Dow Chemical Company
Rheinmünster, Germany and Terneuzen, the Netherlands

Success Story

Agilent 1200 Series Method Development Solution: Overnight answers to difficult separation problems

New LC stationary phases can significantly improve chromatographic resolution by increasing selectivity, but researchers often keep their current columns rather than spending days to comprehensively screen multiple columns and solvents. To reduce the cost of such experimentation, scientists at The Dow Chemical Company are taking advantage of the Agilent 1200 Series LC Method Development Solution to perform this screening in a completely automated fashion.

Rapid method scouting with greatly reduced effort

Dow scientists used the 1200 Series LC Method Development Solution to perform method scouting for challenging separations of chemical and agricultural samples. They tried many column stationary phases, solvent gradients, and separation conditions, all using 50 mm Agilent ZORBAX Rapid Resolution High Throughput (RRHT) columns with 1.8 µm particles. The Agilent 1200 Series Rapid Resolution LC that is incorporated into the system was operated at up to 600 bar to facilitate faster runs at higher flow rates.

“In all cases column/solvent screening provided significant improvement and enables optimization of separation conditions in minimal time.”

Figure 1
The 1200 Series LC Method Development Solution is a configurable system that allows you to automate testing of up to eight columns and 15 different solvents.

Figure 2
Thermostatted column compartments allow you to test columns of various dimensions, at various temperatures.
Better separations via cost-saving experiments

In many cases, Dow scientists found that column and solvent scouting produced significantly better separations, while requiring only a single overnight sequence with short columns with sub-2-µm particles. Because the Agilent 1200 Series LC Method Development Solution saves them so much time and manual labor, they can now economically perform these screens whenever they need to quickly develop a new method. Their full story with additional examples and chromatograms was presented at the HPLC 2009 Conference in Dresden, Germany. For more details, download the complete poster from the Agilent web site.

“Automatic column and solvent switching was demonstrated to enable fast screening of many solvents and columns, leading to results much faster compared to manual techniques for method development.”

Figure 3
When a herbicide formulation changed, Dow scientists screened six columns and two solvents overnight, quickly establishing the best LC conditions.