C$_1$ – C$_4$ hydrocarbons
Analysis of acetylenes mixture

Application Note

Energy & Fuels

Authors
Agilent Technologies, Inc.

Introduction
Often ppm levels of hydrocarbon impurities must be measured and the response for such low levels must be accurate and reproducible over time. The Agilent Select Al$_2$O$_3$ MAPD is extensively deactivated, which results in highest response for traces of polar hydrocarbons including acetylenes and dienes. Selectivity of this Al$_2$O$_3$ PLOT column is very high and it separates all C$_1$ – C$_4$ hydrocarbons. Temperature stability is 200 °C. Also, for long term monitoring of impurities in hydrocarbon streams this column is the best choice.
Conditions

Technique: GC
Column: Agilent Select Al2O3, MAPD, 0.53 mm x 50 m fused silica (Part no. CP7432)
Temperature: 40 °C, 5 min → 160 °C, 10 °C/min → 200 °C, 20 °C/min, hold 1 min
Carrier Gas: He, 4 psig, 4 min → 11 psig, 0.5 psig/min, 2 min
Injector: Split 60 mL/min
Detector: FID
Concentration Range: approx 100 ppm in nitrogen, synthetic standard

Courtesy: J. Luong, Dow Chemical Canada

Peak identification
1. methane
2. ethane
3. ethylene
4. n-butane
5. propadiene
6. 1-butene
7. iso-butene
8. 1,2-butadiene
9. 1,3-butadiene
10. ethyl acetylene