

Fabrication of transparent electrospun nanofiber filter including inorganic nanoparticles for efficient removal of PM

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Recently, the seriousness of the particulate matter (PM) has been a world-wide problem. The smaller the size of PM, the more easily it penetrates human organs and causes various diseases. Most people spend times in indoor so it is important to manage indoor air quality. One of the efficient main methods to keep the indoor air quality clean is using window screen filters that can remove PM with high removal efficiency at low energy consumption.

In the previous reports, electrospun polar polymeric nanofibers onto window mesh have been studied to enhance PM removal efficiency with keeping the visible transparency. However, development of PM window filters with higher PM removal efficiency and higher transparency remains a challenge.

In this study, we report a high performance window filters fabricated by adding inorganic nanoparticles which exhibits strong polarity to polymeric nanofibers. We expect the proposed method can be applied to not only a window filter screen but also the other filter applications.