Amines, C₁ – C₂
Analysis of trace amines

Application Note

Environmental

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Introduction
Amines are difficult to analyze due to their strong basic nature. Capillary columns must be base-modified to elute amines with acceptable recovery. For highly volatile amines, including ammonia, the siloxane-based phases do not provide enough retention. The Agilent PoraPLOT for Amines porous polymer provides a high retention combined with a high inertness for amines.

Volatile amines elute at low levels as shown in this application. Also ammonia elutes as a sharp peak at nanogram levels. If, besides these amines, alcohols and/or water must be measured, a 5 μm film Agilent CP-Sil 5 CB is recommended, operated at temperatures around 30 °C.
Conditions

Technique: GC-capillary
Column: Agilent PorapLOT for Amines, 0.32 mm x 25 m, fused silica PLOT (df = 10 μm) (Part no. CP7691)
Temperature: 140 °C (2 min) → 250 °C, 10 °C/min
Carrier Gas: H₂, 95 kPa (0.95 bar, 13 psi)
Injector: on-column
Detector: ELD
Sample Size: 0.1 μL

Peak identification
1. ammonia 1.8 ng
2. methylamine 3.4 ng
3. dimethylamine 2.9 ng
4. trimethylamine 2.9 ng
5. ethylamine 3.4 ng