A study on the oxidative dehydrogenation of n-butene with Bi-Mo based catalyst

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1,3-Butadiene is the principal monomer used for the production of synthetic rubber. The oxidative dehydrogenation (ODH) of butene into butadiene is one of the major process routes. The ODH of n-butene to 1,3-butadiene have received much attention because this reaction is thermodynamically favorable and requires low reaction temperature compared to non-oxidative dehydrogenation. In this work, Bi-Mo based catalysts were prepared by changing the preparation methods, and applied to the ODH of n-butene to 1,3-butadine. The effects of reaction variables, such as temperature, pressure, and contact time, on the catalytic performance of the prepared catalysts were also investigated. The characterization of catalysts were performed using XRD, BET and ICP-AES, and the reaction products were analyzed by on-line GC.