

Epoxidation of styrene with iodosylbenzene in the presence of copper(II)

Schiff-base complexes

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Copper(II) complexes with salen Schiff-base ligands derived from ethylenediamine or (S,S)-1,2-diphenylethylenediamine and salicylaldehyde or 5-methoxy, 5-bromo and 5-nitrosalicylaldehyde have been tested as catalysts for the epoxidation of styrene with iodosylbenzene, in dichloromethane as a solvent. The reactions were followed by gas chromatographic analysis and mass spectrometry. Catalytic activities were found to be dependent upon both the Lewis acidity of the metal complexes and the presence of phenyl substituents on the ethylene moiety. Moderate styrene conversions and epoxide yields were obtained.

Pseudo-first-order kinetics was observed for the styrene conversion. Possible reaction mechanisms are outlined. © 2003 Elsevier Science Ltd. All rights reserved.