

Supplementary Information

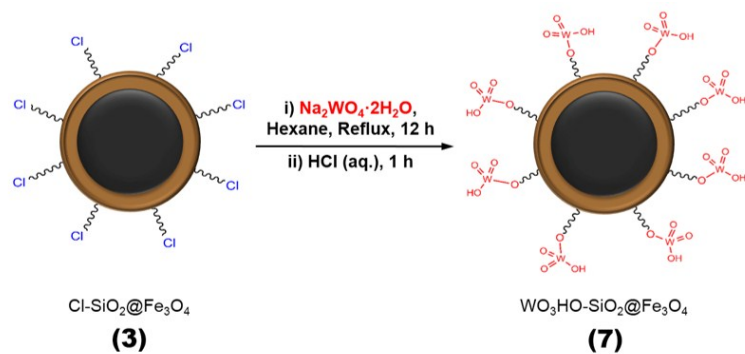
One-pot synthesis of 2,5-diformylfuran from fructose using a magnetic bi-functional catalyst

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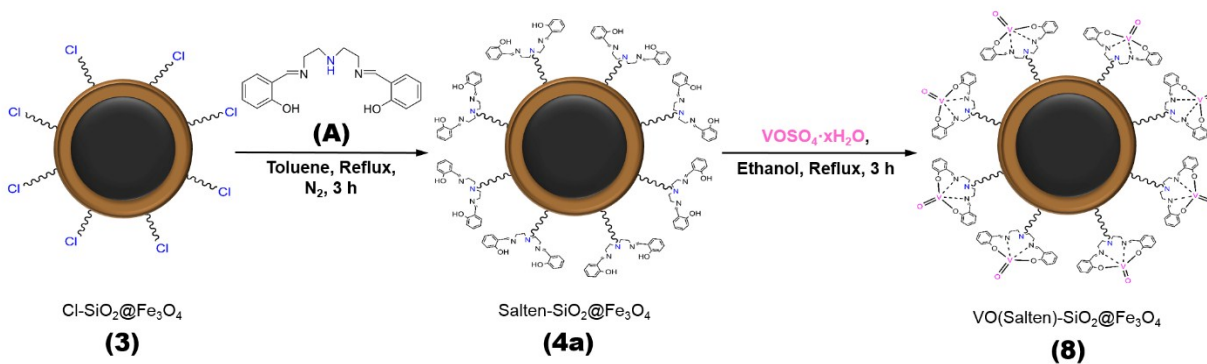
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Scheme S1. Synthesis of mono-functional $\text{WO}_3\text{HO-SiO}_2\text{@Fe}_3\text{O}_4$ (7) nanocatalyst.



Scheme S2. Synthesis of mono-functional $\text{VO(Salten)-SiO}_2\text{@Fe}_3\text{O}_4$ (8) nanocatalyst.

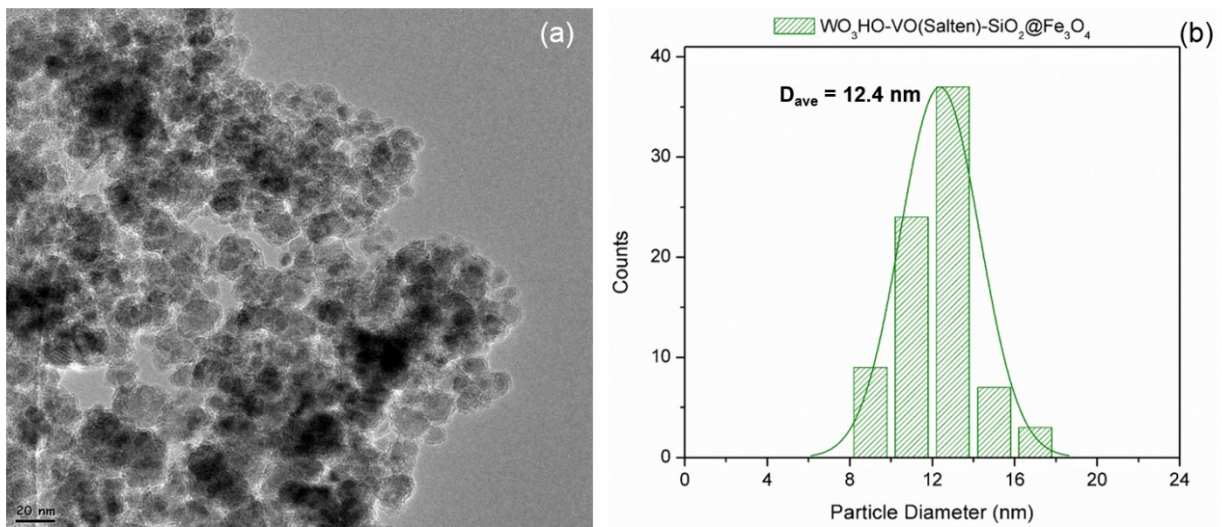


Figure S1. (a) TEM image of $\text{WO}_3\text{HO-VO(Salten)-SiO}_2@Fe_3O_4$ catalyst and (b) its size distribution histogram.

DFF-purified
Sample: DFF-purified
Sample ID: s_20_DFF-purified_1509-R1552-JWJ_20150910_01
File: home/walkup2/vnmrsys/data/1509-R1552-JWJ/DFF-purified_Proton_01.fid
Pulse Sequence: s2pu1
Solvent: cdcl3
Ambient temperature
Sample #20, Operator: walkup2
File: DFF-purified_Proton_01
VNMR-400 "400MR"
Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 2.049 sec
Width 8830.6 Hz
8 repetitions
OBSERVE H1, 400.0340167 MHz
DATA PROCESSING
Line broadening 0.5 Hz
FT size 85536
Total time 0 min, 31 sec

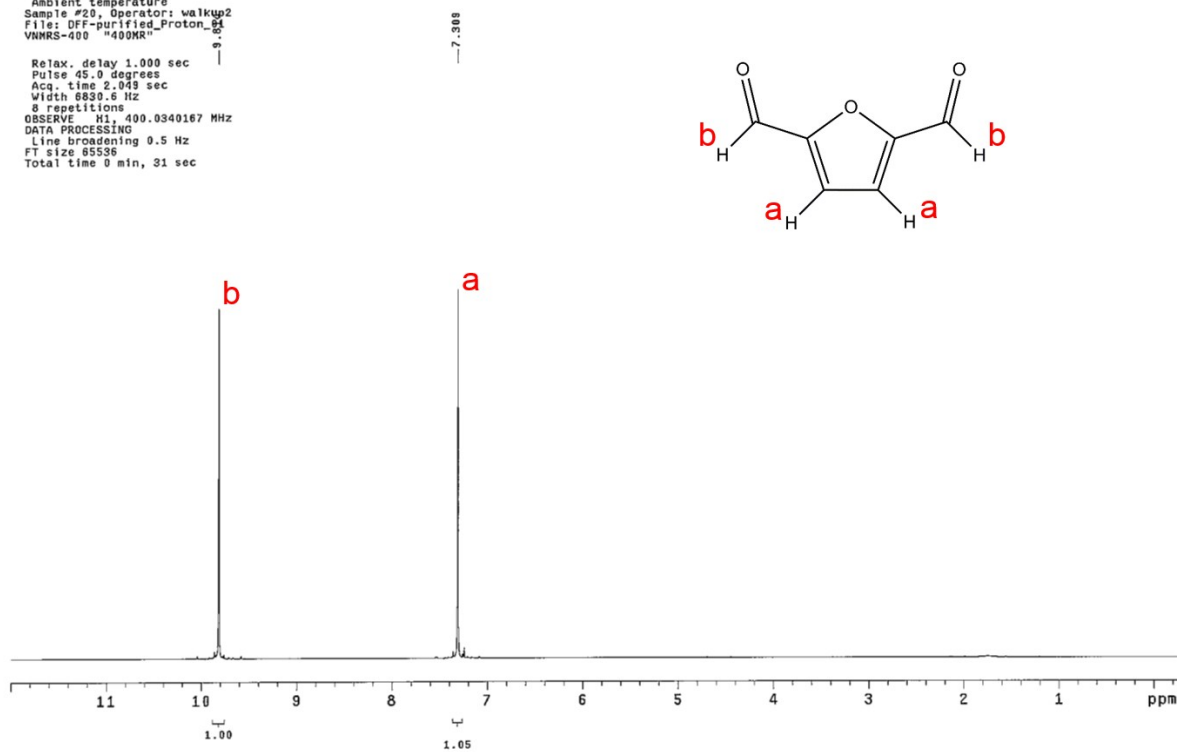


Figure S2. ^1H NMR (CDCl_3) of 2,5-diformylfuran (2,5-DFF). ^1H -NMR (CDCl_3 , 400 MHz) δ :

7.30 (s, 2H), 9.81 (s, 2H) ppm.

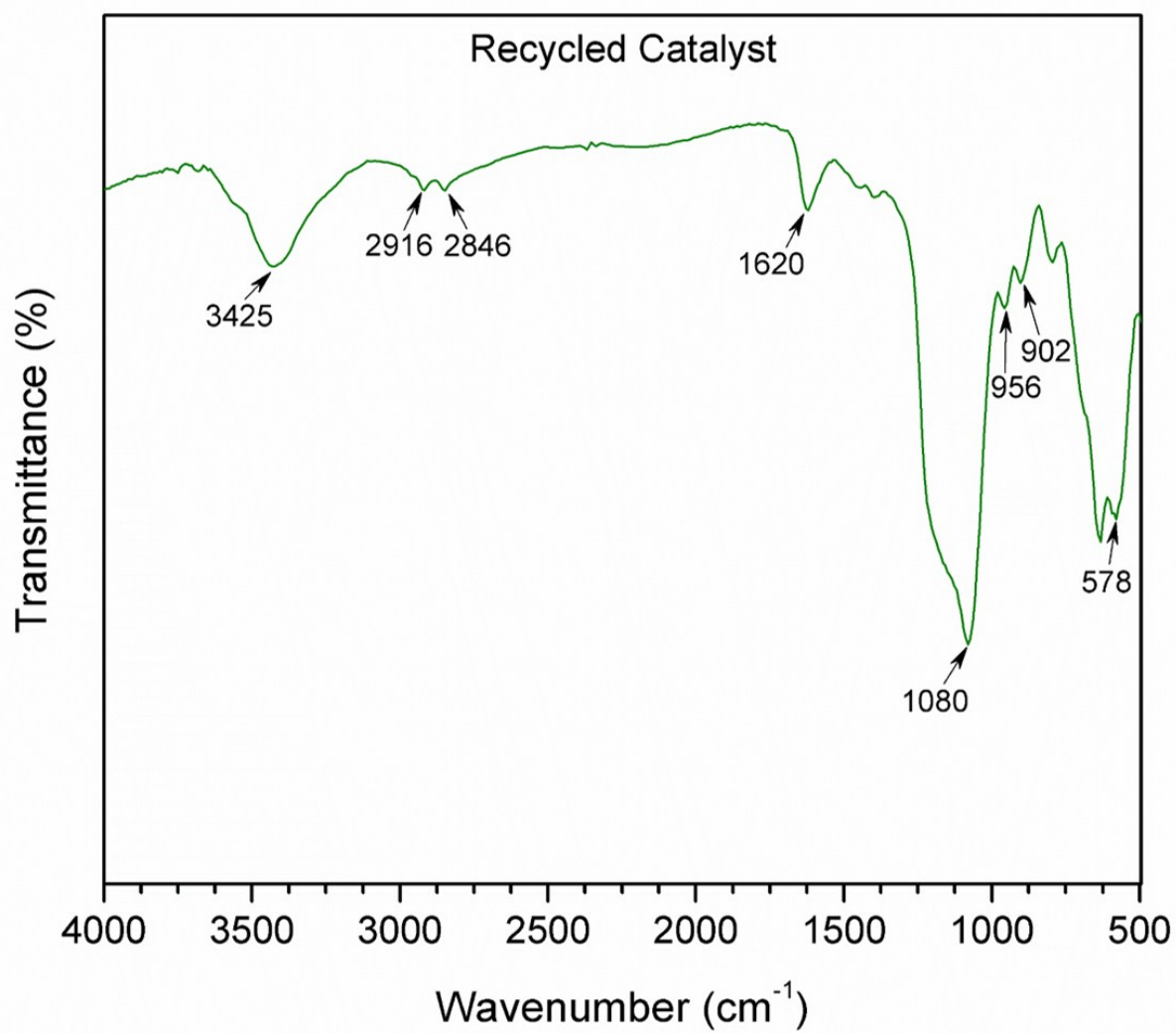


Figure S3. FT-IR spectrum of recycled catalyst after 5th use.