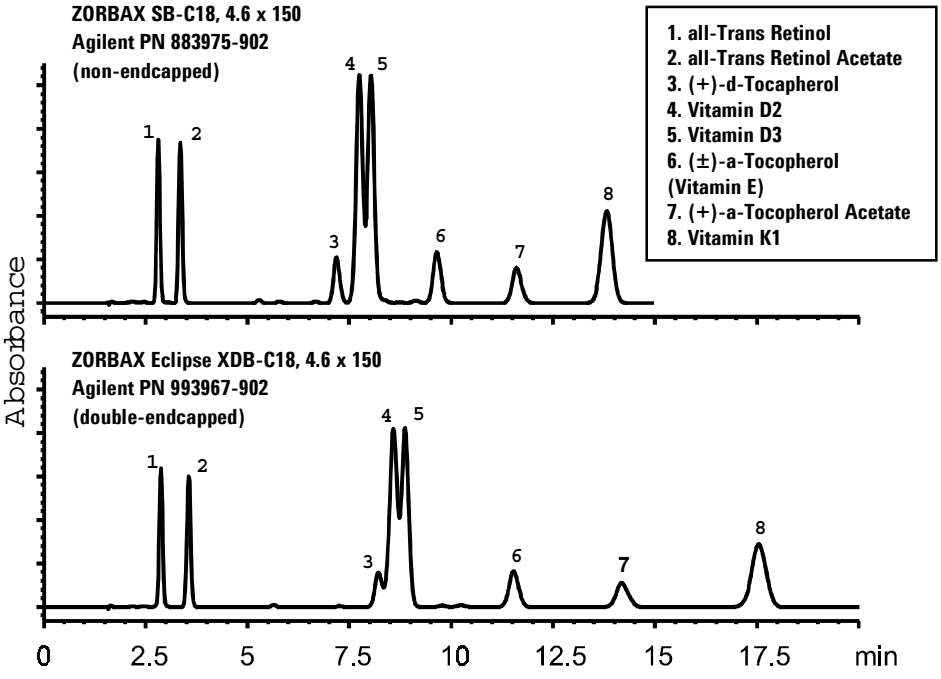
Comparison of Nonendcapped, Sterically Protected Silanes to Fully Endcapped, Dimethylsilane

Application

Food Analysis

Robert Ricker

The separation of fat-soluble vitamins is of widespread importance clinically, in general research, and in the analysis of food products. Separation of vitamins D2 and D3 is a particularly difficult one. The change in retention and resolution of these D vitamins and others is shown for both a non-endcapped Agilent ZORBAX SB-C18 column and its doubly endcapped counterpart, both based upon type A silica. Endcapping of bonded phases is performed in an effort to minimize secondary interaction of polar sample components with the column packing and allow higher pH operation.



1. all-Trans Retinol
2. all-Trans Retinol Acetate
3. (+)-d-Tocapherol
4. Vitamin D2
5. Vitamin D3
6. (±)-a-Tocopherol (Vitamin E)
7. (+)-a-Tocopherol Acetate
8. Vitamin K1

Conditions:
LC: HP1050
Mobile Phase: 75% CH_3CN : 25% MeOH
Flow: 1.0 mL / min.
Inj. Vol.: 5 µL (10 µg / µL)
Temp.: 40°C
Det.: UV 325 nm for 4 min., 280 nm after

Highlights

- *The non-endcapped ZORBAX SB-C18 column outperforms the eXtra Densley Bonded Eclipse XDB-C18 in obtaining resolution of vitamins D2 and D3.*
- *Endcapped and non-endcapped versions of the type-A silica ZORBAX C18 columns are both able to separate a wide variety of fat-soluble vitamins; although, with differing selectivities (see peak pairs 3-4 and 5-6).*

Agilent Technologies

Robert Ricker is an application chemist based at Agilent Technologies, Wilmington, Delaware.

For more information on our products and services, visit our website at:
www.agilent.com/chem

Agilent shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Information, descriptions, and specifications in this publication are subject to change without notice.

Printed in the USA
April 25, 2002
5988-6354EN

Agilent Technologies