

Deactivation and Regeneration of Palladium Catalysts for Hydrogenation Debenzylation of 2,4,6,8,10,12-Hexabenzyl-2,4,6,8,10,12-Hexaazaisowurtzitane (HBIW)

Qunfeng Zhang *, Mei Wang, Jiacheng Qian, Shuyuan Lou, Jianhong Jin, Bingcheng Li, Chunshan Lu, Feng Feng, Jinghui Lv, Qingtao Wang * and Xiaonian Li *

State Key Laboratory Breeding Base of Green Chemistry Synthesis Technology, Institute of Industrial Catalysis of Zhejiang, University of Technology, Hangzhou 310014, China

* Correspondence: zhangqf@zjut.edu.cn (Q.Z.); qtwang@zjut.edu.cn (Q.W.); xnli@zjut.edu.cn (X.L.)

Experimental

Materials

The Acros C (denoted as AC, Fujian Xinsen Carbon Co., Ltd.); Palladium chloride PdCl₂ (≥99.9% Shaanxi Kaida Chemical Co., Ltd.) was dissolved in dilute hydrochloric aqueous solution as palladium chloride acid solution (H₂PdCl₄, 0.2 g/mL).

All chemicals, dimethyl formamide (DMF), acetic anhydride (Ac₂O), bromobenzene and glacial acetic acid, were purchased and used as received. HBIW was synthesized by the cooperation factory.

Supplementary caption:

Figure S1 HPLC for the product from HBIW hydrogenolysis

Figure S2 ¹H NMR for the product from HBIW hydrogenolysis.

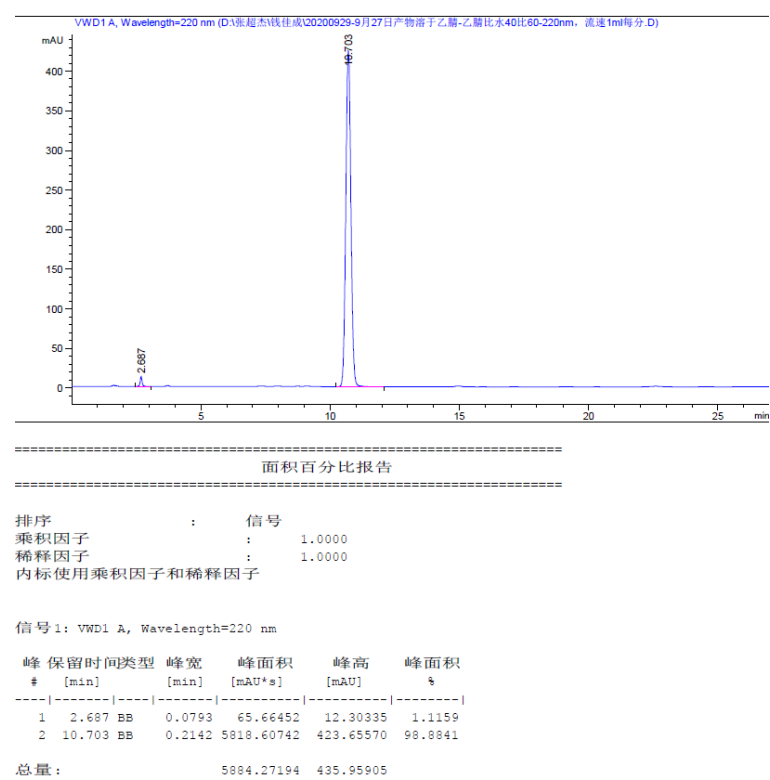


Figure S1. HPLC for the product from HBIW hydrogenolysis.

TADBIW

^1H NMR (400 MHz, DMSO) δ 7.56 – 7.30 (m, 10H), 6.71 – 6.21 (m, 2H), 5.57 – 5.20 (m, 4H), 4.18 – 3.93 (m, 4H), 2.16 – 1.75 (m, 12H).

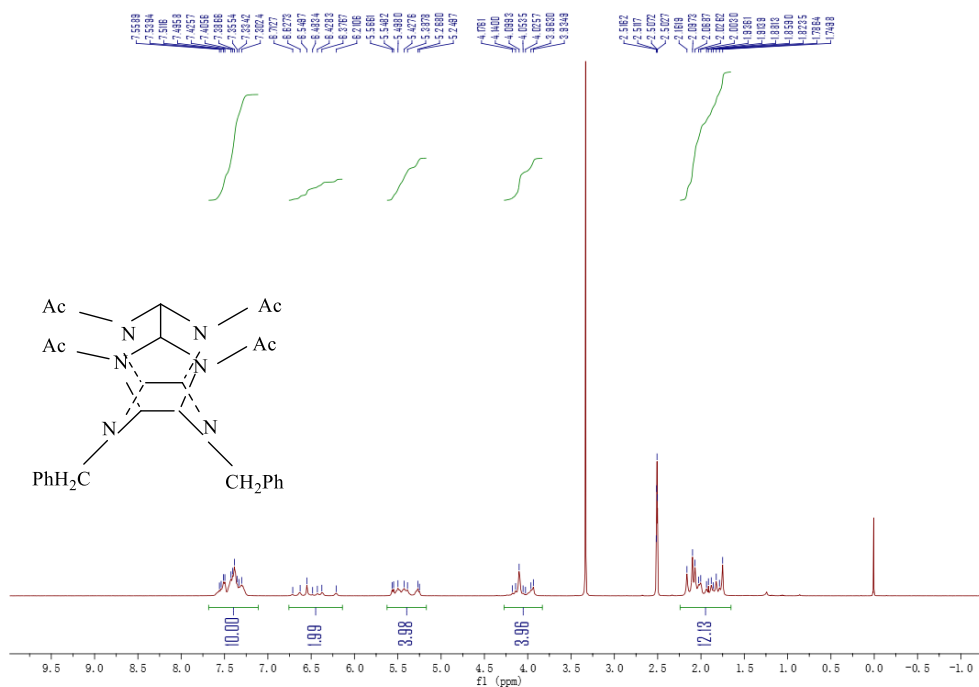


Figure S2. ^1H NMR for the product from HBIW hydrogenolysis.