

Investigation on Tungsten-Promoted Titania as Solid Acid for Catalytic Hydrolysis of Waste Bottle PET in Supercritical CO₂

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Supplementary Information

1. H₂-TPR characterization of the fresh, used and reactivated 0.30 W-Ti solid catalysts.

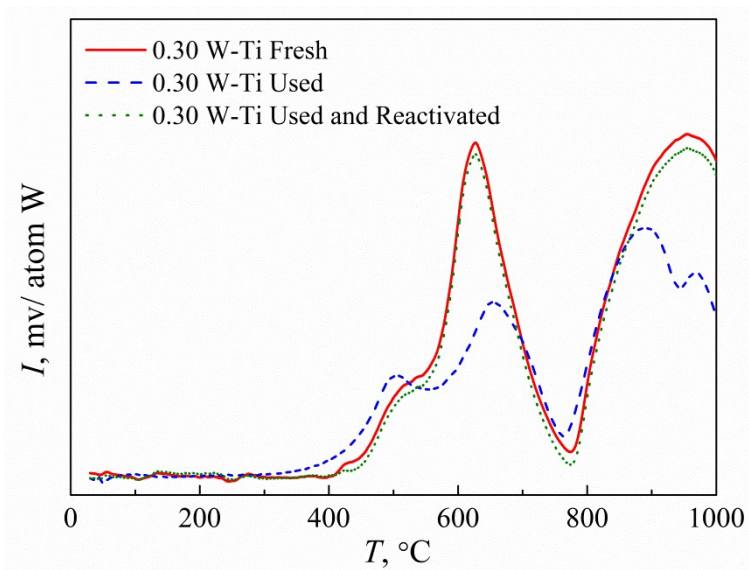


Figure S1. The H₂-TPR profiles of the fresh, used and reactivated 0.30 W-Ti solid catalysts.

2. NH_3 -TPD characterization of the fresh, used and reactivated 0.30 W-Ti solid catalysts.

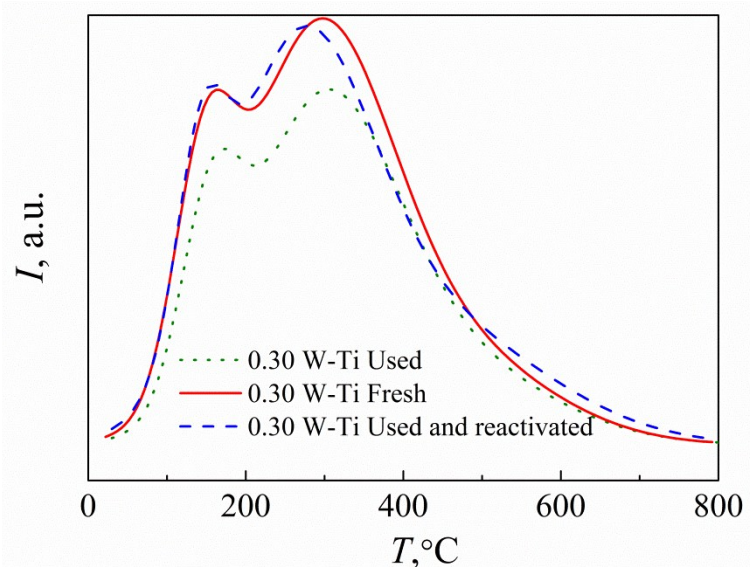


Figure S2. The NH_3 -TPD profiles of the fresh, used and reactivated 0.30 W-Ti solid catalysts.

3. SEM characterization of partly-hydrolyzed PET treated without catalysts

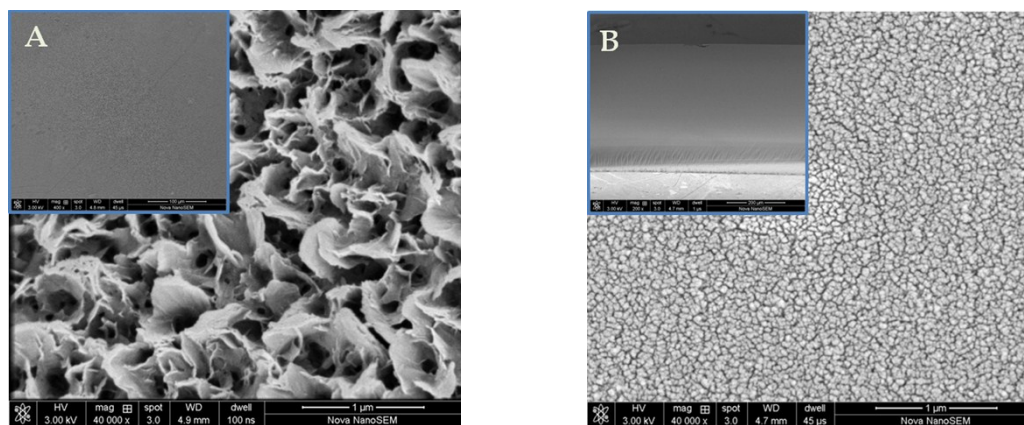


Figure S3. The morphology of the partly-hydrolyzed PET ($D=0.0632$ g/g) treated at 160 °C and 15 MPa for 6 h without catalysts. (A) surface; (B) cross section

4. XRD characterization of partly-hydrolyzed PET

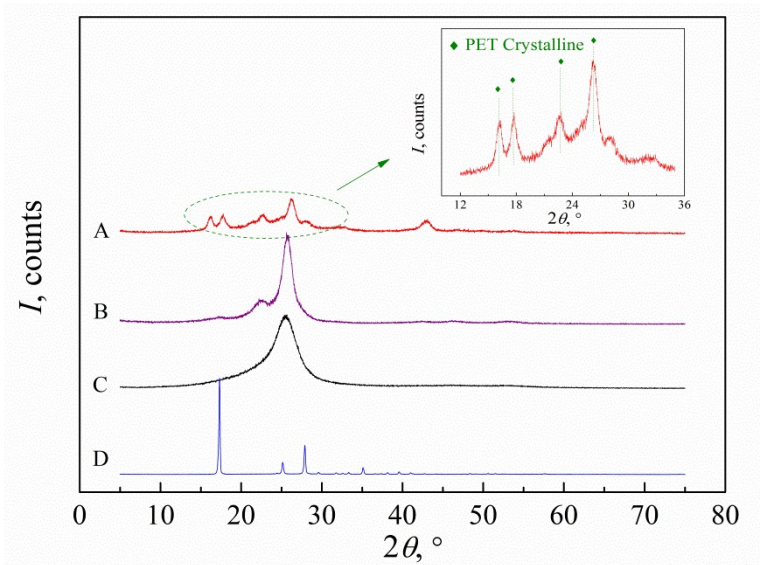


Figure S4. The XRD patterns of (A) residual PET hydrolyzed over 0.30 W-Ti catalysts in SC CO₂ at 160 °C and 15 MPa for 9 h, (B) residual PET swelled by SC CO₂ at 160 °C and 15 MPa for 9 h without catalysts, (C) original PET, (D) TPA product.