

Preparation and Characterization of APS-grafted Silica Gel Adsorbent by One-Pot Process

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The solid adsorbent has received the attentions as the solution of these problems from the liquid amine absorption, and there have been a lot of researches to develop the solid adsorbents. The various porous materials have been investigated as adsorbent materials such as mesoporous silica, activated carbon, polymer, zeolite, and metal organic framework (MOF).

In this research, porous silica gel was used as solid adsorbent and the 3-aminotrimethoxy silane (APS) was introduced on the surface of the silica gel by chemical grafting. The APS-grafted silica gel adsorbent was prepared by one-pot process. The one-pot process was the combination of silica gel preparation and APS-grafting process and didn't require the separation and washing in mid-process. The main objective of the work was the preparation of APS-grafted silica gel adsorbents and the optimization of the one-pot process.