

Application Data Sheet

No.22

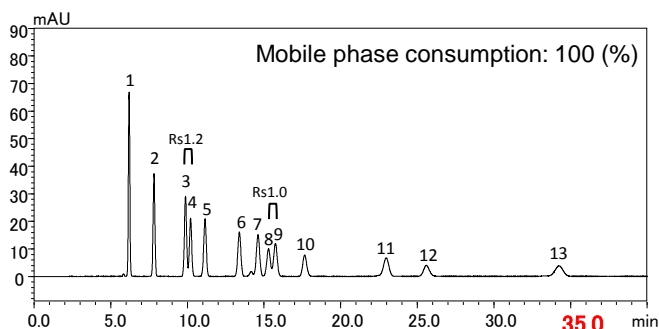
LC
Liquid Chromatograph

High-speed Analysis of Aldehyde/Ketone DNP Derivatives Utilizing Ultra High Separation Columns

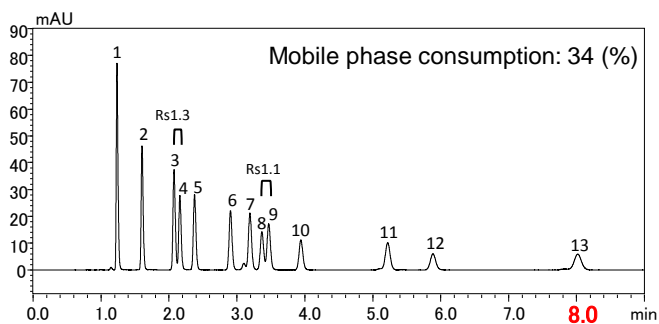
The 60 MPa pressure-resistant Shim-pack XR-ODS II series includes columns with a length of 15 cm, while the 100 MPa pressure-resistant Shim-pack XR-ODS III series includes columns with lengths of 15 cm and 20 cm. These columns use packing material with a 2.2 μm particle diameter. Combining them with the high-pressure-resistant Nexera system reduces both analysis time and mobile phase consumption, even in high-separation analyses.

Sample Separation of Aldehyde/Ketone DNP Derivatives

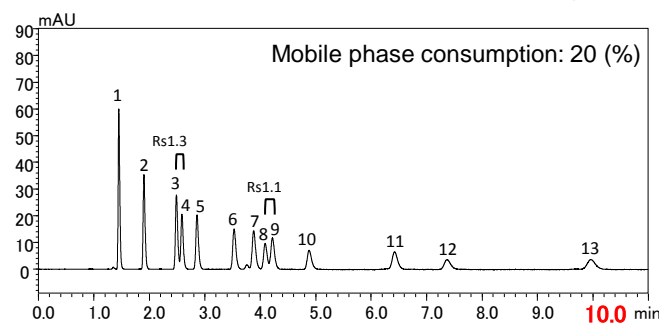
13 aldehyde/ketone DNP derivative components were subjected to isocratic elution. In comparison with a column with a 5 μm packing material particle diameter and a length of 25 cm, the 15 cm long Shim-pack XR-ODS II and the 20 cm long Shim-pack XR-ODS III completed the elution with analysis times of 23 % and 29 % respectively, and mobile phase consumptions of 34 % and 20 % respectively, while slightly improving the separation.



Column : Shim-pack VP-ODS
(250 mmL. x 4.6 mmI.D., 4.6 μm)
Mobile Phase : A) Water
B) Acetonitrile
B.CONC 57%
Flow Rate : 1.0 mL/min
Column Temp. : 55 °C
Injection Volume : 10 μL
Detection : UV 360 nm
Flow Cell : Semi-micro cell
Pressure : Approx. 7 MPa



Column : Shim-pack XR-ODS II
(150 mmL. x 3.0 mmI.D., 2.2 μm)
Mobile Phase : A) Water
B) Acetonitrile
B.CONC 57%
Flow Rate : 1.3 mL/min
Column Temp. : 55 °C
Injection Volume : 4 μL
Detection : UV 360 nm
Flow Cell : Semi-micro cell
Pressure : Approx. 48 MPa



Column : Shim-pack XR-ODS III
(200 mmL. x 2.0 mmI.D., 2.2 μm)
Mobile Phase : A) Water
B) Acetonitrile
B.CONC 57%
Flow Rate : 0.7 mL/min
Column Temp. : 55 °C
Injection Volume : 2 μL
Detection : UV 360 nm
Flow Cell : Semi-micro cell
Pressure : Approx. 89 MPa

■ Peaks

1. Formaldehyde, 2. Acetaldehyde, 3. Acrolein, 4. Acetone, 5. Propionaldehyde, 6. Crotonaldehyde, 7. Methacrolein, 8. 2-Butanone, 9. n-Butyraldehyde, 10. Benzaldehyde, 11. Valeraldehyde, 12. m-Tolualdehyde, 13. Hexaldehyde

First Edition: June, 2012