Amines, C_1 – C_2

Analysis of impurities in dimethylamine

Application Note

Materials Testing & Research

Authors

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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 which makes impurity analysis possible as shown in this application. Volatile amines can be analyzed at relatively high temperatures due to the high retention of the PoraPLOT Amines. 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.

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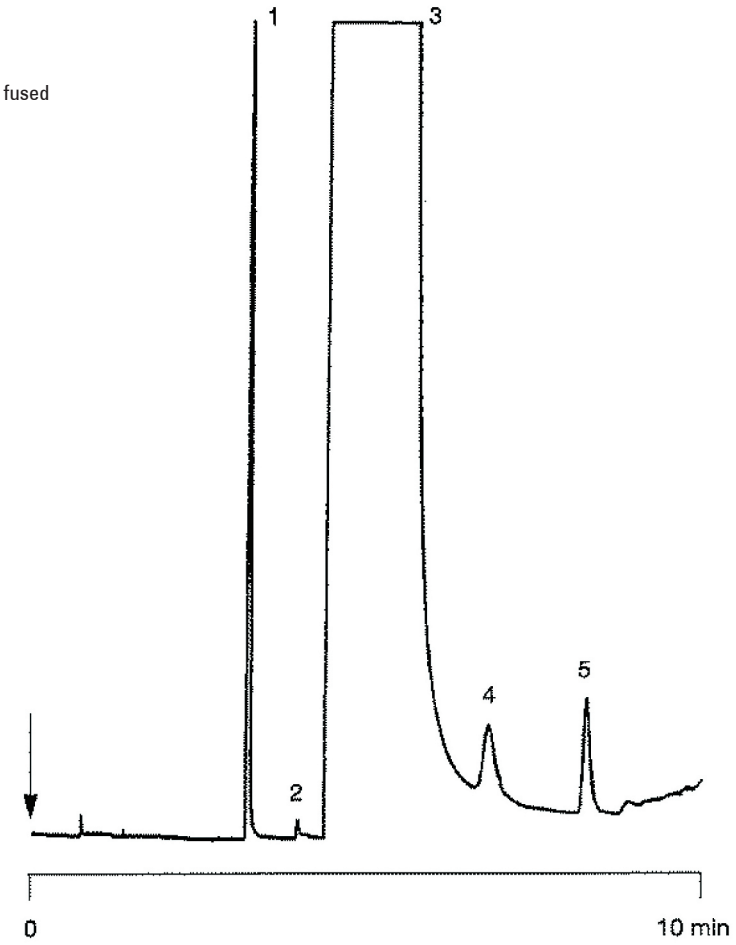
Conditions

Technique	:	GC-capillary
Column	:	Agilent PoraPLOT for Amines, 0.32 mm x 25 m, fused silica PLOT (df = 10 µm) (Part no. CP7591)
Temperature	:	110 °C (8 min) ⟶ 250 °C, 15 °C/min
Carrier Gas	:	H_2, 95 kPa (0.95 bar, 13 psi)
Injector	:	Split, T = 250 °C
Detector	:	FID T = 250 °C
Sample Size	:	0.2 µL
Concentration Range	:	10 - 100 ppm impurities
Solvent Sample	:	dimethylamine balance

Peak identification

1. methylamine
2. unknown
3. dimethylamine
4. trimethylamine
5. ethylamine



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