

Supplementary data

Dual-templated synthesis of Si-rich [B]-ZSM-5 for high selective light olefins production from methanol

Salman Beyraghi^{a,b}, Mohammad Rostamizadeh^{a,b*}, Reza Alizadeh^{a,b}

^a Faculty of Chemical Engineering, Sahand University of Technology, Sahand New Town, Tabriz, Iran, P.O. Box: 51335-1996.

^b Research Center of Environmental Engineering, Sahand University of Technology, Sahand New Town, Tabriz, Iran, P.O. Box: 51335-1996.

1. Characterization of zeolite

Fourier transform infrared (FT-IR) spectra of zeolites were collected using of Nexus Model Spectrophotometer (Nicolotco, USA) with the wavenumber range 400-4000 cm^{-1} . The field-emission scanning electron microscopy (FE-SEM) was performed by KYKY (Model, EM3200) device at a potential difference of 26 kV. The crystallinity of zeolite was examined by X-ray diffraction (XRD) analysis with a D₈ Advance Bruker AXS X-ray diffractometer with Ni-filter Cu K α radiation ($\lambda_{\text{max}} = 0.15418 \text{ nm}$). We recorded 2Θ variation in the range of 4-50° at 40 kV. The adsorption-desorption isotherm of zeolite has been investigated by N₂ adsorption-desorption technique at -196.2°C (Quantachrome, USA). The total surface area (S_{BET}) and total volume (V_{total}) were determined by the Brunauer-Emmet-Teller (BET) isothermal equation and the pore diameter was estimated by BJH desorption. The t-plot method calculated the micropore

* Corresponding author. Tel: +98 4133459168, fax: +98 4133459152
Email address: Rostamizadeh.m@gmail.com (M. Rostamizadeh)

volume (V_{micro}). The mesopore volume (V_{meso}) was difference of the calculated total data and the corresponding micropore data.

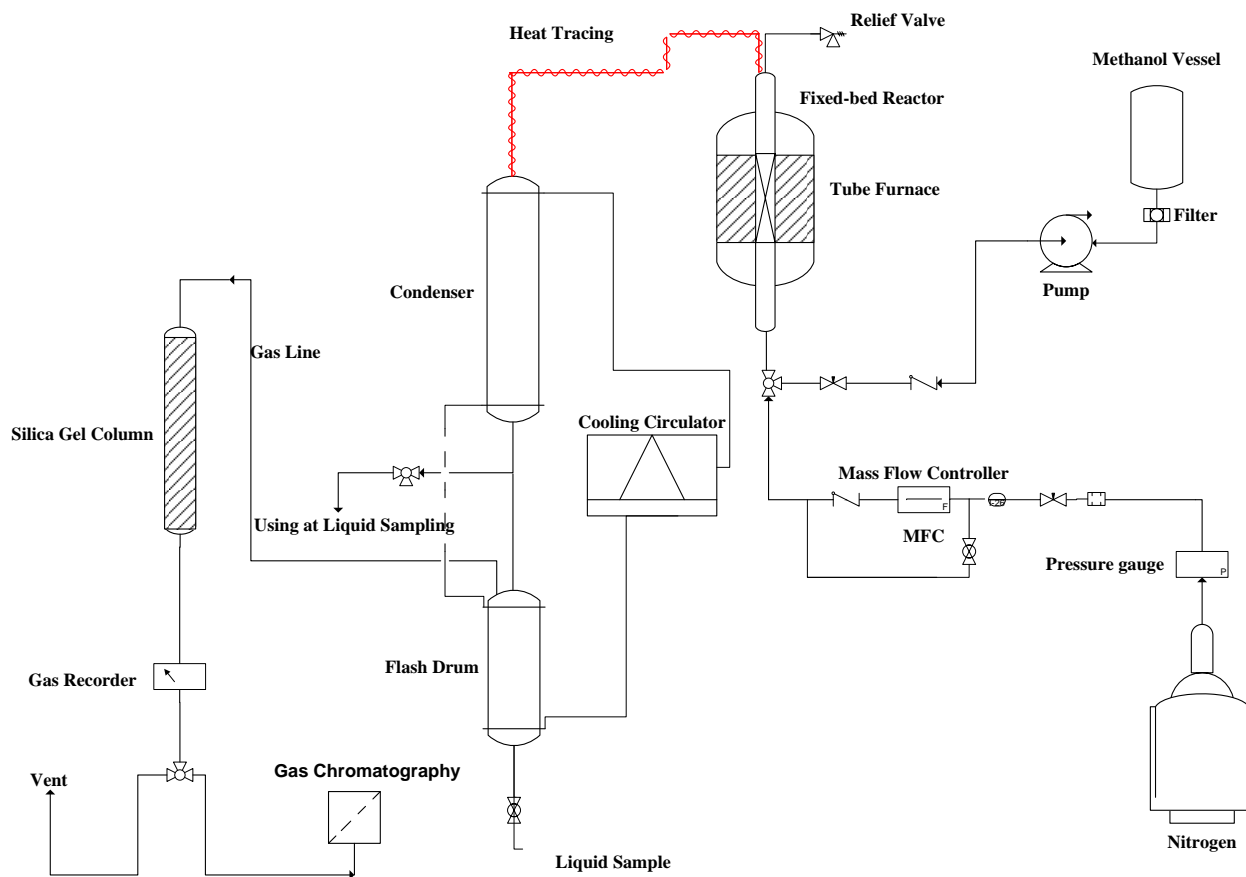


Fig. S1. A schematic diagram of the reactor set up