1,5-hexadiene selective hydroformylation reaction catalyzed with Rh(acac){$P(OPh)_3$}$_2$/$P(OPh)_3$ and Rh(acac)(CO)(PPh_3)/PPh_3 complexes.

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Streszczenie

Hydroformylation of 1,5-hexadiene, catalysed by the system Rh(acac){$P(OPh)_3$}$_2$/$P(OPh)_3$ (**I**), leads to the formation of mono- and dialdehydes, 4-heptenal, 2-Me-3-hexenal and octane-1,8-dial, 2,5-Me_2-hexanedial respectively. The yield of dialdehydes increases with temperature and pressure and reaches 100% at 80°C and 10 atm of CO / H_2 = 1. The reaction catalyzed by Rh(acac)(CO)(PPh_3) / PPh_3 (II) system produces, besides dialdehydes, monoaldehydes with a terminal double bond, namely 6-heptenal and 2-Me-5-hexenal. The migration of the double bonds in monoaldehydes depends mainly on the donor properties of modifying ligands. Phosphine when used as a modifying ligand (II), because of its strong donor properties, restricts isomerization (double bond migration) and diminishes yield of 4-heptenal. In contrast, when less strongly donating ligands such as phosphites are used as modifying ligands (I), independently of its steric properties, 4-heptenal is the main reaction product.

Adres publiczny

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