

Investigation the Effect of Nano-Alumina Particles on Physical Adsorption Property of Acrylic Fiber

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Abstract : The flue gas from fossil fuels combustion contains harmful pollutants dangerous for human health and the environment. One of the air pollution control methods to restrict the emission of these pollutants is based on using the nanoparticle in the adsorption process. In the present research gamma, Nano-alumina particle is added to Polyacrylonitrile (PAN) polymer through simple loading method and the adsorption capacity of the wet spun fiber is investigated. The results of exposure the fiber to the acid gasses including SO₂, CO, NO₂, NO and CO₂ show the noticeable increase of gas adsorption capacity on fiber contains nanoparticle. The research has been conducted in Acrylic II Plant of Polyacryl Iran Corporation.

Keywords : acrylic fiber, adsorbent, wet spun, nano gamma alumina

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