

NEW RESULTS OF THE THESIS

Thesis title: Synthesis and characterization of some new materials applied for deep sulfur compounds treatment in natural gas and petroleum gas.

Speciality: Physical Chemistry and theoretical chemistry

Code: 62.44.01.19

Supervisors: Pr. Dr. Vu Thi Thu Ha
Assoc. Pr. Dr. Nguyen Dinh Lam

Training Institution: Vietnam Institute of Industrial Chemistry

Summary of new thesis results:

1. Have systematically studied the synthesis of nanoflower and nanotubes ZnO. From this results, the synthesis of hierarchical morphology of nano/micro ZnO has been studied from micro ZnO. The results showed that the surface porosity of the ZnO was improved and that the sulfur sorption capacity increased to 28.8%.
2. Has been studied the modification of ZnO by Al_2O_3 , CuO and Fe_2O_3 . The results showed that the sulfur sorption capacity increased to 31% at 300°C (for material 11.51% CuO-9.79% Al_2O_3 -78.65% ZnO) and reached 17.36% in weight at normal temperature (for material 3.9% CuO-4% Fe_2O_3 -7% ZnOnano/ZnOmicro).
3. Have systematically studied the impregnation of active phases $\text{ZNO}/\gamma\text{-Al}_2\text{O}_3$ and $\text{CuO-Fe}_2\text{O}_3\text{-ZnO}/\gamma\text{-Al}_2\text{O}_3$ on monolithic honeycomb structure was. The results indicated that the impregnation method used aluminum suspension produced an active phase which coated well on the monolithic honeycomb wall. The obtained phase showed a good mechanical strength, good adhesion and high stability. The monolithic composite obtained enable to reduces the H_2S content in the treatment flow gas to the range 0.1 - 0.2 ppm.

PhD student

Nguyen Thi Ngoc Quynh