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Catalytic upgrade of biobased chemicals using microfluidic devices

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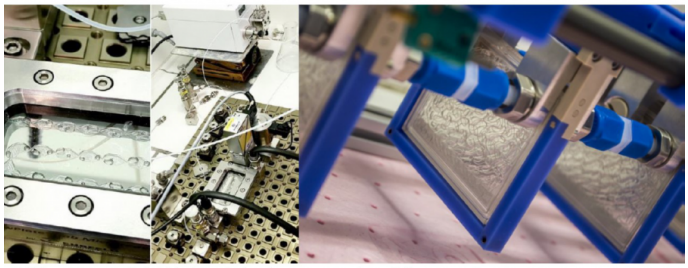
PURPOSE OF THE ABSTRACT

The design of new commercial high-flow microreactors as well as the possibility to have nowadays all-integrated systems including both reaction and post-treatment have fueled the field of microfluidic flow chemistry in the last years. Amongst the different benefits of this technology, its very efficient temperature and mass transfers can be extremely beneficial in term of Green Chemistry and process safety [1]. It is possible to use such systems for the upgrade of building blocks extracted from the biomass to get chemicals of higher values, giving an even higher ?greenness? to the overall process. The presentation will introduce such applications, starting from different biobased compounds and will also suggest different methods to separate on-line the different products of such reactions.

FIGURES



Ehrfeld MMRS system © Ehrfeld Mikrotechnik GmbH Corning Advanced-Flow reactors © Corning Inc.

FIGURE 1

Two commercial microfluidic systems

Two sytems used for the synthesis of biobased chemicals

FIGURE 2

KEYWORDS

microfluidic | biobased chemicals | flow chemistry

BIBLIOGRAPHY

[1] J. Yoshida, H. Kim, A. Nagaki, ChemSusChem, 2011, 4(3), 331-340