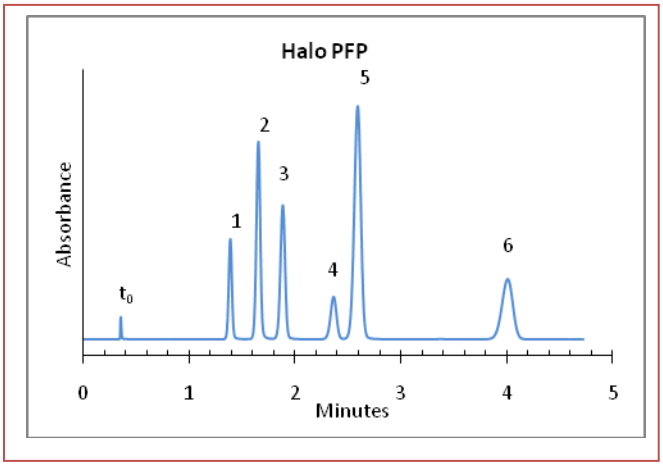
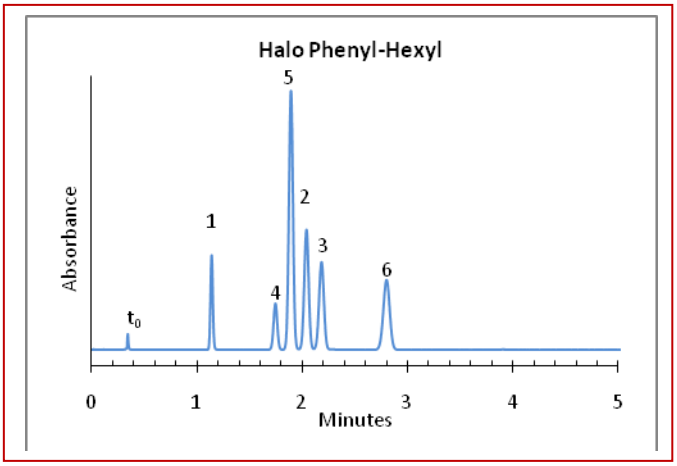
Application Note: 26-P

Separation of Aromatic Nitro compounds on HALO PFP and Phenyl-Hexyl



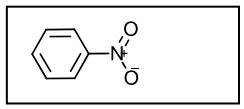


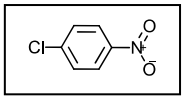
TEST CONDITIONS:
Column: 4.6 x 50 mm, HALO PFP, Phenyl-Hexyl
Part Numbers: 92814-409,-406, resp.
Mobile Phase: 45/55-water/methanol
Flow Rate: 1.5 mL/min.
Pressure: approximately 200 Bar
Temperature: 40 °C
Detection: UV 254 nm, VWD
Injection Volume: 0.5 µL
Sample Solvent: ~20/80-water/methanol
Response Time: 0.02 sec.
Flow Cell: 2.5 µL semi-micro
LC System: Shimadzu Prominence UFLC XR
Extra column volume: ~14 µL

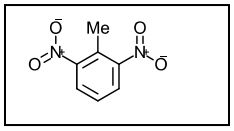
PEAK IDENTITIES:
1. Nitrobenzene
2. 1-Cl-4-Nitrobenzene
3. 2,6-Dinitrotoluene
4. 4-Nitrotoluene
5. 3-Nitrotoluene
6. 4-Cl-3-Nitroanisole

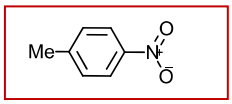
Differences in the interaction of the phenyl rings on the bonded phases with the pi electron systems of the nitro aromatic compounds result in significantly different selectivities that can be used to optimize these separations.

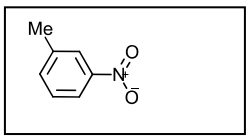
STRUCTURES:

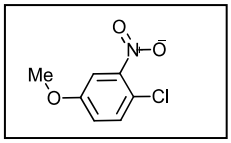

Nitrobenzene


1-Chloro-4-Nitrobenzene


2, 6-Dinitrotoluene

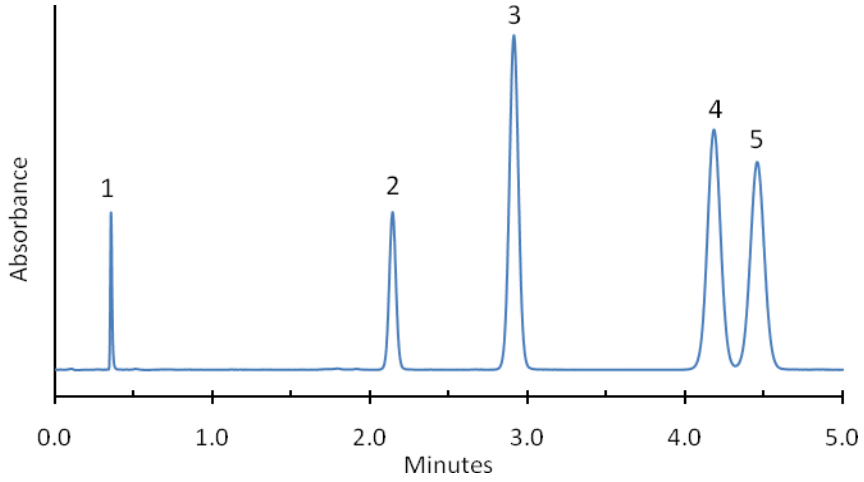

4-Nitrotoluene


3-Nitrotoluene


4-Chloro-3-Nitroanisole

Application Note: 36-EX

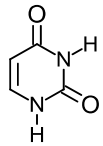
Isocratic Separation of Dinitrotoluenes on HALO PFP Phase



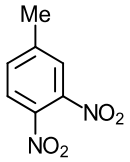
PEAK IDENTITIES:
1. Uracil
2. 2,6-Dinitrotoluene
3. 2,4-Dinitrotoluene
4. 3,4-Dinitrotoluene
5. 2,3-Dinitrotoluene

TEST CONDITIONS:
Column: 4.6 x 50 mm, HALO PFP
Part Number: 92814-409
Mobile Phase: 45/55-Water/Methanol
Flow Rate: 1.5 mL/min.
Pressure: 225 Bar
Temperature: 30 °C
Detection: UV 254 nm, VWD
Injection Volume: 1.0 µL
Sample Solvent: 50/50-Acetonitrile/Methanol
Response Time: 0.02 sec.
Flow Cell: 2.5 µL semi-micro
LC System: Shimadzu Prominence UFLC XR
Extra column volume: ~14 µL

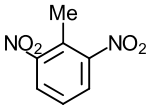
STRUCTURES:



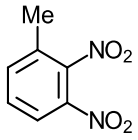
Uracil



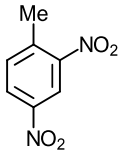
3,4-Dinitrotoluene



2,6-Dinitrotoluene



2,3-Dinitrotoluene



2,4-Dinitrotoluene

These dinitrotoluenes are difficult to separate, but can be separated with baseline resolution in under 5 minutes using a HALO Fused Core PFP (perfluorophenylpropyl) column.

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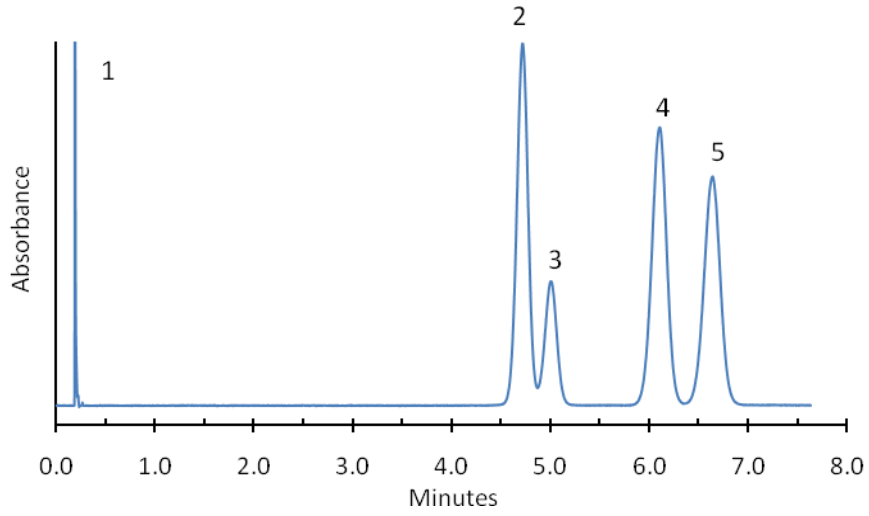
FOR MORE INFORMATION OR TO PLACE AN ORDER, CONTACT:

Application Note: 35-EX

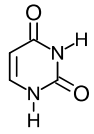
Isocratic Separation of Dinitrotoluenes on HALO RP-Amide Phase



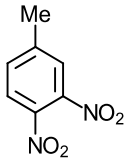
PEAK IDENTITIES:
1. Uracil
2. 2,4-Dinitrotoluene
3. 2,6-Dinitrotoluene
4. 3,4-Dinitrotoluene
5. 2,3-Dinitrotoluene

TEST CONDITIONS:
Column: 4.6 x 50 mm, HALO RP-Amide
Part Number: 92814-407
Mobile Phase: 80/20-Water/Acetonitrile
Flow Rate: 2.5 mL/min.
Pressure: 257 Bar
Temperature: 27 °C
Detection: UV 254 nm, VWD
Injection Volume: 1.0 µL
Sample Solvent: 50/50-Acetonitrile/Methanol
Response Time: 0.02 sec.
Flow Cell: 2.5 µL semi-micro
LC System: Shimadzu Prominence UFLC XR
Extra column volume: ~14 µL

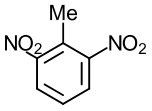
STRUCTURES:



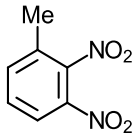
Uracil



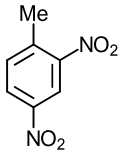
3,4-Dinitrotoluene



2,6-Dinitrotoluene



2,3-Dinitrotoluene



2,4-Dinitrotoluene

These dinitrotoluenes are difficult to separate, but can be separated with almost baseline resolution in under 7 minutes using a 50 mm long HALO Fused Core RP-Amide column.

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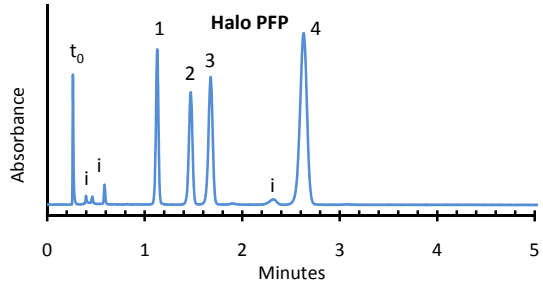
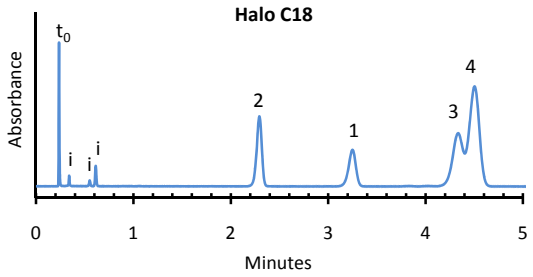
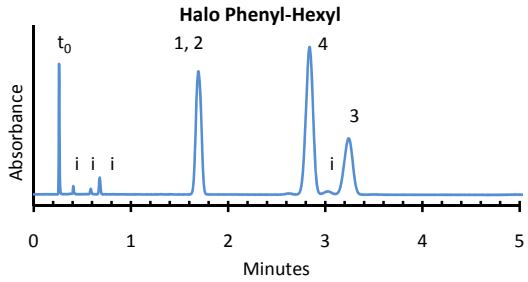
FOR MORE INFORMATION OR TO PLACE AN ORDER, CONTACT:

Application Note: 23-N

Separation of Neutral Aromatics on HALO PFP, C18 and Phenyl-Hexyl





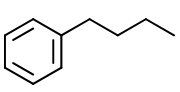


PEAK IDENTITIES:
1. Butylbenzene
2. Acenaphthene
3. 1-Phenylnaphthalene
4. Pyrene

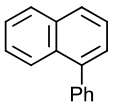
i=impurities

TEST CONDITIONS:
Column: 4.6 x 50 mm, HALO PFP, C18, Phenyl-Hexyl
Part Numbers: 92814-409,-402,-406, resp.
Mobile Phase: 30/70-water/methanol
Flow Rate: 2.0 mL/min.
Pressure: approximately 250 Bar
Temperature: 40 °C
Detection: UV 254 nm, VWD
Injection Volume: 1.0 µL
Sample Solvent: methanol
Response Time: 0.02 sec.
Flow Cell: 2.5 µL semi-micro
LC System: Shimadzu Prominence UFLC XR
Extra column volume: ~14 µL

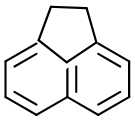
STRUCTURES:



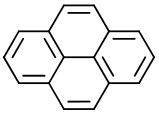
Butylbenzene



1-Phenylnaphthalene



Acenaphthene



Pyrene

The separation of non-polar aromatic compounds on these three Halo bonded phases under the same conditions show differences in selectivity that can be utilized in optimizing difficult separations.