

# **Evaluation of Very High Pressure Liquid Chromatography Instrumentation for Pharmaceutical Analysis**

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The demand for shorter analysis times and increased quality of separation has led to the use of sub 2  $\mu\text{m}$  particles in liquid chromatography. For pharmaceutical analysis, the use of sub 2  $\mu\text{m}$  particles should ultimately yield faster method development and higher sample throughput, in addition to reductions in cost of analysis through standardization of analytical methodologies. The major hindrance of implementing small particles for routine analysis is increased system backpressure as well as mechanical constraints placed on the column and instrumentation.

We have investigated several commercially available very high pressure liquid chromatography (VHPLC) instruments for use in pharmaceutical analysis. For these experiments, we utilized commercially available sub 2 $\mu\text{m}$  columns in order to evaluate instrument precision, ruggedness, detector linearity, as well as other salient features specific to individual instruments. Limitations of the instrumentation as well as considerations for implementing VHPLC for routine pharmaceutical analysis will also be presented.