

PDMS coated mask filter using hydrophobic interaction for fine dust capture

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Asian dust is a seasonal meteorological phenomenon which causes health problems including asthma. Especially, fine dust, which is composed of particles with 2.5 μm diameter or smaller, easily penetrates into the bronchial epithelium and adsorbed by the human organs. It is difficult to remove the particles in the respiratory system and fine dust filter is essential for human health. Conventional fine dust filters used electrostatic force, but they lose their capture ability after water contact and need relatively high-cost fabrication process. In this work, new mask filter for fine dust capture was fabricated by coating polydimethylsiloxane(PDMS) which easily adsorbs hydrophobic particles due to its surface hydrophobicity. The fabricated mask filter was characterized using optical microscopy, FT-IR, and automated filter tester (TSI 8130).