Sustainable Chemical Process Development through an Integrated Framework

This paper describes the development and the application of a general integrated framework based on systematic model-based methods and computer-aided tools with the objective to achieve more sustainable process designs and to improve the process understanding. The developed framework can be applied to a wide range of problems, including the design of new processes as well as retrofit of existing batch-continuous production systems. The overview of the framework together with results from two case studies is presented to highlight the key aspects and the applicability of the framework. These case studies involve multiphase reaction systems for the synthesis of active pharmaceutical ingredients.

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