



## Gasoline absorption performance of a polymer material

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### ABSTRACT

Oil spills leak dangerous chemicals into the environment, causing serious environmental pollution and damaging human health. Thus, environmentally friendly materials for remediation are urgently needed. In this study, a polymer absorbing material (PAM) with a high retention capacity (>90% at a centrifuge rate of 3,000 rpm) and high absorption capacity (7.5 g gasoline/g of PAM) was described. The pseudo-second-order absorption kinetic model was shown to accurately simulate the absorption data. The results showed that the PAM had a spherical structure and abundant functional groups. The PAM absorbed almost all of the tested liquid chemicals, including gasoline, crude oil, diesel, and kerosene. In contrast to traditional oil-absorbing materials, the high oil-retention capacity of this material prevented the volatilization of chemicals dangerous to human health and the environment. Consequently, the PAM was suitable for applications in oil-spill treatment, especially in the emergency handling of toxic and harmful substances.

*Keywords:* Polymer absorbing materials; Oil-retention capacity; Stable performance

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