

Tentative Outline

Special Thematic Issue for Combinatorial Chemistry & High Throughput Screening

[Methanol to Light Olefins: Catalyst, Reactions Kinetic and Process Study]

Guest Editors: Mohammad Javad Azarhoosh, Abbas Aghaeinejad-Meybodi

Aims & Scope:

Light olefins have a significant role in petrochemical industry and, basically, there is an attempt to improve the production technology of light olefins, especially ethylene which is one of the primary productions of these units. Methanol to light olefins (MTO) catalytic conversion is a popular method for research and for industrial centers to convert natural gas and coal into chemical materials using methanol. In the MTO conversion process, crude methanol is converted into ethylene and propylene. During this process, natural gas or coal is first converted into crude methanol and, at the second stage, the obtained methanol is converted into ethylene and propylene via a catalytic reaction. This special thematic issue includes three main parts:

- a) Synthesis and evaluation suitable catalysts for MTO process: One of the important aspects of the MTO process is selection of a suitable catalyst. Catalysts used in this process must have high efficiency, selectivity, mechanical stability and thermal strength
- b) Kinetic modelling for MTO reactions: The kinetic modelling of the heterogeneous reactions set in MTO process needs more development. The kinetic modelling is significant to identify the performance of catalyst in the process and its effective factors, also to design of reactors in the industrial scale
- c) MTO process study: This section includes evaluating the effect of process conditions, simulating and optimizing of the different types of reactors used in MTO process

Keywords: Methanol to light olefins, catalyst synthesis, kinetic modeling, and reactor simulation

Subtopics:

The subtopics to be covered within this issue are listed below:

- Synthesis of suitable catalysts for MTO process such as SAPO-34, ZSM-5, etc.
- Characteristics and performance of suitable catalysts for MTO process
- Kinetic modeling for MTO reactions
- The reaction mechanism for light olefins formation in the MTO reactions
- Evaluating the effect of process conditions of the different types of reactors used in MTO process
- Simulation and optimization of the different types of reactors used in MTO process

Schedule:

- ✧ Manuscript submission deadline: 31 March 2020
- ✧ Peer Review Due: 31 April 2020
- ✧ Revision Due: 31 May 2020
- ✧ Announcement of acceptance by the Guest Editors: 15 June 2020
- ✧ Final manuscripts due: 15 July 2020

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