

Methane Oxidation to Methanol via Heterogeneous Catalysis of Porphyrin-based Porous Organic Framework

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Large resource of methane is found in natural gas but application as chemical feedstock has been elusive because of its highly stable and unreactive nature resulting to low conversion. Porous organic frameworks have recently gained popularity due to its applicability to heterogeneous catalysis. In this work, therefore, a porphyrin-based porous organic framework was applied for methane oxidation as a heterogeneous catalyst to produce methanol. The framework is expected to provide a stable and recyclable catalyst together with high methane conversion. The catalytic performance can be attributed to its high surface density of active sites as well as preventing the formation of dimers, commonly observed for homogeneous porphyrin catalyst, which can render the catalyst inactive. This work was supported by KCRC through the NRF funded by Ministry of Science, ICT, and Future Planning (NRF-2014M1A8A1049258).