

## CO<sub>2</sub> adsorption using polyethylenimine-impregnated PAN/MOF electrospun fibers

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Currently global warming is one of the major threats to human life and the environment and the main factor causing global warming is rise in the levels of atmospheric concentration of carbon dioxide (CO<sub>2</sub>). As one of the emerging new family of porous solid adsorbents, metal organic frameworks (MOFs) with significant properties such as large surface area, low density, high porosity as well as high thermal and chemical stability and these properties made it favorable for CO<sub>2</sub> adsorption. For the practical application, it is highly beneficial to develop solid adsorbents such as MOFs into membranes, films and fibers. Electrospinning is a versatile and most widely used technique to produce polymer nanofibers from polymer solutions using electrostatic force. Electrospun fibers have been successfully applied in various fields such as filtration, biomedical, adsorption, pharmaceutical etc. However, the solid adsorbent particles can be immobilized in and on fibers using electrospinning. In the present study, we reported the PAN/MOF electrospun fibers with different wt % loadings of MOF particles. Moreover, PEI was impregnated in PAN/MOF electrospun fibers to enhance CO<sub>2</sub> capture performance.