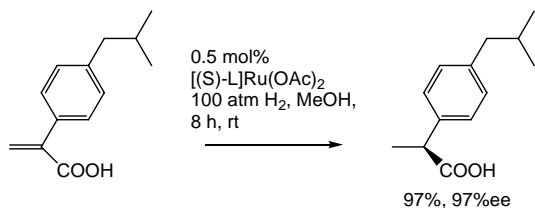


Catalog # 44-0095 Chloro[(S)-(-)-2,2'-bis(diphenylphosphino)-5,5',6,6',7,7',8,8'-octahydro-1,1'-binaphthyl](p-cymene)ruthenium(II) chloride [RuCl(p-cymene)((S)-H<sub>8</sub>-binap)]Cl

Note: Manufactured under license of Takasago patent. Takasago BINAP Ru Cymene Catalyst Kit component.

Technical Notes:

1. Biaryl bisphosphine ligand. The H<sub>8</sub>-BINAP ligand, as the ruthenium complex, catalyzes hydrogenation of unsaturated carboxylic acids to a higher ee than does BINAP. (Ref. 1,2)
2. The ruthenium catalyzed hydrogenation of aryl propenoic acid to produce the drug Ibuprofen.



**Tech. Note (1,2)**  
**Ref. (1,2)**

References:

1. *J. Org. Chem.*, **1996**, 61, 5510.
2. *Topics Organometal. Chem.* **2004**, 6, 63 (review).