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.
**Conditions**

<table>
<thead>
<tr>
<th>Technique</th>
<th>GC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column</td>
<td>Agilent VF-5ms, 0.25 mm x 30 m fused silica (df = 0.25 μm) (Part no. CP8944)</td>
</tr>
<tr>
<td>Temperature</td>
<td>60 °C (1 min hold) → 150 °C (10 °C/min) to 320 °C (4 °C/min), hold at 320 °C for 30 min</td>
</tr>
<tr>
<td>Carrier Gas</td>
<td>Helium, 48 kPa, constant flow</td>
</tr>
<tr>
<td>Injector</td>
<td>PTV splitless mode, 1 minute T = 310 °C</td>
</tr>
<tr>
<td>Detector</td>
<td>FID</td>
</tr>
<tr>
<td>Sample Size</td>
<td>1.0 μL</td>
</tr>
<tr>
<td>Concentration Range</td>
<td>ca. 5 - 50 ng per μL</td>
</tr>
<tr>
<td>Solvent</td>
<td>hexane</td>
</tr>
<tr>
<td>Sample Pretreatment</td>
<td>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.</td>
</tr>
</tbody>
</table>

**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-pentadecyl 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. docosanol
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. tetracosanol
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