



Title	Bimodal cesium hydrogen salts of 12-tungstosilicic acid, $\text{Cs}_x\text{H}_4\text{-xSiW}_{12}\text{O}_{40}$, as highly active solid acid catalysts for transesterification of glycerol tributyrates with methanol
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Supplemental Information

Bimodal Cesium Hydrogen Salts of 12-Tungstosilicic Acid, $\text{Cs}_x\text{H}_{4-x}\text{SiW}_{12}\text{O}_{40}$, as Highly Active Solid Acid Catalysts for Transesterification of Glycerol Tributyrates with Methanol

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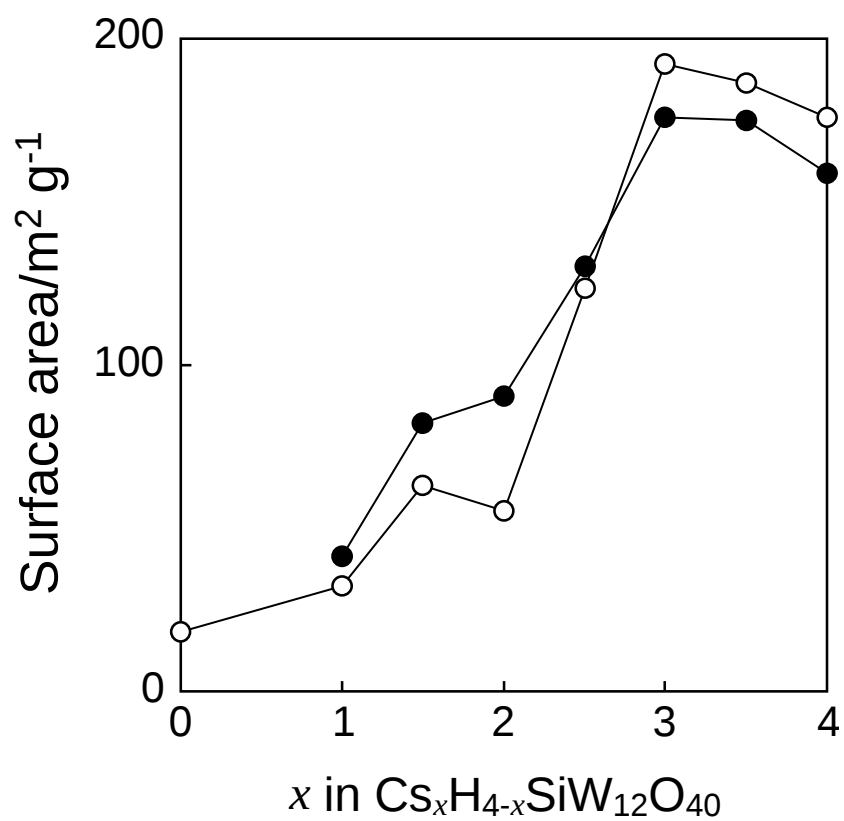


Figure S1 Specific surface areas of **Csx-micro** and **Csx-bimodal** estimated from N₂ adsorption isotherm at 77 K. Open symbol: **Csx-micro** and filled symbol: **Csx-bimodal**.

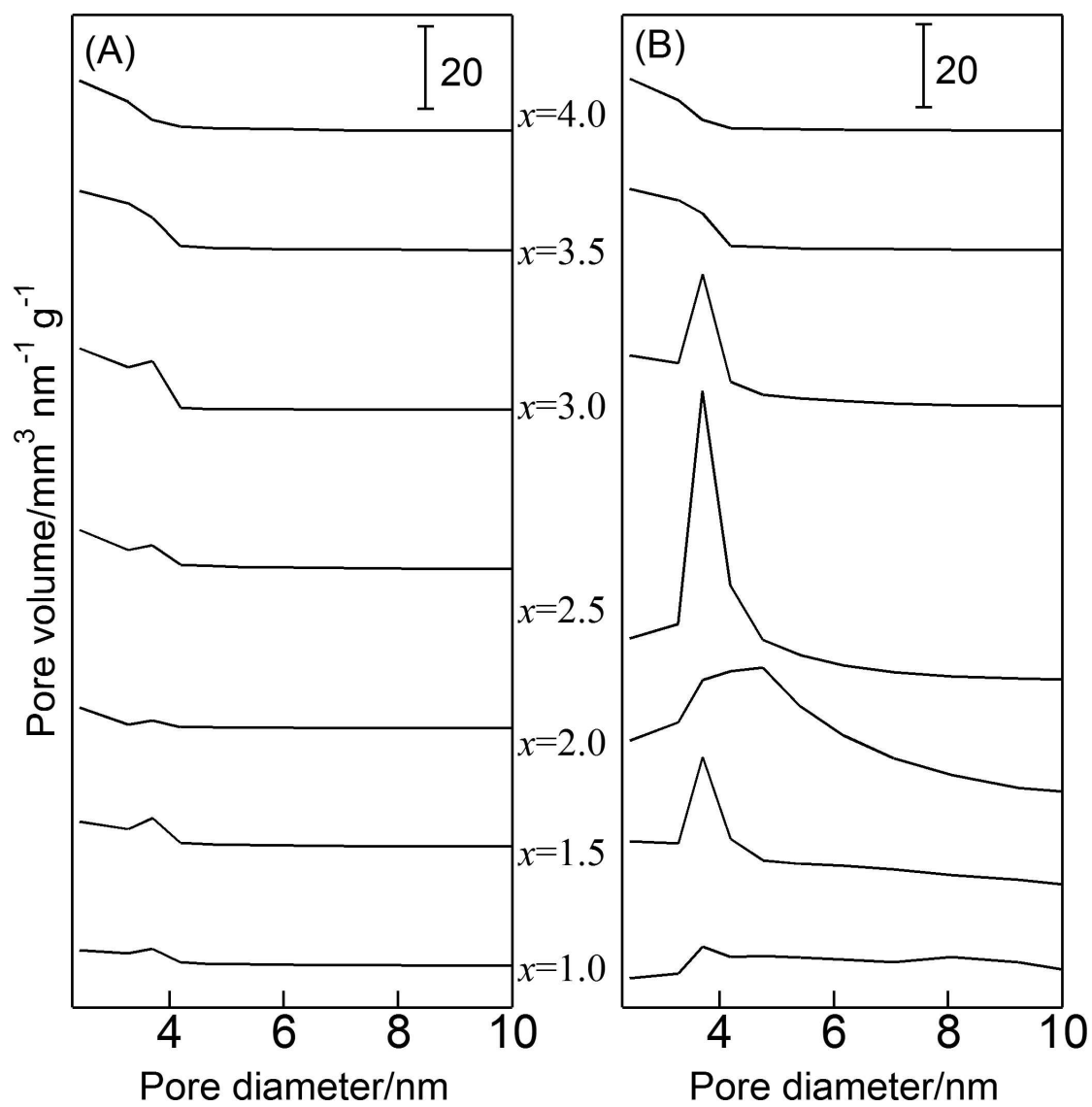


Figure S2 Mesopore size distributions for (A) **Csx-micro** and (B) **Csx-bimodal** estimated from N_2

adsorption isotherm at 77 K.

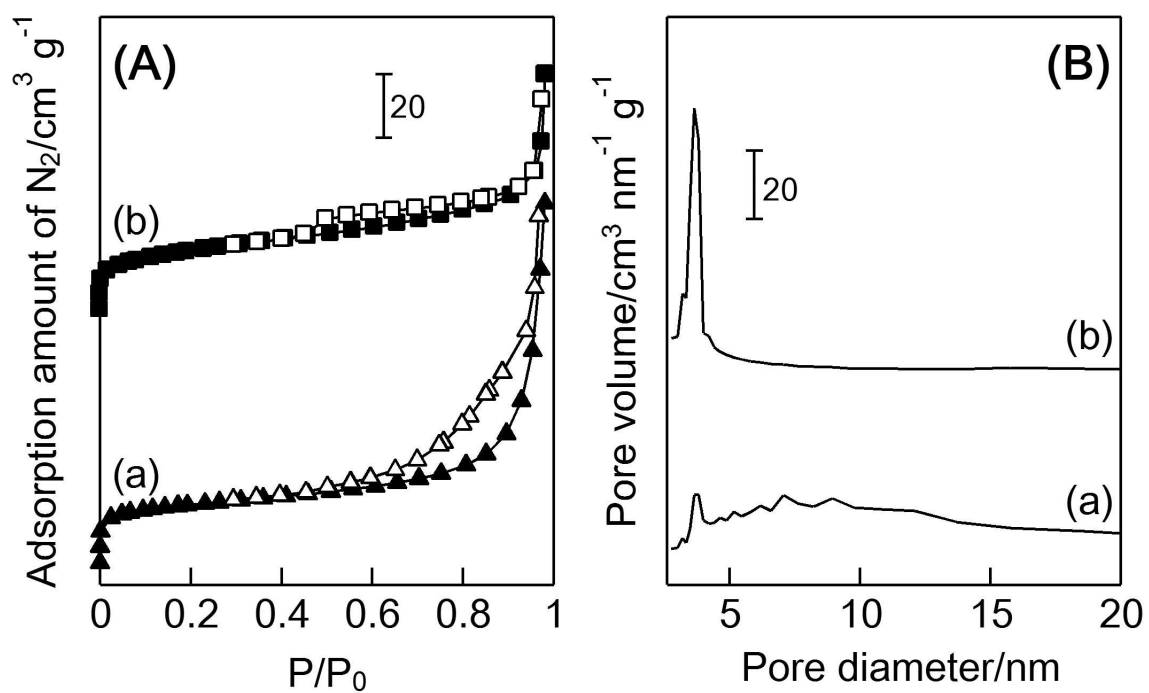


Figure S3 (A) N_2 adsorption-desorption isotherms and (B) mesopore size distributions for the materials

obtained after treatment of **Cs2.5-micro** in (a) water and (b) 1-propanol.

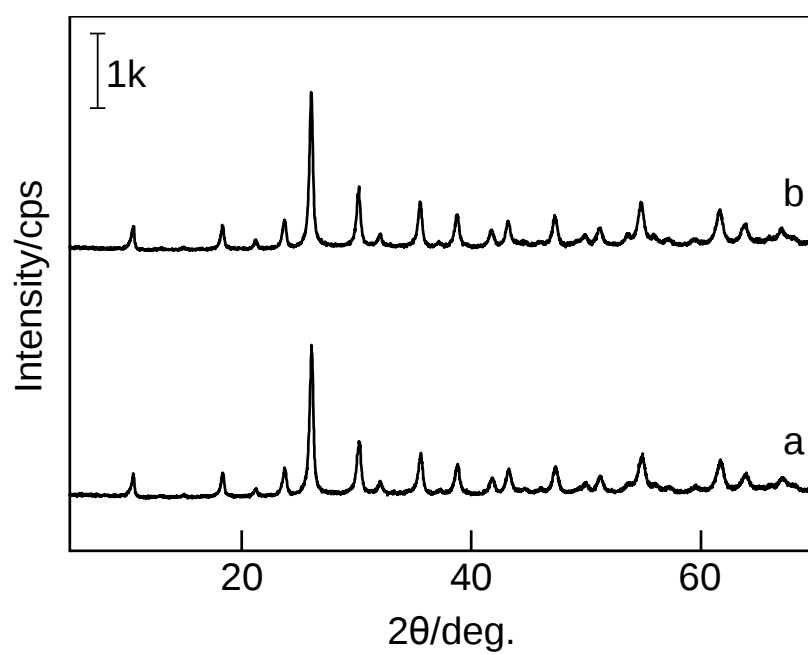


Figure S4 XRD patterns for (a) **Csx-bimodal** and (b) **Csx-bimodal(H_2SO_4)**.

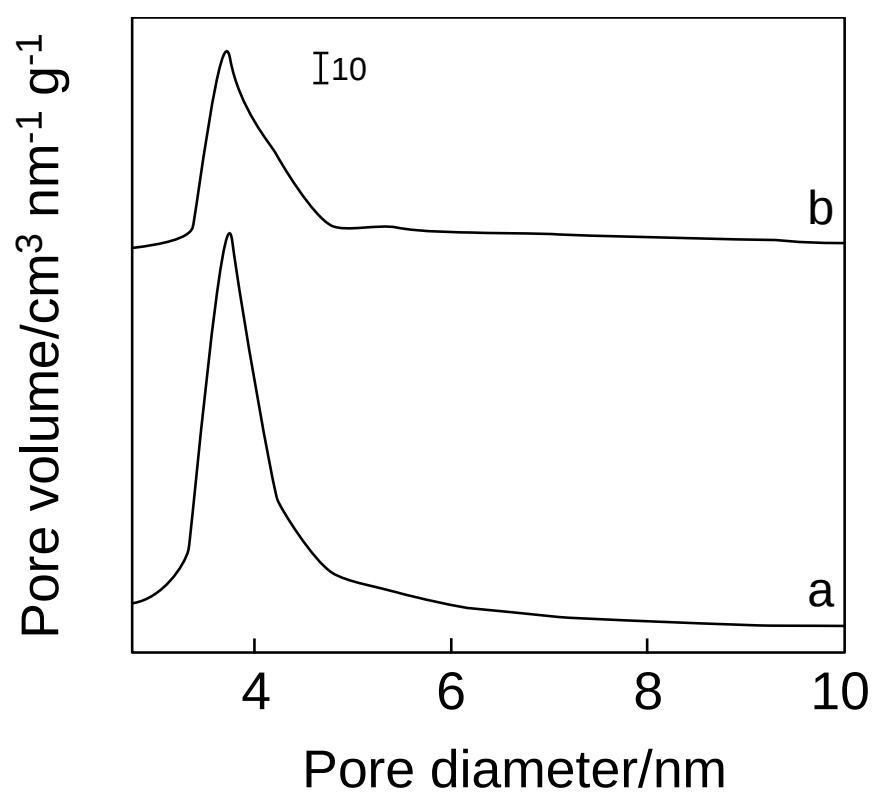


Figure S5 Mesopore size distributions for (a) **Csx-bimodal** and (b) **Csx-bimodal(H₂SO₄)**.