

Molybdenum-catalyzed deoxydehydration of vicinal diols - DTU Orbit (08/11/2017)

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The commercially available $(\text{NH}_4)_6\text{Mo}_7\text{O}_{24}$ and other molybdenum compounds are shown to be viable substitutes for the typically employed rhenium compounds in the catalytic deoxydehydration of aliphatic diols into the corresponding alkenes. The transformation, which represents a model system for the various hydroxyl groups found in biomass-derived carbohydrates, can be conducted in an inert solvent (dodecane), under solvent-free conditions, and in a solvent capable of dissolving biomass-derived polyols (1,5-pentanediol). The reaction is driven by the simultaneous oxidative deformylation of the diol resulting in an overall disproportionation of the substrate.

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