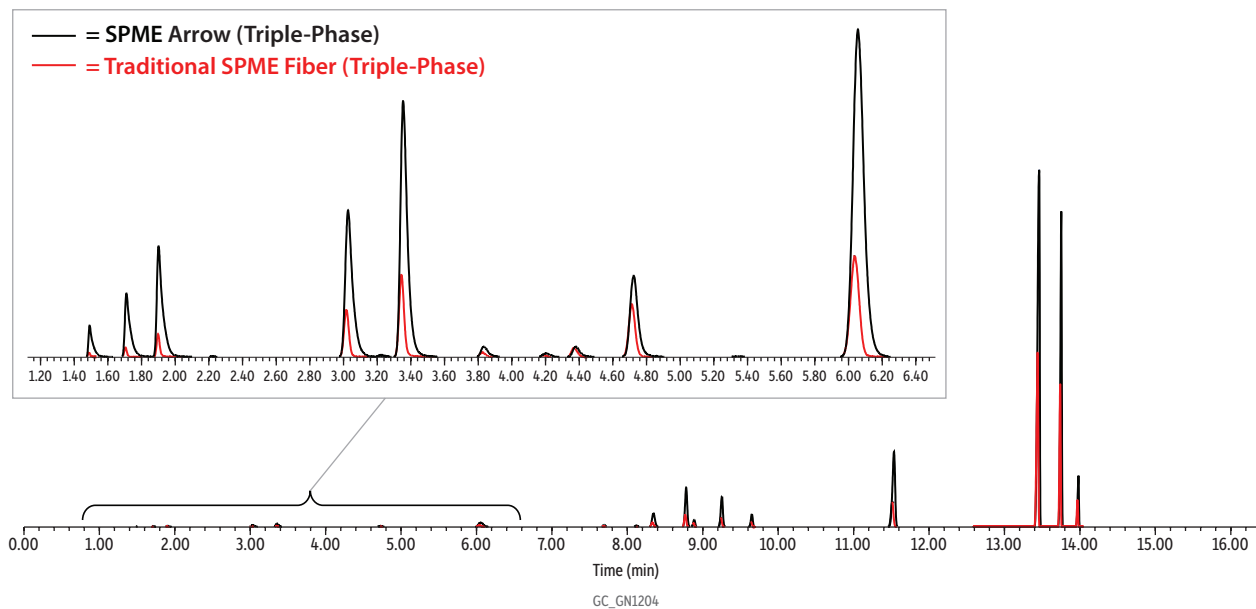


Triple-Phase SPME Arrow vs. Triple-Phase SPME Fiber

- Triple-phase SPME Arrows provide increased sensitivity on a more durable platform.
- Increased phase area and volume compared to traditional SPME fibers.



- Peaks**
1. *n*-Propane
 2. Isobutane
 3. *n*-Butane
 4. Methanol
 5. *n*-Pentane
 6. Ethanol
 7. Diethyl ether
 8. Acetone
 9. 2-Propanol
 10. Acetonitrile
 11. Methylene chloride
 12. *n*-Hexane
 13. Ethyl acetate
 14. Chloroform
 15. Cyclohexane
 16. Benzene
 17. 1,2-Dichloroethane
 18. *n*-Heptane
 19. Trichloroethene
 20. Toluene
 21. *m*-Xylene
 22. *p*-Xylene
 23. *o*-Xylene
 24. N,N-Dimethylacetamide (solvent)

Column Rxi-624Sil MS, 30 m, 0.25 mm ID, 1.40 μ m (cat.# 13868)
Standard/Sample Residual solvents #1 (cat.# 34105)
n-Propane, isobutane, *n*-butane (Emerald Scientific)
Diluent: N,N-Dimethylacetamide
Conc.: 10 μ g/mL
Injection Direct
Liner: Topaz 1.8 mm ID straight/SPME inlet liner (cat.# 23280)
Inj. Temp.: 280 $^{\circ}$ C
Oven
Oven Temp.: 30 $^{\circ}$ C (hold 6 min) to 85 $^{\circ}$ C at 15 $^{\circ}$ C/min (hold 2 min) to 250 $^{\circ}$ C at 35 $^{\circ}$ C/min
Carrier Gas He, constant flow
Flow Rate: 2 mL/min
Detector FID @ 320 $^{\circ}$ C
Make-up Gas Flow Rate: 40 mL/min
Make-up Gas Type: N₂
Hydrogen flow: 45 mL/min
Air flow: 450 mL/min
Data Rate: 20 Hz
Instrument Agilent 7890B GC
Sample Preparation A 6 mL sample for residual solvents analysis based on USP <467> was prepared for headspace solid phase microextraction (HS-SPME) as follows:
 1. 3 g sodium chloride was weighed into a 20 mL amber headspace vial (cat. # 23086) with screw top cap (cat. # 23090).
 2. 6 mL of deionized water was added to the vial.
 3. The sample was fortified at 10 μ g/mL with the residual solvents, *n*-propane, isobutane, and *n*-butane standards.
 4. The vial was capped and vortexed at 3000 rpm for 10 seconds, inverted, then vortexed again for 10 seconds at 3000 rpm.

Notes

CTC RTC Parameters
HS-SPME Arrow
Tool: SPME Arrow and SPME fiber
SPME Arrow: Restek PAL SPME Arrow, DVB/C-WR/PDMS, 1.1 mm, 120 μ m (cat.# 27875)
SPME Fiber: Restek SPME fiber, DVB/C-WR/PDMS (cat.# 27873-1)
Agitator Speed: 250 rpm
Agitator Temp: 30 $^{\circ}$ C
Incubation Time: 120 sec
Heatex Stirrer Speed: 1000 rpm
Heatex Stirrer Temp.: 30 $^{\circ}$ C
Vial Penetration Depth: 35 mm
Extraction Time: 120 sec
Injector Penetration Depth: 50 mm
Desorption Time: 10 sec
Pre-Conditioning: True
Post-Conditioning: False
Conditioning Time: 60 sec
Conditioning Temp.: 250 $^{\circ}$ C