Highly Selective Reductive Cross-Amination between Aniline or Nitroarene Derivatives and Alkylamines Catalyzed by Polysilane-Immobilized Rh/Pt Bimetallic Nanoparticles

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**Synthesis of N-Alkylcyclohexylamines on Supported Rh/Pt Nanoparticles**

![Chemical structure](image1)

**Results:**
- 93% yield (N-methylaniline was used instead of aniline)
- 89% yield (nitrobenzene was used instead of aniline)
- >99% yield (for 72 h)
- 97% yield (for 38 h)
- 85% yield
- >99% yield

**Significance:** Rh/Pt bimetallic nanoparticles (NPs) supported on dimethylpolysilane and alumina (Rh/Pt–DMPSi/Al₂O₃) promoted the synthesis of N-alkylcyclohexylamines from anilines and the corresponding N-alkylamines to give the corresponding alkylcyclohexylamines in up >99% yield. N-Methylaniline and nitrobenzene also underwent the reductive coupling with octylamine to afford N-octylcyclohexanamine in yields of 89% and 87%, respectively.

**Comment:** The authors previously reported the preparation of Rh/Pt–DMPSi/Al₂O₃ and its application in arene hydrogenation (*J. Am. Chem. Soc.* 2018, 140, 11325). In the reaction of aniline with octylamine, the catalyst was used four times without significant loss of its catalytic activity (fresh: 92% yield; fourth reuse: 90%).