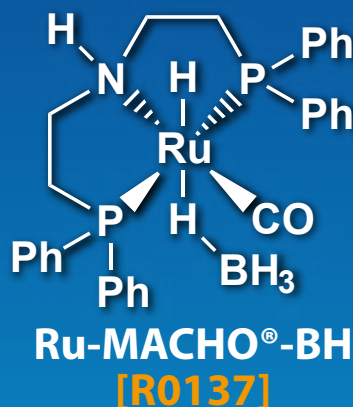
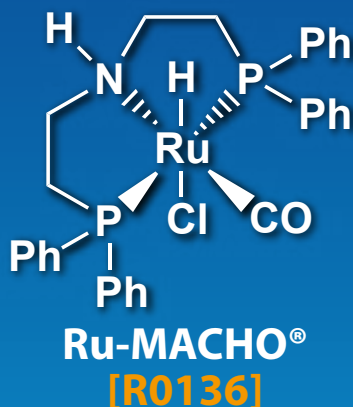


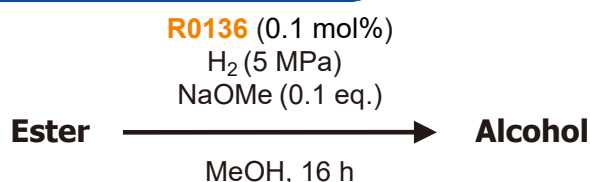
Ruthenium Complex Catalysts for Hydrogenation of Esters to Alcohols



Advantages

- Catalyze the Hydrogenation of Esters to Alcohols
- The Reaction Proceeds in Various Solvents (neat, methanol, THF, etc.)
- It Can Reduce Sterically-bulky Substrates because of its Heat Stability
- The Addition of Base is Unnecessary by Using R0137

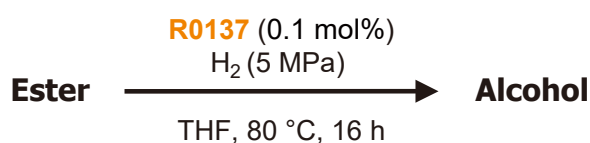
Reaction Examples



Reference W. Kuriyama *et al.*, *Org. Process Res. Dev.* **2012**, *16*, 166.

Substrate	Product	Yield (%)
		90
		92
		86
		98*

*neat, 150 °C, 2 h



From the technical document of TAKASAGO INTERNATIONAL CORPORATION

Substrate	Product	Yield (%)	Δee (%)
		77	<1
		78	<1
		88	2
		93	<1

Δee (%) = (% ee of Substrate) - (% ee of Product)

Ru-MACHO®
Ru-MACHO®-BH

200mg / 1g [R0136]
200mg / 1g [R0137]

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