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2011

Dostupný z <http://www.nusl.cz/ntk/nusl-80982>

Dílo je chráněno podle autorského zákona č. 121/2000 Sb.

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Datum stažení: 26.04.2024

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ADSORPTION ASSISTED ION EXCHANGER CATALYST FOR FATTY ACID ESTERIFICATION

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Regular strongly acidic ion exchanger catalysts are highly hydrophilic materials bearing in their accessible regions at least one sulfonic group per benzene ring of their polymeric backbone. It makes them well compatible with polar reagents but at the same time complicates their application in reactions in which participate reagents of lipophilic character. For reactions of molecules with highly different polarity, like e.g. esterification of free fatty acids in low-cost raw materials for biodiesel production there could be advantageous combination of lipophilic and hydrophilic centers within the catalyst structure. In this contribution will be discussed catalytic and morphological properties of novel ion exchanger catalysts [1] with intimately intermixed hydrophilic sulfonic groups and lipophilic adsorption centers. In fatty acid esterification at low methanol concentration the new catalyst exhibits up to 5-times higher activity than the ion exchanger catalyst Amberlyst BD20 (Dow, USA), specially developed for this process.

Acknowledgement: This work was partially supported by the Academy of Sciences of the Czech Republic (grant no M200720902).

References:

¹ Jeřábek K., Corain B, Hanková L., Zecca M., Holub L., Centomo P., Bonato I.: Czech patent appl. PV 2011-146 (2011).