

Accepted Manuscript

Magnetically Enhanced Superhydrophobic Functionalized Polystyrene Foam
for the High Efficient Cleaning of Oil Spillage

Liuhua Yu, Hanfei Yang, Yujiao Wang, Wei Jiang

PII: S0032-5910(17)30103-1
DOI: doi:[10.1016/j.powtec.2017.01.084](https://doi.org/10.1016/j.powtec.2017.01.084)
Reference: PTEC 12326

To appear in: *Powder Technology*

Received date: 8 November 2016
Revised date: 7 January 2017
Accepted date: 29 January 2017



Please cite this article as: Liuhua Yu, Hanfei Yang, Yujiao Wang, Wei Jiang, Magnetically Enhanced Superhydrophobic Functionalized Polystyrene Foam for the High Efficient Cleaning of Oil Spillage, *Powder Technology* (2017), doi:[10.1016/j.powtec.2017.01.084](https://doi.org/10.1016/j.powtec.2017.01.084)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Magnetically Enhanced Superhydrophobic Functionalized Polystyrene Foam for the High Efficient Cleaning of Oil Spillage

Liuhua Yu^{1,2}, Hanfei Yang^{1,2}, Yujiao Wang¹, Wei Jiang^{1*}

1 National Special Superfine Powder Engineering Research Center of China, Nanjing University of Science and Technology, Guanghua Road, Xuanwu Strict, Nanjing 210094, PR China.

2 These two authors contributed equally to this work

Abstract

Pollution of oils and organic solvents is a great harm to water environment, therefore, the design to develop high efficient material to absorb the sudden accidents of oil leakage is increasing instantly. A series of highly efficient absorption materials, which had been cross-linked into the three dimensional structure, such as foam and sponge were applied to extract oil from water. In this study, we for the first time, introduce Fe_3O_4 and polystyrene (PS) to produce the efficient absorption of functionalized magnetic polystyrene foam (FMPF). The superhydrophobic functionalized magnetic polystyrene foam (SFMPF) was synthesized *via* an environmentally friendly low surface energy modification, and the thicknesses effect on the oil absorption efficiency of the as-prepared foam was studied. Our SFMPF could separate numerous oils and organic solvents from their mixtures with water, and the maximum absorption capacity could reach up to 56.8 times of its own weight. The absorbed oils and organic solvents could be recycled by a simple mechanical

* Corresponding author. Tel.: +86-25-84315042; Fax.: +86-25-84315042
E-mail address: superfine_jw@126.com (W. Jiang)

Download English Version:

<https://daneshyari.com/en/article/4910649>

Download Persian Version:

<https://daneshyari.com/article/4910649>

[Daneshyari.com](https://daneshyari.com)