ABSTRACT

A composite membrane, a preparation method thereof, and use thereof, where the composite membrane includes a nanofiber membrane and a hydrophobic polymer resin layer, the nanofiber membrane includes a nanofiber layer, and the hydrophobic polymer resin layer is modified on at least one surface of the nanofiber layer; a ratio of an average volume pore diameter of the hydrophobic polymer resin layer to an average volume pore diameter of the nanofiber membrane is 1.3-1.75. By controlling the average volume pore diameter of the hydrophobic polymer resin layer to be greater than the average volume pore diameter of the nanofiber membrane and controlling the pore diameter ratio of the two within a specific range, the hydrophobic polymer resin layer can not only facilitate moisture discharge from the nanofiber membrane during a drying stage of the preparation process, but also effectively prevent the nanofiber membrane from absorbing moisture in air, thus ensuring low moisture content of the composite separator; in addition, controlling the pore diameter ratio of the two within the specific range also helps avoid pore blockage of the nanofiber membrane that would affect lithium ion conduction.

FIG. 1