

## Facile Synthesis of Fibrous Zeolite Y with a Radial Wrinkle Structure

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### **Abstract**

In this study, typical zeolite Y was successfully transformed into dendritic morphology named as Fibrous Zeolite Y (FZY) by employing microwave-assisted microemulsion system. The physicochemical properties of the ZY and FZY were investigated by XRD, N<sub>2</sub> physisorption, FTIR and TEM. The BET analysis showed that the surface area of FZY is lower than ZY. with the value of 406 m<sup>2</sup> g<sup>-1</sup> and 736 m<sup>2</sup> g<sup>-1</sup>, respectively. However, the FZY possesses higher porosity than ZY due to the formation of radial wrinkle fibre observed from TEM analysis. This provide a huge amount of interparticle pore that facilitate the molecules absorption within the material under a minimal obstruction, thus improving the internal surface accessibility of FZY. The findings of this study predicted that FZY would find widespread use in catalysis, waste water treatment, energy storage, drug delivery, and other fields.

*Keywords:* Fibrous zeolite Y; Morphology modification; Interparticle porosity.