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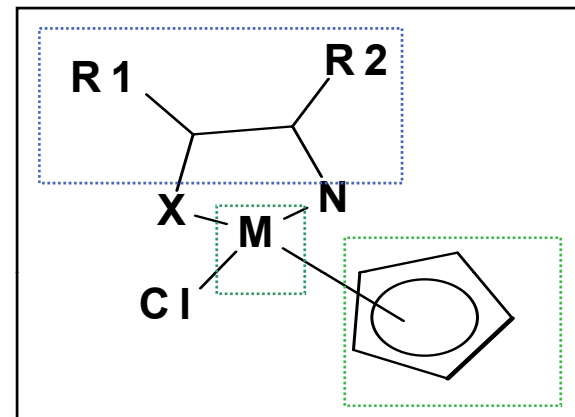
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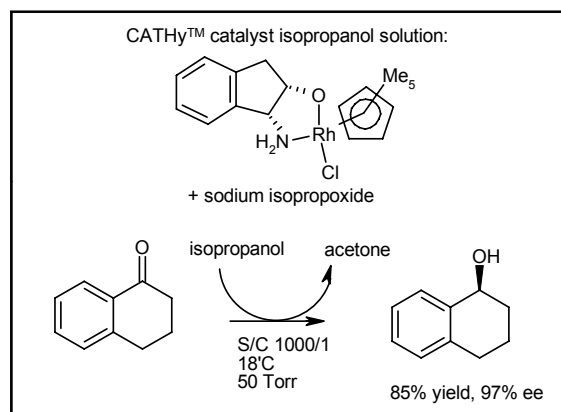
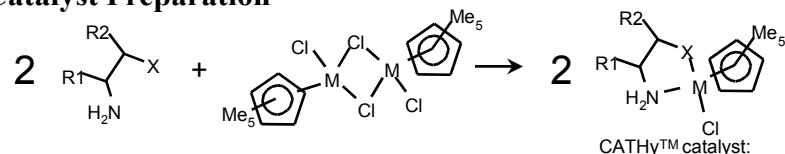
CATHy™ Catalysts



**For The Synthesis of Chiral
Alcohols and Amines Via
Asymmetric Catalytic
Transfer Hydrogenation**

CATHy™ catalysts are highly efficient for the asymmetric transfer hydrogenation of a broad range of ketones and imines to chiral alcohols and amines. The catalysts are prepared in-situ by combining a chiral bidentate nitrogen ligand with a Rh(III) or Ir(III) metal complex containing a substituted cyclopentadienyl ligand.

Catalyst Preparation



CATHy™ Catalyst Kit - Catalog # 96-7650

(contains the following components)

Chiral Bidentate Nitrogen Ligands

- 07-0200 (1S,2R)-(-)-cis-1-Aminoindan-2-ol, 98%
- 07-0201 (1R,2S)-(+)-cis-1-Aminoindan-2-ol, 98%
- 07-2370 (1S,2S)-(+)-N-(4-toluenesulfonyl)-1,2-diphenylethylenediamine, 99% (S,S) TsDPEN
- 07-2371 (1R,2R)-(-)-N-(4-toluenesulfonyl)-1,2-diphenylethylenediamine, 99% (R,R) TsDPEN

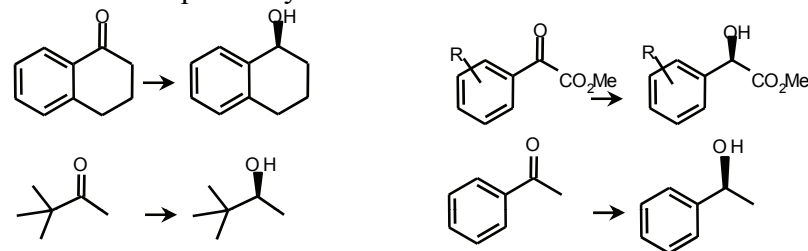
Rhodium & Iridium Components

- 45-0195 Dichloro(pentamethylcyclopentadienyl)rhodium (III) dimer, 99%
- 77-1060 Dichloro(pentamethylcyclopentadienyl)iridium (III) dimer, 98%

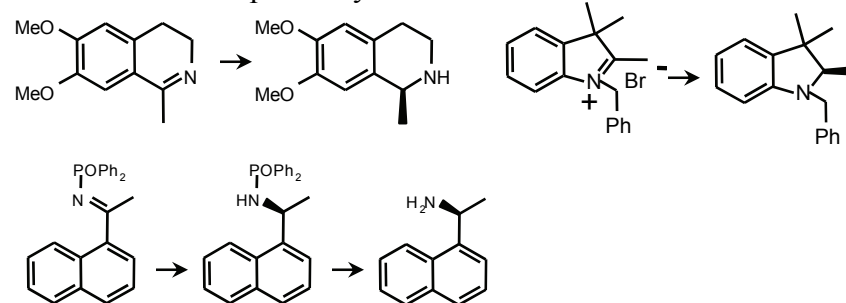
Key benefits of this technology include:

- solvent as the hydrogen source, avoiding high pressures associated with standard asymmetric hydrogenations
- safer handling procedures
- functional group tolerance
- simple synthesis and modular metal precursor-chiral bidentate ligand match to tailor catalyst to application
- robust stability to air and moisture
- proven at large scale

Examples: Asymmetric Ketone Reduction



Examples: Asymmetric Imine Reduction



References:

- Blacker A.J., Mellor B.J. WO9842643A1, filed 26/03/97, Avecia Ltd.
- Blacker A.J. Conf. Proceedings: The Scale up of Chemical Processes. Jersey 1998 ISBN 0953399400
- Campbell L. Conf. Proceedings: Chirasource '99. Philadelphia 1999

CATHy™ catalysts can be used for research without a licence.