Applications, benefits and challenges of flow chemistry

Organic synthesis (incorporating both chemo-catalysis and biocatalysis) is essential for the production of a wide range of small-molecule pharmaceuticals. However, traditional production processes are mainly based on batch and semi-batch operating modes, which have disadvantages from an economic, environmental and manufacturing perspective. A potential solution to resolve these issues is to use flow chemistry in such processes, preferably with applications of micro-and mini-sized equipment. In addition, Process Analytical Technology (PAT) may be implemented in a very efficient way in such equipment due to the high degree of automation and process controllability that can be achieved in small scale continuous equipment.

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