

H₂S sorption kinetics of PEI(polyethylenimine)-based silica sorbent

김정현, 임은지, 최성민, 김진곤, 이수출, 김재창[†]

경북대학교

(kjchang@knu.ac.kr[†])

The removal of H₂S is very important in various industrial gases such as natural gas, biogas, coal/biomass gasification, reformat gas and other because H₂S is not only the major toxic gas and malodorous gas, but also a corrosive gas towards pipelines and equipment. Therefore, efficient methods for their removal are urgently needed. H₂S gas has been removed by adsorption method in the dry-type systems. In this study, the PEI-based silica sorbent was prepared by a wet impregnation method. Their H₂S removal properties were tested in a typical fixed-bed reactor. The isothermal of PEI-based silica sorbent were investigated using different concentration and temperature. This isothermal showed a most acceptable fit to the experimental data and suitable isothermal for Langmuir. The PEI-based silica sorbent was discussed and characterized by TG, BET and SEM.