

# APPLICATION

## Ethanolamine Analysis by GC/MS using a Zebron™ ZB-5MS<sub>PLUS</sub>™ GC Column

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### Overview

This application note describes the GC/MS analysis of ethanolamines. Testing of ethanolamine mixtures, including mono-, di-, and triethanolamine are typically difficult to analyze due to their low volatility and propensity for tailing. The following method uses a specially deactivated Zebron ZB-5MS<sub>PLUS</sub> GC column with a thick film and high split injection to provide good peak shapes for all compounds of interest in under 6 minutes.

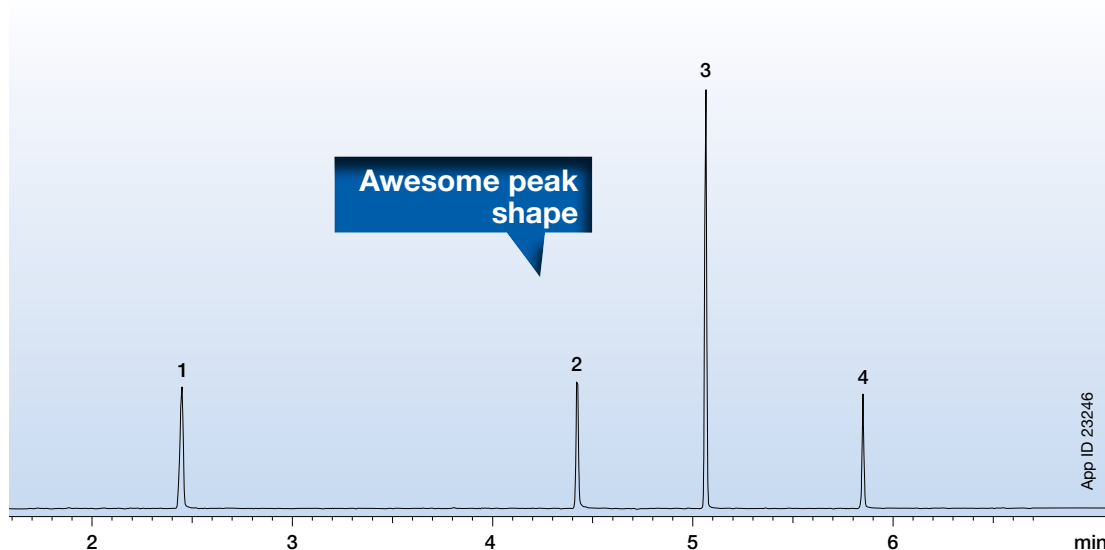
### Conditions

**Column:** Zebron ZB-5MS<sub>PLUS</sub>  
**Dimensions:** 30 meter x 0.25 mm x 1.00 µm  
**Part No.:** 7HG-G030-22  
**Injection:** Split 200:1 @ 250 °C, 1 µL  
**Carrier Gas:** Helium @ 1.4 mL/min (constant flow)  
**Oven Program:** 30 °C to 300 °C @ 40 °C/min  
**Detection:** MSD @ 320 °C

### Analytes

1. Monoethanolamine
2. Diethanolamine
3. Triethylene glycol monomethyl ether (IS)
4. Triethanolamine

### Representative Chromatogram of Ethanolamines



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## 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	—	—



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