



Reduced analysis time and solvent consumption at Shadeline with PerkinElmer LC Column Technology

Shadeline is a French company, specialising in the research and development of dermocosmetic and para-pharmaceutical products. Due to the significant amount of analysis, the laboratory has to deal with a high number of samples each day. In addition, strictly demanding regulations have to be met, in order to provide the customer with safe and compliant

products. Therefore, a solution that could enhance Shadeline's analysis speed, yet maintain the desired level of quality of results, while meeting regulations requirements, was needed.

Higher Productivity at Shadeline

For the LC analysis of parabens, Shadeline decided to test PerkinElmer® Brownlee Superficially Porous Particle (SPP) columns, in order to find a solution for their highly demanding analysis. In particular, during their analysis the Brownlee SPP 2.7 µm C18 3.0 x 100 mm column was employed.

Running the analysis with a standard C18 Brownlee 150 x 4.6 mm and 5 µm column, to separate the mix of parabens, the overall analysis time reached 16 minutes in gradient mode CAN/H2O with a flow of 1 mL/min, as shown in Figure 1.

“Before it was impossible for me to obtain such a clear resolution between the two peaks with a conventional column.”

Cedric Reyes, Analytical Development Technician

When employing Brownlee SPP columns, which use 2.7 μm particles comprised of a thin outer shell of high-quality porous silica fused to a solid inner core, the time needed for the transfer of the gradient between the two columns was less than ten minutes. The optimum flow is now 0.7 mL/min (see Figure 2).

After the above-mentioned analysis, another elution gradient was developed in order to correctly separate the Butyl-Paraben from the Isobutyl-Paraben (Figure 3). The development of the gradient took less than ten minutes and the results were extremely convincing. Beforehand obtaining clear resolution between these two peaks had been impossible when using a standard column.

Improved Separation Quality

The unique features of the Brownlee column resulted in an array of exclusive benefits for Shadeline. Compared to traditional columns, the Brownlee SPP provided a much higher separation quality, and allowed the separation of a critical pair. The obtained resolution had never been achieved on a classical C18 with porous silica.

Due to the faster measuring speed per sample, the overall analysis time decreased to almost half of the time required beforehand. Brownlee SPP columns, also allowed Shadeline to be more cost effective as the solvent consumption was significantly reduced.

With PerkinElmer Brownlee SPP columns Shadeline could find a valuable solution for their highly demanding analysis, at the same time, being able to generate “UHPLC-like” separations on a standard HPLC system with maximized performances.

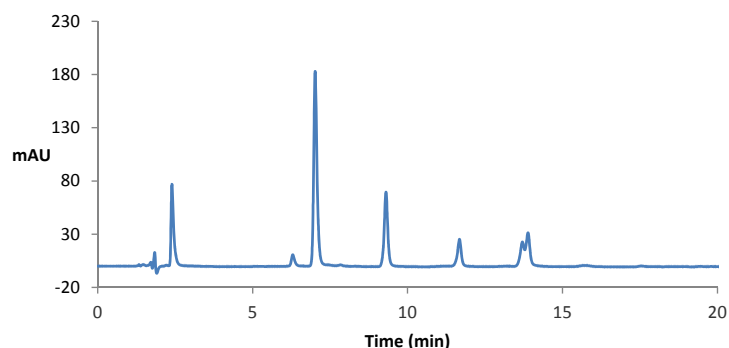


Figure 1. Chromatogram 1, on standard C18 Brownlee 150 x 4.6 mm, 5 μm column.

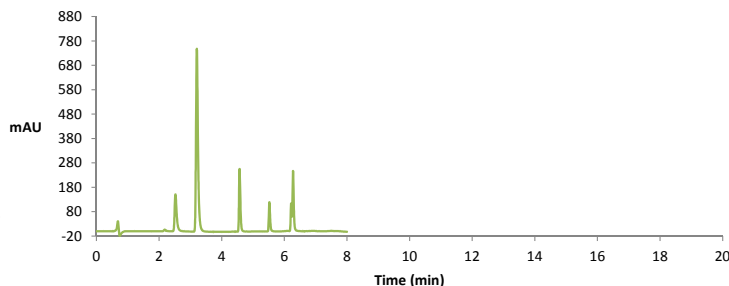


Figure 2. Chromatogram 2, PerkinElmer Superficially Porous Particle (SPP) Brownlee Columns.

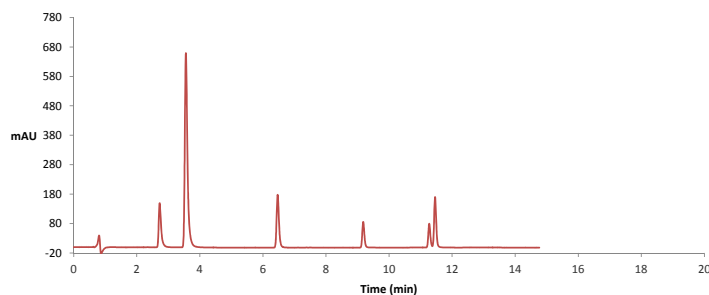


Figure 3. Chromatogram 3, gradient Elution for the separation of the Butyl-Paraben from the Isobutyl-Paraben

Company: Shadeline

Business: The research and development of dermocosmetic and para-pharmaceutical products is the core business of the French company. The manufacturing site produces and packages dermocosmetics in line with GMP Standards, ensuring a full traceability of results according to quality assurance policies. Besides the manufacturing of dermocosmetics and OTC drugs lines, Shadeline is focused on the research for original and effective active principles, the development of innovative galenic forms, and the execution of tolerance and toxicity tests.

PerkinElmer, Inc.
940 Winter Street
Waltham, MA 02451 USA
P: (800) 762-4000 or
(+1) 203-925-4602
www.perkinelmer.com



For a complete listing of our global offices, visit www.perkinelmer.com/ContactUs

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