

## Accepted Manuscript

Title: Esterification process catalyzed by ZSM-5 Zeolite synthesized via modified hydrothermal method

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PII: S2215-0161(18)30041-4  
DOI: <https://doi.org/10.1016/j.mex.2018.03.004>  
Reference: MEX 271

To appear in:

Received date: 3-8-2016  
Accepted date: 15-3-2018

Please cite this article as: Mya, Omar Ben, Bitra, Mohammed, Louafi, Ilyas, Djouadi, Assia, Esterification process catalyzed by ZSM-5 Zeolite synthesized via modified hydrothermal method. *MethodsX* <https://doi.org/10.1016/j.mex.2018.03.004>

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## Esterification process catalyzed by ZSM-5 Zeolite synthesized via modified hydrothermal method

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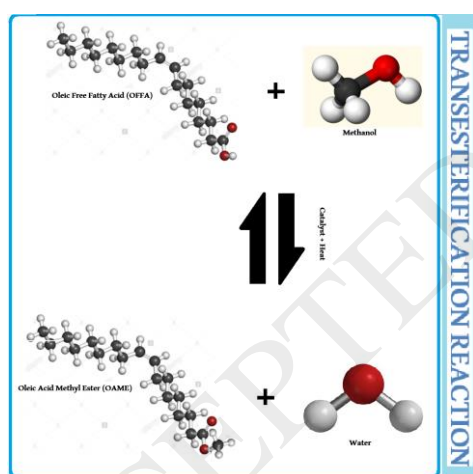
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Graphical abstract



### Abstract

A modified hydrothermal method for ZSM-5 synthesis was described. The crystals gave a typical pattern ( $2\theta$  at around  $22.5^\circ$ ,  $24.0^\circ$  and  $29.8^\circ$  corresponding to the major peaks of (501,303 and 503 crystal surfaces), which indicated that the subnanocrystals could have the primary structure of MFI-type zeolites. the FT-IR spectra of subnanocrystals which have the primary structure of MFI zeolites. Oleic acid methyl ester (OAME) was prepared via a rapid derivatization procedure. the acidic strength is determined by the zeolite crystal structure and the higher esterification rate of ZSM-5 can be attributed to its stronger acidity compared to  $\text{H}_2\text{SO}_4$ , especially after 50 min of reaction. ZSM-5 can be an excellent substitute to sulfuric acid which caused corrosion and equipments damage.

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