

THE ROLE OF OXYGEN AS A REACTANT: ALUMINUM PHOSPHATE AS A CATALYST FOR DIMETHYL ETHER (DME) FORMATION.

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Acid catalysts are employed in the methanol dehydration to Dimethyl Ether (DME). However, acid catalysts such as alumina and silica/alumina come with their own sets of problems for the reaction – they are responsible for the formation of unsaturated hydrocarbons and contribute to coking. Aluminum Phosphate was synthesized and studied as a possible catalyst for DME formation. To eliminate or minimize side reactions and increase catalyst activity over silica/alumina and alumina, we investigated methanol oxidation towards DME by varying the different partial pressures of oxygen over a range of temperatures (448-623 K) while keeping the rest of the reactants constant.