On Line Analysis of Flowing Streams Using Microflow HPLC

Christopher J. Welch*, Xiaoyi Gong*, James Cuff, Sarah Dolman, Jason Nyrop, Fiona Lin, and Halena Rogers

Separation & Purification Center of Excellence, Department of Process Research, Merck & Co., Inc., Rahway, NJ, USA.

The application of a recently developed on line HPLC reaction sampling instrument for monitoring flow chemistry reactions is described. The system was found to work well for on line analysis of flowing streams at or near atmospheric pressure, allowing for convenient time-based withdrawal, dilution, and HPLC analysis of the output of flow reactors. A general study of the capability of the instrument to sample from flowing streams is presented, along with a detailed study in which the instrument is used to study a thermal isomerization reaction carried out using a hot zone flow reactor.