

Transition Metals-rich Mesoporous Silica and their enhanced Catalytic Property

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Synthesis producer:

The synthesis of Ni-rich mesoporous silica (Si/Ni = 5) was carried out as follows.

(1) Nickel (Ni) ammonia (NH₃) complex ions was prepared using 1.77 g of Ni(NO₃)₂•6H₂O and 2.4 g of NH₃ solution (28 wt%).

(2) 3.52 g of Surfactant C₁₆TMABr was dissolved in 400 g of water and 400 g of methanol, and then 4.62 g of TMOS was added at room temperature. After stirring for 30 min, the above transition metal ammonia complex ions was added, then aged 24 h under a static condition. The white solid product obtained was filtered, washed thoroughly with deionized water, dried overnight at room temperature, and calcined at 550 °C for 10 h.

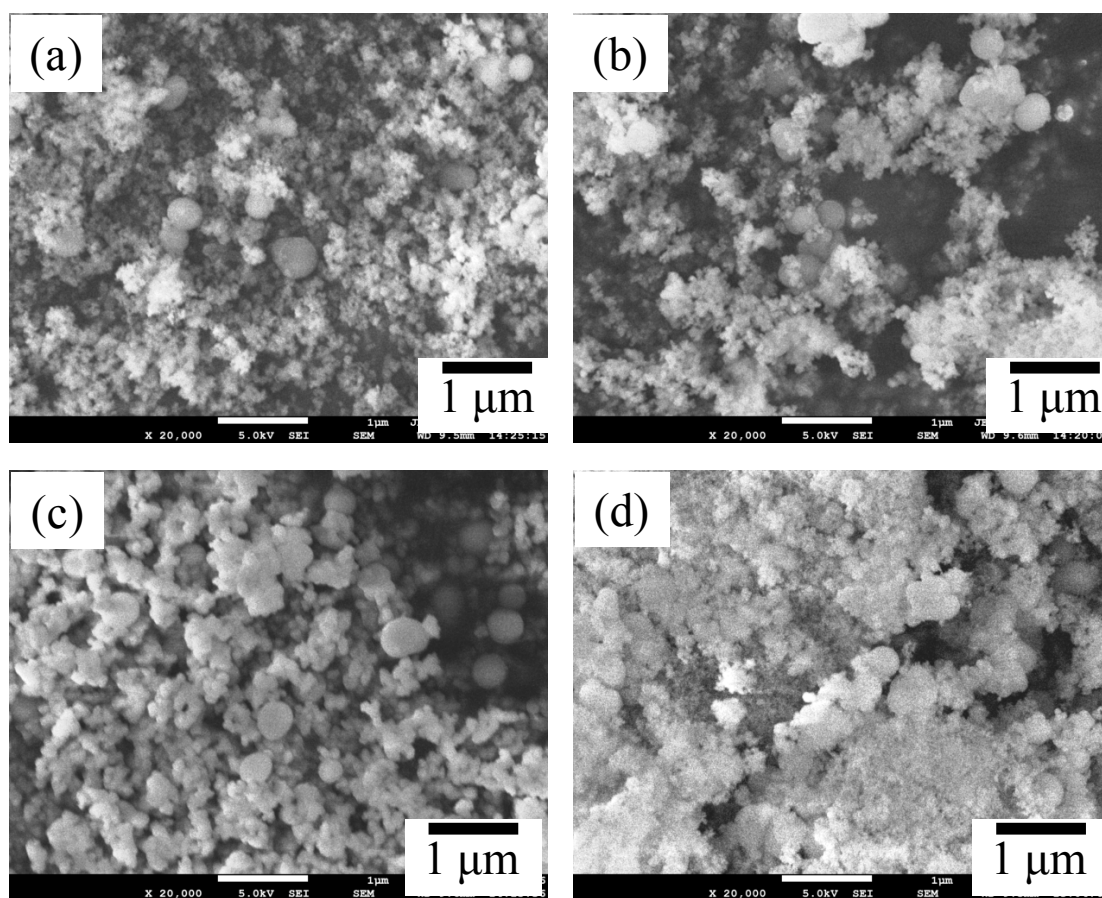


Figure 1S. SEM images of M-MCM-41 with Si/M mole ratio of 5. (a) Ni-MCM-41, (b) Cu-NCM-41, (c) Zn-MCM-41, (d) Co-MCM-41.

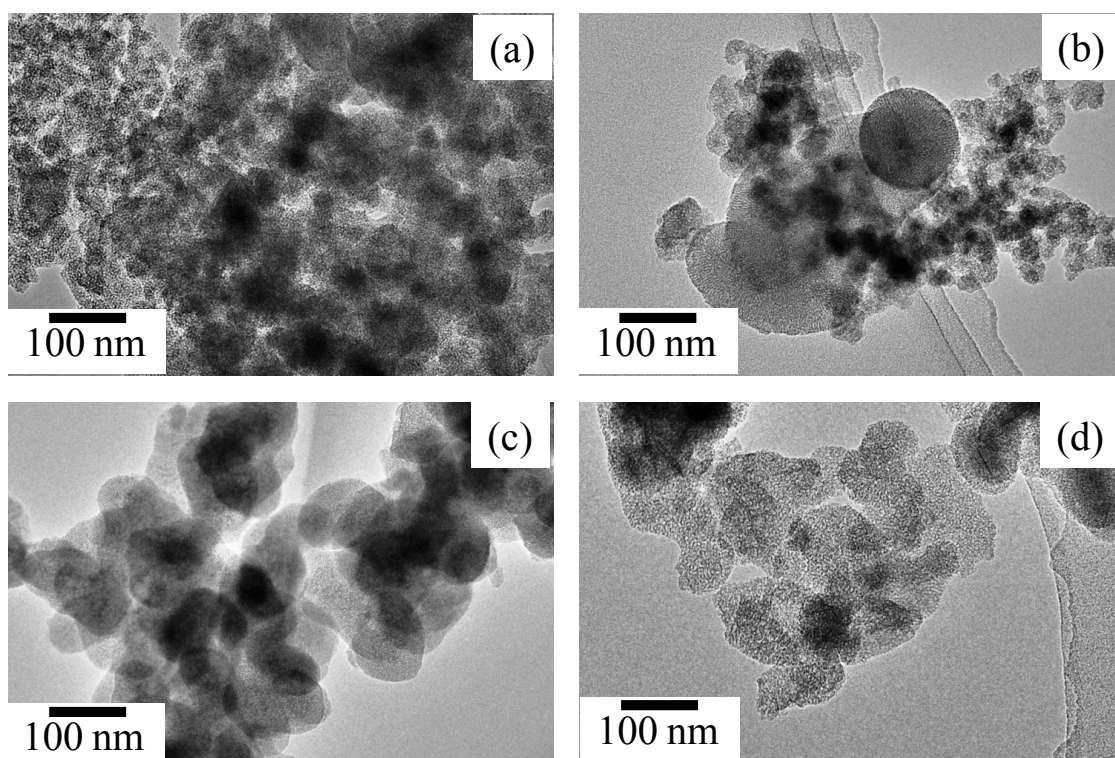


Figure 2S. TEM images of M-MCM-41 with Si/M mole ratio of 5. (a) Ni-MCM-41, (b) Cu-MCM-41, (c) Zn-MCM-41, (d) Co-MCM-41.