EPA and EU Phthalates on Rtx-50

Peaks
1. Dimethyl phthalate
2. Diethyl phthalate
3. Benzyl benzoate
4. Diisobutyl phthalate
5. Di-n-butyl phthalate
6. Bis(2-methoxyethyl) phthalate
7. Bis(4-methyl-2-pentyl) phthalate isomer 1
8. Bis(4-methyl-2-pentyl) phthalate isomer 2
9. Bis(2-ethoxyethyl) phthalate
10. Di-n-pentyl phthalate
11. Di-n-hexyl phthalate
12. Butyl benzyl phthalate
13. Hexyl-2-ethylhexyl phthalate
14. Bis(2-butylhexyl) phthalate
15. Bis(2-ethylhexyl) phthalate
16. Dicyclohexyl phthalate
17. Di-n-octyl phthalate
18. Diisononyl phthalate
19. Dinonyl phthalate
20. Diisodecyl phthalate

Column
Rtx-50, 30 m, 0.25 mm ID, 0.25 µm (cat.# 10523)

Standard/Sample
Benzyl benzoate (cat.# 31847)
EPA Method 8061A phthalate esters mixture (cat.# 33227)
Diisononyl phthalate
Diisodecyl phthalate
Hexyl-2-ethylhexyl phthalate

Diluent:
Methylene chloride

Conc.:
50.0 µg/mL (80 µg/mL for internal standard benzyl benzoate)

Injection
1 µL split (split ratio 20:1)

Liner:
Premium 3.5 mm Precision liner w/wool (cat.# 23320.1)

Injection Temp.: 280 °C

Split Vent Flow Rate: 3 mL/min

Oven
200 °C (hold 0.5 min) to 320 °C at 30 °C/min (hold 1 min)

Carrier Gas
He, constant linear velocity

Linear Velocity: 66.7 cm/sec, 39.5 psi, 72.3 kPa @ 200 °C

Detector
MS

Mode:
Scan

Scan Program:

<table>
<thead>
<tr>
<th>Group</th>
<th>Start Time (min)</th>
<th>Scan Range (amu)</th>
<th>Scan Rate (scans/sec)</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>0.9</td>
<td>59-400</td>
<td>-</td>
</tr>
</tbody>
</table>

Transfer Line Temp.: 300 °C

Analyzer Type: Quadrupole

Source Temp.: 280 °C

Electron Energy: 70 eV

Solvent Delay Time: 0.9 min

Tune Type: PFTBA

Ionization Mode: EI

Instrument
Shimadzu 2010 GC & QP2010+ MS

Notes
The flow rate of 66.7 cm/sec is equivalent to 3 mL/min @ 200 °C. The MS scan interval is 0.1 sec.

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The authors would like to thank Shimadzu Corporation for their consultation with the operation of the QP2010 Plus GC-MS instrument.