

# APPLICATIONS

## Analysis of 62 Pesticides in Cannabis by LC-MS/MS



Scott Krepich and Jeff Layne  
Phenomenex, Inc., 411 Madrid Ave., Torrance, CA 90501 USA

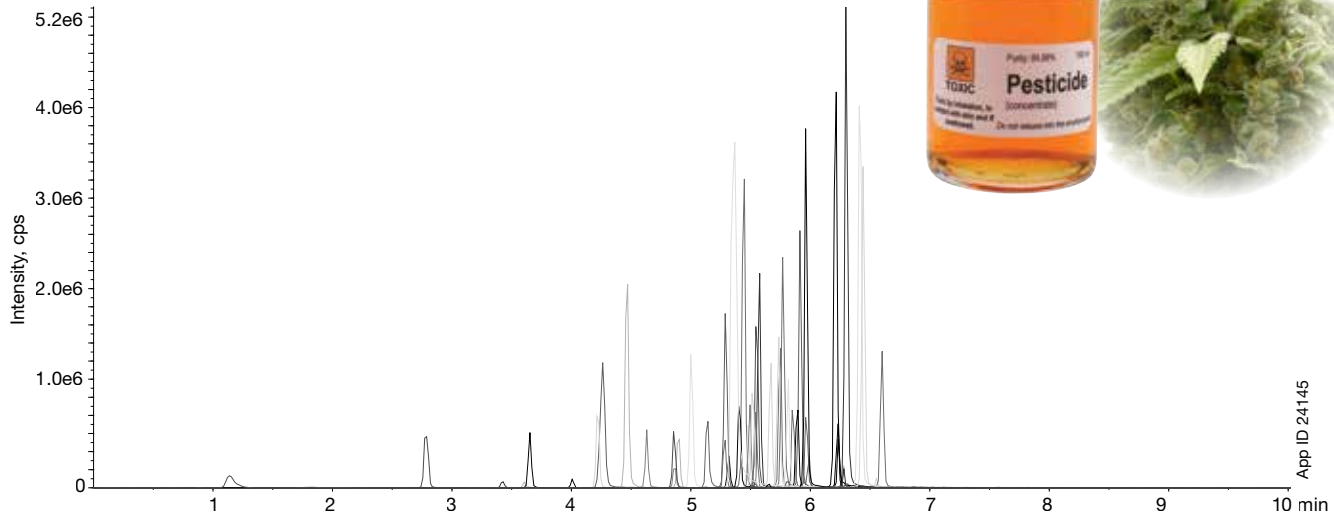
### Overview

Pesticide contamination is a major concern for the cannabis industry. Pesticide residues have been found in products including: flowers/buds, concentrates, and infused edibles. Each state with legalization laws for Cannabis use for Medicinal and/or Recreational purposes has established policies for pesticide use and levels. The method developed screens for 62 pesticides typically used in cannabis plants using LC-MS/MS.

**Column:** Kinetex<sup>®</sup> 2.6 μm Polar C18  
**Dimension:** 50 x 4.6 mm  
**Part No.:** 00B-4759-E0  
**Mobile Phase:** A: 10 mM Ammonium acetate  
 B: Methanol with 0.1 % formic acid  
**Gradient:**

Time (min)	% B
0	0
7	100

**Injection:** 3 μL  
**Flow Rate:** 0.7 mL/min  
**Temperature:** 40 °C  
**Detection:** MS/MS  
**Instrument:** SCIEX API 4000™  
**Analytes:** See reverse for full list



App ID: 24145



# APPLICATIONS

## Kinetex Ordering Information

2.6 µm Minibore Columns (mm)					SecurityGuard <sup>TM</sup> ULTRA Cartridges <sup>†</sup>
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	3/pk
<b>Polar C18</b>	00A-4759-AN	00B-4759-AN	00D-4759-AN	00F-4759-AN	AJ0-9532 for 2.1 mm ID

2.6 µm MidBore <sup>TM</sup> Columns (mm)				SecurityGuard ULTRA Cartridges <sup>†</sup>
Phases	50 x 3.0	100 x 3.0	150 x 3.0	3/pk
<b>Polar C18</b>	00B-4759-Y0	00D-4759-Y0	00F-4759-Y0	AJ0-9531 for 3.0 mm ID

2.6 µm Analytical Columns (mm)				SecurityGuard ULTRA Cartridges <sup>†</sup>
Phases	50 x 4.6	100 x 4.6	150 x 4.6	3/pk
<b>Polar C18</b>	00B-4759-E0	00D-4759-E0	00F-4759-E0	AJ0-9530 for 4.6 mm ID

<sup>†</sup> SecurityGuard ULTRA Cartridges require holder, Part No.: AJ0-9000.

Analytes	Retention Time	Analytes	Retention Time
Daminozide	1.13	Bifenazate	5.57
Acephate	2.78	Fipronil	5.66
Oxamyl	3.42	Spirotetramat	5.67
Flonicamid	3.61	Fenoxycarb	5.74
Methomyl	3.64	Ethoprophos	5.75
Thiamethoxam	3.65	Spinosyn A	5.77
Imidacloprid	4.01	Kresoxim-methyl	5.81
Dimethoate	4.22	Tebuconazole	5.82
Acetamiprid	4.26	Spinosyn D	5.85
Thiacloprid	4.47	Propiconazole	5.89
Aldicarb	4.63	Diazinon	5.91
Dichlorvos	4.86	Clofentezine	5.96
Propoxure	4.86	Trifloxystrobin	5.96
Carbofuran	4.9	Prallethrin	5.99
Carbaryl	5	Pyrethrins Cinerin	6.02
Imazalil	5.14	Pyrethrins Jasmolin	6.15
Naled	5.28	Piperonyl butoxide	6.21
Metalaxyl	5.29	Chlorpyrifos	6.23
Chlorantraniliprole	5.32	Hexythiazox	6.23
Spiroxamine	5.36	Cyfluthrin	6.25
Phosmet	5.4	Spiromesifen	6.28
Azoxystrobin	5.44	Etoxazole	6.3
Fipronil NH4	5.47	Pyrethrins Pyrethrin	6.3
Boscalid	5.48	Cypermethrin	6.31
Methiocarb	5.49	Fenpyroximate	6.41
Fludioxinil	5.51	Permethrin, cis	6.44
Paclobutrazol	5.52	Pyridaben	6.44
Myclobutanil	5.54	Avermectin B1a	6.5
Uniconazole	5.54	Permethrin, trans	6.52
Malathion A	5.55	Bifenthrin	6.55
		Etofenprox	6.6
		Acequinocyl	7.21

### Australia

t: +61 (0)2-9428-6444  
f: +61 (0)2-9428-6445  
auiinfo@phenomenex.com

### Austria

t: +43 (0)1-319-1301  
f: +43 (0)1-319-1300  
anfrage@phenomenex.com

### Belgium

t: +32 (0)2 503 4015 (French)  
t: +32 (0)2 511 8666 (Dutch)  
f: +31 (0)30-2383749  
beinfo@phenomenex.com

### Canada

t: +1 (800) 543-3681  
f: +1 (310) 328-7768  
info@phenomenex.com

### China

t: +86 400-606-8099  
f: +86 (0)22 2532-1033  
phen@agela.com

### Denmark

t: +45 4824 8048  
f: +45 4810 6265  
nordicinfo@phenomenex.com

### Finland

t: +358 (0)9 4789 0063  
f: +45 4810 6265  
nordicinfo@phenomenex.com

### France

t: +33 (0)1 30 09 21 10  
f: +33 (0)1 30 09 21 11  
franceinfo@phenomenex.com

### Germany

t: +49 (0)6021-58830-0  
f: +49 (0)6021-58830-11  
anfrage@phenomenex.com

### India

t: +91 (0)40-3012 2400  
f: +91 (0)40-3012 2411  
indiainfo@phenomenex.com

### Ireland

t: +353 (0)1 247 5405  
f: +44 1625-501796  
eireinfo@phenomenex.com

### Italy

t: +39 051 6327511  
f: +39 051 6327555  
italiainfo@phenomenex.com

## www.phenomenex.com

Phenomenex products are available worldwide. For the distributor in your country, contact Phenomenex USA, International Department at international@phenomenex.com

### Luxembourg

t: +31 (0)30-2418700  
f: +31 (0)30-2383749  
nlinfo@phenomenex.com

### Mexico

t: 01-800-844-5226  
f: 001-310-328-7768  
tecnicomx@phenomenex.com

### The Netherlands

t: +31 (0)30-2418700  
f: +31 (0)30-2383749  
nlinfo@phenomenex.com

### New Zealand

t: +64 (0)9-4780951  
f: +64 (0)9-4780952  
nzinfo@phenomenex.com

### Norway

t: +47 810 02 005  
f: +45 4810 6265  
nordicinfo@phenomenex.com

### Puerto Rico

t: +1 (800) 541-HPLC  
f: +1 (310) 328-7768  
info@phenomenex.com

### Spain

t: +34 91-413-8613  
f: +34 91-413-2290  
espinfo@phenomenex.com

### Sweden

t: +46 (0)8 611 6950  
f: +45 4810 6265  
nordicinfo@phenomenex.com

### United Kingdom

t: +44 (0)1625-501367  
f: +44 (0)1625-501796  
ukinfo@phenomenex.com

### USA

t: +1 (310) 212-0555  
f: +1 (310) 328-7768  
info@phenomenex.com

### All other countries Corporate Office USA

t: +1 (310) 212-0555  
f: +1 (310) 328-7768  
info@phenomenex.com

guarantee

If Kinetex analytical columns do not provide at least an equivalent separation as compared to a competing column of the same particle size, similar phase and dimensions, return the column with comparative data within 45 days for a FULL REFUND.

### Terms and Conditions

Subject to Phenomenex Standard Terms and Conditions, which may be viewed at <http://www.phenomenex.com/TermsAndConditions>.

### Trademarks

Kinetex is a registered trademark and SecurityGuard and MidBore are trademarks of Phenomenex. API 4000 is a trademark of AB SCIEX Pte. Ltd. AB SCIEX<sup>SM</sup> is being used under license.

© 2017 Phenomenex, Inc. All rights reserved.