

APPLICATION

Rapid Analysis of Neonicotinoids using Kinetex® 2.6 µm Biphenyl Core-Shell Technology by LC/MS/MS

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Overview

Neonicotinoids are a very widely used class of insecticides that are coming under increasing scrutiny by environmental and food regulatory agencies. The method presented here utilizes the unique selectivity and high-efficiency of a Kinetex 2.6 µm Biphenyl HPLC column to obtain a rapid (less than 3 minute) analysis time.



LC/MS/MS Conditions

Column: Kinetex 2.6 µm Biphenyl
Dimensions: 50 x 2.1 mm
Part No.: 00B-4622-AN
Mobile Phase: A: 0.1% Formic acid in Water
 B: 0.1% Formic acid in Acetonitrile
Gradient:

Time (min)	% B
0.0	5
3.0	70
3.1	5
6.0	5

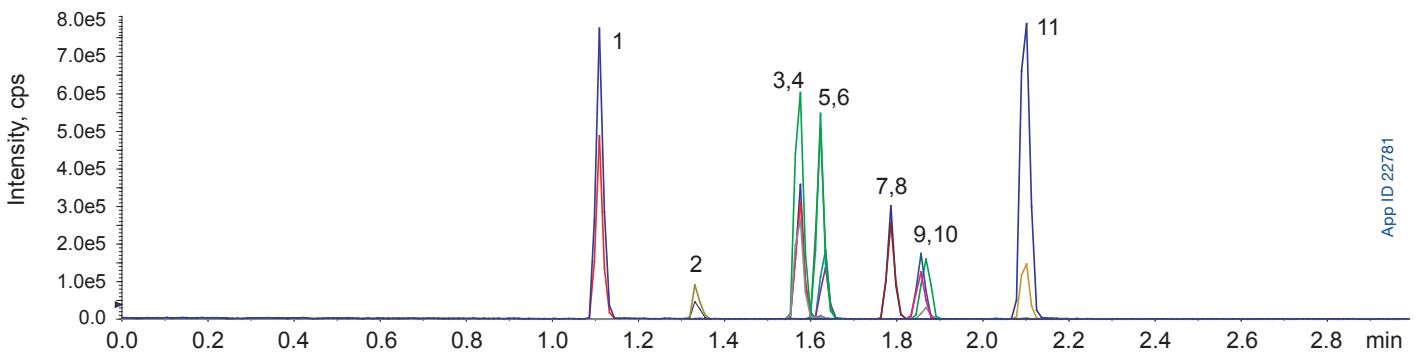
Flow Rate: 0.50 mL/min
Inj. Volume: 5 µL
Temperature: 40 °C
Detection: AB SCIEX QTRAP® 4500 Tandem mass spec (MS/MS Electrospray ionization (ESI+) in positive mode)
Sample:

- Dinotefuran
- Nitenpyram
- D3-Thiamethoxam
- Thiamethoxam
- D3-Clothianidin
- Clothianidin
- D4-Imidacloprid
- Imidacloprid
- D3-Acetamiprid
- Acetamiprid
- Thiacloprid

Table 1.
MRM Transitions and Retention Times

Peak No.	Analyte	Q1	Q3	Retention Time (min)	Mode
1	Dinotefuran	202.99	129.1/113	1.11	+ve
2	Nitenpyram	270.9	125.9/236.9	1.33	+ve
3	D3-Thiamethoxam	294.8	214/131.8	1.57	+ve
4	Thiamethoxam	291.8	132/181	1.58	+ve
5	D3-Clothianidin	252.9	172.1/131.8	1.62	+ve
6	Clothianidin	249.8	169/131.9	1.63	+ve
7	D4-Imidacloprid	259.9	212.8/179.2	1.79	+ve
8	Imidacloprid	256.2	209.0/175.2	1.79	+ve
9	D3-Acetamiprid	225.9	98.9/59	1.86	+ve
10	Acetamiprid	224.9	127.9/90.1	1.87	+ve
11	Thiacloprid	252.7	125.9/90	2.1	+ve

Figure 1.
1 µg/mL Neonicotinoid Standard on a Kinetex 2.6 µm Biphenyl, 50 x 2.1 mm



App ID 22781



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Kinetex Ordering Information

Kinetex 5 µm Columns (mm)		SecurityGuard™ ULTRA Cartridges [‡]		SecurityGuard™ ULTRA Cartridges [‡]		SecurityGuard™ ULTRA Cartridges [‡]		SecurityGuard™ ULTRA Cartridges [‡]	
Phases	50 x 2.1	3/pk	50 x 3.0	3/pk	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	3/pk
Biphenyl	00B-4627-AN	AJO-9209 for 2.1 mm ID	00B-4627-YO	AJO-9208 for 3.0 mm ID	00B-4627-E0	00D-4627-E0	00F-4627-E0	00G-4627-E0	AJO-9207 for 4.6 mm ID

Kinetex 2.6 µm Columns (mm)		SecurityGuard™ ULTRA Cartridges [‡]		SecurityGuard™ ULTRA Cartridges [‡]		SecurityGuard™ ULTRA Cartridges [‡]		SecurityGuard™ ULTRA Cartridges [‡]	
Phases	50 x 2.1	100 x 2.1	3/pk	50 x 3.0	3/pk	50 x 4.6	100 x 4.6	150 x 4.6	3/pk
Biphenyl	00B-4622-AN	00D-4622-AN	AJO-9209 for 2.1 mm ID	00B-4622-YO	AJO-9208 for 3.0 mm ID	00B-4622-E0	00D-4622-E0	00F-4622-E0	AJO-9207 for 4.6 mm ID

Kinetex 1.7 µm Minibore Columns (mm)				SecurityGuard ULTRA Cartridges [‡]
Phases	50 x 2.1	100 x 2.1	150 x 2.1	3/pk
Biphenyl	00B-4628-AN	00D-4628-AN	00F-4628-AN	AJO-9209 for 2.1 mm ID




[‡]SecurityGuard ULTRA cartridges require holder, Part No. AJO-9000.

If Phenomenex products in this technical note do not provide at least an equivalent separation as compared to other products of the same phase and dimensions, return the product with comparative data within 45 days for a FULL REFUND.

Find more information on Kinetex core-shell HPLC and UHPLC columns at:

www.phenomenex.com/kinetex

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