

Process design accompanying life cycle management and risk analysis as a decision support tool for sustainable biodiesel production

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Publication date

2013

Journal

Green chemistry

Volume

15

Issue

2

Pages

463-477

Publisher

Royal Society of Chemistry

Description

The search for sustainable synthesis pathways for biodiesel generation is still ongoing, although extensive research and development work on this topic has already led to a broad variety of process alternatives, utilizing different feedstocks, alcohols, catalysts and process parameters. Thus, the choice for the most sustainable option is not an easy task, depending on related costs and environmental impacts deriving from up-stream and down-stream processes, but also on safety constraints. The aim of our work presented herein is to demonstrate a decision support procedure for the best suited process design of biodiesel production in front of a pilot plant construction. The development of a novel biodiesel production alternative was accompanied by Life Cycle Management and Risk Analysis in an iterative procedure nearly from the beginning in order to point out favorable process parameter combinations in parallel ...