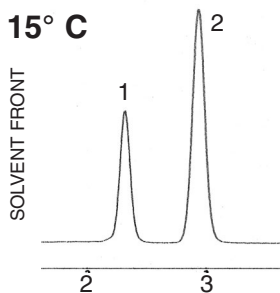


Molecular Shape and Polarity Recognition by HPLC
 One Column Can Achieve Orthogonal, Purity Confirmation

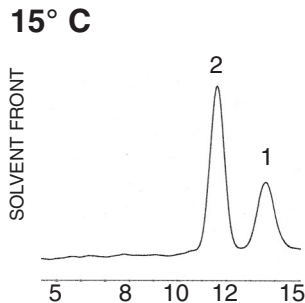
Acetonitrile

Methanol

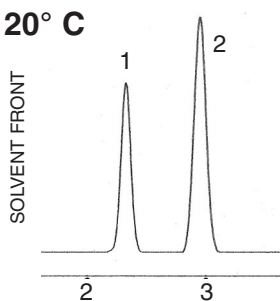
Chromatogram A:



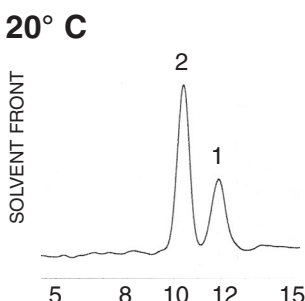
Chromatogram D:



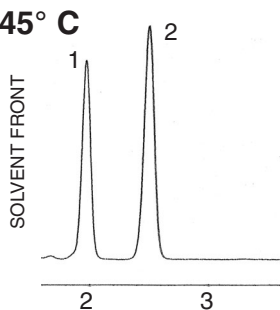
Chromatogram B:



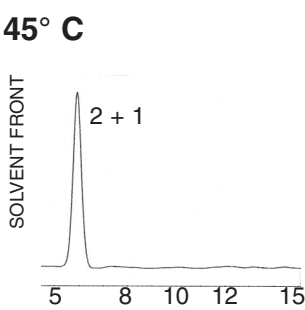
Chromatogram E:



Chromatogram C:



Chromatogram F:



Steroid Compound Type
 Peak 1: Ethinyl Estradiol
 Peak 2: Norgestrel

Method Conditions

Mobile Phase **Chromatograms A, B & C**
 50% Aqueous (0.1% TFA)
 50% Acetonitrile (ACN)
Chromatograms D, E & F
 45% Aqueous (0.1% TFA)
 55% Methanol

Column Cogent UDC-CholesterolTM
Cat. No. 69069-75R
Dimensions 75 x 4.6mm id
Flow Rate 1.0 ml/min
Detection: UV, 240nm

Discussion of Chromatograms

Chromatograms A, B & C

Using a Cogent UDC-CholesterolTM column at 3 different temperatures and with Acetonitrile as an organic modifier, produced similar results (shown) as achieved on 17 different, available C18 columns. Little effect on selectivity and retention time occurred.

Chromatograms D, E & F

When using Methanol as the modifier, the relative retention times differ so much that the elution order is reversed to: Peak 2 eluting first, then Peak 1. A temperature change between 15°C and 45°C has a profound effect on both selectivity and retention times.

Implications

The Cogent UDC-CholesterolTM column, when used with methanol, has a fundamental selectivity mechanism based on shape recognition. The same column when used with Acetonitrile has the fundamental selectivity mechanism based on polarity recognition (ARP).

Advantages

Using different selectivity mechanisms with the same column can achieve both shape and polarity recognition of some analytes.

Uses

One column can be used to confirm compound purity and identify degradation products.