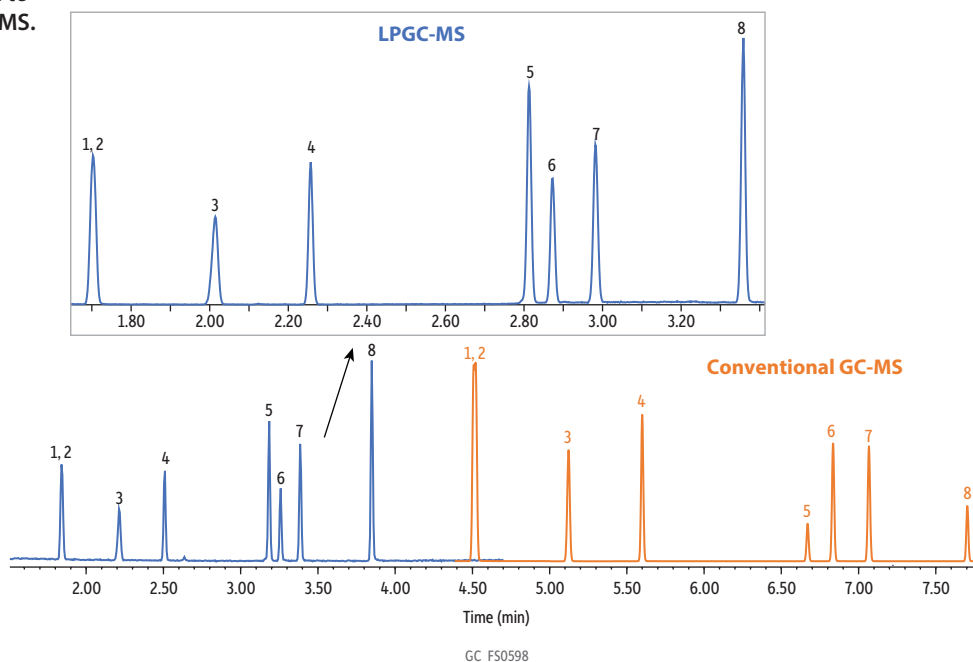


Comparison of Conventional and LPGC-MS (0.32 mm ID) Analysis of Nitrosamines

- LPGC-MS is 2.3x faster and uses 67% less helium compared to conventional GC-MS.



Peaks	tr (30 m)	tr (LPGC)	Conc. (ppm)	Ions
1. <i>N</i> -Nitrosodimethylamine (NDMA)	4.59	1.70	100	42, 74
2. <i>N</i> -Nitrosodimethylamine-d6 (NDMA-d6)	4.60	1.71	100	46, 80
3. <i>N</i> -Nitrosomethylethylamine (NMEA)	5.18	2.02	100	42, 88
4. <i>N</i> -Nitrosodiethylamine (NDEA)	5.65	2.26	100	42, 57, 102
5. <i>N</i> -Nitroso-di- <i>n</i> -propylamine (NDPA)	6.71	2.81	100	70, 113, 130
6. <i>N</i> -Nitrosopyrrolidine (NPYR)	6.87	2.87	100	41, 68, 100
7. <i>N</i> -Nitrosopiperidine (NPIP)	7.10	2.98	100	42, 55, 114
8. <i>N</i> -Nitrosodi- <i>n</i> -butylamine (NDBA)	7.74	3.36	100	84, 116, 158

Column See notes
Standard/Sample Nitrosamine calibration mix, method 521 (cat.# 31898)
N-Nitrosodimethylamine-d6 (cat.# 33910)
Diluent: Dichloromethane
Conc.: 100 µg/mL
Injection
 Inj. Vol.: 1 µL split (split ratio 100:1)
 Liner: Topaz, Precision inlet liner, 4.0 mm x 6.3 x 78.5 (cat.# 23305)
 Inj. Temp.: 250 °C
Carrier Gas He
Detector MS
 Mode: SIM
 Transfer Line Temp.: 280 °C
 Analyzer Type: Quadrupole
 Source Temp.: 230 °C
 Quad Temp.: 150 °C
 Tune Type: PFTBA
 Ionization Mode: EI
Instrument Agilent 7890B GC & 5977A MSD
Sample Preparation 100 µL aliquots of each standard were diluted in 800 µL of dichloromethane for a final volume of 1 mL. The sample was mixed in a 2 mL, short-cap, screw-thread vial (cat.# 21143) and capped with a short-cap, screw-vial closure (cat.# 24495).

Notes **Conventional (30 m) Analysis:**
 Column: Rxi-624Sil MS, 30 m, 0.25 mm ID, 1.4 µm (cat.# 13868)
 Temp. program: 40 °C (hold 0.5 min) to 320 °C at 30 °C/min (hold 7 min)
 Flow: 1.4 mL/min

LPGC-MS Analysis:
 Column: LPGC Rxi-624Sil MS column kit, includes 10 m x 0.32 mm ID x 1.8 µm Rxi-624Sil MS analytical column and 5 m x 0.15 mm ID Rxi restrictor factory connected via SilTite connector (cat.# 11804)
 Temp. program: 40 °C (hold 0.5 min) to 300 °C at 55 °C/min (hold 3 min)
 Flow: 0.9 mL/min

The injections were performed on different instruments under different head pressures, resulting in different analyte responses.

For nitrosamine analysis, we also recommend Resprep SPE cartridges (cat.# 26032) for sample preparation.