

Application Note

Environmental

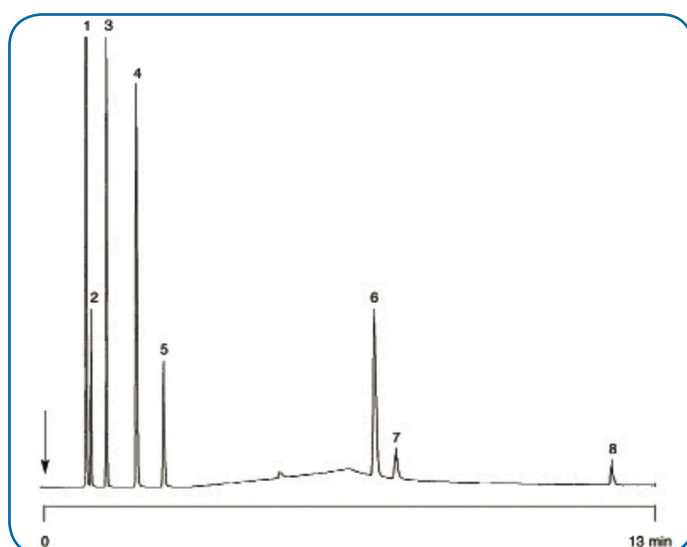
Gases C1 - C4

Analysis of gases and volatiles

Gas chromatography with an SCION-PLOT Q column separates eight gases and volatiles in 13 minutes.



Conditions	
Technique	GC-TCD
Column	SCION-PLOT Q, 0.53 mm x 25 m, df = 20 µm (Part no. SC35102)
Temperature	40 °C (3 min) → 150 °C, 10 °C/min
Carrier Gas	He, 65 kPa (0.65 bar, 8 psi)
Injector	Split, 1 :50, T = 225 °C
Detector	TCD T = 250 °C
Concentration Range	50 µL



Peak Identification

1	carbon monoxide
2	methane
3	carbon dioxide
4	ethylene
5	ethane
6	propylene
7	propane
8	butane

Application Note

Materials Testing & Research

Hydrocarbons analysis of reference standard for impurities in 1,3-butadiene for ASTM method

For hydrocarbon impurity analysis in C2-C4 streams the use of SCION-Al₂O₃ is preferred. All hydrocarbons are resolved. The starting temperature is 60 °C which is high and easy to control, due to the high retention of the alumina. Alumina capillary columns are very stable. The retention is influenced by any moisture in the sample or the carrier gas. Wet samples can be analyzed by using a temperature program up to 200 °C and removing the water after each run. It is also possible to use a precolumn and switch the (retained) water peak to vent. Water will never harm a Al₂O₃/KCl or Al₂O₃/Na₂SO₄ coated capillary.

Peak Identification

1	acetylene	14	cis-2-butene
2	cyclopropane	15	isoprene
3	propane	16	pentene-1
4	propylene	17	cis-1,3-pentadiene
5	propadiene	18	trans-1,3-pentadiene
6	methylacetylene	19	cis-2-pentene
7	1-butyne	20	trans-2-pentene
8	1,2-butadiene	21	3-methyl-1-butene
9	isobutane	22	isopentane
10	butane	23	pentane
11	butene-1	24	benzene
12	isobutylene	25	toluene
13	trans-2-butene	26	1,3-butadiene

Conditions	
Technique	GC-FID
Column	SCION-Al ₂ O ₃ /KCl, 0.32 mm x 50 m, df = 5 μm (Part no. SC35201)
Temperature	40 °C (6 min) → 160 °C, 5 °C/min;
Carrier Gas	Helium, 75 kPa
Injector	Split 1:1000, via LSV
Detector	FID T = 250 °C
Sample Size	1 μL, liquid
Concentration Range	20 - 2000 ppm in 1,3 butadiene

