

**Fast Oxidation of Styrene by Oxygen Molecule
with Metal Porphyrin Mn(TPP)OAc Supported
on Alumina or Silica in the Presence of Electron
Transfer Agents in Various Solvents**

Tabatabaeian^{*}, K., Zanjanchi, M.A., Ebrahimi, A. and Yazdani, N.

*Department of Chemistry, Faculty of Science, University of Guilan, P.O.Box 1914,
Rasht, Iran.*

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Abstract: The protons on a silica or alumina surface can be replaced by manganese(III) porphyrin cations, Mn(TPP⁺). Manganese(III) porphyrin supported on silica and alumina can activate dioxygen in the presence of additional NaBH₄ or [NBu₄][BH₄] as an electron source and styrene, affording 1-phenyl ethanol and acetophenone in a 4:1 ratio. When oxidation was applied in a mixture of benzene/ethanol, Mn(TPP⁺) heterogeneous catalyst was desorbed from silica and alumina surface. The oxidation of styrene has also been studied in two phases systems H₂O/CH₂Cl₂ in the presence of NaBH₄ and tetra-n-butyl ammonium bromide as a phase transfer catalyst. Manganese(III) porphyrin remained stable and major product was 1-phenyl ethanol, when dichloromethane used in the presence of catalyst supported on alumina, the only product was 1-phenyl ethanol.