Alcohols, C_{14} – C_{46} TMS derivatives

High resolution analysis of heavier alcohols as TMS derivatives in marine sediments

Application Note

Environmental

Authors

Agilent Technologies, Inc.

Introduction

High resolution analysis of 32 heavier alcohols as TMS derivatives in marine sediments is achieved using an Agilent VF-5ms column.

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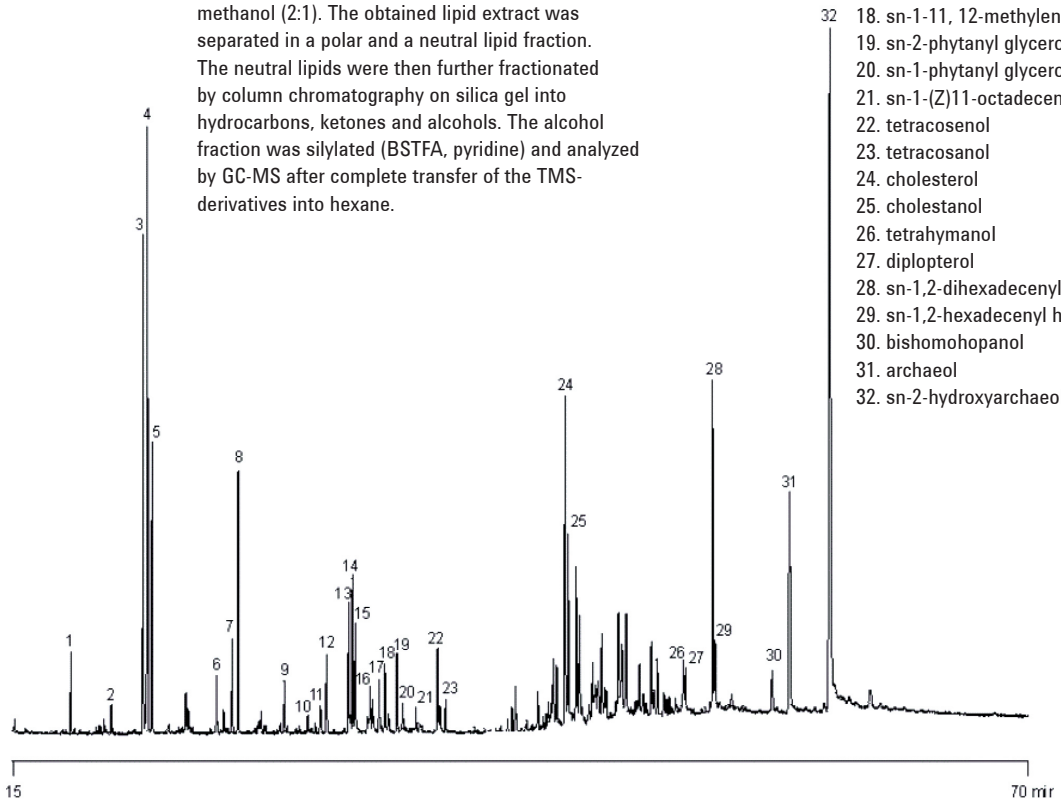
Conditions

Technique	:	GC
Column	:	Agilent VF-5ms, 0.25 mm x 30 m fused silica (df = 0.25 µm) (Part no. CP8944)
Temperature	:	60 °C (1 min hold) ⟶ 150 °C (10 °C/min) to 320 °C (4 °C/min), hold at 320 °C for 30 min
Carrier Gas	:	Helium, 48 kPa , constant flow
Injector	:	PTV splitless mode, 1 minute T = 310 °C
Detector	:	FID
Sample Size	:	1.0 µL
Concentration Range	:	ca. 5 - 50 ng per µL
Solvent	:	hexane
Sample Pretreatment		The marine sediment sample was extracted ultrasonically three times with dichloromethane/ methanol (2:1). The obtained lipid extract was separated in a polar and a neutral lipid fraction. The neutral lipids were then further fractionated by column chromatography on silica gel into hydrocarbons, ketones and alcohols. The alcohol fraction was silylated (BSTFA, pyridine) and analyzed by GC-MS after complete transfer of the TMS-derivatives into hexane.



Peak identification

1. tetradecanol
2. pentadecanol
3. (Z)9-hexadecenol
4. (Z)11-hexadecenol
5. hexadecanol
6. phytanol
7. octadecanol
8. phytol
9. sn-1-tetradecyl glycerol monoether
10. eicosanol
11. sn-1-pentadecycl glycerol monoether
12. tetracosane (internal standard)
13. sn-1-(Z)9-hexadecenyl glycerol monoether
14. sn-1-(Z)11-hexadecenyl glycerol monoether
15. sn-1-hexadecyl glycerol monoether
16. docosenol
17. docosanol
18. sn-1-11, 12-methylene-hexadecyl glycerol monoether
19. sn-2-phytanyl glycerol monoether
20. sn-1-phytanyl glycerol monoether
21. sn-1-(Z)11-octadecenyl glycerol monoether
22. tetracosenol
23. tetracosanol
24. cholesterol
25. cholestanol
26. tetrahymanol
27. diplopterol
28. sn-1,2-dihexadecenyl glycerol diether
29. sn-1,2-hexadecenyl hexadecyl glycerol diether
30. bishomohopanol
31. archaeol
32. sn-2-hydroxyarchaeol

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