

Asymmetric cyclization of 1,3-Dichloro-2-propanol catalyzed by the optically active cobalt(salen) type complexes

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Optically active chloromethyloxirane was obtained from 1,3-Dichloro-2-propanol by a process of asymmetric synthesis. The highest enantiomeric excess (EE%) and conversion obtained were 100% within 2hrs, using Rs-tech and $K_3PO_4 \cdot H_2O$ as the catalyst and base. For the purpose of comparison, A series of parallel experiments have been done, using different bases, solvents, different ratios of the reactant, base and catalyst. A variety of cobalt(salen) type complexes were also prepared to compare with the Rs-tech catalyst. Optically active chloromethyloxirane was obtained according to kinetic resolution mechanisms. These catalysts showed a high enantioselectivity and activity for this Ring-closing reaction.