

Supporting Information

Mesoporous Tantalum Phosphates: Preparation, Acidity and Catalytic Performance for Xylose Dehydration to Produce Furfural

Yanran Xing, Bo Yan, Zifei Yuan, Keqiang Sun*

Innovative Catalysis Program, Key Lab of Organic Optoelectronics & Molecular Engineering, Department of Chemistry, Tsinghua University, Beijing, 100084, China

E-mail: kqsun@mail.tsinghua.edu.cn

Tel: +86-10-62772592; Fax: +86-10-62771149

Table S1. Comparison of the reaction rates between different catalyst systems during the production of furfural at different reaction conditions.

Catalyst	Temp.(°C)	Time	Rxn rate ^b (mmol h ⁻¹ m ⁻²)	Solvent	Ref
Zr-P	160	15min	0.225	Water	19
SiO ₂ -Al ₂ O ₃	160	15min	0.031	Water	19
HY zeolite	160	15min	0.080	Water	19
WO _x /ZrO ₂	160	15min	0.252	Water	19
γ-Al ₂ O ₃	160	15min	0.170	Water	19
MCM-Nb	170	20min	0.014	Water/toluene	15
TA-p-300	160	30min	0.070	Water/butanol	24

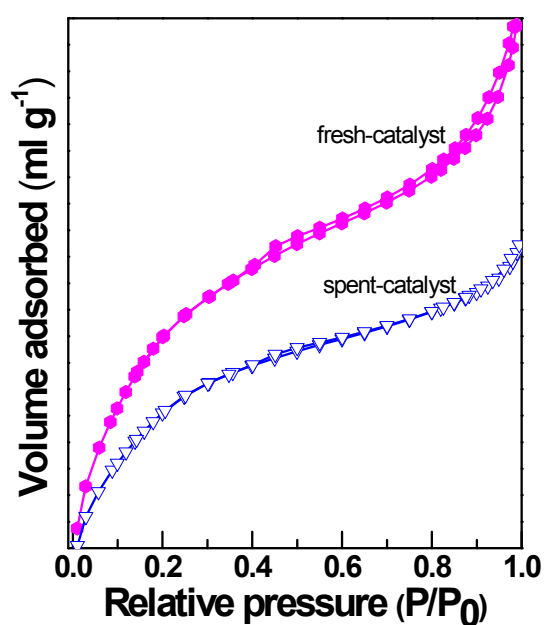


Figure S1. N₂ adsorption-desorption isotherms of the fresh TaOPO₄-0.84 sample and spent TaOPO₄-0.84 sample.

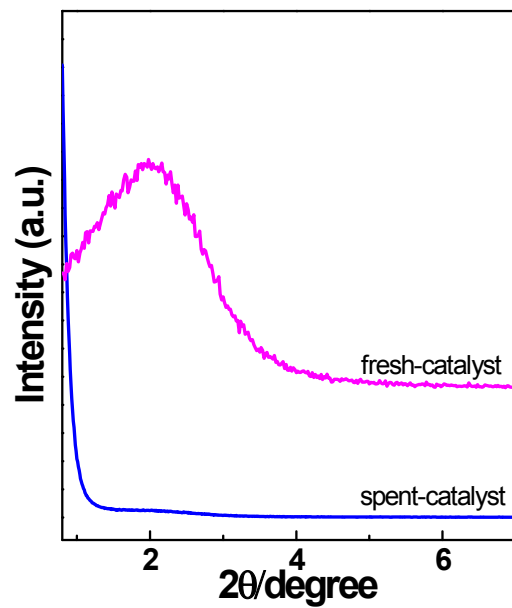


Figure S2. Small-angle XRD patterns for the fresh TaOPO₄-0.84 sample and spent TaOPO₄-0.84 sample.

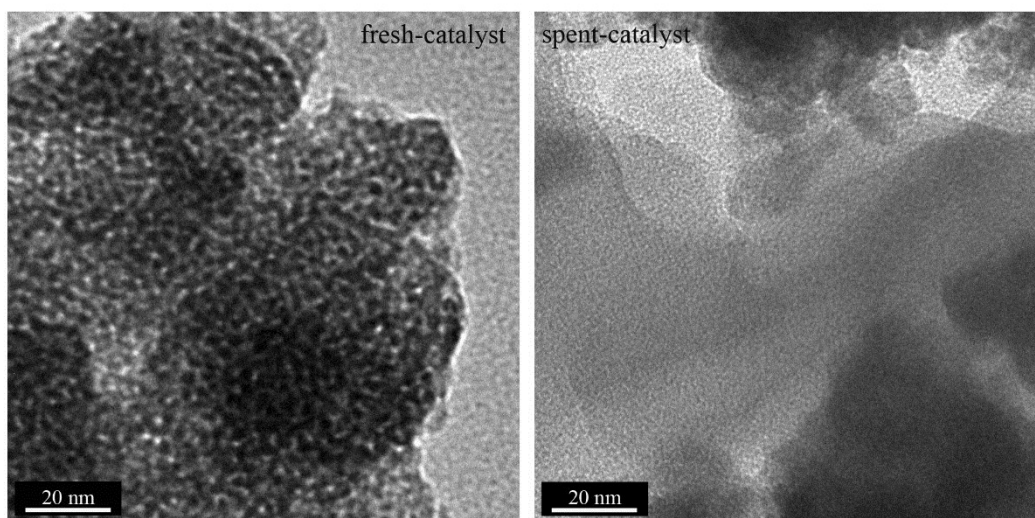


Figure S3. TEM images of the fresh TaOPO₄-0.84 sample and spent TaOPO₄-0.84 sample.

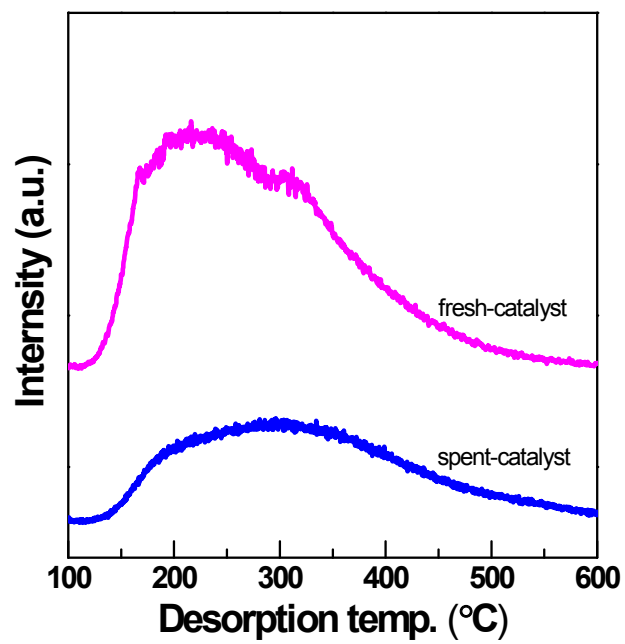


Figure S4. NH₃-TPD profiles for the fresh TaOPO₄-0.84 sample and spent TaOPO₄-0.84 sample.