An Organo Porous Polymer Catalyst for Asymmetric Alkylation with Et$_2$Zn

**Significance:** A chiral $\alpha,\alpha,\alpha',\alpha'$-tetraaryl-1,3-dioxolane-4,5-dimethanol-based chiral porous polymer (TADDOL-CPP) was prepared and applied to the asymmetric alkylation of aromatic aldehydes with Et$_2$Zn in the presence of [Ti(O$_i$-Pr)$_4$] to give the corresponding products 1a–i in up to 96% yield with up to 94% ee.

**Comment:** The TADDOL-CPP as well as the TADDOL-CPP/Ti catalysts were characterized by $^{13}$C CP/MAS NMR spectroscopy, TGA, BET, XRD, TEM and ICP analyses. TADDOL-CPP was recovered by centrifugation and reused ten times to give 1a with slight loss of the catalytic activity (91% ee to 75% ee).

**Preparation of the TADDOL-CPP catalyst:**

1. Mg, I$_2$, THF, 80 °C, 7 h
2. K$_2$CO$_3$, MeOH, r.t., 2 h

[Pd(PPh$_3$)$_2$Cl$_2$], CuI, Ph$_3$P, DMF, Et$_3$N under Ar, 80 °C, 72 h

TADDOL derivative

**TADDOL-CPP**

(α,α,α,α'-tetraaryl-1,3-dioxolane-4,5-dimethanol-based chiral porous polymer)

1a R = H; 86% yield, 91% ee
1b R = 4-Cl; 95% yield, 88% ee
1c R = 3-Cl; 90% yield, 92% ee
1d R = 4-Br; 92% yield, 91% ee
1e R = 3-Me; 96% yield, 84% ee
1f R = 4-Me; 92% yield, 90% ee
1g 96% yield, 94% ee
1h 84% yield, 74% ee
1i 91% yield, 65% ee