Fast Gradient Analysis and Fast Re-Equilibration Using LC/MS Columns

Application

Technical

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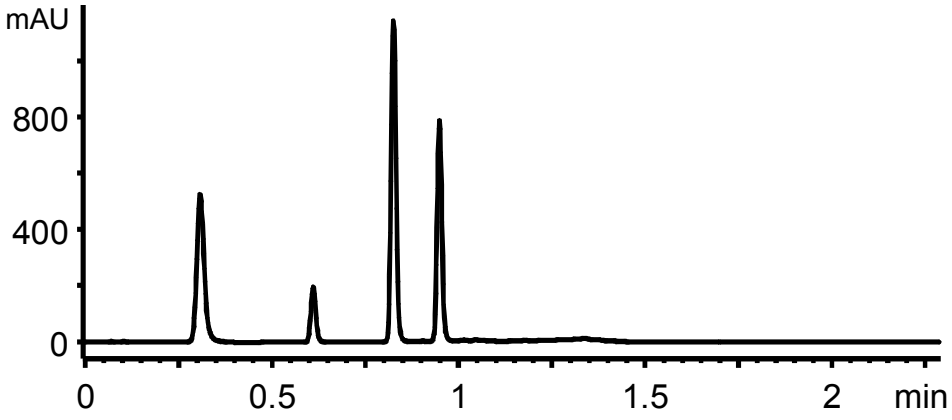
Using shorter columns with smaller particles (3.5 vs. 5 µm) is a popular way to reduce analysis time since it does not change relative retention (k') and selectivity (a) of peaks. Gradients are another popular way to speed up analyses. Gradient methods work with low-volume columns, offering good chromatography and fast equilibration time. Below, four compounds are resolved in less than one minute, using a 0 to 100% gradient. Because the column volume is small and the flow rate is high, re-equilibration takes only 45 seconds:

(0.3 ml column volume) x (10 column-volumes flush of starting eluent) / (4 ml/min.) = .75 min or 45 seconds.

Thanks to state-of-the-art LC/MS cartridge columns, this separation can be repeated in less than two minutes.

Highlights

- *Fast gradient methods utilizing ZORBAX 3.5 µm Rapid-Resolution LC/MS columns are ideal for clinical screening, combinatorial chemistry, LC/MS, and LC/MS/MS.*
- *Low-volume cartridge columns are as rugged and reproducible as traditional size columns.*
- *Narrow peak widths of only 0.02 to 0.05 min. are common when using ZORBAX 3.5 µm Rapid-Resolution LC/MS columns in gradient mode.*



Conditions: LC: Agilent 1100
Column: Eclipse XDB-C18, 4.6 x 30mm (3.5µm), Agilent P/N: 933975-902
Gradient: 0 - 100% B / 1 min.
A= 50 mL H_2O + 450 mL MeOH + 2 mL H_3PO_4
B= 450 mL H_2O + 50 mL MeOH + 2 mL H_3PO_4
Sample: ~3 mg/mL each compound x 5 µL = 15 µg
UV: 268 nm; Flow: 4.0 mL / min.; 23°C

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Printed in the USA
April 25, 2002
5988-6449EN

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