

# APPLICATION

## Extraction and GC/MS Analysis of Melamine From Dog Food Using A Zebron™ ZB-5MS<sub>PLUS</sub>™ GC Column

Matt Trass and Tim Anderson  
Phenomenex, Inc., 411 Madrid Ave., Torrance, CA 90501 USA

### Overview

This application note describes a complete method to extract and analyze melamine from dog food by GC/MS. Using a liquid extraction, matrix interferences are removed from the dog food sample which was spiked at 100 µg/g. The clean sample was then analyzed by GC/MS using a specially deactivated Zebron ZB-5MS<sub>PLUS</sub> GC column, which provided excellent peak shape and separation of melamine and related compounds.

### Analytes

1. Cyanuric acid
2. Ammelide
3. Ammeline
4. Melamine
5. Benzoguanamine

### Extraction Procedure

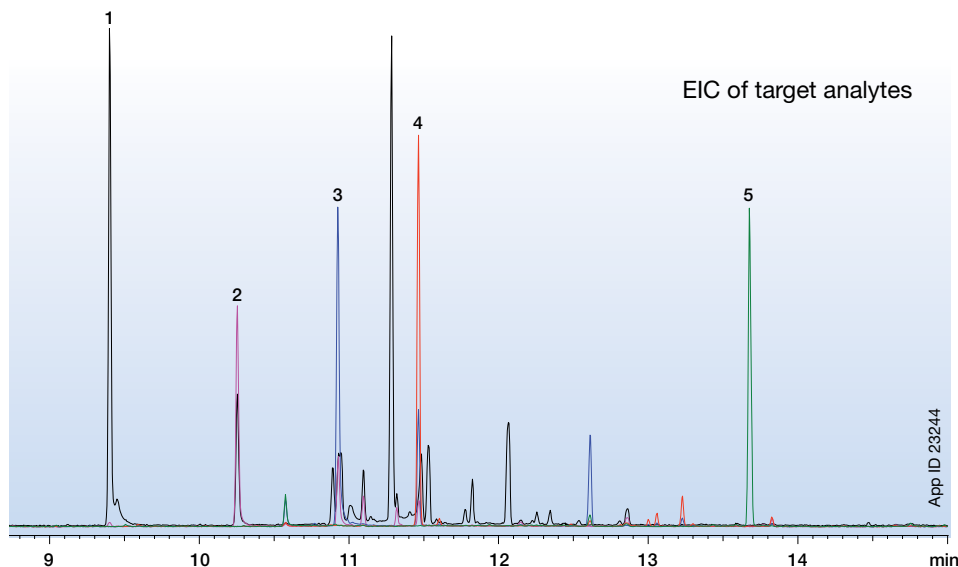
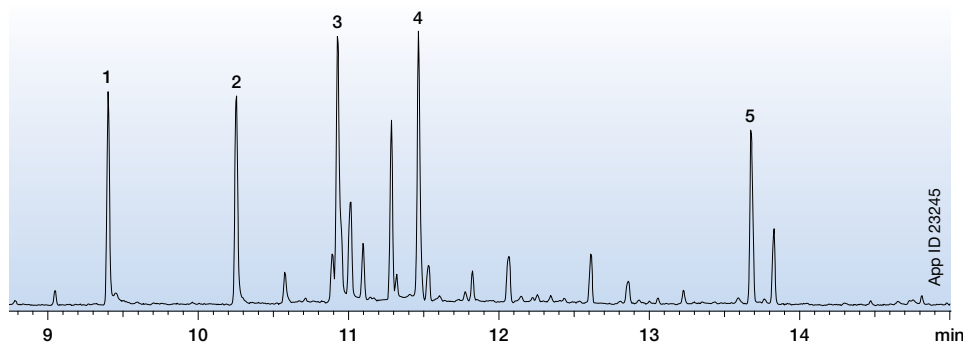
1. Combine 0.5 g of homogenized dog food with 10 mL of DEA/Water/Acetonitrile (1:4:5) in a 15 mL centrifuge tube
2. Sonicate for 30 min
3. Centrifuge at 5000 rpm for 10 min
4. Transfer 100 µL of supernatant to an autosampler vial and evaporate to dryness using nitrogen gas
5. Reconstitute with 100 µL of Acetonitrile/Pyridine (1:1) and then derivatize using 100 µL BSTFA with 1 % TCMS at 70 °C for 45 min

### Conditions

**Column:** Zebron ZB-5MS<sub>PLUS</sub>  
**Dimensions:** 30 meter x 0.25 mm x 0.25 µm  
**Part No.:** 7HG-G030-11  
**Injection:** Splitless @ 280 °C, 1 µL  
**Carrier Gas:** Helium @ 1 mL/min (constant flow)  
**Oven Program:** 75 °C for 1 min to 320 °C @ 15 °C/min hold for 4 min  
**Detection:** MSD @ 320 °C

### Melamine In Dog Food By GC/MS

TIC of spiked dog food (100 µg/g)



# APPLICATION

## Ordering Information

### Zebron™ ZB-5MSPLUS™ GC Columns

Length (mm)	ID (mm)	Film (µm)	Temp Limits (°C)	Part No.	Part No.	Part No.
					with 5 m Guardian™	with 10 m Guardian™
15	0.25	0.25	-60 to 325/350	7EG-G030-11	—	—
20	0.18	0.18	-60 to 325/350	7FD-G030-08	—	—
	0.18	0.36	-60 to 325/350	7FD-G030-53	—	—
30	0.25	0.25	-60 to 325/350	7HG-G030-11	7HG-G030-11-GGA	7HG-G030-11 -GGC
	0.25	0.50	-60 to 325/350	7HG-G030-17	—	7HG-G030-17-GGC
	0.25	1.00	-60 to 325/350	7HG-G030-22	—	—
	0.32	0.25	-60 to 325/350	7HM-G030-11	—	—
	0.32	1.00	-60 to 325/350	7HM-G030-22	—	—
60	0.25	0.25	-60 to 325/350	7KG-G030-11	—	—



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.

#### 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 (0)20 2282-6668  
f: +86 (0)20 2809-8130  
chinainfo@phenomenex.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

#### Luxembourg

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

#### Mexico

t: 001-800-844-5226  
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

#### Terms and Conditions

Subject to Phenomenex Standard Terms and Conditions which may be viewed at [www.phenomenex.com/TermsAndConditions](http://www.phenomenex.com/TermsAndConditions).

#### Trademarks

Zebron, Guardian, and 5MSPLUS are trademarks of Phenomenex.

© 2015 Phenomenex, Inc. All rights reserved.

#### www.phenomenex.com

Phenomenex products are available worldwide. For the distributor in your country, contact Phenomenex USA, International Department at [international@phenomenex.com](mailto:international@phenomenex.com)