

Techno-economic assessment of reactive extraction processes

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Introduction

The pharmaceutical industry produces more waste compared to other segments of the chemical industry (around 25 to 100 fold more per kg of product). This amount of waste is the outcome of extensive purification and separation stages needed for a high quality product. It is estimated that more 56% of the mass of materials used to manufacture an API are solvents.

Project summary

In this project we propose the development of novel technologies that provide with solutions to the excess use and waste of solvent. Different processes have been developed to assess the use of reactive distillation as a new production pathway. In this study a techno-economic assessment will be conducted to evaluate areas of opportunities and compare them versus the state-of-the-art process.

Reactive extraction will be executed using neoteric solvents, mainly ionic liquids, which will serve as reaction and extraction media. Ionic liquids are expensive compared to traditional solvents. Therefore, it is necessary to study if the impact of using them (recoverability and recyclability).

Project goals

- Process desing
- Conduct optimization of reactive distillation process.
- Conduct techno-economic assessment.

Contact information

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