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Imparting Superhydrophobic and Biocidal Functionalities to a Polymeric Substrate by the Sonochemical Method

Asya Svirinovsky, Ilana Perelshtein, Michal Natan, Ehud Banin, Aharon Gedanken

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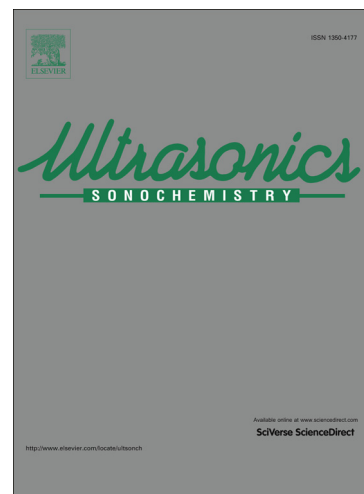
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1 **Imparting Superhydrophobic and Biocidal Functionalities to**
2 **a Polymeric Substrate by the Sonochemical Method**

3 **Asya Svirinovsky,^a Ilana Perelshtein,^a Michal Natan,^b Ehud Banin,^b Aharon**
4 **Gedanken^{a*}**

5 *^a Department of Chemistry and the Institute for Nanotechnology and Advanced materials*
6 *(BINA), Bar-Ilan University, Ramat Gan 5290002, Israel*

7 *^b The Mina and Everard Goodman Faculty of Life Sciences and the Institute for Nanotechnology*
8 *and Advanced Materials, Bar-Ilan University, Ramat Gan 5290002, Israel*

9
10 * Corresponding author at: Department of Chemistry, Institute for Nanotechnology and Advanced
11 Materials, Bar-Ilan University, Ramat Gan 5290002, Israel. Tel.: +972 35318315; Fax: +972 37384053.
12 E-mail address: gedanken@biu.ac.il (A. Gedanken)

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14 **ABSTRACT:**

15 Multifunctional substrates with superhydrophobic and biocidal properties are gaining interest for
16 a wide range of applications; however, the production of such surfaces remains challenging.
17 Here, the sonochemical method is utilized to impart superhydrophobicity and antimicrobial
18 properties to a polyethylene (PE) sheet. This is achieved by sonochemically depositing
19 nanoparticles (NPs) of a hydrophobic fluoro-polymer (FP) on the PE sheets. The polymer is a
20 flexible, transparent fluoroplastic composed of tetrafluoroethylene, hexafluoropropylene and
21 vinylidene fluoride in the form of a powder. The NPs of polymers are generated and deposited
22 on the surface of the PE using ultrasound irradiation. Optimizing the process results in a

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