

Figure 1 XRD patterns for the three types of fresh and used silver-based catalysts. (a), Ag-SiO<sub>2</sub>-MgO; (b), Ag-SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>; (c), Ag-SiO<sub>2</sub>-MgO-Al<sub>2</sub>O<sub>3</sub>. c—alpha-cristobalite, s—crystalline silver.

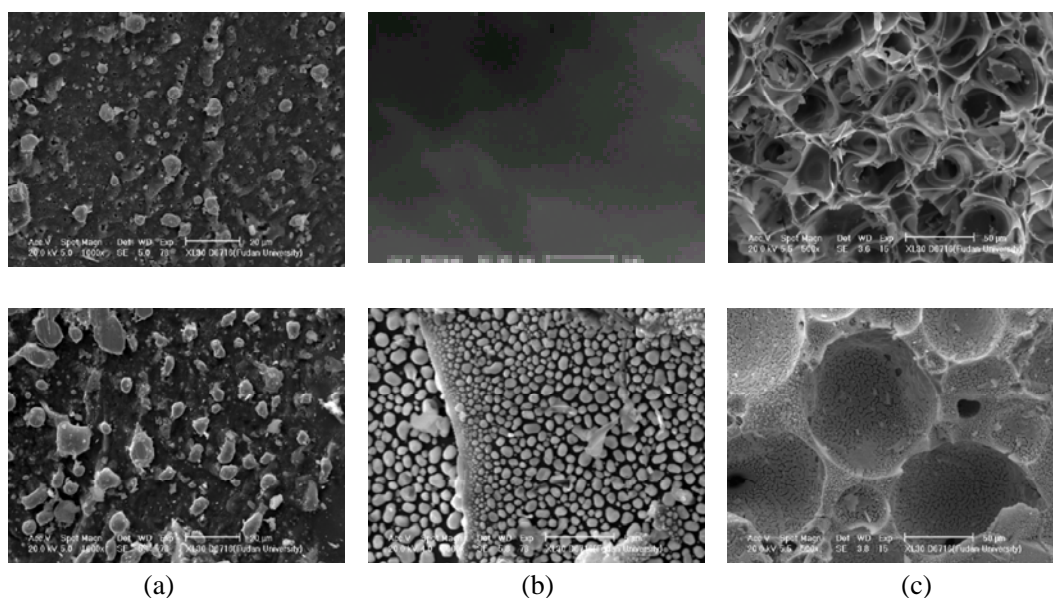


Figure 2 SEM morphology for the three types of fresh (upper) and used (nether) silver-based catalysts. (a), Ag-SiO<sub>2</sub>-MgO; (b), Ag-SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>; (c), Ag-SiO<sub>2</sub>-MgO-Al<sub>2</sub>O<sub>3</sub>.

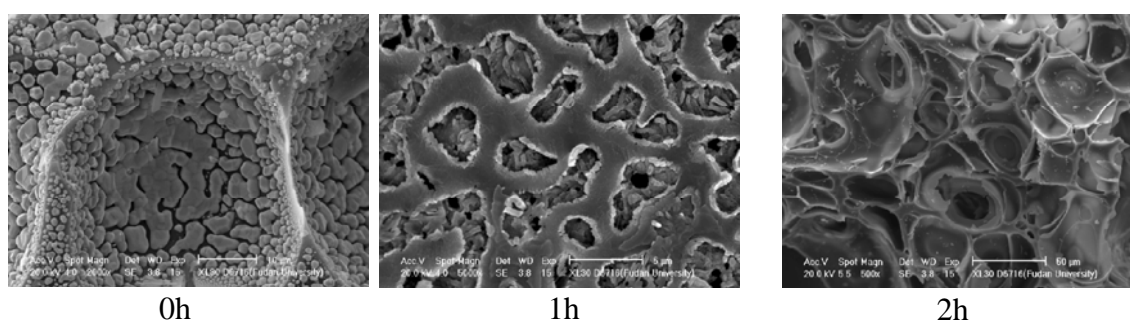


Figure 3 SEM morphology of regeneration process for the used Ag-SiO<sub>2</sub>-MgO-Al<sub>2</sub>O<sub>3</sub> catalyst by calcination in air for different times at 973K

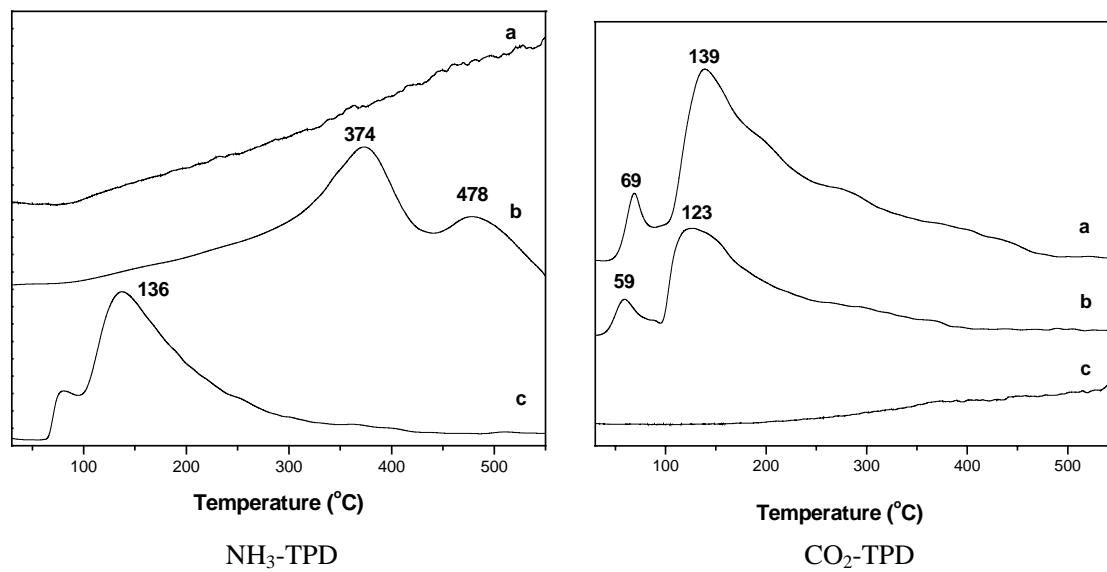


Figure 4 NH<sub>3</sub>-TPD and CO<sub>2</sub>-TPD profiles of three Ag-based catalysts. a: Ag-SiO<sub>2</sub>-MgO; b: Ag-SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>; c: Ag-SiO<sub>2</sub>-MgO-Al<sub>2</sub>O<sub>3</sub>