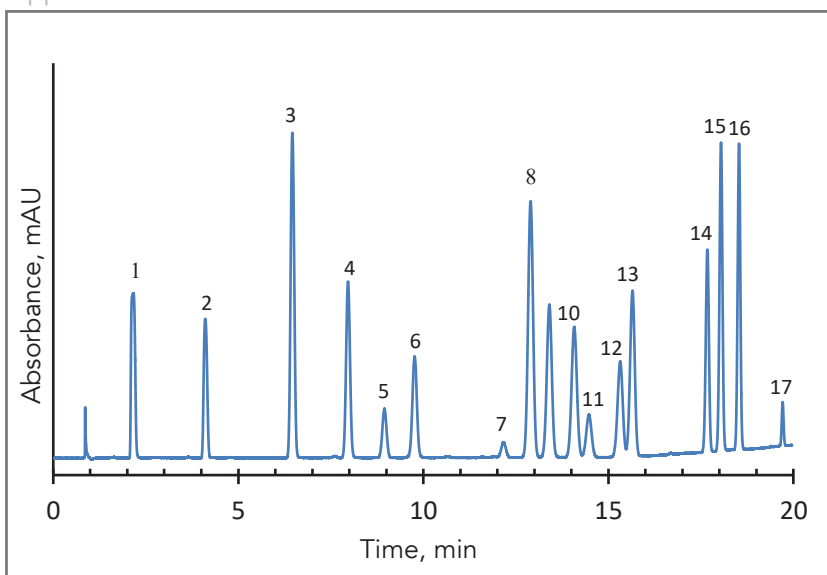




Separation of 17 Explosives on HALO® C18, 2.7 µm

Application Note 31-EX



PEAK IDENTITIES:

1. HMX
2. RDX
3. 1,3,5-Trinitrobenzene
4. 1,3-Dinitrobenzene
5. 3,5-Dinitroaniline
6. Nitrobenzene
7. Nitroglycerin
8. Tetryl
9. 2,4,6-Trinitrotoluene
10. 2-Amino-4,6-Dinitrotoluene
11. 4-Amino-2,6-Dinitrotoluene
12. 2,4-Dinitrotoluene
13. 2,6-Dinitrotoluene
14. 2-Nitrotoluene
15. 4-Nitrotoluene
16. 3-Nitrotoluene
17. PETN (pentaerythritol tetranitrate)

TEST CONDITIONS:

Column: HALO 90 Å C18, 2.7 µm,
4.6 x 150 mm

Part Number: 92814-702

Mobile Phase:

A: Water

B: Methanol

Gradient: Time (min)	% B
0.0	25
14.0	35
20.0	62

Flow Rate: 1.5 mL/min

Pressure: 366 bar to start, max. 405 bar

Temperature: 43 °C

Detection: UV 220 nm, VWD

Injection Volume: 40 µL

Sample Solvent: 50/50 water/methanol

Response Time: 0.02 sec

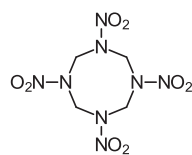
Data Rate: 25 Hz

Flow Cell: 2.5 µL semi-micro

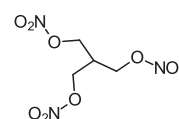
LC System: Shimadzu Prominence UFLC XR

Extra Column Volume: ~14 µL

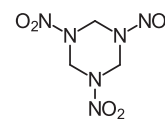
STRUCTURES:



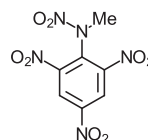
HMX



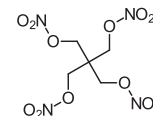
Nitroglycerin



RDX



Tetryl



Pentaerythritol Tetranitrate

The determination of explosives in the environment is outlined in EPA method 8330B and under the conditions recommended, requires two column phases to determine 17 compounds. However, all 17 explosive compounds can be separated on a HALO® C18, 2.7 µm column in less than 20 minutes using a water/methanol gradient.

